

Introduction: Victorian Ecology and the Anthropocene

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What does it mean to read Victorian culture and literature through an ecological lens? One answer is that it enables us to return the concept of ‘ecology’ to its original set of contexts, definitions, and preoccupations. Coined by the German biologist and naturalist Ernst Haeckel in his book *Generelle Morphologie* (1866), ‘ecology’ named the study of ‘the relationship of the organism to the surrounding exterior world, to which relations we can count in the broader sense all the conditions of existence’. Ecology, Haeckel explained, was to be an ‘entire science’ in and of itself and would provide an image of the ‘household of nature’, with the term *eco* deriving from the Greek word for house or household, *oikos*.¹ Reflecting a holistic outlook, Haeckel saw ecology as offering an explanation of the world through relationality, continuity, and, ultimately, unity.

Haeckel’s arrival at this new mode of studying nature was not isolated from broader scientific developments. Rather, it arrived as part of a shift in the sciences during the second half of the nineteenth century towards a reassessment of long-standing narratives of biophysical life and a more contextualized understanding of nature, perhaps most famously represented in Charles Darwin’s image of the ‘entangled bank’ of plants, birds, insects, and worms with which he concludes *The Origin of Species* (1859).² Haeckel’s illustration of a bank teeming with different species of moss in *Kunstformen der Natur* (1904), and which provides the cover image for this issue, captures the liveliness inherent to this growing sense of life as an entanglement. At the same time that these epistemic revolutions within the sciences were taking place, the ecology of the British landscape — the physical and social relations between humans, other organisms, and their environments — was itself in the process of rapid change, fuelled by the transformative agency of capitalism, imperialism, and the rise of fossil fuels.

This issue of *19* examines how the Victorian imagination was responding to changing ideas about the relationship between the human and the non-human world. In doing so, it builds upon the recent turn to ecocritical

¹ Haeckel, quoted in K. Friederichs, ‘A Definition of Ecology and Some Thoughts about Basic Concepts’, *Ecology*, 39 (1958), 154–59 (p. 154).

² Charles Darwin, *The Origin of Species*, ed. by J. W. Burrow (London: Penguin, 1985), p. 459.

approaches within Victorian studies, and the emergence of Anthropocene studies, an interdisciplinary approach to theorizing and historicizing the notion that humans have been influencing planetary systems since the beginning of the Industrial Revolution.³ Examining the way in which Victorian literature and culture was engaged with questions of environmental degradation, atmospheric pollution, resource depletion, and changing species relations, the articles in this issue bring to light how the Victorian period foreshadowed many of the preoccupations and debates that continue to structure contemporary ecological concerns, as well as showing us the historical origins of many of our present crises.

During the nineteenth century, transformations across the sciences were taking place that were highly attentive to questions of how organisms relate to one another and to their environments. In hindsight, these transformations are distinctly ecological.⁴ Darwin's theory that plant and animal life coexisted in a 'web of complex relations' in *The Origin of Species*, published only seven years before *Generelle Morphologie*, established the idea that the history of species was the history of fitness or adaptation, terms which foreground the necessity of understanding life in relational terms (Darwin, p. 125). Darwin was of course not the only individual to produce an influential theory of evolution during the nineteenth century. Herbert Spencer's attempt to theorize human society as a type of 'biological organism in which the whole was more than the sum of its parts' also foregrounded co-dependency but extended evolutionary questions into the fields of philosophy and sociology, prefiguring twentieth-century Earth systems sciences in which human societies are seen as part of the dynamic planetary processes.⁵ Similarly, the rise of neo-Lamarckism in Britain during the latter half of the century saw Jean Baptiste de Lamarck's progressive model of evolution, in which both physical and moral characteristics acquired by an organism during its lifespan could be passed onto offspring, pose an attractive (if ultimately unsuccessful) alternative to Darwin's theory of natural

³ A number of recently published essay collections speak to the emerging breadth of scholarship under the banner of Victorian ecocriticism and the degree to which the field is not only quickly forming, but already pursuing specific concerns (sustainability, environmental justice, and so forth). See *Victorian Writers and the Environment: Ecocritical Perspectives*, ed. by Laurence W. Mazzeno and Ronald D. Morrison (London: Routledge, 2017); *Victorian Sustainability in Literature and Culture*, ed. by Wendy Parkins (London: Routledge, 2018); and Dewey W. Hall, *Victorian Ecocriticism: The Politics of Place and Early Environmental Justice* (Lanham, MD: Lexington Books, 2017).

⁴ Anna Bramwell, *Ecology in the 20th Century: A History* (New Haven: Yale University Press, 1989), pp. 39–47.

⁵ Peter J. Bowler, *The Norton History of the Environmental Sciences* (New York: Norton, 1993), pp. 367–68. For a critical history of Earth systems science, see Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene: The Earth, History and Us*, trans. by David Fernbach (London: Verso, 2016), pp. 1–46.

selection, influencing writers from Samuel Butler to Edward Carpenter.⁶ For Haeckel, who read Darwin, Lamarck, and Spencer, as well as Victorian scientists such as T. H. Huxley and Francis Galton, in the years leading up to the founding of ecology, such revolutions in the study of natural history required a framework which could attend to the biological interdependence of different entities. Haeckel's contribution to natural history has subsequently come to be seen as an important moment of synthesis in the history of biology. As the theoretical biologist Lynn Margulis has argued, Haeckel 'extended, popularized, and systemically applied Darwin's ideas of evolution', redrawing the boundaries between flora and fauna and ushering in a complex view of taxonomy that laid the ground for both modern ecology and evolutionary theory.⁷

Yet it was not only biological science that we can now see as having influenced the nineteenth-century development of ecological thinking. In geology, the discipline from which Darwin's theories of life had emerged, notions of geophysical evolution were also providing modes of thinking about environments and environmental changes in ways that, in their attention to context and historicity, seem distinctly modern.⁸ Charles Lyell's *Principles of Geology* (1830–33) established modern geology as 'the science which investigates the successive changes that have taken place in the organic and inorganic kingdoms of nature'.⁹ Moreover, its attention to the stratigraphic record of the earth troubled dominant religious and anthropocentric accounts of life, presenting evidence of a planetary time that extended much further back than the six thousand years asserted in orthodox Christian accounts. The human suddenly emerged as a relatively recent actor on a vastly inhuman stage and teleological notions of time and progress, whether theological or secular, were implicitly undermined. As with Darwin's later evolutionary theory, Haeckel's holistic rejection of a hierarchical chain of being, and Spencer's interest in the social implications of natural selection, Lyell not only arrived at a new scientific theory that would prove highly influential in the centuries to come but displaced

⁶ For Butler, see Bowler, pp. 331–32; Edward Carpenter, *Civilisation: Its Cause and Cure, and Other Essays*, 14th new edn (London: Allen & Unwin; New York: Charles Scribner's Sons, 1916), pp. 129–47.

⁷ Lynn Margulis, *The Symbiotic Planet: A New Look at Evolution* (London: Weidenfeld & Nicolson, 1999), p. 76.

⁸ In other respects, Lyell's thinking now seems distinctly antiquated, particularly his commitment to uniformitarianism in the face of Louis Agassiz's geological evidence for an interglacial and distinctly non-uniformitarian model of the geological past. For an account of the initial resistance to Agassiz's interglacial theory by British scientists (including both Lyell and Darwin), see Gillen D'Arcy Wood, 'Afterword: Interglacial Victorians', in *Victorian Sustainability in Literature and Culture*, ed. by Parkins, pp. 220–25.

⁹ Charles Lyell, *Principles of Geology*, 9th and rev. edn (London: Murray, 1853), p. 1.

a long-standing human-centred view of the world with a perspective that can now be seen as deeply geocentric.

The implication of discoveries in geology, evolution, and biology have long been recognized by literary critics as having profoundly influenced the Victorian imagination.¹⁰ More recent appraisals have begun to examine how writers were also intuitively cognizant of what was at stake in the emergent ecological picture of the world. In a recent article on Alfred Tennyson's *In Memoriam A. H. H.* (1850), Jesse Oak Taylor, who also contributes an article to this issue, has argued that the long poem, influenced by the geological record of deep time, mourns and commemorates extinction in a way that parallels present-day questions around species loss.¹¹ What is more, literary influence did not just run in one direction. As Pascale McCullough Manning has shown, Lyell's attempts to represent geological processes seem to have been shaped by his love for Romantic poetry, while Taylor has argued that Lyell turned to the structure of the realist novel in order to narrativize geological history.¹²

For Taylor, and others such as Allen MacDuffie and Heidi Scott, rereading Victorian science and literature enables a dialogue between nineteenth-century ecological concerns and present-day anxieties around anthropogenic pollution, fossil fuel reliance, and even climate change.¹³ Such studies represent a revitalized interest in Victorian studies around presentism, that is to say, the act of bringing contemporary concerns to bear on the study of nineteenth-century texts and archives. Instead of seeing presentism as an inherently distortive or anachronistic way of viewing the past, what has come to be called strategic presentism has emerged as a mode of criticism within Victorian studies that looks to establish new points of confluence and connection between earlier points in history and the present moment.¹⁴ Blending historicist and theoretical approaches to literary criticism, strategic presentism looks to establish a two-way dialogue with the Victorian past and suggests that studying the Victorian period can

¹⁰ See Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* (Cambridge: Cambridge University Press, 1983).

¹¹ Jesse Oak Taylor, 'Tennyson's Elegy for the Anthropocene: Genre, Form, and Species Being', *Victorian Studies*, 58 (2016), 224–33. See also, Michelle Geric, *Tennyson and Geology: Poetry and Poetics* (London: Palgrave Macmillan, 2017).

¹² Pascale McCullough Manning, 'Charles Lyell's Geological Imagination', *Literature Compass*, 13 (2016), 646–54 (p. 652); Jesse Oak Taylor, *The Sky of Our Manufacture: The London Fog in British Fiction from Dickens to Woolf* (Charlottesville: University of Virginia Press, 2016), p. 11.

¹³ Allen MacDuffie, *Victorian Literature, Energy, and the Ecological Imagination*, Cambridge Studies in Nineteenth-Century Literature and Culture, 93 (Cambridge: Cambridge University Press, 2014); Heidi C. M. Scott, *Chaos and Cosmos: Literary Roots of Modern Ecology in the British Nineteenth Century* (University Park: Pennsylvania State University Press, 2014).

¹⁴ See the V21 Collective's 'Forum on Strategic Presentism', *Victorian Studies*, 59 (2016), 87–126.

provoke new ways of thinking about contemporary problems, including the problem of environmental degradation and climate change. As Taylor argues,

inviting the Victorians and Edwardians into our conversation about anthropomorphic climate change is valuable not in spite of the historical distance between their worldview and our own but because of it. [...] Tracing these connections does not collapse the past into the present but rather illuminates the contingency of the present by way of the alterity of the past. (*Sky of Our Manufacture*, pp. 9–10)

Strategic presentism can also operate as a reminder of the way in which many of our contemporary ecological concerns *were* already being thought about by those in the Victorian past, albeit in greatly different terms. Lyell, for instance, was well aware of the dynamic relationship between human actions and climate change, outlining a correlation in *Principles of Geology* between acts, such as deforestation, transformations in atmospheric conditions, and, ultimately, the kind of extinction events that Tennyson mourns in *In Memoriam* (Lyell, pp. 681–82, 697, 714–17). Indeed, the changeable relation between humans, other species, and their environments was a central insight of nineteenth-century science. It would be incorrect, however, to suggest that Lyell, Darwin, or Haeckel foresaw the potential for the kind of anthropogenic climate change that we are now witnessing in the twenty-first century. For Lyell and other geologists of the time, human action was, in the final analysis, inconsequential when compared to the slow-moving, vastly distributed, geological processes that shaped the surface of the planet. It was not until several decades later, when he read George Perkins Marsh's proto-environmentalist tract *Man and Nature* (1864), that Lyell was able to recognize that the human could have a geomorphological influence on the earth.¹⁵ Yet what is of note when rereading nineteenth-century geology from a present-day standpoint is the way in which the fundamental questions being asked were not dissimilar to those that continue to be reiterated in the contemporary moment: questions about the relationship between human agency and vast geological timescales and, by extension, the sustainability of organic life on planet earth. Lyell's attempt to better understand these questions, in the form of the geological principles he set out, were pivotal for establishing the modern modes of measuring and

¹⁵ Marsh, often seen as the first environmentalist, argues in *Man and Nature* that 'Man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discords.' See *Man and Nature; or, Physical Geography as Modified by Human Action* (London: Sampson Low, Son and Marston, 1864), p. 36. His influence on Victorian society was, however, negligible. For an account of Marsh and Victorian Britain, see James Winter, *Secure from Rash Assault: Sustaining the Victorian Environment* (Berkeley: University of California Press, 1999), pp. 26–35.

naming environmental and climatic conditions. Via his profound effect on Darwin, Lyell would go on to indirectly influence the nineteenth-century birth of ecology. More recently, his continuing ecological legacy can be seen in the concept of the Anthropocene.

That we are living in the Anthropocene, an epoch in which ‘human-kind has become a global geological force in its own right’, is now a widely accepted fact both among present-day earth scientists and the public at large, even if it is still in the process of becoming a formally recognized geological period by the International Commission on Stratigraphy.¹⁶ The Anthropocene, a term that combines the Greek *anthropos* (‘man’) and the geochronological unit of the epoch established by Lyell (represented in ‘cene’), is not a reflection of humankind’s mastery over the planet. Rather, it recognizes the ways in which human actions have unintentionally altered geological and ecological systems at a planetary scale, from global climate temperatures to ocean acidity and the composition of soil structures. As such, while in one sense the Anthropocene intensifies the category of the human as the entity responsible for *so much*, it also entangles human agency and intentionality within broader geological and ecological processes in such a way that decentres the human. Within the humanities and the social sciences, the interdisciplinary field of Anthropocene studies has turned to the philosophical, cultural, and political implications of our emergent planetary condition, particularly the epistemological and ethical questions that are at stake in our new ecological world view.¹⁷ As Dipesh

¹⁶ Will Steffen and others, ‘The Anthropocene: Conceptual and Historical Perspectives’, *Philosophical Transactions of the Royal Society A*, 369 (2011), 842–67 <<https://doi.org/10.1098/rsta.2010.0327>> (p. 842). The Anthropocene Working Group are currently collecting stratigraphic evidence to support their recommendation that the Anthropocene began in 1945. This date remains contentious, especially outside of the narrower definition of the Anthropocene within the Earth sciences, and many Anthropocene scholars would argue for a much earlier threshold between the Holocene and the Anthropocene. For an overview of the various arguments and their respective merits, see Jeremy Davies, *The Birth of the Anthropocene* (Oakland: University of California Press, 2016).

¹⁷ In recent years, the field of Anthropocene studies has rapidly expanded and what follows is a necessarily selective account of some of the most prominent work to date. Within literary theory and criticism, several texts have been published premised on re-evaluating the implications of the Anthropocene for literary history, most notably, Amitav Ghosh’s appraisal of the novel in *The Great Derangement: Climate Change and the Unthinkable* (Chicago: University of Chicago Press, 2016); Tom Bristow’s study of environmental poetics in *The Anthropocene Lyric: An Affective Geography of Poetry, Person, Place* (London: Palgrave Macmillan, 2015); Timothy Clark’s study of the limits of ecocriticism in *Ecocriticism on the Edge: The Anthropocene as a Threshold Concept* (London: Bloomsbury, 2015); and Tobias Menely and Jesse Oak Taylor’s broad-ranging edited collection *Anthropocene Reading: Literary History in Geologic Times* (University Park: Pennsylvania State University Press, 2017). Jeremy Davies’s *The Birth of the Anthropocene* offers both an introduction to the geological prove-

Chakrabarty outlines in ‘The Climate of History: Four Theses’ (2009), the Anthropocene forces us not only to revise the long-standing disciplinary separation between human history and natural history but to reconsider the dominant narratives of progress and reason that guide post-Enlightenment societal ideals. The concept of freedom that, via Kant, Hegel, and Marx, was at the core of ‘nineteenth-century ideas of progress and class struggle’, is now revealed to have been bound up with an unsustainable extraction of fossil fuels.¹⁸ As Chakrabarty provocatively implies, while

nance of the Anthropocene and a deep history of its emergence, while Bonneuil and Fressoz’s aforementioned *The Shock of the Anthropocene* takes a science studies approach to the concept’s history from the Enlightenment onwards. For analysis of the implications of the Anthropocene for ethics and philosophy, see Sverre Raffnsøe, *Philosophy of the Anthropocene: The Human Turn* (London: Palgrave Macmillan, 2016); Roy Scranton, *Learning to Die in the Anthropocene: Reflections on the End of a Civilization* (San Francisco: City Light Books, 2015); and Joanna Zylinska, *Minimal Ethics for the Anthropocene* (Ann Arbor: Open Humanities Press, 2014) <<https://doi.org/10.3998/ohp.12917741.0001.001>>. Tom Cohen and Claire Colebrook’s two series for the Open Humanities Press, Critical Climate Change and CCC2 Irreversibility, offer a number of open access monographs and edited collections addressing the implications of the Anthropocene for critical theory: titles include, *Telemorphosis: Theory in the Era of Climate Change, Vol. 1*, ed. by Tom Cohen (Ann Arbor: Open Humanities Press, 2012) <<https://doi.org/10.3998/ohp.10539563.0001.001>>; Tom Cohen, Claire Colebrook, and J. Hillis Miller, *Twilight of the Anthropocene Idols* (Ann Arbor: Open Humanities Press, 2016) <http://openhumanitiespress.org/books/download/Cohen-Colebrook-Miller_2016_Twilight-of-the-Anthropocene-Idols.pdf> [accessed 6 June 2018]; and Bernard Stiegler, *The Neganthropocene*, ed. and trans. by Daniel Ross (Ann Arbor: Open Humanities Press, 2018) <http://openhumanitiespress.org/books/download/Stiegler_2018_The-Neganthropocene.pdf> [accessed 6 June 2018]. Parallel to, and often overlapping with, approaches to the Anthropocene through critical theory is work being done under the various headings of new materialism, actor network theory, and object-oriented ontology in relation to climate change. Key titles here include, Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2013); Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, NC: Duke University Press, 2016); Bruno Latour, *Facing Gaia: Eight Lectures on the New Climatic Regime*, trans. by Catherine Porter (Cambridge: Polity, 2016); and Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, *Posthumanities*, 27 (Minneapolis: University of Minnesota Press, 2013). For theorists such as Colebrook, Braidotti, and Haraway the Anthropocene necessarily also arrives as an intervention with feminist theory: for an overview of the breadth of feminist response to the Anthropocene, see *Anthropocene Feminism*, ed. by Richard Grusin (Minneapolis: University of Minnesota Press, 2017); and the summer 2015 special issue of *philoSOPHIA* edited by Colebrook and Jami Weinstein on the topic of ‘Anthropocene Feminisms’. Often critical of the perceived lack of attention to capitalism, globalization, and economic precarity in analysis of the Anthropocene is work being done within Marxist theory on climate change, including *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*, ed. by Jason W. Moore (Oakland: PM Press, 2016); and McKenzie Wark, *Molecular Red: Theory for the Anthropocene* (London: Verso, 2015).

¹⁸ Dipesh Chakrabarty, ‘The Climate of History: Four Theses’, *Critical Inquiry*, 35 (2009), 197–222 (p. 208).

capitalism and Marxism might appear to be oppositional positions, they find a commonality in their blindness to the material cost of the freedoms they promise. Summed up in a metaphor that brings to mind those great Victorian edifices built on the spoils of the British Empire, he argues that ‘the mansion of modern freedoms stands on an ever-expanding base of fossil-fuel use’ (p. 208). Chakrabarty’s point runs deeper than simply disavowing all industrial production. Rather, as he frames it, the Anthropocene marks the end of the human as the species whose rationality and reason enables it to transcend the material limitations of its environment.

Industrialism, nonetheless, is central to the history of our emergent epoch. In his initial scientific papers on the Anthropocene, Paul Crutzen, the Nobel prizewinning geochemist widely associated with having coined the term, argued that the Anthropocene could be traced back to a specific moment in British history: James Watt’s design of the steam engine in 1784 and the dawn of what Thomas Carlyle memorably named the ‘Age of Machinery’.¹⁹ Here, we find another link to Victorian ecology, in the sense of the ecology *of* the Victorian age: the changing relations between humans, animals, and their environments during the long nineteenth century. The history of Britain’s industrialization and urbanization plays a key role in how we understand the Anthropocene. As James Winter has argued, the ‘sudden advent of new tools and methods for transforming and controlling nature, most of them worked out and applied first in Britain, [provided] the means and incentives to make large alterations [to the environment] and to do so almost everywhere’ (p. 2). Such ecological alterations were visible in the invention and proliferation of steam-powered transport in the 1820s and 1830s, later declared by the geographer Mary Somerville in 1848 as the ‘applications of the powers of nature to locomotion’ (Winter, p. 1). Alterations were also visible in the new technological freedom for factory owners to depart from the water-based energy which had geographically tied them to rural riverside sites and move to coal-powered factories which could be based in cities where an abundance of cheap labour could be easily exploited.²⁰ Other changes were less visually apparent but no less profound. One example is the intensification of agricultural production, in which, as Winter has shown, developments in transportation and commu-

¹⁹ Paul J. Crutzen, ‘Geology of Mankind’, *Nature*, 415.6867 (2002), p. 23. Eugene Stoermer, a University of Michigan ecologist, is recognized as having used the term informally from the 1980s onwards. In recognition of their shared claim to having coined the term, the first scientific publication on the Anthropocene was jointly authored by Crutzen and Stoermer. See Paul J. Crutzen and Eugene F. Stoermer, ‘The Anthropocene’, *Global Change Newsletter*, 41 (2000), 17–18 <<http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf>> [accessed 10 June 2018].

²⁰ For an account of the way in which steam enabled new modes of production and labour relations, see Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London: Verso, 2016).

nication enabled ‘sophisticated crop rotation and a mixed farming regime that relied heavily on the use of animal fertilizers’ (p. 4). Moreover, while Winter does not mention it, such intensification in farming methods also fundamentally changed human relations with the animals, both domesticated and wild, in the rural environment.

Over the course of the nineteenth century Britain emitted four times as much carbon dioxide to reach a standard of living not much greater than their counterparts across the channel in France, not only polluting the atmosphere with a hitherto unseen intensity but establishing the blueprint for a modern fossil-fuel dependent industrial society (Bonneuil and Fressoz, pp. 116–17). For Timothy Morton, this matrix of scientific discovery, technological development, industrial acceleration, and imperial expansion not only bears responsibility for having produced the Anthropocene but means that ‘we are still inside the Victorian period, in psychic, philosophical, and social space’. He continues:

Since we are both inside industrial society and inside the Anthropocene, we are still within the Victorian period. And this is not just a fanciful notion on my part. It means that we confront gigantic entities that the Victorians also confronted — geological time, vast networks of industry. And we have the same feelings about them.²¹

While the universalizing ‘we’ that Morton deploys in his framing of the Victorian Anthropocene risks falling into the rhetorical trap of suggesting that an undifferentiated concept of ‘man’ is responsible for the Anthropocene (a critique some scholars have rightly made of the term’s limitations), it is nonetheless a forceful assertion of the fact that modern modes of capitalism, industrialism, and globalization developed out of Victorian industrial capitalism. Indeed, contra Chakrabarty’s argument that it is not only capitalist ideologies that lie behind the Anthropocene, the centrality of globalized capitalism to resource exploitation, atmospheric pollution, and, ultimately, climate change, have led a number of scholars to opt for the term Capitalocene over the Anthropocene. For Donna Haraway, the Capitalocene is also a more apt description than the Anthropocene since the term draws attention to the ‘networks of sugar, precious metals, plantations, indigenous genocides, and slavery’ that propelled profound ecological changes during the preceding centuries and continues to do so in the twenty-first (p. 48). For Haraway, who traces the Capitalocene back to the sixteenth century, it is the *globalized* nature of capitalism that has enabled the planet to enter a new geological epoch. Haraway’s analysis suggests the need for accounts of the Victorian Anthropocene that attend

²¹ Timothy Morton, ‘Victorian Hyperobjects’, *Nineteenth-Century Contexts*, 36 (2014), 489–500 (pp. 489–90).

to how the importing of materials from the British Empire during the nineteenth century enabled the *exporting* of environmental risk and damage, and the way in which foreign realms could be dangerously exploited for their natural resources and see few of the benefits. Such an approach would also offer new modes of thinking about imperialism in Victorian literature and culture and enable greater attention to what the historians Christophe Bonneuil and Jean-Baptiste Fressoz have argued is the ‘overwhelming hegemonic’ power of the British Empire in establishing the ‘fundamental link between climate change and projects of world domination’ (p. 117).

The attempts by Victorian writers and artists to represent and thereby respond to the industrialized, polluted, imperial realities of the nineteenth century might now be seen as providing us with a cultural history of the Anthropocene. In J. M. W. Turner’s paintings of industrial sprawl and expanding railways, where the thickening of the atmosphere seems to be taking place on the canvas itself, or in the smog that, as Jesse Oak Taylor has shown in *The Sky of Our Manufacture*, suffuses Victorian novels from Charles Dickens to Arthur Conan Doyle, we find some of the earliest responses to the anthropogenic climate events that were beginning to structure everyday life. Moreover, Victorian writers were not only portraying the emergent industrialized climate of Britain but attempting to imagine alternatives. Richard Jefferies’s vision of a submerged England in *After London; or, Wild England* (1885) and the agrarian utopia of William Morris’s *News from Nowhere* (1890) now present themselves to be read as novels that attempt to think of speculative Anthropocene futures. Here, we also find the emergence of an Anthropocene politics. Morris’s role alongside Edward Carpenter’s and Robert Blatchford’s in arguing that the overthrowing of capitalism must be predicated on a less exploitative use of natural resources and the non-human world has subsequently been characterized as the first instance of an explicitly ‘green politics’.²² Indeed, as Wendy Parkins argues in her article in this issue, Carpenter’s interest in a sexually charged, everyday ecology foreshadows the recent development of a queer ecology that accounts for desire, sex, and gender through a non-anthropocentric lens. We might also consider how Virginia Woolf’s *Orlando* (1928) registers the shock of the Anthropocene in the opening to the novel’s Victorian section:

Orlando then for the first time noticed a small cloud gathered behind the dome of St. Paul’s. As the strokes sounded, the cloud increased, and she saw it darken and spread with extraordinary speed. [...] A turbulent welter of cloud covered

²² Peter C. Gould, *Early Green Politics: Back to Nature, Back to the Land, and Socialism in Britain, 1880–1900* (Brighton: Harvester, 1988), pp. viii–ix. See also, Peter Adkins, ‘Transatlantic Dialogues in Sustainability: Edward Carpenter, Henry David Thoreau and the Literature of Simplification’, in *Victorian Sustainability in Literature and Culture*, ed. by Parkins, pp. 51–68.

the city. All was darkness; all was doubt; all was confusion.
The Eighteenth century was over; the Nineteenth had begun.²³

Signalling how the Victorian Anthropocene will continue to resonate into the twentieth and twenty-first centuries, Woolf's description of the way in which the climate 'stealthily and imperceptibly' alters 'the constitution of England', influencing everything from clothing to interior decor and even literary style, self-reflexively portrays the interplay of human and non-human agents in the writing of history and, for our interests, the writing of the Victorian Anthropocene (Woolf, p. 157).

In all of the above examples, it is clear that Victorian literature was engaged with concerns that continue to occupy contemporary ecological discussions. Within Anthropocene studies it is being increasingly acknowledged that planetary change requires not only a scientific understanding but a cultural, perhaps even an aesthetic, explanation. We see this reflected in the way in which Victorian writers were engaged with the fundamental questions of human meaning and value at stake in the emergent ecological world view. For many Victorian writers, this question of meaning was bound up with theology. As Taylor shows in his contribution to this issue, John Ruskin's use of religious and moralistic language in his polemic on anthropogenic pollution, *The Storm-Cloud of the Nineteenth Century* (1884), is a reminder that while emergent scientific theories were revealing a planet other than those found in the major religious accounts of the world, cultural explanation would to some extent remain indebted to the theological modes of discourse which had provided meaning and value for so long. As with the dialectical movement in Matthew Arnold's 'Dover Beach' (1867) between an oceanic expanse of senseless materiality and the human need for meaning constituted by 'the tide of faith', the literary history of the Victorian Anthropocene stages the ontological, or ontotheological, challenges involved in making sense of planetary change.²⁴

Yet, in foregrounding the precarity of transcendent meaning and acknowledging the spectre of nihilism, Arnold's lyric — along with other Victorian literature such as the novels of Thomas Hardy or the poetry of Tennyson — clearly engages with what the ecocritic Timothy Clark has described in *Ecocriticism on the Edge* as the fundamental challenge to representation posed by the Anthropocene's inhuman, planetary scales of space and time (pp. 30–31). For Clark, who reads Tennyson's portrayal of nature in 'Tithonus' (1860) back through the Anthropocene, the tension between human meaning and inhuman materiality speaks to an unsettling

²³ Virginia Woolf, *Orlando: A Biography*, ed. by Brenda Lyons (London: Penguin, 1993), p. 156. For a discussion of Woolf and the Anthropocene, see Taylor, *The Sky of Our Manufacture*, pp. 188–211.

²⁴ *The Poems of Matthew Arnold*, ed. by Kenneth Allott (London: Longmans, 1965), pp. 240–43.

and irreducible dissonance between how we make sense of the world and the world itself (pp. 42–44). In Clark’s reading, Tennyson offers little consolation, only an image of human life set against a vast inhuman earth. What emerges from such analysis is that when we read Victorian works such as ‘Tithonus’, we are reading work that is, at one level, engaging with what Timothy Morton has called the ecological thought. Yet we also find a key difference between Victorian culture and Morton’s formulation of an Anthropocene that extends the Victorian period into the present day. For Morton, the Anthropocene means that ‘ontotheological statements about which thing is the most real (ecosystem, world, environment, or conversely, individual) become impossible’; in contrast, Victorian literature holds these ontological and theological questions to be unresolved and unresolvable (*Hyperobjects*, p. 19).

The Anthropocene intensifies the Victorian provenance of our modern understanding of ecology. The Victorian period saw not only the nascent of a modern scientific recognition of the human’s entanglement within non-human entities and processes, but aesthetic, ontological, and theological developments that accompanied the growing sense of the planet as a space of finite resources in which the human is only one species among many. Approaching Victorian literature through the concept of the Anthropocene enables us to engage in urgent ecological dialogues across the historical divide between ‘then’ and ‘now’ which, instead of shying away from the gap between our present understanding of environmental concerns and the Victorian past, embraces it. It is an approach that both historicizes *and* theorizes its objects of study and, as all of the articles in the issue demonstrate, enables new knowledge of both the Victorian period and our own moment.

Exemplifying how this topic is creating new forms of knowledge about the Victorian past and our present, Jesse Oak Taylor, in the article that opens this issue, takes a Victorian text to explore ‘the challenge to the humanities posed by life in the Anthropocene’. John Ruskin’s eccentric essay, *The Storm-Cloud of the Nineteenth Century* has recently commanded the attention of scholars working in ecocriticism and Anthropocene studies. What makes Taylor’s approach distinctive, however, is that he does not discuss Ruskin’s essay simply as an early example of an awareness of climate change. Rather, he argues that Ruskin ‘helps us to understand a core conceptual problem posed by anthropogenic climate change: [...] it changes what climate *is*.’ While Ruskin’s logic may be ‘decidedly unscientific’ and his predisposition profoundly ‘anti-modern’, Taylor finds in *The Storm-Cloud* a literary challenge: ‘how do you describe something that has no name, and for which there is no language?’ For Ruskin, the answer was to turn back to a particular aesthetic tradition, to reach outside the framework of ‘modern beliefs’ in order to articulate — paradoxically — an emergent concept, a new kind of narrative of human impact on the environment.

If Ruskin — alongside William Morris — has featured prominently in recent scholarship on the Victorian environment and ecology, then so too has Edward Carpenter, the subject of the following article. ‘Edward Carpenter’s Queer Ecology of the Everyday’ seeks to bring together the two main threads of Carpenter’s life and writing: his commitment to, and celebration of, same-sex desire; and his distinctive form of socialism based on self-sufficiency and simplicity and practised at his smallholding, Millthorpe. Focusing on the significance of the everyday in Carpenter’s essays and autobiography, Wendy Parkins argues that the particular valence of the everyday — as the domain where the ordinary and the material are brought together — is given a new calibration by Carpenter who describes the everyday in terms of desires and connections between humans and other forms of life. For Carpenter, the everyday is where we both experience, and help to foster, ‘an uncontainably queer world’ (to use Stacy Alaimo’s phrase for how queer theory can reorient and re-energize environmental thinking). Carpenter described the ‘instreaming energy’ that arises from ‘the life of the open air, familiarity with the wind and waves, clean and pure food, [and] the companionship of the animals’ and, in so doing, underlines how, for him, the new life of socialism had to be lived in and through the body on a daily basis.

The body is also the focus of Vybarr Cregan-Reid’s contribution, ‘Ecologies of Labour: The Anthropocene Body as a Body of Work’. Foreshadowing his forthcoming book, *Primate Change: How the World We Made is Remaking Us*, this article provides another significant example of how scholarship of the Victorian period concerning ecology and anthropogenic climate change is creating new knowledge, both within academic disciplines and to a wider readership beyond. Cregan-Reid situates the distinctive changes during the Victorian period within a much wider historical (indeed, even prehistorical) framework while also reminding us how, for the first time, such change was able to be recorded and circulated in ways technologically impossible during early phases of revolutionary change on the planet. Moreover, the profound changes in how humans worked in and with the environment in the nineteenth century were written on the body, Cregan-Reid argues, citing Victorian sources such as *A Narrative of the Experience and Sufferings of William Dodd, a Factory Cripple* (1841). Through this autobiography and other examples, Cregan-Reid shows how ‘the environmental crisis that we see presaged in Victorian literature, art, science, and culture is played out on an equally complex canvas: the human body’.

The global reach of the radical refiguring of the human relationship with the environment in the Victorian period is explored in Grace Moore’s “‘Raising high its thousand forked tongues”: Campfires, Bushfires, and Portable Domesticity in Nineteenth-Century Australia’. Any exploration of Victorian ecology would be remiss if it confined its attention purely to the British Isles and Moore’s article thus outlines the devastating consequences

of exporting a matrix of literary ideals (the pastoral) and modern agricultural practices (large-scale farming and animal production) to an unfamiliar landscape stolen from its original custodians. It is a sobering example of the kind of anthropogenic impact on climate and environment triggered by Victorian industrialization and imperialism felt far from the source of the Industrial Revolution and the seat of empire. Focusing on the imbrication of the ecological and the literary in considering the significance of fire in the Australian nineteenth-century context, Moore argues that fire ‘offered colonists an illusion of mastery over their surroundings — a dominance that was often both temporary and tenuous’. In the hot, dry conditions of inland Australia, an escaping campfire could quickly lead to the widespread devastation of the bushfire, and the failure of nineteenth-century Europeans to understand Australian ecology or their place in it could lead directly to death and destruction on a massive scale. It was not surprising, then, that fire became a recurring trope in the nascent literature of colonial Australia and Moore examines a wide range of examples, from periodical fiction to the poetry of Charles Harpur and Ada Cambridge. ‘In an Australian context,’ Moore concludes, ‘the campfire itself became a type of fiction: a story that settlers told themselves about their ability to control’ their environment.

The relation of the human to the environment is again taken up by Anna Feuerstein in ‘Seeing Animals on Egdon Heath: The Democratic Impulse of Thomas Hardy’s *The Return of the Native*’. Hardy is, of course, another author who has figured prominently in Victorian ecocriticism but Feuerstein’s emphasis here is on the significance of animals within the natural environment. ‘Both ecocriticism and animal studies’, Feuerstein reminds us, ‘share a desire to move beyond anthropocentric epistemologies’ and she argues that Hardy’s expansion of the representational focus of the realist novel to include animal perspectives pushes political categories beyond the human, ‘to imagine how a public can include both human and non-human actants’.

This issue then comes to a thought-provoking conclusion with an interview with one of the most eminent scholars in Anthropocene studies, Claire Colebrook, to ask her what a dialogue between Victorian studies and Anthropocene studies might look like. With a background in seventeenth- and eighteenth-century literature, Colebrook has published widely on philosophy, gender, and literary theory and is well known for her extensive work on Gilles Deleuze. Approaching the challenge of the Anthropocene from a philosophical as much as a political perspective, her work interrogates the very notion of the human on which responses to anthropogenic climate change often rely. We asked Colebrook whether she could identify the emergence of an Anthropocenic consciousness in Victorian literature: in Tennyson, Hardy, or Jefferies, perhaps? But it should have come as no surprise that, instead, she first took us back to the eighteenth century. In

Percy Shelley's *The Triumph of Life* (pub. posthumously, 1824), Colebrook argues, 'there is a sense that humans have an agential force that has nothing to do with their conscious intentions, that there is something that humans are doing behind their own historical awareness and historical consciousness.' Victorian poetry, she continues, articulates the fragility and contingency of human life, finding solace only in expressing that finitude and mournfulness, but elsewhere in Victorian literature there is also the emergence of a troubling equation of the 'end of the world' being synonymous with 'the end of *our* world'. Provocatively, Colebrook posits that even the great Victorian novels work to entrench a particular, limited sense of the human and its primacy that works against the kind of planetary consciousness that the Anthropocene evokes. They are stories 'we tell ourselves to constitute ourselves', she contends.

Beginning with Taylor and ending with Colebrook, what this issue ultimately explores, then, is what is at stake in ecology, in our understanding of the irrevocable imbrication of life, whether human, non-human, or animal. As Colebrook reminds us, literature in the nineteenth century began to evoke a sense of the ambivalent and ungraspable notion of human agency and intentionality and it now behoves Victorian scholars to continue this vital conversation.