

## **ABSTRACT**

HALM, MATTHEW TROUTMAN. *Planetary Composition: Writing and Rhetoric's Deep Materiality*. (Under the direction of Dr. David Rieder and Dr. Stephen Wiley).

The geological processes of the planet have produced everything on its surface, including writing and rhetoric. These processes are complex, ecological, and material—key concepts that have formed a basis for theorization in the study of writing and rhetoric. Building on those concepts, this dissertation argues that writing and rhetoric are planetary practices. Such a classification is itself a rhetorical move; there is no intrinsic novelty in pointing out that everything on Earth came from Earth. However, the planetary orientation that is necessitated by this classification offers significant developments for theories of writing and rhetoric. It is not so much the idea that writing and rhetoric are planetary that matters as much as the implications and context that come along with that idea. To think writing and rhetoric as planetary requires that attention be paid to the deep material antecedents of these practices, and to the interconnected nature of their various manifestations. Writing and rhetoric have always been planetary, but the ability to see them as such is not as readily available. This perspective expands current theorizations and instills a reminder of the important context that the planet provides for writing and rhetoric. The tactics for accomplishing that goal include an interdisciplinary range of concepts drawn from composition studies, rhetorical theory, new materialist media studies, and continental philosophy.

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Planetary Composition: Writing and Rhetoric's Deep Materiality

by  
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## **BIOGRAPHY**

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## **Introduction: Planetary Writing, Planetary Rhetoric**

There is no planetary becoming, Deleuze and Guattari would reply. There are only “becomings.” (Berardi 107)

When the first astronauts prepared for their missions, it became clear that writing technologies developed on Earth would need to adapt to the conditions of space. A ball-point pen, for example, relies on gravity and air pressure to draw ink out of the pen’s central reservoir and coat the ball at the tip, so in weightless conditions the pen won’t work. A popular story explains that, posed with this challenge, NASA spent millions of dollars developing a pen that would write in space while the Russians simply chose to use a pencil. The story is apocryphal—American astronauts used pencils, too (Curtin, par. 2). More importantly, even pencils pose problems in zero-g. Both ball-point pens and pencils function by leaving behind a trace of the material that composes their central reservoir as the implement is moved across a writing surface. But while ball-point pens use a liquid substance (ink), pencils use a solid one (graphite). In order for that solid material to transfer to the surface of a piece of paper it must be soft enough to come apart under pressure, and in doing so small fragments of graphite stick to the page and others fall off and simply rest there. In space they float around as debris in a cramped spaceship. Pencil tips also occasionally break off in the writing process (with both mechanical and wooden pencils), adding to the debris cloud. So both the Americans and Russians eventually opted for the so-called “space pen,” which uses pressurized nitrogen to force ink out of its internal reservoir. Even the ink is slightly different than in typical ball-point pens, a gel that remains solid until it comes into contact with the moving ball-point tip (Curtin, par. 8). Writing as we know it is designed for a very particular range of operating conditions specific to the planet—outside of that range it is unpredictable and may not function at all.

Even greater distances between writing and its planet of origin reveal the extent to which writing emerges from a specific context. Occasionally an opportunity presents itself to send writing across the Solar System or out into other parts of the galaxy. One such example is the pair of plaques placed on the identical *Pioneer 10* and *Pioneer 11* spacecraft, the first probes from Earth to leave the Solar System, on the remote chance that they might someday be encountered by alien life. To withstand erosion by interstellar particles, the plaques were made of gold-anodized aluminum and mounted facing inward (seen in Figure 1). For the plaques to fulfill their hypothetical function of providing information to potentially-existent sentient extraterrestrial life, the content of the “writing” needed to be presented in a way that could conceivably allow decoding without knowledge of humanity. As such, instead of using a human language the plaques rely on images, diagrams, and observable physical parameters of the galaxy as components of a presumably intelligible semiotic system. The plaques display a diagram of the change in energy state of a hydrogen atom, which supplies a unit of distance (the wavelength

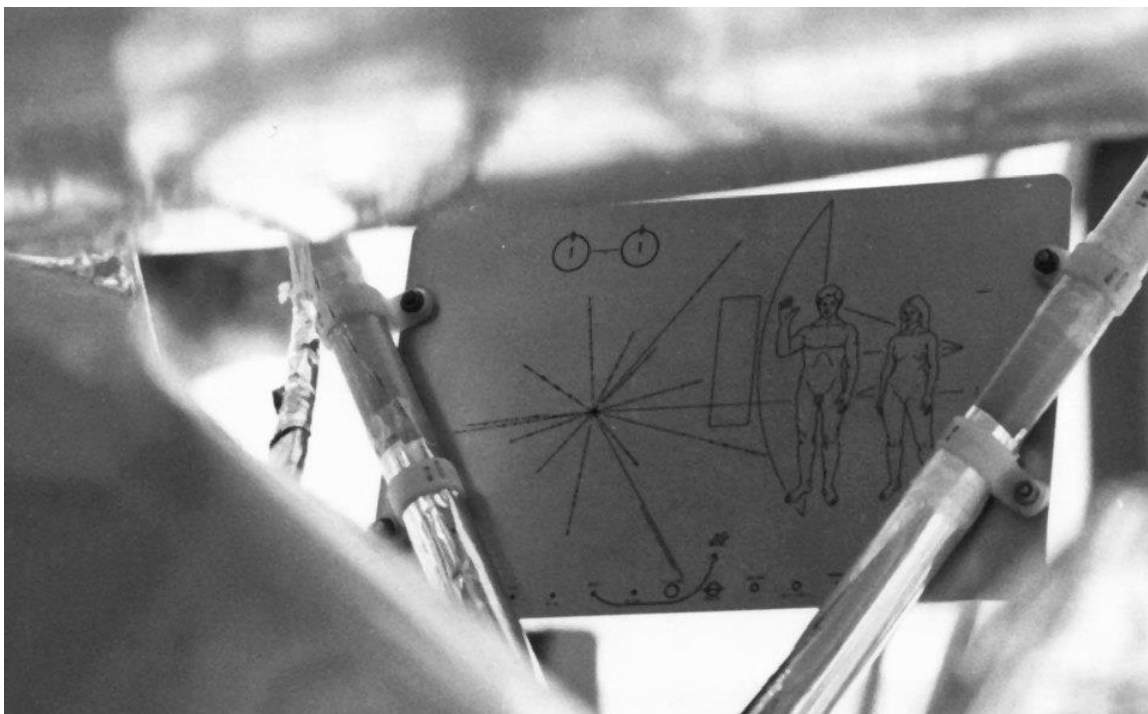


Figure 1: Plaque mounted on *Pioneer 10* (Image 72-H-191, NASA).

of light produced by the transition) and a unit of time (the frequency of the transition). These two units are used elsewhere on the plaques to indicate facts such as the location of Earth relative to several known pulsars and the average height of adult male and female humans (Rosenthal, pars. 4–6). The plaques use the numbers derived from the hydrogen atom as an organizing structure for the rest of the message. It is an attempt to create “writing” that does not rely on Earth. We will almost certainly never know if the plaques were successful, but the lengths taken to make the attempt and the distinct possibility of it failing despite those lengths are indicative of writing’s Earthly character. The strength of writing’s connection to Earth is revealed by the effort required to break it.

It can be just as great a challenge to send writing across great spans of time. The oldest known samples of writing on Earth, dated to the fourth millennium BCE, persisted in part because of their material qualities (carved into rock or pressed into clay) but also due to historical accidents and strokes of good luck—bureaucratic records inscribed on clay tablets, for example, were “intended to last at most for a few years” but were in some cases “accidentally preserved by fire” (A. Robinson 28). An attempt to leave a message for civilizations even further into the future would not be assured of such unlikely events happening again, or of the capacity or desire of those future civilizations to undertake the work of translation. This is the challenge being contemplated by those who would leave a warning marker at nuclear waste disposal sites. The Waste Isolation Pilot Plant in New Mexico is tasked with designing a semiotic system that will last 10,000 years. Determining which materials would last so long (while also being mundane enough so as not to attract theft or reverence) is only part of the problem. The message conveyed also needs to be as language-agnostic as possible. All languages are unstable and change over time, often rapidly—many words considered “standard” today were considered

slang only a few decades ago, for example. The potential solutions proposed for the site thus incorporate physical monuments and architecture ranging from “menacing earthworks” to “forbidding blocks” (Figure 2), all intended to wordlessly impel future civilizations to stay away (Trauth et al.). Written messages (and space for additional messages in languages yet to be developed) are planned to accompany these constructions, but writing alone is not enough of a guarantee.

These three examples reveal that writing is a planetary technology. Whether the specific instrument involved in making the marks required for writing, or the larger conception of how those marks will be taken up by other entities (Earthly or otherwise, present or future), the process of writing demands attention to the context of the planet. Writing is a complex technology, as well as a practice that brings together material components from across the planet’s surface. The graphite in a pencil, whether it is used in an orbiting capsule or an elementary school classroom, was mined or fabricated from material gathered in some part of the

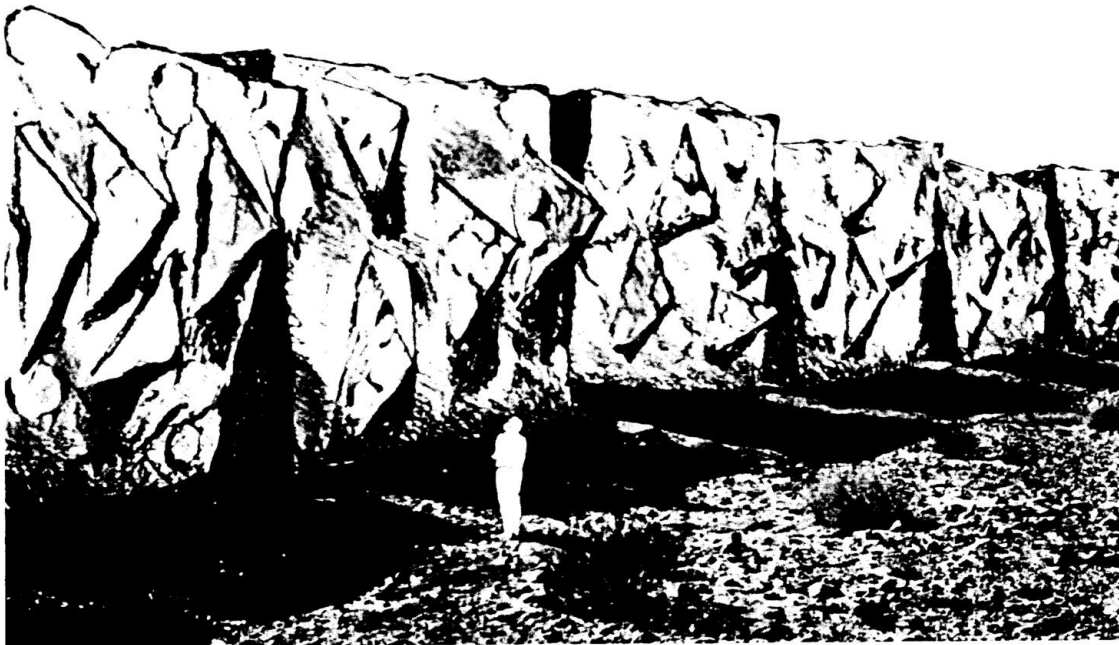


Figure 2: Concept art for “forbidding blocks” design (Trauth et al. F-75).

planet before being deployed in a writing task. The scope of even this mundane and practical sort of writing is vast. Digital writing technologies are just as fundamentally material (if not more so, since they rely on many more types of materials that must be refined more carefully), and they are integrated even more complexly throughout the planet's infrastructures and networks. Digital writing devices often require rare materials mined from deep underground, and the processes of connecting those devices to one another involves vast networks of cables and satellites stretching around the planet many times over. Ever since prehistoric humans marked cave walls with pigments gathered from their surroundings or scratched lines into the bones of animals they hunted, writing has been a planetary technology. But in the 21st century such an observation cannot be avoided—at every turn, writing emerges from, connects, and reshapes the planet.

The three preceding examples demonstrate that rhetoric is also planetary. The methods proposed to communicate with future human civilizations for the Waste Isolation Pilot Plant draw on the material environment surrounding the area to reshape it in a way that might encourage or discourage certain actions. This encouraging or discouraging marshals the resources of the planet, not to repeat or translate a discursive message (because writing is inadequate to the task), but to alter the actions of entities in the environment directly. The “forbidding blocks,” for example, are designed so that it is physically uncomfortable and more difficult to navigate the space—a “massive effort to deny use” (Trauth et al. F-59). The message inscribed on the *Pioneer* plaques similarly marshals resources of the planet (knowledge, materials, infrastructure, and so on), not only to convey a message but also a greeting. The informational content of the plaque is in some sense secondary to the gesture of “hello” which is supported with the plaque's myriad signs and symbols designed with the hope that the gesture might be received in a manner similar to that in which it was delivered. Even if it is unsuccessful

in this task, it is also persuasive for humans on Earth—an attempt to instill the belief that we are not alone in the universe, a whisper into the dark more for us than for an intended recipient who may never receive it (and even if one does, we will not be alive to know). Like the creation of the space pen, the story and ethos surrounding its creation takes on a power of its own. The very idea of a “space pen” reorients the perspective with which humanity and the task of writing are viewed: a “normal” pen becomes an “Earth pen,” a pen of a particular planet. It was always an Earth pen, but until a different frame of reference becomes available such a label is meaningless.

That different frame of reference is increasingly unavoidable as the planet itself is drawn into the forefront of public life, thus demanding that practices and technologies like writing and rhetoric be viewed in new ways. This dissertation argues that writing and rhetoric are planetary practices. As noted just above, such a classification is itself a rhetorical move; there is no intrinsic novelty in pointing out that everything on Earth came from Earth. However, the planetary orientation that is necessitated by this classification offers significant developments for theories of writing and rhetoric. It is not so much the idea that writing and rhetoric are planetary that matters as much as the implications and context that come along with that idea. To think writing and rhetoric as planetary requires that attention be paid to the deep material antecedents of these practices, and to the interconnected nature of their various manifestations. Writing and rhetoric have always been planetary, but the ability to see them as such is not as readily available. The tactics for accomplishing that goal form the basis for the chapters that follow.

Throughout this dissertation, the phrase “writing and rhetoric” (or “rhetoric and writing”) is intended to invoke a tension between the two, while at the same time pointing out features of a planetary theory that applies to both (sometimes in different ways). Writing and rhetoric are not interchangeable concepts, but they bear important affinities that motivates their conjunction. It is

also an oversimplification to depict rhetoric and writing as opposing one another, an opposition often framed in terms of their relationship to signification (that is, to suggest that rhetoric is a-signifying while writing is signifying), but it is precisely the tension between such an extreme view and a proliferation of details complicating it that warrants their study in concert with one another. The slips and faults where it becomes challenging to demarcate exactly where rhetoric ends and writing begins are points of intervention from which this dissertation develops its planetary perspective.

As an example of such a starting point, John Muckelbauer sketches a distinction between communication (here standing in for writing to the extent that it has the capability to be communicative) and rhetoric that shows the former to be signifying because it “envisions” communication as an act of transmitting meaning by reproducing content identically (17). By contrast, “An act of persuasion . . . is not primarily a signifying operation” (Muckelbauer 17). Persuasive rhetoric, Muckelbauer writes, “is not primarily concerned with understanding or *even with the effort to prevent misunderstanding*” (18). Instead, it “transforms” a proposition directly in the world, producing “an array of responses and effects” (Muckelbauer 18). The forbidding blocks do not discursively say “stay away,” they make it physically uncomfortable to remain in the area. Muckelbauer is careful to point out that “it is crucial not to imply a rigid, either/or separation between” communication and rhetoric (or between the signifying and the a-signifying) as he lays them out here (18). Just as rhetoric can still contain signifying elements, writing can also be a-signifying. The diagrams on the *Pioneer* plaques rely on an ability to directly manipulate concepts at the same time that they attempt to represent them. The points at which a separation between the a-signifying and the signifying breaks down are opportunities for

writing and rhetoric to be studied together as a more holistic alternative to the binary of representation and nonrepresentation.

While traditional understandings of representation demarcate between the outside world and that which represents it, this dissertation depicts a planetary orientation toward writing and rhetoric, taking a wider view where such a distinction between world and representation becomes unclear. It is a method of seeing writing and rhetoric. The overall trajectory builds on existing work to demonstrate how this planetary perspective emerges as a logical next step. The planetary is one way of understanding what has come before, a way that this dissertation suggests is particularly useful and relevant for theorizing writing and rhetoric today.

Much like the conjunction of writing and rhetoric, where the word “and” reflects a tenuous but important link, this dissertation also brings together an interdisciplinary array of theories and frameworks in an effort to demonstrate the deep influence that a planetary perspective has on these domains. In a sense, interdisciplinarity *is* planetary because it reflects a diverse and widespread account of how knowledge is produced. Such work is perhaps better labeled as *transdisciplinary*, which Gary Genosko, writing about the work of Félix Guattari, explains does not presume that any given subject exists prior to “the assemblage that gives it consistency” (85). In other words, disciplines do not pre-exist the activities that cause them to be recognizable as disciplines. In this transdisciplinary spirit, this dissertation incorporates work in the fields of rhetoric and composition, communication, and media studies, as well as occasional reference to more diverse disciplines like geology or genetics. The function of this transdisciplinary approach is to enact the wide context suggested by the scope of a planetary perspective on writing and rhetoric. The discipline within which any project works emerges as a consequence of that work.

## Chapter Outlines

The chapters that follow develop a planetary approach to writing and rhetoric that moves through the following stages. Chapter one, “Locating Planetary Composition,” begins with an examination of theories of writing and rhetoric that provide both a backdrop and important components for the theorization undertaken in the rest of the dissertation. The exigence for much of the recent work to theorize writing and rhetoric in the field(s) of rhetoric and composition is the emergence of digital technologies (namely the Internet, but also including related precursors and adjacent developments) that produce forms of writing and rhetoric that are unfamiliar or challenging to reconcile with previous understandings. Theory in general is an attempt to understand, and understanding writing and rhetoric as they continually change requires theories that can adapt accordingly. Some of this adaptation inevitably involves new theories, but this chapter argues that an additional “planetary” perspective can help those theories understand change itself in a way that shows how new developments in writing and rhetoric emerge from conditions in the world and from their vibrant histories. In particular, the interrelated domains of *complexity*, *ecology*, and *materiality* provide loci for a planetary perspective on writing and rhetoric. These are less categories than keywords—ways of organizing various attempts to account for the features observed in writing and rhetoric. The chapter presents an overview of these attempts, organized around these three keywords, and concludes by articulating a fourth—the *planetary*—as emerging from their confluence.

Chapter one begins with the observations of Raúl Sánchez, focusing on writing, and Thomas Rickert, focusing on rhetoric, who each point to representation as an important “hurdle” to negotiate so that theories of writing and rhetoric can be developed that are appropriate to the emerging circumstances associated with digital technologies. This does not mean that

representation is wholly invalid as a concept, but that it must be contextualized and oriented in a way that accounts for what writing and rhetoric are observed to be as a result of emerging digital technologies. Complexity, ecology, and materiality respond to perceived changes as a result of emerging digital technologies by moving beyond simplistic understandings of representation. In the study of writing and rhetoric, complexity, ecology, and materiality provide important adjustments to understandings of those subjects—particularly with respect to the concept of representation—and this chapter argues that these trends, taken together, suggest a further trend toward understanding writing and rhetoric as effects of the planet. The planet itself is a useful perspective from which to observe and theorize writing and rhetoric because it epitomizes the trends toward complexity, ecology, and materiality described above: complexity increases the scope of the object of inquiry in question to potentially include the entire planet, ecology emphasizes the interconnectedness of all things, and materiality attends to the raw matter of the world as important context. This chapter provides the backdrop and opening for this planetary approach, which is expanded upon in more detail in subsequent chapters.

Chapter two, “Deep Time, Deep Space, and Contiguous Change in Writing and Rhetoric,” develops the planetary perspective for which chapter one provides a foundation by focusing on a “deep” material approach to time, space, and change. Complexity, ecology, and materiality each point toward a fundamental underlying structure of change that continually produces new features of writing and rhetoric. Complexity implies continual change because of the emergence of novelty, ecology emphasizes the always-changing diversity required for existence, and materiality highlights the importance of context in demonstrating that everything is never the same as it was before. The planet is a useful scale for thinking about change in writing and rhetoric because of its deep materiality and complex ecologies—a deep

understanding of change builds on the work outlined above and intermingles the conceptual and the material in the geological substrate of the planet. In his book *The Future of Invention*, John Muckelbauer argues that the “ground” for increasingly nuanced and complex understandings of rhetoric “has never been anything other than change itself” (10). What we perceive as stability is actually “a particular kind of repetition” (Muckelbauer 10). Such a repetition is a resonance created by two or more entities moving (changing) in similar but ultimately divergent ways. They may come together for a time, but they are on their own trajectories. For Muckelbauer this means that the ontological ground upon which to conceive of rhetoric must be rethought. This chapter offers a geological mindset for the purpose of moving toward accomplishing that goal.

The notion of “deep time,” borrowed from geological sciences, combines the spatial and the temporal. For geologists, “depth means time: under the layers of granite, you find further strata of slate signaling the existence of deep temporalities” (Parikka 37–38). The planet itself is the material ground for change; time is measured in the depth of the Earth as material piles up and creates a record of what has come before. From a “deep time” perspective, changes that appear rapid and radical to humans (e.g. earthquakes, weather) become minute vibrations, and things that appear stable (e.g. rocks, mountains, tectonic plates) are revealed to be in flux. The planet produces media like it produces rivers and volcanic eruptions, by churning and rearranging material over time scales inaccessible to humans. The planet and everything on it are caught up in ongoing change, produced by and producing of the entities we perceive.

Chapter three, “Composing as Infrastructuring-in-Flux,” begins with the destabilization of an understanding of writing and rhetoric in continual flux described in chapter two and offers a “reconstruction” of that destabilization by reorienting the term *composition* to describe an ongoing planetary process of arranging, bringing together, and “infrastructuring.” This

composition is both a ground upon/within which practices like writing and rhetoric are enacted and simultaneously an ever-shifting flux. Composition describes a process of continual co-production that results in a product of some sort, but the product is not exhaustive of the composition, and the process continues beyond the scope of any product. Any single composition that might be observed is itself engaged in a process of composing. There is no distinction between “composer” and “composition” given the appropriate perspective from which to observe their processes. It is always more than any of these things, exceeding definitions and boundaries.

Planetary composition combines current theoretical developments related to complexity, ecology, and materiality (discussed in chapter one) with a “deep time” approach to the planet (discussed in chapter two) to articulate the ways the planet manifests itself as writing and rhetoric. To define composition in this way, chapter three draws on Bernard Stiegler’s discussion of exteriorization and interiorization as processes that depict the interactions between entities and their environments as each responds and adapts to the other, as well as Félix Guattari’s concept of *chaosmosis* as a continual creation and emergence of difference. As writing and rhetoric continue to change at rapid paces, the insights of a deepened attention to the material antecedents to these practices can be brought to bear as important context. The relationship between interiority and exteriority is explained by Stiegler as an ongoing cycle in the world in which components of the interior and the exterior (from any particular vantage point) are integrated into the other. Stiegler describes a fundamental composition ongoing in the world (or of the world), composition both as a process of simultaneous exteriorization/interiorization (not a binary between two terms but both terms composed as one) as well as its results, subjectivity and technology among them. This composition drives the processes of the planet. Subjectivity is one

such process, writing is another, and they cannot be separated from other planetary processes. What we perceive as terms in binary opposition are actually engaged in a process of reciprocal composition. Each term creates the other, and the process of composition driving this production precedes such binaries.

If the planet can be said to produce writing and rhetoric, it also produces the means by which entities on the planet (like humans, but also plants or nonhuman animals or even nonliving objects) “learn” about each other and about writing and rhetoric. Chapter four, “Transfer and Transduction,” addresses a primary implication of a planetary orientation toward writing and rhetoric by focusing on the concept of transfer from both theoretical and pedagogical perspectives to describe the movement of concepts among entities in a composition. Transfer is both a way to conceive of the processes of interiorization and exteriorization described above and of the pedagogical goal of students’ ability to apply what they learn in new contexts. In the case of writing instruction, transfer refers to “the phenomenon in which new and unfamiliar writing tasks are approached through the application, remixing, or integration of previous knowledge, skills, strategies, and dispositions” (Moore and Anson 8). Transfer poses difficult and important questions for writing instruction, and also provides a locus for theories of education and knowledge more broadly. How do we learn? While it is customary to accept arguments similar to Paulo Freire’s that education is not a matter of “depositing” knowledge directly into the minds of students (72), discussions of teaching and learning are still framed in terms of “outcomes” and “skills” that are expected to be quantified and obtained in relatively direct ways. In many contexts this sort of transfer does happen in practical terms—students do learn things, and studies have reinforced the notion that transfer does occur (Moore and Anson 7ff)—but the actual processes involved are complex. It is often quite challenging to account for

why it has occurred, let alone how to create or foster such occurrences consistently. Elizabeth Wardle, among others, has even argued that the term “transfer” is counterproductive and should be left behind because it reifies a naïve understanding of how students learn (par. 6). This chapter suggests that the concept of transduction is a productive complication of transfer that allows for increased awareness of its inherent complexity.

Transduction is a term used across a number of contexts and disciplines, including genetics, physical computing, and semiotics. It emphasizes that during any interaction between entities there is a residual material transfer of “content” or “information” of some sort, material that has necessarily changed form in some way and therefore produces its own new formulations and compositions. Critically, because it necessitates a change in form, transduction is unpredictable. Applying this unpredictability to the context of writing transfer does not deny that transfer happens but demonstrates that it cannot always be planned for. Instead, a transductive approach seeks ways to integrate the unexpected into the ongoing composition of the classroom or the writing situation. Chapter four concludes by exploring a planetary notion of subjectivity influenced by the discussion of transfer and transduction as means by which individuals create and reveal components of themselves.

Understanding subjectivity as planetary means making judgments about which parts of the composition should persist (and be incorporated into an entity’s identity) and which should not. But if the planet produces everything on it, then from a planetary perspective it is difficult (or impossible) to describe certain manifestations as “good” or “bad.” Chapter five, “Writing After Earth,” concludes the dissertation with a consideration of the ethical dimensions of composition on a global scale. Given the dramatically interconnected and distributed nature of composition, writing, and rhetoric, what roles and responsibilities do individuals have on behalf

of the worlds within which they live? There are ethical considerations at the heart of composition itself: a process of composing produces relations between entities, some of which may or may not be beneficial to some of those entities. There are ethical dilemmas associated with taking certain theoretical positions like the planetary perspective advocated here: there is privilege inherent in being able to focus on concerns so seemingly distant from the everyday struggles of many inhabitants of the planet. And the choice to focus on writing or rhetoric at all is an ethical one: who benefits from continued attention to these topics, and who might benefit from diverting that attention? The role to be played by a document created on the surface of the planet is inextricably wrapped up in the morality and politics of everything nearby. As it contributes to the composition as a whole, it enacts choices and creates effects that influence its neighbors. Attention to ethics is inescapable.

The theories of writing and rhetoric explored and developed in the earlier chapters are inherently ethical in nature because they depict the complex material ecology within which writing and rhetoric operate—an ecology in which everything is contingent and interconnected. Chapter five offers ways of thinking about the future of composition based on those theories. Building on chapter four's conclusions about planetary subjectivity, this chapter focuses not just on how the planet composes identity but on how it composes conceptions of reality and ethics. If humans become who they are by interiorizing parts of their environment, then this also contributes to what we think of as “good” or “bad.” Exploring the world (including its past and future, or other worlds entirely) with technologies like writing and rhetoric composes this sense of ethics, and so it, too, is planetary.

## Outward

The planet is a spinning top. In the time between when it began spinning and when it will stop spinning is the entirety of human history, as well as the even more immense history of the nonhuman entities that have inhabited and will inhabit the Earth. As the top spins, formations emerge on its surface, appearing and vanishing in rapid succession. As the planet spins, its matter churns. Everything we have ever known on the surface of the planet emerged from that churning—mountains and oceans, rivers and earthquakes, wind and rain, and us, humans. No less a feature of the planet are our technological creations, like skyscrapers and hydroelectric dams, emerging from the strata of the planet to reshape its surface. As the planet spins, its constituent parts (organisms, matter, and so on) reshape the composition of the planet. They (and we) are all geological (and, beyond, astronomical) forces.

A planetary theory does not leave Earth behind for more cosmic vantage points. On the contrary, attention to the planet is a deeply embedded attunement to the here and now. The composition of the planet has led to this moment, and the eons-long processes involved in that composition remain present in the particular manifestation of “today.” There is, as Franco Berardi imagines philosophers Gilles Deleuze and Félix Guattari admonishing in this introduction’s epigraph, “no planetary becoming” (107), in the sense that a single process produces a single homogenous whole. The planet does not come into being fully formed, nor is it simply the sum of its parts. But multitudes of processes produce multitudes, and as some of those multitudes escape typical human scales of perception, they appear “planetary” in their enormity. They are also located, inextricably, on a planet, spinning through the cosmos. Writing and rhetoric are at once the specific actions of specific individuals and massive shifting tides of the planet’s energies. Attention to the planetary proceeds both by attempting to conceive of the

planet and its history in its entirety and by deeply examining the minute details of a particular thing in a particular moment. As it moves outward it moves inward.

## Chapter 1: Locating Planetary Composition

An entire material-cultural infrastructure supports writing; it includes furniture and lighting, forestry, paper milling, education, and optometry. (Peters 284)

Earth [is] the forgotten basis of all our awareness. (Abram 44)

Thinking is neither a line drawn between subject and object nor a revolving of one around the other. Rather, thinking takes place in the relationship of territory and the earth. (Deleuze and Guattari, *What* 85)

Novelist Margaret Atwood has replaced her traditional book signing routine with one supported by a device she helped invent called the LongPen. Rather than physically travelling to each book signing, one of a pair of devices makes the trip while Atwood remains at home with the other device and “signs” books remotely (Burkeman, par. 6). Each device consists of an apparatus designed to either record or reproduce the movements of a pen. Manipulations of a pen on Atwood’s end of the connection reproduce those movements on the other end, thereby replicating her signature and any other personalized message in the book of a waiting fan. Audio and video equipment augments the LongPen to allow for a remote version of the interaction between author and reader. As a form of writing, the LongPen places a number of intermediary steps between the writer and the writing surface; the same gestures used to write on a piece of paper in front of the writer can be used to write on a piece of paper thousands of miles away, perhaps on the other side of the planet.

The LongPen also indicates a significance placed on the embodied context of writing. Even as it removes the body of the writer from physical proximity to the writing surface, it carefully reproduces the movements of the writing body at the remote surface, thereby attaching a certain importance to the movements as having been authentically produced (and reproduced). The signing of a legal document via the LongPen, for example, is one of the primary commercial

applications of the technology, advertised on the device’s website as providing “a unique, biometrically accurate one-time use signature” (shown in Figure 3). It is not the representational content of writing that the LongPen is designed to capture, as this could more easily be digitally transmitted by more conventional media like email or text messages. Instead, it is the nonrepresentational components of the handwritten message or signature that are of primary importance: the particular form of the lines, their shape and spacing. The signature, as linguist Roy Harris puts it, “is the visible confirmation of its status as a creative act by a certain individual” (162); signatures testify to their having-been-written by a particular person, and the LongPen is an attempt to preserve and transmit that testimony across distance. In attempting to preserve a specific kind of analog writing, it engages that writing with a wide array of digital technologies and practices. The result is neither simply analog nor simply digital, it is a hybrid of writing that functions in potentially new and varied ways.

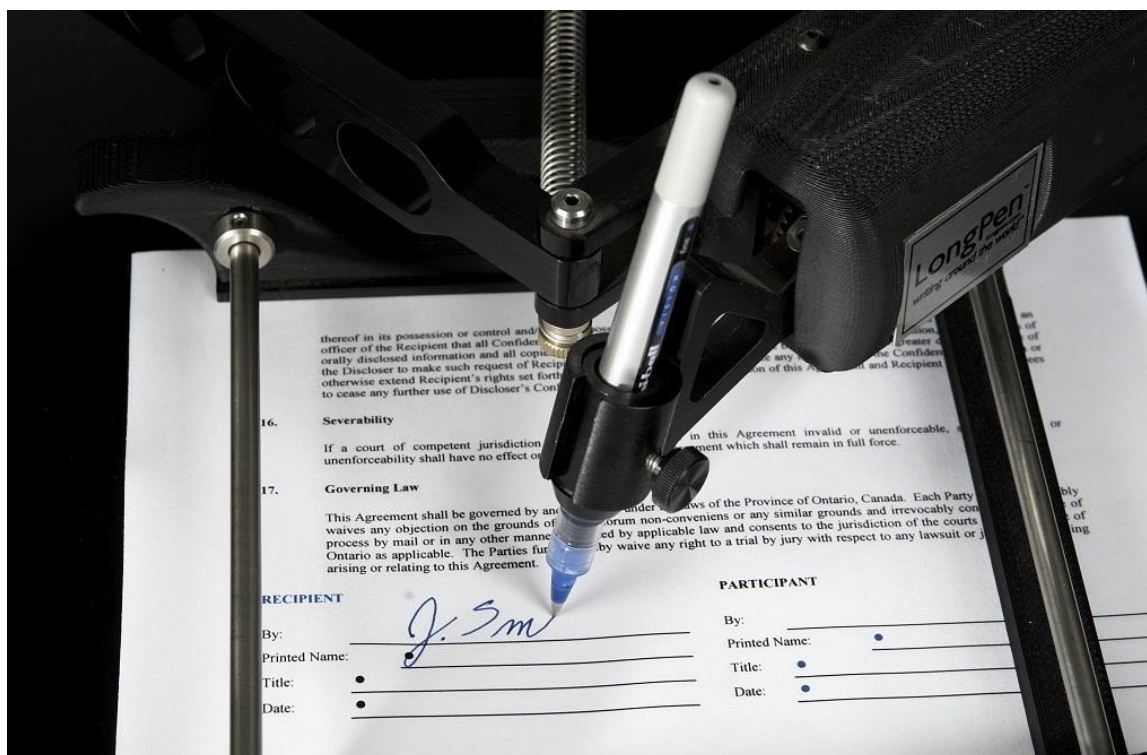


Figure 3: The LongPen.

Theories of writing and rhetoric attempt to describe their subjects in ways that can appropriately account for the things they are observed to be able to do. Such work typically attempts to keep up with changes in how writing and rhetoric function. These changes might include technological developments or shifts in how certain technologies or practices are employed in daily life. The development of the LongPen is somewhat esoteric relative to the typical concerns of more generally-applicable theories of writing and rhetoric, but it brings together a number of interrelated trends that do have larger implications. Setting aside the machinery involved to duplicate the gestures of writing, the LongPen is essentially a specialized application of Internet connectivity. It augments a more traditional analog writing scene with the near-instantaneous transfer of data that has come to be a common feature of networked culture. The LongPen is a digital and networked augmentation of the signature, and it remediates the activity of signing by surrounding it with additional layers of material and activities that enmesh it in a planetary network. The LongPen imagines writing detached from physical proximity, but to do so it must embed itself in the physical in other (arguably more involved) ways.

Renewed attention to theories of writing and rhetoric has recently been motivated by the emergence of networked digital technologies that allow writing and rhetoric to circulate and change at increasingly rapid paces. As might be imagined, these new forms of writing and rhetoric have revealed inadequacies of older theories, prompting their revision and the production of new theories. Raúl Sánchez, for example, argues that traditional theories of writing are incapable of “recognizing, much less describing, the implications for writing” of an environment that is “increasingly networked” and marked by writing’s “sheer proliferation and its constant, rapid circulation” (*Function 3*). Thomas Rickert similarly describes “new and often digital technologies” as “increasingly enmeshed with our everyday environment . . . not only

converging but also permeating the carpentry of the world, doing so in networks and technological infrastructures” (1). These new arrangements demand new ways of understanding “our surroundings and the dispositions through which our rhetorical work emerges” (Rickert 1). As a result of the new technologies referenced by Sánchez and Rickert, writing and rhetoric are revealed to be different than we once thought they were (both because of new developments and because of new perspectives on old ones), therefore requiring new theories to help us understand them.<sup>1</sup>

A primary reason for the inadequacy of existing theories, according to Sánchez and Rickert, is a persistent reliance on describing writing and rhetoric as representational practices, as mere containers for more important messages that somehow transcend whatever medium they are “carried” by. If writing is simply a technology of representation, then its changing material conditions should have little influence on how it works—yet we observe this to not be the case. Digital methods of writing are quite different from previous methods of writing, and these digital technologies enable forms of writing that sometimes bear little resemblance to past forms. Sánchez’s book *The Function of Theory in Composition Studies* is largely a reaction against the “assumption that writing’s most salient feature is its ability to represent *something else*, something that is not itself related fundamentally to writing or language” (*Function* 4). The problem with assuming that concepts like knowledge, ideology, or culture are “fundamentally distinct from writing” is that “we inadvertently take up familiar Platonic and Cartesian perspectives rather than generating perspectives that would be more appropriate to the conditions

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<sup>1</sup> As will be interrogated in later chapters, the “newness” of this arrangement is itself a point of contention for theories of writing and rhetoric. Establishing a distinction like this between the old and the new is something the theories discussed in this and later chapters ultimately seek to subvert. However, the perception of “newness” remains an important exigence for that critique, and in this chapter the complexities of whether the capacities of writing and rhetoric revealed by emerging digital technologies are actually new will be temporarily set aside.

of Western civilization in the twenty-first century,” perspectives that would more adequately “account for the force and function of writing” observed as a result of the changes mentioned above (*Function 5*). In a related vein, part of Rickert’s goal in *Ambient Rhetoric* is to move beyond an “extraction” model of rhetoric in which “a rhetorician extracts, via the available means, what is persuasive from life and world to motivate or transform an audience” (160), placing parts of the world in the “container” of rhetoric and using them to persuade. Because this understanding requires that humans be the ones to do the work of extraction, it “fosters the belief that rhetoricity . . . [is] exclusively human doing” (Rickert 160), a presumption called into question by, among other things, networked and proliferating digital technologies that rely on vast arrangements of nonhuman entities like computers or satellites or the planet itself. Humans are typically the origin of many of these arrangements, but once set in motion their effects cannot always be directly traced back to human intentions. Following this reasoning, theories of writing and rhetoric up to the challenge of addressing the implications of the global scale, speed, and interconnectedness of digital technologies would need to move beyond a representational paradigm. As described above, in the case of the LongPen there is little interest in the representational “content” of the message transmitted. The deployment of digital technology is designed to amplify the nonrepresentational components of the activity involved.

In many ways, the issue of representation is fundamental to efforts to theorize writing and rhetoric, and it also exposes important overlaps and differences between those two subject areas. Writing and rhetoric can both be said to deal in certain ways with “the real,” and a representational position articulates that relationship by differentiating in some way between writing or rhetoric and “the real.” That is, under a representational understanding, writing and rhetoric *represent* something “more real” than themselves. In writing this is typically depicted

via signification, whereby certain words stand in for things in the real world. The word “tree” is not as real as a tree, in this understanding. In rhetoric, the question of representation has to do with the extent to which something from the “real world” is *made* persuasive by a rhetorical act. A tree is not itself persuasive, this view holds, until it is deployed by a rhetor for a rhetorical effect (perhaps as an exemplar of steadfastness). In both cases the representational paradigm presumes a hierarchy between writing or rhetoric and “unfiltered” reality. While such an arrangement has a certain intuitive allure, writing and rhetoric function *with* the real world rather than at a distance from it. Indeed, as the title of Sánchez’s book implies, he inverts the representational understanding to argue that “knowledge, ideology, and culture” are not represented by writing but are *functions* of writing, its “effects or products” (*Function 5*). In his ambient theory of rhetoric, Rickert makes a claim supporting such a perspective: “Meaning is fundamentally entangled in matter” (160). The stuff of the world cannot be separated from what rhetoric or writing “does” with it; representation does not act as a demarcation between the real and the symbolic, the two are intertwined to such an extent that any distinction between them is superficial.

Sánchez and Rickert contribute to broader conversations in scholarship on writing and rhetoric that have theorized their subjects as complex, ecological, and material, in attempts to (among other things) move beyond naïve understandings of representation. These approaches are interrelated and overlap, so separating them for the purpose of explanation or analysis is only a temporary isolation, but they also bear distinguishing characteristics that make their separation useful. Approaches that emphasize complexity describe writing and rhetoric as emerging from the unknowably vast and intricate connections of disparate entities. Approaches that emphasize ecology focus on the connections among entities in a network, and show how writing and

rhetoric are produced by the entire ecology. Approaches that emphasize materiality highlight the raw matter of things, not to the exclusion of the so-called “immaterial” (like thought or discourse) but to show how writing and rhetoric are always embedded in a particular context, grounded in the “stuff” of the world. These approaches almost always overlap, and in each case the issue of representation is complicated to the extent that it is no longer tenable as a foundational tool for understanding how writing and rhetoric work.

The sections that follow present a more detailed account of theorizations of writing and rhetoric that focus on complexity, ecology, and materiality. As noted above, distinguishing between these as different approaches is only a temporary tactic for exploring certain facets of their deployment (indeed, many of the sources included below could be said to “belong” to any or all of these approaches; my purpose in exploring them is not to categorize but to pull out some important trajectories). Each emphasis is productive and, as I will argue, a more fundamental planetary mindset emerges from their confluence. Anything we turn our attention to, as the epigraphs at the start of this chapter remind us, is framed by a particular composition of technologies and practices arranged across the surface of the planet (and above, and beneath). Our perception and capacity for thought is at least partially, if not completely, produced by our relationship with an environment—a technological, social, and natural milieu that is always adapting, shifting, and reacting. And while our own familiar scales of perception serve us well in day-to-day affairs, the planet operates on deeper scales. From a planetary perspective, change is not the introduction of a new element to the old, it is the continual revelation of resources already present and already both “new” by virtue of their recent rearrangement and *not* new because of their long histories.

Though the particular incarnation of the LongPen, for example, can be said to be “new,” it develops and relies upon existing infrastructures and technologies that make its invention possible. It is also a reincarnation of similar older devices like one called a polygraph, famously associated with Thomas Jefferson. Much like the LongPen, the polygraph (seen in Figure 4) receives input in the form of the movements of one pen and translates those movements to another pen to create a duplicate of whatever was written with the first pen. But instead of transmitting those motions across great distances, the second pen is physically adjacent to the first, connected with an intricate assembly of levers and counterweights. Jefferson used the device to make duplicate copies of all of his letters as he wrote them, and was perhaps the device’s most well-known and avid user (he is often incorrectly attributed as its inventor, but he did propose a number of improvements and adjustments for it). Like the LongPen, the creation and use of the device is motivated by specific writing practices and preferences. Changes in



Figure 4: Reproduction of one of Thomas Jefferson’s polygraphs.

those practices, on individual or cultural levels, are just as important as changes in technology or in what technology is envisioned to be able to do.

What we perceive as recent changes in writing and rhetoric are only the most readily apparent manifestation of an ongoing continuum of flux. There will always be new forms of writing and rhetoric that demand new theories. As each approach reveals more expansive viewpoints to resolve issues with past understandings, a further opportunity presents itself for attention to deeper scales of time and space to resituate the foregoing discussions from a geological perspective on change, one that tries to get outside of anthropocentric frames of reference to the “deep time” of the planet. Such a move focuses on underlying processes of composition that enable structures (which are themselves less “structures” than still more ongoing processes) to produce the changes we perceive such as those associated with emerging digital technologies. There is nothing but change, but this is difficult to see from “inside” it. Since we have no choice but to remain within ongoing change, and since ignoring change altogether has proven untenable, we might turn our attention to the flux itself, and try to imagine it the way the planet “imagines” it: a contiguous yet raucous composition of diverse material, never the same way twice. By viewing writing and rhetoric as features of the planet, changes in their behavior are linked to ongoing material processes that, though they cannot be precisely predicted, can be observed and traced as the matter of writing and rhetoric continues to flow and fluctuate.

### **Writing and Rhetoric Are Complex**

Complexity is one of at least three interrelated movements away from representational thinking in the theorization of writing and rhetoric. Discussions of complexity typically draw on

complex systems theory, an interdisciplinary approach that describes the emergence of “order” from systems whose constituent components are too numerous and multifaceted to fully apprehend from any single vantage point. Mark Taylor’s book *The Moment of Complexity* in particular is a touchstone for the uptake of complexity in rhetoric and writing studies. Taylor describes complexity as “*between* order and chaos . . . the point at which self-organizing systems emerge to create new patterns of coherence and structures of relations” (24). Seemingly random and unpredictable events coalesce to form relatively consistent entities that we perceive as stabilities.

Complexity theory provides the insight that writing and rhetoric are the emergent effects of a complex system. Simplistic understandings like a representational model do not fully account for that complexity. Byron Hawk and Sidney Dobrin are among many of those studying rhetoric and writing who have drawn on complexity to explain their objects of inquiry. Hawk suggests that “Examining rhetorical principles in the context of complexity theory can establish a point of departure for what rhetoric is becoming in a contemporary technological context” (*Counter* 180). The inherent complexity of the networks in which “the body is immersed” is “more immediate and harder to ignore” as a result of emerging digital technologies (Hawk, *Counter* 234). Like Hawk, Dobrin argues that writing’s complexity requires “complex theories (and a complex of theories) in order to understand [writing’s] intricacies, functions, and possibilities” (122). While complexity may accurately frame the problem of relying on too simplistic of understandings of writing and rhetoric, it also makes theorizing them a continuing challenge. There will always be more components of the system that influence writing and rhetoric than can be understood or predicted. As Rickert describes in the context of his articulation of rhetoric as ambient mentioned above, the world “includes its own withdrawal

from involvements, relations, and meaning, though without thereby becoming any less ‘real’” (xiii). Writing and rhetoric “simultaneously produce the meanings for which we reach to express and withdraw as we do so” (Rickert 181). For Rickert, this withdrawal is an inherent feature of the world. It is the complexity of the system that exceeds our attempts to understand it.

Dobrin provides a brief description of writing based on his application of complex systems theory in an attempt to move toward meeting the challenge of complexity. Instead of producing or containing some external form of information (as in a representational model), he explains that “writing itself by way of system fluctuation renders new spaces in which the appearance of information, concepts, meaning, knowledge, and so on obtain velocity within the system so as to occupy spaces within it for brief moments of what we perceive to be separation” (141). These moments are “pauses in the system” that “we can perceive and identify only retroactively and for the sake of a need to perceive and name them metaphorically as identifiable” (Dobrin 141). This description of writing forms a starting point for Dobrin’s attempt to move toward a method that can escape from the “trap of representationalism” (147). He describes writing as a way of orienting and occupying space; the act of writing is akin to navigating that space. While complex systems theory suggests that coherent systems emerge from complex and chaotic interactions between elements, the “pauses in the system” that Dobrin describes are themselves the product of our observations of a changing system that is too complex to grasp in its entirety. What we perceive as representations, then, are “velocities and fluctuations” that “are not to be read as movement of information, ideas, meaning, or the like” (Dobrin 145). Instead, the complex system produces momentary effects that “are the very accumulations of writing that we *perceive* to be the carrier of meaning, ideas, or information” (Dobrin 145). Writing is “a complex (fluid) system of interconnected relations, a function of

which is to provide an appearance of representation” (Dobrin 145). As Sánchez puts it in *Inside the Subject*, “a major part of what defines writing is its ability to function *as if* it represents something exterior to it” (*Inside* 4). Amid the continuous change of complex systems, the perception of stability—exemplified by the representational paradigm in which stable concepts can be packaged and transmitted—is illusory.

Hawk, whose book *A Counter-History of Composition* Dobrin draws on for much of his analysis of complexity, explains that complexity poses serious challenges for understanding how writing and rhetoric function. In the context of pedagogy, which he sees as directly linked to theory, Hawk proposes that complex systems be examined by employing heuristics, conceptual shortcuts that bracket off complexity for the purpose of provisional analysis. Like Dobrin’s depiction of “pauses in the system,” these heuristics create temporary stability in the ongoing flux of complexity. There will always be some amount of the system that exceeds this approach, and Hawk is careful to admonish heuristics that are taken up as “law” (208). To combat such stabilizations, he calls for a “proliferation” of methods so that none are allowed to linger for too long (109, 254). Hawk emphasizes that such an approach is not intended to forestall future returns to complexity: “the point is not to determine an origin or even a meaning but to map points of intervention, insertion, or connection” (Hawk, *Counter* 201). This requires a conceptual vigilance that can be difficult to maintain—every new understanding must be kept at least partially at arm’s length with the understanding that it is at best partially inadequate.

The intimidating consequence of this line of thinking is to admit the complexity of writing and rhetoric without attempting to stabilize them at all, thereby leaving aside the goal of a “complete understanding.” In an article about rhetoric’s ontology, Nathan Stormer articulates a view of rhetoric as “multiple and mutable,” which leads him to search for ways “to talk about it

as diverse” (299). The problem, as he identifies it, is that rhetoric is neither one “big” thing nor many “little” things. Even describing rhetoric as plural (as in the now-common formulation “rhetorics”), Stormer argues, serves to reify the notion of a “singularity broken into constituents” (302). Instead, he suggests that rhetoric is “a riotously lively set of singularities whose existence is as ever-varying ‘things done,’ embodied in practices that enlist an array of objects and events” (302). The term “polythetic” captures this understanding for Stormer, as it conveys that rhetoric “is not one body with many faces, but homologous affordances materializing many bodies” (302). Stormer offers an uncomfortable though perhaps appropriate approach to the study of rhetoric in the face of complexity: it’s messy and unpredictable, and that’s part of the point. Since complexity cannot be predicted in advance, he calls instead for a cataloguing of past formulations and the development of heuristics (much like Hawk) to recognize new ones. Complexity is an intense challenge for the study of writing and rhetoric, and while it might be temporarily suspended or set aside for the sake of practical concerns, it cannot be ignored. At the same time, it points toward a profound capacity for the world to produce such complexity at all.

That complexity is so challenging to conceptualize hints at how much is possible beyond representation. An entire planet’s worth of context (and more, since the planet, too, came from somewhere) is involved in enabling complex systems. The attempt to understand writing and rhetoric via complexity—not by simplifying it or slowing it down but by experiencing it—is an implicit acknowledgement of the planetary nature of those subjects. The planet is a complex system, itself emerging from still more complex systems, and from the complexity of the planet emerges everything on and within it, writing and rhetoric included. Complexity is planetary.

## **Writing and Rhetoric Are Ecological**

Ecology is another of three movements away from representation in writing and rhetoric that forms a coherent domain in the study of those subjects. As a response to complexity, ecological terminology is frequently deployed to allude to the inherent interconnectedness of all things, and to place writing and rhetoric within an array of influences that offer context for changes deemed important for their continued study. Invoking “ecology” in discussing rhetoric and writing is in part an appropriation of the more generally-familiar discipline of environmental ecology while at the same time incorporating the concerns of this more familiar ecology within the domains of writing and rhetoric. Emphasis on the ecological broadens the stakes of work to theorize writing and rhetoric. Since an ecological position argues that everything is connected and active in the production of what we perceive as individual entities, the fate of one element may influence, to varying degrees, the fate of many others, even of the planet. In an era of heightened attention to ecological concerns in response to climate change, framing the theorization of rhetoric and writing in the language of the planet’s ecosystems lends an urgency and tangibility that might otherwise be elusive. Writing and rhetoric sometimes fall to the background of our daily concerns, but their influence has material consequences throughout the world and on the world itself. A policy or piece of legislation, for example, can determine the course of the planet’s environmental changes and the futures of entire species.

In composition studies, the notion of an ecological model for writing or for discourse more broadly can be traced primarily to Richard Coe’s 1975 article “Eco-Logic for the Composition Classroom” and Marilyn Cooper’s “The Ecology of Writing” in 1986. Coe’s primary argument is that dividing writing into units of content to be analyzed is “inadequate for discussing the more complex phenomena which are increasingly relevant to contemporary

realities” (232), and that “we should teach rhetorical modes based on eco-logic as well as on analytical logic” (233). Coe’s position thus foreshadows Sánchez’s later arguments outlined above; he emphasizes context and interrelation and the inadequacies of traditional analytical approaches for accounting for this complexity. But Coe’s eco-logic, as Kristopher Lotier notes, “explicitly [denies] offering a new method of writing instruction, suggesting instead a new subject matter for classroom examination” (380n6). Coe’s interest in ecology is for writing classes to write and think *about* ecology, rather than to write and think *ecologically*, therefore eventually still plugging this new content into an analytic understanding of writing, albeit with some added nuance.

In her article, Cooper argues for a move toward what has come to be known as “post-process” pedagogy based on her observation that the process pedagogy “revolution” (with its move away from understanding writing as a stable product) had become “dogma” (364). As a result, emphasis on process had become its own sort of stability. Cooper explains that process pedagogy treats writing as a cognitive process and that this understanding “obscures many aspects of writing we have come to see as not peripheral” (365)—namely, that “language and texts are not simply the means by which individuals discover and communicate information, but are essentially social activities, dependent on social structures and processes” (366). Instead of a solitary author, Cooper describes an ecology of writing in which “writers interact to form systems” that are “made and remade by writers in the act of writing” (368). Cooper articulates a version of written communication that is not simply representational—that is, not a process of packaging and transmitting a series of thoughts “found” within the mind of the writer—but that Dobrin critiques as still containing representational elements. The systems Cooper describes can be explored and understood; they have characteristics that can be discovered and modeled.

According to Dobrin, such a modeling “falls prey to the will of stability” (133). As noted above, any perception of stability is an illusory remnant of representational thinking; a complex ecological approach tries to resist that stability, but it is a difficult tendency to avoid.

More recently, ecological terminology has become commonplace enough in scholarship on writing that it is often deployed without explanation. Lotier characterizes the move toward ecology in composition studies as having to do with a continued trend toward understanding cognitive processes as increasingly external. This “externalizing” argues that “environmental features, including languages, tools, and other people, can be and indeed *are* constitutive elements of one’s mental systems” (Lotier 366). In this sense, an ecological mindset aligns with the posthuman observation that humans and nonhumans are intermingled in many ways.

Accordingly for Lotier, ecological theories focus less on “a bringing forth of resources out of oneself . . . or even out of a group of people” but instead “ask which resources can be connected to the self, either ephemerally or indefinitely, in order to produce some sort of novel item” (371). An ecological understanding of writing shows that its processes extend far beyond a solitary writer in isolation. Lotier connects this understanding to inventional practices that leave texts “open” to “as many options . . . as possible—both in terms of what it could *mean* and what it could *do*” and that understand “writing as ‘connection’” (376). The sorts of networked technologies mentioned at the start of this chapter make such a focus increasingly appropriate—and unavoidable—for the study of writing.

Ecology also offers opportunities to revise classical approaches to rhetoric that have focused on the actions of an individual rhetor, and explored the means of persuasion available to that rhetor to influence an audience within a given situation. Over time the complexity inherent in even this traditional scene has motivated several adjustments to the notion of “rhetorical

situations” first articulated by Lloyd Bitzer as “those contexts in which speakers or writers create rhetorical discourse” (1). Richard Vatz shows how a formulation opposite to Bitzer’s is equally tenable. Instead of “rhetorical discourse [coming] into existence as a response to a situation” (Bitzer 5), Vatz describes rhetoric as “a creation of salience,” producing the situation rather than responding to it (158). But rather than either side being more correct than the other, Barbara Biesecker suggests that a deconstructive approach is more appropriate, arguing that “the ‘rhetorical dimension’ names *both* the means by which an idea or argument is expressed and the initial formative intervention that, in centering a differential situation, makes possible the production of meaning” (112). The deconstruction of the rhetorical situation has resulted in more recent moves toward depiction of rhetorical “ecologies,” acknowledging the interconnectedness of entities that may have once been presumed to be discrete. Rather than study individual entities in a rhetorical situation, this ecological frame suggests that everything that was previously considered stable is in fact in flux, circulating and varying in intensity. As Jenny Edbauer puts it in her article that popularized the use of ecological terminology in the study of rhetoric, an ecological approach sees rhetoric as both “a process of distributed emergence and as an ongoing circulation process” (13). The interactions of entities in complex systems lead to new compositions and interactions, rhetoric and writing included. Any of these results cannot be located in a single part of the ecology, nor can they be equated with its totality.

Ecological theories of writing and rhetoric generally rely on an understanding of their subjects as firmly enmeshed within their surroundings. Writing and rhetoric are produced by their surroundings at the same time as they contribute in the production of those surroundings and of other entities around them. Ecological theories also call our attention to the role humans play in influencing their environment. As Justine Wells, Bridie McGreavy, Samantha Senda-

Cook, and George McHendry, Jr. argue in their introduction to the edited collection *Tracing Rhetoric and Material Life*, the ability for humans in the current era to exert “geological force” (causing effects such as “environmental pollutants and climate change”) means that an “ecological orientation . . . is needed for our profoundly ecological times” (8). They go on to argue that “environmental change,” and change more broadly, “is no longer best understood in binary, oppositional frames,” and instead suggest that “change emerges from enveloping ecologies of human and nonhuman forces” (21). Ecology is not just a topic to which theory can be applied; adapting to urgent changes in global climates can also involve a reorientation toward change on a conceptual level. Ecological theories are not only robust ways to describe the complexity of writing and rhetoric, the theories themselves are a direct consequence of attention to our interactions with the planet. If humans can change the planet on a fundamental, even primordial level, perhaps writing and rhetoric can as well.

Ecology is ultimately an acknowledgement of codependence. At any level of scale, elements of a system depend on one another, and as those dependencies are traced they are revealed to expand in an ever-widening orbit. To truly be a conscious citizen of an ecology is a lifelong undertaking. For philosopher Félix Guattari, the question of “living on this planet” is only approachable from a multiplicity of “registers,” represented in his three-part demarcation of the environment, social relations, and human subjectivity, the titular focus of his book *The Three Ecologies* (*Three* 19–20). Each of these registers cannot be considered without relation to the others (and the choice of “three” ecologies is merely an ontological conceit; there are multitudes of ecologies, some yet to be). Guattari’s ecosophy, a political philosophy he defines as developed from attention to the three ecologies, is thus an acknowledgement that “disparate domains constantly engage one another” (Genosko 84). An ecological approach to rhetoric or writing

could take all of these different domains—potentially the entire planet, or beyond—into consideration. Doing so would not attempt to understand or stabilize the planet in its entirety as a single entity but rather experimentally trace the paths of certain strands of writing or rhetoric to see what they lead to.

While Guattari's is not the only ecosophy, some key concepts associated with his work provide important adjustments and supplements to the many trajectories along which ecological thought proceeds in the study of writing and rhetoric. As John Tinnell notes by way of arguing that digital media be viewed through an ecosophical lens, Guattari “think[s] through the semiotic implications of the word” ecosophy more “fully” than most (“Transversalizing” 360). Tinnell goes on:

Ecosophy is not the same thing as eco-philosophy; it is not simply the redirection of the philosophical tradition towards ecological concerns. To think ecosophically is to rethink philosophy in our contemporary moment defined by the convergence of nature and culture, ecological crises, globalization and the Internet.  
 (“Transversalizing” 360)

Guattari's ecosophy thus differs from “more popular” philosophies of ecology by not limiting its object of inquiry to the natural environment (Tinnell, “Transversalizing” 361). In common parlance, ecology evokes images of pristine forests and babbling brooks, wild animals and clear blue skies. Guattari does not want to dismiss this component of ecology but shows how the notion of an eco-logic is at root a broader concept having to do with habitats. The prefix *eco-* is etymologically related to the Greek word *oikos* which means home (specifically family property) or, slightly more broadly, habitat. The first of Guattari's three ecologies—environmental—falls under this broader and more commonplace use of ecology while the other two—social and mental—offer new perspectives on subjectivity. In particular, the notion of a mental ecology indicates that the same cultivation of habitat associated with environmental ecology must take

place within human subjectivity. Guattari's ecosophy is an attempt to question the stagnation of understanding within these three "ecological registers" (*Three* 19). Rather than seeking a "return" to pristine and pure forms of nature imagined to have existed in the past, "Guattari's radical ecology . . . beholds the world as a dance between chaos and complexity" lacking any grand organizing structure (Tinnell, "Transversalizing" 361). Applying this perspective to the study of writing and rhetoric demonstrates the profound inclusion within an ecological domain of the technological and apparently human-centered practices traditionally associated with those subjects. Ecology is not simply one focus for writing and rhetoric to be applied to, it is integral to their existence. Furthermore, taking up Guattari's ecosophy requires that we take writing and rhetoric themselves as subjects of this ecological tack. Acknowledging the ecological for the study of writing and rhetoric is an acknowledgement of those subjects' own involvement in the broader ecology of the planet.

The ecological emphasis is at times an explicit call for attention to the planet in its entirety. Certainly the traditional ecological sense of nature and the interconnectedness of ecosystems eventually leads to the consideration of the planet as a whole, but as Guattari's three ecologies invites us to consider, writing and rhetoric are also planetary in much the same way. An ecological approach to writing and rhetoric shows how they are defined precisely by the interconnectedness of entities. Nathan Stormer and Bridie McGreavy argue that such a perspective is vital for the study of rhetoric because "a particular rhetoric is not a function of human aptitude for symbolicity but of systemic vulnerabilities between all sorts of entities" (20). In other words, not only is rhetoric ecological, but ecology is rhetorical. In this way the planet's ecosystems and nature itself are not lenses with which to better understand a subject like writing or rhetoric, but integral components of those subjects. As Kristin Arola articulates in her land-

based approach to design, “Land is not a metaphor, it is a living thing that our participation, digital or otherwise, exists on, with, and through” (212). Land—and its ecology—is writing and rhetoric, so the incorporation of ecological perspectives in the study of writing and rhetoric is not only useful but essential. Because ecologies are intricately interconnected and enmeshed both with each other and with the material of the world, an ecological approach inherently takes the entire world into account. There is no limit to the reach of the connections between entities. Ecology is planetary.

### **Writing and Rhetoric Are Material**

Materiality is a third overlapping trend in writing and rhetoric that demonstrates the insufficiency of traditional understandings of representation. As posthumanism has decentered the privileged position of the human, the nonhuman and the nonliving have taken on increased importance in understandings of writing and rhetoric, and in many other disciplines. While humanist tendencies might make materiality and “things” seem distanced from the human, the human is in fact thoroughly embedded in the material of the world. Anne Frances Wysocki, discussing the interconnectedness of humans and media technologies, explains that “We come to be always already embedded—embodied—in mediation,” and that mediation is a process “not to be performed only on one; one is to be actively engaged with mediation” (Wysocki 4, 19). As with the ecological perspectives outlined above, attention to materiality reveals connections between entities at all levels. This interconnection does not only reveal an increased number of entities involved in a process, but decenters which of those entities is “responsible” for the process, and in so doing foregrounds the typically overlooked material components. As such, technologies and practices like writing and rhetoric “think” through us as much as we think

through them. Or, as philosopher and ecologist David Abram puts it in an attempt to draw attention to ecological concerns, “We might as well say that we are organs of this world, flesh of its flesh, and that the world is perceiving itself *through* us” (68). The difficulty in disentangling the human from the nonhuman, or the material from the immaterial, is a key motivation for the so-called “new materialisms.”

New materialism is a reaction against linguistic and social-constructivist turns that prioritize the role of language and culture in constituting reality. Rather than separate the conceptual as a deterministic guide for the real, materialism depicts the two as wrapped up in each other; the conceptual is always materially-situated. As Diana Coole and Samantha Frost explain in their overview of the subject,

Our existence depends from one moment to the next on myriad micro-organisms and diverse higher species, on our own hazily understood bodily and cellular reactions and on pitiless cosmic motions, on the material artifacts and natural stuff that populate our environment, as well as on socioeconomic structures that produce and reproduce the conditions of our everyday lives. (1)

Yet, according to Coole and Frost, “as soon as” we think about matter “we seem to distance ourselves from it” as “a host of immaterial things emerge” like discourse and language (1–2). It is difficult to describe the material with words—as political theorist Jane Bennett writes, things are “vivid entities not entirely reducible to the contexts in which (human) subjects set them, never entirely exhausted by their semiotics” (5). But while theory and the conceptual are often understood in opposition to the material, the conceptual and material are inextricably intertwined. A materialist approach to theory suggests that working with theory is a materially embedded practice.

New materialism provides some important developments for other strands of materialist thought. In particular, cultural materialism associated with Marxism is both a significant

precursor to new materialism and an object of its revisions. As Coole and Frost explain this duality,

A critical understanding of global capitalism and its multifarious effects remains crucial for contemporary critical materialists, for some of whom a Marxist label has helped to signify their opposition to dominant neoliberal trends. But coming after poststructuralism and its criticisms, no workable version of Marxism can advance a historical metanarrative, aspire to the identification of determining economic laws, valorize an originary, pristine nature, or envisage communism as history's idealized material destiny. (30)

Coole and Frost's point here may overstate the degree to which Marxist materialists follow every element of Marx's politics. But even while the political goals of certain strands of Marxism may diverge from a new materialist approach, the Marxist perspective remains useful in certain ways for identifying the material connections between societal groups and the work they perform. In composition studies, a version of this Marxist materialism is exemplified by the work of Bruce Horner, who relies on it for the foundational insight that theory is "not opposed to or discrete from material social practice but instead constitutes a particular—material, social—form of practice itself" (1). Horner's materialism takes into account the sort of critiques of Marxism that Coole and Frost reference. Horner is less interested in a particular utopian outcome for composition studies than an acknowledgement of the importance of labor in the work the field does now. Horner specifies that his approach "challenges dominant cultural claims and representations of what is normal, significant, and, of course, what is not, recognizing all these as historical in the Marxian sense of being contingent, the ongoing products of human history, and therefore always subject to change" (2). Such an approach is certainly Marxian, but it is also new materialist, even if Horner does not identify it as such.

The materiality of writing and rhetoric is important for understanding them because it places those understandings and theories firmly in the ongoing flux of the living world. Christina

Haas describes the technology of writing as “language made material” (3), but a slight revision is necessary to acknowledge the insights of new materialism. There is no “higher state” of language that is brought down and *made* material by being encoded into writing—linguistic writing is already language and thus language is already material. And there are forms of writing that do not incorporate language at all. Earthworks and other geoglyphs produce inscriptions on the surface of the Earth that may bear some affinity with linguistic systems but that produce effects entirely divorced from a need to “decode” them. It is the materiality of writing itself, not a mechanism for making something else material, that propels a continued focus on writing and its theorization. If writing and rhetoric can be said to represent anything, they represent only themselves.

Materiality highlights the degree to which writing and rhetoric are products of the substances of the world. If writing and rhetoric are inescapably material, they originated in some way from the matter of the planet. Certain components must be assembled, which may have been brought together from distant parts of the globe. Even the apparently “immaterial” components of writing or rhetoric—sound waves, perhaps, or thoughts—are enabled by substances that are simply less readily visible to ordinary human perception. Sound waves move through molecules in the atmosphere—molecules that do not exist in the vacuum of space, for example; there is no sound without a material medium within which it can vibrate. Even thoughts, though they are an essentially mysterious process, are grounded in the matter of the brain. Each of these substances is in turn enabled by a material context that increases in a widening milieu until the entire planet is seen to be an influence on their particular existence. Materiality is planetary.

## **Writing and Rhetoric Are Planetary**

Together, complexity, ecology, and materiality expand the scope of what counts as writing and rhetoric. In part this is because the network of effects that produce writing and rhetoric is revealed under these approaches to be inexhaustibly vast. Writing and rhetoric are planetary. That is, they can be defined by their influence on and reliance upon the materiality of the planet where they developed. Making such an observation does little to establish their uniqueness (many, if not all, technologies and practices could be described in this way), but instead draws attention to an important quality of writing and rhetoric that is often overlooked and which is critical for understanding their capacities. Not only have writing and rhetoric adapted to the conditions of Earth, but they increasingly operate on a planetary scale. An arrangement of written markings can, with varying amounts and types of effort, be copied, relocated, or transmitted, and be made to appear in another part of the world. In so doing, writing organizes and exerts rhetorical influence over wide swaths of territory. A number of electronic and digital technologies are increasingly used to assist in this process, and have led to a rapid expansion in writing's capability to be circulated around the world nearly instantaneously. The Internet is perhaps the most important of these technologies today, but antecedent telecommunication networks and their underlying infrastructure (underwater cables, orbital satellites, and so on) are no less significant in enabling writing to spread.

On a fundamental level, writing is defined by its ability to persist across time and space, capacities enabled by the material conditions of the planet. The substances used for writing and the practices for deploying those substances are selected based on their ability to withstand temporal and environmental stresses that are defined by the particular characteristics of Earth: ink that flows easily but does not fade in the ultraviolet light created by a particular sun, stone

that is receptive to certain types of chiseling but does not erode from the force of a particular range of wind speeds carrying a particular type of particulate matter, paper that stands up to the pressure of a pen but is flexible enough to fold or bend, and so on. These conditions are not predetermined by the planet, but the planet is the basis for a functional range of possibilities for them. Versions of writing typified by recent digital advances are also defined by environmental conditions, and these newer forms of writing capitalize on the affordances of the planet to increasingly heightened degrees. Computer technologies in particular enable near-instantaneous communication and could theoretically link every part of the globe. Writing conducted with such technologies behaves in sometimes unpredictable ways—if only because humans have had relatively limited experience with the new technologies—and accounting for a multitude of new and different manifestations of writing requires an attention to the fundamental capacity of the planet to produce new and changing forms of writing.

While it has not taken quite the form outlined here, the study of rhetoric and writing has taken interest in the planet through moves toward complexity, ecology, and materiality. Focusing on these concepts necessarily involves an attention to the broader context underlying writing and rhetoric—context that this dissertation names as “planetary.” That naming takes those insights further by acknowledging nascent characteristics that often remain “beneath the surface.” The depth of the planet informs what writing and rhetoric are, as well as what they become. Work to theorize writing and rhetoric as complex, ecological, and material is thus not incompatible with a planetary theory, but potentially lacks important context.

The LongPen is complex, ecological, and material. It is the product of a wide array of interconnected practices and technologies but it is not a predetermined outcome of that confluence. The course of technological development leading to the LongPen did not “have” to

produce it, it is an emergent outcome of that development. The LongPen is also planetary: the facts of the planet provide its justification and operating parameters. Without great distances there would be no need to transmit writing across them. Without global commerce there would be no audience to fly around the world to visit on book-signing tours (and therefore no impetus to replace those trips with the device). At every turn, the components and practices making up the LongPen can be traced in an ever-widening orbit. The LongPen suggests that we think writing as planetary, and offers hints at how that thinking might develop in the future. In separating the writer and eventual writing surface, the LongPen prioritizes the specific motions of the hand over the representational content of the writing produced. A similar prioritization is seen in so-called natural user interface technologies that purport to allow individuals to interact with technologies in supposedly more intuitive ways than with interfaces like a keyboard. Some of these interfaces use gesture, but rather than recording gestures with the LongPen's mechanical assembly, devices like the Kinect (a depth camera) can detect gestures by projecting infrared light and observing that light as it reflects off the body of someone in front of it. In this example, as well as in the case of the LongPen, the addition of complex technologies creates the appearance of a more "natural" and "unmediated" encounter with writing, but in fact the resulting composition is increasingly more technological. In some sense this is unsurprising—writing has always been technological—but these newer examples highlight the degree to which writing's technological nature is amplified as it engages with the planet in more and more complex ways.

Writing and rhetoric have emerged from, adapted to, and developed in relation with the conditions of the planet. As outlined through its constituent moves toward complexity, ecology, and materiality, this insight helps to move beyond simplistic representational understandings of

writing and rhetoric, not to leave representation behind but to more fully contextualize its place within the shifting complex material ecologies of the planet. Humans take part in this process in an intricate interplay with their environment (understood both as a natural and technical milieu), but neither humans nor the environment alone offer a complete picture of the continued development of writing and rhetoric. In other words, understanding writing and rhetoric requires understanding the vibrant and complex ecology within which they have developed, an ecology that spans and penetrates the globe. Diane Davis describes an “originary rhetoricity” that operates prior to “symbolicity,” thus enabling the relations and infrastructure that produce meaning and persuasion (3, 15). That originary rhetoricity is as much material as it is conceptual—a primordial material infrastructure enables writing and rhetoric. Writing and rhetoric are planetary processes that are deeply originary yet manifestly immediate—the history of the planet is not just in the past, it returns in echoes and earthquakes rippling through the material of the present. A study of writing and rhetoric as they continue to change in response to digital media and developing technologies starts, as media theorist Jussi Parikka argues in the related context of digital culture, “in the depths and deep times of the planet” (58). The changes that we might yet observe in any technology are no different. Each change yet to come is as much a part of the composition as is the familiar. From a planetary perspective, change is always already here, reverberating in the ground beneath us, the air above us, and the space beyond.

## Chapter 2: Deep Time, Deep Space, and Contiguous Change in Writing and Rhetoric

The poles of the earth have wandered. The equator has apparently moved. The continents, perched on their plates, are thought to have been carried so far and to be going in so many directions that it seems an act of almost pure hubris to assert that some landmark of our world is fixed at 73 degrees 57 minutes and 53 seconds west longitude and 40 degrees 51 minutes and 14 seconds north latitude—a temporary description, at any rate, as if for a boat on the sea. (McPhee 3)

Deep time is the dizzying expanses of Earth history that stretch away from the present moment. Deep time is measured in units that humble the human instant: epochs and aeons, instead of minutes and years. Deep time is kept by stone, ice, stalactites, seabed sediments and the drift of tectonic plates. Deep time opens into the future as well as the past. (Macfarlane 15)

Rocks are not nouns but verbs—visible evidence of processes. (Bjornerud 8)

Across four hundred square miles of desert in southern Peru stretches a vast network of lines and shapes created over two thousand years ago by the rearranging and careful piling of enormous quantities of rock. Called the Nazca Lines after the name of the region, these markings are barely visible from the ground because their scale escapes typical human vantage points. But from above, as photographed by aircraft in Figure 5, the intricate shaping and geometric precision of the lines is visible. The vast majority of the lines are geometric, many stretching straight across the desert for miles. This network of lines is punctuated by a few clusters of abstract pictographic animals and plants. The lines testify to a massive undertaking to inscribe the landscape.

Though the exact details of their purpose is unknown, current theories suggest that the Nazca Lines are primarily nonrepresentational. A “widely circulated” theory that the lines “were set out to point toward critical risings and settings of the sun, moon, and stars,” is, according to archaeologist Evan Hadingham, “almost certainly mistaken” (5). This theory “represents another

example of how tempting it is to impose a narrow technical explanation on the complexities of the desert markings” (Hadingham 5). While it is likely “that the Nazcans possessed astronomical knowledge or a calendar system . . . only a small proportion of the lines” can be attributed to such observation (Hadingham 7). Ultimately, Hadingham’s approach to explaining the lines takes a holistic view of “the Andean world as a whole,” and attention to cultural practices reveals possible past uses for the lines similar to “ceremonies still performed at the ends of straight-line pathways” (8). The lines “were symbols of an *active* participation in the supernatural” (Hadingham 278). Hadingham’s understanding of the lines suggests they did not represent something external to themselves but were instead deeply integrated with the complex ecology of practices of the people who made them.

The enormity of the effort required to create the lines rivals that of other massive prehistoric projects like the pyramids or various earthworks throughout the Americas. It is estimated that at least a third of the area of desert containing the Nazca Lines needed to be



Figure 5: Condor geoglyph with crisscrossing lines (contrast enhanced).

cleared of stone to produce the end result (Hadingham 41). That the lines persist today is partly a feature of the region—the desert in which they are constructed acts as a preserving medium, leaving them essentially untouched by flooding or rain; only relatively recently have they begun to be disturbed by modern technological intrusions like vehicles (Aveni 30). But while the location was likely not chosen intentionally for the purpose of preservation, the act of inscribing the land itself is a way of manipulating the relative permanence of the planet. The planet provides a canvas of immense size and also of incredible longevity (as far as humans are concerned). Making a mark on this scale remediates the planet, incorporating it into processes like writing and rhetoric and revealing deeper temporalities in everything involved.

Theories of writing and rhetoric that emphasize complexity, ecology, and materiality (as outlined in the previous chapter) can be seen to describe continual change that permeates their subjects. Complex systems produce new and emergent features that are unpredictable and therefore necessarily different from what the systems have produced in the past. The ecological webs within which these systems operate include additional drivers of diversity, diversity that is once again defined by its inherent difference from what has come before. And the materialist insight that context and embodied experience are of profound importance indicates that since no single understanding of an entity will remain viable for long, the way that entity exists in the world is never exactly the same as it has been, and an understanding of it in one context cannot be exactly duplicated when it moves to a new one. The increasing prominence of these perspectives in the study of writing and rhetoric suggest that these subjects, too, are inherently always changing.

At the same time that complexity, ecology, and materiality reveal perpetual change, they also describe long and vibrant histories for writing and rhetoric that maintain a contiguity that is

both spatial and temporal. Rhetoric and writing change, but they are still rhetoric and writing. Like the myth of the Ship of Theseus, replacing or updating various constituent parts of what writing and rhetoric might be considered to be in any given era changes them while also maintaining a fundamental consistency. In a very real sense, rhetoric and writing produced today is contiguous with rhetoric and writing produced thousands of years ago. This does not mean that the contemporary is not also profoundly different from those ancient practices, but neither is it wholly unlike them. In her book *Inessential Solidarity*, Diane Davis describes an enabling infrastructure for rhetoric, a “more originary rhetoricity” that is “always operating” to allow the deployment of discourse or persuasion (3). Part of Davis’s aim in doing so is to trace a connective pathway between ancient rhetorical practices and contemporary ones. Something in the world provides the ground upon which rhetoric can function. If such an enabling ground for rhetoric exists, it is, in George Kennedy’s terms, “a phenomenon of nature,” a development that is “prior logically and historically to human speech” and by extension to writing as well (216). Kennedy’s project is more historically-oriented than Davis’s, as Kennedy attempts to find commonalities across many rhetorical traditions (including many not typically labelled as such). But both Davis and Kennedy attempt to locate a “source” for rhetoric in the world. For Kennedy, the ability for a human or animal to negotiate with its surroundings forms a basis for communicative acts like writing. Setting aside the question of an exact hierarchy between rhetoric and writing (if one exists), the point remains that the world itself allows the production of stabilizations that we come to understand as rhetorical or written. Over the course of human history the world has changed in important ways, but it has continued to enable writing and rhetoric and their continually changing character.

To account for the apparent paradox of continual change alongside continual consistency and connection, this chapter turns to a “deep” materiality, borrowed from the study of geology, which does not place change and sameness in opposition to one another but which demonstrates that change and sameness are inextricably wrapped up with each other. In a practical material sense, writing and rhetoric are geological: they are made up of and manipulate the raw material of the planet in ways that can be connected to other planetary forces like erosion or plate tectonics. As a form of inscription, writing requires that an observable trace be made on a surface of some kind, requiring those materials (the surface and the trace) to be rearranged such that the resulting object is recognizable as writing. For writing to take place, matter must move. Pressing a pencil to a piece of paper and performing a certain gesture while maintaining pressure on the page causes bits of the column of sharpened graphite at the center of the pencil to detach from the whole and attach instead to the paper, leaving behind a built-up trace of the pencil’s motion. Over time a wooden pencil must be sharpened to reveal more of the graphite within, or a mechanical one refreshed with additional columns of graphite, until there is no more remaining to be used. The manufacturer of the pencil must obtain graphite from somewhere on the planet, and there is a similarly finite (if enormously large) quantity available. In a fundamental sense, in the act of writing the graphite has been moved from one place on the planet to another. A similar transfer occurs when writing with a ball-point pen, which draws ink from within its body as the ball-point tip is moved across a surface. Or one could similarly imagine prehistoric human ancestors making marks on a cave wall with charcoal or rocks or pigments gathered from their surroundings. Electronic writing, too, requires the manipulation of materials: fingers push keys (or a touchscreen), electrical impulses within the computer rearrange data on a hard drive (stored as permutations of magnetic fields), a screen emits light and arranges liquid crystals for that light

to pass through, forming pixels to display letters corresponding to what was typed. The physical resources needed to create the device (metal, plastic, and so on) are as material as the pencil's graphite, and while the process of their distribution to form writing is more diffuse than a line of minerals on a page, within a computer a number of physical processes take place in concert with the physical motions of the user. Such processes are the subject of Matthew Kirschenbaum's book *Mechanisms*, in which he argues for a focus on the materiality of computing.

Kirschenbaum reminds us that computers are profoundly material despite their outward digital nature that might make them appear immaterial, and without this materiality computation would be impossible (27).

For a variety of reasons—some of them having to do with human influence—the planet is vastly different today than it was hundreds of thousands of years ago; it is even vastly different today than it was only a few decades ago. That change is both incredibly important and incredibly banal: of course the planet changes, as all things do. But by attuning to change on a planetary scale, materials that seem solid and stable (rocks, for example, the paragon of immobility) are revealed to be components of ongoing processes that produce the appearance of stability. As geologist Marcia Bjornerud puts it in this chapter's epigraph, "rocks are not nouns but verbs" (8). What we perceive as stability is a certain kind of change. By the same token, what we perceive as change is a certain kind of stability: dynamic systems, understood in isolation, might appear chaotic and continually fluctuating, yet they produce stable equilibria for the development of still more complex systems. On, beneath, and above the shifting and swirling surface of the planet, change is ongoing but it is also already old by the time it appears.

This chapter expands on the philosophy of change briefly articulated above, applied to the context of writing and rhetoric. Continued change in writing and rhetoric prompts continued

change in theorization about those subjects, which suggests that theory is itself a method for manipulating writing and rhetoric directly. Since the “ground” of writing and rhetoric is always fluctuating, theory provides ways to think and work through change. The geological concept of deep time further offers a paradigm for understanding change that does not presuppose stability or a particular outcome. Adopting a geological perspective on writing and rhetoric suggests that change and sameness cannot be understood oppositionally. This chapter focuses on an unsettling of conventional understandings of change; chapter three recuperates some of what will have been unsettled here into a more appropriate framework that retains its having-been-unsettled.

Throughout this chapter, the planet (particularly its geology) serves as a diagram—not a metaphor—for understanding change. This is a subtle but important distinction having to do with the relationship between change on a planetary scale and changes in writing and rhetoric that we might perceive to be operating on smaller scales. Diagrams, following the version of the concept developed by Félix Guattari for his mixed semiotic framework (which will be discussed in more detail below), do not represent something other than themselves. Instead, the signs in a diagram “function in place of the objects they relate to, independently of any effects of signification that may exist alongside them” (Guattari, *Molecular* 170–71). This means that the signs themselves are productive of whatever “meaning” they might be said to have, rather than referencing a “more real” version of that meaning somehow located elsewhere. My purpose in invoking the planet is not to represent how change works by using the planet to point toward it as an external signified, or to attempt to simplify change to a point where it is understandable once and for all, but to generate a meaning of how change works. A diagram of the mechanism that drives planetary changes can be used to understand the diagram of the mechanism that drives changes

in writing and rhetoric. Writing and rhetoric are material manifestations of the planet, as is everything else on it.

### Writing and Rhetoric Are Always Changing

At first glance it would be tempting to state that humans do not make geoglyphs like the Nazca Lines anymore. Indeed, part of the allure and majesty of the lines has to do with how mysterious and otherworldly they seem, so far removed from contemporary human life. But we do still mark the planet in other ways. Interstate highways crisscross the continents, and the light produced by cities is visible from even greater heights than the aerial vantage points used to view the Nazca Lines. Humans also mark the planet in less obviously material ways by using digital technologies. Various devices use GPS satellites in orbit around the planet to track movement and can result in complex patterns of lines. Some, like artist Jeremy Wood, use this technology more experimentally to produce intentional shapes or to document certain events. The example in Figure 6 shows a quote from Herman Melville incorporated into a line Wood walked through parks, soccer fields, a cemetery, a golf course, and so on. Wood notes the ways these landscapes influenced his work, sometimes assisting by providing guides for his lines, sometimes producing



Figure 6: *Meridians*, by Jeremy Wood (satellite image above, line only below). The quote, from *Moby Dick*, reads “It is not down in any map; true places never are.”

unexpected obstacles to navigate around. In one case, a circus had parked vehicles where Wood had planned to “write” a letter, requiring that he “negotiate jaggedly round caravans, support trucks, storage trailers and generators, and in between brightly decorated games and rides” (par. 7). As with the LongPen discussed in chapter one, the representational content of the line Wood walks is not the purpose of the activity—if the goal were simply to trace out some words on a map, it could much more easily be accomplished without actually tracking one’s physical movement in the world. There are easier ways to write than walking around a golf course with a GPS receiver. The act of walking through the world, encountering unexpected obstacles, and physically maneuvering under the “view” of the satellites produces something beyond the representation of the quote from Herman Melville. Like the Nazca Lines, GPS art is integrated into an activity. The irregularity of the lines testifies to the process that produced them, an unexpected emergence from the composition of the GPS satellites, the map Wood uses to plan his route, and the act of walking itself. That result is certainly similar in many ways to more traditional writing scenes, but it also confounds the understandings we might have of those scenes, adding complexity and uncertainty.

Recent changes in writing and rhetoric, like those leading to the “rapid circulation” and “increasingly enmeshed” technologies described by Raúl Sánchez or Thomas Rickert in the previous chapter, are typically seen to be quite urgent and therefore dominate research on these subjects. But as alluded to above, writing and rhetoric have always been marked by profound change. Since their origins in ancient human societies (and, arguably, in even earlier material and nonhuman compositions), writing and rhetoric have been reshaped countless times, each time producing new sets of relations among the objects and entities surrounding and producing them. The alphabet, the printing press, or the Internet are archetypal examples of massive shifts in

writing technologies that led to new arrangements and forms of writing. Incremental changes, like a modification in the composition of a certain kind of ink or paper, or an adjustment in the layout of a keyboard, are no less integral to writing's ongoing existence. In many ways the individual changes themselves are less important than the structures of relations that enable continued change. And continual change is itself a form of stability.

That the most recent changes seem so radical is a byproduct of a particular frame of reference. Since writing and rhetoric have such long histories, it is difficult for individuals to step outside of their current historical situation and perceive the wide swath of the evolution of these technologies and practices within which they operate. In the midst of any particular incarnation of writing, changes in technology or in an environmental factor can give the appearance that the current paradigm is being unsettled, further implying that the way things currently are is a form of stability. Emoji, for example, are a massive change in how language is used in digital spaces, but in writing and rhetoric's long histories they are a blip and an echo, similar and yet different from older practices like hieroglyphics or rebuses. They are neither entirely new nor simply a repurposing of something old; they are a continuing permutation of the planetary material of writing. They are also inherently unstable—as all writing is, depending on the perspective with which it is observed—changing from year to year or even day to day.

We can only speculate what it might have been like for early humans to interact with new forms of writing for the first time, but encounters with new technologies and practices are also familiar experiences. More recent attempts to reconcile “traditional writing” with new and emerging forms of writing found in networked digital spaces are as monumental as early encounters with phonetic writing or with the printing press. Each new generation seems to bring with it a set of writing practices that feel entirely foreign to those who came before. And yet

writing continues, despite perennial outcry from more conservative corners prophesying its impending demise at the hands of things like cell phones, slang, or split infinitives. Writing has always changed, and while certain monumental changes create the impression of long eras of stability, the practices and technologies comprising and enabling writing are always in flux.

Change is not something that happens to writing and rhetoric, writing and rhetoric are defined by change. The planet, as depicted in this chapter's epigraphs, testifies to the flux inherent in apparent stability. There is no "original" or "unchanged" form of these technologies and practices, they are always already continually becoming something other than what they have been or will be. New and future changes in how they are used or how they materialize are then not surprising or destabilizing because writing and rhetoric were not stable to begin with. The very substrate from which they are wrought is a fluctuating continuum of material: the shifting surface of the planet. Like tectonic plates sliding and slipping over vast depths of magma, material moving thorough/around/across the planet circulates the raw matter of the planet itself, often slowly but sometimes violently.

### **The Ground is Change**

Continual change should not come as a surprise, but it is often overlooked. John Muckelbauer's book *The Future of Invention* is devoted to the subject of change, particularly in the context of the rhetorical canon of invention. Muckelbauer argues that despite increasingly nuanced and complex understandings that destabilize previous so-called stabilities in knowledge of rhetoric, "we seem to have missed the point that the ground has never been anything other than change itself" (10). This perspective on change calls into question traditional knowledge frameworks, particularly those based on structural reasoning. Change, according to Muckelbauer,

“invites us (or perhaps compels us) to rethink what it might mean to respond to a problem in the first place” (x). This is in large part because a representational mindset pervades the work of theory itself, Muckelbauer argues, in which theories are treated as representing external knowledge or ideas. The sort of work Muckelbauer is interested in instead proceeds “affirmatively” rather than through dialectical negation—a complex distinction because according to Muckelbauer “an affirmative sense of change can be neither the *same as* nor *different from* [the] dialectical image” (xii). Much of the work of Muckelbauer’s book rests on embodying and refining this distinction, but it proceeds from the notion that the distinction itself is problematic. As a consequence, the “affirmative sense of invention cannot be *explained* representationally (as if it were a theme or an idea)” but instead “can only be *demonstrated* performatively” (Muckelbauer xi). But critically, for Muckelbauer, “the necessarily imprecise quality of explanation does not result from the fact that this affirmative sense of change is somehow excessive or sublime and thus eludes language’s capacity to represent it” (xi). Rather than point out a deficiency of representation, Muckelbauer suggests a paradigm that is neither representational nor nonrepresentational, existing outside this simplistic binary, an “approach to a problem that is simply of a different order than that of representation” (xi). This is at least in part the motivation for approaches to writing and rhetoric such as complexity, ecology, and materiality that move beyond representation as discussed in chapter one. But to fully incorporate Muckelbauer’s observation, those approaches must contain within themselves an acknowledgement of their own transience as well as the means of their own deconstruction.

Muckelbauer turns to Deleuze and Guattari to sum up the issues of the difficulty of classifying an “order” other than “that of representation,” which they refer to as “the problem of writing” (quoted in Muckelbauer xi). As Deleuze and Guattari put it,

in order to designate something exactly, anexact expressions are utterly unavoidable. Not at all because it is a necessary step, or because one can only advance by approximations: anexactitude is in no way an approximation; on the contrary, it is the exact passage of that which is under way. (*Thousand* 20; quoted in Muckelbauer xi)

This cryptic pronouncement hints at paradigms other than representational ones, in some ways like the theoretical additional dimensions of particle physics, in which “imprecision may be perfectly precise” (Muckelbauer xii). Representation’s inability to “capture” the entirety of the shifting terrain of the world does not make the world unthinkable, only unrepresentable, therefore demanding that paradigms beyond representation be explored. Accordingly, Muckelbauer takes theory “not just as abstract ideas . . . but as provocations that could alter actual practices of reading, writing, and thinking” (xii). This other paradigm cannot simply be written about (at least by using writing in traditional ways) since writing, at least as it is usually understood and practiced, is representational. Different tactics are required. This is also part of the motivation for the planetary perspective initiated in chapter one.

The planet itself, the ground of all grounds, is always in flux. Following Muckelbauer, understandings that depend on conceiving of the planet as a stable entity must be called into question. Muckelbauer’s invocation of Deleuze and Guattari to describe change parallels those authors’ influence on Manuel De Landa’s account of historical processes that form our lived reality in his book *A Thousand Years of Nonlinear History*. De Landa demonstrates the role that changes in the material infrastructure of the world have on various technologies and practices like agriculture or language. For example, De Landa examines the “mineralization” of the organic world beginning around 500 million years ago, when the “reign” of soft tissue was replaced with bone (26). This transition, in De Landa’s depiction, was a confluence of the mineral and organic, enabling the evolution of vertebrates and, eventually, humans: “the mineral

world that had served as a substratum for the emergence of biological creatures was reasserting itself, confirming that geology, far from having been left behind as a primitive stage of the earth's evolution, fully coexisted with the soft, gelatinous newcomers" (26). Throughout the book, these types of processes are demonstrated to encompass massive swaths of the planet's ecological and geological domains, shifting and evolving over thousands and millions of years. As De Landa puts it, "reality is a *single matter-energy* undergoing phase transitions of various kinds, with each new layer of accumulated 'stuff' simply enriching the reservoir of nonlinear dynamics and nonlinear combinatorics available for the generation of novel structures and processes" (21). Extrapolating on this perspective, considered from "a cosmic viewpoint our entire planet would itself be a mere provisional hardening in the vast flows of plasma which permeate the universe" (De Landa 261). Given such flux on a fundamental level, it is difficult to see what we perceive as stability as anything other than illusory. But any illusion is a product of the terminology or frame of reference used to understand these concepts. If change is continual, stability must be a certain kind of change. Instead of framing these concepts as opposites they might better be understood as different versions of the same thing.

On a warm summer evening in many parts of the world, a familiar sound envelops the often humid air. Crickets, cicadas, and other insects are joined by the occasional frog or owl in a continuous rhythm of communication. To the uninitiated it can be cacophonous, to others it fades to the background or is even comforting. More importantly for the present discussion, this sound has been relatively consistent for hundreds and even thousands of years. Humans born in the appropriate region have heard essentially the same sound every summer for their entire lives.<sup>2</sup>

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<sup>2</sup> The sounds have changed over extremely long periods of time, as shown in the particular case of the cricket. Using a fossilized prehistoric cricket from the Jurassic period (between 201 and 145 million years ago), researchers were able to reconstruct the sounds produced by its differently-constructed wings (Gu et al.). If humans had been alive at the time, they would have heard a different, lower-pitched sound in the evenings than we do today, but today's

And yet the individual entities producing the sound are different every night, and most do not live to the next year. The evening insect rhythm is at once massively contiguous in time, stretching back thousands of years, and also massively contingent, relying on the spontaneous co-occurrence of disparate creatures. The sound is different every night, and it is the same.

Writing and rhetoric similarly rely on the often chaotic actions of individuals, and the exact makeup of what writing and rhetoric are at any given moment changes dramatically from year to year or day to day. But writing and rhetoric also maintain a peculiar consistency, retaining certain core characteristics that cause them to be recognizable as such even as they diverge wildly from what has come before. Change is always already here.

### **Deep Time and Deep Materiality**

The Nazca Lines accentuate the degree to which writing and rhetoric incorporate the planet into their processes, but such incorporation is ongoing in all forms of writing and rhetoric. Because of the immensity of the planet and its influence on everything, it organizes how we think about space and time. Here some principles of media studies are useful for describing the materiality of writing and rhetoric. Media studies is a wide-ranging discipline, sometimes affiliated with communication studies, that focuses on the forms that communication or “representation” take. Harold Innis, regarded as one of the central architects of what has become contemporary media studies, categorizes media in terms of their “emphasis” toward time or space: “Media that emphasize time are those that are durable in character . . . suited to the development of architecture and sculpture” while “Media that emphasize space are apt to be less

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sound is also a derivative of the older one. Writing about this research, Jes Rust describes the cricket “choristers” of today as “background vocals” that have remained even after the departure of their ancient cousins (3606). New compositions continually emerge from the material of the old.

“durable and light in character . . . suited to wide areas in administration and trade” (5). At least in the case of the sorts of ancient materials Innis focuses on—clay, stone, papyrus, and so on—lightness and durability are qualities that are difficult or impossible to combine. Lighter media like papyrus scrolls can be easily moved across space but are less durable than heavier media like clay tablets or stone monoliths, which are in turn less easily movable. While Innis’s focus is primarily on the role of communication in empires, his description of durability applies equally well to noncommunicative media—while one motivation for creating a durable inscription might be so that it could be used to record the contents of a message or proclamation for an extended period of time, durability is also useful in the context of Hadingham’s more integrated understanding of the Nazca Lines referenced above. By inscribing components of a culture in a way that makes that inscription a part of the landscape, the Nazca Lines manipulate the temporality of that culture. The durability of the land—perhaps the least movable medium—becomes a feature of the cultural practices that are integrated with it. Inherent in the notion of durability is a relationship with time—to the extent that all things are variably durable, they change in ways that are related to their materiality.

The descriptions of change provided by Muckelbauer and De Landa suggest a deeper geological mindset. Ongoing cycles of change unfold in time. From human perspectives, compositions take shape over time; first they do not exist and then they do, or first they exist in one way and then later in another. Each time, the new composition influences its surrounding milieu and its surroundings influence it. As it incorporates parts of its environment into its own composition, it engages in a process of interiorization, and as it influences its environment and causes the milieu to take up parts of itself it engages in a process of exteriorization. But traditionally conceived, processes of interiorization and exteriorization must each paradoxically

precede the other. If an entity interiorizes something of its environment, there must have already been an environment within which to undergo this process. If the environment is produced or changed because of exteriorization, the entity must have preexisted that particular environment. If these processes are held as separate, their origin is impossible to reconcile (which came first?); instead of this dualist opposition, philosopher of technology Bernard Stiegler posits the existence of a fundamental process of composition that simultaneously and reciprocally produces both terms (Stiegler 152). Time—or at least the perception of time or the encounter with time—is a *function* of the composition.

The notion of “deep time,” borrowed from geological sciences, has been deployed in media studies to describe a scope within which media operate that can be challenging for humans to conceptualize. German media theorist Siegfried Zielinski, for example, uses deep time in an attempt not to “seek the old in the new, but find something new in the old” (3). Media are not teleological, they distribute themselves nonlinearly in a way that confounds simplistic linear understandings of time. Seen nonlinearly, processes of interiorization and exteriorization can each precede the other and so neither precedes the other, such that it is meaningless to establish any temporal demarcation between them at all. It is composition that links such processes together in “an originary complex in which the two terms, far from being opposed, compose with one another” (Stiegler 152). Such a composition is prior to the concept of time. That is, it enables what we perceive to be the passage of time.

“Deep time” understood in this way is not opposed in a binary relationship with space. As Jussi Parikka notes, the idea of deep time combines the spatial and the temporal. For geologists, “depth means time: under the layers of granite, you find further strata of slate signaling the existence of deep temporalities” (Parikka 37–38). Any record of deep time is the planet itself:

“there is no geological time without geological objects” (Chakrabarty 22). Parikka returns to the geological associations of deep time to emphasize not only that media can be understood more expansively with a perspective like the one Zielinski advocates, but that “the planet *is* a machine” (40). The planet produces media like it produces rivers and volcanic eruptions.

At the end of what humans have come to call the Cretaceous period, over 65 million years ago, the dominant species on Earth went extinct. No one alive today, indeed no human in the entire course of human history, has ever seen a dinosaur. The planet has preserved impressions of these creatures, however, and in some cases even their fossilized remains. These traces of dinosaur existence are the combination of the material conditions of the planet’s surface and the social practices and techniques of the dinosaurs themselves. By examining preserved footprints and patterns of dinosaur remains and nesting material, paleontologists reach various conclusions about the ways dinosaurs lived. The rock layers of the planet serve as a sort of quasi-photographic emulsion, but the preserved remains do not represent the dinosaurs, they *are* the dinosaurs.

A more apt analogy might be a scrapbook, but rather than a human hand placing various objects between flat surfaces in order to preserve them, the dinosaurs have been “placed” within layers of rock by physical/chemical forces and time. There is no reason to their particular arrangement, no attempt at signification. When they are uncovered by humans (be they scientists or miners or construction workers), the planet’s surface is only then perceived to be a medium capable of “representation,” a capacity that is solely of human construction. Representation, if it can be said to exist in this case, is a combination of the material existence of the world (the dinosaur’s remains in a particular location, worked on over time by the planet’s processes) and a human capacity to perceive things as representations of other things. The planet is the medium

for this exchange. In his pursuit of an “elemental” theory of media, John Durham Peters likens media to vessels like sailing ships at sea, “not only [as] a metaphor,” but as “an arch-medium that reveals the ontological indiscernibility of medium and world” (101–02), and the Earth is the ur-vessel, the “spaceship” on which we ply the Solar System. The planet is the enabling force for media, technologies, practices, and activity more generally. It is in turn enabled by forces beyond it, in an ever-expanding network of gravitation, orbits, colliding objects, and so on. The planet, as a subset of this infinite network, is a machine for producing everything on it, including technologies and practices like writing and rhetoric.

The planet’s processes unfold across time and space., While the two are inseparable, for most theories of composition time is “the more familiar approach” (Dobrin 29). The concept of process itself (with its particular meaning to compositionists as an orientation toward the process of writing) is time-centric; processes have beginnings, middles, and ends that replace one another as time progresses. Yet it is possible to conceive of processes and becomings as spatial—the beginnings, middles, and ends might coexist alongside one another. Nedra Reynolds engages in just such a “re-imagining [of] composing as spatial” (3) in her book *Geographies of Writing*. Rather than process, which “usually means temporal,” therefore leaving writing as “a time-bound concept,” Reynolds selects geography as a metaphor for spatial writing because it provides “tools to change our ways of imagining writing through both movement and dwelling—to see writing as a set of spatial practices informed by everyday negotiation of space” (5, 6). Compositions become in space as much as in time; they occupy space and inhabit it, they produce new space by virtue of their existence. Compositions write/encounter the planet as the planet writes/encounters them. Geography—literally “Earth writing”—is bound to a planet.

A move toward space and away from time does not, as Dobrin cautions, “mean to suggest the possibility of an essential—or even necessarily possible—bifurcation between” space and time, but emphasizes the less familiar of the two as a corrective (29). Dobrin argues that space and time are “politically loaded terms of demarcation” (29); this is in part by virtue of their existence as functions of language. Even as he calls for understanding space as “other-than-metaphoric,” Dobrin concedes that the move to space is conceptual: “we cannot escape space as metaphor,” just as we cannot “escape all representation as metaphor” (36). But the material nature of the conceptual cannot be ignored. Space and time are constructs to think with, and thinking with space offers a theory of composition that produces different material effects on the world than does thinking with time. Space is a physical quality of the universe enabling composition. The “deep time” described by geologists is also a “deep space”—the very concept of “deep time” is a call for attention to space.

The strong connection between time and space is not limited to geological study or to the depths of a planet’s surface. Space and time are more fundamentally linked, as becomes apparent when making observations of distant objects. Telescopes, for example, produce images of objects very far away from the point of observation, which requires that light (or radio waves, or other nonvisible wavelengths) travel from that distant point to the telescope. On relatively small scales the time required for light to travel from an object to an observer is relatively miniscule, but as the distances start to exceed easy human comprehension the time required becomes more noticeable. Even the closest observable star from our Solar System, Proxima Centauri, is just over 4.2 light years away, so any observation of it from our Solar System is more than four years “out of date” by the time the observation is made. As Carl Sagan puts it, “We cannot look out into space without looking back into time” (165). While this may be frustrating if the goal of

such an observation is to gain up-to-date information on a celestial body, a different opportunity is afforded. Gathering information from vastly distant objects reveals something about the past of the universe, a universe that is presumably consistent enough that the observations have implications for objects closer to home (namely, Earth). If directed at a target far enough away, a telescope could conceivably gather information about the birth of the universe. This “deep time” does not need to be excavated out from under layers of rock, it is right here in the night sky, however faint.

In many early philosophies, space is described not as empty nothingness, but as an orderly backdrop for creation, wrought from the underlying chaos of existence. In Plato’s *Timaeus*, for example, the formation of the universe is described as the work of a craftsman god who “led it from chaos to order” (30a). Dobrin explains that conceiving of space as order made from chaos led Homer to first use the word “cosmos” (from the Greek *kosmos*, meaning “order”) to refer to outer space (38). The neologism “chaosmos,” coined by James Joyce, intends to replace the oppositional terms of cosmos (order) and chaos, and was taken up by Guattari in his book *Chaosmosis*. Here Guattari describes a processual form of chaosmos, an always ongoing process in which the two terms revolve and produce residual effects. By rearticulating order and chaos as a single term, Guattari argues that, far from oppositional states, chaos and order are co-productive. The fact that we might perceive one of the two to be “more orderly” is a product of that perception rather than some intrinsic ability of the universe to divide itself up. Order is then not oppositional to chaos but contiguous with it. From the perspective of deep time, the planet is the site of contiguous (i.e. connected, coterminous, continuous) change—and the emergence of complexity from that change—even as we sometimes believe it to last forever.

The geological concept of deep time is not just a useful theoretical framework, it is also a material fact of writing and rhetoric. Even in examples of writing and rhetoric not as obviously massive and material as the Nazca Lines, the role of the geology of the planet is central to their functioning. The implements of writing and rhetoric—pencils, paper, computer chips, telecommunication cables, podiums, and so forth—are sourced from the raw materials of the planet. While any particular incarnation of these is a single discrete entity, together they make up an ongoing flow of matter swirling across the surface of the planet. This ongoing churn can appear to stabilize for periods of time, but as Muckelbauer reminds us such stability is ephemeral.

The materiality of writing and rhetoric that makes them geological is also a deeper temporality that adjusts how they are understood to function and change. The geology of a pencil is not just its material existence as a collection of particular substances obtained and rearranged, but as an ongoing part of the matter-stream of the planet, into which it will return (or, more accurately, from which it has never left). The deep time of writing and rhetoric is their very existence as manifestations of this ongoing flux. As such it is also integrally related to how we understand and theorize them.

### **Theories Are Always Changing**

As writing and rhetoric continually change, so do attempts to describe and theorize them. Studies of writing and rhetoric have been occupied for centuries with careful parsing of the relationships between writing and other forms of language and between the various technologies and practices involved in the production of writing. Composition studies, as a more recent discipline, has devoted extensive study to, among other things, the often intensely personal

writing practices of individual (often student) writers in an effort to more accurately understand and describe how writers write. Any of these new analyses and theorizations is dictated in no small part by the shifting existence of the technology of writing itself. As writing changes, so do theories. But the task of theorizing writing is, as Muckelbauer and Deleuze and Guattari point out above, also fundamentally *written*. The work to theorize writing itself involves writing, and so the theory becomes, in some part, its own object of inquiry.

Sánchez explores this paradox in his essay “In Terms of Writing As Such.” Using writing to describe itself means that any written theory of writing (including this one) remains “within” writing, rather than “above” it on some imagined higher ontological plane. This does not mean that there is no purpose to theorizing writing—on the contrary, the reciprocal interaction between writing and theories of writing reflects the ongoing changes in writing that produce the exigence for theorization in the first place. Writing and theorizing about writing are closely intertwined, which also means that they cannot escape each other. Because of this situation, Sánchez determines that theories should not be judged “by the achievement of a specific ‘knowledge’ outcome but by the attainment of a procedural disposition to accompany our ongoing deconstructive attitude” (“In Terms” 27). For Sánchez, theorizing writing is at least in part an end unto itself because the process of theorizing entails working directly with writing, as a sort of engaged and methodical material experimentation. Accordingly, Sánchez argues that

a *good theory of writing* will be contradictory, incomplete, perhaps even incoherent. But its usefulness—to researchers of writing, to teachers of writing—will reside in the sum of these qualities, because that sum would reflect the unique situation of *writing*, its inability to be an object of inquiry. Regarding writing and the writing of theories of writing, theory’s main job will be to remind us, cheerfully but persistently, of what we cannot do yet are compelled to try. (“In Terms” 28)

Theories of writing manipulate components of their object of inquiry (i.e. written words) directly; theorization is both conceptual and material. Though it can never “break free” of writing, a written theory of writing can create productive rearrangements of writing and provide different orientations toward understanding it. The work of theory is ongoing—there is no teleological endpoint toward which it must lead.

Sánchez’s depiction of theory as an ongoing process undertaken with the material forms of writing itself suggests an understanding of theory as method. For Sánchez, “to write a theory of writing is to make (or sever) connections between or among relevant terms” (“In Terms” 25), terms that are, in their existence as writing, inherently material as well as conceptual. Writing is both an object of inquiry (in as much as it is an object) and a method of analyzing that object (in as much as it is a process). The inherent paradox of using something to study itself reveals the paradoxical nature of presuming that any theory is distinct from the material world, or its object of inquiry. Dobrin agrees, emphasizing that theory accesses writing directly:

Theory is not pursued for the sake of theory but rather as a platform through which to better understand writing, not by (necessarily) theorizing writing but by understanding how theory comes to be through writing, how the function of theory is itself a function of writing. (211)

As much as they might appear to be, theories are not transcendental proclamations of “truth,” they are just marks on a page—that’s why they’re valuable, as evidence of the ongoing interaction between (and irreducibility of) the material and the conceptual.

Attempts to stabilize writing or to more fully understand it in concrete terms are emblematic of a teleological tendency in discussions of writing. The practice of perpetually identifying a “lack” in current understandings is, as Sánchez notes, not “well suited to the study of writing” because it implies that if we can only find all of the problems with our ways of thinking we will one day arrive at a theorization of writing that accounts for its every complexity

(“First” 183). Sánchez admits that any theorist or researcher would agree that such a perspective is implausible if not impossible, yet the tendency persists (“First” 183). The medium of writing is particularly prone to this issue because theorizations of writing, like the present one, are themselves conducted using writing, and as discussed above writing (as a material artifact) can appear quite stable. Nevertheless a “discourse of need,” as Bruce Horner puts it, continues to drive scholarship in composition. It is an understandable pitfall, if for no other reason than that it provides a straightforward way to show how one’s own contribution is necessary: because it is better than something else. The continual changes in writing and rhetoric do not demand continually *new* theorizations but instead theories that acknowledge and dwell within ongoing change. Horner points out repeated calls in the field for practices (even composition studies as a whole) to come to an end because of their various faults, presumably to be replaced with something better. Instead he shifts focus toward an interest in the “always emergent, varied, and changing character” of work in composition, a perspective that many might consider ecological (or, in the context of the present discussion, planetary), even if he does not invoke the phrase, in that it prioritizes the wellbeing of the whole (13). Understanding that whole as a complex continual fluctuation of material rather than a series of stabilizations is a challenge for the theorization of writing and rhetoric. Muckelbauer’s preference for “affirmative” engagements with theory and the paradigm other than representation that preference necessitates stems from a similar move away from negation and stabilization.

Here Guattari’s understanding of the diagram provides a useful concretization<sup>3</sup> of Sánchez’s orientation toward theory. Guattari develops his use of the term from semiotician Charles Sanders Peirce, who includes the diagram among a number of his different

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<sup>3</sup> From a planetary perspective, concrete, even once hardened, is a very slow-moving liquid.

classifications of semiotic entities. Guattari explains that for Peirce, diagrams (such as a system of algebraic equations or a set of blueprints) contain “signs [that] function in place of the objects they relate to, independently of any effects of signification that may exist alongside them” (*Molecular* 170–171). Rather than representations that copy or point back to something else, diagrams exist in the world on their own, creating their own effects independently of whatever they might correspond to. Diagrams are a sort of “interchange” that deterritorializes various real entities (in the case of the blueprint, perhaps metal components of an airplane, electrical signals, and so on) in such a way as to allow them to be compatible within the diagram (Guattari, *Molecular* 154–155). But unlike Peirce, Guattari separates the diagram from signification, which would otherwise return to representation (Genosko 102). Diagrams for Guattari are “non-representational and upload what they map as they map it,” they push things together, they “[don’t] need meaning, just the manufacture of it” (Genosko 11). Unlike Peirce, Guattari does not assume that everything works like language does; not every semiology is linguistic or signifying.

Diagrams are a-signifying. The purpose of diagrams is to “[bring] new entities into existence” (Watson 11) directly, rather than by reproducing existing forms, they operate “outside of the realm of representation” and must therefore be “understood as a dynamic force rather than as a static image” (Watson 11). The purpose of this sort of diagram is not to organize what has already been, but to create. Like the Nazca Lines, the LongPen, or the *Pioneer* plaque, the nonrepresentational components produce rather than reproduce, create rather than mimic. They become engaged with practice and “escape” the “order” of representation altogether.

The diagram, via Guattari, provides a method or orientation for how to create theory given the self-referential challenges Sánchez outlines. A diagrammatic perspective is, as Janell

Watson notes, largely implicit throughout Guattari's writing, but can be gleaned from his work. Watson focuses in particular on his use of visual drawings to augment and complement his more theoretical concepts. Watson contrasts analytic and diagrammatic thought, and uses the many drawings Guattari includes in his books to demonstrate her understanding of "diagrammatic thinking." She notes that Guattari does not call his drawings "diagrams," but they are a recurrent feature of his writing and serve to produce meaning alongside his analytical writing: "His drawings work like diagrams in the sense that they at times seem to generate ideas, as if they were operating on their own, like little machines" (13). Guattari's drawings embody his theories in that they act for themselves, rather than represent. This is reflected in the fact that each new diagram Guattari produced is slightly different than the last, embodying his evolving thinking.

While drawn diagrams may not always be appropriate for every subject area, the concept of the diagram as a way to bring together elements that act on the real rather than representing something more real than themselves suggests a way to "do" theory that is simultaneously theoretical and "real." Theory is often contrasted with the practical or applied, but a diagrammatic theory is all of these at once. Indeed, if the materialist perspective described in chapter one is taken seriously, then all things—even theories—produce material effects, acting on the world and producing new arrangements. The diagrammatic orientation offers a way to conceptualize these effects. The product of theory is not just representational, it is also conceptual. Theory acts on the world.

In this diagrammatic sense the Nazca Lines could be viewed as a theory developed for enabling and producing actions in the world. Hadingham's understanding of the Nazca Lines referenced at the beginning of this chapter argues that they were used as a way of organizing ritual activity. In doing so the lines enable thought, and organize not just certain understandings

of reality but reality itself. They act on the world, today as much as they did thousands of years ago—although the actions they perform today (producing curiosity and awe and attempts to learn about the past) are doubtless quite different from the ones produced sooner after their creation.

Viewed in deep time, the change in the activity of the Nazca Lines over thousands of years is coupled with the ongoing consistency of the lines. Over this longer scale of time they will degrade and change (and human interference could cause such change over shorter periods of time), but the “lifetime” of the lines relative to human lifetimes allows them to provide a sort of infrastructure for activity as they act on the world. Within ongoing change it is the relative difference in duration that lends consistency to certain elements from the perspective of others. When this relative difference is fairly close, things appear to change; when it is relatively distant, things appear stable.

### Chapter 3: Composing as Infrastructuring-in-Flux

But composition also refers not only to what is now understood to be the composing process(es) of individual students or groups of students (or other writers) but to the full panoply of material social conditions and practices out of, and within, which such processes and products appear—the “field” of composition, composition programs, and the history of these. (Horner 8)

The most originary, objectal intentionality defines itself against a background of chaosmosis. And chaos is not pure indifferenciation; it possesses a specific ontological texture. (Guattari, *Chaosmosis* 81)

The force that drives life is chaos. (Hoffmann 5)

Looking up at the night sky is a primordial experience. At the same time that it involves peering out into the vast cosmic expanse within which the planet moves, it situates the observer on a particular point in space. The stars only look this way from the general vicinity of Earth and the rest of the Solar System; on another planet in another part of the galaxy their arrangement would be completely different. Seeing the stars arranged just so is a marker of the relationship between them and the planet. Acontextually, the stars are simply stars; from a specific vantage point they form shapes that only Earth can see. Humans have added an additional layer of meaning to those shapes by labelling them as constellations, often associated with the mythical creatures or personae of particular cultures. Even on the same planet the stars look different depending on one’s perspective.

Tim Ingold calls these lines formed by stars “ghostly” because they exist only in the imaginations of observers, and points out that ghostly lines are no less consequential for their being imaginary (47–50). Ghostly lines “partition air-space and fishing waters, and demarcate time-zones” (50). The ghostly lines of constellations are markers of human attempts to organize the cosmos and, by extension, our place within it. Constellations have long served to guide

mariners, and even with the advent of GPS navigation they are still a reliable backup as long as the sky is clear.

Stars have fascinated human societies for hundreds of thousands of years. Amid the relatively consistent movement of stars tracking across the night sky as the planet spins, early astronomers and stargazers noticed certain celestial bodies that moved more erratically. These other lights moved in their own particular directions, leading to a separate classification: “planet,” which comes from the Greek *planētēs* meaning “wanderer.” In the course of their wandering, these planets occasionally reversed their direction. This movement, called “retrograde,” is the result of the relative orbits of Earth and the planet in question. Since each orbit is at a different distance from the Sun, there are moments when one planet passes the other like runners on the inside lane of a racetrack, so from the perspective of an observer on one of the planets the other appears to reverse direction. Geocentric models of the Solar System could not account for this motion without making the paths of the planets extremely complex, thus adding to their mystique as wandering entities. Plato’s account in the *Timaeus* is representative of this understanding: Venus and Mercury are described as moving “with the same speed as the sun, but [with] tendencies that oppose it,” which leads those planets and the sun to “constantly overtake and [be] overtaken by one another” (*Timaeus* 38d). The separate classification of “wanderer” would have no meaning without the organizing role of the other stars. As much as they fluctuate over geological spans of time, the movement of the stars forms a stable background upon which humans have tried to understand the cosmos. Stars are referred to as being “in” a particular constellation, even though they may be far from adjacent when viewed from a different angle because they are actually millions of light-years apart.

Over the course of millions of years, constellations do change. Since the stars that make them up are on their own trajectories through the galaxy, their arrangement with respect to each other and to our Solar System is not fixed. From a human perspective—even the “perspective” of human history as a whole—they are essentially stationary, and constellations have provided enough stability for navigation at sea and the cultural associations mentioned above. But to the planet, constellations are shifting patterns of light, dancing across the sky.

In the previous chapter, change and sameness were described not as binary opposites but as integral components of processes of production. That is, rather than components of a structure, change and sameness are drivers of continual arrangement and are not diametrically opposed to one another. Change understood in this way enables technologies and practices like writing and rhetoric, and might be better understood with the less temporal term *difference*. But rather than “an infrastructure” as such, change/difference is always in flux, and so its capacity “to infrastructure” is always ongoing. Writing and rhetoric are attempts to manipulate change, either by causing something to persist or by creating specific variations. The fact that nothing stays the same requires energy to be expended to resist change. Everything eventually breaks down, but attempts to make certain objects or concepts persist longer than they might otherwise requires effort. By the same token, the unpredictability of change requires energy to be expended so that certain changes might be more likely to occur. In either case, it is a background of “chaos” upon which writing and rhetoric attempt to navigate. Continual change can form a basis for relatively stable compositions of practices; many social structures are enacted with a goal of mitigating and adapting to change. Their apparent stability is due to their relationship with change. Democratic systems of government, for example, are typically designed such that the various functions they perform can continue despite a continual fluctuation in the people elected to fill various

positions. Indeed, the continual fluctuation is often pointed to as an enabling factor for the ongoing functioning and stability of a democracy. If positions of power were not eventually handed off to new leaders, the democratic principles the system supports would begin to break down.

Put another way, difference is ontologically prior to writing and rhetoric. A brief tour through some canonical sources in the study of writing and rhetoric—from Kenneth Burke’s “Identification is compensatory to division” (22) to Ferdinand de Saussure’s “in language there are only differences” (120)—demonstrates how ingrained this perspective is. But taking a planetary approach to this concept suggests that change is not a movement from “the same” to “the different,” so these foundational understandings of how writing and rhetoric are based on difference must be reoriented. If “the same” *is* “the different,” then it is a capacity to create an appearance of stability within ongoing flux that defines writing and rhetoric. Writing and rhetoric emerge from flux while also remaining within it. Writing, Saussure acknowledges, requires not only difference but a capacity for repetition—synonyms, for example, serve important structural roles in establishing a working language. But these repetitions are also differences: if a synonym were not at least partially different from the words with which it shares definitional characteristics, it would be redundant. And even if such redundancies exist on a semantic level, two words with the same definition must be different at least in spelling or pronunciation to actually be two words and not just two copies of the same word. For Burke it is precisely the difficulty of creating “consubstantiality” that impels his focus on rhetoric as identification. Identification is both a means to associate a concept with certain linguistic elements as well as the use of those elements for demonstrating commonalities between different groups (19–21). A rhetor reveals various commonalities between individuals who are otherwise distinct from one

another in order to unify them for some purpose. For such an act to be thinkable in the first place, the individuals to be unified must have been in some amount of disunity prior to the rhetor's actions. Difference drives writing and rhetoric by providing the grounds upon which they are used. A capacity for the world to enable and produce continual variation (change/difference) in this way must precede any perceived "structure" we might observe in it.

Many theories of writing and rhetoric offer important contributions toward examining the foundations of their subjects. Three recent scholarly works referenced in previous chapters demonstrate the role that complexity, ecology, and materiality play in articulating such foundations, and these works also suggest an awareness of the approach to change taken in the previous chapter. In each case, the foundational concepts presented can be seen to involve change on a fundamental level. Thomas Rickert's *Ambient Rhetoric* depicts the dynamic fluctuation of the environment that enables and engages with rhetorical practice. In this arrangement, ambience "refers to the active role that the material and informational environment takes in human development, dwelling, and culture" (3). Ambience is not silence or stillness waiting for something to happen, it is an ever-shifting texture for the emergence of new compositions. It is change at its most fundamental. For Diane Davis, in her book *Inessential Solidarity*, the enabling infrastructure for rhetoric is "exposure," an "always prior openness" that requires of entities that they respond to one another, thus necessitating (and enabling) rhetoric (3). Relationality is key for Davis's articulation of rhetoric because relation demands response and implies an obligation toward the other (and otherness is difference). If we exist in a world in which we encounter and interact with other entities, we have no choice but to consider them as related in some way (perhaps positively, negatively, or neutrally) to ourselves, thus requiring a rhetorical awareness on our part if we are to navigate such relations. In the context of writing,

Raúl Sánchez's book *Inside the Subject* posits the event of writing as the moment enabling subjectivity. As Sánchez explains, the event of writing is a sort of crossing-over point between the writer and the text-in-progress. During this process something new is produced, not just in the sense that a written text is composed but because both writer and writing interact with and change each other. Identity for Sánchez describes "the relationship between the *inside* and the *outside* of writing at the moment of a text's creation" (*Inside* 9). In each of these cases briefly highlighted here, change and difference give rise to the complex structures and arrangements we perceive like writing, rhetoric, and identity. Without a background of flux, there would be nothing but a homogeneous singular point, everything the same as everything else, and no way for anything new to emerge.

Change as originary taken together with the geological view from chapter two that revolves rather than opposes "the same" and "the different," suggests a way of articulating that writing and rhetoric can compose modes of existence within an ongoing structure of complexity—without resorting to traditional binary or hierarchal frameworks. This complexity, as Félix Guattari notes in this chapter's epigraph using the language of chaos theory, "is not pure indifferentiation" (*Chaosmosis* 81). Indeed, Guattari (whose work spans philosophy, psychology, semiotics, and politics, among other disciplines) uses the neologism *chaosmosis* to signify that the background structure within which processes define themselves is simultaneously both chaotic and orderly. Such a concept is paradoxical unless these apparent opposites can be understood to revolve in an ongoing relationship that produces effects we perceive to be one or the other. The complexity of this arrangement impels continual attempts to manipulate it like writing and rhetoric. As a way to reference this continual production, this chapter reintroduces the term *composition*.

To compose is to produce a structure of relations that enables composition. Circularity in this formulation is an artifact of precisely the sort of linear terminology that previous chapters have shown Muckelbauer and others seek to subvert. Part of this subversion is a resistance to definition. In the above discussion and in the previous chapters, the term “composition” has been left largely undefined. This is partially an intentional deference to the need for terminology that escapes traditional representational limitations of terminology. Relying too heavily on rigid structures of concepts that build from one another in relatively linear fashions can reproduce the structures of thought that new terminologies might wish to subvert or sidestep. Composition is a particularly complex term for reasons outlined in chapter one and alluded to in this chapter’s epigraph from Bruce Horner. As the field of composition continues to delve into its subject matter, it seems that an increasing amount of weight is placed upon the term that names that field, perhaps because it is conveniently expansive in nature. This chapter certainly continues that trend but deemphasizes the need for a rigorous *definition* of composition, favoring instead a series of depictions of the *effects* of composition. That emphasis follows Deleuze and Guattari’s interest in what a thing *does* rather than what a thing *is*, which is in turn a development of materialist thought. As outlined in chapter one, materialism focuses on the embodied context of things in the world. Applying this perspective to the concept of composition provides an alternative to linear progressions of definitions and argumentation that reify representational paradigms.

### **Composition is Interior and Exterior**

A typical writing scene involves a human writer manipulating technological devices associated with writing. These devices might include a pencil and paper or a keyboard and

computer screen, along with numerous increasingly peripheral (though no less integral) others like a writing desk or a lamp. The writer engages with these objects, usually in a highly routinized series of physical gestures or movements designed to produce a material trace of that effort that we label as “writing.” Rhetoric might similarly be described as an interaction between a rhetor and an audience, with a number of different possible media and technologies providing means for the rhetoric to accomplish some goal within a “rhetorical situation.” But as described in chapter one, even a generic outline of a “rhetorical situation” such as the depictions given by Bitzer or Vatz breaks down upon close inspection, and that breakdown extends to the “typical writing scene” as well. At issue is the attempt to distinguish between the part and the whole, between the individual and the world, or between the inside and the outside.

Bernard Stiegler’s book series *Technics and Time* examines, among other things, the relationship between the interior and the exterior of a technological subject. Stiegler proceeds through an exhaustive history of human technics, based in large part on the work of archaeologist and anthropologist André Leroi-Gourhan. Stiegler, via Leroi-Gourhan, describes how humans interiorize parts of their technical environment, which become parts of themselves, and exteriorize parts of themselves, which become parts of the technical environment, and which are then subsequently interiorized by other humans (or perhaps the same human at a later time), and so forth. The technical object is neither living nor inert, it is “organized inorganic matter that transforms itself in time . . . in its interaction with the milieu” (49, emphasis removed). It then additionally “becomes the interface through which the human . . . enters into relation with the milieu” (49). Technology, in this system, is part of an environment that exists prior to individual human thought.

The cycle of exteriorization and interiorization continues because of an evolutionary process of selection that creates a “technical tendency” within the environment, impelling certain technics to continue to be revealed because the conditions of the world lend themselves to their development (44). Developing this depiction, Stiegler argues that the inside and the outside continually produce one another and are, in fact, “the same thing” (142). Interiority and exteriority are functions of each other: “Interior and exterior are consequently constituted in a movement that invents both one and the other” (Stiegler 142). If the inside and the outside produce one another and they are also equivalent to one another, how could one be said to precede the other? Unraveling this paradox centers on the central question of Stiegler’s work—the “time” in *Technics and Time*: “if indeed one could speak of exteriorization, this would mean the presence of a preceding interiority” (152), and vice versa. In presenting a resolution of the paradoxical nature of the temporal origins of the inside and the outside, Stiegler posits an originary process of composition (referenced in chapter two) that produces both inside and outside: “an originary complex in which the two terms, far from being opposed, compose with one another” in a transductive relationship—“Neither one precedes the other” (152). This depiction moves beyond the binary between interiority and exteriority and locates them both as simultaneous processes of composition. This *composition* is prior to any understanding of inside and outside as binary opposites; it is their composition that leads them to be perceived as such. We are always incorporating parts of technologies into who we are and technologies are always incorporating us into how they work; in doing so our understanding of the world is influenced by that cycle of interiorization and exteriorization.

In his own work with Leroi-Gourhan, John Durham Peters is careful to qualify that “not all of his claims hold up after five decades of ongoing archaeological and genetic research” (17).

As Carrie Noland notes, for example, “Leroi-Gourhan’s chronology of prehistoric material culture has been falsified by the emergence of new evidence since his death” and “his structuralist interpretation of paired signs has been rejected as anacontextual and anachronistic” (93). Despite these faults, his “[refusal] to envision a human nature, a human *physis*, outside of its constitutive relation to *technē*, or prosthetic tools” remains a “crucial contribution” (Noland 94). Leroi-Gourhan, Peters agrees, provides an important reminder that “the evolutionary history of the human body is inseparable from language and technology” and of the “essential technicity of human beings” (16). Peters extends Leroi-Gourhan’s claims to argue that the body is a medium, and that the distinction between technology and biology is blurred, if it exists at all. In Stiegler’s terms, “The interior and the exterior are the same thing, the inside is the outside” (142). That we perceive them otherwise is a byproduct of a limited frame of reference.

As noted at the beginning of this chapter, constellations are a product of human observation—they appear to be “outside” human perception, but in perceiving them and ascribing certain values or relationships between them they are also a product of the “inside.” Our observations of them cannot be separated from the technologies involved in viewing them; even viewing stars with the naked eye involves a technological relation with our environments. Constellations may be more or less visible depending on the haziness of the sky (a factor influenced by the larger ecology of technology in the area), or on the ambient light levels (called “light pollution”) nearby. What may appear to be a fully-formed constellation viewed from one part of the world may be only a single star when viewed from a nearby city. Human eyesight is also part of this composition; certain star formations are easier to make out with the naked eye than others, and of course the significant amplification provided by telescopes enables the observation of star formations completely unlike those visible without assistance. Certain parts

of some constellations are revealed to actually be multiple stars, or nebulae, or to be in various stages of self-destruction that lend them different appearances. The interaction between inside and outside forms what constellations are, not just what they might be said to mean.

Sánchez connects the concept of inside and outside with the notion of representation. For Sánchez, traditional articulations of “inside” and “outside” with respect to writing rely on a representational understanding of writing: inscription is traditionally understood as “what happens *out there* (as marks on a page or pixels on a screen),” while composition is what “happens *in here* (in mental states that are essentially private despite multiple input streams of text and information)” (*Inside* 3). Indeed, it would seem that in the example of constellations there is an external process (the existence and life cycle of the stars themselves) and an internal process (the human layering of “meaning” on top of that existence) that are quite different from one another. But these things compose with one another; they’re interrelated. That doesn’t mean that the stars rely on us for their existence, but neither do we rely on them for our culture. Without either or both, the composition would have simply developed differently. What has come to be composed is reliant on those and other constituent elements, but they do not determine—or represent—the composition.

### **Composition Resists Definition**

Composition describes how an entity at any level of scale hangs together, and how it engages with other entities. Composition builds planets and documents, galaxies and social networks. As the label for the domain of composition studies, composition has become associated with certain kinds of academic and professional labor, as well as with an object of study and various processes leading to that object. The term “composition” is thus itself

incredibly composite, and identifying any one of its salient characteristics only scratches the surface. “Scratching the surface” is a particularly apt phrase in this case because the Latin for “to scratch,” *scribere*, is the origin of the word “writing.” So in a sense, identifying some of the salient features of composition *writes* the surface of composition; it is the ongoing process of describing composition that itself composes what composition is. At its most abstract, composition is any heterogeneous collection of elements; in a more situated context it is a group of students writing in a classroom. Neither of these extremes is the whole picture, but neither are they mutually incompatible. The challenge for composition studies is to continually establish what is enabled by taking this central unit—the composition—as its object of study.

Disciplinarily, composition is a form of work. As Bruce Horner describes, composition is “the name given to work done in colleges and universities, mostly in the United States, by students and teachers as they engage and mediate differences in written language” (8). The “work” involved is writing itself—“Writing language is the labor of composition” (Horner 92). Such work is often conceived as being divided into material and immaterial labor, but Horner clarifies that traditional binary separations between the conceptual and the material are in fact indistinct. To elaborate on this clarification Horner turns to the concept of “intellectual work” developed by James Slevin, and emphasizes that unlike those who would separate such work from the material, “Slevin locates intellectual work insistently in the material social realm, including the academic institutional realm and, most notably, the scene of pedagogy” (33). Pedagogy is an important aspect of this depiction of intellectual work because for Horner (via Slevin), composition is less a “field” than “a set of activities and practices one works ‘with’” (Slevin, quoted in Horner 34). Composition, then, is an expansive collection of conceptual and material techniques performed by everyone and, arguably, everything on the planet.

The troubled distinction between the material and conceptual (or immaterial) dimensions of composition cannot be “reconciled” in the traditional understanding of binary relationships but must instead be inverted such that the terms involved are revealed to not actually be oppositional. To this end Byron Hawk suggests that composition is best understood as a “quasi-object,” a term he borrows from philosopher Michel Serres to describe something perpetually “in the process of being composed” rather than a stable entity. Quasi-objects are momentary or subjective “pauses” in an ongoing flow of material and energy; “what humans perceive as stable objects” are in fact “material relations” that have slowed down and produced “emergent vibrations and energies in complex processes of becoming composed” (*Resounding* 6). Composition (the field as well as its object of analysis), Hawk argues, is just such an object, “A loosely or tightly knit network stitched together through a series of movements and actions” (*Resounding* 16). The field of composition, understood as a quasi-object, studies a quasi-object: “an object of analysis that is paradoxically specific and unbounded, expansive while at the same time still being a unique object of study” (*Resounding* 17). Composition is flux.

At the same time, and in part because of its unboundedness, composition can be seen to be a “hyperobject,” a term invoked by object-oriented philosopher Timothy Morton to refer to “things that are massively distributed in time and space relative to humans” (1). Morton is particularly interested in the application of this concept to global issues like climate change, and the term “hyperobject” has built-in planetary attributes. Morton associates various properties with hyperobjects, including viscosity and nonlocality. That hyperobjects are viscous “means that they ‘stick’ to beings that are involved with them” (Morton 1); hyperobjects are not accessed at a distance, they adhere to everything and spread, they are always “right here” (Morton 27). But they are also nonlocal: “any ‘local manifestation’ of a hyperobject is not directly the

hyperobject” (1). There is always more to the hyperobject than that which is accessed or apprehended at any given moment. Hyperobjects are often invisible to humans or simply too vast to conceive of in their totality (38). If the technology of writing is considered as a whole, its ability to spread across time and space creates the sort of “massive distribution” Morton describes, and suggests that qualities of hyperobjects may apply to writing. The term “composition” incorporates this sense of writing as a massively distributed entity, and the processes of composition, as outlined in chapter one, are complex, ongoing, and ecologically interconnected with the world. Referring to “composition studies” rather than to “writing studies” is not only a modification toward nonspecificity with respect to whether the field references a particular technology, it acknowledges that the process of interest for the field is both a quasi-object and a hyperobject: it is always in the process of changing and becoming (re)composed, and it is also already vastly integrated into the processual workings of the planet.

Because of the qualities Morton describes, an observable effect of a hyperobject is easily mistaken for an effect of an entity a hyperobject is engaged with in some way (and vice versa). Such a dilemma has plagued rhetoric since the first years of its study, dramatized by Plato’s depiction of Socrates as he interrogates Gorgias on the true nature of rhetoric. Socrates is able to lead Gorgias to a confused delineation between rhetoric and other disciplines by continually revealing rhetoric’s associations with those other domains. What Gorgias considers rhetoric Socrates sees as part of something else like medicine or astronomy (Plato, *Gorgias* 449d–51d). Even today, and without Socrates’s “assistance,” we might have difficulty teasing rhetoric apart from other disciplines; indeed, the conflict between rhetoric and philosophy, which James Crosswhite argues is “internal to rhetoric,” reflects an ongoing debate about the materiality of rhetoric and writing (5). But rather than seek to understand rhetoric by separating it from the

material world with which it is entangled, attention to composition reveals such a separation to be impossible. Offering a singular stable definition of composition would occlude the complex features described above.

Avoiding a definition of composition in this way does not reflect a lack of rigor—it is possible to base a rigorous structure of knowledge upon a foundation of undefined terminology. For example, many subdisciplines of mathematics base their concepts and theorems on the term “set,” which is left undefined. As one representative mathematics textbook explains, there is “an important structural weakness” revealed by understanding the task of communicating with a shared set of definitions: “It is impossible to define every concept” (Fraleigh 15). Any proposed definition would require further definition of some word used in the preceding definition, until eventually “we will run out of new words to use and have to repeat some words,” leading to a “worthless” circular definition (Fraleigh 15). In mathematics a certain term (usually “set”) is chosen to be left undefined so that other definitions can build upon it without resorting to circularity. The textbook goes on: “We shall not define *set*, but shall just hope that when such expressions as ‘the set of all real numbers’ or ‘the set of all members of the United States Senate’ are used, people’s various ideas of what is meant are sufficiently similar to make communication feasible” (Fraleigh 15).

There are at least two important conclusions from this practice. First, communicating a shared terminology is inherently rhetorical. This is not a particularly profound conclusion to those who are familiar with the study of rhetoric, but the example is illustrative of the necessity of trust for communication to take place. A shared language, like a set of traffic signs on a roadway, is a process of proceeding under the assumption that everyone else will follow (roughly) the same rules that you will, thus enabling certain actions with the expectation of

others' behavior (staying on the right side of the road, for example, enables others to drive at high speeds without fear of headlong collisions). Second, and more importantly, it is possible (even necessary) for a rigorous study of a subject (including one that is often regarded as one of the "purest" sciences) to proceed without defining everything. Definitions cannot escape language—and no matter how hard we might try, language can only ever describe itself. The rhetorical move of leaving a core term undefined creates a bridge between the conceptual and the "real." This elision is something that is always necessary for all uses of language. It is simply not possible to exhaustively explain every concept or word one might use in a communicative encounter. A continual string of "but why?" or "what do you mean?" must reach some end point or the conversation will continue forever. All communication depends upon assumption; that assumption is where the conceptual is forced to transition (across a gap) to the "real." All communication merely proceeds *as if* it accesses the "real." At some point a leap of faith is required.

For a theory of composition, resisting structural tendencies in defining terms is not only a necessary feature of developing a shared terminology (like the example of mathematics), it is also a form of political resistance to the power structures associated with such structural tendencies. Kristopher Lotier explains a version of this resistance to definition in the context of postprocess theories of writing: "To ask what a thing means is to attempt to pin it down, to resolve its complexity, to gain some form of mastery over it, to translate it into something more recognizable—that is, to deny the thing its singularity or uniqueness" (361). The goal of composition instruction, and indeed of much of composition theory, is to "reject" overarching claims of knowledge or mastery and "[attend] to singularities *as such*" (Lotier 361). It is less

important to define what a composition is or what it represents than what it does, what it brings together, and what it enables.

### **Compositions Arrange and Bring Together**

The chaos of continual fluctuation is the driving force behind the cycles of exteriorization and interiorization that Stiegler associates with an originary process of composition, as described above. Resisting stability does not imply total chaos, however. Guattari's concept of *chaosmosis*, referenced in chapter two, is a processual unifying of order and chaos that articulates the two as interrelated processes rather than binary opposites. The evolutionary tendencies underlying Stiegler's cycles of interiorization and exteriorization (another set of interrelated processes) also emerge from chaotic behavior. Evolution, as physicist Peter Hoffman puts it, is a "ratchet: It rectifies the random input from mutations into the creation of an ever larger number of possible creatures" (225). The chaos of random mutation, as he states in this chapter's epigraph, "drives" life (5). At certain points along this process of random mutation, temporary stabilities are achieved from which the process does not revert (hence the ratchet). This is also how Stiegler describes the "technical tendency" leading to the production of ever more complex technologies. The planet evolves nonliving as well as living entities.

A geological emphasis on deep time does not imply a massively ordered structure created by composition. Deep time is deep flux, not deep structure. Chaosmosis brings together chaos and order, not to unify or explain them, but to describe their functioning. A key component of this depiction is Guattari's emphasis on "machines" rather than "structures." This emphasis serves to focus attention away from an understanding of the world inspired by structuralism toward entities that express both actual and virtual properties—that is, machines represent both

“existing institutions, groups, and practices” as well as “the virtual possibilities of collectivity” (Tinnell, “Transversalizing” 367). The “discursive” logic of the structure, Tinnell explains, “defines difference only in relation to itself,” while machines “express an affective logic of intensities” and strive for a collective heterogeneity (“Transversalizing” 369). It is this ongoing process of differentiation that creates the capacity for relationality—not as a relation between an individual and the other, but as a relation between all individuals at once. Rather than conceiving of the planet’s ecology as a unified whole (a structure), Guattari’s ecosophy regards the planet as incommensurably dynamic; it does not seek to expand one’s worldview to encompass more and more different beings (as do more traditional ecological perspectives) but to instead “resist the frames of reference imposed by an identity” (Genosko 87) and thus encounter the other in its alterity. Tinnell argues that this “minor difference” in ecosophical logic means that “an eco-humanities inspired by Guattari’s theory of ecology would look very different than the familiar . . . project of Nature appreciation,” instead promoting “radical transformations in the production of subjectivity and concepts that carry with them the potential to sustain a more transversalized conception of identity” (359).

Developments in writing characterized by what Sidney Dobrin calls “hyper-circulatory” technologies—referenced also in chapter one—are not “new” when understood in the context of ongoing change. Horner critiques Dobrin’s leveraging of “hyper-circulatory” digital writing as an exigence for his move away from composition as it is understood now, because for Horner it is indicative of a “fast-capitalist” ideal that ignores the social material context of writing (25). As noted in chapter one, Horner’s materialist approach is decidedly Marxian, but his critique of characterizations of novelty as universally desirable has broader implications. Always striving for new theories and approaches that replace older ones deemed to be “inadequate” is similar to a

capitalist mindset that valorizes the continual and increasing production of new material. Horner associates this tendency with a “discourse of need” surrounding composition studies as a field. In this discourse, older ways of thinking are identified as lacking (or “needing”) in some way, thereby justifying their replacement with the new.

Among the many qualities Horner describes as being emblematic of this discourse of need, three stand out for the present discussion: change understood as a series of “violent breaks with the past,” the past “treated as a known, finite, and stable entity discrete and different from what is claimed to be the current/new,” and difference “understood as deviation from a norm of sameness rather than an inevitable characteristic of all writing” (12–13). Horner’s attempt to counteract these three features of the discourse of need recalls the geological mindset discussed in the previous chapter, and once again reflects the trends toward complexity, ecology, and materiality described in chapter one as coalescing in a planetary perspective. Accordingly, Horner rejects depictions of recent changes in writing technologies that focus on drastic change from the past. Instead, a planetary perspective responds to perceived increases in the speed of circulation of writing by recognizing an ongoing speed within a complex material ecology that the technology of writing has always maintained in some form or another. Indeed, the developments that Dobrin focuses on can be characterized in a way that is compatible with Horner’s resistance to the “discourse of need” by locating ongoing change within the material of writing, which is itself part of ongoing fluctuations of material across the surface of the planet. Horner critiques Dobrin for wanting to “escape” the social material demands of composition (27), but materiality (in terms of both raw substance and the practical presence of social arrangements) is itself constantly in flux. Horner’s critique is a reminder that writing has always been hyper-circulatory, just perhaps not in a way that manifested recognizably. It is the influence

of certain paradigms that causes writing or rhetoric to be perceived as “different” or “new,” and therefore requiring of new and different theories or disciplines. By orienting to a paradigm of continual change on a planetary scale, the seemingly oppositional stances outlined in Horner’s critique of Dobrin are themselves emergent qualities of the ongoing flux of composition.

### **Compositions Do Not Exhaust Composition**

An important component of Rickert’s approach to ambience that manifests in various ways throughout theories of writing and rhetoric is the concept of withdrawal. Rickert’s *Ambient Rhetoric* focuses in large part on the concept of *chōra* to “[illuminate] how rhetoric and invention rest on an interplay of revealing and concealing” (43). This interplay is a continual fluctuation that “both initiates and maintains, not as conserving stability, but as dynamic circulation” (Rickert 43). Rickert traces the concept of *chōra* to Plato’s *Timaeus*, where it is described as a locus for becoming, somewhere (and somehow) between the material and the conceptual (Rickert 50). The Greek word *chōra* typically referred to the area outside the polis, and in the *Timaeus* it refers to a “third kind” of space between being and nonbeing where disparate elements are engaged in a “cyclical process whereby they generate each other” (48c, 49c). The *chōra* is thus central to Rickert’s depiction of ambience because it provides a way to describe how “A beginning, even as something unstable or retroactively posited, is never equivalent to what has emerged” (55). There is always more that remains “in” the *chōra*.

Rickert focuses at various points on this *withdrawal*, the retention of excess as a consequence of becoming. For Rickert, “withdrawal is the reserving of the material world away from all relationality not to disappear but to hold within itself the potential that forms the wellspring for all other and future relationality” (212). This is a central concept for Rickert’s

ambient rhetoric because it describes the world as an inexhaustibly vast repository of creation, thus allowing for the ongoing production of emergent effects. Rickert's project is based primarily on Heidegger, and withdrawal in particular aligns in many ways with his notion of "standing-reserve." Heidegger describes technology as a way of "revealing" the world to be "standing-reserve," a potential arrangement of material that is contextually and historically situated depending on the relationships between humans, technology, and the environment. Rickert's use of Heidegger expands on the *chōra* to explain how representation via language is never a complete depiction of reality. Rickert explains that for Heidegger, "a word brings to presence (unconceals, from the Greek word for truth, *alethia*) some aspects of a thing while at the same time allowing others to remain concealed (that is, they withdraw)" (168). Language is imprecise because it cannot exhaust the inexhaustible world.

However, as noted in the previous chapter, Muckelbauer argues that the "imprecision" made necessary by the performative nature of affirmative engagements with theory "may not result from any shortcoming or inadequacy in language at all" (xi). Rather than something "[eluding] language's capacity to represent it," such a feature may "simply [be] of a different order than that of representation" (xi). This appears to diverge from Rickert's depiction of withdrawal as that which escapes representation. In Rickert's formulation, part of the real withdraws from the engagement with language, but Muckelbauer is instead describing an entirely different register operating outside of language. The fact that a word does not "reveal" all aspects of the reality it seeks to represent does not mean it "fails" as a word, or that there is some better or more accurate way to use language. Put another way, representation works *precisely because it does not reveal all of reality*. If it did, it would be too complex to be useful,

like a map the same size as the territory it depicts<sup>4</sup>; it would not be representation. Remaining within a purely representational framework requires that everything be either representable or not, and therefore delineating a boundary beyond which something “more real” than representation lies. Instead, Muckelbauer allows for paradigms other than the strict binary between representation and nonrepresentation.

The existence of “orders” other than those described by the binary of representation and nonrepresentation does not mean that withdrawal does not remain a feature of the world. The infinite multitudes of compositions still do not account for the even vaster infinity of their potential. Guattari’s mixed semiotics is one organization of “orders” other than representation. At different points in his thought Guattari categorizes these orders differently, but three main groupings persist throughout his writing: “non-semiotic encodings,” “signifying semiologies,” and “a-signifying semiotics” (*Molecular* 74–75; *Chaosmosis* 48–49). The first category includes so-called “natural” encodings like genetic code or crystal formations that “operate at the biological, chemical, and physical levels” (Watson 47). Signifying semiologies contain the “usual” sorts of representations that Muckelbauer describes wanting to move beyond, and includes not only written language but other forms of symbolism like rituals, dance, or non-verbal signage (Watson 47). Finally, a-signifying semiotics do not involve meaning at all, and include examples like computer code or musical notation (Watson 47); Guattari’s concept of the diagram falls into this third category. Janell Watson notes that, importantly, Guattari resists any “leveling effects” that would attempt to place signification into either of the other categories because to do so would “[contaminate] all the different registers—nature, production,

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<sup>4</sup> “Borges gave us the story, inspired perhaps by Lewis Carroll, of a map that would coincide point by point with its territory—only to show us how deliciously absurd such a map would be. In some collections the estimate is probably more accurate than a full inventory” (Peters 350).

machinism—with meaning” and, specifically, “the dominant meanings” of a particular cultural or political regime (Guattari and Seem 40; quoted in Watson 47–48). Mixed semiotics places any feature of language (or of any semiotic system) among an array of other features, none more central than the rest. Representation is simply one thing writing or rhetoric can be used to do, it is not a pillar upon which they rest. There will always be more to a composition than can be accounted for with any single perspective or register.

### **Writing and Rhetoric are Functions of Composition**

Nothing on the planet simply springs into existence from nothingness. Everything produced on the planet—by humans or otherwise—is formed or arranged or reshaped from something else already on the planet.<sup>5</sup> The potential for a new element of the planet’s composition to emerge precedes that element. Stiegler, via Heidegger, explains that the concept of *technē*, often understood to involve a production or creation of something new, is in fact a process of revealing something that has yet to be but which is not formed whole cloth from nothingness; its revelation is predated by the conditions required for the revelation to take place (9). The fact that it has been revealed demonstrates its former capacity to be revealed, indicating that in some sense it was already part of the composition—the temporal dimension of this process producing the perception of cause and effect is also a product of the composition. This revelation is *poiesis*, the “[bringing] into being [of] what is not” (Stiegler 9). Such revelation is ongoing, with no origin or endpoint.

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<sup>5</sup> The planet does pick up some cosmic dust (and the occasional micrometeorite) as it sweeps its orbit around the Sun, and as the Sun orbits through the galaxy. And Earth’s gravitational force is not strong enough to prevent small amounts of atmosphere escaping at high altitudes. The planet is not a closed system, but these cosmic ebbs and flows are largely peripheral, evidence more of the long-term “erosion” of the planet’s consistency than of an outside influence on what happens on its surface. As “large” as a planetary perspective might be, there is always additional context beyond it.

Sánchez argues that the activity of writing “produces sentences or statements, some of which come to be identified, after their production, as *knowledge*” (*Function 31*). Indeed, the goal of his book *The Function of Theory in Composition Studies* is to depict this role of writing, not as a means to represent something external to it but as a way of producing that which is later perceived as external. Writing is an infrastructure through which we understand the world, and in so doing it creates concepts and frameworks that are themselves part of the world. But if this is the case, then writing, too, is a function of other infrastructures and processes. Like Stiegler’s originary cycles of interiorization and exteriorization, *composition* provides a conceptual infrastructure for this ongoing infrastructuring.

Planetary processes of composition produce what come to be perceived as stabilizations like writing and rhetoric. Writing and rhetoric are produced as a result of the composition of entities which could be said, after the fact, to constitute them. They form an infrastructure, but one that is always in flux and is always enabling other infrastructures, none of which supersede any other. Writing and rhetoric are functions of composition, but composition is a function of writing and rhetoric; there is no hierarchy implied, and each are also functions of many other things besides.

Did the stars create the constellations, or did constellations create the stars? As an infrastructure for viewing the cosmos, constellations provide a means to understand and attach significance to points of light in the sky. They allow humans to differentiate between stars and planets, because some remain stable components of shapes while others do not. But of course, without the stars themselves, giant balls of plasma continually engaged in thermonuclear fusion producing heat and visible light, there would be no points of light to integrate into constellations. There is no way for a star to have any direct role in creating what a particular constellation

“means” for humans on Earth. But the composition of a particular point in space from which to observe the set of stars that are most easily visible with the human eye during average weather conditions on certain hemispheres of the planet produces concepts as abstract as warring mythological figures or astrological divination of future events.

#### Chapter 4: Transfer and Transduction

Society being made as it is, even in a completely liberated school, one can hardly imagine refusing to teach children how to write or to recognize linguistic traffic signs. What matters is whether one uses this semiotic apprenticeship to bring together Power and the semiotic subjugation of the individual, or if one does something else. What school does is not to transmit information, but to impose a semiotic modeling of the body. And that is political. (Guattari, *Chaosophy* 288–89)

Yet we know (don't we?) that writing should be strange, that we should feel alienated, removed, and detached from our *standard* habits of reading and thinking. (Haynes 671)

How—and in what limited ways—might reading and writing be made to matter in the new world that is evolving before our eyes? (Miller 6)

Artist Andy Goldsworthy describes his work as a process of attuning to a landscape and discovering the potential available in that landscape. His art remediates some collection of natural materials collected within the area in which he works, and often emerges from that process of collection and exploration in unexpected ways. In a documentary about Goldsworthy called *Rivers and Tides*, one of the works shown involves the production of an ice sculpture in the shape of a winding river, created with segments of icicles (Figure 7). In the film, Goldsworthy finishes the sculpture just before the sun rises above a nearby hill. When the light hits the finished sculpture Goldsworthy remarks that he “could only have dreamt” of the possibility of the light hitting both sides of the rock at the same time, thus illuminating the entire shape at once (Riedelsheimer, *Rivers*). This unexpected interaction between the sculpture and its location in an environment becomes an active component of the artwork.

Soon after the sun rises, the sculpture begins to melt and fall apart. The connections between the ice segments were fragile even before warming up—the documentary shows

Goldsworthy's painstaking attempts to fit certain segments together, often failing several times before finding the right size and orientation—and the material of the sculpture itself (ice) is impermanent. But it is exactly this impermanence that contributes to the sculpture's form. If the material were not delicate and vulnerable to the same light that illuminates it in such an unexpected way, it would not be so unexpected or remarkable. If it were made from something more permanent, like steel, it might be an interesting shape but would not convey the same degree of finesse and balance required to make the ice attach to itself just so, before decomposing a few minutes later. Even the steel sculpture would break down eventually, over immensely long periods of time, but the ice includes its entire course of existence in a more readily-graspable span of time.

Speaking about his process, Goldsworthy explains that he often takes a work “to the very edge of its collapse.” In another part of the documentary, Goldsworthy attaches segments of straw together with thorns, carefully hanging from tree branches overhead (Figure 8). The



Figure 7: Ice sculpture shown in *Rivers and Tides*.

segments form a chaotic latticework that coalesces around an empty circle within the pattern of the sculpture. Midway through the sculpture's creation, the wind picks up and Goldsworthy reaches out to support its unfinished form. He manages to support it for a few moments, but it soon comes crashing down around him. Setbacks like this are common in the documentary, included because for Goldsworthy the fragile nature of these sculptures is integral to their existence. The work falls down, but that is part of the point for what Goldsworthy is trying to accomplish. If it weren't constructed such that it could fall down, it wouldn't do what he wants it to do: "balance" on the edge of collapse. Goldsworthy's art pushes against the limits of what will fall down (or otherwise deconstruct) to find and accentuate a boundary between chaos and order. In rhetorical terms this might be described as a spatial form of *kairos*, an opportune inflection point amid a transition between states. A key part of Goldsworthy's attempts to create something precarious is the search for the conditions enabling that precarity; without them the creation would not be "art."



Figure 8: Lattice shown in *Rivers and Tides*.

The previous chapter describes composition as a process of “infrastructuring,” a continual production and reproduction of impermanent structures-in-flux that enables continued composition. In such a depiction, to compose is to create a framework within which composing continues to take place. Within a composition, entities exchange material and information and interact in various ways. The ways these entities change (and, by extension, the ways the composition changes) are fundamental to the composition as a whole but also to the individual entities’ subjectivity. The production of “art,” as in the example of Goldsworthy’s sculptures, is an emergence of novelty within a composition, which could also describe the emergence of subjectivity and identity. In their complexity, ecology, and materiality, compositions produce individual entities (which are themselves compositions), and we understand those entities to have identities and subject positions.

Part of this process has to do with the cycles of interiorization and exteriorization described by Bernard Stiegler (as referenced in chapter three). As a human or any other entity interacts with the world, elements of the world are incorporated into that human’s ways of thinking and being (into his or her identity). At the same time, elements of the human are incorporated into the environment, changing it or producing new components of it. For example, as a new class of college students interacts with their environment (at school and in the rest of the world), they learn from what they encounter and adjust themselves based on that encounter. Perhaps they change how they act to be more like the other people they see in the world, or more unlike them. Alongside this interiorization, the environment—the school, certainly, but also the rest of the world—changes in response to the students. New policies adapt to the changing needs of student populations, and the landscape of campus (buildings, trees, and the land itself) shifts to accommodate the new reality produced by the interaction between the students and the school.

Libraries reorganize themselves to prioritize computers over books, for example. Each composition changes the other as they exchange elements of each other—elements which, as described in chapter one, are inescapably material. The exchange of material between entities changes each of them and the composition as a whole—but this exchange is unpredictable. Even if the number of entities involved in the process were manageably small, the act of transforming each of them produces something that has not quite existed before. General trends might be able to be anticipated, but the exact emergence of the resulting composition is *new*.

The interest in representation discussed in earlier chapters as forming a motivation for new theories of writing and rhetoric is also central to understanding learning. Learning is a-signifying. Paulo Freire’s famous indictment of what he calls the “banking model” of education is based on the observation that *what* students learn is less important than *how* they learn. The representational “content” of pedagogy is certainly significant, but much like the careful reproduction of the intricacies of a signature undertaken with the LongPen, the content is only part of what is deemed to be important; it cannot simply be duplicated and handed over. Developing this connection between the theoretical negotiation of the issue of representation and the pedagogical concern with learning, this chapter focuses on the idea of “transfer” in theoretical and pedagogical contexts, and augments both contexts with the related concept of *transduction*. Transduction describes the unexpected and often chaotic results of material exchange as seen in the example of Andy Goldsworthy’s art or a hypothetical new class of college students. The stakes for a transductive understanding of transfer extend beyond pedagogical concerns and provide a means to articulate the semiotic and rhetorical processes underlying and enabled by composition. To describe how a composition comes to be or how it produces observable effects requires a framework that can account for the complex web of

entities surrounding, enabling, and modifying it. Learning from and adapting to neighboring elements in a composition is an important part of existing as an entity in the world.

## **Transfer**

A planetary orientation toward composition is motivated in part by theoretical concerns, but on a pedagogical level there is also an importance placed on understanding change—in particular how writers change as they learn to write. How does someone change from “unskilled” to “skilled” with respect to writing? How do writers apply what they have learned to new compositions? Recently such questions have centered on the concept of “writing transfer,” which describes “the phenomenon in which new and unfamiliar writing tasks are approached through the application, remixing, or integration of previous knowledge, skills, strategies, and dispositions” (Moore and Anson 8). But as the previous chapter suggests, an attempt to deploy prior knowledge of writing will always introduce “chaotic” variance. The goal of “teaching for transfer” is not for students to redeploy an exact process they engaged with once before, but to be equipped in some way with the ability to continually produce new frameworks for composition. It is not possible to predetermine what these frameworks will need to do or enable. If writing and rhetoric are complex, ecological, and material—that is, if they emerge from systems of interconnected parts that cannot be singularly traced to individual humans or nonhumans—then our understandings of them are as well. As students, for example, learn about writing and rhetoric, they engage in processes that exemplify these features. It should be no surprise, then, that learning and teaching are also complex, ecological, and material. The concept of transfer is particularly evocative of these features because it names a certain kind of relationship between elements in a complex material ecology. Transfer describes how elements of a composition

interiorize (learn about) parts of the composition (like a certain writing situation) so that they can later exteriorize (apply) them in new situations. Composition is not just how we write, it is how we learn.

On an experimental level, it can be challenging to empirically conclude whether or not the sort of “transfer” that one might pedagogically desire has occurred in a particular instance. Transfer of some kind always happens, in the sense that past events always influence future ones. But whether or not a particular quantifiable learning outcome has “passed” from instructor to student, or whether a skill learned in one context can “transfer” to another is relatively unpredictable. Transfer’s unpredictability leads some to dismiss its existence entirely while others attempt to devise increasingly complex methodologies to capture the complexity observed in studies of transfer. Exemplifying the former perspective, David Smit bluntly proclaims that “overwhelmingly, the evidence suggests that learners do not necessarily transfer the kinds of knowledge and skills they have learned previously to new tasks” (119). Smit is careful to note that at the time of his writing there were no studies designed to investigate transfer in writing, but based on analogous studies in other contexts, he concludes that transfer is “unpredictable” and depends more on students’ individual backgrounds than on any particular pedagogy (130). Since Smit’s writing, more research devoted specifically to transfer in the teaching of writing has been conducted, and there is general agreement that “writing transfer both occurs and is necessary for successful writing” (*Elon* 4). Nevertheless, this research admits that there are significant challenges to encouraging transfer. Chris Anson’s article “The Pop Warner Chronicles” argues that teaching for transfer can help make the transfer process easier but it can’t provide specific skills that are context-neutral—new writing situations will always be challenging and unfamiliar (542).

Despite the nuance present in transfer research, resistance to the concept remains entrenched. Indeed, if understood simplistically there is a great deal of justification to argue against the concept of transfer, much of it resembling the complexity described in previous chapters. Bruce Horner argues that

rather than a model of transfer by which knowledge moves inertly from one stable and discrete context to another, with the student/writer “carrier” assigned at best a mechanical role as knowledge conduit, and in which no change to the contexts, the student-conduit, or the knowledge itself is imagined to occur, all of these are seen as mutually co-constitutive and interdependent. (87)

Horner’s main issue with transfer is that, in his view, it conceives of writer and writing without the necessary context—context that would reveal each to be integrated into the other. He explains that “we can consider alternatively that what is at issue is not the disposition that students bring to an ostensibly ‘new’ context but, rather, the agency they exercise in producing a particular kind of context in which a given disposition may appear to be aligned” (88–89). In some ways the dispute here is similar to the one outlined in chapter one with respect to understanding a “rhetorical situation.” In that case, Bitzer and Vatz disagree on whether a situation is made rhetorical by a rhetor or whether a rhetor responds to a situation that is already rhetorical. In the context of writing transfer we might similarly describe a “writing situation”: does a student respond to a given writing situation by deploying skills used previously, or does the student (along with aspects of their individuality that have been previously shaped by writing) constitute the situation? As in the previous discussion of the rhetorical situation, neither option is entirely complete; a deconstructive or ecological perspective (like those of Biesecker or Edbauer) shows that each simultaneously produces the other. An ecology of writing skills interacts to produce both writer and the process of writing—in Stiegler’s terms, a writer exteriorizes parts of their prior knowledge, which in turn was previously interiorized from an

environment partially structured by writing. There is no beginning or end to this ongoing temporal continuum of interiorization and exteriorization; they are co-constitutive.

Part of the dissonance in discussions of transfer may have to do with how the concept is conceptualized. In a call for new terminology to describe transfer, Elizabeth Wardle argues that “continued use of the word ‘transfer’ limits our ability to think more fully about this phenomenon and what it means” because it retains, however implicitly, “a simplistic ‘carry and unload’ model that we have generally rejected” (par. 6). She prefers the phrase “creative repurposing for expansive learning” which more accurately describes the activities going on when a writer attempts to use past experience to influence a new writing situation. “Repurposing” emphasizes that past experiences need to be modified and recontextualized in order to be relevant for a new situation, however it also implies that “transfer” is an active process undertaken consciously. Sometimes the modification of experience described by repurposing is attempted directly by a writer (or learner more generally), but usually any new amalgamation of experiences is an unintentional and unexpected result of a complex composition of factors, most of which remain invisible or otherwise inaccessible. “Transfer” happens all the time, whether intentional or not, and only rarely is it available for detailed analysis—by the individual or by an outside observer.

Wardle’s inclusion of the word “creative” in her suggested replacement for the concept of transfer provides an important modification. Instead of thinking of transfer as a linear transmission of a signal, an emphasis on creation suggests that transfer produces entirely new formulations each time prior knowledge is invoked. In a vein similar to Wardle’s depiction of transfer as an act of creation, Casey Boyle offers the term *transduction* as a corrective for linear understandings of transfer. Boyle explains that “Where transfer denotes carrying something from

one domain to the next (an activity wrapped in abstraction), transduction describes the process through which something changes as it moves across domains” (“Posthumanism” 195). Even focusing on a “thing” being transferred “only works by *not* focusing on the signal but instead attending to the structuring structures that help determine what eventually is considered to be a signal” (Boyle, “Posthumanism” 196). The thing of interest only exists to the extent that it is enabled to exist by a surrounding infrastructure (which is itself always being reconstituted—composed—among continual fluctuations, as argued in the previous chapter). For Boyle, acknowledging this means seeing writing “as a practice of composing infrastructures that transduce conditions from one structure to the next” (“Posthumanism” 197). Each time a writer draws on past knowledge, that conceptual framework is recreated as it assists in the creation of new frameworks that may be of use in the present.

### **Transduction Helps Conceptualize Transfer’s Irreproducibility**

Transduction is a multidisciplinary term that describes a fundamental change in form as something passes from one position to the next. In the context of electrical engineering or physical computing, transduction describes a “conversion of one energy form into another” (O’Sullivan and Igoe xix). An electrical impulse might be converted to light emitted from a diode, for example, or sound detected by a microphone might be converted into textual data. Whenever we interact with technologies of any kind, energy is transduced from one form to another, often many times over. Even interactions with the natural world can transduce energy, as in the example of friction creating heat as a result of movement. For geneticists, transduction describes how DNA is transferred as a result of contact between cells and a third party like a virus, leading to mutations and species diversity (Griffiths et al.). When a virus leaves one cell, it

takes some residual DNA from that cell with it and exposes the next cell it visits to that DNA. As with the computing examples, genetic transduction emphasizes a transformation—the DNA in each cell has fundamentally changed after the process is completed. But the connotation of mutation associated with the genetic context is useful for understanding how transduction causes unexpected results. Transduction implies that there is always something more complex going on than a one-to-one conversion of energy.

A simplistic analogy illustrates how transduction reflects connections between entities without those connections being direct or intentional. After completing a burglary at one house, a burglar's boots might pick up mud from the house's garden which is then carried to a second house and left behind as bootprints. The prints are unrelated to the specific task in which the burglar is engaged (burglary). They might later be analyzed by an astute detective as "signs," but they are still not intrinsically part of the activity of burglary (and neither is the detective's activity of analysis). The bootprints are residue of the encounter with the two houses, and provide influence on the unrelated activities of burglary and detective work. A "signal" from the dirt in the first house's garden has been transduced to form, say, evidence of a crime.

Scholars of digital rhetoric have identified transduction as a potential avenue for understanding the multitude of registers involved with digital media. Casey Boyle, James Brown, Jr., and Steph Ceraso explain that transduction accounts for the fact that digital rhetoric is "a multisensory discipline that cannot be easily located in any one subject or object" (257). Because an electrical impulse, returning to physical computing examples, might pass through any number of sensors and actuators in the course of a user's interaction, the exact form it takes at any point along this process is uncertain and open for mutation. "Rhetoric as a transductive process," Boyle, Brown, and Ceraso write, "is not interactivity between separate nodes but a relational

practice assuming pervasive connections across disparate registers”—rhetoric is varied and always changing (258). Such a depiction recalls Nathan Stormer’s articulation of rhetoric as “polythetic” (discussed on chapter one): rhetoric “is not one body with many faces, but homologous affordances materializing many bodies” (Stormer 302). Transduction is one way to describe that materializing.

Guattari sums up transduction as “the idea that, in essence, something is conducted, something happens between chains of semiotic expression and material chains” (Guattari and Seem 39). This “something” is the thing that escapes representation, as discussed in the previous chapter, and for the purposes of pedagogy this is often the very thing of interest—if learning isn’t just rote memorization, then there’s something beyond mimetic representation it strives for. Learning is a-signifying. Like any of the examples at the start of these chapters, learning is not a matter of placing content in a container and handing it off—there is something intangible that eludes representation, not because it cannot be grasped but because it is of a different “order.” Transduction reveals a capacity for writing to do something other than represent. Marshall McLuhan’s well-known catchphrase “the medium is the message” famously underwent a modification before becoming the title of a book on which he collaborated with designer Quentin Fiore. A typesetter’s error supposedly resulted in the title “The Medium is the Massage,” which McLuhan (again, so the story goes) kept because he found it amusing. And yet, the new title is as appropriate as the original and points toward a significant insight that McLuhan paraphrases early in the book: “All media work us over completely” (26). It is not enough to say that the medium is important to consider, or even that the medium *is* the message, but that the medium has a profound impact on the entire collection of acts surrounding the message. The medium is the environment; it makes us feel hot or cold. Put another way, the “feeling” of having been

massaged is what we interpret as the meaning of communication. Transduction describes a similar process by which “something” (perhaps simply the feeling of having been massaged, the feeling of a presence or intensity) is moved along a chain of communication, mutating as it goes, until it may eventually be incorporated into a system of sense.

Goldsworthy’s icicle sculpture takes the natural environment and fragments of frozen water as inputs and transforms them into a new shape. This process fundamentally changes the ice, but it also maintains consistency with its past—the ice is still ice, and the means of reshaping it relies on the same sorts of melting and freezing that produces icicles in the first place.

Goldsworthy transduces the environment, turning it into art. At the same time, the art is still the natural environment, just “mutated” in some way. This mutation produces unexpected results like Goldsworthy’s exclamation at the way the sunlight hits the sculpture just so. In the process of remediating nature, something new is introduced, but without adding or subtracting material.

Despite depicting a transfer from one entity to the next, transduction is always situated and provisional. It is not possible to know precisely what will be taken up by another party as a result of proximity to them. Deleuze and Guattari’s recurrent example of the orchid and the wasp shows how a “surplus value of code” can be integrated into a wholly different coding system for entirely different purposes than those for which it was originally designed. Not only does the orchid need the wasp to reproduce (emphasizing the collective nature of individuality), but the wasp carries semiotic material that is taken up by the orchid and repurposed. The color and shape of the wasp are imitated by the flower, presumably to attract future wasps: “part of a machine captures within its own code a code fragment of another machine, and thus owes its reproduction to a part of another machine” (Deleuze and Guattari, *Anti* 285). “Noise” does not just interrupt or disperse signification, it has the potential to *be* signification. In a pedagogical context, something

completely ancillary to an instructional design could be what students take up and incorporate into their understanding of a subject. In some cases this could be detrimental (perhaps they are distracted and thinking about something unrelated), but it could also provide a critical insight that could not have been planned for and may not even be consciously acknowledged.

The concept of transduction does not solve problems with understanding transfer. There will still be important studies analyzing empirical findings in an effort to reach conclusions about how transfer works and what pedagogical practices can help to foster desirable forms of transfer. But transduction reminds us that such work will by necessity only point out a subset of the complex interactions that take place when a writer writes. The unexpected always comes along as well, and sometimes it is exactly the unexpected that is desirable for “successful” training in writing (or any subject). If process and post-process revisions to writing pedagogy offer important insights it is because they highlight that there can never be (for more than perhaps a few moments) a specific set of instructions that suffices to explain “how to write.”

Lest this appear to founder the project of writing pedagogy altogether, transduction as it is articulated in this chapter might let us take on the mindset of Guattari’s artist, who “may be led to alter his [or her] work after the intrusion of some accidental detail, an event-incident that suddenly makes [the] initial project bifurcate, making it drift far from its previous path, however certain it had once appeared to be” (*Three* 35). If, through transduction, something strange appears during the writing process or during an encounter with writing that might allow the transfer of past skills, it is precisely that aberration that should be attended to, and perhaps encouraged to develop, so that a more holistic understanding of writing might be had. Pedagogy has not failed if it cannot predict this sort of mutation. Transfer is not (and has never really been) interested in mimetic repetition of writing tasks, or in importing past writing practices whole

cloth into new writing situations, it is interested in adapting to the continual change that surrounds the event of writing, a continuum of change that is grounded in the fluctuating material of the world. Such adaptation cannot be planned or prepared for, it must be allowed to overtake whatever concept of writing a writer held previously, “however certain it had once appeared to be.” Writing is always changing; transfer can be understood in a way that not only acknowledges but encourages that change.

### **Teaching for Transduction**

If learning is a-signifying, then it is precisely its aspects that do not fit into a representational paradigm—aspects that are the unexpected results of transduction—that are desirable for learning and teaching. But, of course, creating the unexpected is challenging because it seems to imply that there is not a collection of goals or outcomes shared by educators in a particular subject area. Composition studies grapples with the same question Guattari references in this chapter’s epigraph in attempts to create pedagogies that can adequately prepare students for future writing contexts. No matter how revolutionary an individual classroom might be, its students eventually re-enter society as a whole and must plug their experiences in the classroom back into the system to which society adheres. Any attempts to resituate language itself or to focus on non-representational forms of writing or on multimodal composition or on whatever else are similarly faced with ultimately needing to interface in some way with a university and a society that expects writers to write in certain ways. Students don’t just need to learn the rules before they can break them, they need to learn to follow the rules or risk not finding a foothold in society at all. As tempting as it may be, for example, to stop giving students grades in a composition course, the typical university structure understands “graduation” in

terms of grades. And even if the entire university changed to a gradeless system (as in a few examples in the United States), challenges present themselves in correlating such a system with other universities or with the expectations of a job interview, and so on. These challenges are not insurmountable, but as they expand they reach further and further into parts of society that must also adapt.

In his book *After Pedagogy*, Paul Lynch attempts to rescue pedagogy from the postmodern and postprocess tangle he sees it trapped in. Lynch explains that postprocess theory “holds that teaching is too complex, too particular, too situated to be rendered in any repeatable and therefore portable way” (xiv). Such a position makes pedagogy impossible, so “post-pedagogy” has replaced it. But, of course, classrooms still exist. Lynch suggests that a solution is to treat pedagogy as a reflection on past events in the classroom rather than a plan for future ones. In a similar vein to how process and composition has been discussed in previous chapters, Lynch argues that “Process cannot reliably result in product” (xv). Pedagogy, then, can only “create the conditions in which [teachable moments] might occur” (xv). Teaching/learning is a byproduct of pedagogical activity but the outcomes cannot be known in advance, so according to Lynch we should instead “make a resource of our classroom experiences” after the fact (7). Lynch’s call for pedagogy as reflection acknowledges the shortcomings of pedagogy and incorporates those shortcomings rather than attempting to solve them or brush them aside.

But Lynch’s pedagogy of reflection poses some challenges. If pedagogy cannot be used as a reliable plan for a complex and uncertain future, a reflection on the past is just as inadequate as a prediction: unless it somehow describes the future as well as the past it has no use after the fact. Instead of predicting the future, Guattari is more interested in experimenting with it and using the unpredictability of chaos to create new forms of subjectivity and understanding.

However, this approach is necessarily unsettling; it requires abandoning familiar frameworks. In a 2003 article, Cynthia Haynes argues for what she calls “Writing Offshore.” She writes that composition studies has for too long hugged the shoreline of recognizable contents of writing such as argumentation or reason. Writing is, instead, something more complex. Haynes dramatizes the trends in composition studies with respect to representation:

despite the tightly-built craft in which we entrusted our survival as a field, we kept too close to the shoreline, dragging the anchor of *argumentative writing* (a.k.a. critical thinking) until it took hold among the bedrock curricula of grammar and style, aims and modes, claims, grounds, and warrants. And now our most sound composition pedagogy has run *aground* like some leviathan, a beached whale that inexplicably (and paradoxically) crawls onto the shore—onto the ground of all ground, figuratively speaking. And thus begins our exhaustive search for the explicable in the inexplicable—the why, the reason, the rationale. (668)

We have, according to Haynes, turned writing into something that is merely a pale echo of what it could be. And since this echo is more easily graspable because of its simplicity, it has thus taken on a life of its own—“[crawled] onto the shore”—and moved in directions that Haynes argues are antithetical to a true focus on writing as a strange, complex, and often challenging nebula of intensities created by writers and writing and ecologies of both.

In some cases, arguments like Haynes’s have been taken up, for example in continual revisions of post-process pedagogies or in the general deconstructive attitude exemplified by Sánchez or Dobrin. But in the ensuing vortex of theoretical and pedagogical maneuvering and resituating, it is quite difficult to locate composition studies as a field, let alone composition pedagogy as a coherent practice. If we are to abandon the familiar “shoreline” of argumentation or reason or representation in writing, what does pedagogy look like? How do we teach? Haynes cryptically offers the following as a sort of response:

Give your students (or yourselves) this *depth probe* assignment: Write something offshore (that is, put a message in a bottle) in response to this statement: *WE ARE ALL BOAT PEOPLE*. Now take your paper and make a paper boat. Leave it in a prominent place such as a doorstep, a computer terminal, the university administration building, or wear it on your clothes, whatever. Then imagine its trajectory, where it will go, who will see it, what they will think (what you would *like* them to think). And then, put that in writing; trace the trajectories, and give it ballast—so that the main question you should ask yourself as you write is this: WILL IT FLOAT? (718 n19)

True to the mission of what has been labeled post-pedagogy, this so-called assignment resists pedagogical norms. As Lynch notes, “what teaching could prepare [students] for this assignment?” (29). However, Lynch also argues that despite Haynes’s radical framing of this assignment there remain familiar academic conventions: students are called upon to do something, and are given “criteria for success” via the metaphor of floating (29). Students particularly entrenched within academia will no doubt find a way to integrate even an unusual assignment like this into their territorialized understanding of education. But while Lynch uses this as evidence to argue for a return to pedagogy (albeit along a path somewhat different than is typical), the vestiges of academia present in Haynes’s prompt are actually indications of a territoriality still to be broken down. They are not marker buoys calling us to shore, they are the last remnants of the shipwreck. Much like Goldsworthy’s attempt to balance on the edge of collapse, Haynes argues that we continually push at the ever-shifting boundary between rationality and irrationality, and in doing so see interconnections rather than oppositions.

Even a pedagogy built upon reflection, as is Lynch’s, is an attempt at standardization. Guattari’s interest in chaos theory has much to do with its acknowledgement that chaos cannot be predicted, even if it can be retroactively understood. Complex forms emerge from seemingly chaotic systems, but those forms cannot be known in advance. This is similar to Lynch’s argument that “the invention of writing (rather than the interpretation of it)” is what “actually

happens (or ought to happen) in pedagogy” (xvi) and his emphasis on pedagogy as the second “step” of the teaching process rather than the first (xviii). But no matter how it is repositioned, pedagogy inherently seeks to prepare for the future. Even if a stable or repeatable pedagogy cannot be determined, there is still a process of attempting to predict chaos. And once reflected upon in Lynch’s pedagogy, past chaos is placed within an ontological or hierarchical structure.

Guattari offers a slightly different tactic. As with his a-signifying semiotics, Guattari does not wish to impose signification or meaning on emerging compositions. His artist observes an a-signifying rupture and guides its line of flight through embodied and empathic awareness in that moment. The goal is not to reincorporate the “mistake” or “accident” into some already existing semiotic territorialization but instead to help it manifest itself in a new one. Guattari’s mindset is experimental and open-ended, his ethics are practical rather than preset, they are mobile and nomadic. Chaosmosis does not seek to “totalize [enunciations], synthesize them in a transcendent self, but in spite of everything, to make a world of them” (*Chaosmosis* 83). Attuning to chaos is not a means to solidify it or to know what the future world will look like. The process itself is what creates the world. The interactions between, in the case of the composition course, teacher and student or, in the case of writing, writer and reader (perhaps even sender and receiver) are themselves the purpose of experimentation. Everyone and everything around the writing process is responsible for the world that writing creates. Once a practice begins to settle and become routine, it no longer has the same revolutionary potential of its initial unsettling of prior stability. Byron Hawk’s vision of pedagogy bears some similarity. For Hawk pedagogy and method are provisional and must continually be reevaluated: “The point is not to just copy [other people] but to design your own occasions, build your own constellations, and invent your own heuristics

specifically for those contexts” (*Counter* 254). Such heuristics are necessarily transitory, valid only in the moment. They must be guided by a method (which is itself always in movement).

In some cases established norms must be actively resisted. In “Three Countertheses” Victor Vitanza articulates such a resistance, much like the resistance to definitions discussed in chapter three. He provides a series of critiques of composition studies, framed in the structure of “countertheses” with which he attempts to think in oppositional ways about the domains of the field to resist tendencies toward stability. As he puts it,

the countertheses are to be seen as conceptual (re)starting places for modes of resistance that are to be deployed against the game of rationality/knowledge and against the dominant (political) modes of representation, which are expressed throughout the field of composition; in fact, they *are* the field, as it now commonly locates itself in two not very different groupings: the first, foundational; the second, antifoundational. (“Three” 143)

Vitanza sees an inherent inequality in treating writing as coherent or stable or even teachable because for him, “true” writing is like art in the sense described above. In another article he proclaims that “What is taught at the university is not-writing” (“Abandoned”). Lest this appear to be a paradox (though the situation’s paradoxical nature is part of the point), he quickly clarifies: “Obviously what goes for writing in the academy *can be taught!* That’s the problem!” (Vitanza, “Abandoned”). The ways writing is conceived as teachable transform it into something linear and simplistic; these rigid and formulaic structures are a far cry from Vitanza’s conception of what writing actually is. Consistency in meaning or representation is flimsy at best but there are institutional and disciplinary incentives to act like it is not, which lead to pedagogies and classroom environments that advance a false understanding of representational stability, which leads to stagnation in understanding, to commonplaces. And, Vitanza writes, “Commonplaces have an insidious way of only fostering the dominant discourse” (“Three” 151). Vitanza’s first counterthesis concludes for composition studies “either that there can no longer be or that

ethically, micropolitically, there should not be any foundational principle or covering law or ontogenetic model for composition theory and pedagogy” (“Three” 148). Rather than search (often scientifically) for better and better ways of endowing students with specific knowledge outcomes, Vitanza argues that we “deterritorialize students and turn them into drifters” (“Three” 149)—or, in the phrasing of Deleuze and Guattari, wandering nomads.

There have been some pedagogical attempts to enact this nomad-like mindset of perpetual revision and welcoming of chaotic intrusion which might entirely derail any planned activity or outcome for a class. One particular note is the so-called “happenings” pedagogy movement popularized in the 1960s and 1970s (for example, in articles by Charles Deemer and William Lutz), and revitalized by Geoffrey Sirc in his 2002 book *English Composition as a Happening*. As Sirc defines the concept, “happening” refers both to a space of possibility for things to happen and a desirable quality of excitement associated with those things. A happenings pedagogy seeks ways of “altering the conventional spaces of a writing classroom, allowing the inhabitants a sense of the sublime, making it a space no one wants to leave” (Sirc 1). Happenings also have important implications for a theory of writing. Writing is a happening. The bringing-together of elements enables a certain effect of the composition and also produces unexpected results.

Sirc associates happenings pedagogy with the art movement of the same name, and compares the composition classroom to a “blank canvas, ready to be inscribed as a singular compositional space” (1). The connection to art is important for Sirc, in particular the radical movement to resist elitist notions of what counts as art or who can produce it. Sirc is interested in art, he writes, for the same reason he’s “interested in writing, writing done by anyone-whomever: useless, failed, nothing-writing by some nobody that turns out to be really something” (35). Such

limits on what “counts” as writing may no longer be desirable given the “increasingly different compositional means” available with the advent of new digital technologies (36). As writing and composition change, it is precisely the unexpected or random “wanderings” amid the technology of writing that show what it can really do.

The wandering nomad is a recurrent figure in Deleuze and Guattari’s writing and serves to embody the mindset of this continual revision and resistance to past understanding. Guattari’s artist takes up these accidents and incorporates them into her aesthetic. Once again unpredictability is key; the nomad seeks it out. For similar reasons, Haynes suggests we should write nomadically. She argues that “We must unbuild our built environments for writing” and “deconstruct composition’s unrelenting rush to reason” (711, 713). For Haynes, insisting that composition must do some concrete thing, that it must impart some select canon of knowledge to its students, is anathema to the very heart of composition. Paradoxically, perhaps, it is the shoreline of reason (of representation) that has led us here. Haynes would have us pull up anchor and see which way the wind blows.

At sea, adrift, navigation requires painstaking attention to detail and a simultaneous willingness to approximate observation to match up with a representational schema. We should not attempt to erase uncertainty but embrace it as part of the collective assemblage that constitutes the effectiveness and existence of a text. Haynes’s prompt for students to ask “WILL IT FLOAT?” is a call to pay attention to the leakiness of communication. But for all this talk of boats, writing is not a container to carry some so-called meaning from one place to another. Writing’s content is itself. Writing sinks or floats not because of something inside it but because of what it is and what it does. Haynes points toward navigation as a way to understand where we are, and describes continual processes of taking bearings and checking them against what we

know so far. Writing is part of this continual process, and the mistake is assuming that there is some location to be found as a result. Writing must be continually located and re-located. If it drifts off course, that drift, too, is part of its existence. Like Goldsworthy's art and the as-signifying nature of learning, the goal is to create unexpected moments of transductive connection.

Late in *Chaosmosis* Guattari acknowledges the challenge of his artistic paradigm. He admits that "it's not at all clear how one can claim to hold creative singularity and potential social mutations together" and that contemporary society "hardly lends itself to experimentation with this kind of aesthetic and ethico-political transversality" (*Chaosmosis* 132). As Vitanza and others have echoed, revolution is difficult within institutional settings where individual and group actions are accountable to overarching power structures. But here Guattari frames the issue in more romantic terms and asks "How do you make a class operate like a work of art?" (*Chaosmosis* 133). In many ways this is the question that composition studies has sought to answer during its relatively short history, and it is explicitly invoked by Sirc's depiction of happenings pedagogy. For Guattari the process of discovering an answer is as much a part of that answer as the answer itself, because there is no single answer and no answer that lasts. The question must be constantly asked and answered for the moment and asked again. Composition is not a container into which we can place the answer once we find it—it is complex and polyvocal. Composition is a mixed semiotic that does not function just one way or another. The moment we say "this is it," it's something else. But of course, we have to say something, if only for the moment. An "artistic" paradigm for composition is one where representation is not the overriding principle that dictates reality and disciplinarity and so-called meaning; these are all complex interrelated and constantly shifting forces. Piecing together icicles or bits of straw does

not erect an everlasting monument but interacts with the world as it shifts and composes. An artistic composition doesn't try to represent the world in writing, it tries to live in writing.

### **Planetary Subjectivity**

“Living in writing” could be described as a form of subjectivity enabled by the unexpected arrangement of technologies and practices. As Hawk emphasizes in the context of pedagogies seeking to disrupt established norms, it is not planning or reflection that create individuality but instead, “Accidents that emerge from contexts are the individual parts of us that are not socially constructed and cannot be predicted” (*Counter* 255). At its root the concept of transfer (in writing pedagogy or otherwise) is a depiction of how students (or entities in the world more broadly) come to be who (or what, etc.) they are. Incorporating parts of our environment into ourselves (Stiegler’s interiorization) *is* learning. This is a complicated process (hence this chapter’s move toward transduction) and it shows the extent to which the planet is part of our subjectivity. The concept of autopoiesis is a way to think about how compositions of humans and technologies produce distinct individuals without prioritizing one part of the composition over another.

Autopoiesis contains the Greek word *poiesis*, which is often translated as “to make” but which more specifically describes a bringing-forth or a revealing (Stiegler 9). Much as Rickert’s reading of Heidegger in *Ambient Rhetoric* suggests that representation is a resource in the world that can be activated by certain techniques like writing, autopoiesis implies for Guattari that subject formation is a nascent capacity available to all entities. John Tinnell explains that autopoietic creativity is “the capacity to yield oneself to chaos and, in doing so, undergo the event such as to channel the advent of nascent subjectivity” (“Transversalizing” 380). Given the

nascent subjectivity in the world, entities have the capacity to become other than themselves and autopoietically diversify their collective heterogeneity. The result is an ecology of radical diversity, not with the goal of unification or even identification but *creativity* in its most fundamental sense: an ongoing state of creation and becoming-other.

Humberto Maturana and Francisco Varela describe autopoiesis as an organizing principle for life. It is a form of *poiesis* that is self-generating. According to Maturana and Varela,

an autopoietic machine continuously generates and specifies its own organization through its operation as a system of production of its own components, and does this in an endless turnover of components under conditions of continuous perturbations and compensation of perturbations. (79)

Tinnell proposes autopoiesis as an alternative to the more linear “augmentation”-based understanding of technologies like writing that conceives of them as tools to be picked up or put down as the situation demands. Instead of “clinging” to a model of human interaction with technology that places those technologies as tools that augment an “individual writer/user,” autopoiesis describes a form of subjectivity that goes beyond the individual (Tinnell, “Post-Media” 125). The components of subjectivity are “no more stable than writing” and “develop relationally” (Tinnell, “Post-Media” 130). Newly introduced elements do not augment an unchanged subject, everything involved changes (mutates, transduces) as a result of composition. Planetary composition produces new ways of being.

The ongoing production inherent in autopoiesis complicates traditional understandings of agency and invention. Stiegler examines this by focusing on the question of the “invention of the human,” which he points out has a double meaning. Resolving or unpacking that double meaning rests on establishing “‘Who’ or ‘what’ does the inventing?” and “‘Who’ or ‘what’ is invented?” (134). Traditionally the assumption would be that humans invent technologies, but again following the evolutionary approach influenced by Leroi-Gourhan, Stiegler complicates this

assumption to the point that it is not so easily supported. Humans evolve to produce technics, but this process is so slow (especially in early human ancestors) that it cannot be located within a single individual. The “genetic drift” that enabled higher thought (and thus enabled the production of technology) can “hardly” be imagined with “the human as its operator, that is, as its inventor; rather, one much more readily imagines the human as what is invented” (Stiegler 134). Humans invent technologies, but the technologies also invent humans; the paradox of Stiegler’s cycle of interiorization and exteriorization returns. Humans must both precede and be preceded by technology.

German media theorist Friedrich Kittler makes a more bombastic version of this observation and argues that what we understand to be “the human” is a function of media technologies. Interiority, for Kittler, is determined by the media; “so-called” humans are media’s effects. This leads Kittler to implications that are sometimes controversial,<sup>6</sup> but that can also be seen as an extension of posthumanist trends adopted in composition and rhetoric (and similar in many ways to Sánchez’s event-based theorization of identity which locates the “invention” of identity in the act of writing itself). For example, Casey Boyle develops a posthumanist account of writing and rhetoric, and sees them as practices “irreducible to an individual’s agency” (“Writing” 540). Such a claim resembles Kittler’s, but Kittler would describe humans as “at best along for the ride . . . the nodes and operators necessary to keep the process going until the time arrives at which media are able to interact and evolve without any human go-between” (Winthrop-Young 65). Nevertheless, the central posthumanist observation is the same: there is no bright line between humans and technology, between interiority and exteriority. Any perceived stability is due to the perspective with which one considers these entities; as they

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<sup>6</sup> E.g.: “If media are anthropological a prioris, then humans cannot have invented language; rather, they must have evolved as its pets, victims, or subjects” (Kittler 109).

continue to fluctuate they may temporarily move in similar ways and appear stable, only to move apart again. The human is a function of the composition, as is everything else.

Again, David Abram's inversion of the typical understanding of the relationship between humans and the world is appropriate here: "We might as well say that we are organs of this world, flesh of its flesh, and that the world is perceiving itself *through* us" (68). Stating as Abram does that we are "organs" of the world does not mean that we define the world. Deleuze and Guattari's famous development of the concept of the Body without Organs demonstrates that no entity can be defined simply by the sum of its parts. For Deleuze and Guattari, bodies "can be occupied, populated only by intensities" (*Thousand* 153). Subjectivity is thus "a phenomenon of accumulation, coagulation, and sedimentation" of strata of the Body without Organs rather than an individual organism distinct from its surroundings (Deleuze and Guattari, *Thousand* 159). But by the same token, it is not irrelevant that we (or any other elements) *are* organs of these compositions. The situated context within which we live forms an important component of what that composition continues to become. Taking the planet as the object of analysis for the study of writing and rhetoric and composition allows this statement to contribute meaningfully to discussions of technologies like writing. The planet manifests itself through writing, rhetoric, and technology—and through us.

For the planet, then, the various arrangements that emerge and recede on its surface are no more or less "desirable" than any others; the planet does not have a single perspective or a single point of subjectivity. For certain entities of the planet, certain other entities are beneficial or malignant. Certain interactions, too, might be preferred over others. Certain types of transfer may be more appropriate or desirable for a given outcome, but transfer of *something* will occur whether or not that outcome is desired. A planetary subjectivity, like the planet itself, is always

in flux and so is never certain of what outcomes or interactions will be important or which should be encouraged. Like the mindset of Guattari's artist or Goldsworthy's description of his artistic process, it is precisely that which cannot be planned for or reconciled with previous experience that might be most important for what will become in the future.

Later in his career, Goldsworthy noted that the distinction between the natural and the unnatural was becoming less clear to him. A second documentary on Goldsworthy called *Leaning into the Wind*, released 16 years after the first, depicts how his work has moved into urban landscapes and incorporates manmade structures like sidewalks and stairs. But rather than a departure from his more "natural" works (which are still present in the second film), Goldsworthy sees his work in cities as an extension of his work in nature. In both cases he attempts to find ways for the environment (be it natural or technological, a distinction this chapter has attempted to complicate) to realize its potential. He remarks on his desire to "go beneath the surface of the city to find the nature" (Riedelsheimer, *Leaning*). Each of the components he works with is on its own journey through the world; being incorporated into art is no less a natural journey for a boulder than tumbling down a mountainside or being slowly pushed by a glacier. The planet produced art in the same way it produced the mountain or the glacier—or the city.

Even in more "natural" landscapes, Goldsworthy is aware of the layers of history—including human history—in the world: "People lived, worked, and died here, and I can feel their presence in the places that I work. And I am the next layer upon those things that have happened already" (Riedelsheimer, *Rivers*). Throughout both documentaries Goldsworthy's goal is to create moments of awareness and reevaluation of the relationship between environments and

their inhabitants. These layers of the past are part of the planet, and part of us. No matter what happens in the future, the layers we create now will be part of it.

## Chapter 5: Writing After Earth

That which has beginning requires (at some point) an ending, or, more accurately, a re-categorization, a redefining. Ends and deaths are merely moments of new formations, hybrids, and mutations. One category may appear to end, but its components move on in new formations. (Dobrin 1)

When viewed in deep time, things come alive that seemed inert. New responsibilities declare themselves. A conviviality of being leaps to mind and eye. The world becomes eerily various and vibrant again. Ice breathes. Rock has tides, Mountains ebb and flow. Stone pulses. We live on a restless Earth. (Macfarlane 15–16)

The primal planet, in all its sublime glory, red and rust, still as death; dead; altered through the years only by matter's chemical permutations, the immense slow life of geophysics. It was an odd concept—abiologic life—but there it was, if one cared to see it, a kind of living, out there spinning, moving through the stars that burned, moving through the universe in its great systolic/diastolic movement, its one big breath, one might say. (K. S. Robinson 79)

Millions of kilometers away from the room where I sit writing this is a cold and rocky world not that different, relatively speaking, from our own. On the surface of that planet a car-sized rover slowly picks its way from outcropping to outcropping, exploring a planet that humans may one day set foot on. This other planet exists; it is within the scope of possibility for a human not unlike myself to walk and even live on its surface. Its surface is as real and as imaginable as the surface outside my window. The fact of this reality and this ability to be imagined is enabled by the composition of the two planets in question, the Solar System within which they move, and the myriad technological and societal practices enabling and producing the apparatuses of satellites, probes, and rovers, the rockets they use to travel to Mars, the radio waves relaying information back to Earth, and all the other advancements before and after these that produce our interactions with another world.

The first Mars rover, called *Sojourner*, landed with a stationary probe called *Pathfinder* in 1997. After landing and embarking, the rover was maneuvered into position by a nearby rock, and a composite image was produced of the scene (Figure 9). The rover's tracks are clear evidence of its movement and operation. They are an inscription on the surface of Mars produced by a technological composition of the rover, the lander, its landing procedure, radio signals transmitted back and forth to a control station on Earth, and a team of human operators, to name just a few components. Each of these components is in turn composed of technologies and practices that have developed over time on Earth, but each of them has also, in order to produce the inscription seen here, had to interface with the features of Mars and its material existence. The rover's motors must be protected against the extremely fine dust in the Martian atmosphere, its battery must withstand the extreme cold of Martian nights, the radio signals transmitted must account for Mars's distance and orbit relative to Earth's, each of the components involved in the rover's operation must be designed to fit on the lander and survive its complex landing

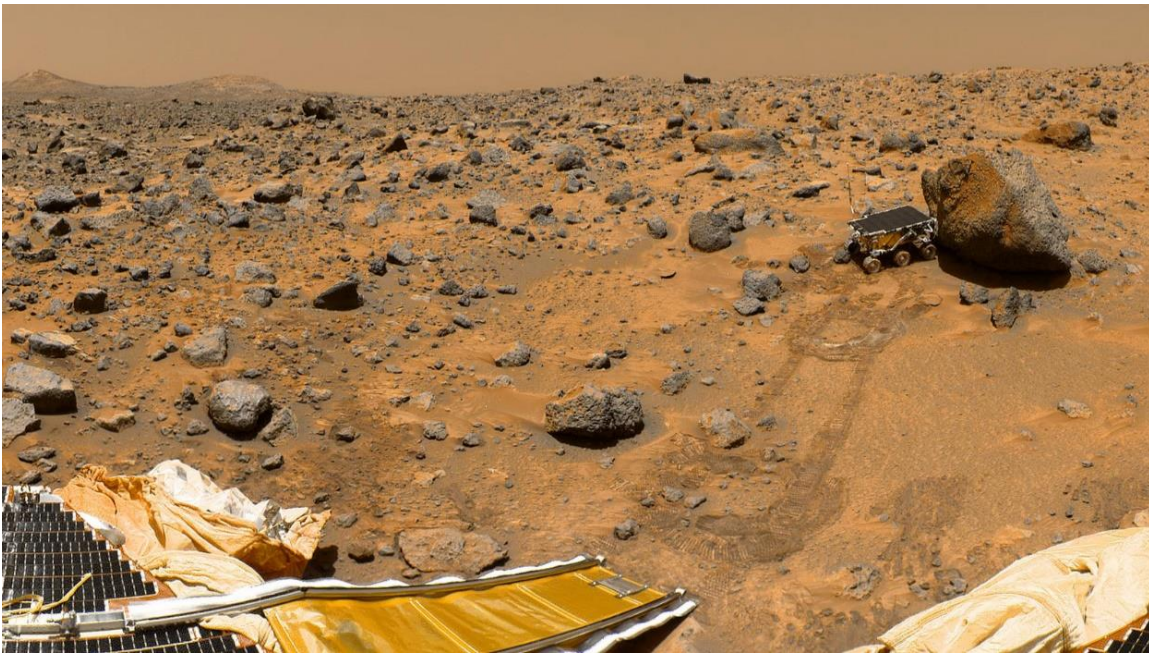


Figure 9: *Sojourner* rover investigating a Martian boulder nicknamed “Yogi” (Image PIA01005, NASA/JPL).

procedure, and so on. Like adapting a ball point pen to function in weightlessness, to make a mark on Mars requires an adaptation to its material conditions. Such is the case for all composition. The rover shows how that composition produces an understanding of a world.

The *Sojourner* rover explored the surface of Mars for approximately three months. Since that mission's completion, three additional rovers have landed on the surface of Mars: the twin rovers *Spirit* and *Opportunity* in 2004 and the *Curiosity* rover in 2012. Together, the four rovers have traveled a total of just over 73 kilometers across the Martian surface, and the *Curiosity* rover is still active. A fifth rover, called *Perseverance*, is planned for launch in July of 2020. The relevance of this continued movement for a theory of composition has to do with the interplay between two planets' worth of environmental conditions and affordances, resulting in a variety of inscriptions and objects left behind on the Martian surface, producing information and conceptualizations of the planet.

Writing on Earth is also a part of this composition. In addition to the reams of technical documentation associated with complex space missions and the scientific experiments they carry, writing has been used to engage and inform the public. Twitter accounts were even set up for the more recent rover missions, sending out regular "status updates" from the rovers in an attempt to personify them and make them seem relatable (Holmes, par. 5). But it is also true that writing is no more an essential component of these compositions than is any other element. Writing played a role in how the compositions came to be, but without it other compositions would have developed, and they would have produced their own effects.

Mars's alienness is a product of a focus on humans and on Earth, which necessarily places Mars as an "other" location outside of the purview of traditional inquiries into subjects like writing and rhetoric. But from a planetary perspective Mars is part of the same larger

composition that Earth belongs to. While it is undeniably a separate planet from Earth, Mars is also another location in the Solar System just as Earth is. Mars is as alien as Antarctica, for example: a distant land that humans must travel a great distance to reach and must endure great hardship so that they may remain there. This does not mean that Mars is not strange and unusual compared to the usual range of human experience, but instead emphasizes the very nature of that range of experience as being determined by humanness; these places are alien because there are not (ordinarily) humans living there. But a lack of humans does not mean Antarctica is not part of the composition that enables humanity, and the same is true for Mars. Antarctica plays an important role in Earth's interconnected cycles and systems. Mars has a more distant but no less integral role in the gravitational arrangement of the Solar System, and perhaps more importantly is a crucial component of our conception of our place in the universe. If we are "organs of this world," as David Abram argues in reference to Earth (68), we are also organs of Mars.

The rover tracks themselves are a composition of lines in the Martian regolith, lines which form an important component of the ongoing process of composing the relationship between Mars and observations of it. The tracks' existence as lines is a critical feature connecting them to other modes of inscription. Tim Ingold argues that "a history of notation would have to be subsumed under a general history of the line" because "any notation consists of lines," and this history of the line requires attention to "the changing relations between lines and surfaces" (39). The interactions between lines and surfaces, or between objects and grounds, form a basis for composition. Unlike writing with a pencil or pen (perhaps a space pen or Atwood's LongPen), which adds an "extra layer that is superimposed upon the substrate" of the writing surface (Ingold 43), the tracks left by *Sojourner* or *Curiosity* do not add material to the surface of Mars. Nor do they remove material—instead they function by rearranging existing

material (also true of the Nazca Lines), in this case mostly by compressing it and altering the way it reflects light. The result is a path visible even from orbit, as in Figure 10. In this image, captured by the Mars Reconnaissance Orbiter, the tracks of the *Curiosity* rover are a visible trace of its exploration of this particular region of the planet. At various points along its path are circular markings where human operators stopped the rover and rotated it to observe its



Figure 10: *Curiosity* rover and tracks viewed from Mars Reconnaissance Orbiter (Image ESP\_036128\_1755, NASA/JPL/University of Arizona).

surroundings and plot a new course (note similar circular patterns along *Sojourner*'s path in Figure 9).

The lines produced by a rover are not simply some sort of quasi-writing, and the intention with their production is not to create a communicative message.<sup>7</sup> Instead, these lines create a composition consisting of a new surface and relationships between that surface and the rover, the planet, and the other entities involved in the process. Ingold emphasizes that “a particular capacity of line [is] its capacity to *create* surface” (Kadinsky quoted in Ingold 45). Physically carving a line into a surface creates new surfaces along the sides of the carved groove, as in Ingold's example of dragging a plow through soil. But inscribing lines on a surface or adding traces of material like ink also augments the existing environment to create a new surface influenced by the lines' relationship with their surroundings. The surface of Mars, now imprinted with rover tracks, has fundamentally changed in some way. It is now a surface that humans have explored (and perhaps attempted to “claim”). It is now not just a surface of rocks and dust but of wheels and sensors. As they leave traces of their passage on its surface, the rovers have composed a new Mars.

So far, no craft from Earth has returned here from the surface of Mars. There have been a few such missions planned with the goal of obtaining rock samples to be studied in detail back on Earth (sometimes with the simpler task of launching the sample itself, not returning the entire craft). But unlike a smaller celestial body such as a comet or asteroid, Mars's gravity makes such a return challenging. While considerably less powerful than Earth's gravity due to the planet's smaller size, leaving the surface of Mars requires a comparable expenditure of energy, therefore adding to the complexity, size, and weight of the initial payload. Instead of returning themselves,

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<sup>7</sup> Though not necessarily communicative, the wheels of the *Curiosity* rover are designed to imprint the Morse code for “JPL,” the initials of the agency that created it, once per rotation (Lakdawalla 169).

the crafts that have landed on Mars have instead sent back radio waves and other electromagnetic signals that transmit data and images. A craft, maneuvered to the surface of Mars, engages with that surface and produces a composition of information that is transmitted over a different medium (a radio frequency, for example, instead of a material payload) back to its origin. These transmissions are mediated by the craft's encounter with Mars's surface, incorporating it into their composition. This information creates humanity's understanding of Mars, and of what it means to be a planet. It offers glimpses into planetary pasts and futures, guiding research and knowledge production and also our sense of what is possible.

Even if a rover or other spacecraft were to return from Mars, it would not be the same spacecraft that left, and samples brought back would not be solely "Martian." The encounter with Mars changes the craft, as would an encounter with anything. The craft's existence itself is a product of the composition of Mars and Earth (without a relationship with Mars, sending something there would not be thinkable), but its role in that composition changes as it encounters Mars materially. And in its encounter with the signals returned by the rover, Earth is also brought into a new composition. Discoveries on Mars shape our understanding of our own planet, and of ourselves. Every landing on Mars changes Earth.

Every composition changes the planet. Sometimes the changes are small or imperceptible, but as previous chapters have described, composition is defined by change. And change presents ethical dilemmas: any action taken in the present will have consequences for the future. Concern over the "right" course of action drives ethical debates, and a concept of what is "right" is a part of subjectivity, itself influenced by the planet as argued in chapter four. Ethics is also a form of imagining possible worlds, possible futures in which certain outcomes have come to pass. Any concept of ethics is itself composed by the planet, augmented by technologies and

practices like writing and rhetoric. This chapter concludes with an exploration of the ethics of the concept of composition as it has been depicted and developed in previous chapters. If the planet has produced everything on it, then the current arrangement is no more planetary or originary or ideal than any past arrangement—or any future one. But instead of concluding from this that nothing matters, in a planetary composition everything matters. Indeed, as Robert Macfarlane puts it this chapter's epigraph, "new responsibilities declare themselves" when considering the planet from a deep time perspective (15). Deciding what to do next is influenced by how we understand the world.

### **Ethics of Composition on a Planetary Scale**

Complexity, ecology, and materiality (the keywords examined in chapter one) pose ethical questions for planetary composition. In a complex material ecology, no single element of a composition is essential to the composition. Complexity makes it impossible to determine exactly what gives rise to certain emergent effects of a composition, and means that different effects would emerge from different compositions. But at the same time that no single element is essential, the ecology depends on all of them. Their interconnection and interdependence is what leads to the emergent effects of complexity. So while it is true that a composition would continue without a given element, that continuance would be at least slightly—if not completely—different. In the face of such complexity, decisions about the future can be paralyzing. Adding to the difficulty of making determinations about what should be done within a composition is the ontological instability implied by attention to the material. Taking materiality seriously means questioning what it means to be human, among other things, because the components of any element in a composition cannot be clearly categorized.

The deep time of the planet, examined in chapter two, reveals that any certainty we might have about ethical concerns is in continual flux. Writing and rhetoric are not stable entities for all time, they shift and churn with the material currents of the planet, and our understanding of concepts and our place in the world shift along with them—not interchangeably or in lock step with each other, but each influencing everything else as everything ebbs and flows. The ethics of today are ineluctably wrapped up in the history of the planet.

Hundreds of millions of years ago, plant life thrived on Earth, and was so abundant that it changed the composition of the planet's atmosphere, adding enormous amounts of oxygen as a byproduct of the plants' respiratory cycles. The oxygen level 350 million years ago rose to 35%, about 67% higher than the concentration today, allowing animal life to flourish on land (instead of just in the oceans as it did previously) (Falkowski 141). As the atmosphere changed, many of the plants died out, unable to survive in the oxygenated world they had created. The carbon-rich biological matter of the dead plants created yet another new world, eventually forming the basis for future life millions more years later. While human intervention in the composition of Earth's atmosphere is different from these ancient events in many very important ways, it is similar in at least one: the planet will eventually play host to living and nonliving entities that adapt to whatever conditions are left on its surface. If we are concerned about the changing climate of the Earth, it is because it will not be habitable for *us* (and most of the other life that currently resides with us on its surface); if we are to do something about it, it will be because of self-interest, not for some grander planetary future. The planets, as compositions of matter and energy, will outlast us. Even if Earth is made uninhabitable by the life we know today, it will persist, uncaring, before being incorporated into (consumed by) the "life" cycle of a larger composition (namely the Sun, which will begin to massively expand in about 5 billion years and envelop

many of the inner planets before slowly dying out). Before then, the world we leave behind, however uninhabitable it may be for us, might enable future compositions of life, much like the dead plant matter did 350 million years ago.

On much smaller temporal scales, similar observations could be made about any of the many technologies or practices humans currently employ, writing included. Humans will persist after writing, just as they have already persisted after practices like marking clay tablets with wooden styluses have fallen out of use. By the same token, writing will persist after humans have stopped using it. Archaeological records include numerous “dead” languages and inscription systems that, though they are no longer used today, are still physically present on the surface of the planet. Stone monuments from ancient cultures loom unintelligibly, even as we construct and make plans for similar monuments of our own like the markers for the Waste Isolation Pilot Plant. The clay tablets that the human species outlived also outlived the individual humans that used them. The relationships between these entities, as well as the responsibilities they have for each other, cannot be clearly delineated. Should the “loss” of clay tablets be mourned, as some would have us mourn the loss of a particular style of handwriting? More importantly, who are we to say?

From a planetary perspective, ethics are diffuse—they are spread out and hard to locate but are also everywhere and inescapable. How should judgments be made about what should or should not persist? Is human influence a deviation from the planet’s “natural” trajectory or an integral part of it? The planet produced us, so in some sense it also produced everything we do. That some of what we do could lead to the planet’s becoming inhospitable for us is not particularly surprising from a cosmic viewpoint, and while the technological dimension of such a fate lends a new character to the situation, it is similar in some ways to the “oxygen extinction”

described above. As much as Earth is hospitable for the life we have come to know, it is equally inhospitable outside a narrow range of conditions. Only certain types of life can survive in certain places; deep sea marine life would obviously not survive on the surface, or even at shallower depths, just as animals adapted to certain surface climates cannot survive at different altitudes or in different ecosystems (or, obviously, underwater). So the goal of “preserving” a certain climate cannot simply homogenize the planet, or nearly all life would cease. The planet must also be physically diverse in order to support biological diversity. By definition this means that not all parts of the planet can support all life.

In the study of ecology, a movement toward “reconciliation” attempts to capture some of this sense of an ongoing diversity that cannot escape the role everything on the planet—humans included—plays in shaping the environment. Where restoration ecology tries to remake “natural” areas as they once were and reservation ecology tries to set aside certain areas so that they can remain “natural,” reconciliation ecology is a mindset aware of the complexities required for coexistence (Rosenzweig 199–201). Rather than separate humans and nonhumans, reconciliation ecology “discovers how to modify and diversify anthropogenic habitats so that they harbor a wide variety of wild species” (Rosenzweig 201). While the explicit aim of such an ecology is to “halt the current mass extinction” (Rosenzweig 203), reconciliation also implies a perspective on the world that admits the impossibility of stasis; life is defined by change.

Ecology is inherently ethical, not just because it draws attention to the natural world and attempts to protect or preserve it, but because of the theoretical and practical implications of interconnectedness and contingency. To understand the world as contingent on a mesh of different entities provides a sort of a-signifying ethics, an ethics that does not rely on human

frames of reference or on specific arguments about whether or not some entity should be protected or nurtured. The planet's raw interconnectedness itself is ethics.

### **Futures of Writing and Rhetoric**

As in any domain, concern for the future occupies the study of writing and rhetoric. Chapter one began with just such an exigence—the observation of changes that cast doubt on their influence on the future. Concern for the future has an ethical component. Will writing as we know it continue? Should it? Should we change it? How? The future of writing and of composition has been discussed and decried from numerous vantage points, often with apocalyptic overtones. In his book *Writing at the End of the World*, Richard Miller questions the usefulness of the humanities in the face of monumental tragedies like Columbine or September 11th. He muses that the “dark night of the soul for literacy workers comes with the realization that training students to read, write, and talk in more critical and self-reflective ways cannot protect them from the violent changes our culture is undergoing” (8). Miller focuses on cultural change as the exigence for his interrogation of the humanities, but similar questions might be posed to writing and rhetoric against the backdrop of planetary change associated with climate collapse or global capitalism. To the extent that they influence human action, writing and rhetoric no doubt have an at least minute influence on the changes humans cause in the environment, but the actual material shifts that take place as a result of those actions can be difficult to quantify, let alone reconcile with the affordances of writing or rhetoric. Writing does not “literally” change the composition of the atmosphere, but to the extent that it provides a mechanism for information or policy to be shared and distributed it performs a central role in how the planet comes to be the way it is. And in the current context of a global pandemic it is

increasingly clear that how we write and speak and come together (or not) has tangible material effects on the world and its inhabitants.

Discussions of the future of writing and rhetoric—and their eventual ends—abound, both within the discipline(s) of rhetoric and composition and outside them. David Smit foresees the end of composition studies due to its inability to actually teach writing—pointing out, for example, that there is “little evidence that any particular form of instruction has any long-term effects” (Smit 159). Writing about the technology of writing more generally, philosopher Vilém Flusser provocatively argues that “Writing, in the sense of placing letters and other marks one after another, appears to have little or no future,” and that instead of writing humans will turn to digital technologies which allow them to transmit information more effectively (3). In some cases Flusser’s predictions are already manifesting themselves, for example in the algorithmic curation of news, but Flusser understands writing to primarily be a method of information storage, ignoring the possibility of more expansive views. Félix Guattari’s mixed semiotics, discussed in chapter three, offers multiple coexisting paradigms for semiotic systems like writing, only some of which involve a traditional understanding of writing as a representational container. These paradigms have endings and beginnings too, but as Sidney Dobrin puts it in his analysis of the future of composition studies quoted in this chapter’s epigraph, endings are “merely moments of new formations, hybrids, and mutations. One category may appear to end, but its components move on in new formations” (1). While Dobrin goes on to propose specific changes in the field of composition studies to further what he argues to be the field’s imperatives, this perspective on change and endings as always ongoing offers both a stability and a tumultuousness that suggests a more nuanced approach to questions of what should be done about the future of writing.

There will be an Earth after writing, and there will be writing after Earth. Each version of this statement relies on an understanding of “world” as contingent upon the entirety of the composition of elements that makes it up at any given moment. Any particular conception of “world” begins and ends as its constituents change. Writing played a role in how the composition of the Earth came to be, but without it another composition would have developed, and it would have produced its own effects. To the extent that humans are able to control the effects they have on the planet, understanding the ways that writing contributes to the worlds we desire is an important part of what composition studies does. If humans increasingly exert “geologic force” on the planet (Wells et al. 8), we must understand how writing is involved in that geologic force, both as a cause and perhaps a “solution.” Like anything else, writing can be produced in excess—leading Doug Hesse to ponder whether “the world might be better off with less writing in it” (Hesse)—but if humans can channel the material forces of the planet, including writing and rhetoric, they can also do so for the good of the planet. The ethical dilemma lies in determining what counts as good.

The semiotic frameworks proposed for the Waste Isolation Pilot Plant (described in the introduction) are a vivid example of how writing and rhetoric rely on a presumption of stability in the world that is not guaranteed to persist. Something as seemingly simple as leaving a warning sign for radioactive material becomes incredibly complex as the time scale involved stretches beyond human lifetimes and even further beyond the “lifetime” of culture itself. Almost all of the effort involved in preparing the proposals for the warning sign involves stepping outside of typical human frames of reference to consider the lifetime of the planet. Early in the report the proposed designs are matter-of-factly situated in the context of work to identify “the range of possible future societies that may occur in the vicinity of the [site] during the next

10,000 years” (Trauth et al. 1–8). One distinct possibility within this range is the collapse of society as we know it, replaced by something completely alien to our contemporary range of experience. The marker is essentially communicating with another planet, one that may be more unlike our own than we could ever imagine. The composition of writing and rhetoric used to imagine and produce the proposals for the markers around the waste site are how we understand the planet and its future. They map and explore the surface of the planet, much like the Mars rovers, plotting potential futures and examining the past.

A theory of composition on a planetary scale seeks to describe the complex environment that enables change, as described in chapter two. But to live within this ecology is to cause some parts of it to persist at the expense of others; at some point judgments are made to determine what persists and what does not. The planet alone has no “preference” in such matters, beyond its ability to enable or constitute certain arrangements. Deciding what to destroy is as important as deciding what to compose.

## **Decomposition**

Much like the dead plant matter produced as a result of excess oxygen 350 million years ago, semiologies we are familiar with today will form the material upon which future semiologies “feed.” Technologies like ancient (or contemporary) writing practices do not disappear from the planet when they fall out of use, they “pile up” and form a basis for future developments. We no longer press a stylus into wet clay tablets, but we sometimes use a stylus to sign our name at a checkout stand, or to write on a digital tablet. For Guattari, decomposition provides a conceptual synthesis between the organic and the inorganic. As he puts it, “the heaped-up strata form a kind of humus” and break down over time (*Molecular* 130). In breaking

down, they become processable by other semiologies. The result is a kind of diagrammatic fungus, growing out of and repurposing old technologies and practices. The interactions between these different registers form the heterogeneity of Guattari's mixed semiotics, in which the signifying and the a-signifying are not described as opposites but as constituents of one another. The signifying and the a-signifying are not hierarchically dependent on one another, but each deploys the semiotic resources of the other for their own ends (Guattari, *Molecular* 75). As older paradigms break down, new developments in writing and rhetoric will draw on capacities in the planet and on the layers of material in the planet that are the remnants of both representational and nonrepresentational practices.

The example of emoji (small images often interspersed through digital writing in a number of contexts) illustrates one way that semiotic material has been repurposed over time. Comparing emoji to pictograms or hieroglyphs is an oversimplification of these practices, but they bear similarities that demonstrate how certain semiotic logics are repurposed or recovered after falling out of use for a period of time. Emoji could theoretically be deployed as a form of rebus, where visual symbols stand in for components of a message to be "reconstituted" as sounds forming specific words, but such uses are increasingly rare if they were ever commonplace to begin with. More typically, emoji stand in for words they could be interpreted to resemble (indeed, cell phone operating systems are equipped to "suggest" certain emoji as replacements for words in a text message). Recently, however (and especially as they are more fully integrated into semiotic practices), emoji take on their own individual meanings that are often quite diffuse and vary from context to context. Many uses of emoji do not directly correspond to specific words or even to linguistic messages. The emoji selected as the Oxford Dictionary's "word of the year" in 2015, for example, is referred to as "face with tears of joy." In

a more representational paradigm it might be used to replace a specific word like “crying” or “happy,” or a more complex sentence that more completely captures the idea of “tears of joy.” But it might also nonrepresentationally indicate an emotion more directly or could be used to stand in for a particular person or idea, or any number of other uses not as readily interpretable without specific context—the Oxford Dictionary explains they chose this emoji in particular because it “best reflected the ethos, mood, and preoccupations of 2015,” implying a number of more complex uses for the image (par. 2). And while the dictionary also describes the emoji as a “pictograph,” emoji have repurposed older forms of pictographs (and other more recent developments like emoticons) into something that both resembles and diverges from them.

The imagery of new technological forms “feeding” off the built-up material of older ones evokes biological processes and the intricate food chains making up ecologies. This, too, is an ethical domain: who eats whom? What is acceptable as food? In his article “Politics of Edibility,” Joshua Trey Barnett focuses on a project to devise a method of decomposing one’s own body after death with a fungus grown specifically for the task. The goal of this project is to come up with a more environmentally-aware burial process, but its implications extend toward a broader understanding of one’s place in the world that aligns with the current discussion of decomposition. The project allows Barnett to reevaluate the “eater/eaten” dichotomy, which he demonstrates is a politically-motivated distinction. Unpacking the ethics of eating leads Barnett to describe decomposition as “radically social” (229). To decompose

is also to be lost, to be distributed, to be digested, to be transformed into something else. And, then again, it also suggests that one is a part of something larger, part of an ecological life-world, part of a web of relations in which the human is neither wholly sovereign nor capable of maintaining a sense of wholeness in life or death. (Barnett 229)

Barnett clarifies that such an integration does not suggest a “dissolution of agency” but instead highlights the importance of agency as a process of decision-making within an ecology. His “ethics of edibility” is an ethics of decomposition. What we are today (bodily, culturally, materially, and so on) will decompose and form part of the future. The choice to act on that knowledge invokes planetary ethics.

The planet eats itself. The movement of tectonic plates is a mechanism through which new geological material is produced (mountains, volcanoes, islands, and so forth) on the surface of Earth<sup>8</sup> at the expense of other material, through processes like subduction. Subduction describes the movement of one tectonic plate beneath another, forced into the planet’s mantle by the movement of the opposed plate, producing geological features like oceanic trenches and mountain ranges as well as more immediate effects like earthquakes or volcanic eruptions (Condie 4–5). As a result of the movement of tectonic plates, matter slowly moves around the planet. When new material is formed at the meeting point between tectonic plates, the surface of the planet is consumed somewhere else. While the new material (a mountain range or portion of sea floor, perhaps) is composed of generally the same material as the edge of the plate forced back into the planet’s mantle, the exact makeup of each area is always different. Taken as a whole, the planet mutates as a result of subduction; internal processes lead to a change in the manifestation of the planet’s surface. One form of the planet ends while another begins.

Incorporating decomposition into composition requires attention to the reciprocal movements of creation and destruction inherent in anything. In chapter two this was framed through the lens of deep time: depending on the scale involved, all things break down eventually,

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<sup>8</sup> Earth is the only planet in our Solar System known to have tectonic plates. Mars’s lithosphere, for example, is a single continuous surface, though it is possible that it once had tectonic plates at some point in its past. Earth’s tectonic plates may also be a relatively recent development.

and this breakdown is integral to how a thing is made and how it exists in the world. To paraphrase one of Deleuze and Guattari's perennial refrains, "it only works by breaking down." The proposals for the Waste Isolation Pilot Plant are an acknowledgement that writing and rhetoric break down over geologic periods of time, and an attempt to navigate that breakdown without presuming that it can be stopped. They approach the question of decomposition from a pragmatic perspective by attempting to create a marking system that can avoid it. But the end result is malleable even as it attempts to last 10,000 years. The designers realized that the only way to "resist" decomposition was to give the composition over to it; to incorporate into the construction the means of its ongoing construction and eventual deconstruction. For example, the proposals envision enclosing longer-term messages inside shorter-term ones composed with less durable materials. After these shorter-duration messages (which would not need to last the full 10,000 years because their content would lose relevance much sooner) decay, they reveal longer-term messages on more durable material that will have been protected in the interim (Trauth et al. F-79). The plant buildings in place today, which will degrade long before the 10,000 year span, are themselves proposed to be "left to decay" as their own form of marking (Trauth et al. 3-5).

The idea of decomposition or "erasure" is often seen as running counter to creative or productive acts. The very word "decomposition" is constructed to be an antonym of "composition." But decomposition and erasure are vital processes of rebirth, both in an abstract conceptual sense as well as in a practical one (as in the important role of decomposers like worms, for example). For John Durham Peters, erasure is a balancing out of the universe that allows for the continued existence of media. If media did not go away we would find ourselves unable to continue creating new media because we would run out of space. Or, as Peters puts it,

“A universe of gaps is a universe in which we have something to do” (352). Erasure is lively and creative, “both damage and salvation, an operation that runs against entropy” (Peters 356). All of this leads Peters to conclude that for media, “Loss and damage . . . are as important as storage” (358). Without decomposition there would eventually be no material with which to compose. Ethical composition prepares for its own decomposition and future reuse—and, if possible, provides “good food” for future compositions.

### **Beyond Gaia**

It would be easy to interpret a call for attention to the complex material ecology of the world as a “composition” with which humans and technology interrelate along nonlinear temporal and spatial pathways as a suggestion that everything on the planet is one single harmonious entity. Indeed, many arguments for the need for attention to ecological concerns like climate change often portray the planet as a single living organism, thus implying that what affects the planet affects its inhabitants. The name often given to this single organism is Gaia, after the Greek deity who personified the Earth. But while this image (and variations like “Mother Earth”) is commonplace and easy to grasp, it is misleading. As John Tinnell argues via the work of Guattari, “there are no discrete, transcendent wholes upon which to ground or stabilize an (eco)system because the so-called constituent parts always retain their partiality” (“Transversalizing” 381). Partiality here refers both to the sense that the parts in question are exactly that—parts—and to the sense that those parts are in their own way “biased” (or “partial”) toward particular contexts or functions. There is no “master” organism in which these parts fit neatly like puzzle pieces to form a single whole. Instead each piece is its own individual organism. This “logic of parts without wholes” (Tinnell, “Transversalizing” 381) could be said to

see the world *as composition*—that is, the quality of the world that causes it to be recognizable as a world is its ongoing process of arrangement and bringing together of vast numbers of components in diverse relationships.

Resistance to the “Gaia” formulation recalls Nathan Stormer’s argument that rhetoric is not a singular whole made up of multitudes but instead an always varied and polythetic series of manifestations of diverse entities, always different despite varying degrees of commonality. The ecological view sometimes suffers from the same “problem” Stormer seeks to correct in rhetoric. The notion of the planet as a singular whole, composed of interconnected and constituent parts can appear only subtly different from a polyvocal depiction of ecology and rhetoric. But the difference is crucial: the planet is not a singular whole made up of multitudes. At any moment we only perceive a stabilization in the ongoing flux of those multitudes. That perception is itself a product of our relations within those fluxes. An understanding of writing and rhetoric seeking to account for the complexity inherent in this depiction of the planet’s ecology must similarly refuse stability, at least eventually, not because stability is not a meaningful concept but because it only has meaning from a particular vantage point within the ongoing fluxes of the planet’s complex material ecology. From the perspective of a car moving down a freeway, another car traveling at the same speed in the next lane is stable, but of course from the perspective of a pedestrian on an overpass nearby the cars are not. The construction of the car itself may appear stable from our temporal perspective, but over time it will break down. Cars require regular maintenance, and even with extreme care they will eventually cease working. The materials are simply not designed to last more than perhaps a few decades. Again, this does not mean that stability is not a functional concept: the car’s temporary stability is perfectly functional for our purposes (unlike the markers at the Waste Isolation Pilot Plant, we do not need a car to last

thousands of years or more). Yet to ignore the impermanence of the thing would be to miss an important character of its being. Flux can be a serviceable infrastructure, but it is still flux.

About 4.5 billion years ago, the Solar System began to form from a slowly accreting cloud of gas and dust. The gravity of the newly formed Sun at the center of what would become the Solar System pulled in and arranged this vast swirling conglomeration of material. Eddies and whirlpools of dust gained prominence, disintegrated, and reformed again. Earth and Mars, to continue with the examples introduced above, gradually gained mass as particles collided and stuck together—tiny grains at first, eventually kilometer-sized “planetesimals,” and finally building up over about 100 thousand years to reach the size the planets are today (Barlow 28–29). Each new addition contributed its own material uniqueness which was subsumed by the overriding composition of what was becoming-Earth or becoming-Mars. None of these additions on its own would be all that either planet is, and either planet would not become all that it is without each of them (and each of the other planets).

Accretion is a continuous addition. As a singularity takes shape from a swirling cloud of matter, it gains mass and its gravitational force attracts more and more distinct entities into its composition. But continuous addition does not simply produce a single massive conglomerate. Variations in temperature and pressure, primarily as a factor of distance from the Sun, cause different elements to solidify at different distances. Metallic elements, for example, solidify closer to the Sun than water does (Barlow 29; Forget et al. 21). Planets like Jupiter, composed of lighter elements, thus formed further away from the Sun than did the rocky planets. The flux of material forming around the Sun produced singularities (planets) that are themselves heterogeneous mixtures of material. The composition of a planet also organizes itself in a similar

way. Certain elements are distributed among the layers of a planet, and some are only accessible on the surface when expelled there by processes like volcanic eruption.

The reciprocal of a planet's accretion as a singularity is its orbit. As Earth and Mars were composed during the formation of the Solar System, the space around each of them was also cleared away, creating paths of "not Earth" and "not Mars" for them to orbit in. Each of the fragments that eventually became a part of these planets had previously occupied a space that would become the future planet's path around the Sun; for Earth or Mars to be a planet it must remove these competing entities to clear an orbit for themselves and continue doing so—in order to be considered a planet, at least according to astronomers on Earth, a celestial body must clear the "neighborhood" around its orbit (Margot 1). In this way a planet's interiority is composed at the same time as its exteriority; as the Solar System composes Mars, for example, Mars composes the Solar System. The fact of its existence as a distinct entity also necessitates the existence of its orbital trajectory and the "environment" of the Solar System within which that orbit takes place. In this sense it is incorrect to conceptualize of Mars's orbit as "not Mars"—the orbit is an integral part of the planet.

Orbits are reciprocal compositions of figure and ground. Like accretion, this production is the result of additive conjunctions of material. Whether at a scale of atoms or planets, orbiting entities compose a relationship between themselves and the space they move through at the same time as they are composed by that space as a result of their movement. The parameters of the orbit produce certain effects, both on the orbiting body and on the larger composition of other orbiting bodies and the center around which they orbit (in Mars's case, the Solar System, orbiting around the Sun). Mars and the Solar System are not binary terms opposed to one

another, they are part of the same process of composition. That we perceive them otherwise is a byproduct of a limited frame of reference.

A frame of reference that causes some parts of a composition to appear to be contained within or governed by other parts is emblematic of binary thinking about the nature of compositions—a problematic paradigm because of its simplistic understanding of the complexity of the world. Instead, any apparent inside or outside is a stabilization in an ongoing flux of material that is perceived to pause, even briefly, before continuing on its way. The planets are composed of the Solar System at the same time as the Solar System is composed of the planets. Much like Deleuze and Guattari’s deployment of the Body without Organs, which argues that compositions are not defined only by enumerating their parts (their organs), the Solar System is similarly more than its constituent planets. The Solar System is a *system without planets* (system here referring to a star and the objects orbiting it), and Mars or any other planet composed in relation to the Solar System is likewise neither an organ nor composed of organs. At each scale, flows of material and intensities come together and break apart in an ongoing process of reciprocal composition. An orbit is a consequence of this arrangement: it is neither contained in nor containing of a planet. To orbit is to compose.

Earth doesn’t “care” whether any part of its composition persists or does not (some composition will continue regardless), but neither is it immune to changes in different parts of its composition (as its parts change, the composition changes). If humans care about the future of certain entities, then in a sense the planet has created that care, and that sense of ethics. Guattari describes his ethico-aesthetic paradigm as “a striving towards [the] ontological root of creativity” (*Chaosmosis* 116). As discussed in chapter four, Guattari’s conception of aesthetics is exemplified by the mindset of an artist who accepts the uncertainty of media and seeks to

experiment with it, accommodating apparent accidents that may “suddenly [make] his [or her] initial project bifurcate, making it drift far from its previous path, however certain it had once appeared to be” (*Three* 35). To this wandering and nomadic sensibility Guattari adds an ethical guide: the adherent of ethico-aesthetics does not experiment solely for the sake of experimentation and does not accept whatever chaos may come, he or she is mindful of certain goals or virtues that should influence decision-making; “to speak of creation is to speak of the responsibility of the creative instance with regard to the thing created” (*Chaosmosis* 107). The parameters of this ethical guide are influenced by attention to and investment in the chaotic becomings of the world. As new entities emerge, an ethico-aesthetic paradigm seeks to find new ways for those entities to exist, rather than forcing it into old ones.

The autopoietic creativity of Guattari’s ecosophy does not seek or expect conformity. It is ecologically reconciliatory in the sense that reconciliation attempts to create a heterogeneous mixture of humans, nonhumans, and everything else rather than compartmentalize them into certain protected zones. Interactions between these disparate entities (relations) are the grounds for subjectivity and rhetoric, and lead to autopoiesis, as outlined in chapter four. Because the “whole” that is nature or the planet is in fact not a whole at all but instead a composition of parts which “always retain their partiality” (Tinnell 381), there is no transcendental entity whose existence or relative duration is more important than another’s. The planet shifts and churns, erasing parts of itself as it creates new ones.

One of the more provocative suggestions in Guattari’s *The Three Ecologies* is his call for a transition to a “post-media age” (40), which encapsulates an ethico-aesthetic transformation of subjectivity. Guattari describes the post-media age as a re-appropriation of mass-media by “a multitude of subject-groups capable of directing its resingularization” (*Three* 40). In place of

homogeneity, the post-media age will transform society into a more ecological multitude. As implied by descriptions of writing and rhetoric as natural components of the world, media in Guattari's formulation are important components of a planetary ecology. Post-media does not bring an end to media but instead a diverse diffusion of its possibilities, freed from singularly-controlled channels of mass communication. Rather than a Gaia-like singularity in which everything on the planet fuses together into one entity, the post-media age imagines radical individuality. The planetary perspective becomes a map (a diagram) of continual change and difference, while retaining a deeply embodied sense of the material history of the elements involved. The components of a planetary theory of composition are ethical as well as theoretical.

This dissertation began with an epigraph from Franco Berardi, activist, philosopher, and friend of Deleuze and Guattari. Berardi states, at the culmination of a discussion of the interactions between technology and biology, that Deleuze and Guattari would argue that "there is no planetary becoming" (107). As noted in the context of planetary orbits, any understanding of a planet coming into existence also necessitates the existence of its surrounding environment (in our case, the Solar System). Without the Sun, there would not only be nothing for the planets in our Solar System to orbit around, there would also be no gravitational force to cause them to coalesce and spin. Even if a single planet could be considered in isolation, similar complexities emerge at every perspective. Berardi goes on:

there is no consistency between one state of the world and another because in any process in which we enter, what is interesting is revealed precisely as being inconsistent, it is that which is not consistent and thus cannot be presently foreseen, nor can it ever be analyzed as a necessary implication of the process. (107–08)

A planetary perspective on writing and rhetoric does not unify these domains with the planet as a singular concept. Writing and rhetoric retain their partiality, as does the planet, while they simultaneously incorporate with each other to produce new forms and ways of being.

As it maneuvers around the surface of Mars like some sort of incredibly remote LongPen, the *Curiosity* rover attests to the interconnections between technology and biology, and between humans and the planet(s). This connection is writing and rhetoric, not because of a representational similarity—there isn't one—but because of the ongoing composition of complex material ecologies stretching from Earth to the stars. The birth of the Solar System (or, further back, the universe itself) produced the raw materials for the living and nonliving entities of the planets, and the planets themselves. Presently, those materials have formed writing and rhetoric as we know them today. What they become in the future will be influenced by their ongoing composition—including, among other things, what we choose to do with them.

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