Deep Pasts – Deep Futures

A Palaeoenvironmental Humanities Perspective from the Stone Age to the Human Age

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Abstract

Coagulating around the notion of the Anthropocene – the proposed geological epoch of the 'Human Age' where anthropogenic control of and impact on nature has taken on a magnitude comparable to geological forces – many traditional humanities disciplines are rediscovering the environment as worthy of study. The emerging environmental humanities are dismantling the founding divisions of academic practice that have been confining the study of 'nature' to the natural sciences and the study of 'culture' to the humanities. Indeed, one of the environmental humanities' most central contributions has been addressing the question of ethical involvement when it comes to environmental research that has relevance in contemporary climate change debates. With its long-standing multidisciplinary affiliations and its many outstanding case studies of how the climates of the deep past have affected contemporaneous communities and how these communities have shaped their environs at various scales, archaeology is well positioned to make a contribution here. Yet, the discipline has been marginal in these emerging debates. I attempt in this keynote paper to bring together thoughts about the national framing of archaeological practice, archaeological interpretation and heritage management in Europe with preoccupations about past societal collapse under the umbrella of environmental ethical concerns. I argue that archaeologists should involve themselves in the wider environmental humanities project – and attempt to show how – but caution that due diligence is needed when operating in such a politically charged debate.

Keywords: environmental humanities, climate change, archaeological ethics, transformation, collapse, Anthropocene

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Introduction

As I prepare this paper, the Intergovernmental Panel on Climate Change (IPCC) releases its landmark report – characterised by unusually strong and urgent wording – on 'the impacts of global warming of 1.5° C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty' (see IPCC 2018). The media widely hailed it as an important clarion call – yet another one – for concerted climate action in our time. Likewise, the United Nations Climate Change Secretariat (UNFCCC) also hastens to underline the report's importance:

> According to the IPCC's report, limiting warming to 1.5° C is possible, but requires unprecedented transitions in all aspects of society. Over the next 10 to 20 years we must transform our energy, agricultural, urban and industrial systems, engage non-state actors, and integrate climate action into the broader public policy framework that also addresses jobs, security and technology. (UN Climate Statement)

While jobs, security and technology are all important elements of such anticipated societal change, the IPCC report as well as the UNFCCC statement fails to seize the opportunity to argue for more comprehensive societal action across a wider spectrum of sectors. The IPCC has since its inception and later rise to media attention from the 1980s and onward become a critical policy-influencing actor. Yet, the IPCC has also been charged with being too narrowly focused in its disciplinary scope and with the closedness of its internal processes on numerous occasions (Corbera et al. 2016; Hulme 2012; Hulme & Mahony 2013; Nielsen & Sejersen 2012). Furthermore, it has been noted that the IPCC, despite all the media attention it commands, has not directly led to appreciable behavioural changes. Carter and van Eck (2014) blame this on the relentlessly global and abstract nature of its science and the lack of clarity regarding local relevance and downward causation. They argue that what is needed in addition to robust climate science are powerful narratives offering not merely effective science but also affective relations (see also Menning 2018; Pancost 2017; Nikoleris et al. 2017).

This paper is an essay more than anything else, and it is quite personal. It is also a modified version of my inaugural lecture taking up a professorship with special responsibilities[1] in the environmental humanities and the

1 In Denmark, a 'professorship with special responsibilities' is a particular job category. It is a time-limited professorship ranked lower than a full professorship; it is limited initially to five years and to a maximum of eight.

archaeology of climate change and extreme events at Aarhus University's Department of Archaeology and Heritage Studies. Against the background of recent and ongoing climate change concerns and debates, I here make the factful but no less compassionate argument that archaeology – and heritage more broadly – can be key contributors to the 'unprecedented transitions' that the UNFCCC has called for. I see these transitions as requiring concerted action across *all* sectors of society. At the same time, archaeology has a *unique* contribution to make, I argue, because it connects – *qua* environmental archaeology and geoarchaeology – with the climate and environmental sciences; it also connects – *qua* the discipline's embeddedness in cultural heritage, identity-formation processes and the museum interface – with the production of salient nature-culture narratives; and it also connects – *qua* its engagement in the educational and sector – with the potential for fostering long-term societal change through the social transmission of actionable cultural information and know-how.

Archaeology as palaeoenvironmental humanities

With roots in earlier environmental movements and the writing of, amongst others, Rachel Carson (1962) and Aldo Leopold (1949), the last decades have seen the emergence of the so-called environmental humanities. Although some scholars dismiss this new field as an opportune intellectual fad *du jour* (Braidotti 2018), it has nonetheless garnered much attention in the form of dedicated journals, conferences, symposia, and earmarked funding – all trappings of an increasingly well-established sub-discipline are in place. In a nutshell, the environmental humanities are based on the conviction that humans, like all other animals, are part of ecosystems and that climate and the environment – as well as their changes in the past and the present – are issues worthy of detailed humanistic attention. Bergthaller and colleagues (2014:261), in a paper titled 'Mapping Common Ground: Ecocriticism, Environmental History, and the Environmental Humanities' put it this way:

> The emergence of the environmental humanities presents a unique opportunity for scholarship to tackle the human dimensions of the environmental crisis. It might finally allow such work to attain the critical mass it needs to break out of customary disciplinary confines and reach a wider public, at a time when natural scientists have begun to acknowledge that an understanding of the environmental crisis must include insights from the humanities and social sciences.

At a time when the humanities are under pressure almost everywhere for their perceived lack of societal contribution, a return to concerns of climate and the environment infuses that research with immediate relevance –

especially when coupled to the openly ethical engagement of humanistic scholars with their topic. It is this new relevance which in turn allowed key proponents such the prolific and influential Mike Hulme, formerly Professor of Climate and Culture at King's College London, now Professor of Human Geography at Cambridge University, to argue so powerfully in high-impact publications such as *Nature Climate Change*, that the humanities need to be taken seriously in this broad field of study (Hulme 2011). Note, however, that Hulme's snapshot of humanistic disciplines producing relevant climate and environmental knowledge does not include archaeology (table 1). This mirrors Berthaller et al.'s (2014) discussion of the environmental humanities – note the title of their paper cited above – whose focus rests entirely with the study of literature, history and the finer arts. Why could this be?

Archaeology has long been concerned with the environment, with robustly established sub-disciplines such as geoarchaeology or environmental archaeology reflecting archaeology's interdigitation with relevant neighbouring disciplines. The definition of such approaches and with it their intellectual stances and research designs are, however, much more closely aligned with the natural sciences than the environmental humanities; they are fundamentally comprised of 'the application of the geosciences to solve research problems in archaeology' (Pollard 1999:7). There are also, I sug-

Table 1. Humanities and social science journals with special issues on climate change, as offered by Mike Hulme in the inaugural issue of *Nature Climate Change* in 2011. Many such issues and dedicated anthologies have been added since but archaeology remains peripheral to the environmental humanities.

Discipline	**Journal**
Anthropology	*Anthropology News* 48 (2007)
Communication studies	*Science Communication* 30 (2009); *Environmental Communication* 3 (2009)
Ethics	*Environmental Justice* 2 (2009)
Historical geography	*Journal of Historical Geography* 35 (2009)
History of science	*Osiris* 26 (2011)
Literary criticism	*Oxford Literature Review* 32 (2010)
Museum studies	*Museum and Society* 9 (2011)
Philosophy	*Journal of Social Philosophy* 40 (2009); *The Monist* 94 (2011)
Psychology	*American Psychologist* 66 (2011)
Religious studies	*Journal for the Study of Religion, Nature and Culture* 6 (2012)
Social sciences	*Contemporary Social Science* 9 (2014)
Sociology	*Theory, Culture and Society 27* (2010); *The Sociological Quarterly* 52 (2011)

gest, more overarching and plainly institutional reasons why archaeology has not been at the core of the environmental humanities movement: outside of Europe, the institutional placement of archaeology varies between the social and natural sciences. The environmental humanities developed most strongly in the US, leaving archaeology by and large behind. Yet more importantly and much more substantively, the environmental humanities are generally related to postmodern theoretical approaches, placing them far away in preferred terminology, method and interest from those archaeologists naturally drawn to the methods of the environmental sciences. Add to this the internal division of archaeology by chronology, and we stand with a situation where environmental archaeologists work primarily in deep prehistory using processual, ecological and evolutionary frameworks and where historical and contemporary archaeologists tend not to be too interested in issues to do with the environment (cf. Shanks & Tilley 1993).

These are broad generalisations, which despite rallying calls for greater attention to dimensions of social justice, to public archaeology and to nature-culture interactions (Hudson et al. 2012) persist, I would argue, to this day. Many of us may be able to recognise these fuzzy borders in our own institutions, where they retain reality in teaching, in research clustering and publication strategies (Jørgensen 2015). Encouragingly, some environmental archaeologists are seizing the opportunity to engage with the environmental humanities on their premises (Richer & Gearey 2017a, 2017b), while an increasing number of historical environmental studies are being published that take an explicit interest in the environment, and which also articulate directly with the broader trend of the environmental humanities and contemporary concerns of climate and environmental change (e.g. Souza & Costa 2018; de Keyzer 2016). The post-colonial historian Dipesh Chakrabarty (2014, 2009) astutely observed that the histories of consumption, of capitalism and of contemporary climate quandaries are conjoined. His 2004 paper in particular represents a personal reflection of a practitioner who had spent most of his career committed to understanding the politically charged entanglements of post-colonial history, i.e. a practitioner whose concerns are *prima facie* most closely aligned with contemporary or historical archaeologies. Yet, he argued that – here in this Human Age, in the Anthropocene – we no longer can write economic, political or cultural histories without also writing environmental histories. This milestone publication, together with similarly impactful analyses of how, for instance, past natural disasters have shaped human cultures in more recent periods (e.g. Janku et al. 2012; Schenk 2007), have led key figures in historical and contemporary archaeology to once more promote the environment – with all its entanglements with gender, indigeneity and power – as an important factor for studies of the recent past (Mrozowski 2010, 2014, 2018; Edgeworth 2014).

These developments, slow as they may be, are very encouraging. But where do they leave the deep past? If articulated more fully with the environmental humanities, these developments could usefully extend that perspective beyond the written record. Such an extension is important, I argue, because it would allow us to embrace a much greater evidence-base of environmental and societal constellations, and to transcend the problematic focus on only literate societies that is inherent in the reliance on written records. Hence, a 'palaeo' extension to the environmental humanities can play a vital empirical as well as conceptual role in the ongoing 'decolonization of thought' (Viveiros de Castro 2011:128).

Yet, if the Anthropocene is accepted as an official geological epoch, it is increasingly likely to be set to begin around 1950 (Zalasiewicz et al. 2017). There are many dissenting voices, however, and the *de jure* status of the Anthropocene as a bona fide geological epoch contested as even the cursory perusal of merely a fraction of recent writings on the Anthropocene will readily reveal (Ruddiman 2018; Brown et al. 2013; Schmidt & Frank 2018; Finney & Edwards 2016; Braje 2016; Malhi 2017). Its *de facto* status as a research focus is not in doubt, however. Here, I wish to make two observations regarding its proposed late onset: first, with the nuclear fallout of the many atomic bomb detonations of the 1950s chosen as the critical global marker of the Anthropocene, this point of onset coincides with our traditional 'archaeological present' *vis-à-vis* radiocarbon dating. In a playful way at least, this then makes the shallow Anthropocene a kind of future imaginary, where the archaeological record of the very recent past provides a material stage for reflections about those futures yet to unfold (cf. Vestergaard & Riede 2016, 2017). Second, this division carries with it the risk of relegating the pre-1950s past to some politically largely irrelevant 'pre-Anthropocene'. The coincidence of the 1950 starting date with the notion of modernity would all too easily lead to a focus on precisely the same self-reflexive and ultimately unproductive preoccupations that define the latter – to the detriment of thinking climate and environments causally into our research designs, interpretations and solutions (Bauer & Ellis 2018; Fox et al. 2017).

It is here my argument truly comes into play. In defining archaeology as a palaeoenvironmental humanities discipline, I am highlighting the shared temporal window between shallow-time disciplines and their deep-time counterparts (figure 1). It is in this shared window that opportunities for interdisciplinary collaboration and conversation arise. A second component of the palaeoenvironmental humanities perspective is the important realization that the deep past, too, weighs significantly on the present. In quite practical terms, we can only hope to truly understand climatic and ecological baselines if we look towards the past (e.g. Swetnam et al. 1999; Szabó

2010); sometimes the archaeological record even allows us to reconstruct important and useful ecological knowledge (e.g. Barthel et al. 2013a, 2013b; Guttmann-Bond 2010; Cooper & Sheets 2012), although such instances are rare and should probably not be overrated (Lane 2015) – solutions from the past do not come easily. More powerfully perhaps than concrete solutions offered by ancient technologies, people draw on archaeology to construct local, regional, national and other kinds of identities and social capital – and the deep past is as much entangled in the politics of geo-cultural heritage as the recent past. In fact, I argue that, as we enter the so-called Anthropocene – the Human Age – the archaeological record of the Pleistocene becomes all the more relevant: the climate of the Pleistocene has been described by the late William Burroughs (2005) as the 'reign of chaos'. The Holocene can be seen as the period where people increasingly aspired to bring order to this chaos, to master 'Nature', to build mighty civilisations and in this process to reshape ecologies at various scales to fit their needs. In the Anthropocene, these aspirations have taken on runaway characteristics and, once more, control over 'Nature' is slipping from our hands. The causes may differ, but the consequences converge – we lose control.

The environmental historian Dagomar Degroot recently wrote in *The Washington Post*:

> Ultimately, the lessons of the past come to us in the form of parables, stories that hint at deeper truths but do not tell us exactly what to do. That does not make them any less valuable. We now know that we cannot ignore our changing climate, that it will shape our fortunes in the decades to come. (Degroot 2018)

Parables are fine and it is certainly possible to see the many proposed instances of past societal change or collapse related to the environment not as powerful, evidence-based completed experiments of history (e.g. Diamond

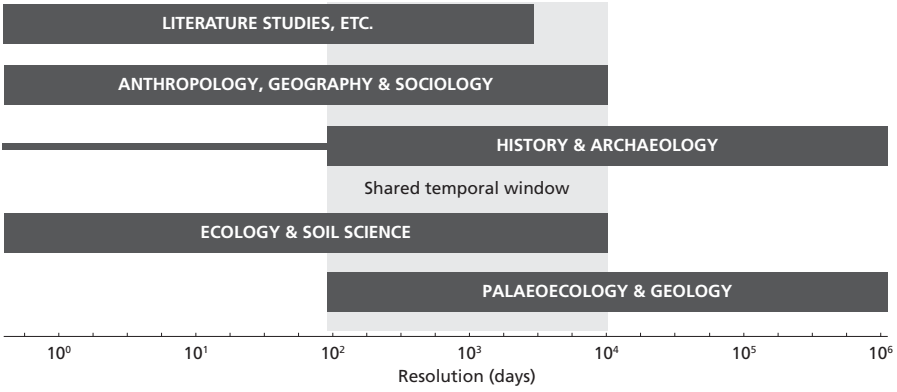

Figure 1. The overlapping temporal windows of disciplinary perspectives within the established (neo-) and the deep time (palaeo-)environmental humanities. Modified from Rull (2014).

& Robinson 2010) but merely as a convenient rhetorical sleight of hand, as a clever way of telling and selling our products (Middleton 2017). I find such a stance troubling. There is broad scientific and, in Europe at least, public consensus that climate change is happening in our time and that societies are being affected by it. How can we maintain such a conviction if we not also consider past peoples being significantly affected by climate, environment and their changes? Hence, I consider it critical that the stories archaeology tells are not merely just-so stories, not just parables, but that we make them as correct as we can using relevant and replicable scientific methods. Uncertainty in interpretation should not be feared but accounted for as an inherent feature of any scientific endeavour (Oreskes 2015). By the same token, uncertainties must not be confused with a fundamental inability to retrieve valid knowledge about the past (Shennan 2004).

Archaeology is, as the philosopher of science Adrian Currie (2018) has encouragingly pointed out, methodologically omnivorous. Owing to this omnivory, archaeology can draw productively on its diverse portfolio: there is no need to align environmental archaeology exclusively with the 'softer' approaches of the environmental humanities, nor does archaeology need to see itself as providing merely human-interest narratives to the climate science reconstructions of past environments. In particular, recent pushes for greater reproducibility and data-sharing in archaeology (Marwick et al. 2017; Marwick 2017; Marwick & Birch 2018), coupled with an increased awareness of the inevitable ethical entanglement of any environmental archaeological study with contemporary concerns (Riede et al. 2016a), may allow us to move beyond strawmen such as environmental determinism or other tendencies and terminologies that often internally polarize and externally paralyze the humanities. In this context, archaeology needs to be aware of its own position: the linkage of European and with it also Scandinavian archaeology with the emergence of the modern nation state and the ideologies of capitalism and consumption (Kristiansen 1993) must be taken account of. Although environmental archaeological approaches have played an important role in the development of Scandinavian archaeology per se (Kristiansen 2002; Gron & Rowley-Conwy 2018), this is rarely linked to its nation-state mandate and the contemporary heritage management and representation issues that arise from it (Prescott 2016; Högberg 2016; Brück & Stutz 2016). Studies that challenge cherished parts of the Scandinavian past where prehistoric cultures that strongly overlap with contemporary or recent historical borders conveniently reinforce essentialist notions of deep ancestry (e.g. Nielsen & Riede 2018; Riede 2017) can be difficult to conduct. It can be argued – perhaps somewhat harshly – that different subtle biases, educational structures strongly linked to a primarily national job market and data management practices strongly linked to national databases serve to reify

and reinforce this '*Heimatkunde* writ large' perspective (cf. Sauer & Riede 2018; Riede 2017). All too easily then, canonical archaeological cases – from elusive Neanderthals to obstinate Ertebøllians and the seemingly omnipresent Viking entrepreneurs (e.g. Dobat 2013, 2017) – become entrained in a methodologically nationalistic (Chernilo 2006, 2011) discourse where ever-increasing consumption, domestication and colonization, budding nations and growing capitalism unwittingly correlate. Worryingly, this is strongly reminiscent of the dark narrative of the 'Capitalocene' (Haraway 2015; Moore 2017) dressed in the somehow more innocent and glorious narrative of modern nation-building (cf. Høgh 2008; Malm & Hornborg 2014). And while research may move on, media narratives, children's books, school materials and textbooks are slow to change, halting rather than facilitating the 'unprecedented transitions' now so urgently called for.

Strategies of engagement in an ecosystem of knowledge and action

I am a reluctant rainbow warrior at best, but like it or not, archaeology – from the Stone Age to the Human Age – is deeply entangled with contemporary concerns regarding the environment. It is clear to me that political sentiments cannot be side-lined in our choices of archaeological research topics. Yet, my motivation to focus ever more strongly on a palaeoenvironmental perspective on the archaeological record is, in the first instance, the result of a career of investigating human-environment relations. It is the archaeological record itself that offers the strongest of narratives about human-environment relation. This entanglement also means that the past – deep and shallow – weighs in on the present. Through the papers we write, the courses we teach, and the exhibitions we stage, the past affects the present, affects the future, makes a difference (Jackson et al. 2018). As public debate on climate change, resource use and environmental policies moves from 'matters of fact' to 'matters of concern' (Stewart & Lewis 2017), archaeology stands to gain a new relevance. Many of the thoughts outlined here have been foreshadowed by Brit Solli's (2011) precocious paper, but re-casting archaeology as a 'palaeo' variant of the environmental humanities leads us to engage even more fully with a wider inter- and transdisciplinary landscape; it confronts us with the ethics of research and research communication and the work our research does in the contemporary world; it also leads to think harder about the role of archaeology and heritage in the Anthropocene futures (Holtorf & Högberg 2015).

Archaeology is a peculiar type of humanities subject in at least two regards: it is earth-bound in an empirical sense and it commands remarkable

museum attention. I would insist that we, in this moment where quantified scenarios of climate change garner most scientific, public and policy traction (cf. Heymann et al. 2017), do not forsake but embrace data-driven archaeological approaches to past human-environment relations. Archaeology everywhere tells salient climate stories (Rockman 2015) – if we chose to tell them. Elsewhere, colleagues and I have called for a systematic and strategic engagement of archaeology and archaeologists with contemporary climate change (Jackson et al. 2017, 2018). We can do so by placing our publications in those journals that feed information up to policy-influencing documents such as the IPCC; we can engage in community archaeological projects revolving around vanishing heritage; we can seek out contact with planners and policy-makers; and we can also attempt to strategically engage museum professionals in this endeavour.

We also try to walk the walk and to in fact draw on the strong local, regional and national embeddedness of archaeology that I critiqued above. In the context of a large EU-funded climate change adaptation project led by the Region of Central Denmark (Coast to Coast Climate Challenge), I lead a sub-project that uses local climate narratives anchored in historical and archaeological sites to facilitate citizen engagement with the issues at hand. It also brings conjoined cultural and environmental histories into spaces and discourses that are otherwise dominated by planners, managers and engineers through exhibition work. In a different project, we have tackled the environmental dimensions of fossil fuel extraction and developing capitalism in western Denmark through excavations and with the explicit aim of creating an exhibition (Riede et al. 2016b; Vestergaard & Riede 2016). This project focused on the former lignite mining site of Søby in central-western Denmark, where an associated museum portrays a traditional narrative of entrepreneurial and largely male ingenuity and of economic success. Our exhibition took on the darker environmental dimensions of these important aspects of modernity (see Blæsild & Beck 2016; Brichet et al. 2017).

While much ink being spilled about the Anthropocene may be more smoke than fire, these diverse writings have usefully highlighted that the debate on human-environment interactions, the impacts of climate change on human societies and vice versa, is not an issue of natural science alone, but one that is rightfully at home across disciplines; if humans and their actions are now a geological force shaping global environmental future, then the Anthropocene falls as much under the remit of the humanities as the natural sciences (Swanson 2016; Bauer & Ellis 2018). Attempts to bring archaeology under the wing of the environmental humanities have been and are – excitingly! – underway in Scandinavia, albeit with varying success in terms of creating lasting institutional structures (e.g. Sørensen & Eskjær

2014; Holm et al. 2004; Nye et al. 2013). The conjoining of cultural and natural histories and of cultural and natural actions points into the deep past where we can hope to identify causal processes and pathways, and where we can retrieve materials for new narratives about human-environment interactions. It also points to the future in the sense that attempts to tackle current and future environmentally related challenges must be thought of as a multi-sectorial and multi-stakeholder concern that is intimately linked with issues of inter-generational social justice, education and ethics. If we accept this conjoining, then museums of culture history become relevant. In Denmark at least – and seemingly in most other parts of Europe (see Egmus) – strikingly more people visit museums of cultural history than museums of natural history (figure 2). Hence, it is museums of cultural history that are in principle much better poised to serve as 'safe places for unsafe ideas' (Gurian 2006:99), as 'provocateurs' (Cameron 2019:647) or even as 'catalysts for change' (Rees 2017:166) in relation to contemporary environmental concerns (see also Cameron & Neilson 2015; Cameron et al. 2013; Cameron & Deslandes 2011).

Cultural heritage is not only a victim of climate change (e.g. Hollesen et al. 2015, 2017, 2018; Frederiksen 2018); in complex and manifold ways, it also generates actionable insights and social capital (Brewer & Riede 2018;

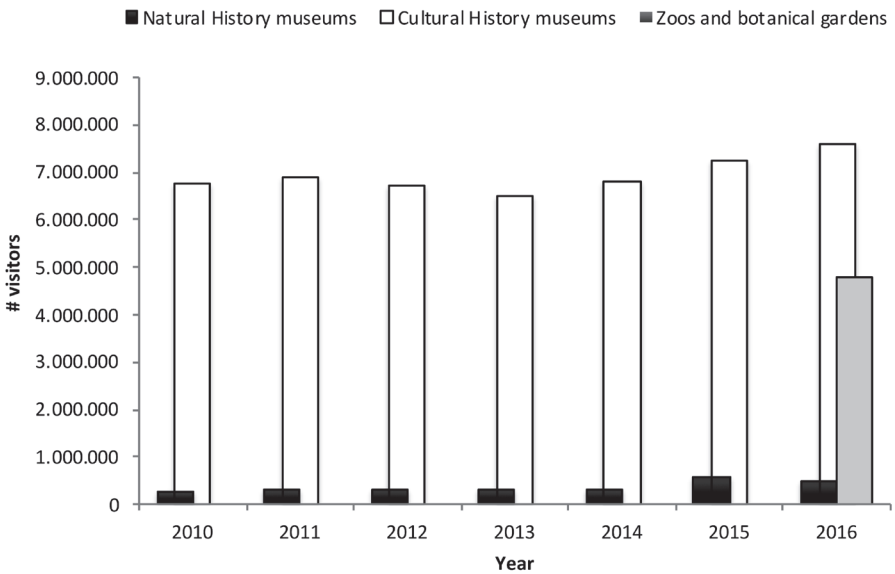

Figure 2. Visitor numbers in museums of cultural and natural history as well as botanical gardens in Denmark, as recorded by Statistics Denmark. Climate appears also to be of major political concern to Danish citizens (see Minter 2018) but note that this claim has also been contested. To my knowledge, it is not as yet, however, a major topic in exhibitions across the country.

Holtorf 2018; Hambrecht & Rockman 2017; Rockman 2012; Harvey & Perry 2015; Armstrong et al. 2017). As Mike Hulme (2008:5) noted:

> We are living in a climate of fear about our future climate. The language of the public discourse around global warming routinely uses a repertoire which includes words such as 'catastrophe', 'terror', 'danger', 'extinction' and 'collapse'. To help make sense of this phenomenon the story of the complex relationships between climates and cultures in different times and in different places is in urgent need of telling. If we can understand from the past something of this complex interweaving of our ideas of climate with their physical and cultural settings we may be better placed to prepare for different configurations of this relationship in the future.

Archaeology excels at telling such stories and its position in the public eye provides us with an opportunity for making them heard. Wright (2017) has recently argued for viewing the university as an ecosystem. I suggest that this notion can be usefully extended to archaeology as a discipline. Living and working together in such an ecosystem of knowledge and action requires above all mutual respect and the willingness to create knowledge together across theoretical, methodological and disciplinary divides. While we all have our predilections – mine are primarily but certainly not exclusively with an evolutionary and digitally enabled archaeology of deep time – each part of archaeology can be seen to fulfil a specific function; each part of archaeology reaches out to some constituency; each part of archaeology tells its 'story of the complex relationships between climates and cultures in different times and in different places'; each part of archaeology can be part and parcel of the impactful role the discipline – as a 'palaeo' variant of the environmental humanities – can play in the doubtlessly challenging societal transitions lying ahead.

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