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Title

Deep Time and Secular Time: A Critique of the Environmental ‘Long View’ⁱ

Keywords

Anthropocene, Deep Time, Climate Change, Secularism, Future, Arendt, Taylor, Benjamin, Geological Turn, New Materialism

Abstract

The Anthropocene concept allows human history to be imagined within the temporal framework of planetary processes. Accordingly some environmentalists increasingly favour lengthening the temporal horizons of concern beyond those of ‘normal’ moral deliberation. Whilst there are defensible reasons for doing so, I wish to take issue with the “secular time” perspective underlying some such approaches. To make my case, I present, in the first section, two recent manifestations of the long view perspective: a) ‘deep future’ narratives in popular climate science and futurism; b) the ideas behind the Long Now Foundation. In the second section, I apply a critical lens to these perspectives via classic analyses of secular time by Charles Taylor, Hannah Arendt and Giorgio Agamben. I conclude by suggesting that these post-secular critiques should be considered alongside recent approaches to the Anthropocene and the ‘geological turn’ from new materialist perspectives.

Introduction: What time are we in?

The call for a “geological turn” in the humanities (Yusoff 2013; Ellsworth and Kruse 2013) has been described as the need to rethink the time of human life. For those who accept that we are living in the Anthropocene epoch, human life must be thought within the geological processes of vast temporal stretches that both predate, and will outlive, human existence. Human life occurs within the ‘epic narrative’ of far futures. Epic, borrowing from the literary field, indicates a narrative in which ‘the human’ encounters or does battle with “alien orders of magnitude” (Dimock 2013:617). This presents a number of obvious difficulties of representation for literary theoryⁱⁱ, but the implications for ethical

environmental discourse - particularly consequentialist traditions, premised upon assessing the effects of our actions upon others, present and future – have yet to be spelled out. How does one theorise the historical, ethical subject of the epic geo-narrative (with her differentiated experiences of suffering and oppression)? How do we live well in deep time?

An important confluence of feminist, new materialist and post-humanist thought is providing responses to this question. Such thinkers adopt temporal models that merge human time with the materiality of geological processes, with the explicit intention of undermining the anthropocentrism, sociocentrism and human exceptionalism at the heart of environmental thought (Connolly 2017). For instance, Joanna Zylinska suggests that any credible ethics of the Anthropocene would have to view human and nonhuman life as “dynamic relations between entities across various scales” (Zylinska 2014: 20). Relatedly, and drawing on the influential work of Jane Bennett (2010), Katherine Yusoff (2013) and Elizabeth Grosz (2005) suggest that ethical discourse concerning humanity’s part in the history of climate change, must account for the indebtedness and responsibility of human life to its “inhuman” and also “non-vital” forces of the earth. There are even attempts to see Anthropocene discourse as unlocking the potential for radically transformative conceptions of history and historical action itself. We might consider Manuel De Landa’s (1997) ambitious project of mapping ‘geological time’ of human and inhuman forces side by side as a key example.

These are innovative explorations of an ethics of deep time which I will return to in the final section. However, the main focus of my paper is to provide a theoretical critique of the flipside of this new planetary awareness: a more popular (and perhaps more influential) version of the turn to deep time in environmental thought. These, which I am giving the term the ‘long view’, serve to reinforce, rather than problematize, the modernist and anthropocentrist perspective. I offer two examples below: “deep future” narratives in popular science and futurology; and the thinking behind the Long Now Foundation. Both claim to be responding to the political dangers of short-termism and presentism. That is, they implicitly protest against the collapsing of a sense of history in the postmodern era, its flattening of the historical forces of modernity to that of immediacy and simultaneity. The long view thus claims to re-temporalize environmental and political consciousness by fostering care for the further future. The long view endorses a concept of time which continues the powerful legacies of

secular modernity in environmental thinking. The basis of my critique thus lies in the temporal model, or time image, which underlies them. By returning to some of the now classic critiques of secular time, I will be referring, following Charles Taylor and Benedict Anderson (both borrowing from Walter Benjamin), to that specifically modern social imaginary, the belief in history as a “horizontal” continuum that stretches indefinitely into the future. In Taylor’s analysis this is specifically contrasted with the theological structure of ‘vertical’ time in Christian eschatological belief. In the final section I will suggest how a critique of secular time, and the use of insights borrowed from theological temporality (via Hannah Arendt and Giorgio Agamben), can combine with the new materialist and feminist approaches to deep time just mentioned, to more adequately respond to the challenges of the Anthropocene.

The long view

My first step is to outline briefly some of the ways in which a long view has been prefigured in environmental ethics of the global north. Peter Timmerman has claimed that the biggest challenge to environmentalists over the past decade has been radically revising its narrative constructions of the future. With reference to time-sensitive issues such as the disposal of nuclear waste, the main challenge has been a shift to longer timescales – in particular the concept of “slow emergency”. The normative claim of slowness on the activist imagination is uncertain, because it replaces the rhetorical force of imminent danger and political urgency: “the darkening of the long term prospect over the last few years has, I think, led in large part to the loss of faith in the environmental narrative that worked for almost half a century. There is a process of mourning for the loss of that narrative, intertwined with a prospective mourning for losses to come” (Timmerman 2011). Arguably this question has dogged environmentalists since the very beginnings of earth systems analysis. Take the now infamous Limits to Growth report published in 1972. As Michelle Bastian has argued, a central premise of that report was that disastrous cultural assumptions about continued economic growth and consumption were reliant upon a certain conceptualisation of time. It was hoped that these conceptualisations could be transformed via “re-storying” future narratives (Bastian 2015: 10) in order to develop longer-term perspectives.

Nevertheless, climate change ethics has conspicuously struggled to respond to this challenge, reflecting the twin problems of temporal dispersion and extreme deferral of impacts. In other words, the fact that whilst some of the effects of our actions can be calculated to affect near future generations, other effects might be incalculably long-term, or in other words can be virtually thought to stick around ‘forever’ (in comparison to human temporal horizons of concern), such is the longevity of carbon dioxide in the atmosphere (Gardiner 2010: 91). With regard to duties towards future generations, consequentialist theories seem inadequately equipped to respond to the vast temporal distances, lags and discontinuities that climate change invokes. Take the implementation of discount rates - in other words, time preferences. These are the rate at which it is assumed that temporally nearer goods are more highly valued than temporally distant ones. They are used by climate ethicists and economists to justify or disqualify taking radical action in the present (in order to reduce carbon emissions, say) to safeguard on egalitarian grounds the interests of those in the far future. If we do grant the rationality of this preference, how far may one go in our calculations? Not infinitely, say the opponents of the ‘zero discounting’ view (arguing normally that any discount would be unethical, favouring the rights, interests or utility of near-future humans against far-future ones). Because there is always a risk of human extinction, then clearly we are assuming some sort of discount rate, even if it is only marginally more than zero. Our efforts to act on behalf of future generations are discounted to the extent that we think they might not exist (Hepburn 2007).

Thus, there has always been a certain awkwardness by which long view narratives respond to environmental crises. There is, on the one hand, a common assumption (which the philosopher Derek Parfit analysed in some detail) that people have a time preference for nearness: we ought not to be expected to care for those in 10,000 years time as much as we do those in 100. At the same time, environmental thought today is made daily more aware of humanity’s intimate relationship and entanglement with our far future existence (Morton 2014: 123). This is borne out in calls by ethicists themselves for whom an appeal to the very long term seems normatively relevant (Miller 2016; Norbland; Socolow). Why not mention – in scientific documents such as the Intergovernmental Panel on Climate Change (IPCC) but also moral-theological documents such as *Laudato Si* - the fact that it will likely take 400,000 years, or 16,000 generations, for atmospheric CO₂ to return to pre-

industrial levels? Or the possible 4 million years (or 160,000 generations) it may take for the earth to recover living conditions from a predicted mass extinction event (Miller 2016: 442)? Why does the IPCC continue to focus on mid and end of century scenarios, mirroring the parameters of government planning exercises (Groves et al 2014)?

These are important questions for climate ethics which I do not address explicitly here. Suffice to say I am not arguing categorically against repositioning environmental thought within further future narratives. Rather, the purpose of this paper is to critique a particular temporal conceptualisation of the long view. As an example of the ‘awkwardness’ I am referring to here, take this exchange between an environmental reporter and a climate scientist reflecting on the longer term impacts of global warming. It considers a report in *Nature* (Ganopoloski, Winkelman and Schellnhuber 2016) which confirmed the theory that current and continued CO₂ emissions – even by moderate assumptions - will likely delay the next glacial inception by 50,000 years. In other words, humans have cancelled the next ice age, due under 'normal' predictions to occur in around 50,000 years' time. For Schellnhuber, one of the report's authors, this neatly confirms the Anthropocene thesis: that humans are a formidable planetary force, "stronger", he says, than orbital forces and all things like that. It is fascinating but also very scary!" But now consider the reporter's synopsis of the situation: "On the positive side, we can sigh with relief that we have called off the next two ice ages that would represent a very difficult challenge for civilization. However, temper that relief with the growing likelihood that if we don't wake up to climate change, it is unlikely that humanity will exist on Earth in anything like fifty thousand years!" (Breeze 2016).

This juxtaposition of temporalities neatly illustrates what Timothy Clark calls “Anthropocene disorder” – that “unstable emotional tone” produced by attempting to think of big picture narratives of the far future (“the finitude of the earth and its incalculable ramifications”) alongside and within the traditional parameters of environmental ethics (e.g. whether or not to take a long haul flight, or to choose to procreate) (Clark 2015: 143). But it also illustrates the more general problem of the long view, in which the far future is seen as an indefinite extension of the present commitments. It is to these examples that I turn next, before critiquing their basis in a ‘secular time’ model.

Deep Futures

In popular scientific and futurological literature ‘deep future’ refers to the attempt to provide detailed prognoses – ranging from the physical to the cultural - for the next 100,000 years of life on earth. In addition to a series of popular science publications on this topic (Archer 2009; Cocks 2003; Stager 2011), a special edition of *New Scientist* in 2012 commissioned essays that detail human existence in 100,000 AD and how they might be surviving (Brooks 2012). All assume confidently that the human species will survive this timespan, in some shape or another. The most prominent of these voices, Curt Stager, is representative of how deep future narratives respond directly to the problem of temporal scale variance outlined above. Stager, a paleo-climatologist by training, argues that the timescales involved in his work amount to a mandate for a radical rethinking of ethical responsibility. It means making moral judgments that compare effects across vast stretches of time. Compared to the angst-ridden overtones of Clark’s Anthropocene disorder, Stager’s hopes for the possibility of moral deliberation are overwhelmingly positive. Affirming the delayed glaciation theory, Stager reflects on the possibility that such a scenario may present humans with an ultimate silver lining to its otherwise destructive effect on the planet, prolonging the lifespan of homo sapiens by delaying its scheduled ‘death sentence’ of glaciation:

The sustained influence of our actions today on the immensely distant future adds an important new component to the ethics of carbon pollution. If we consider only the next few centuries in isolation, then human-driven climate change may be mostly negative. But what if we look ahead to the rest of the story? On the scales of environmental justice, how do several centuries of imminent and decidedly unwelcome change stack up against many future millennia that could be rescued from ice age devastation? ...We are faced today with the responsibility of determining the climatic future that our descendants will live in (Stager 2011:11-12).

For Stager this appears both as challenging news – “a long view is not necessarily welcome to those who are preoccupied with events in the here and now” (2011: 2) – and at the same time a common

desire: “most of us are less interested in when the Anthropocene began than in what it’s going to be like from here on out” (2011: 9). The obligation to do so, moreover, is motivated by a sense of epochal responsibility. Where cultural theorists get anxious about conflicting and incommensurable temporal frameworks, the science of deep futures cited above proposes a simple form of consolation. Rather than despair at the catastrophe of the nearer term, deep futures give us a glimpse of how humans might retain control over the longer term.

The Long Now

The Long Now Foundation was founded by eco-pragmatist and entrepreneur Stewart Brand in 1996. It provides funding and a conceptual framework for a number of projects around a simple normative claim: that ‘longer / slower’ thinking is better than ‘shorter / faster’: a “balancing corrective” to the “short-horizon perspective of market-driven economics” (Brand 1999). Its flagship project, the Clock of the Long Now, involves the design and building of a physical clock that will tick every year for 10,000 years. According to Brand, the project is a visible and imaginative encouragement to question the relatively short time horizons upon which much of western cultural thinking depends. Brand credits the musician Brian Eno, who is named as an inspiration and co-founder of the project, for coining the term. Eno claims that the idea came to him in his New York apartment in 1979 when he reflected on the narrow visions of spatial and temporal living that came with that era: “Everyone had just got there, and was just going somewhere else. No one had investment in any kind of future except their own, conceived in the narrowest terms. I wrote in my notebook that December, ‘More and more I find I want to be living in the Big Here and a Long Now’” (Quoted in Brand 1999: 28). Accordingly, each of the Long Now projects reference this desire for imagining bigger and deeper in our everyday parlance – for instance by affixing an extra numeral to millennial dating – thus ‘02016’ instead of ‘2016’.ⁱⁱⁱ

Eno’s reference to the spatial analogue – linking the Big Here and the Long Now – is significant because the project bears structural resemblances to the attempts at capturing a scalar sense of space with a previous movement of ‘whole earth’ environmentalists in the 1970s. Brand was, indeed, one of the principle advocates for environmentalists to use the images of planet Earth shot

from the Apollo missions in 1970 in their messaging. He believed that doing so would galvanise a sense of a shared planet in a vast universe – Carl Sagan’s famous ‘pale blue dot’ seen from space. To speak of a Long Now suggests a temporal parallel. Namely, the continued extension of a given temporal engagement with the present; an indefinite continuum which paints the future as the extended promise of human time. Brand expresses his own view of the future as a “tragic optimism”, which he explains by way of comparing time as either “long and narrow” or “short and wide”. The latter view inspires a pessimistic and politically disengaged outlook. It suggests that things in the short term are getting worse, and do not inspire optimism. Whereas the long view acknowledges that changes in society and the planet are long and slow and require the patience of the bigger picture. As Brand puts it, “in the long sweep of history, on average, life has been getting steadily better for as long as you care to look” (Brand 1999:108).

Long Now’s faith in the transformative power of extending one’s temporal horizon is encapsulated in the embodied, geographically located and mechanically credible status of its flagship project. The clock is designed to inspire, in its very physicality (the ability to visit it; and the promise that even if civilization should die out, another one would potentially discover it), confidence in the prolongation of the human species: “Ten thousand years is about the age of civilization, so a 10K-year Clock would measure out a future of civilization equal to its past. That assumes we are in the middle of whatever journey we are on – an implicit statement of optimism” (Kelly, ‘Clock in the Mountain’, LNF). Long Now thinking associates the ethics of future narratives with measurable time. It acknowledges the narrative force of visualizing and verifying that sense of temporal elongation through projects – most compellingly its own clock construction – that bring longer time processes to public awareness.

In this way the thinking behind the Long Now reinforces the same basic temporal priority as that of deep futurism.^{iv} In both cases the bigger picture perspective of the long view – even referring to the unfathomably vast stretches of geological time - is promoted as a kind of consolation for the catastrophe of the present moment and of imminent environmental crises. And, insofar as they do, they embody the horizontal flattening of the time of the future. Or in other words, they reinforce the temporality of secular modernity, which I will now address.

Secular Time as False Infinity

Charles Taylor claims that at the heart of the process of European secularization from the seventeenth to nineteenth centuries was a transition from belief in cosmos to that of universe (2009: 323). This conceptual shift was driven both by requirements of scale (a widening of horizons of knowledge) and narrative (the ‘re-storying’, to use Bastian’s term, of human and natural histories). Belief in the cosmos for a pre-modern mind referenced an intelligible, limited, ordered and purposeful creation. Whereas the ‘discovery’ of the universe signified something seemingly boundless, incomprehensibly vast (perhaps infinitely so), and potentially meaningless. Beginning with precursors such as Thomas Burnet’s *Sacred Theory of the Earth* in the 17th century but culminating in the 19th with the geological discoveries of vast stretches of time preceding the evolution of humanity, the transition was misleadingly interpreted by historians as that from a religious to an atheistic worldview. Against such a perspective, Taylor argues that what really marked the secular age apart from other worldviews was the attempt to accommodate the modern self within an intuitive sense (even if this couldn’t constitute a “knowledge”) of the unfathomable vastness of time. Deep time was eventually accepted (after considerable resistance: see Smail 2008) without recourse to the pre-modern, “shallow” narrative of sacred - i.e. biblical - history. Taylor exposes the overlapping directions that the modern mind took by way of response, from Romanticism to the present day. Kantians, for example, accommodated the modern self via the encounter of vastness via the category of the sublime; “wilderness” writers (e.g. Henry David Thoreau) did the same for ecological thought via the contemporary impulse to seek a connection with vastness through recovering “deeper natures” of the self. More recently there have been attempts to connect the human self with its nonhuman origins and conditions in various aesthetic encounters with horror (a phenomenon that is taken more seriously than Taylor by Eugene Thacker, 2003). Finally, the modern period has been marked by an attempt to situate human agency within the “wild, amoral, violent forces projected by post-Schopenhaurian visions” (Taylor 2007: 347).

These are useful points to consider when understanding the motivations of a long view perspective. The modern encounter with this “dark abyss of time” is not simply the abrupt incursion of a ‘scientific’ discovery upon naively comforted religious minds, as the account of the impact of

James Hutton's invention of deep time is often narrated. The point of the reference to this "darkness" is to suggest that the "vast expanse of time which lies behind us... hides the process of our genesis, of our coming to be" (Taylor 2007: 326). In secular time "humans are no longer charter members of the cosmos, but occupy merely a narrow band of recent time" (Taylor 2007: 327). The various 'options' that became available to the modern, secular mind in its encounter with deep time help us to understand why proponents of a long view seem at pains to domesticate, represent, and otherwise rationally engage with deep time. The idea of staring into an abyss evokes both terror and awe, and certainly fulfils the criteria for the aesthetics of the sublime in Kant's sense: that which is "absolutely great" because it overwhelms all sense of scale. Critical theorists are suggest that the Anthropocene demands a parallel response to those of modernity. Claire Colebrook has in light of this proposed that something like a material, "geological sublime" (Cohen, Colebrook and Miller 2016) would be the most appropriate response to the Anthropocene age. This would be an aesthetic encounter with what is unrepresentable, but one which would refuse the teleological, human-centered perspective that was Kant's legacy.

In Taylor's story of modernity, of course, the transition from cosmos to universe involved the new confident ability to view oneself as part of an infinite continuum. To understand the political significance of this aspect of secular time, and to see how it has come to resource such narratives as the long view, we need to consider Hannah Arendt's critique of the modern concept of history. In her 1958 essay 'On the Concept of History', Arendt retraced the classic division between Ancient and Christian thought in terms of a temporal ontology. For Greek antiquity, history was derived from the experience of nature as regenerative and a belief in time's eternal recurrence. This led to the conclusion that the natural world is immortal, and that humans are what is left outside of this: the "only mortal things that are" (Arendt 2006: 42). The concept of history was born (with Ulysses as the prototype epic) out of a requirement to narrate the 'immortal' legacy of those legends and heroes associated with the establishment of the polis (72). Christian thought, subverting the ancients by way of Plato, reversed this picture by elevating the human soul to immortality against a backdrop of decaying, finite nature (52).

Turning the tables once again, the modern notion of history, born amidst the rise of the natural sciences in the sixteenth and seventeenth centuries, was a subversion of that Christian narrative. Modernity became a vision of the human as earthbound in its own world (54) – something that Arendt would define in *The Human Condition* as “triumphal world alienation” (Arendt 1998: 24). From this perspective what is truly innovative about the secular modern concept of history is not simply that it is a secularization of the Christian story of world alienation, as some accounts have it. Rather, the modern secular concept of history replaces the category of eternity with that of infinity. In Christian traditions it is God’s eternity that punctuates the experience of the present – the *saeculum* – and is ritualized in liturgical practices as the performance of ‘higher time’. By contrast, adherence solely to the modernist concept of infinity produces an indifference to one’s temporal location, focusing instead on the concept of a never-ending historical process. In Augustinian terms – the subject of Arendt’s doctoral study - the two emphases can be described as different objects of love (Arendt 1996: 13). The Christian is called to live in the finite, perishing time of the *saeculum* whilst simultaneously loving that higher eschatological time. The latter disrupts the secular order of time because it is incorruptible and not subject to the temporal nature of change. Eschatological hope, according to Augustine, can thus be defined as a “present without a future” (Arendt 1996: 13). In contrast to the Christian distinction between the mortality of nature and the immortality of the human soul, the modern belief in technological progress was able to reconcile the mortal condition within its faith in an infinite future. Hence the (modern secular) belief in history as stretched in both directions, the “twofold infinity of past and future” in which nothing of ultimate significance happens (Arendt 2006:8).

Giorgio Agamben’s genealogy of the modern age can clarify why this shift was specifically to do with a new temporal model. According to Agamben, industrial human societies inherited an Aristotelian model of time as infinitely divisible instants (‘nows’) in the temporal structuring of society. The innovation of modernity was thus its adoption of the ‘instant’ as its unit of measurement. For it is this concept that allows belief in the secular idea of “empty time”, that of homogeneously progressing nows, to flourish. Here Agamben is, of course, reliant upon Benjamin’s critique of historicism in *Theses on the Concept of History* (1999) and in the *Arcades Project* (2002). The passage of homogeneous historicist progress is “empty” because it merely confirms the conditions of

possibility that precede it, withholding the possibility of a radically new thing ever coming to pass. In terms more overtly reminiscent of Marx's *Grundrisse* this progress – capitalist progress - is one of “bad infinity” or “false infinity” because its telos never arrives. That is, its appearance denies the very bases of its finite constitution (by promising never-ending progression). As Taylor showed, Benjamin's critique doesn't simply describe the construction of temporality with the arrival of secular modernity. There were, for instance, plenty of examples of a disruption to this trend, such as the culture of carnival and other utopian moments of performed radical temporal rupture. Contemporary revolutionary movements still borrow heavily from these traditions, and utilize the language of political moments that unexpectedly interrupt the pre-ordained flow of the secular time horizon. In Benjamin's terms, these are the performance of *jetzzeit*, ‘here-and-now time’ (1999: 252-253). Nevertheless, these are exceptions to the rule of a secular time mindset that I believe, and am arguing here, is evident in the long view. Agamben calls it “a secularization of rectilinear, irreversible Christian time, albeit sundered from any notion of end and emptied of any other meaning but that of a structured process in terms of before and after” (Agamben 2006: 96).

Agamben's analysis also provides an additional posthumanist critique to my analysis, which can link the critique of secular time to the new materialist contributions I briefly introduced. He exposes within the promise of secular modern time the precariousness of the very meaning of ‘human’. This is one of the key points offered in his commentary on humanism in *The Open*. An obsession, since the Renaissance, to compare ‘man’ with his animal counterparts, argues Agamben, belies a secret suspicion that the ‘ends’ of enlightened humanity point not to some emancipation from the rest of creation but on the contrary, the disappearance of a distinguishable human trait altogether. With reference to Kojève, Agamben notes that the Hegelian end of history thesis was interpreted as the end of the human in its dialectical struggle against the inhuman (nature). Thus an identity crisis of what ‘we’ will look like in a post-historical future lurks deep in the heart of humanist thought itself (Agamben 2004: 6-7). I suggest that the hyper-confidence of a vision of ‘far future man’ of the long view betrays precisely this fear within humanism. Thinking of the far future as the long now has the effect of reducing one's engagement with it to an awesome continuum in which a singular vision of ‘the human’ predominates, and is preserved.

For a post-secular critique of the long view

I would now like to draw some of my critical threads together. Specifically, I would like to suggest how combining insights from theological categories of time with voices of the new materialist ‘geological turn’ with which I began, provide an alternative to long view environmentalism.

First, let me outline how a retrieval of theological temporal models may be of relevance. Consider the way that Stewart Brand invokes the philosophical distinction between *chronos* (time as sequential chronology) and *kairos* (time as the opportune or critical moment). His gloss of that distinction is highly instructive. He defines *kairos* as seizing the day, “opportunistic”; “day-grabbing” and “clever”. He recognizes this as both symptom and cure for short-termism: “While (*kairos*)... offers hope, (*chronos*) extends a warning” (Brand 1999: 9). Though it has been interpreted differently by theologians according to their endorsement or resistance of broadly modernist perspectives,^{vi} what is surely missing in this analysis is any sense in which *kairos* punctuates and transforms ordinary, secular time with a sense of the eternal. In other words, *kairos* is that which changes our relationship with time itself. Whereas Brand’s clock time calls us to imagine an awesome (because very long) continuation of the future, precisely an indefinite continuation of ‘now’. This is also the point of Agamben’s critique of secular time in *The Time That Remains* (2005). In Christian messianic thought what makes *kairos* disruptive is not its transformation of *chronos* time into an opportune moment, but by its suspension of the rules of *chronos* time, participating both vertically (with God’s eternity) and horizontally (in the finite continuum). And this relates also to Taylor’s analysis that in a secular culture, even sacred or “higher times” of religious ceremony are subsumed within the “organizing field” of secular, homogeneous time. Arendt also spelled out very clearly the implications of this common misperception amongst advocates of a secularisation thesis. In contrast to the view that a modern concept of progress is simply the secularisation of Christian eschatology, Arendt shows, first, that these were inventions of late Antiquity rather than Christianity (Augustine’s reflections on ‘world history’ are actually more Roman than Christian in origin). Second, she points out that such reflections always ignore eschatology - the fact that Christian time introduces a beginning and an end, punctuated by one significant historical event only (the incarnation of God).

Arendt's perceptive criticism about the reduction of modern time to a 'secularized Christian teleology' applies to much contemporary scholarship on the politics of time, and memory. To take a recent example, Smita A. Rahman talks about the Christian, Augustinian origins of "time (as) linear and sequential and structured by the universalizing assumption of progress... Time takes the form of the progressive realization of redemption... time begins with Genesis and the fall of man and ends with the Day of Judgment and the prospect of eternal salvation" (Rahman 2015:5). The misunderstanding of 'progress' here vindicates Arendt's suspicion. The temporal innovation of Christian antiquity (which remained in place arguably up until Hegel) was precisely to set up an opposition between eternal consciousness and human history (a point which Rahman confirms in her later treatment of Augustine). Whereas the modern secular time image is, to repeat Arendt's concept, time stretching into infinity in both directions, ordered horizontally and homogeneously, i.e. with no significance afforded to any particular instance in time. For Taylor this signifies first and foremost the secular flattening of time once the 'higher' times of Christianity disappear from social life; for Arendt it is expressed as the new focus on process as the governing feature of the modern time image: "so far as secular history is concerned we live in a process which knows no beginning and no end and which thus does not permit us to entertain eschatological expectations" (Arendt 2006: 68).

The departure from a Christian temporal imaginary and the cultural fallout from that departure laid the groundwork for the futurist discourses of the long view that have been the concern of this study. For Christian Antiquity, the birth of Christ is not simply another event in time, one more 'instant' or 'now'. It is its fulcrum and permanent point of reference, binding every point of secular time, past and future, instantaneously, to its sacred origin and destination. This is how Benedict Anderson, referencing Walter Benjamin, distinguished a pre-modern time apprehension: the "simultaneity of past and future in an instantaneous present" (Anderson 2016: 24) through celebrating the time of redemption in the Christian calendar. The legacy of this sacred time is of course still preserved in the western calendric division of BC / AD, and Christian theologians have begun to explore the relationship between the loss of such a temporal fulcrum, and contemporary environmental attitudes which they see as morally paralysed in the face of deep time perspectives (see Northcott 2015). Taylor also makes much of the destabilizing effect, with the advent of modernity, of the loss of

this moral and existential center once provided by a contrast drawn between the eternal time of eschatological faith, and the experiential time of the saeculum. So too Arendt points out – without seeking theological solutions, of course - that the secular modern condition brought back the mortal condition to the political realm, with traumatic consequences: “(with modernity) both life and world had become perishable, mortal, and futile” (Arendt 2006: 74).

I am not offering these insights with a view to reasserting a Christian narrative of human exceptionalism over the secularist variety (nor is it the place here to discuss whether a theological temporality is able successfully to overcome such a narrative). Rather, I want to see whether there are some features in common between this post-secular critique, and those voices of new materialism and the ‘geological turn’ with which I began. What is common to many of these thinkers is a conviction that if we are to accept even minimally the concept of the Anthropocene, and want to talk of geological, planetary time inhabiting human time, we cannot do so in way that reproduces a view of human dominance within the linear, monolithic teleology of secular modernity. For example, Manuel De Landa’s *A Thousand Years of Nonlinear History* (1997), describing history as the flows and stratifications of Deleuzian “intense matter”, has direct implications for a new way to view the planetary future: “To view human history as unfolding immersed in this cauldron of nonorganic life is one way to eliminate notions of progress or unilineal development.” (De Landa 1997: 265). Adopting “nonlinear history” in which planetary ‘flows’ (e.g. lava, or continental shift) intersect with flows of human meaning and action (e.g. language), undermines human exceptionalism and a temporality of linear progress. Along with several other materialists working in this field, De Landa’s relevance for thinking the Anthropocene is evident in his basic insight that *Homo Sapiens* anticipates the very temporal processes that are so threatening to the mind-set of modern progress. One can even consider our own material constitution – made of bone, “the living material that most easily petrifies, that crosses the threshold back into the world of rocks” (De Landa 1997: 26-27). Similarly, William Connolly relies upon a fusing of human historical subjectivity and an acknowledgement of those temporally vast planetary forces (with examples such as ocean conveyor systems, glacier flows, and species evolution) which now play such a constitutive role (‘entangled’) in human destiny (Connolly 2017).

A second point of critique common to many of the thinkers I have engaged would point to the depoliticizing nature of narratives of future crisis. For example, in *Deep Future*, Stager's one historical assumption about the (relatively) near future is that humans will burn the planet's remaining stock of fossil fuels until there are no further means to heat the planet. His densely descriptive narrative of the next 100,000 years that follows this one variable is explicitly devoid of the dynamics of social and political change that would shape it: "We'll have to wait for time itself to reveal the details of future political systems, technologies, social interactions, and lifestyles; one never really knows what Homo Sapiens will do next. But many features of the physical world are far more predictable" (Stager 2011: 10). Writing as a self-professed paleo-climatologist and not a social scientist, this comes as no surprise. The contrast with attempts, cited above, to understand historical human forces alongside those inhuman planetary forces that Stager so confidently predicts, could not be starker. The effect of a narrative of a human future that survives intact in this abstract, universalized sense (true for the 'human itself' rather than particular humans) is to ignore the multiple temporalities and 'time zones' (Wolin, S. 1997) that are represented by different global citizens' experience of the future. Benedict Anderson contrasted the experience of secular time with that of religious time by describing the "common experience" of secular time as one of simultaneity - reducing the multiple temporality of the Christian model (one both lives in secular and sacred or higher time) to a secular modern one in which the myriad events of history have no particular temporal priority. Clearly, the latter that does not reflect the myriad experiences of time and temporality of conflictual experiences - in a globalised world time is experienced along complex differences that still reflect global hegemony. And this point is reinforced by a strong tradition in feminist thought that insists on the multiple and divergent ways in which futures will be experienced. For instance, in Judith Butler's critique of secular time (2008) sexual politics, and equally geopolitics, is inflected by the priority that is given to the temporal narrative of the west. The question 'what time is it?' "already divides us" in the creation of the backward or pre-modern times of subaltern, Islamic and other 'others' against which the time of the modern present is justified. Additionally, the work of Elizabeth Grosz, Rosi Braidotti and other feminist voices of new materialism, are crucial to counteract the masculinist tendencies of a long view, projecting abstract, immortalised man, surviving against the odds in its next phase of planetary

existence. In the optimistic visions of Stager, the Long Now Foundation, and others, Homo Sapiens is triumphant without being described in any embodied, gendered, material and unpredictable sense. This is deeply problematic given the implications that a long view has for climate change narratives. If, as Stager and others would have us acknowledge, moral deliberation over fossil fuel emissions in the present ought to take into account the lives of human others in the far future, doesn't it matter what (social, political) form of human life is guaranteed at the end, and which transformations to human life in the present such guarantees will require? Deep future optimism thus deserves the same critique that is levelled at Anthropocene for reducing the complex differentiated and dispersed origins of Anthropos (Malm and Hornborg 2014). As Alberto Toscano puts it: "[in Anthropocene discourse] the species is as much an abstraction at the end of the line as at the source" (Toscano 2016: 117). The long view facilitates a deep future optimism and a deep future pessimism as two sides of the same coin. Whether one imagines a fantastic World Without Us (Wiseman 2006), or a world very much 'with us' (as in Stager's and the New Scientist's premonitions), both fantasies rely upon a temporality that fulfills the conditions of Arendt's bad infinity. And what makes both visions alluring is their reliance upon the access to that infinity of time that accommodates – assures - the continued existence of 'the human' within the new temporal vastness of geological time. Just as Romantic and Enlightenment narratives gave us a nostalgia for species origins, a secular time model for the deep future reconnects us to a world that we will inhabit triumphally.

Conclusion

Taylor notes that one of the legacies of Romanticism is this ability to mark the passing of long stretches of time by analogy to the geophysical processes of the earth. We can now talk about the "glacial" pace of change of the universe of which we are part. To environmentalists today this can evoke a humbling wonder and awe, inviting both a "deeper connection" with nature and a "deeper nature" within ourselves, in the light of our membership of this vastness (Heringman 2014). In the contemporary examples I have considered, this invitation is taken up alongside the modern resource which most facilitates inhabiting of homogeneous time. In the example of the Long Now this is articulated through a faith that a moral sensibility might emerge from reimagining that most modern of

mechanical inventions, the clock. Not in order to galvanize a sense of the contraction of time (this is the premise, for example, behind the image of the clock whose hands point to “three minutes to midnight” of the Bulletin of Atomic Scientists). On the contrary, the aim is to encourage a culture of slowness through the longevity of its mechanical clock^{vii} and so facilitate a longer view.

My aim has been to provide critical resources for responding to the contemporary dilemma as outlined in the introduction: how can we think ethically within the deep futures of geological time? I hope to have shown some of the dangers of simply applying traditional models of environmental risk. Though I have not tried to advance an ethical theory here, it does strike me that deep time ethics would need to relinquish the epistemic certainty of many of our deliberations. For instance, Timothy Morton, like Joanna Zylińska (and drawing similarly on Levinas here), have argued that the Anthropocene warrants a ‘weak’ ethics, meaning that its ethical demand issues from a future that is radically unknown and unknowable (Morton 2014: 123). The beings with whom our current ethical decisions appear to place us in a far future version of the prisoner’s dilemma appear like a “strange stranger”. One cannot even be certain that the very terms of our ethical deliberations – whether rights, duties, or virtues – make sense in the strangeness of the far future. And this, I argue, requires a radical critique of a secular modern temporality. For, in spite of the more radical claims that the concept of the Anthropocene represents a chance to rethink ‘human’ within geological temporalities, we clearly see – in the examples of the long view – the influential legacies of secular temporality that reassert the hegemonic dominance of *Anthropos*. Whether one takes the ultra-humanist optimism of Stager’s deep future, or the attempt to prolong for as long as possible the ticking of slow, *chronos* time, the long view in both cases reflects a re-assertion of human dominance. With regard to the Anthropocene debate, this vision should be at the centre of our critique.

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ⁱⁱ The excellent exchange between Wai Chee Dimock and Mark McGurl in *Critical Inquiry* Spring 2012 provides a rich survey of these difficulties.

ⁱⁱⁱ The foundation's associated projects include the 'Long Server' designing longer lasting digital archives of human knowledge; the 'Rosetta project' doing the same for human languages; and the most controversial, Restore and Revive, which funds attempts to genetically revive extinct species of animal, such as the Passenger Pigeon.

^{iv} Of course, there are also key differences between the two. For instance, Michelle Bastian has pointed out to me that the design of the Clock of the Long Now assumes a radically changed (and thus uncertain) humanity in its designs, and is attempting to create a machine that could be understood and operated without a shared language.

^v (the phrase is attributed to de Buffon, who is increasingly credited as an early precursor theorist of the Anthropocene)

^{vi} I am indebted to Jeremy Kidwell for pointing out a few of these. See for instance Kidwell (2015).

^{vii} Though note the contradiction that the business ethos of the Clock's principal funder, Amazon's Jeff Bezos, suggests the diametrical opposite: round the clock access, flexible working and zero hours contracts. See Bastian M. (2012).