Roundtable

MEMORY STUDIES

Memory studies and the Anthropocene: A roundtable

Memory Studies
2018, Vol. 11(4) 498–515

DOI: 10.1177/1750698017731068
journals.sagepub.com/home/mss
SAGE

Stef Craps
Ghent University, Belgium

Rick Crownshaw
Goldsmiths, University of London, UK

Jennifer Wenzel
Columbia University, USA

Rosanne Kennedy
Australian National University, Australia

Claire Colebrook
Penn State University, USA

Vin Nardizzi
University of British Columbia, Canada

Keywords
memory studies, Anthropocene, geology, scale, nonhuman

Introduction

Stef Craps

The essays below are slightly revised versions of the position papers presented as part of the roundtable on 'Memory studies and the Anthropocene' at the MLA Convention in Philadelphia in January 2017, which was organized by the executive committee of the MLA Memory Studies forum and moderated by me.[1] The participants, all of them leading scholars in the fields of memory studies and/or the environmental humanities, had been asked to respond to the following questions:

Corresponding author:
Stef Craps, Department of Literary Studies, Ghent University, Blandijnberg 2, 9000 Gent, Belgium.
Email: stef.craps@ugent.be

> What are the implications of the notion of the Anthropocene for memory studies? How, if at all, does the awareness of living in a new geological epoch defined by the actions of human beings affect the objects of memory, the scales of remembrance, and the field's humanist underpinnings?

While the session was well attended, it seemed to me that their thoughtful responses, which generated a lively debate among the panellists and with members of the audience, deserved a wider forum. I was pleased to learn, therefore, that the editors of *Memory Studies* were interested in publishing them.

What sparked this roundtable is the increasing currency of the Anthropocene, on the one hand, and the observation that the field of memory studies has lately begun to grapple with its implications in earnest, on the other. The notion of the Anthropocene was put forward by the chemist Paul Crutzen and the biologist Eugene Stoermer in 2000 to denote a new geological epoch defined by the transformative impact of human activity on the geophysical processes of the planet. The Holocene – the post-glacial epoch that started some 11,500 years ago – has allegedly given way to the Anthropocene now that humans have become geological agents on a par with erupting volcanoes, earthquakes, and asteroid strikes. Our impact on the planet is so profound that our existence will be discernible as a distinct geological layer long after humanity has gone extinct. While Crutzen and Stoermer situate the onset of the Anthropocene in the latter part of the eighteenth century, which saw the invention of the steam engine that drove the Industrial Revolution, other scientists have suggested that the 'age of humans' began as many as 8000 years ago, with the extinction of megafauna and the rise of agriculture; in 1610, with an unusual drop in atmospheric carbon dioxide and the irreversible exchange of species between the New and Old Worlds; or in the mid-twentieth century, the dawn of the atomic age and the start of the 'Great Acceleration' in greenhouse gas emissions. The latter option is the one favoured by the Working Group on the Anthropocene of the International Union of Geological Sciences, which, as widely reported in the media, announced at a conference in Cape Town in August 2016 that it is preparing a formal proposal to designate the Anthropocene as an official unit of geological time (Carrington, 2016).

The as yet unofficial status of this new geological epoch defined by human impact has not stopped humanists and social scientists from exploring the challenges it poses, which extend far beyond the parameters of the natural sciences. Rather than being a mere technical question of stratigraphy, revolving around the identification of a 'golden spike' (a clear signal of a change in the geological record), humanity's geological agency and the nature and extent of the changes we have wrought on the Earth system raise problems of scale for the human imagination, necessitating new ways of thinking that are vastly more global and historical in scope than the narrow spatio-temporal confines of our ordinary daily lives tend to allow. The humanities and social sciences have attempted to facilitate the perspective shifts required by the Anthropocene and clarify the responsibilities it entails. Dipesh Chakrabarty (2009), for example, argues that the recognition of humanity's geological agency collapses the distinction between human and natural history, and poses the necessity of thinking the human on multiple and incommensurable scales simultaneously. While seen to hold promise as 'a conceptual basis for environmental politics' (Davies, 2016: 13), a summons to ecological self-consciousness and a rallying cry for a green global democracy, the Anthropocene is also frequently accused of obscuring inequalities in the global distribution of responsibility for and vulnerability to environmental degradation: typically, the poor are least to blame but suffer the most, a fact hidden from view by the developing Anthropocene narrative with its species-level understanding of the human (Bonneuil and Fressoz, 2016). Hence the coinage of alternative terms such as 'Capitalocene' (Malm, 2016; Moore, 2015) and 'Plantationocene' (Tsing, 2015), which lay the blame for the environmental crisis at the door not of an abstract humanity, people in general, but of the capitalist mode of production or the plantation system and the specific

societies adopting it. Other critics have found fault with the human-centredness of the Anthropocene, and advanced multispecies thinking and the subversion of the dominance of the human that it entails as necessary for solving the crisis that the Anthropocene names (Alaimo, 2010, 2016; Haraway, 2016; Heise, 2016).

Memory scholars have also started to turn their attention to the Anthropocene, but direct engagements were rare until very recently. In her 2011 essay 'Travelling memory', Astrid Erll distinguishes three phases in memory studies. The first phase encompasses the pioneering work of early-twentieth-century memory scholars, most prominently and influentially Maurice Halbwachs, who developed the concept of collective memory. Memories, according to Halbwachs (1925), are inevitably shaped by collective contexts – one's family, religion, region, profession, and so on – which he referred to as the social frameworks of memory. The second phase, which started with the publication of Pierre Nora's (1984–1992) seminal *Lieux de mémoire* project in the late 1980s and early 1990s, put forward the nation-state as the primary social framework of memory. The turn of the twenty-first century, finally, saw the arrival of a third phase of memory studies, whose theorists and practitioners are united in opposition to the methodological nationalism characterizing the previous phase. Memory, they contend, transcends such narrow boundaries and must therefore be studied from a transnational, transcultural, or global perspective (Assmann and Conrad, 2010; Bond and Rapson, 2014; Crownshaw, 2011; De Cesari and Rigney, 2014; Levy and Sznaider, 2006; Rothberg, 2009). Without meaning to suggest that the last word about transnational, transcultural, or global memory has already been said, I think it can be argued with some justification that what we are witnessing now is the advent of a new, fourth phase in memory studies: a phase prompted by our growing consciousness of the Anthropocene that takes the gradual scalar expansion characterizing the previous phases to a whole new level – travelling memory on steroids – while calling into question the humanist assumptions undergirding these phases. For memory studies to start to think ecologically (rather than merely socially), the field may need to break with the persistent humanism that can be seen to prevent it from adequately addressing the vast spatiotemporal magnitudes of the Anthropocene. By going beyond anthropocentric modes of cognition and representation, it would participate in what Richard Grusin (2015) has identified as the 'nonhuman turn' currently sweeping the humanities and social sciences.

Apart from several individual essays (Crownshaw, 2015, 2017a; Goodbody, 2011; Kennedy, 2017; see also Part III, 'Ecologies of memory', of Groes, 2016), I am aware of two new edited collections that mark and contribute to this shift in memory studies from the transnational, transcultural, or global to the planetary; from recorded to deep history; from the human to the nonhuman: a special issue of the literary studies journal *Textual Practice* on 'Planetary Memory in Contemporary American Fiction' guest-edited by Lucy Bond, Ben De Bruyn, and Jessica Rapson (Bond et al., 2017), and a special issue of the cultural theory journal *Parallax* on 'Memory after Humanism' guest-edited by Kári Driscoll and Susanne Knittel (Driscoll and Knittel, 2017). My hope for this roundtable is that it, too, will help us understand, map, and navigate this fourth phase of memory studies, if that is indeed what these various explorations and speculations are initiating.

Speculative remembrance in the Anthropocene

Rick Crownshaw

Our new geological epoch of the Anthropocene is legible in the geological record that is being left by humanity's collective geophysical agency. This unfolding geological record of humanity's inscriptions can be thought of as an archive by which the past and future history of the Anthropocene might be remembered. Indeed, remembrance is a pertinent concept in this context, as it captures the

dynamic of the past's return and so the cultural apprehension of geology (see also Crownshaw, 2017b). As Christophe Bonneuil and Jean-Baptiste Fressoz (2016: xi–xiv) argue, it is delusional to regard the conceptualization of the Anthropocene as a period of shocking awakening to the radical changes in Earth systems; the precarity of species (human and nonhuman) and their environments; unprecedented levels of waste, toxicity, and pollution; and social disintegration brought about by resource and energy depletion and redistribution. For the inception of the industrial revolution (and subsequent geological inscriptions, or 'golden spikes') generated knowledge of possible environmental consequences, planetary thinking about such matters, and prognoses as to what industrially driven environmental futures might look like. That knowledge was subsumed by the ascendancy and prevalence of ideas of security, prosperity, liberty, and the instrumentalization of nature and freedom from its determinants. Such freedoms were predicated on the development of a carbon economy and the fossil-fuelled ideas of modernity's progress that subtended it (Bonneuil and Fressoz, 2016: 41–44; Chakrabarty, 2009: 208; Malm, 2016).

The 'Anthropocene', then, describes the return and remembrance of knowledge historically dissociated, but what returns is not just cultural matter but also biological, physical, and chemical matter, as socio-economic modification of Earth systems (and indeed Earth systems' modifications of the socio-economic) manifest themselves cumulatively and latently. The work of cultural memory might apprehend the belatedness of the Anthropocene's present and future force as the materialization of a forgotten past, and the Anthropocene's geological inscriptions might be curated and archived by the work of cultural memory as the material of memories to come (see also Crownshaw, 2017b).

However, as in the study of the Anthropocene across the humanities and social sciences more generally, so in memory studies more particularly: the reiteration of the problems of scale is becoming something of a mantra. Despite the recent centrifugal directions of memory studies – along, for example, multidirectional (Rothberg, 2009), global (Assmann and Conrad, 2010), cosmopolitan (Levy and Sznaider, 2006), postcolonial (Craps, 2013), and transnational (De Cesari and Rigney, 2014) lines – the Anthropocene demands different axes of expansion commensurate with the multiscalar referents of this emergent geological shift. Unfolding unevenly across time and space, matter and life (human and nonhuman), and through planetary systems and processes (engendering systemic feedback loops and crossing the threshold of systemic tipping points), the repercussions of humanity's geophysical agency can only be tracked through a 'derangement', as Timothy Clark (2012) might put it, of the scales of cognition, remembrance, and representation, for which the 'humanist enclosures' of cultural memory studies are ill equipped (Cohen, 2012: 17–18, 21).

My contention is that in seeking to recalibrate itself and leave behind its 'humanist enclosures', memory studies risks substituting attention to scalarity for the scrutiny of memory's mediation. Much of my recent work has been on the genre of climate change fiction and its future imaginaries. In what I have been theorizing as speculative memory, the future anterior of climate change fiction – that which will have been – envisions a more fully realized Anthropocene in near-future scenarios of catastrophe and post-catastrophe. Whether the future emplotted is (post-)apocalyptic and characterized by socio-economic and ecological collapse and species extinction, or one of resilience, adaptability, and sustainability, or somewhere in between, such fictions stage cultural memories of the Anthropocene and so an aetiology of the conditions that are imagined in the future but which are unfolding in the present of this literature's production and consumption. Although usually limited to humanist plots and dramas, and often dismissed as such in ecocriticism, these fictions are useful not only for their memorative disposition but also for their mournful and melancholic orientations towards the fossil-fuelled worlds they imagine untenable or in ruins. This fiction reveals attachments to and implications in energy regimes normally subject to cognitive dissonance in the present, and which are akin to Stephanie LeMenager's (2014) concept of

petromelancholia and Michael Rothberg's (2013: xv) idea of the implicated subject situated between perpetration and victimization in a climate-changed world. In other words, they reveal therefore the ways in which the remembrance of the Anthropocene is mediated, indeed reified, and its subjects interpellated.

As Susannah Radstone (2005) cautioned during the ascendancy of memory studies at the beginning of this century, and amidst the privileging of overly subjective and personalized renditions of recollection, the study of cultural remembrance needs to pay attention to the often-overlooked discourses that mediate and authorize memory, discourses that may not be inherently memorative themselves. That caution is still pertinent in the context of the Anthropocene, its speculative remembrance, and literary and cultural criticism. Although ambivalent about the residual humanism of the novel genre, in terms of its dramas and plots, and senses of time and space, Clark (2015: 62–63) advocates reading simultaneously within multiple and contradictory frameworks, of the cultural *and* geological. For removed from its immediate contexts of production and reception, literature would make little sense in relation to the potentially incomprehensible (because scaled-up) and as yet unknown (because the Anthropocene is emergent) frameworks of the geological. The novel genre's significance perhaps then lies in its dislocation of the Anthropocene. Mark McGurl (2012: 533–553) might agree, describing this kind of terrestrializing hermeneutics as a dialectics of expansion and contraction. Rendering the Anthropocene culturally meaningful, this dialectical approach recognizes the ways that culture is simultaneously grounded and ungrounded by the geological: the remaindered, latent meaning, always anterior and posterior to moments of cultural production and reception (McGurl, 2011: 381). In their debates over the transnational and transtemporal capacities of American literature to reach back, intertextually, to the deep time of the planet (and, by implication, forward to its protensive futures), McGurl (2012, 2013) and Wai Chee Dimock (2013) register a variously qualified appreciation of genre fiction (especially science fiction) for its posthumanist representational potential. Of note is their mutual concern for the specificities of textual, medial, and cultural apprehensions of the Anthropocene (even if McGurl finds literature's representation more centripetal and Dimock more centrifugal in its reach). Such specification lends itself well to a memory studies for the Anthropocene and its much-needed focus on the terrestrialized significance of (the historicized) forms of remembrance but also on the positionality of who is remembering and, ultimately, which 'Anthropocene' is remembered. For how the 'Anthropocene' is constructed in cultural theory and practice, from its putative inception point (Bonneuil and Fressoz, 2016), and which social systems cause it and distribute and exacerbate its effects (Moore, 2015), to how those effects are recognized through (multi)species thinking (Alaimo, 2010, 2016; Haraway, 2016; Heise, 2016) and their uneven planetary distribution mapped by the critical geographical imaginaries of postcolonialism (DeLoughrey, 2014, 2015; DeLoughrey et al., 2015; Nixon, 2011), is a matter of memory.

Past's futures, future's pasts

Jennifer Wenzel

The Anthropocene demands new ways of thinking about time that make strange our understanding of pasts, presents, and futures. These temporal shifts destabilize the straightforward, secular assumption that pasts and presents have futures, that things just keep on going, that time and history keep unfolding, whether according to the certitudes of a progress narrative or the more flat expectation of one damn thing after another, both of which are accounted for within what Walter Benjamin (1999) called 'homogeneous, empty time', in which moments follow after each other like beads knotted on a string.

The implications of these temporal shifts for memory studies could be said to constellate around two interrelated concepts, *past's futures* and *future's pasts*, which I theorized in my first book, *Bulletproof: Afterlives of Anticolonial Prophecy in South Africa and Beyond* (Wenzel, 2009). My remarks below are organized around these two concepts and what they might mean for memory studies in the Anthropocene.

One way that history comes to be meaningful is when it is understood as the working out of 'past's futures': visions of the future imagined in the past, how people in the past imagined the future would be. Past's futures are entanglements of anticipation and retrospection: they are anticipatory visions in the past, viewed retrospectively in the present. In my work on postcolonial memory, past's futures are salient because of their difference and distance from the present; the past's *unrealized* visions of a liberated future serve as a utopian surplus and repository of aspirations for a disillusioned present.

The Anthropocene perspective asks us to consider a different sort of past's future: that which has been inscribed in carbon and other anthropogenic changes. In terms of climate change, this past's future is the not-yet fully realized effects upon the Earth's oceans and atmosphere of burning, in a few centuries, fuels that fossilized over millions of years. These changes yet-to-come will have been effected by carbon emitted long ago and, in many cases, far away from the sites of its eventual effects. These effects are expected to endure thousands of years into the future, as the harm the body of the planet remembers. This inexorable past's future seems to jeopardize, at least at the scale of human experience, the inexorability of futurity itself. (In other words, there is a sense of lost or stolen futures.) This reconfiguration of past and future posits modernity's progress narratives as confounded once and for all by a future utterly different from that which fossil fuels once promised. Our memories of the future will have turned out to have been all wrong, even as the Earth's atmosphere, hydrosphere, and lithosphere will remain inscribed as an archive of human projects and greenhouse gases that we are only recently learning to read. This predicament is a new kind of Benjaminian *Jetztzeit*, the 'now of a particular recognizability' that wrenches historical moments out of a smooth logic of succession (Benjamin, 1999: 463). Instead of every moment in time being pregnant with weak messianic potentiality, in an Anthropocene 'now of recognizability', every molecule on the planet is overfull with meaning, having become a medium for inscription in no-longer invisible ink. The problem is that such a palimpsestic planet, overwritten by the human, may be increasingly unsuited to life as we have known it.

One place for memory studies to intervene in these shifts is in the gap between the inadvertent and unwitting onset of the Anthropocene epoch (whether at the beginning of agriculture thousands of years ago, the late-eighteenth-century invention of the steam engine, or the Great Acceleration of the mid-twentieth century) and the recent explosion of discussion across the disciplines about this epochal shift, what I think of as the 'self-conscious Anthropocene'. This gap – whether it spans millennia, centuries, or decades – is the messy intersection between material processes of molecular change and our belated, now-emergent understanding of them. To grapple with the discrepancy between these two timelines is, in effect, to re-remember human history, modernity, and the past's futures it promised in a radically new way.

One of the insights of my first book is that prophecy is inseparable from memory, which is another way of saying that memory is always implicitly about futurity. Cli-fi, speculative fiction, and other climate change activism in the realm of the imaginary seem to be premised on offering 'memories of the future', drawing upon the prophetic mode in order to warn us, here and now, of how things will turn out to be, or to have been. The grammatical technology indispensable for this temporal imagining is the verb tense known as the future perfect or future anterior, which allows us to speak of 'what will have been'. *What will/have been* – notice how the syntax literally effects a shift, almost unnoticeable, from future to past, back to what has to have happened before the

future arrives. The future's past. As with the past's future, the future's past is most interesting when understood, imagined, and projected as something other than our present – in the case of the Anthropocene, that utopian future's past in which the worst effects of climate change will have been averted, Trump, Tillerson, and Pruitt be damned.

Outside of the context of memory studies, one of my concerns about Anthropocene discourse is that, given the current fascination with these big new shiny scary objects – the deep past and the deep future – more mundane questions of the present, of inequality, and of justice tend to fall through the cracks or be forgotten. I want to close my remarks by reframing this concern somewhat, in terms of the shapes of memory and futurity that are being imagined now, and the postcolonial politics of that temporal imagining. One unremarked aspect of the derangements of historical time at work in the Anthropocene is, I want to argue, a strange inversion of colonial-era developmentalist progress narratives in which Europe and the West were said to offer to the rest of the world an image of its own future. Instead, the future's pasts of the Anthropocene echo an inverse colonial fear: that an ominous Third World present offers an image of the First World's future. This emergent mode of Anthropocene futurity offers a dark future anterior, what we might think of as a *future inferior*, in which 'Third World problems' will have arrived in the First World. This apocalyptic inversion of progress narratives turns upside down the old imperial habit of Europeans denying the coevalness of the colonized, refusing to recognize that everyone inhabits the same moment in time. In the colonial era, European perceptions of people as 'backward', 'behind', or 'beneath' were invoked to justify conquest and civilizing projects. But while Europe's others were once seen as inhabiting a lesser past, now they are seen as inhabiting its projected future inferior. Temporality once again functions as a mode of othering, but the order has been reversed. Such imagining is ideological because it obscures the unevenness that shapes the past, present, and projected future of climate injustice, where the effects of carbon emissions by the industrial north will be felt disproportionately by those in the Global South. Instead, in these future's pasts, the consequences of carbon accumulation in the future are imagined to look a lot like being on the wrong end of capital accumulation in the present, with little acknowledgement of the shared but uneven history that joins them. *Like so much else, the future will be unevenly distributed*.

Species extinction, multidirectional eco-memory, and advocacy

Rosanne Kennedy

On initial reflection, the conceptual (not to mention practical) challenges posed by the notion of the Anthropocene – conceiving of pasts and futures on a temporal scale far beyond the reach of human history, the notion of the human as 'geological agent' that cannot know itself as such, the shift from the global to the planetary (Chakrabarty, 2014) – seem to dwarf the ambit and methods of the humanities. Memory studies is no exception here. In the past decade, while the concept of the Anthropocene was emerging, and its periodization and viability being debated by geophysicists, scientists, and historians, memory scholars were cultivating a transcultural research perspective, facilitated by new concepts such as 'cosmopolitan' (Levy and Sznaider, 2006), 'travelling' (Erll, 2011), 'global' (Assmann and Conrad, 2010), and 'multidirectional' memory (Rothberg, 2009). Despite increasing multi-scalarity, with scholars tracking memory practices, objects, and discourses across local, national, and transnational borders, the field has remained predominantly focused on human pasts and futures. While some critics have begun to cross-fertilize memory studies and environmental humanities (Buell, 2007; Goodbody, 2011), the field has yet to engage significantly with nonhuman species and the threat of mass extinction – only the sixth such event in the Earth's history, and a predicted effect and marker of the Anthropocene. I want to suggest that

the methods of memory studies can and should be used to analyse discourses and narratives of species extinction. It is important to acknowledge, however, that doing so paradoxically reinforces the human as a limit of memory studies, and is perhaps of most value for the insight it provides into when and why nonhuman species are valued by humans.

In a recent essay, 'After the future: Australia's new extinction crisis', Tim Flannery (2012), head of Australia's Climate Change Commission and an environmental scientist, seeks to educate the public about a 'new wave of extinctions' that threatens biodiversity in Australia, which has many unique animal and plant species. Mixing the genres of memoir, lamentation, and advocacy, he begins with the story of the 'entirely preventable extinction' of a bat, the Christmas Island Pipistrelle, an event he found 'almost unbearably painful' (Flannery, 2012: 20). He expresses his frustration with the government's refusal to implement strategies to save the bat (its policy is to protect habitat rather than individual species). His essay demonstrates the importance of storytelling as a means of articulating threats facing the planet and its inhabitants, engaging emotion, and spurring action. As Ursula Heise (2016: 5) observes, stories such as Flannery's 'frame our perception and relation to endangered nonhumans'. Such stories 'gain sociocultural traction to the extent that they become part of the stories that human communities tell about themselves: stories about their origins, their development, their identity, and their future horizons' (Heise, 2016: 5). Narratives about the place of nonhuman beings in human stories of origins, identity, and futures point to a possible opening for the methods of memory studies. Flannery's (2012: 9) narrative uses the memory of a past event – the extinction of the Pipistrelle – to imagine a future in which, unless some action is taken to halt extinctions, Australia's national parks will become 'marsupial ghost towns' and its unique natural heritage will be diminished. In representing a past event and its effects as a means to spur intervention in the present, Flannery engages in familiar strategies for deploying memory as a basis for advocacy.

Attitudes towards the treatment of nonhuman species inevitably raise issues of cultural norms. As Heise (2016: 5) contends, 'biodiversity, endangered species, and extinction are primarily cultural issues, questions of what we value and what stories we tell'. The issue of value, of what stories we tell and for what ends, also drives memory studies. As Astrid Erll (2011) has observed, memory studies has become 'cultural memory studies' – that is, it recognizes that all memory is mediated by genres, forms, metaphors, and other literary and visual languages. Memory critics, skilled in analysing the construction of norms, values, and meanings, are well equipped to explore the way stories of past extinctions and threats to species are used to intervene in the present and to imagine environmental futures.

The question of value is also a critical issue in debates about the anticipated implications of the Anthropocene for life on Earth. In a recent article, Dipesh Chakrabarty (2014: 15) identifies a 'moral rift' in discussions of the Anthropocene, which centres on the status of the human relative to nonhuman species. Climate scientists divide on the normative question of whether the environment should be valued for its own sake, irrespective of humans, or for its role in sustaining and enhancing human life (Chakrabarty 2014: 19). Flannery (2012: 10) raises a similar question, and the rhetoric of his response merits attention. Asked 'why … species extinction [should] concern us', he draws an analogy with human rights, arguing that with both it is 'a matter of values'. He elaborates, 'extinctions beg the question of where we draw the line … As with the question of torture, to open the door to the practice of extinction is to contemplate the horrific becoming routine' (Flannery, 2012: 10). Flannery's invocation of human rights is morally freighted, given the contentious status of human rights as a universal moral norm (Meister, 2011). Furthermore, his rhetorical comparison of humans as 'despoilers and executioners of the natural world' invokes an unspoken parallel with the human world of atrocities, and the figure of the executioner/perpetrator.

Climate scientist Walter Dodds (2008) notches up the rhetoric of guilt, invoking the metaphor of 'ecological holocaust' to describe the threat of extinction. These arguments deploy the familiar cultural logic of Holocaust memory, in which the Holocaust, assumed as an unparallelled symbol of 'universal evil' (Meister, 2011), serves in theory (if not in practice) as a moral imperative to foster action against atrocities in the present (Levy and Sznaider, 2006). The extension of this logic to the threat of species extinction demonstrates the way in which memory paradigms shape moral discourses and advocacy in the present. Such analogies also point to the continuing significance of Andreas Huyssen's (2003: 14) observation that Holocaust memory may energize the memory of other traumatic events, but at the risk of obscuring a nuanced understanding of 'specific local histories'. Holocaust memory has been a paradigm from which many concepts and methods in memory studies have been developed; consequently, cultural memory critics are well positioned to explore such rhetorics and analogies, and how they give meaning to nonhuman suffering and extinction. Given what has been called the 'moral bankruptcy' of the Holocaust paradigm, however, this rhetorical borrowing suggests the need for more inventive and compelling ways to conceive of human responsibility and accountability towards nonhuman beings with whom we share the planet.

A challenge, then, is how to use the resources of memory studies to push the field beyond its anthropocentric focus and to incorporate nonhuman species as objects, if not subjects, of memory. To this end, I suggest that memory critics could begin by extending their objects to include the memory of nonhuman species. Elsewhere, I have built on Michael Rothberg's (2009) productive concept of 'multidirectional memory' to introduce the concept of 'multidirectional eco-memory' (Kennedy, 2017). Memory need not be viewed as competitive in a zero-sum game, Rothberg argues. Rather, '[w]hen the productive, intercultural dynamic of multidirectional memory is explicitly claimed … it has the potential to create new forms of solidarity and new visions of justice' (Rothberg, 2009: 5). Multidirectional eco-memory, as I conceive it, would link human and nonhuman animals and their histories of harm, suffering and vulnerability in an expanded multispecies frame of remembrance. It could facilitate new visions of justice that hold humans responsible and accountable for our actions towards nonhuman species. I have illustrated the productivity of multidirectional eco-memory through a reading of Indigenous Australian author Kim Scott's (2010) novel *That Deadman Dance* (Kennedy, 2017). His novel imaginatively remembers, within the settler colonial framework of a narrative of first contact, the contribution of commercial whaling to the 'becoming precarious' of both Indigenous and whale populations. Inevitably, humans will be the agents and authors of memories and narratives featuring nonhuman species. Nonetheless, by developing a perspective that is attentive to the imbricated histories and pasts of human and nonhuman species, memory studies could become even more 'multidirectional'. While the concept of multidirectional eco-memory is inevitably anthropocentric, in that humans remain the animating agents of cultural memory, it at the very least encourages memory scholars to explore the entangled relations between human and nonhuman species in their struggle for survival, recognition, and justice.

The intensity of the archive

Claire Colebrook

At first glance, it would seem that the Anthropocene occurs as a difference in degree rather than a difference in kind with respect to the forms and range of memory. Rather than human history and the archive extending back, before mythic and oral cultures to the emergence of *homo sapiens*, one would need to take account of the formation of the Earth as a living system – and its capacity to

generate organic life forms – and then include an expectation in the alteration of that living system. To remember is never simply to retain and recall a past, but always to do so from the point of view of a present that anticipates a future. This is as true of personal memory as it is of institutional memory and disciplinary memory: to consider the earliest forms of molecular life and their organization requires some 'matter of concern' that will orient any inquiry into origins. To be able to say 'I' or 'we' is to be composed of an archive that, in turns, generates a horizon of the future. To be is to be dispersed through time, but not in a sequence of 'a' past being held over into the future but as a series of possible pasts of various amplitudes. If the past can be dilated to include, say, the Holocene-era composition of the planet and the enabling of an increasingly world-altering humanity, then the future of this expanded planetary memory would be one in which humanity would either continue to act as a geological agent (geo-engineering) or in which humanity might think beyond itself to a life of which it is only a contingent organic part. To think about the Anthropocene is to acknowledge both a human-caused reconfiguration of the planet (by way of an industrial, nuclear, colonizing, and plundering past) and dramatically expanded futures. It would seem then that the Anthropocene is an expansion or dilation of memory taking us beyond those forms of inscription authored by humans, and events intended by humans, and towards a 'memory' where we will have been an agent in an epochal shift that we only recognized after the event.

One of the main claims of deconstruction concerning archival inscription is that forms of explicitly external memory, such as writing, do *not* create a break or rupture with 'natural' human memory *nor* with inscription in general. Rather, something akin to writing – a system of dispersed traces that maintains itself through time, going through decay, ignoring other differences – is what makes the flow of conscious time and memory possible. To speak and maintain an oral culture, to gesture, or even to live a solitary existence that flows from one moment to the next is to see this now as a continuation of a past that flows into the future. What is perhaps a more contested reading of deconstruction is whether inscription goes beyond organic life and experience. Is inscription what makes life possible? Is the being of a stone, spider's web, building, crystal, or plant also an ongoing retention of traces and marks that unfold into a future? (Sometimes Jacques Derrida's deconstruction would seem to confine tracing or memory to animal life, including humans, while sometimes it would seem to operate in technical objects, such as the machines and books that are repeated and evolve around us; and sometimes, as in the work of Gilles Deleuze, inscription and memory would include all modes of formation and composition – including the emergence of matter into some type of physical form.) The physical archive of books, buildings, drawings, photographs, and so on (the technosphere) is not a radical alienation of a memory that might otherwise have proceeded without techne; what has come to be known as mind – the capacity to live the present and be present to oneself – is possible because of inscriptive processes that one might think of (after Derrida) as neuronal traces that in turn emerge from molecular traces that in turn emerge from the formation of matters. One might refer to all this as inscription and memory simply insofar as whatever counts as the now is not only composed from the multiple and contingent events of the past but also harbours unactualized futures. One might look back now and see how 'we' might have had (once) another future. In that respect, the inscriptive event of the Anthropocene is an *extension* of the archive, where one adds to the readability of books and other texts, the stratifications of the Earth. It would not be too radical to claim that at the level of geology, the Earth has a memory. If one refers to muscle memory, battery memory, hard drive memory, and so on, this is because memory in general denotes a marking or tracing from the past into the present. Rather than say that we are using a metaphor to transfer the notion of memory to non-conscious beings, one might say that consciousness *as memory* is a sub-set of a temporality that is nothing more than tracing and marking. In this respect, we simply include the Earth's stratifications within a broader milieu of inscription.

What I would suggest, against this notion of general memory, is that there *are* differences of kind that emerge from differences of degree when it comes to inscription.

Perhaps one of the hallmark gestures of posthumanism is the erosion of human exceptionalism; there is no privileged faculty or capacity – language, culture, morality, empathy, or even reason – that would enable an essential rather than species-based humanism. Or, more accurately, to think in a truly essential manner, one would need to abandon the lazy generality of 'humanity', and think both of the highly distinct social, cultural, historical, and political formations that compose what has counted as 'the human', *and* within those differentiating wholes of the singular differences that compose each individual. This posthuman gesture would seem to be both weakened and strengthened by the advent of the Anthropocene, and especially by way of memory. If humans are exceptional, now, in their geological impact, it is an exception or break that occurs by way of the intensity of inscription, and at the level of the Earth as a living system. All living beings make alterations to their milieu, and all evolve in response to such alterations; this, supposedly, constitutes the autopoesis of living systems. Here, we are still talking about general inscription and general memory. To be a living being is to have an associated milieu that at once transforms and is transformed by organisms. The human would be an expression of a broader whole of evolving life that harboured a memory: a living being does not simply evolve and adapt in response to an environment, but becomes what it is in relation to a milieu of other responses and adaptations. What emerges is not simply an outcome or effect of statistical variation but also tendencies and potentialities that enable (and disable) futures. If humans evolve to write and speak in response to transformations in their body and the social body, that inscriptive system in turn would open other lines of evolution (ranging from the breeding of domestic animals to the extinction of crucial elements of a barely discerned ecosystem). Every body and its milieu is not only the outcome a millennia of events but also a horizon of expectation and possibility. To think of human culture as an *extension* of living memory would allow events such as the Anthropocene to broaden and weaken what would be possible for the future; we would at once, like all life, be expressions of a history we can only partially comprehend, while at the same time be increasingly empowered regarding what we might be able to do. From Naomi Klein's (2014) *This Changes Everything* (which posits climate change as an opportunity for a global 'we' to oppose capitalism) to conceptions of the 'good anthropocene' (Bennett et al., 2016), our relation to life would be enhanced by our reading of the past.

By contrast, to think of the archive *intensively* would be to note that at a certain threshold, the techniques of memory that emerge to extend life would deaden life, creating a counter-life. The technosphere generates an unconscious memory, not a memory that lies hidden only to be disclosed over time with an expansion of scale, but a 'memory' that detaches itself to form another life or counter-life: all the books, texts, digital archives, buildings, and systems that appear to support human memory surpass, overwhelm, and eventually destroy what has been referred to as living memory. The Anthropocene confirms the notion of the unconscious as another place – not some deep layer of the mind, but a whole system of enabling traces that is at once preserver and destroyer. This is not to say that writing in the broadest sense is a solely human concern, but rather to say that what has come to know itself as the human, and recognizes itself in the Anthropocene, is the effect of a distinct speed of inscription.

What was once thought to be a specifically human problem – with humans being the only living beings whose very interiority relies upon an archive – *does* mark other forms of life. A beehive or ant colony demonstrates a distributed 'reason' that is not held in the intentionality of any single living being. One might also say that animals have life-worlds, where every domesticated canine or feline takes its place in decades of practices, products, and technologies that train, pamper, and regulate living being. Do these forms of retention and inscription – memory – count as an unconscious simply because they precede and exceed living intentionality or mind? It is possible that

they do, but something more radical and demonic was put forward by the notion of the Freudian unconscious: a mode of memory that was destructive rather than retentive. The Freudian logic that set the human apart was anything but human. If, following thermodynamics, energy systems dissipate and return to a state of quiescence, then one might follow Freud and say that the aim of all life is death, and that the organism wants to die, but to die in its own way. The organism *is* memory, or a management and maintenance through time of what it is. To return to itself – to die – might happen by way of two forms of memory. The first would be a relative sameness through time that gradually finds its own end or resolution. The second is by way of a seemingly demonic 'principle' *older than lived or living memory* – a 'dream' of zero, non-being, or a plenitude so absolute that there is nothing other than itself.

I would suggest that the Anthropocene might be considered in terms of these two economies of memory. The cultural dominant is one of humanity memorializing and mastering its own death, both in the ways humans are beginning to narrate the end of their own being (in post-apocalyptic culture) and in policy, with attempts to sustain, geo-engineer, manage, or revolutionize 'our' future. All those strategies, however, draw upon an archive, a life-world, and a 'humanity' that *is* memory (for we save ourselves because we are attached to who we have been). The condition for 'humanity' is the Anthropocene unconscious: all those stratifications, technologies, and forces that are radically alien to a certain type of (preserving) memory.

One of the classic motifs of post-apocalyptic culture, or depictions of the 'end of the world', is that humans exist but have no world. From Cormac McCarthy's (2006) *The Road* (where there are no books, no institutions, no monuments, no social fabric, but only a few remaining tins of food) to Emily St John Mandel's (2014) *Station Eleven*, where a travelling group continues to perform Shakespeare and is oddly haunted by a graphic novel composed prior to the viral apocalypse, to end the world would be to annihilate the archive that composes this rather distinct, singular, entitled, and self-universalizing 'we'. A more explicit version of this motif is apparent in the remit of the Future of Humanity Institute at Oxford University, and the accompanying work of Nick Bostrom (2014), where saving intelligence and technological maturity counts as the future worth fighting for. To imagine some other form of life is to imagine the end of the world. And yet this world 'we' wish to save, this world of a memory in which each person is individuated by a reading of the past that opens a future about which they care because 'we' are invested (Stiegler, 2010), is possible only because of an energy economy. The only way there is a 'we' to save – in the sense of *Anthropos* – by way of an archival memory that is demonic and inhuman; it both requires unsustainable extractions of the planet's energy *and* erases any other conception of a life worth living. If there were no fantasmatic 'humanity', if there were no humanity that is what it is by way of an archive that fetishizes a world of private reading, personhood, entitlement, and hyper-consumption, there would be no Anthropocene, and no Anthropos whose self-memorializing life would appear as a prima facie good.

Anthropocene, archives, 'environment'

Vin Nardizzi

On 8 January 2016, Colin N. Waters and 23 co-authors published an article in *Science* called 'The Anthropocene is functionally and stratigraphically distinct from the Holocene'. The authors propose that 'These novel stratigraphic signatures support the formalization of the Anthropocene at the epoch level, with a lower boundary (still to be formally identified) suitably placed in the mid-20th century' (Waters et al., 2016: 137). The 'lower boundary', which demarcates the start of a new stage on the geologic scale, causes the scientists hesitation, so much so that later in the article, they

employ to the same effect another such parenthetical statement (Waters et al., 2016: 138). Nearly a year after this article's publication, there still is no formalized lower boundary. An announcement in August 2016 from the Working Group on the Anthropocene suggests that it may take three more years for 'the mid-20th century' to be ratified as the lower boundary. We also are told in this announcement that this is not a long time to wait (Carrington, 2016).

For the duration of this response, which is a mere fraction of the time that we shall wait, I propose to linger in the span of the parenthesis. As is the case in the *Science* article, the parenthesis can serve as an index of scholarly rigour and qualify a thought. It also enables us to hold two thoughts at once, to articulate and to insert into our writing asides, side-thoughts, afterthoughts, and adjacent narratives. I comprehend its appearance in the *Science* article as an invitation to elaborate narratives about alternate Anthropocenes that will probably never be formalized by the scientific community. In doing so, I follow the lead of Dana Luciano (2015) and Steve Mentz (2015), environmental humanists who have written excellent online essays about an article featured in the 12 March 2015 issue of the journal *Nature*. In it, the scientists Simon L. Lewis and Mark A. Maslin place '1610 as the beginning of the Anthropocene' because, in part, it represents the lowest point 'in pre-industrial atmospheric CO_2 records over the past 2,000 years' (2015: 175). I share Mentz's (2015) reaction to the proposal for designating 1610 as a possible Global Boundary Stratotype Section and Point (GSSP) marker: he says, it 'catches this Shakespeare professor's eye'.

Anthropocene narratives are archival narratives. As Tobias Boes and Kate Marshall (2014: 64) observe, this epoch 'is … something that is actively shaped and created through acts of human inscription: through topographical alterations, changes in the geologic and climatological records of our planet, and so on'. Jesse Oak Taylor (2014: 76) describes 'ice cores' as 'literally an atmospheric archive, in that they consist of the actual material stuff that was suspended in the atmosphere and is now impacted in the ice', and Jeffrey Jerome Cohen (2015: 11) writes that stone is 'a communication device that carries into distant futures the archive of a past otherwise lost'. For Taylor and Cohen, the information stored in such archives is not the exclusive product and property of *homo sapiens*. Instead, it is better to think of ice and rock layers as inhuman archives that *may* record human entanglement with nonhumans and technologies that have terraformed Earth (Woods, 2014).

In exploring a '1610-Anthropocene', I turn to an archive that may also record such entanglement: the printed word. Several databases, including the online *Oxford English Dictionary* (*OED*), house and make available the 'acts of human inscription' and 'communication device[s]' that I study. If, as literary scholars and environmental historians of early modern England have argued, the long seventeenth century is a critical moment in the histories of ecological degradation, activism, and thought (Boehrer, 2013; Borlik, 2011; Hiltner, 2011; Watson, 2006), then I propose that words circulating in English print culture might have captured and so fossilized this environmental change. More contemporary examples of this phenomenon include the term 'Anthropocene' (Boes and Marshall, 2014: 62) and Jussi Parikka's (2014) 'Anthrobscene', a concept that reminds me that the devices and platforms I employ to complete this project are strongly implicated in environmental degradation.

I call this project an 'enviro-philology', and in it I am interested in a set of keywords that, so far as I can tell from the evidence, are newly invigorated terms or are neologisms for describing ecomatters in the seventeenth century. I am guided by Jeffrey Masten's new book *Queer Philologies*, especially his observations on 'etymology':

> Not only a backward-looking *history*, etymology as a practice looks forward to remind us that words that seem identical and familiar to modern eyes and tongues we might better see as false cognates … words that only *pass* as 'the same' as ours, words that, when pressed, release whole new contexts, while also holding within themselves the genealogical seeds of their eventual direction. (2016: 77–78)

At the 2017 MLA Annual Convention, I also presented a paper on one such newly invigorated word: the adjective 'vast', which is a sixteenth-century term for emptiness that comes to mean fullness by the end of the seventeenth century. Here, I share a brief account of a seventeenth-century neologism whose protection, in the era of Trump, is ever more urgent. This word is 'environment'.

According to the online *OED* (2017), the noun 'environment' first entered English print in 1603 in Philemon Holland's translation of Plutarch's *Morals*. Now obsolete in this sense, 'environment' used to mean 'The action of circumnavigating, encompassing, or surrounding something; the state of being encompassed or surrounded' (*OED*, 2017). The entry is suggestive: what would it mean if this powerful keyword for twentieth- and twenty-first-century social justice movements, science policy, humanities research, and art practice has roots in colonial and early global discourses? By its very definition, environmentalism would prove what the historian Richard H Grove (1995) names 'green imperialism'.

But the *OED* entry for 'environment' tells only a partial story. The fuller story is weirder, especially when we consider its place in the translation of Plutarch's text. The novel noun appears in a section called 'Natvrall questions', and specifically as part of a response to the query '*Why doth the Polyp change his colour?*' (Plutarch, 1603: 1009). In the answer to this question about a creature we would today call an octopus, we learn that 'a good probable conjecture of the change' is the fact that the polyp is 'a fearfull and timorous creature by nature; and therefore when he is troubled or amazed as his spirit turneth, so he altereth withall his colour, even as we men do' (Plutarch, 1603: 1009). Plutarch is not entirely convinced by this explanation and is suspicious of its anthropomorphic logic: sure, fear is what makes the polyp change colour, but is it 'the principal point of the cause' for why it blends into its surroundings (1603: 1009)? Plutarch then outlines a theory in which particulate matter falls off one entity – specifically, 'rocks and stones' (1603: 1009) – and sticks to the surface of another. Such transfer may enable, among other things, the polyp's 'circumplexions and environments', both of which seem opaque to the translator: Holland's Plutarch says of them, 'I wot not what' (1603: 1009). According to the online *OED* (2016), 'circumplexion' is a 'winding about, encompassing', and, since the verb 'environ' is a quasi-technical term in the period for a siege (Nardizzi, 2017), the phrase 'circumplexions and environments' could conjure a military encounter. I hazard that Holland's Plutarch is trying to imagine the polyp's attack or even its retaliation against another creature that may have frightened it. As if it were a rock on the ocean's floor, the polyp would emerge to strangle a predator-turned-prey or just its prey.

In closing the parenthesis of my remarks on a '1610-Anthropocene', I call for further philological attention to the proliferating nomenclatures that we use to describe environmental conditions, past, present, and future. Embedded in an archive of words, obsolete meanings and false cognates can be productively activated; they can help us see, for instance, that some tentacular kin of chthulu has always been at the centre of inhuman environmental thought.

Note

1. One of the participants, Claire Colebrook, was unable to deliver her prepared remarks and take part in the discussion due to unforeseen circumstances; however, her paper is included here as intended. The executive committee of the MLA Memory Studies forum was made up of Stef Craps, John Garrison, Marianne Hirsch, Kyle Pivetti, and Debarati Sanyal. The authors would like to thank River Ramuglia for his editorial assistance.

References

Alaimo S (2010) *Bodily Natures: Science, Environment, and the Material Self*. Bloomington, IN: Indiana University Press.

Alaimo S (2016) *Environmental Politics and Pleasures in Posthuman Times*. Minneapolis, MN: University of Minnesota Press.

Assmann A and Conrad S (eds) (2010) *Memory in a Global Age: Discourses, Practices and Trajectories*. Houndmills: Palgrave Macmillan.

Benjamin W (1999) *The Arcades Project* (trans. H S Eiland and K McLaughlin). Cambridge, MA: Harvard University Press.

Bennett EM, Solan M, Biggs R, et al. (2016) Bright spots: Seeds of a good Anthropocene. *Frontiers in Ecology and the Environment* 14(8): 441–448.

Boehrer B (2013) *Environmental Degradation in Jacobean Drama*. Cambridge: Cambridge University Press.

Boes T and Marshall K (2014) Writing the Anthropocene: An introduction. *Minnesota Review* 83: 60–72.

Bond L and Rapson J (eds) (2014) *The Transcultural Turn: Interrogating Memory between and beyond Borders*. Berlin: De Gruyter.

Bond L, De Bruyn B and Rapson J (eds) (2017) *Planetary Memory in Contemporary American Fiction*. *Textual Practice* (Special issue) 31(5).

Bonneuil C and Fressoz J-B (2016) *The Shock of the Anthropocene: The Earth, History and Us* (trans. D Fernbach). London: Verso.

Borlik T A (2011) *Ecocriticism and Early Modern English Literature: Green Pastures*. New York: Routledge.

Bostrom N (2014) *Superintelligence: Paths, Dangers, Strategies*. Oxford: Oxford University Press.

Buell L (2007) Environmental memory and planetary survival (Public lecture, University of California, Santa Barbara), 15 November. Available at: http://www.uctv.tv/shows/Environmental-Memory-and-Planetary-Survival-15032 (accessed 6 May 2017).

Carrington D (2016) The Anthropocene epoch: Scientists declare dawn of human-influenced age. *The Guardian*, 29 August. Available at: https://www.theguardian.com/environment/2016/aug/29/declare-anthropocene-epoch-experts-urge-geological-congress-human-impact-earth (accessed 5 March 2017).

Chakrabarty D (2009) The climate of history: Four theses. *Critical Inquiry* 35(1): 197–222.

Chakrabarty D (2014) Climate and capital: On conjoined histories. *Critical Inquiry* 41(1): 1–23.

Clark T (2012) Derangements of scale. In: Cohen T (ed.) *Telemorphosis: Theory in the Era of Climate Change*, vol. 1. Ann Arbor, MI: Open Humanities Press, pp. 147–162.

Clark T (2015) *Ecocriticism on the Edge: The Anthropocene as a Threshold Concept*. London: Bloomsbury.

Cohen JJ (2015) *Stone: An Ecology of the Inhuman*. Minneapolis, MN: University of Minnesota Press.

Cohen T (2012) Introduction: murmurations – climate change and the defacement of theory. In: Cohen T (ed.) *Telemorphosis: Theory in the Era of Climate Change*, vol. 1. Ann Arbor, MI: Open Humanities Press, pp. 13–42.

Craps S (2013) *Postcolonial Witnessing: Trauma Out of Bounds*. Houndmills: Palgrave Macmillan.

Crownshaw R (ed.) (2011) *Transcultural Memory*. *Parallax* (Special issue) 17(4).

Crownshaw R (2015) Memory and the Anthropocene. *Critical Encylopedia of Testimony and Memory*, 24 April. Available at: http://memories-testimony.com/en/notice/memory-and-the-anthropocene/ (accessed 7 May 2017).

Crownshaw R (2017a) Cultural memory studies in the epoch of the Anthropocene. In: Bond L, Craps S and Vermeulen P (eds) *Memory Unbound: Tracing the Dynamics of Memory Studies*. New York: Berghahn, pp. 242–257.

Crownshaw R (2017b) Climate change fiction and the future of memory. *Resilience: A Journal of the Environmental Humanities* 4(2-3): 127–146.

Crutzen PJ and Stoermer EF (2000) The 'Anthropocene'. *IGBP Newsletter* 41: 17–18.

Davies J (2016) *The Birth of the Anthropocene*. Oakland, CA: University of California Press.

De Cesari C and Rigney A (eds) (2014) *Transnational Memory: Circulation, Articulation, Scales*. Berlin: De Gruyter.

DeLoughrey E (2014) Postcolonialism. In: Garrard G (ed.) *The Oxford Companion to Ecocriticism*. Oxford: Oxford University Press, pp. 320–340.

DeLoughrey E (2015) Ordinary futures: Interspecies worldings in the Anthropocene. In: DeLoughrey E, Didur J and Carrigan A (eds) *Global Ecologies and the Environmental Humanities: Postcolonial Approaches*. London: Routledge, pp. 363–372.

DeLoughrey E, Didur J and Carrigan A (eds) (2015) *Global Ecologies and the Environmental Humanities: Postcolonial Approaches*. London; New York: Routledge.

Dimock W C (2013) Critical response I: low epic. *Critical Inquiry* 39(3): 614–631.

Dodds W (2008) *Humanity's Footprint: Momentum, Impact, and Our Global Environment*. New York: Columbia University Press.

Driscoll K and Knittel SC (eds) (2017) *Memory after Humanism*. *Parallax* (Special issue) 23(4).

Erll A (2011) Travelling memory. Crownshaw R (ed.) *Transcultural Memory*. *Parallax* (Special issue) 17(4): 4–18.

Flannery T (2012) After the future: Australia's new extinction crisis. *Quarterly Essay* 48: 1–80.

Goodbody A (2011) Sense of place and lieu de mémoire: A cultural memory approach to environmental texts. In: Goodbody A and Rigby K (eds) *Ecocritical Theory: New European Approaches*. Charlottesville, VA: University of Virginia Press, pp. 55–67.

Groes S (ed.) (2016) *Memory in the Twenty-First Century: New Critical Perspectives from the Arts, Humanities, and Sciences*. Houndmills: Palgrave Macmillan.

Grove R H (1995) *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860*. Cambridge: Cambridge University Press.

Grusin R (ed.) (2015) *The Nonhuman Turn*. Minneapolis, MN: University of Minnesota Press.

Halbwachs M (1925) *Les cadres sociaux de la mémoire*. Paris: F. Alcan.

Haraway DJ (2016) *Staying with the Trouble: Making Kin in the Chthulucene*. Durham, NC: Duke University Press.

Heise U (2016) *Imagining Extinction: The Cultural Meanings of Endangered Species*. Chicago, IL: University of Chicago Press.

Hiltner K (2011) *What Else Is Pastoral? Renaissance Literature and the Environment*. Ithaca, NY: Cornell University Press.

Huyssen A (2003) *Present Pasts: Urban Palimpsests and the Politics of Memory*. Stanford, CA: Stanford University Press.

Kennedy R (2017) Multidirectional eco-memory in an era of extinction: Colonial whaling and indigenous dispossession in Kim Scott's That Deadman Dance. In: Heise U K, Christensen J and Niemann M (eds) *The Routledge Companion to the Environmental Humanities*. London: Routledge, pp. 268–277.

Klein N (2014) *This Changes Everything: Capitalism vs. the Climate*. New York: Simon & Schuster.

LeMenager S (2014) *Living Oil: Petroleum Culture in the Ameriacn Country*. Oxford: Oxford University Press.

Levy D and Sznaider N (2006) *The Holocaust and Memory in the Global Age* (trans. A Oksiloff). Philadelphia, PA: Temple University Press.

Lewis SL and Maslin MS (2015) Defining the Anthropocene. *Nature* 519: 171–180.

Luciano D (2015) The inhuman Anthropocene. *Avidly: A Channel of the Los Angeles Review of Books*, 22 March. Available at: http://avidly.lareviewofbooks.org/2015/03/22/the-inhuman-anthropocene (accessed 7 May 2017).

McCarthy C (2006) *The Road*. New York: Knopf.

McGurl M (2011) The new cultural geology. *Twentieth Century Literature* 57(3–4): 380–390.

McGurl M (2012) The posthuman comedy. *Critical Inquiry* 38(3): 533–553.

McGurl M (2013) Critical response II: 'Neither indeed could I forebear smiling at my self' – A reply to Wai Chee Dimock. *Critical Inquiry* 39(3): 632–638.

Malm A (2016) *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming*. London: Verso.

Masten J (2016) *Queer Philologies: Sex, Language, and Affect in Shakespeare's Time*. Philadelphia, PA: University of Pennsylvania Press.

Meister R (2011) *After Evil: A Politics of Human Rights*. New York: Columbia University Press.

Mentz S (2015) Enter Anthropocene, c. 1610. *Glasgow Review of Books*, 27 September. Available at: https://glasgowreviewofbooks.com/2015/09/27/enter-anthropocene-c-1610 (accessed 7 May 2017).

Moore J (2015) *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. London: Verso.
Nardizzi V (2017) Environ. In: Cohen J J and Duckert L (eds) *Veer Ecology: An Ecotheory Companion*. Minneapolis, MN: University of Minnesota Press.
Nixon R (2011) *Slow Violence and the Environmentalism of the Poor*. Cambridge, MA: Harvard University Press.
Nora P (ed.) (1984–1992) *Lieux de mémoire*, vols 1–7. Paris: Gallimard.
Oxford English Dictionary (OED) (2016) circumplect, v. Available at: http://www.oed.com/view/Entry/33333 (accessed 7 May 2017).
Oxford English Dictionary (OED) (2017) environment, n. Available at: http://www.oed.com/view/Entry/63089 (accessed 7 May 2017).
Parikka J (2014) *The Anthrobscene*. Minneapolis, MN: University of Minnesota Press.
Plutarch (1603) *The Philosophie, Commonlie Called, the Morals* (trans. P Holland). London: Arnold Hatfield.
Radstone S (2005) Reconceiving binaries: The limits of memory. *History Workshop Journal* 59(1): 134–150.
Rothberg M (2009) *Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization*. Stanford, CA: Stanford University Press.
Rothberg M (2013) Beyond Tancred and Clorinda: Trauma studies for implicated subjects. In: Buelens G, Durrant S and Eaglestone R (eds) *The Future of Trauma Theory: Contemporary Literary Criticism*. London: Routledge, pp. xi–xvii.
Scott K (2010) *That Deadman Dance*. Sydney: Picador.
St John Mandel E (2014) *Station Eleven*. New York: Knopf.
Stiegler B (2010) *Taking Care of Youth and the Generations* (trans. S Barker). Stanford, CA: Stanford University Press.
Taylor JO (2014) Auras and ice cores: Atmospheric archives and the Anthropocene. *Minnesota Review* 83: 73–82.
Tsing AL (2015) A feminist approach to the Anthropocene: Earth stalked by man (Public lecture, Barnard Center for Research on Women, Barnard College), 10 November. Available at: http://bcrw.barnard.edu/videos/anna-lowenhaupt-tsing-a-feminist-approach-to-the-anthropocene-earth-stalked-by-man/ (accessed 5 May 2017).
Waters CN, Zalasiewicz J, Summerhayes C, et al. (2016) The Anthropocene is functionally and stratigraphically distinct from the Holocene. *Science* 351: 137–147.
Watson R N (2006) *Back to Nature: The Green and the Real in the Late Renaissance*. Philadelphia, PA: University of Pennsylvania Press.
Wenzel J (2009) *Bulletproof: Afterlives of Anticolonial Prophecy in South Africa and Beyond*. Chicago, IL: University of Chicago Press; Scotsville: University of KwaZulu-Natal Press.
Woods D (2014) Scale critique for the Anthropocene. *Minnesota Review* 83: 133–142.

Author biographies

Stef Craps is an associate professor of English literature at Ghent University, where he directs the Cultural Memory Studies Initiative. His latest books are *Postcolonial Witnessing: Trauma Out of Bounds* (Palgrave Macmillan, 2013) and *Memory Unbound: Tracing the Dynamics of Memory Studies* (Berghahn, 2017), which he co-edited. He is currently guest-editing a special issue of *Studies in the Novel* on climate change fiction.

Rick Crownshaw lectures at Goldsmiths, University of London. He is the author of *The Afterlife of Holocaust Memory in Contemporary Literature and Culture* (Palgrave Macmillan, 2010), the editor of *Transcultural Memory* (Routledge, 2014), and a co-editor of *The Future of Memory* (Berghahn, 2010). He is currently working on a monograph, *Remembering the Anthropocene in Contemporary American Fiction*, and co-editing a special edition of *Studies in the Novel* on climate change fiction.

Jennifer Wenzel is an associate professor in the Department of English and Comparative Literature and the Department of Middle Eastern, South Asian, and African Studies at Columbia University. She is the author of *Bulletproof: Afterlives of Anticolonial Prophecy in South Africa and Beyond* (Chicago and KwaZulu-Natal,

2009) and co-editor (with Imre Szeman and Patricia Yaeger) of *Fueling Culture: 101 Words for Energy and Environment* (Fordham, 2017).

Rosanne Kennedy is an associate professor of Literature and Gender, Sexuality, and Culture at the Australian National University. She has recently edited, with Maria Nugent, a special issue of *Australian Humanities Review* on 'Scales of Memory' (2016) and, with Susannah Radstone, a special issue of *Memory Studies* on 'Memory Studies in Australia' (2013). She is currently working on a book titled *Moving Testimony: Art, Advocacy and Transnational Publics*.

Claire Colebrook is Edwin Erle Sparks professor of English at Penn State University. She has written books and articles on contemporary European philosophy, literary theory, queer theory, gender studies, literary history, and visual culture. She is also editor, with Tom Cohen, of the Critical Climate Change series for Open Humanities Press.

Vin Nardizzi is an associate professor of English at the University of British Columbia. His research areas are environmental literary history and Renaissance literature. He published *Wooden Os: Shakespeare's Theatres and England's Trees* (University of Toronto Press) in 2013. He is also part of the research collective called 'Oecologies: Inhabiting Premodern Worlds'.