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Inventing/Inheriting the Geologic

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In this tangential contribution to current Critical Heritage Studies discourse, I want to look at landscape heritage from an Anthropocene angle.¹ Thinking the Anthropocene, I will argue, problematizes but also qualifies the concept of heritage, and that of landscape. Inverting the perspective, I will then look at the emergence of Anthropocene deep time itself and argue it is an important component of the heritage *of our present* that, in turn, has the potential of helping to shape future landscapes on the planet.

I. *Lessons from deep time*

“[I]n most discussions of the Anthropocene,” notes Dipesh Chakrabarty in a recent paper, “questions of geological time fall out of view and the time of human world history comes to predominate.”² Like Chakrabarty, I find this unfortunate and believe that feeding geologic time into the analysis and contextualization of the present is an asset of thinking the latter in Anthropocene terms. Indeed, from the onset in the early 2000s,

the Anthropocene has been used as a distinctly geological term (designating a new geologic epoch following the Holocene) based on the notion that humans have become a geomorphological agents³ – agents that impact not just the Earth’s biosphere but also its geological makeup. A process of formalizing the Anthropocene as latest entry into the 4.5 billion year panorama of the geological timescale has been set in motion. Geologists reconstruct past geomorphological activities on the planet by looking at the geological strata present on Earth today. Instead of basing their assessment of a new geological epoch on present geomorphological activities, they are thus eager to base it on a geological stratum as well, *albeit this time a future one*. A recurring question in the geological Anthropocene literature is therefore how human agency today translates into the sedimentation of a distinct new stratum, what its stratigraphic characteristics will be, and where it begins. Putting themselves in the shoes of future geologists, their present colleagues intend to place a Golden Spike in the Earth to mark the point of distinction of the Anthropocene stratum and underlying Holocene sedimentations.

But once the Anthropocene stratum will be fully formed, by definition there will be no human geologists around.⁴ As if correcting for that unfortunate detail, Anthropocene geologists

produce the imaginary of *alien* observers looking at the human stratum. „[T]hey had good balance, these explorers, their tails and sharp claws helping them scramble up the near-vertical rocky surfaces,“ writes Jan Zalasiewicz, Chair of the Anthropocene Working Group at the International Commission on Stratigraphy, in his 2009 monograph *The Earth After Us. What Legacy Will Humans Leave in the Rocks?*⁵ But this pitiful fiction cannot hide the fact that what appears as the paradigmatic heritage of the Anthropocene, *its stratum*, is in fact no heritage at all. Without inheritors, no heritage. Unwittingly exposing its outer limits, the Anthropocene discourse marks the *finite domain* of the heritage concept and confronts us with *ultimate heritagelessness* in a non-creationist universe.⁶

Within that domain, however, it opens entirely new dimensions of thinking the future of heritage. For contextualizing the present in the deep time of a 300.000 year history of Homo sapiens, we realize that humans will likely be around for tens, if not hundreds of thousands of years in the future of an Anthropocene Earth. Reversing our intuitions that we live in end times and that the Anthropocene is apocalypse in ecological guise, we find that we are still *early humans* live in the *prehistoire* of a deep future of humans on the planet.⁷

So there is a lot to inherit. –

Turning from heritage to landscape, I find it a strength of Anthropocene concept to not only mark the difference of our present to the Holocene, but, seeing it in the panorama of geologic time, to also make it explicit that the Holocene itself was a particular geological period that is not representative for past states of the Earth.

Relieving us from ‘Holocene-centric’ views of the planet, thinking the Anthropocene opens up new pathways into nature philosophy, switching from the ‘idylls’ of evolutionary gradualism, ecological equilibria and planetary homeostasis to the notion of a hyper-dynamic evolutionary history marked by forces like plate tectonics, punctuated equilibria, recurring mass extinction events, and, correspondingly, vastly shifting CO₂-levels and climates.

Landscape, however, does not exist in geologic time. For the term signifies a very particular way of accessing the Earth: Not the earthworm’s or the satellite’s, but the Earth as accessed by the embodied human observer. But individual humans do not exist at geologic timescales, such that a ‘landscape in geologic time’ would be ‘landscape’ for nobody. What’s more, a section of the Earth’s surface, *could* it be observed over geologic time periods, would display such vast fluctuations in its ecological, climatic and even geologic

properties that it virtually makes no sense to address it as a particular landscape.

The Earth is fluid in geologic time.

Conversely, however, it is precisely this fluidity that allows us to rethink landscape beyond the Holocene context. The evidence of habitable pre-Holocene landscapes *normalizes* the idea of habitable post-Holocene landscapes. Humans have for the most part lived outside the Holocene, namely in the Chibanian and Late Pleistocene. Knowledge of the deep past of terrestrial landscapes gives us the sense that livable landscapes may be constructed outside of the Holocene template *in the future as well*.

II. *Anthropocene Heritage*

Deep time is young. In the 17th century, the Ussher chronology set the date of the creation of Earth and universe still at the year 4004 before Christ; estimates of more than 4 billion years were not reached before the early 20th century, and only by mid-century did geologists reach the current number of around 4.5 billion years.⁸ Not going into the vivid debates as to the precise onset of the Anthropocene epoch – did it begin with the European colonization of the Americas, the Industrial Revolution, or the 1950s⁹ –, one can broadly say that deep time

is of the Anthropocene. Before the Anthropocene, the Earth did not reside in deep time, but first in an eternal present, then in the comparably near-term historical time of first oral, then written histories; the strata of rock in its lithosphere and visible in its rock formations told nothing of a past. The Earth had not been touched by the geologic.

Given that the geological sciences have, from the beginning, been intertwined with, and fostered by, economic and state interests around coal and later oil mining,¹⁰ it is no accident that historical geology comes about in the Anthropocene. It is connected in material ways with the development of the geomorphological agency that has come to define the Anthropocene era – fueling the industry, infrastructure and agriculture of an increasingly globalized human world population that had grown from 1 billion in 1800 to 2,4 billion people in 1950. But around 1950 begins what Anthropocene theorists term *The Great Acceleration* – the markedly exponential growth in socio-economic trends like GDP, urbanization, energy consumption, transportation, and again population, accompanied by exponential Earth system trends in parameters like CO₂, Ocean acidification, and biodiversity loss.¹¹

This hyper-dynamism of the Great Acceleration is the scenario in which discourses and practices around ‘heritage’ have

become ubiquitous.¹² ‘Heritage’ – the precise opposite of ‘tradition’ – emerges where the geomorphological agency of humans ushers in the Anthropocene as an age of biological mass extinction in the Holocene biosphere as well as a mass extinction of Holocene – i.e. pre-modern, pre-global – human cultures and practices. In this outlook, practices of landscape heritagemaking do not aim – or could possibly succeed – at eternalizing some contingent natural, cultural, or naturecultural site from the Holocene or earlier. Instead, they are future-oriented practices of moderating, negotiating and managing change in times of rampant cultural evolution and habitat transformation.

“Thinking of heritage as a creative engagement with the past in the present,” writes heritage scholar Rodney Harrison, “focuses our attention on our ability to take an active and informed role in the production of our own ‘tomorrow’.”¹³

What I want to stress, however, and what motivated my switch from deep time to its contemporary making-of, is the notion that it is the heritage *of the present*, the heritage *of the Anthropocene*, that plays the key role in that moderation, negotiation and collective management of desirable change for all. In other words, it is my understanding that the most pressing things for us to inherit are generally the ones *that have most recently emerged* – that the heritage of the early Anthropocene is the

bottleneck that the heritage from the Holocene needs to pass through in order to get into the future.

Take the new heritage practices and institutions. The preservation of landscape heritage depends in part, say, on being recorded on the UNESCO World Heritage List (1972ff.). But the UNESCO as institution is not an item on its own list – it cannot guarantee its own preservation. Managing heritage, it is itself unmanaged heritage. Thus the future of the landscape heritages now depends – not on the heritage of this or that Holocene landscape on the list, but – on the arbitrary ways *in which the UNESCO itself, a heritage of the early Anthropocene, is inherited to future generations*. As if in a reversal of background and foreground, I therefore believe it is *this* – the heritage of ‘heritage,’ making sure that ‘heritage’ discourse and practices are properly inherited – what should in fact be the crucial focus in thinking about heritage today.¹⁴

And heritagemaking is just one example. There is a whole range of knowledges and practices that emerged not before the Anthropocene and on whose inheritance the future of Holocene landscapes crucially hinges upon. For the Anthropocene is the very first era where humans have at their disposal a powerful cognitive and practical toolkit for the ecological governance of landscapes, ecosystems, and the Earth system at the planetary

scale. The heritage of knowledges and practices like ecosystems and biodiversity research and protection, ecological footprint measurement, research and development in alternative energies and agricultures, earth system science, and not least Anthropocene studies – and of the institutions that host and promote these knowledges and practices –, *is the most crucial and precious heritage on the planet right now that we should most watch out for*, for they are the bottleneck for everything else to have a chance at inheritance, and, more broadly, they are the tools for pacing and designing desirable change on the planet.

III. *Inhabiting Deep Time*

I want to get back to deep time and in closing mention why I think that deep time is also crucial piece of heritage of the early Anthropocene to the future – why it is part of the aforementioned toolkit.

Two reasons:

(1) Deep time is the data-space that climate and earth system science draw from when constructing their models to predict the climate and earth systems' reactions to anthropogenic impacts. Inductive reasoning from the Earth's deep history to the present makes deep time conducive in designing desirable change to the degree that humans base their policies on those

models – which I think they should do. Given that deep time is not a physical property of the planet but part of the metaphysical world uncovered by some scientific version of what Kant would have called pure reason, climate- and earth system science-based political governance constitute a case of what I in another context called an ‘atheist theocracy.’¹⁵

(2) Going back to Chakrabarty, he engages in the widespread conversation about whether the Anthropocene is a misnomer. As Anderas Malm, Alf Hornborg and others have convincingly argued, geomorphological agency – and hence potential blame and responsibility for attached damage – is very unevenly distributed amongst the human world population. Ascribing the current condition to the *anthropos* – i.e. the human species –, the argument runs, implies glancing over the brute facts of obscene inequality and ongoing exploitation in the early Anthropocene.

I believe the opposite.

For ‘species’ is simply the protagonist that emerges when you exit the temporal domain of ‘world history’ and start looking at humans (*Homo sapiens* or otherwise) in deep time. I find this important. Looking at how the species some 70.000 year ago starts to diffuse into the different continents and territories of the Earth and, its fractions spatially isolated, generates

unfathomable amounts of cultural diversity before precariously ‘reuniting’ in the planetary arena in through colonialism, imperialism and capitalist globalization, in a radical way *denaturalizes* and *de-essentializes* all historical and regional products of cultural evolution – including nation states and capitalist modes of production – while at the same time providing a sense of the *essential unity* of that entire process. Looking at the species in deep time is the key to acknowledging and understanding the hyper-problematic ways in which globalization has make the unity of the species a concrete reality today, in which has produced the unequal entanglements that are at the heart e.g. of the climate justice movement. And it not least underlays the concept of world heritage and the conflicts that must enter into its formulation.¹⁶

Geology is important because it brings forth and anchors the grand narratives required as political software for people to get by in the Anthropocene. The political philosophy of planetary civilization should, I think, be anchored in the recent heritage of deep time.

¹ This is a marginally expanded version of a paper presented at the ACHS2020 Critical Heritage Studies Conference *Futures* at UCL London [online], August 2020.

² Dipesh Chakrabarty, “Anthropocene Time,” *History and Theory* 57, no. 1 (March 2018): 5–32, <https://doi.org/10.1111/hith.12044>, 6.

³ See Paul J. Crutzen and Eugene F. Stoermer, “The Anthropocene,” *Global Change Newsletter* 41 (2000): 17–18; Paul J. Crutzen, “Geology of Mankind,” *Nature* 415, no. 6867 (January 2002): 23–23, <https://doi.org/10.1038/415023a>.

⁴ A product of high levels of societal complexity, geology – like all modern sciences and their progeny – will be lost where the global societal complexity that currently produces the Anthropocene breaks down. Thus if humans are present on the planet after the Anthropocene (which is likely), they will not be doing geology.

⁵ Jan Zalasiewicz, *The Earth after Us: What Legacy Will Humans Leave in the Rocks?* (Oxford: Oxford University Press, 2009).

⁶ Viewed in this light, the 1977 launch of two ‘Golden Records’ with samples of human culture inside the Voyager space crafts sent on a one-way trip into outer space appear as desperate or comical attempts at, against all odds, escaping the finite domain of heritage, finding an exterior observer of human civilization on Earth – a distant heir of the knowledge of its existence –, and thus *turning the human enterprise into someone’s heritage* at last.

⁷ I expand on this perspective in Daniel Falb, *Geospekulationen. Metaphysik Für Die Erde Im Anthropozän* (Berlin: Merve Verlag, 2019).

⁸ Lawrence Badash, “The-Age-of-the-Earth-Debate,” in: *Scientific American*, Aug. 1989, 90–96.

⁹ Simon L. Lewis and Mark A. Maslin, “Defining the Anthropocene,” *Nature* 519, no. 7542 (March 2015): 171–80, <https://doi.org/10.1038/nature14258>.

¹⁰ See Ezio Vaccari, “Mining Academies as Centers of Geological Research and Education in Europe between the 18th and the 19th Century,” *De Re Metallica* 13, 2009, 35–41; Martin Guntau, “The Emergence of Geology as a Scientific Discipline,” in: *History of Science*, vol. 16: 280–290.

¹¹ Will Steffen et al., “The Trajectory of the Anthropocene: The Great Acceleration,” *The Anthropocene Review* 2, no. 1 (April 1, 2015): 81–98, <https://doi.org/10.1177/2053019614564785>.

¹² Rodney Harrison, *Heritage: Critical Approaches* (Milton Park, Abingdon; New York: Routledge, 2013), 68ff.

¹³ Rodney Harrison, *Heritage: Critical Approaches*, 4.

¹⁴ The default assumption would be to think that heritage discourse and practices, which are as noted of very recent origin, like so many other things will be no more than a momentary cultural fashion; foregrounding their recent emergence and fragile institutional anchoring, it is by no means certain and frankly unlikely that they will be around in, say, 200 or 500 years. And perhaps that is not a problem (given that ‘heritage’ is not about absolute conservation, but, as I put it, the design of desirable change in this present moment). But *if* present heritage advocates and practitioners care about the longer future of the heritage they today cherish, this is what they have to look at. In terms of a research agenda, shifting attention to the heritage of ‘heritage’-practices (and generally the heritage of the present) implies a general focus on *intangible* heritage, i.e. on the heritage of *(institutional) practices, not things*. It calls for further research into strategies of making heritage institutions and agencies durable in transgenerational time – see the precedent of nuclear semiotics –, e.g. by way of juridical and multinational lock-in mechanisms, strategies of continuous recruitment (e.g. creating a ‘diplomat’ class around heritage), and exploiting dimensions of institutional greed and inertia; and into strategies of increasing and maintaining global public knowledge, interest and support of and for heritage practices, e.g. by way of influencing science and university politics and funding, lobbying school curricula etc.

¹⁵ A term again from Falb, *Geospekulationen. Metaphysik Für Die Erde Im Anthropozän*.

¹⁶ See “History [2012 Manifesto],” Association of Critical Heritage Studies, accessed August 29, 2020, <https://www.criticalheritagestudies.org/history>.