

Stories of Energy: Narrative in the Energy Humanities

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Stories of Energy

Narrative in the Energy Humanities

AXEL GOODBODY AND BRADON SMITH

This collection of essays is an output of the UK research project Stories of Change: Energy in the Past, Present, and Future.¹ Its principal aim is to explore the insights that narratives, literary and nonfiction, afford into the processes and consequences of energy generation and consumption and into energy-system change and to consider what implications such insights may have for the transition to renewable energy. At the same time, the special issue was conceived as a test of the ability of narrative to serve as a focus for interdisciplinary work in the environmental humanities.²

Much of the work of the Stories of Change team consisted of eliciting, recording and curating oral stories about energy in everyday life from individuals and communities.³ Telling stories possesses an important consciousness-enhancing function for the subject as well as the listener and has a part to play in public debates on the environment and energy.⁴ Working through areas of current concern with hitherto marginalized actors and exploring elements of a collective vision for the future, the project sought to encourage individuals and communities to think about the role of energy in their lives and the necessity for change. This issue of *Resilience* draws on Stories of Change's use of story as a device around which different disciplines (e.g., literature, history, design, geography, social and policy research) and methodologies (e.g., digital storytelling, oral history, creative practice) could be gathered. However, it is concerned solely with written narratives.⁵

Narrative in Environmental Humanities

Environmental humanities has emerged in the twenty-first century as a vibrant interdisciplinary field of research addressing the social and cultural dimensions of pressing contemporary socioenvironmental problems, including resource depletion, environmental injustice, anthropogenic climate change, and the escalation of species loss. Work in history, philosophy, anthropology, geography, sociology, literature, the visual arts, media and communication, and the interdisciplinary field of science and technology studies (STS) has been collected together in a flood of publications, new journals, and research centers, starting in Australia and rapidly extending to America, Britain, and Europe (Scandinavia and Germany in particular). Fostering dialogue and debate across the disciplinary divides that separate the arts, humanities, and social sciences and reaching out to the natural sciences, environmental humanities examines the underlying sociocultural assumptions, values, and practices that both shape and are in turn shaped by patterns of human interaction with more-than-human others and our physical environment.

A major challenge for researchers in environmental humanities has been the need to focus and coordinate efforts in the disciplines involved to analyze, explain, and facilitate the finding of solutions for complex environmental problems. The frequency with which the Anthropocene is referenced (the proposed new geological epoch in which human beings have become agents of change on a planetary scale, including, but not limited to, climate change) reflects its usefulness as a unifying concept.⁶ Another effort to develop shared theoretical and methodological principles underpinning environmental humanities work has been the adaptation of frame analysis, a procedure hitherto principally located in media and communication studies. One of the editors of this collection of essays has contributed to this initiative with a research network titled the Cultural Framing of Environmental Discourse,⁷ workshops on frame analysis, and articles examining framing in literary energy narratives.⁸ Here, however, we adopt an approach focused on *narrative*. We are not, of course, the first to argue that the study of narrative has a key role to play in the core disciplines in the wider field of environmental humanities, or that of Energy Humanities, as we shall see from recent

work in literary study around econarratology, in history (since the so-called narrative turn in the 1980s), and on scenarios.

Econarratology

Since Erin James introduced the term “econarratology” in her book *The Storyworld Accord: Econarratology and Postcolonial Narratives*, in 2015,⁹ a growing number of scholars have argued that narrative analysis deserves to play a central role in environmental humanities.¹⁰ Econarratology draws principally on literary and rhetorical methods of textual analysis but claims that these have the potential to inform work in nonfiction texts of all kinds as well as literature. It asks, on the one hand, *whether* and, if so, *how* textual, filmic, and other forms of narrative engage readers and viewers and influence their attitudes and behavior and, on the other hand, whether the Anthropocene calls for new narratives.

The *Routledge Encyclopedia of Narrative Theory* describes narrative as “a basic human strategy for coming to terms with time, process, and change.”¹¹ The cognitive and educational psychologist Jerome Bruner argued in *Actual Minds, Possible Worlds* that narrative making is wired into the human brain as the key mechanism for representing reality and *the* a priori concept through which we apprehend reality.¹² The activity of imaginary world making through narrative undergirds everyday thinking, philosophy, and even science, as well as literature and our very sense of self. Drawing on Graham Swift’s description of man as the “storytelling animal,”¹³ Jonathan Gottschall writes, in *The Storytelling Animal: How Stories Make Us Human*, “We are, as a species, addicted to story. Even when the body goes to sleep, the mind stays up all night, telling itself stories.”¹⁴ Stories “saturate our lives” and fiction “subtly shapes our beliefs, behaviours, ethics,” powerfully modifying culture and history, because sets of brain circuits “force narrative structure on our lives.”¹⁵ In biological and evolutionary terms, stories appear to perform a number of different functions. They are a means of gaining access to sexual partners, by displaying skills, creativity, and intelligence; a form of cognitive play, exercising the mind; a source of information and vicarious experience; and “a form of social glue that brings people together around common values.”¹⁶

Econarratology combines ecocriticism's interest in cultural representations of the environment and the relationship between humanity and nature with narratology's focus on the structures and devices by which narratives are composed. For James it is, above all, a study of the structuring of the "storyworlds" that readers immerse themselves in when they read narratives, of the relationship between these and the real world. Storyworlds are mental models of the contexts and environments within which a narrative's characters function. David Herman, who originated the term, defines them as "mentally and emotionally projected environments in which interpreters are called upon to live out complex blends of cognitive and imaginative response, encompassing sympathy, the drawing of causal inferences, identification, evaluation, suspense, and so on."¹⁷ Research into storyworlds complements narratologists' traditional study of the temporal aspects of narratives, by looking at the organization of space as well as that of time. In doing so, it enhances awareness of the role played by natural environments.

James examines the textual cues that serve as the building blocks of storyworlds and invite readers to inhabit a particular point of view. She focuses on the organization of space and time, the depiction of characters, the representation of consciousness (focalization), and the relationship between narrator and narratee. Building on neurophysiological research into the ability of engagement with storyworlds to trigger real-world emotions and neural responses and on the narratological work of David Herman, Patrick Hogan, and others, she explains that storyworlds and narratives have the ability to initiate mimicry or simulation of experience and to catalyze a mental and emotional transportation of readers.

As repositories for values, political and ethical ideas, and sets of behaviors, narratives play a part in determining how we perceive and interact with the natural environment. Readers engage in different ways with these values, emotionally as well as cognitively, and the impact on real-world attitudes and behaviors is by no means straightforward. James is particularly interested in the potential of the reading process to raise awareness of the differences between the environmental experiences and imaginations of people in different countries, regions, and social classes. The textual material that she examines in her book is postcolonial literature from the Caribbean and Nigeria, and she argues that "storyworld accords" (i.e., agreements about the future informed

by the environmental insights and sensitivities to difference that narrative storyworlds offer readers) could help people recognize and resolve the differences in the perception of environmental problems that are encountered in international meetings.¹⁸ By virtue of their power to immerse readers in environments and environmental experiences different from their own, she claims that narratives can bridge imaginative and cultural gaps and facilitate north-south negotiations on climate change, environmental migration, and the loss of habitats and species.¹⁹ Roman Bartosch's essay in this special issue is similarly concerned with the ability of postcolonial literary narratives to address environmental injustices and inform energy debates. However, the potential gain from focusing textual analysis on narrative structure goes beyond these particular uses of postcolonial writing.

As Gottschall writes, fiction projects us into intense simulations of problems that run parallel to those we face in reality.²⁰ When we experience fiction, our neurons are firing much as they would if we were actually facing the circumstances in real life.²¹ So it is plausible that our constant immersion in fictional problem-solving should improve our ability to deal with real problems. Fiction rewires our brains, since thinking or feeling something is an activation of a pattern of neuronal excitation and since repetition of a task establishes denser and more efficient neural connections. This is where cultural narratives, and even individual literary narratives that resonate with horizons of expectation, come in—they provide ready-made patterns that we can fall back on. Fictional characters such as those in *Uncle Tom's Cabin*, *A Christmas Carol*, the *Iliad*, and *1984* have impacted public opinion and transformed society. Gottschall cites psychological research showing that stories teach us facts about the world, as we tend to mix information gained from fiction and nonfiction; influence our moral logic; and mark us with fears, hopes, and anxieties that alter our behavior.²² Fiction indeed seems to be more effective in changing attitudes than nonfiction, because when we are absorbed in a story, we drop our intellectual guard. We are moved emotionally, and this seems to leave us defenseless. Story leads us to enter into the minds of characters, softening our sense of self and opening us to alterity. "If the research is correct," Gottschall concludes, "fiction is one of the primary sculpting forces of individuals and societies."²³

James's study complemented earlier ecocritical forays into

narratology. In her book *Sense of Place, Sense of Planet* and the entry for “eco-narratives” in the *Routledge Encyclopedia of Narrative Theory*,²⁴ Ursula Heise had called for examination of the use and transformation of traditional literary tropes and genres in ecological storytelling. Serenella Iovino and Serpil Oppermann brought another aspect of textual analysis center stage in their exploration of material ecocriticism, which investigates how the nonhuman and nature’s agency are represented and narrated in literary texts.²⁵ And Scott Knickerbocker wrote in his book *Ecopoetics* about the ways in which poetic form, as much as realist content, can communicate diverse experiences of the physical world, arguing that the figurative and aural capacity of language can evoke natural experiences in powerful ways.²⁶ However, econarratology’s focus on storyworlds and their affective qualities has enabled it to go beyond previous research into tropes, genres, the representation of nature’s agency, and poetic symbols, in exploring the ability of literary and other narratives to foster environmental awareness.

In their introduction to a special issue of the journal *English Studies* on ecocriticism and narrative theory, Erin James and Eric Morel argue that narrative has become a key site of inquiry in environmental humanities, citing a series of recent publications by researchers such as Markku Lehtimäki in Finland and Marco Caracciolo in Belgium.²⁷ They outline three areas of possible future development. The first seeks a more detailed examination of the representation of the nonhuman and the agency of matter in narratives. This is the focus of Robert Butler’s essay in this special issue. The second—the study of the ethical, political, and ideological dimensions of narrative; of the cultural and historical values of narrators and readers; and of the persuasive function of narrative—is also touched on by several of our contributors (e.g., Goodbody and Whyte as well as Emmett and Bartosch). James and Morel see cognitive narratology—focusing on simulation and embodiment, the world-making power of narrative and its potential to immerse and transport readers into virtual environments that differ from the physical environments in which they read—as the third sphere of likely econarratological expansion. A major recent contribution on this subject is Alexa Weik von Mossner’s book *Affective Ecologies: Empathy, Emotion, and Environmental Narrative*.²⁸ This specialized field, which draws on neurophysiology, cognitive literary studies, and affect theory, is not addressed here. Our focus is rather the similarities and differences

between nonfictional (realist) and fictional (imaginative) narratives of energy, and the overlap between them.

Narrative in History and Fiction

James and Morel write of “synergies between environmental history and the history of the novel” as an additional potential growth area in econarratology. Collaboration between environmental historians and literary scholars has so far been limited. Although the former have sometimes used literary narratives in their accounts of the past, they have been constrained by the weight given to factual sources and the concern with historical truth in their discipline. (Studies in cultural history such as Stephanie LeMenager’s *Living Oil: Petroleum Culture in the American Century*,²⁹ which examines novels alongside poetry, documentary film, museum exhibits, and still photography, are an exception.) Focusing on the defining constituents of narratives, the processes of their production and reception and the functions they serve could lead to a more fruitful exchange between the two disciplines.

Alun Munslow has provided a helpful overview of debates on the role of narrative in his discipline in *Narrative and History*.³⁰ When asked what historians’ work consists of, he writes that historians traditionally said they begin by finding out what happened (by consulting sources), go on to explain why events occurred as they did, and finally interpret what it all means (for us), setting the explanation and meaning in a prose narrative. Their perceived aim is to reproduce a “coherent reality” of the past, rendering it with analytical *objectivity*, in a narrative conveying the most likely *truth* of the past.³¹ This is, however, a misunderstanding, according to Munslow; because they regard the notion of reference as fundamental, historians have tended to overlook the significance of poetic, or writerly, processes in their generating of explanations and meaning, playing down authorial voice, focalization, and expression—at least up to the narrative turn in historical thinking in the 1980s, when history began to be thought of as construction, rather than reconstruction, of the past. In a series of influential publications, Hayden White studied the role of tropes in historical writing, arguing that metonyms (constituent parts standing for a wider whole) and metaphors are widely used to establish a figurative relationship between

things, suggesting cause and effect, and thereby invest events with meaning.

As Munslow points out, historians and other nonfiction authors construct narratives in principle as novelists do, giving meaning to the raw material of factual events by selecting from the available data, positing causation, assigning agency, setting beginnings and endings, and using terms that imply categories of things. Through such mechanisms of an emplotment, they blend reality with preconceived ideas and imagination. History is an “authored narrative,” albeit “a narrative representation that pays its dues to the agreed facts of the past.”³² It deals more with groups and structures than with individuals. However, it operates, like fiction, with “story spaces” (i.e., Munslow’s variant of storyworlds)—or models of what, how, when, why, and to whom things happened in the past—into which readers enter when they read, view, or experience the past as history. Most historians today accept that historical story spaces are “as much the ethical, emotional and intellectual products of themselves, their agendas and their theories as they are reflections of and on ‘what happened.’”³³

History is then no more a literature of fact that is subsequently written up (i.e., a mere report of findings) than fiction is just made up. Drawing on Hayden White and Paul Ricoeur, Munslow argues that as historians operate with narrative perspective, tense and time, and focalization, they not only choose beginnings, ends, moral statements, empirical references, and what theories to apply but also organize historical events through the structure of plot typologies. Historians have “heroes” (a person, group, or idea), and their emplotment of events is defined by what happens to the hero. Romance, tragedy, comedy, and satire are identified as primary plots. History, Munslow concludes, “is narrative artifice all the way through from the initial figuring of the past to the finished history.”³⁴

This examination of the role of narrative in history shows that the difference between history and literature is by no means simply one of fact versus fiction and that there is a fundamental commonality between *historical narratives*, which are grounded in fact and bound by their obligation to objectivity and truth yet tell a story to construct the past, and *fictional stories*, with their symbolic representations and poetic license to dramatize, invent, and imagine alternatives. A third form

of narrative is discussed here, albeit briefly, in Renata Tyszczyk's essay on R. Buckminster Fuller's future energy perspectives: scenarios.

Scenarios

Renata Tyszczyk and Joe Smith have recently argued that scenario building has a central role to play in helping facilitate energy transition by informing the public about possible futures, outlining choices, and motivating people to participate in shaping the future.³⁵ Scenarios were originally synopses of the action in plays. They served as an aide-mémoire for actors in sixteenth-century Italian improvised street theater (commedia dell'arte). In the 1960s the word was adopted by Herman Kahn and others for the outlines of multiple possible futures that were developed as part of strategic planning for possible nuclear conflict, before the approach was applied in the analysis of environmental issues in the 1972 landmark publication *The Limits to Growth*. What-if scenarios are tools for learning that can help make sense of the future by modeling and testing different climate policy strategies. As a form of synthetic storytelling driven primarily by scientific and economic data but open to contingencies and alternative outcomes, scenarios stand somewhere between historians' pursuit of historical truth in their reconstructions of the past and the imagined futures in realist literature. Tyszczyk and Smith argue that especially if enhanced by recovery of "the improvisational and reflexive intentions that were part and parcel of the origins of scenarios as a situated cultural form," scenarios can serve as a valuable "rehearsal space' for a diverse, multidisciplinary and collective undertaking of social transformations."³⁶

Nikoleris, Stripple, and Tenngart have juxtaposed literary and scientific scenarios in a recent article. Asking how cli-fi novels relate to and complement the latest generation of scenarios by the Intergovernmental Panel on Climate Change (alternative "shared socioeconomic pathways," or versions of the evolution of society over the coming century), they argue that literary fiction brings the worlds imagined in IPCC scenarios to life through its particular accounts of agency and focalized perspectives.³⁷ They describe scenarios as "learning machines" that bring shape to debates around science and policy issues and as "thought experiments" that ask what-if questions so as to permit the development of more robust policies. Concerned as they are with larger soci-

etal factors and trends (the social, economic, and political conditions that policies for mitigation and adaptation will have to manage), the IPCC's scenarios present a smooth development of these broad societal trends, making extensive use of passive constructions that leave agency unspecified, whereas literary narratives are focused on individuals and characterized by conflicts and ambivalences. Nevertheless, the authors argue, "while scientific and literary scenarios differ significantly in terms of means, methods, practices, functions, and effects, they both rely on forms of narrative: of telling compelling stories about the nature of the world and the means through which climate change can be mitigated or adapted to."³⁸

The four essays on literary texts presented here and the two on non-literary texts seek to bear out our contestation that narrative provides a basis for comparative analysis and critical appraisal of the contribution of different forms of account to the understanding of our human relationship with energy, which is needed in the Anthropocene.

Narratives in Energy Humanities

The study of narratives of climate change—in media discourse, in political or industry documents, or in the literary narratives of cli-fi and climate change plays for example—and the analysis of narratives in the energy humanities are clearly distinct fields of inquiry. But given the centrality of carbon emissions from the energy sector in driving climate change, the two are also inextricably linked. As already mentioned, we believe that the study of narrative and narratives has a key role to play in the response of the humanities disciplines to the energy challenges that face society, particularly in the carbon intensive economies of the global North. Just as the field of climate change research experienced a cultural turn in the first years of the twenty-first century, with the former climate scientist Mike Hulme's *Why We Disagree about Climate Change* acting as a key text,³⁹ so, too, the energy humanities can be understood in part as an equivalent attempt to think through the cultural implications of energy. Critical attention to narrative, this special issue argues, is a key part of understanding the cultural dimension of the matrix of energy and climate challenges facing society.

In the past, public concern with energy has generally been a product of its real or perceived shortage. The oil crisis in the early 1970s, when

the suppliers of oil in the Middle East clamped down on production following the Yom Kippur War, brought home to a generation of Americans and Europeans accustomed to cheap energy the dependency of their way of life on an abundance of this concentrated fuel. Since a second peak in 2007–8, the price of oil has halved for a combination of reasons, the principal ones being global recession, sustained production levels by leading OPEC countries, America's ability to meet a growing proportion of its energy needs by fracking, and advances in renewable energy technologies. The day when global oil resources run out has been put off indefinitely. If energy supply remains a matter of acute concern for national governments and publics, it is now because of recognition of the role of carbon emissions in climate change. Technological innovation in energy production and energy conservation measures will doubtless help, but changes in energy consumption and conflicts over them are unavoidable. The public must play its part in reaching energy decisions, and public expertise in energy issues is as important as ever.

This expertise includes critical awareness of common energy arguments and narratives. An evolving body of research in history, geography, media, and communication studies is currently exploring nonfiction narratives and representations of energy in the context of climate change, using different forms of discourse analysis in the broadest sense.⁴⁰ Parallel with this work, narrative has been one of several approaches in ongoing work in the energy humanities, which has emerged in the last ten years as a burgeoning subfield of environmental humanities, thanks not least to the centrality of energy in climate change discourse and Anthropocene debates. Energy humanities is the study of the historical and cultural record of our relationship with energy. It registers and critiques the dependence of modernity on exponentially growing consumption of fossil fuels and articulates the hopes and anxieties associated with energy abundance, energy scarcity, and the shift to renewable energy. In their 2010 think piece “Breaking the Impasse: The Rise of Energy Humanities,”⁴¹ Dominic Boyer and Imre Szeman write of the “strong equation of energy and modernity” and the “dominant narrative of the modern.” The task of critical theory in the humanities has been to expose “the multiple fictions of this narrative,” but they have so far tended to leave out a crucial element of “our understanding of the modern—energy.”⁴² Boyer and Szeman call

for work on energy that reconfigures ecological subjectivities, fosters critical energy literacy, and facilitates social change.

Change is central to both narrative and its importance for the energy humanities. Narratives, by their nature, require change. Graeme Macdonald has written of fictional narratives that as their events rely on energy—“on momentum and transference; absorbing and exuding, circulating, conserving and converting energy and resources”—so, too, they rely fundamentally on change.⁴³ Narrative, and critical attention to narrative, can help its readers to reconsider change in the past, present, and future.

Studying past narratives can help us to appreciate the fact that energy-system change has been a repeated occurrence across recent human history, rather than some uniquely contemporary challenge. This fact is well illustrated by a 2011 special issue of *PMLA*, in which Patricia Yaeger called for a reframing of literary historical periods, not by centuries or movements (Renaissance, Romanticism, etc.), but through their respective dominant energy sources (wood, tallow, coal, whale oil, gasoline, atomic power, etc.). The collection included essays on the literature of each of those energy sources.⁴⁴ While it is important to remember that the transitions between these have not been simple, linear ones, consideration of energy literatures reminds us of the repeated changes between energy sources. Likewise, attention to the narratives of these transitions can show how they may have simplified or framed more complex situations—presenting the Industrial Revolution as founded exclusively on coal, for example, as opposed to a mix of energy sources.

Turning to the future, narratives allow alterity, helping to imagine and compare alternative futures and consider how the world might be if it were otherwise, envisioning changed futures with different social, political, and economic structures to those that are embedded in or reliant on our energy system today. The study of such narratives of the future may also uncover revealing restrictions; some scholars, such as Imre Szeman, have seen a limitation of narratives of future energy systems in their tendency to present either the promise of techno-utopianism or a vision of an ecoapocalypse.⁴⁵ Certainly, it seems that “energy is often central to utopian designs for future societies. Conversely, utopian impulses have been particularly strong during times of actual or pre-

dicted energy transitions.”⁴⁶ In this way, narratives of future energy also reflect back to us our present, revealing our current fears and desires; in other words, “energy futures tell us more about the present than they do about the future.”⁴⁷ The problem with such utopian narrative imaginings of future energy is that many “entail maintaining our lives and practices as they exist with petroleum and simply swapping oil out for a different energy source that magically takes its place and replicates precisely its roles.”⁴⁸ In his essay here, Bradon Smith addresses some of these concerns and argues that imagined energy futures can help us by asserting the possibility of energy-system change, without the easy promise of an energy utopia.

As we have seen in discussing scenarios, narratives are inextricably bound up with all the systems through which we understand, apprehend, and respond to the problems of climate change and our energy challenges and with the massive social changes that these require. Climate models, the emissions scenarios of the IPCC reports, the targets and mechanisms of the international agreement signed in December 2015 in Paris at the United Nations Framework Convention on Climate Change Conference of the Parties 21, national climate change policy responses—traces of narrative can be considered in each of these cases. The dangerous future consequences of our current fossil fuel-dependent energy system, in the form of climate change, are understood through climate models that are run against different emissions scenarios; in other words, different narratives of our future. Policies intended to mitigate the carbon emissions associated with our current energy system through changes in our behavior or wholesale changes in how we generate energy likewise rely on a story of change—a vision of the future that is persuasive and plausible and can be the basis for creating such a change. Scholars are increasingly seeing that part of the process of framing policy ideas for publics “involves narratives or storytelling that can capture the public’s imagination and shape both political discourse and policymaking.”⁴⁹ Indeed, as one of the editors of this special issue has argued elsewhere, as well as seeing how narratives help us to understand our present economic and political energy realities and the possible future alternatives to the matrix of social, political, and economic structures that underpin our present energy system, we must also understand that the study of these realities is also partly a study of

these narratives.⁵⁰ The economics and politics that underpin the drilling for oil, capital investment in petroleum giants, and even international climate legislation are built on narrative foundations.

Seeing this, we realize that analyzing energy narratives may help us in understanding our present, too, particularly the resistance to change exhibited by our current energy system, since narratives are also part of the foundations of the status quo. As Barrett and Worden argue, the “failure of imagination” that prevents future narratives with genuine alternatives to oil “can be partially remedied by understanding how oil works in culture.”⁵¹ Here, too, narrative surfaces as part of the means by which petroleum has embedded itself so completely not only in social, economic, infrastructural, and political terms but also in cultural terms, as Stephanie LeMenager has shown in *Living Oil*.⁵² It is in attention to literary narratives of energy, in particular, that energy humanities can continue to reveal this important cultural dimension to energy.

Literary Narratives of Energy

Interest in energy as a literary theme is a recent development. Energy is an abstract concept, despite the centrality of energy conversion in our lives, and at first glance the energy sources on which societies are based appear invisible in the literary canon. But on further examination, wood and water power, coal, oil, and nuclear energy prove to be present in a surprising number of works. Indeed, it is increasingly recognized that fictions help to make the presence of energy in our lives visible, thereby exposing hidden mechanisms of power and social hierarchy and revealing the inappropriateness of the ways in which we tend to think about energy generation and consumption and about our relationship with the material world more generally.

Research into the subject originated in postcolonial and American studies. The Bengali novelist and essayist Amitav Ghosh’s declaration of petrofiction as a new genre back in 1992 is commonly regarded as the point of departure. Oil culture has rapidly gained recognition among American scholars as an autonomous field of study, having received a new impetus from climate change and the need to transition to renewables. The twentieth century has been described in retrospect as a high-energy society and a mature fossil fuel civilization. As the Canadian energy expert Vaclav Smil wrote in 2004, “The new century

cannot be an energetic replica of the old one, and reshaping the old practices and putting in place new energy foundations is bound to redefine our connection to the universe.”⁵³ A special issue of the *Journal of American Studies* titled “Oil Culture” appeared in 2002, followed by articles and book chapters by Frederick Buell, Peter Hitchcock, and Graeme Macdonald and by a special edition of the *American Book Review* in 2012 titled “Petrofictions”. In 2014 a collection of essays titled *Oil Culture*, edited by Barrett and Worden, appeared, as did Stephanie LeMenager’s book *Living Oil*. Standard texts on the syllabi of university courses in petrofiction that have sprung up in the United States include Abdul Rahman Munif’s *Cities of Salt*, a 1984 reflection on the impact of oil production on culture and life in the Middle East (the novel discussed by Amitav Ghosh); Upton Sinclair’s 1927 novel *Oil!* and the 2007 film loosely based on it, *There Will Be Blood*; Gary Snyder’s cultural critique of energy consumption in a small but significant body of poetry and prose published over fifty years since the mid-1950s; Linda Hogan’s 1990 historical novel of the dispossession of Osage Indians, who found themselves owners of oil-bearing land in the 1920s, *Mean Spirit*; and the Nigerian novels of Ken Saro-Wiwa and Helon Habila depicting the deforestation and devastation of the Niger Delta by oil drilling and the displacement and even massacre of its indigenous population, in particular Habila’s 2011 *Oil on Water*.

Exploration of the theme of energy in literature broadened out from petrocriticism in the special issue of *PMLA* already referenced, to address a range of other dominant energy sources (wood, tallow, coal, atomic power, and so on). In the same *PMLA* special issue, Imre Szeman argued that speculative fictions on imagined energy futures either perpetuate the present fiction of a continuing energy surplus that sustains our current way of life or imagine a postapocalyptic world lacking energy that serves as a cautionary tale. Bradon Smith takes this further in his essay in this publication, arguing that a lack of energy can feed into a nostalgic and utopian ideal of a return to an agrarian energy system and that such representations often involve small communities withdrawing from society in general.

To date, most work on energy fiction has come from America—perhaps not least because it is arguably the society most radically shaped by oil and the car in the twentieth century. Working in the UK and Australia, Graeme Macdonald and Andrew Milner have published

further significant work in the field, and Paula Farca's collection of essays *Energy in Literature* includes studies of Canadian, English, Australian, Nigerian, Spanish, French, and South and Central American writing.⁵⁴ At the same time, researchers in Victorian literature (e.g., Choi, Gold, MacDuffie) have turned to nineteenth-century representations of coal and energy, contextualizing them amid contemporary scientific and political debates on the impact of coal, the new energy source of the Industrial Revolution, on public health and the state of the nation and amid contemporary anxieties about the exhaustion of resources associated with notions of "living off the capital" of coal, entropy, and heat death of the sun. Dickens, Eliot, Ruskin, Conrad, Wells, and other Victorian writers prefigured some of today's energy-related concerns (e.g., resource depletion, pollution and its environmental cost to health, waste disposal, the social and political consequences of energy-system change). MacDuffie writes that the representation of energy in Victorian literature both echoed and challenged the way it was represented in scientific discourse. Moralizing energy, Victorian writers warned of the social impact of the new energy-intensive economy. They sought to address the problem of energetic dissipation, perceived sociopolitical disintegration and moral degeneration by fostering a compensatory "mental energy," creativity, and community spirit, not least by means of depicting positive role models and symbolically recuperating energy in narratives of order, closure, and providence in their writing. Poets, novelists, and critics offered a unique—if tentative and equivocal—window on to the growing consciousness of unsustainable energy use, helping to imagine how individual human actions might have global consequences. Literature served at least in part as an ecologically anxious counterdiscourse in the face of heroic, energy-intensive industrialization.⁵⁵

Heidi Scott's book *Fuel: An Ecocritical History* is the most ambitious and possibly the most insightful study of the literature of energy to date. This broad survey of the depiction of fuel production and consumption in poetry and fiction summarizes the findings of energy historians (Nye, Wrigley, Freese, Velten, Brimblecomb, Eberhart, Johnson) but argues that there is no better source material to study the history of fuel than literature. Literary texts "experiment, speculate, and motivate, raising political and ethical questions"; they are at the same time inherently self-reflexive, complicating simple understandings by chal-

lenging their own assumptions.⁵⁶ Scott follows MacDuffie, Hitchcock, Buell, LeMenager, and others in tracing the conflicting feelings of exhilaration and vertigo imparted by coal-fired modernity and in examining the addiction to and melancholy associated with oil. The complex aesthetics of oil culture, whose rapid movement liberated the subject from the constraints of time and space, alternately alluring and shockingly alienating, is illustrated through reference to the sublime destructiveness of oil in Upton Sinclair's foundational novel *Oil!*; Jack Kerouac's exploration of the thrill of high-speed and transient existence, in *On the Road*; and Edward Abbey's denigration of oil-driven incursions into the nation's national parks, with *The Monkey Wrench Gang*.

But perhaps the most interesting things Scott has to say are about the literature of biomass fuels. Living on biomass implies slower time, tighter range, and deeper dwelling. It favors nuclear families and small communities and prescribes a mode of respect, even equality between humans and working animals. Scott cites poems invoking an existential kinship with animals that contributed to human survival in the past, recuperating our lost reverence for cows, affinity with horses, and bio-cultural codependence on sheep. The early modern pastoral (Marvell) also preserved, for all its artificiality, a version (admittedly idealized) of a muscular way of life lost today. A more recent, realist pastoral exhibits the physical labor and finely tuned sense of dwelling that comes from cultivating land that supports working animals. Scott argues that imaginations of a more sustainable future might be crafted out of such dimensions of pastoral writing, coupled with elements of technophilic visions of the future. Science fiction has tended to collude in obscuring the foundational role of physical fuel and in spreading the fantasy of limitless energy. However, works in the genre have also led readers to consider the future consequences of present behaviors and served as an inspiration for major technological developments, typically presenting human ingenuity as more important than an abundance of fuel.

Among the many interesting passages in Scott's book is a reading of *Wuthering Heights* that centers on the use of coal as a motif associated with the passionate and tormented Heathcliff. Scott also juxtaposes texts portraying different energy regimes (e.g., Blake's biomass *Songs of Innocence* and fossil fuel *Songs of Experience*), texts portraying the same energy source (e.g., Upon Sinclair's and Ayn Rand's novels), and texts taking different positions on changing energy relations (e.g.,

Dinah Craik's best-selling Victorian novel *John Halifax, Gentleman* and George Eliot's *Mill on the Floss*). One is left with a sense of the fascinating range and complexity of literary depictions of energy-related issues, which record the multiple associations and valences of different energy sources, and their use as markers of individual character, social standing, cultural identity, prudence, and ecological living. Scott makes a persuasive case that registering, through examination of texts, the roles that energy plays unrecognized in our lives can help us appreciate the nature of our current investment in fossil fuel culture and begin to imagine alternatives.

Narrative as a Focus for Interdisciplinary Cooperation and Convergence

The humanities disciplines are united in insisting on the need to understand what and where we are and how we got here, as noted in a recent collaborative article titled "Mapping Common Ground," for which Hannes Bergthaller served as lead author.⁵⁷ The humanities hold that human beings cannot but act on the basis of collective memories, present convictions, and anticipated futures. They share common ground in their emphasis on reflection and interpretation; the attention they pay to texts and contexts; and their effort to reveal their deeper implications, ambiguities, and blind spots. Yet diverging trajectories and differences in attitudes, interests, and methods have stood in the way of useful dialogue between the disciplines that make up the environmental humanities. Ecocritics, environmental historians, and environmental philosophers "need to be jolted out of disciplinary ruts and mindsets" and to reassess the history of their respective disciplines so as to identify connections and lines of convergence.⁵⁸

Three moments are identified by Bergthaller and his coauthors where a sensitivity to both historical perspective and textual complexity has enabled mutually informed accounts of environment and enviroing: ecohistoricism, environmental justice, and new materialism. Gillen D'Arcy Wood has defined ecohistoricism as "the study of climate and environment as objects of knowledge and desire, analyzed through 'thick' description of specific episodes of ecological micro-contact," writing, "The environmental effects of globalized trade and migration belong within the domain of the physical and social sciences, but the

rationalizations for their impact—the intentionality of globalization, the psycho-cultural formations enabling the exploitation and trade of earth’s agricultural and mineral resources, as well as the cultural forms of an embryonic ecological consciousness—are natural subjects for eco-historicists equipped with the tools of discourse analysis developed in literary and cultural studies over the last thirty years.”⁵⁹ Operating within “an expanded matrix of political, economic, and cultural phenomena,” ecohistoricism “would be licensed to speculate upon qualitative sources of all kinds—poems, diaries, newspapers, paintings, folklore, etc.,” with the aim of establishing “what the hard data of historical climatology meant in cultural terms, in the minds and lived experience of the people who endured or benefited from a specific meteorological regime, and how human cultures have both adapted to and shaped environmental change.”⁶⁰

The reflections on Jennings’s *Pandaemonium* that Whyte and Goodbody develop in their coauthored essay in this issue of *Resilience* in a dialogue between the disciplines of environmental history and ecocriticism might be seen to contribute to the project of ecohistoricism. The authors of “Mapping Common Ground” acknowledge fundamental differences of approach between the two disciplines, noting that for historians the relevance of a text lies primarily in its capacity to exemplify a larger historical development, while literary scholars are more likely to emphasize the singularity of a particular text and the distinctive experience it affords readers.⁶¹ However, Whyte and Goodbody find—in the structuring of the various accounts of energy change collected by Jennings through conventions of thinking and in the complexities, ambivalences, inherent contradictions, and partial disclosures of these accounts—a congenial common ground for exploration of past energy narratives. They suggest that a similar approach to contemporary stories of the transition to renewable energy could be equally fruitful.

Environmental justice has acted as a unifying principle for multidisciplinary intellectual projects focused on an overlapping territory where social, cultural, and environmental challenges must be confronted all at once, merging social analysis and critique with close attention to textual detail and political advocacy. Roman Bartosch’s essay in this issue goes in this direction. The third avenue for interdisciplinary research, new materialism, has focused on things, bodies, and animality, challenging the tendency to gloss over the agency of matter in our ev-

eryday lives. Robert Butler attempts such a study of coal in the twentieth century.

While discussion of literary texts predominates in this collection of essays, the first essay is coauthored by an environmental historian and a literary scholar and examines both factual and aesthetic aspects of the text in question. A second essay that juxtaposes historical and literary accounts of energy generation and environmental change is the work of a literary scholar, Robert Emmett, who until recently worked in an interdisciplinary center for research and education in the environmental humanities and social sciences, the Munich-based Rachel Carson Center. And a third essay, examining future energy scenarios, is contributed by a historian of architecture and ideas, Renata Tyszczyk. “There is a growing understanding that narratives are of central importance not only to science communication . . . but to our relationship with all other humans and nonhumans as well as the larger environment,” Alexa Weik von Mossner writes at the end of *Affective Ecologies*. “I hope that this will open up new possibilities for interdisciplinary cooperation and transdisciplinary convergence, and that we will explore further, in both the theoretical and the empirical realm, what environmental narratives of all kinds . . . might contribute to our understanding of the world around us and our place in it.”⁶² This special issue, which can of course only suggest paths for others to follow, is offered in the same spirit.

Narratives are fundamental to the way in which humans organize and understand their experiences, giving meaning to and connecting disparate events. Climate change has been described as a super wicked problem because of the apparent disconnect between action and consequence; the complex interplay of ethical, political, social, and economic factors; and the intractableness of the issues of intergenerational and global justice. However, critical analysis of narrative is well placed to elucidate all of these dimensions of our energy challenges. Studying narrative may then be important in helping society collectively to engage with the nature of the problem, not as an abstract phenomenon, political football, or mere engineering challenge, but rather as a set of realities that exists simultaneously on human and planetary scales and generational and geologic timescales.

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NOTES

1. *Stories of Change: Energy in the Past, Present, and Future* was funded by the UK Arts and Humanities Research Council as part of its Connected Communities program (grant AH/L008173/1) and ran from 2014 to 2017. Four of the six essays collected here were first presented as papers at the ASLE–UKI (Association for the Study of Literature and Environment–UK and Ireland) biennial conference in Cambridge in September 2015, as part of a special strand convened by the *Stories of Change* project, entitled *Energy Narratives*; the other two were presented at project workshops in Cambridge and Bath. For more about the research project, whose ambition was to provide a more plural and imaginative account of our present and future energy choices, see its website at “*Stories of Change: About the Project*,” <https://storiesofchange.ac.uk/about>.

2. *Stories* were chosen as a unifying concept and transdisciplinary tool in the *Stories of Change* project, which sought to revive stalled public and political conversations about energy in Britain through a combination of research, artistic projects, and innovation in the use of digital media. For an overview of the project's activities and key findings, see Joe Smith, Robert Butler, Rosie J. Day, Axel H. Goodbody, David H. Llewellyn, Mel Rohse, Bradon T. Smith, Renata A. Tyszczyk, Julia Udall, and Nicola M. Whyte, “Gathering around *Stories*: Interdisciplinary Experiments in Support of Energy System Transitions,” in “*Narratives and Storytelling in Energy and Climate Change Research*,” ed. Mithra Moezzi, Kathryn Janda, and Sea Rotmann, special issue, *Energy Research and Social Science* 31 (September 2017): 284–94, <https://doi.org/10.1016/j.erss.2017.06.026>.

3. See the project's online collection of oral stories at its website <https://storiesofchange.ac.uk/>.

4. See Anthony Nanson, *Storytelling and Ecology: Reconnecting Nature and People through Oral Narrative* (Glamorgan: University of Glamorgan Press, 2005).

5. Narratologists distinguish between “story” as an account of a sequence of events, or *what* is told (what Russian formalist theorists called *fabula*), and “narration” as the *manner* in which it is told, which often involves presentation of the events in different order and duration (from the Russian *syuzhet*). Here, however, story and narrative are treated as synonyms.

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7. For more on the Cultural Framing of Environmental Discourse network, see its website at cfoed.co.uk.

8. See Axel Goodbody, “Stories of Energy in Contemporary Novels: Reframing Energy through Narratives, Genres and Metaphors,” in “Climate Change, Complexity, Representation,” ed. Hannes Bergthaller, special issue, *Metaphora*, edited volume 2 (2017), https://metaphora.univie.ac.at/volume2_goodbody.pdf; Axel Goodbody, “Framing in Literary Energy Narratives,” in *Framing the Environmental Humanities*, ed. Hannes Bergthaller and Peter Mortensen (Leiden: Brill Rodopi, 2018), 15–33.

9. Erin James, *The Storyworld Accord: Econarratology and Postcolonial Narratives* (Lincoln: University of Nebraska Press, 2015).

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