

ANTHROPOCENE READING:
LITERARY HISTORY IN GEOLOGIC TIMES

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Introduction.

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In “The Storyteller,” Walter Benjamin proposes that we “imagine the transformation of epic forms”—the heroic epic, the fairy tale, the proverb, the legend—as “occurring in rhythms comparable to those of the change that has come over the earth’s surface in the course of thousands of centuries.”¹ Benjamin compares the long durations of geomorphological alteration, the gradual movement of uplift and sedimentation, to the drift of literary genres across history. “There is hardly any other form of human communication,” he writes, “that has taken shape more slowly, been lost more slowly.” This incremental shape-shifting suggests a further implication of Benjamin’s analogy, related not to the scale of time but to its formal ordering, a likeness between lithic strata and the shaping power of storytellers to organize time. Perhaps it is this formal intimacy with stone, this sense of the Earth as a primordial medium, that explains why, in Benjamin’s view, stories so often turn to stone, extending “a ladder . . . downward to the interior of the earth” (157), attending even to the “mineral . . . the lowest stratum of created things” (161). An alertness to the lithic, as a narrative medium, reflects back on human self-conception. The storyteller sees, in the mineral world, human eventuality, “a natural prophecy of petrified, lifeless nature—a prophecy that applies the historical world in which he himself lives.” In “The Storyteller,” Benjamin contrasts the epic forms, which convey “distance”—the vastness of the Earth, the amplitude of time—with the modern novel, which, in his view, addresses readers who expect immediacy, “information” close-at-hand and up-to-the-moment. Literary form, in other words, internalizes modernity’s

accelerated tempo and so no longer echoes the dilatory rhythms and extended durations Benjamin associated with geological time.

Though the dialogue between literary criticism and the Earth sciences rarely achieves the esoteric grandeur of “The Storyteller,” it is a persistent feature of both modes of inquiry. This is more than a matter of metaphorical traffic, as in the motif of the “stone book” or critical tropes describing texts as having topographical depths to be mined or rifts to be exposed. Stones, as Jeffrey Jerome Cohen has written, are a “spur to ceaseless story,” “ancient allies in knowledge making,” a “material metaphor.”² Narrative expresses a basic human imperative to understand our place in a dynamic world of water, weather, and rock. “Storytelling,” Bruno Latour observes, “is not a property of human language, but one of the many consequences of being thrown in a world that is, by itself, fully articulated and active.”³ Geology defines itself, as a scientific discipline, through its disavowal, if also its inescapable incorporation, of literary motifs and modes. In its early formation, geology was closely associated with romance, the narrative form concerned with marvelous phenomena: enigmatic ruins, vast timescales, absent causes.⁴ In *The Sacred Theory of the Earth* (1681-90), the Restoration physico-theologist Thomas Burnet—whom Stephen Jay Gould credits with conceptualizing the Earth’s past in terms of a “sequential narrative”—claims that any reconstruction of planetary history will exceed empirical explanation and rely on imaginative ways of knowing.⁵ Some men, he writes, “distrust everything for a Fancy or Fiction that is not the dictate of Sense, or made out immediately to their Senses. Men of this Humour . . . call such Theories as these, Philosophick Romances.” Yet, claims Burnet, “such Romances must all Theories of Nature . . . be.”⁶ Geology takes shape as a modern discipline through its rejection of fancy and fiction, yet, because it deals with scales of space and time unavailable to human

experience, it has never altogether transcended its provenance in imaginative narrative forms.⁷

The literary dimensions of geology—a practice of *reading* stratigraphic inscriptions and *narrating* evocative, if improbable, stories—become even more pronounced in the Anthropocene, the proposed geological epoch in which humans, collectively, come to rival “some of the great forces of Nature in [our] impact on the functioning of the Earth system.”⁸ In the *Earth After Us* (2009), Jan Zalasiewicz, the convener of the Anthropocene Working Group, has dramatized the challenges of interpreting the stratigraphic inscription left by humanity. In what amounts to a work of science fiction, he imagines a species of alien stratigraphers arriving on Earth to reconstruct this epoch and understand its biological agent: “A storyteller arrives, one hundred million years from now, to tell the tale of the human species.”⁹ The stratigraphers sift through layers of concrete and plastic, attempting to comprehend the species that left such traces behind. Their task will be “to find the message left by the human race”—an inscription “written in the strata”—and “then to decipher it” (118). Such reading and narrating, however, need not await extraterrestrial geologists. The Anthropocene is, after all, not only an epoch in Earth’s geohistory, a phase defined by the shaping influence of human activity. It is also the epoch in which our singular species reads its transformative presence in the Earth’s strata—*reads itself in the rocks*—and, in doing so, establishes new stories about its identity and this planet.

When the atmospheric chemist Paul Crutzen proposed the term “Anthropocene” in a 2002 article in *Nature*, he dated it to James Watt’s 1784 patent on the double-acting steam engine.¹⁰ This specificity coalesced a disparate set of causes and consequences in a widely recognizable act of technological innovation. The Anthropocene thus appears as a

story of the unintended outcomes of human ingenuity, a Promethean tale. Taking up Crutzen's proposal, the Anthropocene Working Group is currently debating whether to designate the **Anthropocene as an epoch within the Geological Time Scale**, a designation that would require ratification by the International Commission on Stratigraphy. The Working Group is considering various "boundary events": the Neolithic Revolution, the Columbian Exchange, fossil-fuel-powered industrialization, nuclear weapons testing and the post-war Great Acceleration. Each start date redefines the narrative, its eponymous agent—the Anthropos as agriculturalist, conquistador, inventor, industrialist, capitalist, cyborg—and thus the shape, and potential outcomes, of the story. As the geographers Simon Lewis and Mark Maslin argue in *Nature*, "the event or date chosen as the inception of the Anthropocene will affect the stories people construct about the ongoing development of human societies."¹¹ In selecting a Global Boundary Stratotype Section and Point or "golden spike"—a beginning, a spatiotemporal origin—geologists give narrative shape to history.

The Anthropocene, however, has never been simply a term of stratigraphic relevance. Indeed, we can think of no concept that has resonated so widely, so quickly, across the disciplines and between academia and the popular press. It has inspired interdisciplinary journals, numerous articles, symposia, and monographs, and cover stories in *National Geographic*, *The Economist*, and *The Guardian*. Scholars, we believe, are debating the Anthropocene not because it names a clear-cut epoch in which social and geological history come into alignment but rather because its implications productively unsettle conventional modes of disciplinary inquiry. Recent critiques of the Anthropocene as merely a fashionable buzzword—or worse, a term that naturalizes capitalism or social inequality—may, in fact, symptomatize the difficult intellectual burdens the

Anthropocene imposes on us. In our view, the Anthropocene has inspired such intense debate, from the biophysical sciences to the humanities, because it identifies a problem, a problem of how emergent forms of causality, operating *across* socio-historical and planetary systems, come to be read in the Earth's strata, conceptualized, and communicated.

The Anthropocene, in other words, is not an easy story to narrate for disciplines established within a “modern constitution” defined by the separation of social signs from natural facts.¹² As Dipesh Chakrabarty contends, anthropogenic climate change marks the point at which “the wall between human and natural history has been breached,” demanding a wholesale reevaluation of the conceptual apparatus upon which the discipline of history is predicated.¹³ This breach poses an equally profound challenge for the sciences, insofar as that epistemological “wall” preserved the divide between subject and object upon which objectivity, one's separation from what one studies, is based. As Latour observes, “the very notion of objectivity has been totally subverted by the presence of humans in the phenomena to be described” (“Agency” 2). Knowledge of nature comes to be inseparable from knowledge of social systems. Jason Moore calls this the problem of the “double internality”: human social and economic forms *at once shape and are shaped by* “biological and geological conditions.”¹⁴ Lewis and Maslin note that the 1610 “Orbis Spike,” an atmospheric CO₂ dip precipitated by the depopulation of the Americas, converges with the emergence of Emanuel Wallenstein's capitalist “world system.”

Any definition of the Anthropocene identifies a point of entanglement between Earth systems and social systems, wherein varied forms of causality, from the imperatives of capital accumulation to the manner in which CO₂ absorbs infrared radiation, intersect. The Anthropocene Earth system includes not just the hydrosphere, atmosphere,

biosphere, and lithosphere, but also diverse economies and energy systems, societies and symbolic orders. In the Anthropocene, all scholars are called upon to become Earth systems humanists, which involves thinking about how these diverse systems interrelate, internalize, and destabilize one another. Just as geologists are learning to account for socio-historical causality and the rhetorical implications of stratigraphy, humanists are learning about the carbon cycle, ice-core sampling, and thermodynamics. Scholars across the disciplines are asking, in new ways, what it means to read history: to define an archive, to posit causality, to name a period or epoch, to narrate resonant stories about continuity and change.

Anthropocene Reading: Literary History in Geologic Times takes an avowedly disciplinary approach to this multidisciplinary problem, navigating two interconnected imperatives: to read the Anthropocene as a literary object at the same time that we recognize the Anthropocene as a geohistorical event that may unsettle our inherited practices of reading. We examine the Anthropocene as a narrative, investigating the rhetorical protocols informing litho-stratigraphic practice and revealing the inherently fictional and yet epistemologically productive quality of any periodizing marker. Our aim, however, is not to deconstruct the Anthropocene, to unmask its inescapable rhetoricity or to assert a disciplinary precedence vis-à-vis scientific truth claims. All of the contributors to this collection grapple with the Anthropocene as a historical *event*, a momentous phase-transition in Earth systems that exceeds its narrativization. Thus, the Anthropocene provides an opportunity for literary studies to test and transform its methods by examining how the symbolic domain might, and might not, index a historicity that exceeds the human social relation and encompasses planetary flows of energy and matter.

The Anthropocene is a newly resonant term for a long-standing problem within geology: the status of the current, and unfinished, epoch and of humankind's distinct place in it. This is no surprise, really, given that geology came of age during the Industrial Revolution, mapping strata in coal seams and railroad cuts. In his 1778 *Epochs of Nature*, George-Louis Leclerc, Comte de Buffon identified the seventh planetary epoch, a current "time of man," in terms of the civilizational advancement promised by abundant fossil fuels. A decade later, in his *Theory of the Earth*, James Hutton conceived of the Earth system as a "machine," modeled, as Martin Rudwick has shown, on the coal-fuelled Newcomen steam engine.¹⁵ In 1854, the Welsh geologist Thomas Jenkyn termed the current epoch the Anthropozoic, a designation adopted by Samuel Haughton in his 1865 *Manual of Geology*. In America, George Perkins Marsh published *The Earth as Modified by Human Action* in 1874, revising his earlier *Man and Nature* (1865). Russian scientists used the term Anthropocene as early as 1922. The proposal to formalize the Anthropocene as an official epoch in the GTS thus marks a moment of heightened self-reflexivity in the history of geology and Earth system science. Crutzen first proposed the new epoch in the year 2000. It is a millennial concept, a theory of crisis that followed in the wake of Francis Fukuyama's notorious claim, in 1989, about the "end of history," and Bill McKibben's description, in the same year, of anthropogenic climate change as the "end of nature."¹⁶ The only thing that came to an end, it turns out, was the illusion that "history" and "nature" could be conceptualized as separate.

In January 2016, members of the Working Group published an article in *Science*

with the unambiguous title, “The Anthropocene is Functionally and Stratigraphically Distinct from the Holocene.” The article lays out the conceptual criteria for the new designation: “Any formal recognition of an Anthropocene epoch in the geological time scale hinges on whether humans have changed the Earth system sufficiently to produce a stratigraphic signature in sediments and ice that is distinct from that of the Holocene epoch.”¹⁷ The authors posit a straightforward relation between a geo-physical claim, that humans have altered the Earth system, and a stratigraphic claim, that such change leaves a “signature,” a sign that would enable a clear delineation between epochs by marking a scale-shift in the geomorphic agency of a single species. And yet this changing and this inscribing are not the same. They act on different objects, the “Earth system” and “sediments and ice.” The case for nominating the Anthropocene is presented not as an analysis of anthropogenic forcing of the Earth system, a potentially catastrophic crossing of “planetary boundaries,” but is instead premised on a more narrowly semiotic claim about the clarity of a “signature” recorded in a lithostratigraphic archive.¹⁸

The authors of the *Science* article examine a number of candidates for a suitably clear and long-lasting signature, from “technofossils” and “geochemical” markers such as pesticide residue to concentrations of atmospheric carbon dioxide and the biostratigraphic signature left by increasing extinction rates. They also hint at their pick for the ideal signature, suggesting that the Great Acceleration has supplanted the Industrial Revolution as the most compelling lower boundary for the Anthropocene. “The most widespread and globally synchronous anthropogenic signal,” they write, “is the fallout from nuclear weapons testing” (aad2622-5). In a 2015 article, the Working Group suggested that a mid twentieth century lower boundary is “stratigraphically optimal” because the first nuclear bomb test in 1945, which leaves a clear layer of

radiocarbon in the rock strata, is coincident, if not causally related, to the more consequential, if less stratigraphically significant, Great Acceleration.¹⁹ The focus on anthropogenic intervention in the Earth system, which is to say the identification of a distinct mode of geo-historical causality, gives way to the question of identifying a synchronous, unambiguous, and long-lasting signature. Semiotic criteria take precedence over a geophysical account.

In an essay in *The Anthropocene Review*, Clive Hamilton polemically diagnoses this stratigraphic sleight-of-hand. Those who privilege the legibility of the signature are “fixated on the marker at the expense of what is marked.”²⁰ He calls this fixation the “golden spike fetish”: “an event in world history” is confused “with a historical marker for it.” If, after all, the primary goal was to align sign and cause, the increased atmospheric concentration of CO₂ would be the obvious candidate, since it is the main driver of global climate change and the most significant manifestation of anthropogenic intervention in the Earth system. However, CO₂ emissions and atmospheric concentrations constitute an incremental, if accelerating, process, one without clearly demarcated boundary events, but with complex social, economic, and technological causes. Moreover, the climate and sea-level “signals” associated with increased greenhouse gases are “not yet ... strongly expressed.” Multi-scalar, multi-causal phenomena that cut across biogeochemical and socio-historical domains do not necessarily leave clear-cut, localizable signatures.

The stratigraphic search for a “signature” that marks the emergence of the Anthropocene is a search for its definitive agent, the one who signs. The autograph of the “Anthropos” attests to its presence as a coherent entity, much the way a signature on a legal document attests to the identity of the person that affixes it. A signature, as Jacques Derrida explains, is a distinct form of inscription, one that serves to counteract the non-

presence of a speaker in written communication. Whereas in a spoken utterance the embodied presence of the speaker can be assumed, in writing the absence of a living person may be counteracted by the presence of a signature. The unique status of the signature derives from its clearly embodied origin. It attests to its author's "having been present," to an instance of "present punctuality," a specific person acting and this action constituting a singular spatiotemporal "event."²¹ Yet to be meaningful, a "signature" must also be "repeatable," "able to be detached from the present and singular intention of its production," legible even in the absence of its inscriber. A signature is a *supplement*, seeming to bear the "force" and "intention" of its inscriber in a form that survives the absence of its original "source." The Working Group writes of a human "signature"—rather than a mark, a memorial, or a sign—because it is a signature that appears to uniquely convey the presence of its author, even as an inscription, a mark that remains, and remains meaningful, in the absence of the signatory. So, on one hand, the Working Group is attempting to establish, on the basis of a "signature," the identity of an Anthropos, a single species capable of acting as a planetary force. On the other hand, this signature must be commensurate with other stratigraphic markers: not only globally synchronous but also legible in the absence of other "historical" archives. This is why stratigraphers have objected to references to social history in identifying the epochal "boundary event," as in Lewis and Maslin's reference to the nuclear test ban treaty rather than the first appearance of nuclear residue.²² For the stratigraphers, the signature must stand alone.

This tension is, in fact, long-standing in geology, which depends on the constant negotiation between co-constitutive imperatives, to delineate the Earth's strata—an enterprise often understood in semiotic terms, as an act of reading—and to account for

the forces of planetary change, *to periodize* and *to historicize*.²³ The Anthropocene, however, introduces a new form of causality into the Earth system. Stratigraphers focus on a signature rather than an agent, in part, because the actual status of the “Anthropos” poses problems scientists are not equipped to confront. The Working Group works backward, locating a legible signature and on that basis positing the existence of a species capable of altering the Earth system. It should be no surprise that the most resounding critique of the Anthropocene concept coming from the humanities focuses on the identity of the “Anthropos,” the very question, as we see it, that the language of the “signature” is meant to forestall. *Who*, precisely, leaves this signature, given that *Homo sapiens*, as a species, are defined by immense internal variation? Both responsibility and vulnerability are asymmetrically distributed in the changing Earth system. This human variability, and inequality, is the shared subject of humanistic inquiry. Given that the Anthropocene is decidedly not coextensive with the evolution of *Homo sapiens*, but is rather an event that occurs in historical time, would it not be more precise to identify the Anthropocene with the distinct historical conditions in which human societies achieve geologic agency? Andreas Malm and Jason Moore have each suggested that “Capitalocene” better reflects the socio-historical drivers of the new epoch. Malm, for instance, argues “this is the geology not of mankind, but of capital accumulation”; arising out of social conflict and exploitation, fossil capitalism is the “very negation of universal species-being.”²⁴ Donna Haraway uses “Plantationocene” to emphasize the epoch’s inherently imperial ecology and make us “pay attention to the historical relocations of the substances of living and dying around the Earth as a necessary prerequisite to their extraction.”²⁵ These are immensely important critiques, both in foregrounding the ethicopolitical stakes of the Anthropocene and in focusing attention on the actual socio-economic systems the

constitute geologic agency. What such criticism of the “Anthropos” overlooks, however, is that for scientists the designation of a single species as agent is a *specifying* move rather than a universalizing one. It is not that all humans are transforming the Earth system but that a single species, within the biosphere, is transforming the planet, a significant event in geologic time. The Working Group attempts to elide the problem of the social through its invocation of a stratigraphic signatory, while a critical humanities insists on social variation and relations of power but is often inattentive to the broader biogeophysical systems in which humans intervene as a distinct agent. The perceived incompatibility between these positions on the Anthropos attests finally to the deep epistemological challenge of conceptualizing the “double internality.”

The nomination of the Anthropocene is, finally a stratigraphic prerogative, for it is stratigraphy that bequeaths us the Geological Time Scale. The Working Group is clear that, having accepted as axiomatic significant human intervention in the Earth system, their job is to identify “a signature that is distinct from those of the Holocene and earlier epochs,” to approach the designation of the Anthropocene in terms that “are consistent with those used to define other Quaternary stratigraphic units” (aad2622-1). They also acknowledge that this is an impossible task. The question of whether to formalize the Anthropocene within the GTS, they write, is “a complex question, in part because, quite unlike other subdivisions of geological time, the implications of formalizing the Anthropocene reach well beyond the geological community. Not only would this represent the first instance of a new epoch having been witnessed firsthand by advanced human societies, it would be one stemming from the consequences of their own doing” (aad2622-8). The Anthropocene is not only a break within the stratigraphic record but also an event that in effect breaks stratigraphic practice. As Bronislaw Szersynski

insightfully observes, such inscription not only works against our longstanding view of lithic impenetrability, but in so doing it disrupts the basis of the stratigraphic record itself: “The Anthropos will thus ‘lie’ in the strata in a different sense, in a different plane, not ‘true’—as a perjerur, disrupting the semiotic logic of geology as much as its materiality.”²⁶ In the context of the Anthropocene, stratigraphy’s protocols of reading lead to questions about how human assemblages come to constitute a planetary force of nature, questions that are only answerable outside of its disciplinary framework. Moreover, unlike other stratigraphic demarcations, which are ascribed retrospectively, the Anthropocene is unfinished, a tale without an ending. Indeed, the formalization of the Anthropocene, insofar as it will shape the stories we tell about human agency and human responsibility, will have material implications, potentially transforming the Anthropos itself.

The methodological predicaments we have been tracking in the stratigraphic discourse have been paralleled, in the past fifteen years, by a pronounced current of methodological disquiet in literary studies. Questions of method and rationale, of how and why we read literature, have always been a feature of literary studies, a broad-tent discipline that makes room for cultural critics and aesthetes, biographers and textual editors, empiricist historians and speculative theorists. The emergence of the Anthropocene as a multi-disciplinary problem, however, has coincided with a malaise, and a new modesty, in literary studies. Literary scholars in the new millennium have been actively debating the legacy of theory, the future of method, and the coherence of literature as an object of

study. We are asking how we justify the resources dedicated to our work—reading, teaching, and writing about literature—in an age of neoliberal austerity and STEM ascendance.

While no less rancorous, the theory decades (roughly 1970-2000) were defined by an unusual confidence in the purpose of our discipline. Knowledge, identity, and authority were understood to be constituted within a symbolic order, which literary critics had powerful tools for unlocking. Ground-breaking works of literary history and criticism read symptomatically, identifying the breaks in a text's legibility that express a broader psychic, linguistic, or social causality, whether the law of the father, the workings of *différance*, or the conflict over the means of production. In *The Political Unconscious* (1981), for example, Fredric Jameson trained readers to seek not a text's "unified meaning," as contained within its "organic form," but rather to pursue the "rifts and discontinuities within the work." These "clashing and contradictory elements" are "reunified" not in the text but in the critic's identification of a socio-historical "process of production."²⁷

In recent years, a number of literary scholars have advocated a greater modesty, a disavowal of meta-language and the ambitions of critical "suspicion," the impulse to demystify or destabilize in the act of reading.²⁸ In their controversial introduction to a special issue of *Representations*, Sharon Marcus and Stephen Best advocate for a "surface reading" comparable to the "weakly" interpretive work of natural-historical classification, positioning literature scholars as more like stratigraphers than Earth system scientists.²⁹ Others have attempted to retain critical ambition by redefining the archive. Literary scholars working in the Digital Humanities have looked to quantitative methods to analyze "big data," opening new archives and models, though it remains an open question whether such interpretive practices have produced compelling ways of rereading

literary and cultural history.³⁰ New formalists have turned from the linguistic text to the organizing shapes and patterns that are shared by literary works and social systems, in what Caroline Levine dubs “strategic formalism.”³¹ Rejecting the linguistic turn, new materialists have sought to establish a method premised on a flat ontology, although again it is not clear this approach had produced compelling ways of reading the literary as a unique “object.”³² By contrast, Tom Cohen, Claire Colebrook and J. Hillis Miller responded to the Anthropocene by doubling-down on deconstructive methods.³³

As an inherently global problem, the Anthropocene dovetails with the resurgence of interest in “world literature” and “deep time” in the work of scholars like David Damrosch, Wai-Chee Dimock, and Franco Moretti, around the turn of the millennium.³⁴ Anthropocene reading shares with world literature an attention to flows, trajectories, and systems that exceed national borders and human timescales, while at the same time attending to the interplay of these systemic relations through fine-grained analysis. Like world literature, it also depends on translation, not between languages but between disciplines. Ecocriticism, meanwhile, has long entered into dialogue with science. Initially characterized by a rejection of “theory” in favor of empirical realism drawn from biology, ecocriticism has since shifted its focus to questions of social difference and environmental justice, exemplified in Rob Nixon’s *Slow Violence and the Environmentalism of the Poor*, while recent work, such as Stephanie LeMenager’s *Living Oil*, has been marked by its engagement with energy and matter.³⁵ Given ecocriticism’s recourse to scientific principles, we might trace this arc in terms of the sciences it avows: first biology and ecology, then sociology and political science, and now, as evidenced in this collection, stratigraphy and the Earth system science. This process is, generally, one of addition rather than substitution, as each wave intersects with and refracts those that preceded it.

In assembling this collection, we wondered whether the Anthropocene could clarify, or complicate, these debates about literary reading in the twenty-first century. The challenge of reading natural and social history in their “double internality,” which we identified in the stratigraphic discourse, takes inverse form in the humanities. Socio-symbolic phenomena have to be conceptualized in relation to the inhuman forms, forces, and scales of Earth systems and geologic time. So we asked our contributors to not only read the Anthropocene but to consider how the Anthropocene might require us to read differently. What if *history*, the history implied by the dictum *always historicize*, turns out to be not the internality of social relations but rather social relations as they shape and are shaped by thermodynamic, biospheric, atmospheric, and hydrological processes? Can we extend our own definitions of texts, signs, and traces? Can formalism enable us to read social and symbolic forms in relation to nonhuman forms? Can literary reading provide insight on the Anthropocene’s paradoxical alignment of precarity and agency, political urgency and deep time? Does literary history register modes of affect and experience related to thermodynamic, geological, and atmospheric processes? How can postcolonial and Indigenous studies be brought to bear on the question of species being? What might it mean to read geohistory symptomatically? Can the accelerated transformation of literary forms noted by Benjamin be understood to express broader patterns of change in energy production and the organization of biospheric systems? How might the Anthropocene inform current debates between historical materialists and new materialists, formalists and surface readers, historicists and post- or trans-historicists? How can we, as readers and critics, enter into dialogue with scientists, without collapsing the differences between our disciplines, the difference between *poiesis* and *physis*, between poems and ice-cores, textual and lithic archives, narrative and algorithmic ways of knowing

We asked our contributors to articulate a method of Anthropocene reading and to show how it operated in practice. Something different, and deeply illuminating, happened instead. Rather than stage a consistent methodological practice, the contributors to this collection all read improvisationally, drawing on a range of conceptual tools, theories, and practices. It turns out that when your object of concern is something like the Anthropocene—multiform, multi-scalar, multi-causal, multi-temporal—a commitment to methodological consistency may be exactly the wrong approach. In the pages of *Anthropocene Reading*, we see psychoanalytic, philological, and deconstructive gestures. Our readers unpack metaphors and metonymies. They examine the affordances and limits of generic forms: allegory, romance, the medieval mystery play, the realist novel, experimental poetry. They stage experiential predicaments. They critique. They take up narratological problems: superpositioning, catastrophe, the vorticular. They read forms, signs, fossils, structures, traces, symptoms. They tarry with the negative and hold out hope for messianic reversals. They get close to the text, right down to punctuation. This leads us to the conclusion that the strength of our reading practices in literary studies may derive not from methodological rigor but from the acceptance of inconsistency, the belief in complexity, the attention to contradiction, and the labor of translation.

Reading in the Anthropocene is invariably polyglot, a kind of salvage practice in which we employ all of the tools we have at hand to discover meaning amidst the ruin. Indeed, many of our readers emphasize the limits of knowledge and the inexpressible qualities of the Anthropocene, the way it becomes knowable only in incompleteness or negation. There is a modesty in Anthropocene reading, though it is not the modesty of one who claims to merely describe. Our contributors universally accept that no single method can fully account for the various forms of Anthropocene causality and

Anthropocene mediation. A number of them advocate methods that are defined by partiality and incompleteness. They tend to practice forms of symptomatic reading, exploring textual depths and rifts, but without the invocation of a secure critical vantage that would exempt the reading itself from symptomatology.

If it is not possible to enact a narrowly consistent Anthropocene reading practice, it is possible to perform individual readings that showcase the adaptability and innovative range of interpretive methods. Of course, certain key problems in Anthropocene reading—the literary mediation of geohistory, the relation of literature to other (inhuman) media, narrative form and the unconformity, the identity of the Anthropos, the formalization of scale variance and scale change—recur across the collection.

Stratigraphers invoke not days or decades as the time unit in which human history comes to suddenly intersect with geologic time but the year: 1610, 1714, 1784, 1945.³⁶ As Steve Mentz observes, such dating “concentrates [the] mind”: the “provisional” closure of the single-year is a way of salvaging “form from inside disorder.” A date imposes a division, establishing an end and a beginning. One order of things gives way; another takes hold. As inflection or flash point, the single date invokes that catastrophism of Cuvierian geology rather than the incremental shifts of Lyellian uniformitarianism. Strikingly, the two chapters in this collection that focus on specific years—Mentz on 1610 and Tom Ford on 1800—also explore punctuation, marks of syntactic closure and transition. This seemingly incongruous pairing underlines the scalar shifts that Anthropocene reading demands. Mentz observes that “marks of punctuation, like stratigraphic signatures, signal borders between disparate things.” Ford identifies an eccentric punctuation pattern in

Charlotte Brontë's *Jane Eyre* (1847), the colon-dash (:-), which paradoxically conveys continuity and disjunction. Punctuating periods serve important purposes: isolating phase transitions, specifying causes, assigning responsibility. Jennifer Wenzel associates this mode of periodization with the geological law of superposition, which presumes that strata closest to the surface are newer. While she questions the linearity and implicit hierarchy of such historiographic models, she also offers a provocative proposal for an Anthropocene boundary event: the recently leaked Exxon files revealing that the company began covering up climate change research as early as the 1970's. "At some point," she writes, the Anthropocene became "an intentional act," one that may, potentially, be linked to a "single human signature with implications for all life on earth." "What are the different implications for justice," Wenzel asks, "if one sees history as cyclic or linear, repeated or ruptured, analogous or without precedent?"

As Jeffrey Jerome Cohen observes, linearity, with its "definitive beginnings, vexed middles, smoothly inescapable ends," fails to account for an Anthropocene swirling with "affective detritus, recondite matter, queer fragments, anomalous proximities." Its narrative form is less a sedimented layering, a straightforward plotline, than a tale "sinuous and coiled," what Cohen calls a "vorticular story," "the entwining of multivectored lines." As an alternative to the linearity of periodization and the search for a definitive boundary event, several of our contributors invoke the geological concept of the unconformity, extending Eric Gidal's pioneering work of Anthropocene literary history, *Ossianic Unconformities: Bardic Poetry in the Industrial Age*.³⁷ The unconformity is a gap or disjunction in the stratigraphic record that marks a period where no deposits were left or where sediment has been removed by erosion. This break gives form to the intersection of multiple temporalities, forces, or media, just as fossils memorialize a meeting of the

biosphere and lithosphere or ice cores track the history of the atmosphere as coalesced within the hydrosphere. Each of these intersections can be understood as an unconformity, where a system has been impeded, disrupted, or enfolded by another and where that disturbance has left a record, a disjuncture in *form*. After all, as Benjamin Morgan insists, form is a property of texts and social systems but also of the geological strata and the biological organisms embedded therein.

Extending Gidal's model of "biblio-stratigraphy," our contributors identify a number of principles by which literary texts establish unconformities insofar as their matter and meaning intersect with broader geohistorical forces—including resonance, precedence, haunting, estrangement, synonymy, anticipation, allegory, cross-hatching, over-determination, obsolescence, and coincidence. In some cases, this intersection has to do with the textual medium as matter. Ford points out that in the Anthropocene all writing is "writing on the world" because texts are always haunted by the CO₂ emitted in their production, and thus themselves contribute to the future legibility of the Anthropocene within the stratigraphic archive. Justin Neuman notes that reading for energy entails reading for a text's "externalities." Derek Woods points out that the acceleration of fossil fuel usage in the late twentieth century coincides with a rapidly accelerating production of texts—written, filmed, digital—such that the semiosphere is in effect supplanting the biosphere.

The unconformity also provides a model for reading *absence* as itself a site of meaning, as itself a record or archive. Anthropocene reading often means reading negation, interpreting rifts and absences: the dead, an absent cause, an inarticulable totality. As Dana Luciano explains in a discussion of nineteenth-century ichnology, specifically the study of dinosaur footprints: "in the case of fossil tracks . . . we might more

accurately refer to the *presence of an absence*: the mark of the here-no-longer that nevertheless remains.” Matt Hooley points to the fraught implications of narrative absence in relation to Lewis and Maslin’s dating of the Anthropocene to the deaths of 50 million Native Americans during the euphemistically-dubbed “Columbian Exchange” of biota between the Old World and the New. Despite attending to atrocity, Hooley notes, such “global environmental history not only assumes the readability of Indigenous disappearance, it makes Indigenous people and knowledge scientifically legible only in or as disappearance.” The native thus becomes the metonymic figure of vulnerability, the exemplary sign of otherwise diffuse ecological harm. In Hooley’s terms, this becomes a problem of scalability, in which Indigenous disappearance is presented as *scalable*. It is read as a synecdoche for vulnerability writ large, transforming native people into living fossils. Jennifer Wenzel sees a similar problem of illegibility staged in the inscrutable archaeological artifacts unearthed by the Magistrate in J. M. Coetzee’s *Waiting for the Barbarians*, arguing that Anthropocene inscriptions are always claims to redress: “History will out; the deep past remains legible to those who can read it. The Magistrate waits, not so much for the barbarians, but for the historians.”

Unconformities put different phases of the past into contiguity, offering a counterpoint to the linearity often implied by the law of superposition. The unconformity helps us to read instances in which knowledge of the Anthropocene—partial, anticipatory, or allegorical knowledge—precedes the term’s formal conceptualization. “We hear old things in new ways,” as Mentz puts it. Enacting what she calls a “posthumous perspective,” Juliana Chow suggests that recent studies using Henry David Thoreau’s journals as climate records are in fact continuations of Thoreau’s own project, extending the naturalists’ work beyond the span of his life while emphasizing its ever-partial, unfinished

quality. Ford notes that despite the fact that the Romantics were in the midst of inventing what we now call the Anthropocene, both literally and conceptually, the word itself did not appear within their lexicon. Thus, he argues, Romantic works of art can be read as “indirectly allusive anticipations legible only to speculative and retrospective interpretation of past literary artworks as writing the Anthropocene present.” What Ford calls “non-synchronous contemporaneity” is the unconformity of the Anthropocene, in which divergent and seemingly incompatible histories rub up against one another, highlighting the potential for the future to remake the past. With this potential for historical unconformity in mind, Neuman asks how we read climatological forecasts that have not come to pass, turning to Henry Adams’s early-twentieth-century warnings of global *cooling* brought about by the excessive combustion of fossil fuels, a mistaken theory that lives on in the fantasies of climate deniers even as the techno-utopianism of Adams’s contemporaries recurs in the promise of geoengineering. Neuman points to Adams’s reflections on the technological emporium at the 1900 *Exposition Universelle* in Paris as an “energy recognition scene,” highlighting not only the degree to which the history of the Anthropocene is bound up with the history of technology, but also noting how “the experience of technology depends upon supply chains and entails externalities that extend spatially and temporally beyond a text’s representational systems.”

Reading history in relation to energy flows, which Adams held to be the historian’s task in the modern era, complicates not only the linearity of time, but also the idea that it can be divided into units of comparable duration. The “scaling up” of human action within the Earth system also entails a simultaneous compression of human history within geologic time. As Woods suggests, “As the potential energy of fossil fuels unravels, the speed of history increases” to the point that “the Great Acceleration is, as it were, far

longer than any other period of literary history. Fossil energy means that there is more history, more communication, and more inscription per unit time than in the past.”

Cohen characterizes the Anthropocene as “an engine of narrativity powered by acceleration and intensification.” It is fitting that Woods and Cohen, who foreground the idea of Anthropocene as acceleration rather than rupture, study archives—the medieval and the post-45 “contemporary”—far removed from one another, suggesting, again, how the Anthropocene is an unconformity within literary history. The Anthropocene proceeds via acceleration and concentration in ways that cannot be neatly periodized but rather demand an alternative approach to history predicated on scalar shifts or phase transitions.

In his chapter, Noah Heringman explores the persistence of romance motifs in popular geology. Trafficking in wonder, vertiginous scale-shifting, and speculative scenes of time-travel and post-human reading, scientific texts are understood to lose their claim to objectivity. Reading one geologist (Zalasiewicz) reading an influential predecessor (Buffon), Heringman asserts that identifying the literariness of geological knowledge serves not to undermine science but to promote a “historical understanding of geological time,” the particular ways in which writers adopt literary motifs to convey the scale variances at stake in the Anthropocene. Morgan approaches the problem of reconciling divergent scales through a renewed attention to literary form, precisely because “formalist will understand scalar leaps and disjunctures not only as facts but also as forms—forms that are therefore subject to critical strategies for reading mediations, images, and narratives.” Turning to the novels of Thomas Hardy, Morgan argues that Hardy’s novels stage scalar incommensurability, dramatizing our failure to imagine the inhuman immensity of outer space or deep time to the point that “formlessness itself becomes a form.” This emphasis on the limits of multiscale thinking echo Hooley’s emphasis on “nonscalable” ecological

vulnerability, an alignment that suggests that rather than continuing to aspire to an encompassing vantage point that would enable us to grasp the full magnitude of the Anthropocene, we should instead make peace with, and even embrace, our inevitable failure to do so.

Depending on the date chosen for the Anthropocene's emergence, the identity of the "Anthropos" changes. Rather than attempting to isolate a single origin story, this proliferation of actors can serve as a guide to the shift from individuals to systems necessary for locating (and addressing) the distinctive causal mechanisms operative in Anthropocene history. In Mentz's essay, "Old Man Anthropos" takes the stage to declare, observe, and question his own guilt. This crisis arises from a confrontation with the 1610 Anthropocene, a periodization that attributes responsibility for global environmental change to European imperialism, or, as Hooley calls it, "an ascription" that rewrites "complex, even inscrutable, experiences of environmental harm as readable." In contrast to such resolute assertions of legibility that enable us to pass judgment, Hooley asks that we "read vulnerably," in and through the impediments to our own understanding, a condition that echoes what Wenzel calls "reading under duress." As Wenzel explains, "*duress* derives from *dūritia*, Latin for hardness; it shares this root with *endure*." Thus, she asks, "How is reading a form of endurance?" This emphasis on precarious endurance recurs in Cohen's rejection of the "ark" as a bastion against rising seas and climate refugees: "When a dry box in which texts are cherished for their lined inscriptions is traded for a tempest of swirled water, an eddy where they might become something richer, stranger, then we possess an Anthropocene without origins, a flow without cuts, a history without bolted chests, a sea rich in opened arks, a cataclysm in which we do not leave those outside our walls to drown."

Juliana Chow takes a similar approach in advocating for “partial reading,” a practice she sees modeled in Thoreau’s regional, particular, and perpetually unfinished writings on natural history. In contrast to the systematizing viewpoint pioneered by George Perkins Marsh (often cited as a precursor to Anthropocene discourse), Thoreau’s methods offer Chow “a concurrence of biological, literary, and historical forms based upon ecological relations of partialities rather than organic wholes, of dispersals rather than monologic continuity.” In articulated this vision, Chow adopts a vantage that she calls “critical partiality,” which she describes as “a mode of being partial, partial *to* something, partial *of* something, with partiality *as* form itself.” As Chow explains, partiality implies not only incompleteness but also interest, even desire. Any act of reading is thus partial in both senses of the term, born of attachment in the midst of incompleteness. After all, we cannot read everything. Woods examines this predicament as well. The “Great Acceleration” that now appears the frontrunner for the “golden spike” also accords to an unprecedented acceleration in media and textual production, threatening to “infowhelm” us at every turn and leaving even the most voracious reader haunted by the “great unread.” As Woods explains, this over-profusion of texts provides an eerie correlate to the unnamed and unknown species hastening to extinction, further underlining the precarity of Anthropocene reading.

A partiality for literature precedes and underwrites this collection. The Anthropocene is, after all, not what impels us to read. Though our contributors find themselves *re-reading* under the sign of this proposed geologic epoch, we were all reading already. Faced with

the great unread on one hand and planetary crisis on the other, we continue to read, as individuals, scholars, and teachers. We read because literature helps us to imagine, to conceptualize, to feel. It stages our relations with the others, the people and species with whom we co-inhabit this precarious epoch in Earth's history. Literature offers distinct resources for modeling surplus and scarcity, systems and cycles, catastrophe and continuity, species identity and global totality. Literature, moreover, provides access to the unthinkability of the Anthropocene, its absent causes, its epistemological ruptures, its conjoining of deep time and the open future. As Ford explains, the category of literature that emerged in the Romantic period is based on literature's capacity to put "unsayable things" into words. In the Anthropocene, we read, as Wenzel argues, under duress. We read because we are terrified. We read to confront our complicity, to ratify our guilt, or to mourn the losses. We also read for wonder, awe of the Anthropocene sublime. We are *partial* readers, even if sometimes we are too distracted to read, or, as Woods suggests, we find that there is just too much to read.

To read is to establish relations in time, to instigate a connection between the present and the past. All reading is revitalization. Dana Luciano describes critical reading as an act of "preservation," a "collaborative or compositional practice" arising out of "necessary connections between thought, energy, flesh, mud, minerals, sediment, wind and water." Steve Mentz invites us to think history—and ourselves—as "compost," the earthly substance of life after death. Reading metabolizes the remnants of absent life into new forms, new stories, rooting the future in the dead; reading also puts forth flowers and disperses seeds, like the milkweed tufts that Juliana Chow traces as they waft from Thoreau's pages into these. In the essays collected here, readings have become writing; interpretations transposed into inscriptions, asking to be read. As Wenzel observes,

“allegorizing like the Magistrate, I struggle to read and write in a mode adequate to history, answerable to the future.” We speak to the future about the past on behalf of the present.

Global geoengineering projects, resource wars, and walls against rising tides and refugees are all possible features of the near future, but they are not the only ones. Using existing technology, it would be possible to switch the entire world from fossil fuels to renewable energy in a couple of decades (Malm 368-9). The primary obstacles to doing so are political rather than technological. The intractability of the Anthropocene arises from socio-political systems rather than geophysical ones. As Jameson famously quipped, “it has become easier to imagine the end of the world than the end of capitalism.”³⁸ In order to expand the possibilities we need to tell different stories: the “Anthropos” in Anthropocene need not refer only to a culpable agent. It can also become an injunction. The species that reads itself in the stone might yet be brought into a new degree of self-awareness *as* species and, out of that recognition, weave new democracies and inclusive economies, conjoined to resilient ecologies.

At the end of “The Storyteller,” Benjamin turns from geology to biology, from bedrock to life: “A proverb, we might say, is a ruin which stands on the site of an old story and in which a moral twines about a happening like ivy around a wall.” From epic forms to proverbs, encompassing wholes have transformed in slow time to fragmentary scraps of wisdom, the legible traces of ruination. If the Anthropocene marks a breach in the wall between human and natural history, then imaginative literature is the ivy that overspreads that wall, finding its way through the gap, entwining the “happenings” of history, persistent, fragile, sticky, intractable, holding onto the crumbling structure even while hastening its decay, rising its writhing, tangled forms around the ruins of the

modern constitution. The Anthropocene is already becoming proverbial. Describing the mysterious endurance of meaning encoded in stories, Benjamin compares a “story from ancient Egypt” to “the seeds of grain which have lain for centuries in the chambers of the pyramids shut up air-tight and have retained their germinative power to this day.” A reading is a retelling, a release of “germinative power,” reopening a sealed past, reimagining the future, giving a story room to breathe.

Notes to Introduction.

¹ Walter Benjamin, “The Storyteller: Observations on the Works of Nikolai Leskov,” in *Selected Writing* Vol. 3 (Cambridge: Harvard University Press, 2002), 143-66, 147. Hereafter cited parenthetically.

² Jeffrey Jerome Cohen, *Stone: An Ecology of the Inhuman* (Minneapolis: University of Minnesota Press, 2015), 4-6.

³ Bruno Latour, “Agency at the Time of the Anthropocene” *New Literary History* 45.1 (Winter 2014): 1-18, 13. Hereafter cited parenthetically.

⁴ See Noah Heringman, *Romantic Rocks, Aesthetic Geology* (Ithaca: Cornell University Press, 2004).

⁵ Stephen Jay Gould, *Time’s Arrow, Time’s Cycle: Myth and Metaphor in the Discovery of Geological Time* (Cambridge: Harvard University Press, 1987), 42. Gould emphasizes Burnet’s concern with “narrative”: “a story line of pasts that determine presents and presents that constrain futures” (44). In *Principles of Geology* (1830-33), Charles Lyell held that if history were viewed as proceeding in too short a time span it would “assume the air of a romance,” contending that it is only when viewed against the expansive backdrop of deep time that geological change can become legible as the result of slow moving forces still in operation, an implicit shift from romance to realism. *Principles of Geology, or the Modern Changes of the Earth and its Inhabitants Considered as Illustrative of Geology* 10th ed. (London: John Murray, 1867), 94. See discussion in Jesse Oak Taylor, *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (Charlottesville: University of Virginia Press, 2016), 11-12.

⁶ Thomas Burnet, *The Sacred Theory of the Earth*, 1681-90 (Carbondale: Southern Illinois University Press, 1965), 17.

⁷ Adelene Buckland argues that, for Victorian geologists, the narrative turn was imperative because it served as both “a systematizer of geological knowledge” and a technique for “capturing new audiences and readerships, aligning geology with culturally authoritative narratives from classical and biblical literatures.” *Novel Science: Fiction and the Invention of Nineteenth-Century Geology* (Chicago: University of Chicago Press, 2013), 17.

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- ⁸ Will Steffen et al. "The Anthropocene: Conceptual and Historical Perspectives," *Phil. Trans. R. Soc. A* 369 (2011): 842-67, 843.
- ⁹ Jan Zalasiewicz, *The Earth After Us: What Legacy will Humans Leave in the Rocks?* (New York: Oxford University Press, 2008), 7.
- ¹⁰ Paul J. Crutzen, "Geology of Mankind," *Nature* 415.23 (January 2002): 23.
- ¹¹ Simon L. Lewis and Mark A. Maslin, "Defining the Anthropocene," *Nature* 519 (12 March 2015): 171-180, 178.
- ¹² See Bruno Latour, *We Have Never Been Modern*, translated by Catherine Porter (Cambridge: Harvard University Press, 1993).
- ¹³ Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry* 35.2 (Winter 2009): 197-222.
- ¹⁴ Jason More, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015), 1-2.
- ¹⁵ Martin Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: University of Chicago Press, 2005), 162-3.
- ¹⁶ Francis Fukuyama, "The End of History?" *The National Interest* (Summer 1989), 3-18; Bill McKibben, *The End of Nature* (New York: Anchor/Doubleday, 1989).
- ¹⁷ Colin N. Waters et al, "The Anthropocene is Functionally and Stratigraphically Distinct from the Holocene," *Science* 351.6269 (2016): aad2622.
- ¹⁸ See Johan Rockström, et al., "Planetary Boundaries: Exploring the Safe Operating Space for Humanity," *Ecology and Society* 14.2 (2009): 32.
- ¹⁹ The authors also cite Lewis and Maslin, who considered both a 1610 start date and "a peak of radioactivity" in 1964, associated with nuclear weapons testing. Lewis and Maslin observe that the disadvantage with the 1964 radiocarbon dating is that "although nuclear explosions have the capacity to fundamentally transform many aspects of Earth's functioning, so far they have not done so, making the radionuclide spike a good GSSP [Global Boundary Stratotype Section and Point] marker but not an Earth-changing event" (177).
- ²⁰ Clive Hamilton, "Getting the Anthropocene So Wrong," *The Anthropocene Review* 2.2 (2015): 102-107, 105. "Finding new species (or other signs) in rock strata," he observes, "is not the same as identifying a change in the functioning of the Earth System." Hereafter cited parenthetically.
- ²¹ Jacques Derrida, "Signature Event Context," in *Margins of Philosophy*, translated by Alan Bass (Brighton: Harvester Press, 1982): 307-330, 328.
- ²² Jan Zalasiewicz et al, "Colonization of the Americas, 'Little Ice Age' climate, and bomb-produced carbon: Their role in defining the Anthropocene," *The Anthropocene Review* 2.2 (2015): 117-127, 122.
- ²³ As Martin Rudwick shows in *Bursting the Limits of Time*, in the later eighteenth and early nineteenth centuries the Earth sciences were divided between classificatory and speculative imperative. Geognosy, closely associated with mining industries, was a science of description and classification, not of "causal explanations" (84). Geognosy gave way to what William Smith called "stratigraphical geology," which used fossil remains to delineate formations. Rudwick contrasts this approach, which establishes its scientific credentials on the modesty of its empiricism, with the work of Georges Cuvier, the French

paleontologist whose observation of significant extinction events invited the speculative reconstruction of the forces of past geologic cataclysm.

²⁴ Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London: Verso, 2016), 390-1.

²⁵ Haraway coined the term in conversation with fellow anthropologists Norbu Ishakawa, Scott F. Gilbert, Kenneth Olwig, Anna Tsing, and Nils Bubant. See “Anthropologists Are Talking About the Anthropocene,” *Ethnos* 81.3 (2016): 535-564, 557.

²⁶ Bronislaw Szerszynski, “The End of the End of Nature: The Anthropocene and the Fate of the Human,” *Oxford Literary Review* 34.2 (2012): 165-84, 180.

²⁷ Fredric Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act* (Ithaca: Cornell University Press, 1981), 56.

²⁸ See, for example, Rita Felski, *The Limits of Critique* (Chicago: University of Chicago Press, 2015).

²⁹ Stephen Best and Sharon Marcus, “Surface Reading: An Introduction,” *Representations* 108.1 (Fall 2009): 1-21.

³⁰ In relation to the Anthropocene, some of the most productive work in digital humanities may be that attending to the ecological embeddedness of media technologies themselves, suggesting an alignment with fields such as book history as routes into the materiality of the text. Examples include: Jussi Parikka, *A Geology of Media* (Minneapolis: University of Minnesota Press, 2015) and Nicole Starosielski, *The Undersea Network* (Durham: Duke University Press, 2015).

³¹ Caroline Levine, *Forms: Whole, Rhythm, Hierarchy, Network* (Princeton: Princeton University Press, 2015).

³² Perhaps the most explicit example of a new materialist theory of literature is Timothy Morton’s “An Object Oriented Defense of Poetry,” *New Literary History* 43 (2012): 205-224.

³³ See, for example, Tom Cohen, Claire Colebrook, and J. Hillis Miller, *Twilight of the Anthropocene Idols* (London: Open Humanities Press, 2016).

³⁴ See Wai-Chi Dimock, *Through Other Continents: American Literature Across Deep Time* (Princeton: Princeton University Press, 2006; David Damrosch, *What is World Literature?* (Princeton: Princeton University Press, 2003); Franco Moretti, “Conjectures on World Literature,” *New Left Review* 1 (Jan-Feb 2000): 54-68.

³⁵ Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge: Harvard University Press, 2011); Stephanie LeMenager, *Living Oil: Petroleum Culture in the American Century* (Oxford: Oxford University Press, 2014). Early ecocriticism’s resistance to the “linguistic turn” is evident in many of the essays collected in Cheryll Glotfelty and Harold Fromm, Eds. *The Ecocriticism Reader: Landmarks in Literary Ecology* (Athens: University of Georgia Press, 1996).

³⁶ Ted Underwood has identified a similar predicament in literary history, noting that periodizing terms like Romanticism or Modernism are predicated on the ability to read stark breaks located around specific events or in the work of specific authors. “In principle,” Underwood argues, “literary scholars should be able to move back and forth between different kinds of historical argument, invoking continuity or contrast as necessary for a particular thesis. But in practice, we find it very difficult to make arguments about continuous, gradual change.” *Why Literary Periods Mattered: Historical Contrast and the Prestige of Literary Studies* (Stanford: Stanford University Press, 2013), 169.

³⁷ Gidal adopts the Huttonian principle of the angular unconformity, “disjunctions in the stratigraphic record, ... physical manifestations of heterogeneous time,” as a way to read similar compressions and dislocations in the “poetic unconformity” of the Ossian poems, such as the inter-weaving of elegiac and progressive moods, and in the “medial unconformities” of Ossian’s nineteenth-century reception as the poem was remediated in ordinance surveys, musical scores, and tourist guides. Gidal identifies a persistent cross-referencing, in Ossian’s reception, between text and topography. This “biblio-stratigraphy,” as he terms it, provides a uniquely acute mode of reading “the social and spatial disruptions of industrial modernity.” *Ossianic Unconformities: Bardic Poetry in the Industrial Age* (Charlottesville: University of Virginia Press, 2015).

³⁸ Fredric Jameson, “Future City,” *New Left Review* 21 (2003), 65-80, 76.