

Domesticating the future through history Simon, Z.B.

Citation

Simon, Z. B. (2021). Domesticating the future through history. *Time & Society*, *30*(4), 494-516. doi:10.1177/0961463X211014804

Version: Publisher's Version

License: <u>Creative Commons CC BY 4.0 license</u>
Downloaded from: <u>https://hdl.handle.net/1887/3175540</u>

Note: To cite this publication please use the final published version (if applicable).



Special Issue: Temporal Comparisons



Domesticating the future through history

Time & Society 2021, Vol. 30(4) 494–516 © The Author(s) 2021



Article reuse guidelines:

sagepub.com/journals-permissions DOI: 10.1177/0961463X211014804 journals.sagepub.com/home/tas



Zoltán B Simon®

Faculty of History, Philosophy and Theology, Bielefeld

University, Germany; Institute for History, Leiden University, The Netherlands

Abstract

In the most general sense, the modern idea of history is a conceptual tool deployed in order to domesticate experienced novelty and expectations of the future. In Western modernity, the operation we usually call historicization has been nothing other than an operation of temporal domestication: the integration of experienced and expected novelty into a larger processual scheme we associate with modern historical time. Based on these theoretical considerations, this article has a dual objective. First, through an analysis of historical approaches to the Anthropocene—that exemplifies present-day perceived radical novelty—it attempts to identify the linguistic-conceptual means of temporal domestication through historical time. Second, it raises the question of the politics of historical time today by focusing on the evaluative aspects of temporal domestication in an age when the future increasingly appears a threat. As a brief conclusion, the article calls for broader recognition of what it calls a *plurihistoricity* of "historical" transitions, the co-existence of multiple *kinds* of transformation and change over time.

Keywords

Temporal domestication, future, novelty, historical time, politics of time, evaluation, Anthropocene, plurihistoricity

Corresponding author:

Zoltán B Simon, Faculty of History, Philosophy and Theology, Bielefeld University, Universitätsstraße 25, Bielefeld 33615, Germany.

Email: z.simon@hum.leidenuniv.nl and zoltanbsimon@uni-bielefeld.de

History as a means of temporal domestication

If you watch movies, you are likely to recognize the trope of the Ignored Expert. It was heavily deployed in the resurgence of movies revolving around natural catastrophes in the 1990s and the early 2000s. TV Tropes, a wiki-like website dedicated to the exploration of film and television tropes, defines the Ignored Expert (2020) as "a scientist or expert who predicts a major disaster to happen, but is not believed by his contemporaries." The Ignored Expert even has a "natural enemy," the Suit with Vested Interests (2020), who, as the name of the trope already suggests, has a vested interest "in something that's going to suffer if the disaster comes about." Although many other characters contribute to the unfolding of disaster movie plots, there is only one left that I would like to mention. It is the Obstructive Bureaucrat (2020), who has but one job: "to get in the way of whatever the heroes need to do."

Today, when impending catastrophes seem to surpass cinematic imagination, we may easily recognize the real-world equivalents of film tropes—even though both the tropes and the prospects of catastrophes may be slightly different. To begin with, the catastrophe has become "anthropogenic" and "planetary." The threat of natural disasters did not disappear—asteroid impacts and volcano eruptions are expected to happen just as before—but the most perilous threats have acquired an anthropogenic character, including natural ones. Rogue artificial intelligence (Bostrom, 2014), human enhancement and bioengineering (Hall, 2017) going awry, and the mass extinction of species due to human activity (Kolbert, 2014; Leakey and Lewin, 1996) have become major anticipated or ongoing catastrophes driven by human activity in the last decades. The most broadly debated anthropogenic "existential risks" and "global catastrophic risks" (Bostrom and Cirkovic, 2008) of the day are nevertheless human-induced climate change in particular and the transformation of the Earth system due to human activity in general. Although the two sound deceptively alike, the conceptual gap between them is massive. As Thomas (2019) warns, we had better not confuse the particular issue of climate change with anthropogenic Earth system transformations: whereas the former is a problem that demands a solution to work toward, the latter is a predicament and condition we cannot escape. Earth system science captured the latter with the notion of the Anthropocene (Crutzen and Stoermer, 2000), which has been quickly turned into a broader social, cultural, and political predicament by the humanities and social sciences (Horn and Bergthaller, 2019).

In this context, the (rather imperfect) real-life equivalent of the film trope of the expert can be linked with Earth system science (ESS): the science that cuts across disciplinary confines in studying the Earth as one system of interacting spheres. Yet, the expert here is no longer "ignored." Although climate change denial most certainly exists (even at the highest political levels), the work of ESS in raising

awareness of a systemic human-induced transformation of the planet in general and anthropogenic climate change in particular has been yielding results. True enough, the results are partial. Whereas popular protests are growing, effective policy-level mitigation of anthropogenic catastrophes seems to conflict with the agendas of certain Suits with Vested Interests. And there is typically little doubt about their role and identity. To name but one, according to Hamilton (2010: xiv), "the most immediate reason for 'our' failure to act on global warming has been the sustained and often ruthless exercise of political power by the corporations who stand to lose from a shift to low- and zero-carbon energy systems."

The focus of the coming pages, however, will be on what I think is a major real-life equivalent of the Obstructive Bureaucrat trope: the very idea of history as it has been developed in Western modernity. This is not to say that all kinds of history obstruct action in the urgency of today's anthropogenic crises. My claim is confined to *the modern idea of history*. That said, I do not wish to claim that all histories based on modern historical thinking are flawed, that keeping on telling developmental histories of how we got here is completely useless, or that appealing to the modern idea of history deliberately gets in the way of mitigating catastrophic futures. In many respects, long-term developmental histories of how we got here can still yield important insights, and historians have good arguments to support the view that a historical focus can be beneficial in many respects, from climate adaptation (Adamson et al., 2018) to climate justice (Meyer and Sanklecha, 2017). I am simply interested in those instances in which this is not the case, in which modern historical thinking falters.

I hope to show that the historical focus—as based on the tenets of modern historical thinking—is *not always* beneficial and that there is *an extent* (rapidly expanding and gaining prominence) to which it may even be obstructive and harmful. This article is devoted to bringing that extent to light without denying that there are good arguments for the continuing relevance of conventional modes of modern historical thinking in various human endeavors. Clarifying thereby on the scope and limitations of this essay, what I wish to claim is that historicizing experienced novelty as based on the central tenets of the modern idea of history inevitably *functions* as the obstruction of action today under the following two conditions: when (1) the future appears catastrophic (Horn, 2018) and (2) sociopolitical action aims at avoiding the worst futures instead of aiming at betterment over time (Simon, 2019: 79–103).

To see what I mean, let me begin by defining the modern Western idea of history as a conceptual tool deployed in order to domesticate experienced novelty by integrating it into a processual scenario of development. Looking at history this way brings together certain insights of Reinhart Koselleck, Hannah Arendt, and Hayden White in a comprehensive view that likely none of them would hold. First, it affirms the view of Koselleck (2004) that it is in modernity (in Neuzeit) that the divide between past experiences and future expectations opened up and

a perceived novelty in human affairs began to occur. Second, it agrees with Arendt's claim (1961: 63) that processual thinking that renders individual things and occurrences meaningful by seeing them as parts of larger processes is the greatest invention of the modern period. Third, it complements White's (1987: 58–82) emphasis of history's domesticating function although in a significantly modified version. White's view of domestication is concerned with the aesthetic aspect of semantics in historiography; he states that professional historical writing beautifies the sublime chaos of reality by imposing meaning on it. My claim is not confined to professional historical studies but is related specifically to *temporal domestication* through a scheme of a developmental process.

In the coming pages, I hope to provide an insight into the workings of temporal domestication. The aim is not to rehearse my earlier theoretical arguments on *what* happens when the old idea of history meets newer types of novelty (Simon, 2019), but to explore *how* exactly temporal domestication happens in the encounter. I am aware of how this might sound rather controversial. Have not we learned from Koselleck (2004) that modern historical time is the one that opens up to the future, being concerned with constantly occurring novelty? We certainly have. Yet, it is much less frequently pointed out that modern historical time opens to the future and enables the occurrence of novelty only in order to render the new familiar by making it appear as a necessary future development of an already effective past potential and by presenting a story of continuous developmental processes in which the new unfolds out of the old. In focusing on this latter aspect, I hope to show that a retained commitment to modern historical time is counterproductive when applied to the novel types of radical novelties we are facing today.

Following a brief introduction of the theme of historical time, I will sketch the conceptual and linguistic means through which temporal domestication occurs, by virtue of modern historical time providing the condition of possibility of temporal comparisons. In the next steps, I will return to the Anthropocene as the most prominent instance of radical novelty that Earth system science attempts to capture, and venture into analyzing the conceptual and linguistic means through which historical thinking temporally domesticates the Anthropocene. In the analysis, I will pay special attention to the evaluative aspects of temporal domestication by playing out how it deflates the future. Finally, in place of a conclusion, I will call for a broader recognition of kinds of transformation and change over time in the historically oriented approaches of the humanities and social sciences by coining the term *plurihistoricity* to account for the multiplicity of "historical" transitions.

Historical time in the plurality of times

The modern idea of history as a temporal construct and a specific way of conceiving of change over time in terms of processual developments has been

subject to severe criticism over the last decades on several grounds. Most recently, in making the case for recognizing the plurality of modern experiences of time, Fryxell (2019: 290) has warned that "modern time cannot be reduced to a single framework or methodology like Koselleck's historicity or the proliferation of clock technologies and the decline of sacred time." In Fryxell's view, if we want "to understand the complex experiences of time in the recent past, we must be open to alternative, non-chronological and not strictly linear perspectives on time," meaning that "we must embrace pluritemporality." Whereas Fryxell's aim to explore the pluritemporality of modern time experiences seems timely (so to speak), I do not think that Koselleck as the main target of criticism would protest. For what Koselleck tried to understand was not "modern time" in general but a specifically modern experience of time as a "historical," a specifically modern "historical time."

However, one may still ask, why would there be only one kind of *historical* time? There are sound reasons to believe that not only is modern time pluritemporal, but even a specifically historical time should not mean one monolithic conception of time experienced as "historical" (Tamm and Olivier, 2019). According to Jordheim (2014), modern historical time itself harbors "multiple temporalities" with respect to the pace and tempo of processes, traces of which have typically been covered by enhancing the plurality of historical times into synchronizing categories such as that of "progress."

Further down the line, one may even ask, why should we talk about modern experiences of time of the Western kind? For as soon as we widen up spatially, we are confronted with multiple temporalities from "indigenous temporality" in relation to climate change (Rowland, 2019) to historical time in Chinese historical thinking (Huang and Henderson, 2006). And as soon as we broaden up temporally and look beyond modernity and consider more contemporary experiences of time. we are confronted with a plethora of "historical" ways in which past, present, and future are related to each other in recent societal practices over various domains of human endeavor. Inside and outside the Western world, reparations of historical injustice, reconciliation, and the politics of recognition challenge the central tenet of modern historical time, specifically that a temporal distance separates past and present (Bevernage and Lorenz, 2013; Fareld, 2019; Torpey, 2003). At the same time, Hartog (2015) argues that we are already leaving modern times in a comprehensive manner, shifting from a future-oriented modern "regime of historicity" to a presentist one in which we extend the present point of view over both the past and the future. Finally, my recent efforts have been directed at capturing a new historical sensibility and new temporality emerging in recent technological and ecological prospects through the notion of "unprecedented change," referring to abrupt and unfathomable transformations kicked off by game-changer events (Simon, 2019).

Paying attention to multiple conceptions of historical time and pluritemporalities, however, should not delude us into thinking that modern historical time and the modern idea of history are no longer deeply embedded in our everyday dealings, within and outside academia. Modern historical time is not gone; it has only become one of the pluritemporalities we came to embrace, making any effort to navigate among such pluritemporalities extremely complicated. We have become able to consider times in the plural, but still have tremendous difficulties recognizing and acknowledging their limitations in their respective reach and scope. In fact, we routinely conflate these multiple temporalities.

In what follows, I would like to pay attention to the most pertinent instance of such conflation: our tendency to approach emerging new phenomena that belong to non-modern time regimes through the prism of modern historical time. I will explore the linguistic-conceptual means by which we keep projecting the old scheme of developmental processes over newer kinds of radical future and novelty by calling the operation *temporal domestication*.

Temporal domestication and temporal comparability

The domestication of the future and its radical novelty is specifically temporal inasmuch as it situates novelty in time. The means of temporal domestication are, however, conceptual and linguistic. Conceptually and linguistically subsuming the new under the old requires three steps. Although the steps are oftentimes not exposed explicitly, they are necessary features of the temporal domestication of the new in the sense of the three of them hanging together: detecting the presence of one implies that the other two are also put into effect. Having this in mind, let me get to the steps.

The first step of temporal domestication is the broad (re)description of the encountered radical novelty. When concepts are not yet developed with the intention of capturing the novelty, one can simply describe it in terms of an existing broad category. When concepts are already developed to capture the newness of whatever has been encountered or identified as being the case, then those concepts are typically deemed inaccurate just in order to subsume the new under a broader redescription. The more loosely the novelty is defined, the easier it becomes to link it with past occurrences or to find precedents to it in the second step. Linking the new with the old involves temporal markers responsible for establishing the connection to past occurrences. Such markers of temporal domestication typically have an explicit time reference that situates the new with the old in a way that indicates familiarity between the two. Words such as "always" or "precedent," for instance, function as such markers. Sometimes, however, the temporal marker is simply a statement on how that which others perceive as new is actually not. Finally, as soon as the new is reinterpreted in broader terms and temporal markers are put into effect, it becomes possible to establish continuity between old and new, between past and future, in the third step.

Once again, the three steps are (1) a broad (re)description of novelty until it ceases to appear new, (2) the deployment of temporal markers, and (3) the establishment of continuity. While the goal of this article is not to justify that temporal domestication through history happens but to analyze how it happens through a discussion of a very few examples of domesticating the novelty of the Anthropocene, perhaps it makes sense to quickly indicate the former. The capacities attributed to recent bio-, nano-, and artificial intelligence technologies either to create greater-than-human superintelligence or to transcend human biological limitations through human enhancement in transhumanist thought provide a context extremely rich in domestication efforts coming not only from professional historians but from multiple knowledge formations. In temporal domestication, technoscientific prospects of other-than-human beings of human creation that greatly outperform human beings become contemporary instances of broadly redescribed occurrences, phenomena and categories already known and already conceptualized.

Hence the claim of Jasanoff (2016: 73-74) that "humanity's dreams of the future have always been posthuman" and that the story of Daedalus and Icarus testifies that "the technological has arguably always been part of the posthuman dream"; hence the claim of Mossman (2011: 233) that "human enhancement is nothing new" and that "for thousands of years, humans have used natural products such as caffeine and tobacco to change moods and behaviors and to improve cognition"; and hence the claim of Adrienne Mayor that "ideas about making artificial life – and qualms about replicating nature – were explored in Greek myths" and that "beings that were 'made, not born' appeared" in stories ranging from the one about Jason and the Argonauts to "the evil fembot created by Hephaestus" and thus "represent the earliest expressions of the timeless impulse to create artificial life." Mayor is cautious enough to warn that her otherwise fascinating Gods and Robots (2018: 4) does not intend to "suggest direct lines of influence from myth or ancient history to modern technology." At the same time, however, the claim that the stories of the book "reveal the surprisingly deep roots of the quest for life that is made, not born" (Mayor, 2018: 6) makes it clear that a broad definition of "life that is made, not born" serves the purpose of fitting recent AI prospects with ancient myths in a manner that suggests that the former is an update on the latter that assumes a deep continuity between old and new.

The establishment of continuity has a crucial function: it creates the condition of possibility of temporal comparison, meaning that investigating temporal domestication amounts to an inquiry into the conceptual-linguistic fashioning of *temporal comparability*. Comparing past states of affairs or conditions to present or expected future states of affairs or conditions is possible only inasmuch as the comparison concerns the past, the present, and the future of an identifiable subject that goes through change over time. The retained self-identity of the subject in all its temporal states provides the element of continuity, while the different newly

occurring conditions of the subject account for the element of change. There we have processual historicity as a combination of continuity of change of a peculiar kind. As soon as continuity is established by fitting the new with the old and the known, the latest novelty provided by the element of change—first appearing fresh, shocking, and radical—cannot but occur as tamed and domesticated.

All three tenets of temporal domestication—broad (re)definition, temporal markers, and continuity—feature in the examples I want to consider a bit more closely. The larger discussion on the Anthropocene perfectly illustrates the workings of temporal domestication: first, the concept of the Anthropocene has been coined to capture radical novelty (so that there is an existing notion to domesticate by redefinition); second, the growing recognition of the Anthropocene is typically accompanied by claims concerning how it reconfigures existing knowledge (so that temporal domestication should at least be suspicious as it necessarily appeals to existing states of affairs and forms of knowledge). To avoid misunderstanding, my primary intention here is not to argue for the novelty of the Anthropocene. My claim is that the Anthropocene *is perceived* and *conceptually captured* as radical novelty in its formulation in ESS, and I hope to show how a specific kind of historical thinking domesticates that perceived novelty. My argument is about the *function* of modern historical thinking, regardless of any explicit position one might take in the overall Anthropocene debate.

The ESS anthropocene

To be able to see temporal domestication at work, the first thing to consider is the subject of domestication: the radical novelty of the Anthropocene. As every effort at sense-making and meaning constitution already domesticates novelty, naming the Anthropocene is already a mode of taming novelty, familiarizing the unfamiliar, and rendering the unknown known. But noting that all cognitive activities domesticate novelty in one way or another is neither a profound insight nor a useful one in developing an understanding of *how* different modes of domestication happen. On this basis, it seems reasonable to distinguish between efforts directed at capturing experienced novelty and efforts aiming at seeking precedents for it. My focus here is on how the latter as exemplified by approaches based on modern historical thinking temporally domesticates the former as exemplified by the Anthropocene as conceptualized by ESS.

The fact that the notion of the Anthropocene is an invention of ESS does not mean that it has an authoritative scientific definition. ESS scholars typically do not aim at such a definition, ferociously debate the onset of the Anthropocene, and recognize the necessity of humanities and social scientific views that understand the Anthropocene as a shared predicament (cf. most recently Zalasiewicz et al., 2021). Yet, even if a purely scientific definition would be of no use even in the ESS view, it must be equally clear that there are certain central tenets without

which the ESS Anthropocene as a conceptual effort to capture novelty simply does not make sense.

Three of these central tenets seem indispensable to the ESS Anthropocene. First, the notion refers to anthropogenic changes in *planetary conditions*, that is, in the condition of the Earth system, meaning that it necessitates viewing the Earth as an integrated system. Second, in denoting a new condition of the Earth system, it implies a new *geological epoch* marked by planetary-scale human agency as attested to by stratigraphic data. What connects the previous two tenets is the third one: the specific systemic character of human activity, elevated to the level of other natural forces. To let ESS articles speak for themselves, consider the claim (Steffen et al., 2011: 843) that multiple parallel trends—from anthropogenic climate change to humans "likely driving the sixth major extinction event in Earth history"—provide "strong evidence that humankind, our own species, has become so large and active that it now rivals some of the great forces of Nature in its impact on the functioning of the Earth system." What the notion of the Anthropocene suggests thereby is that "the Earth is now moving out of its current geological epoch, called the Holocene," and "human activity is largely responsible for this exit" as it "has become a global geological force in its own right." Such human-induced transformation of the condition of the Earth system represents radical novelty and a future radically different from the past inasmuch as it entails the prospect of "the unexpected crossing of thresholds that drive the Earth system, or significant subsystems, abruptly into states delirious or even catastrophic to human well-being" (Rockström et al., 2009).

Temporal domestication at work, part 1: Broad redefinitions and temporal markers

In illustrating how history domesticates the radical novelty of the Anthropocene in the aforementioned three steps, I will discuss three examples as embedded in a longer argument that spans the remaining pages. The rationale behind the selection is to discuss three examples that extend the Anthropocene further and further into the past. On this premise, the first example is a passage from the book *The Shock of the Anthropocene: The Earth, History and Us* (2016) by Christophe Bonneuil and Jean-Baptiste Fressoz, which extends the Anthropocene back to the beginning of Western modernity. The second is a passage from Joyce Chaplin's article "Can the Nonhuman Speak? Breaking the chain of Being in the Anthropocene" (2017), which seeks precedents slightly earlier in the early-modern period. Finally, the third example is the argument of the article "On the Importance of a Date, or Decolonizing the Anthropocene" by Davis and Todd (2017), which links the Anthropocene with European expansion and the colonization of the Americas.

In discussing the examples, I will begin by introducing the first two extracted passages and by focusing on the first two steps of temporal domestication. In

doing so, I will highlight **broad redefinitions in bold** typeface and <u>underline temporal markers</u>. As the third step of temporal domestication brings together the preceding two in a comprehensive picture, I will discuss the third example at somewhat more length as a culmination of all three domesticating measures put to work. Additionally, the third example and the third step of domestication will also be an occasion to bring in the evaluative dimension, showing how the taming effect of the establishment of continuity entails a devaluation of the future and its novelty.

In each case, my primary intention is not to challenge the explicit claims of the texts from which I extract certain passages. So as not to count a very few occasions, I also attempt to refrain from engaging with the explicit arguments or criticizing the scholarly positions of texts from which I excerpt the passages. What I hope to show is the *function* of historicization (temporal domestication) as based on the modern idea of history—regardless of the scholarly claims of the texts that include the excerpts I discuss.

Yet, it is clear that the argument of this article entails a particular view and a specific position in the larger debate, calling for the recognition of the untamed novelty of the Anthropocene. In considering a mid-twentieth century onset of the Anthropocene, my view coincides with the majority of the members of the Anthropocene Working Group (AWG), set up in 2009 to investigate the question of whether the Anthropocene should be formalized in geological time (Zalasiewicz et al., 2017). A mid-twentieth century Anthropocene does not mean that anything prior to that period has no effect whatsoever on how the present looks. As the multidisciplinary co-authors of a recent Anthropocene article claim (Zalasiewicz et al., 2021: no page numbers), "a chronostratigraphic Anthropocene commencing in the mid-20th century definitionally excludes millennia of [...] earlier human influences but this does not decouple it from its historical and causative links."

All this being cleared up, let me begin with a passage from *The Shock of the Anthropocene*, a brilliant book in many ways. The explicit aim of the book is to understand the Anthropocene by framing it as being embedded in multiple longer term narratives of modernity. Most interestingly, Bonneuil and Fressoz (2016: 19) recognize radical novelty by claiming that "the Anthropocene is an event, a point of bifurcation in the history of the Earth, life and humans. It overturns our representations of the world." Yet, this does not prevent them looking for precedents:

This is <u>not</u> the first time scientists have attested to or foreseen **such human power over the fate of the planet**, whether to celebrate it or as a cause for concern. As recently as 1778, in his *Epochs of Nature* volume of *Histoire naturelle générale et particulière*, Comte de Buffon [(2018)] explained that "the entire face of the Earth today bears **the imprint of human power**." (Bonneuil and Fressoz 2016: 4)

The temporal markers in the passage present what many perceive today as something previously unknown as if it was already known "as recently as 1778," as if it was "not the first time" that we encountered that which we assume to be new. As a rather common mode of making sense of the world, we habitually exercise such domestication as a vehicle of understanding, trying to comprehend personal life events as well as societal phenomena. Just think of how frequently we have heard in the last decade that the political domain experienced a resurgence of populism. Such claims explain the current political landscape by reference to a new wave of an old approach to politics, conveying the message that we are confronted with something that we are essentially familiar with, if only in its previous manifestations. And this is precisely the message of the quoted passage: the advent of the Anthropocene is the reappearance of the known in a potentially different shape.

The basis of deploying temporal markers is the alignment of the new with the old through broad redescriptions that can conveniently apply to both. This makes it possible to see both the old and the new as parts of the very same developmental process, which creates the grounds for Bonneuil and Fressoz to advance seven historical narratives. To see how far redescriptions go exactly, let me compare the ones in the quoted passage to the ESS Anthropocene. How do the broad references to "human power over the fate of the planet" and to the "imprint of human power" that "the entire face of the Earth today bears" fare with the central tenets of the ESS Anthropocene that hope to play out the novelty of our predicament? Not spectacularly well, to say the least. For the AWG states with clarity that "the base of the proposed Anthropocene time unit is not defined by the beginning of significant human influence upon the Earth" (Zalasiewicz et al., 2017: 57). In making the case for a mid-twentieth century onset of the Anthropocene, the AWG does not refer to a broad "imprint of human power" as in the quoted passage, but to "the rapid increase in scale and extent of global human impact on the planetary environment, also clearly recognizable from a wide range of synchronous stratigraphic indicators," that is, to a "coincidence of marked inflections in Earth System trends with an array of stratigraphic indicators" (Zalasiewicz et al., 2017: 57). Plainly speaking, the AWG and the quoted passage do not seem to talk about the same thing when they both mean the Anthropocene.

The second example, Chaplin's essay, accentuates the stakes perhaps even better. As to its explicit aims, it argues that a focus on the modern period and our retained commitment to modernist values prevent us from seeing that precedents for the current predicament date back even earlier to early modern times. In putting temporal domestication to work, the essay proceeds in a slightly less straightforward way than the previous example, through an engagement with the question of scale in Dipesh Chakrabarty's essay, "The Climate of History: Four Theses" (2009). In its first interpretive move, Chaplin (2017: 522) attributes the view to Chakrabarty that the "element of scale is assumed to be unprecedented,

therefore hard for humanity to confront." Then, in a second move, she challenges this view by claiming that it reflects

the high-modern assumption that human control of the natural world should be the default; comprehension is supposed to yield a manageable and predictable future. But it is not the case that **thinking about the enormity of the natural world**, pondering its alterity and complexity, and **confronting its resistance to our efforts to control it** are <u>anything new</u>. Each of those dilemmas <u>had been thought about before the modern period</u>. They are <u>not unprecedented</u>, but their precedents are at this point sufficiently remote so as to be invisible to scholars who have focused on modern history. (Chaplin, 2017: 522–523)

In taking the issue with the radical character of the novelty of the Anthropocene condition, the passage turns the premise of Chakrabarty's engagement with the Anthropocene upside down. Whereas Chakrabarty (2009) considers the Anthropocene a challenge to historical thinking, Chaplin's text places its temporal markers and broad redefinitions to suggest that historical thinking, instead of facing a crisis in confronting prospects of the unprecedented, knows the situation better: we just need to calibrate our retrospective stance and focus on the right period to see that we have been here before.

If this does not come as a surprise, it is because Chaplin's text, both in its strengths and weaknesses, remains indebted to *the logic of disciplinary history*. As the scholarly gatekeeper of modern historical thinking, disciplinary history is a Kuhnian "normal science" in which bringing one's expertise to the preoccupations of the present means typically showing how the past might have something to say about it. To return to the earlier technology examples, this is how an ancient history, a medieval history, and an early-modern and modern history expertise will present us, respectively, robots in Greek mythology (Mayor, 2018), "medieval robots" (Truitt, 2015), and "androids in the Enlightenment" (Voskuhl, 2013). Although the results are oftentimes fascinating, the shortcomings of operating in the mode of "business as usual" in facing what may be the paradigmatic "unusual" case unveil the cracks in the logic and in the entire thought system.

To get a firmer grasp of these cracks, let me return to the example at hand and note that stretching familiarity back to time on a longer term necessitates redefinitions broader and broader the longer one hopes to look back in seeking an alignment of new and old. This is how, in the quoted passage, the Anthropocene predicament becomes as broad in the redefinitions as "the enormity of the natural world" and "its resistance to our efforts to control it." Thus defined, precedents are indeed easy to find in the idea of the sublime, which, in the mid-eighteenth-century writings of Edmund Burke, entails, very conveniently, precisely the very same "paradoxical allure of something beyond human control" (Chaplin, 2017:

525) that is a perfect match to the broad redescription of the Anthropocene condition in the quoted passage. What the result does not match though is the ESS Anthropocene as introduced earlier. Just as with the previous case, the domestication does not prove to be able to recognize the ESS Anthropocene. Whereas the very premise of the Anthropocene predicament is the collision of the human and the natural worlds in which humans become forces of nature, the Burkean sublime, when connected to nature, concerns an "external nature" (Brady, 2013: 11–46), the grandeur of which appears incomprehensible to the humans who confront it. And this idea, the very idea of humans being mere observers of nature, is precisely what the ESS Anthropocene calls into question—as also played out in the approach of Chakrabarty's first thesis on "the collapse of the age-old humanist distinction between natural history and human history" (Chakrabarty, 2009: 201).

To address for a moment the explicit claims of the essay, Chaplin (2017: 528) is very well aware that "reading Burke into the debates about the Anthropocene would have to make that new era, in which we seem now to live, less unprecedented." Yet she thinks that this may be beneficial, because making the "new era" "less unprecedented" means making it "less of a surprise, and therefore more of an obvious responsibility. We have confronted its possibilities before; we can claim no innocence as an excuse for delayed action." This is quite an unexpected twist. Chaplin's view clearly contradicts my initial contention that taming prospects of radical novelty through history today appears less and less as a constructive operation and more and more as one that obstructs action even if inadvertently and merely functionally. To render this claim plausible, the coming pages will address the evaluative dimensions of domesticating novelty through history and feature the third example focused on establishing continuity as the third step of domestication at work.

The evaluative dimension: Deflating the future

What makes us act when facing planetary-scale catastrophes of our own making? As we apparently do not seem to do much about changing trajectory, this seems to be the question of the hour. It would be rather pretentious to suggest an answer on the remaining few pages. What I can hope to offer—and what this essay is devoted to—is an answer to the reverse question of what does *not* make us act today. To be clear, this relatively modest reverse question (just like the more ambitious former one) is not directed at action in general. Nor is it directed at forms of action linked with the aim of realizing the promises of the ideologies and utopias of Western modernity. Instead, it is devoted to exploring the obstacles to a specifically *precautionary* action.

The answer leads to the realm associated with the politics of historical time. As a point of departure, consider Peter Osborne's claim (1995: xii) that "modernity is a form of historical time which valorizes the new as the product of a constantly

self-negating temporal dynamic." The aspect that I want to emphasize is the valorization of the new as a structural feature, which attributes an intrinsic comparative and evaluative edge to modern historical time. Yet, it seems to me that the inherent temporal comparison that modern historical time harbors, its championing of the new against the old, has a specific condition of possibility that is no longer given: a future conceived in terms of betterment.

The Anthropocene futures discussed above are most certainly not visions of betterment. According to Assmann (2020: 4), the future "has lost the power to shed light on the present, since we can no longer assume," as we did in the modern time regime, "that it functions as the end point of our desires, goals, or projections." Or, as Hartog (2015: 198–200) argued even earlier, the future has come to be perceived lately under a "precautionary principle," with respect not only to ecological and environmental thinking, but also to technological risks. In such a time regime, the dominant form of "precautionary politics" (Whiteside, 2006) does not seem to valorize the new. Instead, it attempts to prevent catastrophic futures and novelties from taking place through "precautionary action."

Temporal domestication through history does not seem to fit well with these premises. The plausibility and the utility of the operation are tied to desirable futures. Modernity could valorize the new inasmuch as its novelties were tied to futures that societies hoped to facilitate—and historical thinking was instrumental to this valorization precisely because of its work of domestication. By taming the shock of the new, by integrating novelty into a developmental process informed by modern historical time, temporal domestication effectively rendered the taking place of the future feasible, desirable, and possible. Today, however, in facing catastrophic and typically undesired futures, the work of historical domestication implies an evaluative measure other than valorization: deflation. Integrating catastrophic futures into processual schemes by linking old and new in a deep continuity deflates both the novelty and the shock of the catastrophic character of today's future, just as well as the sense of urgency conveyed by such character.

How so? Precisely by making the future appear "less unprecedented" as was the intention of Chaplin (2017: 528) by aligning the Anthropocene with the early-modern sublime. In the Anthropocene, however, it is the very radicality of the future that calls for "precautionary action," and this radicality is strongly tied to unprecedentedness. And what triggers action is not merely the "catastrophe," the "threat," and the "risk," but also the uncertainty, the unknowability, and the unfathomability mingling with them. According to Van Asselt and Vos (2006: 315), the precautionary principle is linked with "uncertain risk" that they associate with "inherent unpredictability." Furthermore, as Aradau and Van Munster (2011) show, in today's "politics of catastrophe," it is the unknown that renders the future "actionable."

What I want to indicate by citing risk and security studies is that domesticating futures of the unknown and futures of uncertain risks through history deflates these futures by deflating their unknowability and "inherent unpredictability." The more we claim to know the future and its novelty, the more we make them appear "less unprecedented," the less we conceive of them in terms of uncertain risks and demand precautionary action and the less we render them "actionable." And the means of deflating the future, I want to argue, is the third step of temporal domestication: the establishment of continuity.

Temporal domestication at work, part 2: Establishing continuity

The Anthropocene debate, largely revolving around identifying a start date, offers a variety of "historical" takes—not only in disciplinary history but all across the disciplinary landscape—that integrate the Anthropocene into a larger pattern of developmental continuity. Whereas ESS Anthropocene futures anticipate abrupt transformations in the Earth system driven by human activity as a natural force, "historical" approaches flatten out the abruptness of the transition and smoothen past, present, and future into a deep continuity by viewing the occurrence and the prospect of novelty as outcomes of deep processes unfolding over time.

To an early twenty-first-century human and social scientific sensitivity, capitalism and colonial practices appear as the most prominent bases on which the Anthropocene can be linked with a longer trajectory in regards to developments in the human world. As a prominent example, consider the following reasons for linking the onset of the Anthropocene with colonization from Davis and Todd's essay (2017: 764) aimed at decolonizing the Anthropocene:

We make the case for colonialism as the start date of the Anthropocene for two reasons: the first is to open up the geologic questions and implications of the Anthropocene beyond the realm of Western and European epistemology to think with Indigenous knowledges from North America; the second is to make a claim that to use a date that coincides with colonialism in the Americas allows us to understand the current state of ecological crisis as inherently invested in a specific ideology defined by proto-capitalist logics based on extraction and accumulation through dispossession – logics that continue to shape the world we live in and that have produced our current era.

The ethical imperatives of the colonial Anthropocene approach are indeed commendable. There is also little doubt about the role of "the proto-capitalist logics based on extraction and dispossession" in the many crises of the Anthropocene. But can the approach fare equally well in regards to a potential

resonance with ESS efforts aimed at capturing the novelty of the Anthropocene predicament?

To begin with, consider that the colonial continuity thesis builds on the previous steps of temporal domestication: it is anchored in a broad redefinition of the Anthropocene. As their starting point to establish continuity, Davis and Todd (2017: 768–769) turn to Crutzen and Stoermer's short essay (2000), published in Global Change Newsletter, that popularized the notion of the Anthropocene and credited a few ideas that they thought may be looked at as forerunners of the Anthropocene notion. Among these few ideas, Davis and Todd find the notion of the *noösphere*. The notion is mentioned twice in Crutzen and Stormer's essay, which consists of seven paragraphs altogether (of which the last is a one-sentence acknowledgment). The first mention concerns how Vladimir Vernadsky, Pierre Teilhard de Chardin, and Edouard Le Roy "coined the term 'noösphere,' the world of thought, to mark the growing role played by mankind's brainpower and technological talents in shaping its own future and environment" (Crutzen and Stoermer, 2000: 17). The second mention follows the prediction that "without major catastrophes" "mankind will remain a major geological force for millennia, maybe millions of years, to come." It calls for the development of "a world-wide accepted strategy leading to sustainability of ecosystems against human induced stresses," which would require "intensive research efforts and wise application of the knowledge thus acquired in the noösphere, better known as knowledge or information society," and which would point to the task "ahead of the global research and engineering community to guide mankind towards global, sustainable, environmental management' (Crutzen and Stoermer, 2000: 18). Whereas the first mention of Crutzen and Stoermer associates the noösphere with human activity shaping the Earth, the second links it with the more contemporary terms, "knowledge society" and "information society."

Davis and Todd take issue with the notion of the Anthropocene more through delivering a critique of the notion of noösphere and less through focusing on the work of Earth system science. They claim that Crutzen and Stoermer "rely upon the concept of the 'noösphere' to articulate their position" and that "the noösphere, while a generative category, which Crutzen and Stoermer credit with their thinking on the Anthropocene itself, replicates a Euro-Western division of mind/thought from land when it is framed as the business of 'research and engineering'" (Davis and Todd, 2017: 768). But how exactly do they arrive at this claim? In trying to establish a close link between the noösphere and the Anthropocene, Davis and Todd, first, need to disregard all the other ideas that Crutzen and Stoermer present as ideas that played out the human impact on the environment prior to the notion of the Anthropocene. The noösphere is only one of many. Second, they also need to overlook that Crutzen and Stoermer use the notion as a synonym to the notions "knowledge society" and "information society." Third, they need to remain inattentive to the differences between the different versions of

the noösphere notion as advocated by Vernadsky, de Chardin, and Le Roy (see Steffen et al., 2011: 844–845). Davis and Todd's interpretation (2017: 768) emphasizes that "the noösphere places thought *above* the biosphere and geosphere, and is framed as a teleological progression that follows the development of the earth's geological features and biota, as demonstrated by de Chardin's writings on the concept." However, as Renn (2020: 380) points out, it was only de Chardin for whom "the appearance of 'Mind' as a geological force represented a new stage in cosmogenesis."

This is the ground on which Davis and Todd (2017: 769) end up claiming that "in tethering the Anthropocene to colonialism, as we hope to show here, the links between the emergence of ecological disaster and concepts such as the noösphere become clear" and that "the noösphere which considers thought separate from – and above – geology and biota replicates the foundational and epistemic violence of European colonialism which Lewis and Maslin propose *caused* the Anthropocene." ¹

The Anthropocene is nevertheless not the noösphere, let alone de Chardin's version of it. At least not in ESS, where the Anthropocene has more to do with anthropogenic transformations of the Earth system and less with considering "thought separate from – and above – geology and biota." Nor is it in the publications by members of the AWG—including historian John McNeill along with Earth system scientists such as Will Steffen—where it is clearly declared that "the diverse notions of the noösphere, or similar ideas under different terminology, are, however, not equivalent to the new concept of the Anthropocene" (Steffen et al., 2011:845).

The temporal domestication of perceived radical novelty as carried out by the colonial Anthropocene approach, just as well as in the previous two examples, may be beneficial in enabling us to see deep patterns that could be effective in bringing about the present predicament. At the same time, the approach comes with serious shortcomings: in trying to *connect* with the past by smoothing past, present, and future into a pattern of deep continuity, it disconnects from the discourse in which the Anthropocene was proposed as a conceptual effort to capture radical novelty. Instead of joining a shared discussion on novelty and Anthropocene futures, it initiates a discussion about something else; the survival and present effectiveness of the past, making the future appear to be the descendant condition of the past. Where does this leave us? Recall the argument of Chaplin (2017: 522) that thinking in terms of unprecedentedness about the scale of the Anthropocene that escapes human confines reflects the high-modern assumption that human control over nature is the default mode of conceiving of the relationship between the human and the natural worlds. At the same time, the default "historical" approach of temporal domestication entails an opposite pitfall as another mode of claiming human control: as a form of cognitive control, historical domestication renders the unknown known by temporal alignment. It

renders the radical and uncontrolled novelty of the future humanly controllable by creating the conditions of temporal comparability and temporal commensurability through a deflation of the new to the rank of the old.

Finally, for the sake of clarity again, it is not my intention to argue that longstanding capitalist modes of production, colonial practices, and technomanagerial and anthropocentric patterns of thought and action play no role whatsoever in bringing about the predicament we associate today with the Anthropocene. They play a tremendous role. What I hope to show is only that the focus on attributing responsibilities for past occurrences conceived of as leading up to the catastrophes of the present and the future over the course of historical processes of deep continuity, however justified and ethically compelling it may be, amounts to the deflation of the future and the domestication of its novelty. I hope to raise attention thereby to the complexity of the situation in which we find ourselves today, grappling with equally compelling but largely contradictory imperatives in our efforts to understand the world. In doing so, we have, I believe, an alternative to mechanically appealing to temporal domestication: finding ways to recognize and affirm a multiplicity of kinds of transformation and change over time in what I will call a plurihistoricity of coexisting modes of "historical" transitions.

Recognizing plurihistoricity

Modern societies liked to think that "everything has a history" or that nothing exists "outside history." As Grossman (2015) at the American Historical Association recently testified, we still like to think that. And we seem pretty successful in *giving* a history to practically everything. So successful, indeed, that Nandy (1995: 46) even claims that "historical consciousness now owns the globe. Even in societies known as ahistorical, timeless, or eternal – India for example – the politically powerful now live in and with history." In the meantime, within the Western world, according to Davies (2006: 1), history simply dominates "the public mind: its hold over the social imagination is total."

Nandy and Davies are not content merely with performing fierce criticisms of the pervasiveness of historical thought; they explicitly attempt to break free from it. In doing so, instead of seeking alternative histories, Nandy (1995: 53) goes as far as to seeking "alternatives to history." He hopes to find them with the "dissenting minority" of "ahistoricals," suspecting that "broadly speaking cultures tend to be historical in only one way, whereas each ahistorical culture is so in its own unique style" (Nandy 1995: 46–47). Davies (2006: 249–250), on the other hand, seems less optimistic in contending that "society can't help being historical" and that historical thinking "defaults to knowledge already known." What he suggests is, as simple as it sounds, to think—although in a very specific sense. Davies (2006: 251) attributes to thinking a "disruptive potential" that is

somehow—in a way that he does not reveal much about—supposed to gesture towards timelessness through "timeless works."

It seems to me that Nandy and Davis are rightly suspicious of the modern obsession with historicizing literally everything. Yet, even though I agree that the last two centuries really overdid endowing the world with history in the modern way, I do not share the deep exasperation about a historicized culture that underpins Davies's writings because I do not think with Nandy that there is only one way of being "historical" that we could set against the multiplicities of being "ahistorical." Nor do I think with Davies that timelessness would be the alternative to the modern idea of history. More importantly, I am not interested in proposing something else instead of what we have. What I attempted to show in this article is that today we do in fact think about change over time in ways other than the overwhelming processual one that the modern idea of history and its modern historical time would allow. To illustrate my point, I used the example of human-induced abrupt transformations in the Earth system as captured by the notion of the Anthropocene in ESS and analyzed how processual historical approaches carry out the operation of temporal domestication on the ESS Anthropocene.

In place of a conclusion, what I hope to offer is the suggestion to take seriously not only the plurality of temporalities but also the multiplicity of "historical" modes of change over time. Historical time is not only about the multiple speeds and rhythms of processual change. It should also be about the multiple modes of transitional relations between apprehended pasts and anticipated futures in a variety of practices that, in a joint endeavor with Marek Tamm, we call modalities of "historical futures" (Simon and Tamm, 2021). The ESS Anthropocene with its abrupt transformations represents but one instance in an abundance of new modalities of "historical" transitions, changes, and transformations. Analogous to the multiple temporalities and pluritemporalities (Jordheim, 2014; Fryxell, 2019) that frame our lives, we navigate in a plurihistoricity of coexisting historicities as multiple configurations of the past-present-future relationship. If there is one "regime of historicity" (Hartog, 2015) that dominates our "historical" existence and thinking, it is the one that enables a plurality of historicities in various domains of life, societal practices, natural phenomena, and their complex entanglements. We only need to find ways to recognize this plurihistoricity without trying habitually to fit other-than-processual historical transitions into the processual pattern of historical time we inherited from Western modernity.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Zoltán B Simon https://orcid.org/0000-0001-8763-7415

Note

1. As to the referenced article of Lewis and Maslin (2015), it proposes two choices for the onset of the Anthropocene: 1610 and 1964, favoring the former. Davis and Todd (2017: 772) credit Lewis and Maslin with an argument for the former and mention the latter as "the Anthropocene Working Group's preferred date of the 1964." In fact, the AWG considers mid-twentieth century and 1964 as separate options. The AWG voting results for the onset at the time of the article of Davis and Todd were the following: "~7 ka, 0; ~3 ka, 1.3; 1610 Orbis, 0; ~1800, 0; ~1950, 28.3; ~1964, 1.3; diachronous, 4; uncertain, 0; abstain, 0" (Zalasiewicz et al., 2017: 58). Davis and Todd are right that the AWG favors another chronology, but they mistake the second suggestion of Lewis and Maslin for the AWG position. In reality, the AWG engaged in a critical manner with Lewis and Maslin's both options (Zalasiewicz et al., 2015).

References

- Adamson GCD, Hannaford MJ and Rohland EJ (2018) Re-thinking the present: the role of a historical focus in climate change adaptation research. Global Environmental Change 48: 195–205.
- Aradau C and van Munster R (2011) *Politics of Catastrophe: Genealogies of the Unknown*. London and New York: Routledge.
- Arendt H (1961) *Between Past and Future: Six Exercises in Political Thought.* New York: Viking Press.
- Assmann A (2020) Is Time Out of Joint? On the Rise and Fall of the Modern Time Regime. Ithaca: Cornell University Press and Cornell University Library.
- Bevernage B and Lorenz C (2013) Breaking up time: negotiating the borders between present, past, and future. *Storia Della Storiografia* 63: 31–50.
- Bonneuil C and Fressoz J-B (2016) *The Shock of the Anthropocene: The Earth, History and Us.* London: Verso.
- Bostrom N and Cirkovic MM (2008) (eds) *Global Catastrophic Risks*. Oxford: Oxford University Press.
- Bostrom N (2014) Superintelligence: Paths, Dangers, Strategies. Oxford: Oxford University Press.
- Brady E (2013) *The Sublime in Modern Philosophy: Aesthetics, Ethics, and Nature*. Cambridge: Cambridge University Press.
- Chakrabarty D (2009) The climate of history: Four theses. Critical Inquiry 35(2): 197–222.

- Chaplin JE (2017) Can the nonhuman speak?: Breaking the chain of being in the anthropocene. *Journal of the History of Ideas* 78(4): 509–529.
- Comte de Buffon G-LL (2018) *The Epochs of Nature*. Chicago: University of Chicago Press.
- Crutzen PJ and Stoermer EF (2000) The anthropocene. *Global Change Newsletter* 41: 17–18.
- Davies ML (2006) *Historics: Why History Dominates Contemporary Society.* London, New York: Routledge.
- Davis H and Todd Z (2017) On the importance of a date, or decolonizing the anthropocene. *ACME: An International Journal for Critical Geographies* 16(4): 761–780.
- Fareld V (2019) Coming to terms with the present: exploring the chrononormativity of historical time. In: Tamm M and Laurent O (eds), *Rethinking Historical Time: New Approaches to Presentism.* London: Bloomsbury, 57–70.
- Fryxell ARP (2019) Time and the modern: current trends in the history of modern temporalities*. *Past & Present* 243: 285–298.
- Grossman J (2015) Everything has a history. *Perspectives on History* 53(9). Available at: https://www.historians.org/publications-and-directories/perspectives-on-history/december-2015/everything-has-a-history.
- Hamilton C (2010) Requiem for a Species: Why We Resist the Truth about Climate Change. Crows Nest: Allen & Unwin.
- Hall M (2017) *The Bioethics of Enhancement: Transhumanism, Disability, and Biopolitics.* Lanham: Lexington Books.
- Hartog F (2015) *Regimes of Historicity: Presentism and Experiences of Time.* New York: Columbia University Press.
- Horn E (2018) *The Future as Catastrophe: Imagining Disaster in the Modern Age.* New York: Columbia University Press.
- Horn E and Bergthaller H (2019) *The Anthropocene: Key Issues for the Humanities*. London and New York: Routledge.
- Huang C and Henderson JB (2006) (eds). *Notions of Time in Chinese Historical Thinking*. Hong Kong: Chinese University Press.
- Ignored Expert (2020) TV tropes, available at: https://tvtropes.org/pmwiki/pmwiki.php/Main/IgnoredExpert
- Jasanoff S (2016) Perfecting the human: posthuman imaginaries and technologies of reason, perfecting human futures. In: Hurlbut JB and Tirosh-Samuelson H (eds), Perfecting Human Futures: Transhuman Visions and Technological Imaginations. Wiesbaden: Springer, 73–95.
- Jordheim H (2014) 1. Introduction: multiple times and the work of synchronization. *History and Theory* 53(4): 498–518.
- Kolbert E (2014) The Sixth Extinction: An Unnatural History. London: Bloomsbury.
- Koselleck R (2004) Futures Past: On the Semantics of Historical Time. New York: Columbia University Press.
- Leakey R and Lewin R (1996) The Sixth Extinction: Patterns of Life and the Future of Humankind. New York: Anchor Books.

Lewis SL and Maslin MA (2015) Defining the anthropocene. Nature 519: 171-180.

- Mayor A (2018) Gods and Robots: Myths, Machines, and Ancient Dreams of Technology. Princeton: Princeton University Press.
- Meyer LH and Sanklecha P (2017) (eds) *Climate Justice and Historical Emissions*. Cambridge: Cambridge University Press.
- Mossman KL (2011) In sickness and in health: the (fuzzy) boundary between "therapy" and "enhancement". In: Tirosh-Samuelson H and Mossman KL (eds), *Building Better Humans? Refocusing the Debate on Transhumanism*. Frankfurt: Peter Lang, pp. 229–254.
- Nandy A (1995) History's forgotten doubles. History and Theory 34(2): 44-66.
- Obstructive Bureaucrat (2020) TV tropes. Available at: https://tvtropes.org/pmwiki/pmwiki.php/Main/ObstructiveBureaucrat
- Osborne P (1995) Politics of Time: Modernity and Avant-Garde. London: Verso.
- Renn J (2020) The Evolution of Knowledge: Rethinking Science for the Anthropocene. Princeton: Princeton University Press.
- Rockström J, Steffen WL, Noone K, et al. (2009) Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32.
- Rowland L (2019) Indigenous temporality and climate change in Alexis Wright's Carpentaria (2006). *Journal of Postcolonial Writing* 55(4): 541–554.
- Suit with Vested Interest (2020) TV tropes. Available at: https://tvtropes.org/pmwiki/pmwiki.php/Main/SuitWithVestedInterests
- Simon ZB (2019) History in Times of Unprecedented Change: A Theory for the 21st Century. London: Bloomsbury.
- Simon ZB and Tamm M (2021) Historical futures. History and Theory 60(1): 3-22.
- Steffen W, Grinevald J, Crutzen P, et al. (2011) The Anthropocene: conceptual and historical perspectives. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 369: 842–867.
- Tamm M and Olivier L (2019) (eds) *Rethinking Historical Time: New Approaches to Presentism.* London: Bloomsbury.
- Thomas JA (2019, 10 January) Why the "Anthropocene" is not "climate change" and why it matters. *Asia Global Online*. Available at: https://www.asiaglobalonline.hku.hk/anthropocene-climate-change/
- Torpey J (2003) (eds) *Politics and the Past: On Repairing Historical Injustices*. Oxford: Rowman & Littlefield.
- Truitt ER (2015) *Medieval Robots: Mechanism, Magic, Nature, and Art.* Philadelphia: University of Pennsylvania Press.
- van Asselt M and Vos E (2006) The precautionary principle and the uncertainty paradox. *Journal of Risk Research* 9(4): 313–336.
- Voskuhl A (2013) Androids in the Enlightenment: Mechanics, Artisans, and Cultures of the Self. Chicago: University of Chicago Press.
- White H (1987) The Content of the Form: Narrative Discourse and Historical Representation. Baltimore: Johns Hopkins University Press.
- Whiteside KH (2006) Precautionary Politics: Principle and Practice in Confronting Environmental Risk. Cambridge, MA: MIT Press.

- Zalasiewicz J, Waters CN, Barnosky AD, et al. (2015) Colonization of the Americas, "little ice age" climate, and bomb-produced carbon: their role in defining the anthropocene. *Anthropocene Review* 2(2): 117–127.
- Zalasiewicz J, Waters CN, Summerhayes CP, et al. (2017) The working group on the anthropocene: summary of evidence and interim recommendations. *Anthropocene* 19: 55–60.
- Zalasiewicz J, Waters CN, Ellis EC, et al. (2021) The Anthropocene: comparing its meaning in geology (chronostratigraphy) with conceptual approaches arising in other disciplines. *Earth's Future* 9: e2020EF001896. DOI: 10.1029/2020EF001896.