NARRATIVES IN THE ANTHROPOCENE ERA

Charles Travis, Vittorio Valentino (Editors)

Preface by Kirill O. Thompson

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Geographies of the Anthropocene

Narratives in the Anthropocene era

Charles Travis

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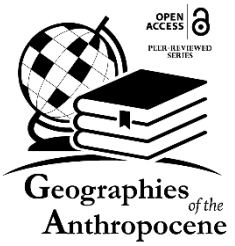
Editors



IL Sileno Edizioni

“Narratives in the Anthropocene era”

Charles Travis, Vittorio Valentino (Eds.)

is a collective volume of the Open Access and peer-reviewed series
“Geographies of the Anthropocene”
(Il Sileno Edizioni), ISSN 2611-3171.

www.ilsileno.it

Cover: Photo by Melissa Bradley on Unsplash

ISBN 979-12-80064-27-1

Vol. 4, No. 2, December 2021

Geographies of the Anthropocene

OPEN ACCESS

PEER-REVIEWED SERIES

ISSN 2611-3171

Geographies of the Anthropocene

Open Access and Peer-Reviewed series

Editorial Assistant, Graphic Project and Layout Design: Ambra Benvenuto;

Website: www.ilsileno.it/geographiesoftheanthropocene;

The book series "Geographies of the Anthropocene" edited by Scientific International Publisher "Il Sileno Edizioni" will discuss the new processes of the Anthropocene epoch through the various worldviews of geoscientists and

humanists, intersecting disciplines of Geosciences, Geography, Geoethics, Philosophy, Socio-Anthropology, Sociology of Environment and Territory, Psychology, Economics, Environmental Humanities and cognate disciplines.

Geoethics focuses on how scientists (natural and social), arts and humanities scholars working in tandem can become more aware of their ethical responsibilities to guide society on matters related to public safety in the face of natural hazards, sustainable use of resources, climate change and protection of the environment. Furthermore, the integrated and multiple perspectives of the Environmental Humanities, can help to more fully understand the cultures of, and the cultures which frame the Anthropocene. Indeed, the focus of Geoethics and Environmental Humanities research, that is, the analysis of the way humans think and act for the purpose of advising and suggesting appropriate behaviors where human activities interact with the geosphere, is dialectically linked to the complex concept of Anthropocene.

The book series "Geographies of the Anthropocene" publishes online volumes, both collective volumes and monographs, which are set in the perspective of providing reflections, work materials and experimentation in the fields of research and education about the new geographies of the Anthropocene.

"Geographies of the Anthropocene" encourages proposals that address one or more themes, including case studies, but welcome all volumes related to the interdisciplinary context of the Anthropocene. Published volumes are subject to a review process (**double blind peer review**) to ensure their scientific rigor.

The volume proposals can be presented in English, Italian, French or Spanish.

The choice of digital Open Access format is coherent with the flexible structure of the series, in order to facilitate the direct accessibility and usability by both authors and readers.

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16. Mapping the Anthropocene: The Harrisons' and *The Deep Wealth of this Nation, Scotland*

Inge Panneels[1]

'The purpose of art, then, is not to communicate science but to investigate its conditions of possibility'
Tim Ingold (2017)

Abstract

Mapping the Anthropocene considers *The Deep Wealth of this Nation, Scotland* (2018) by eco-art pioneers Helen Mayer and Newton Harrison. Known as the Harrisons, they deploy mapping to explore how a future Scotland could thrive and create surplus of ecological resources, founded on deep scientific ecological knowledge. The aesthetic of cognitive mapping argued for by Fredric Jameson (1988) is traced in this visual art practice and locates it more specifically within environmental art practices. This case study is presented as a significant model of Cultural Ecosystem Services (CES) where mapping and hacking are methods for collaborative, often interdisciplinary, art practices which, by specifically homing in on the local, highlight interconnectedness to global ecosystems to provide an 'ecological eye' (Patrizio, 2019) on the Anthropocene. It proposes that CES are underused and undervalued tools for policy-makers, to be reconsidered in context of the new ontopolitics of the Anthropocene (Chandler, 2018): one of enmeshment and entanglement of culture and nature as Joseph Beuys, and Patrick Geddes had anticipated and argued for. Thus, the Harrisons' cartographic and geographic perspective provides an important understanding of the Anthropocene through visual arts practice and visual culture.

Keywords: Anthropocene, mapping, creative cartographies, cultural ecosystem services, visual culture.

[1] Edinburgh Napier University, Edinburgh; e-mail: i.panneels@napier.ac.uk.

1. The Anthropocene

Scientific consensus is that 'climate is changing and that these changes are in large part caused by human activities' and are 'largely irreversible' (Solomon *et al.*, 2009; Steffen *et al.*, 2015; IPPC, 2018). Critically, the impact of human activity on the Earth has not only made significant changes to the planet earth systems, resulting in climatic changes causing global warming, but is also evidenced in geological findings, such as marine sediments (Zalasiewicz *et al*, 2016) and ice cores (Uglietti *et al*, 2015), and in the recent steep decline in biodiversity, leading scientists to name it the Sixth Extinction (Kolbert, 2014).

The term Anthropocene (Crutzen and Stoermer, 2000, pp. 17-18) to denote a new geological era, shaped by humans, has been widely used and recognised as a word with which to describe the profound effects of humans on the planetary ecosystems (Lewis and Maslin, 2018). The word entered popular culture and was logged in the *Oxford English Dictionary* in June 2014 (Macfarlane, 2016). The concept of the Anthropocene has made its way into a number of other scientific studies, the social sciences, humanities and the arts. Critically, there has been a call to resist the term. Scholars from feminist, gender and race theory have argued for more nuanced approaches. Other words have been offered to enable this critique; Gynecene (Demos, 2017, p. 89), Capitalocene (Moore and Patel, 2015) or Chthulucene (Haraway, 2015).[2] These alternatives challenge the human-centric concept of the term and critique its predominantly male, white Western, wealthy vantage point. However, despite these contestations, the Anthropocene has provided a philosophical and conceptual framework that has enabled a wide-ranging discourse to unfold on the impact of human activity on the planet and its ecosystems. Although Bruno Latour famously argued that 'we have never been modern' (1993), Timothy Morton (2013) called the Anthropocene 'the end of the world' as conceived of in Modernity. The Anthropocene then, is a 'harbinger of a new awareness of a humbler position in the world; the end of the reassuring assumptions of liberal modernity' (Simon Dalby as cited in Chandler, 2018, p. 11). Nature and culture are conceptualised here as intrinsically enmeshed.

[2] Derived from the Greek *khthôn* (the htonic ones) and *kainos* (now) the term suggests 'myriad temporalities and spatialities and myriad intra-active entitites-in-assemblages including the more-than-human, other-than-human, inhuman, and human-as-humus' (Haraway in Demos: 2017a: 87).

The philosopher Timothy Morton (2013) considers global warming to be a *hyperobject* formed by interactions between the Sun, fossil fuels, and carbon dioxide, among other objects. Hyperobjects refer to things which are 'massively distributed in time and space relative to humans' and are directly responsible for what he calls 'the end of the world as we know it' (Morton, 2013, p.1). Morton argues that part of the problem with climate change and capitalism, is that we cannot perceive these directly. These are entities of such vast temporal and spatial dimensions that they defeat what a *thing* is in the first place.[3] Visual theorist Nicholas Mirzoeff observed (2014), similar to Morton's hyperobjects (2013), that the Anthropocene cannot be observed or seen and argued that it can only be visualised or imagined: 'The last moment of human agency comes in the rendering of this phenomenon into an aesthetic, comprising both the ancient concept of bodily perception and the modern sense of the beautiful' (Mirzoeff, 2014, p. 213).[4] A visual lexicon of the Anthropocene has emerged and has been compilated to describe a widening field of critical visual engagement with the Anthropocene (Reiss, 2019; Davis and Turpin, 2015; Neal, 2015; Brady, 2016; Miles, 2014; Weintraub, 2012). The case study discussed in this chapter thus fits into an emerging discourse and scholarship on what art historian Andrew Patrizio calls the 'ecological eye' (2019), an ecocritical art history of art practices but is located here at the intersection of geo-humanities (Rogoff, 2000; Hawkins, 2014) and environmental humanities' discourse on enmeshment of culture and nature (Brady, 2006; Ghosh, 2016). It moves the debate forward on the value of art practice in relation to Cultural Ecosystems Services (Church *et al*, 2014; Coates *ed.*, 2014ab), a vibrant and relatively new field of interdisciplinary research which 'lacks a well-established, reproducible research framework' (Milcu *et al.,* 2013, p. 44). It is within the field of visual culture that engages with the Anthropocene, and the geographies of the Anthropocene specifically, that the following case study should be located.

2. *The Deep Wealth of This Nation, Scotland*

The career of the American artists, known as the Harrisons (Helen Mayer (1927-2018) and Newton Harrison (1932-)), has spanned five decades and

[3] My emphasis.

[4] Mirzoeff called it the 'autoimmune climate-changing capitalism syndrome' or AICS, that is 'a Western imperial project, the shame and the crisis is that it has affected every living thing whatsoever' (2014, pp. 215-217).

has been situated at the forefront of ecological art practice. Eco-art practices emerged from the political developments and the Land Art movement in the 1960s, which proved pivotal and influential on a new generation of artists emerging in the late 20th century (Kastner and Wallis, 1998). The 20th century avant-garde artist and ecological pioneer Joseph Beuys' radical concept of Social Sculpture (Adams, 1992) 'encourages and explores transdisciplinary creativity and vision towards the shaping of a humane and ecologically viable society' (Social Sculpture Research Unit, 2012). Following Beuys, the Harrisons' main criteria remains work that has ecological rather than social value, the latter being implied in the first. Their oeuvre thus fits within a tradition of environmental art practices (Weintraub, 2012; Miles, 2014; Neal, 2015; Reiss, 2019) and their socially engaged counterparts (Lacy, 1994). The Harrisons imagine 'an exchange–based society behaving like the life-web, where exploitation is dysfunctional behaviour and growth self-limiting' (Harrisons, 2016, p. 430).

Theirs is an Environmental Art practice, with roots in Land Art, where mapping became a recognised *modus operandi* of engaging with land, place and space (Casey, 2002, 2005). Maps have been notable in creative practices since the 1960s, a post-modern phenomenon where 'where all conventions and rules are circumspect' (Harmon, 2009, p. 9). Mapping in the context of creative and critical cartographies became more prominent in the 1990s and more significantly in the 2000s as radical and critical approaches to landscape, cartography and urbanism (Harmon, 2004, 2009; Thompson, 2008; Watson, 2009; Panneels, 2018; Reddleman, 2018). The Harrisons' creative mapping practices have the 'ecological eye' (Patrizio, 2019), located at the intersection of art history (Rogoff, 2000; Hawkins, 2014) and environmental humanities' discourse on enmeshment of culture and nature (Brady, 2006; Ghosh, 2016).

The thematic of climate change first appeared in *San Diego as the Center of a World* (1973), a circular map first shown in *Decentering* solo exhibition at the Ronald Feldman Gallery, New York. It is based on research in the early 1970s by Robert Bryce, who argued that the global forecast was for a new glacial period with retreating oceans, and counter research by Gilbert Plass who argued that increased CO2 emissions would lead to global warming and rising sea levels. Either scenario, the artists argued, would be disastrous. It was a critical piece that clarified and exemplified their *modus operandi*. Collaboration, dialogue and research became critical and they developed methods to deploy in every project:

Fieldwork: ‘it’s all about seeing’

Dialogue: ‘talking things over’

Mapping: ‘we use the map to meditate’

Libraries and Archives: ‘a penchant for research’

A Guiding Metaphor.

Mapping is thus a critical part of their art practice which they consider a form of meditation: to pause, reflect and get a sense of the place. The mapping occurs by looking for a ‘frame’ (e.g. the waters) which creates a ‘field’ on which to focus (e.g. the peninsula) from which significant *relationships* will emerge: ‘mapping delineates both the field of play and the problem’(Spirn, p. 436). Mapping is therefore used by the Harrisons as a means to discover the overlooked, and to create a new whole. The map becomes a means for visualising complex ecosystems. Large scale wall maps featured in the *Lagoon Cycle* (1974-1984), a decade long project that detailed seven lagoon proposals for different sites and ecosystems and was their first work of epic scale and intent (Douglas and Fremantle in: Brady, 2016, p. 162). The importance of dialogue extends to the place itself, and its communities. Performing texts became a tool for ‘transferring information’ in a condensed manner. The *Lagoon* series was thus an important work that brought together poetry in the form of text, large-scale photography and wall sized maps (https://theharrisonstudio.net/the-lagoon-cycle-1974-1984-2).

During the 1980s and 1990s, the Harrisons worked on increasingly large-scale projects that involved planning on the scale of cities (*Baltimore Promenade* (1981)), regions (*Atempause für den Fluss Sava* (1990), *Serpentine Lattice* (1993), *Das Einzugsgebiet der Mulde* (1994), *Green Heart Vision* (1994)), countries (*Tibet is the High Ground* (1993)) and even entire continents (*The Green Landscape: The World As A Garden* (1998-99)) that took account of the interaction of lost, existing or future restored ecosystems.[5] These artworks, initially shown in museums and biennales,

[5] *The Green Landscape: The World as a Garden* (1998-99) was a proposal that asked whether an ecological vision could be applied to an entire continent by suggesting the regeneration of the high grounds of Europe, where its river networks began, in order to

also increasingly featured in town- and city halls, planning departments and government agencies across the word from the USA, Germany to The Netherlands and Tibet.

Because of the complexity and involvement of many different people and agencies, these projects often developed independently, with others further developing the Harrisons' thinking or spurred into action of unintended consequences. The Harrisons labelled this 'conversational drift' (Harrisons, 2016, p. 223). The artists 'took for granted that the work would be eco-political in nature' but also understood that not all proposals would be enacted upon (Harrison, 2016, p. 64). Nevertheless, the Harrisons have a considerable record of works that have been enacted in policy or built form. Examples include *Baltimore Promenade* (1980) which, through walking and mapping, reconfigured an urban regeneration plan for the city; *Das Einzugsgebiet der Mulde* (1994) which proposed a holistic approach to reclaim the polluted watershed of the German Mulde River basin near Dessa; *Groene Hart van Holland* (1994) (Fig.1) that presented a map preserving the green heart of the Netherlands whilst allowing extensive urban expansion to be accommodated, and the *Endangered Meadows of Europe* (1996) that saw a mature meadow sown and grown on the rooftop of the Kunsthalle in Bonn and adopted by cities up and down the Rhine valley in Germany. For the Harrisons, ecological art must address the totality of interrelationships that define ecosystems in order to effect environmental change. Their work as such has an explicit activist agenda of addressing environmental issues but informed by thorough scientific research, with support and complicity from local communities, offering possible solutions to seemingly intractable problems.

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secure its ecosystems and water supply. This proposal was made for Expo 2000 World Fair at Hanover, funded by a group of financiers (Harrisons: 2016: 310). This vision had emerged by taking large topographical maps of Europe and erasing the road networks and instead emphasising the rivers. The 'peninsula of Europe' – with its vast networks of rivers - was geographically distinctly different from the plains of Russia. The Harrisons 'posed the question for which there was no answer; Who is attending to the connectivity of the whole?' (Harrisons: 2016: 316). It can of course be argued that COP21 in all its political messiness and compromise, was a first global response to 'the connectivity of the whole'.

Figure 1 - *Groene Hart van Hollan, the Harrisons, 1984 (source: https://theharrisonstudio.net/a-vision-for-the-green-heart-of-holland).*

The Harrisons' magnum opus, *The Center for the Study of The Force Majeure*, was set up at the University of California in Santa Cruz (UCSC) in 2009.[6] The Center aims to bring together artists and scientists to 'design ecosystem-adaptation projects in critical regions around the world to respond to climate change' (Center for the Study of the Force Majeure, 2018). It was through the *Greenhouse Britain: losing ground, gaining wisdom* (2008) (Fig. 3) that the Harrisons introduced the *form determinant*, meaning 'the ocean will determine much of the new form, that culture, industry and many other elements of civilization may need to take' (*Greenhouse Britain*, 2008) (Fremantle, 2018).

Figure 2 - *Greenhouse Britain, The Harrisons, 2008.*

[6] The Center for the Study of the Force Majeur has an American spelling rather than the British English spelling of 'centre' and I will use the original throughout to denote its American origins.

However, in reflecting on over four decades of work together, the Harrisons noted that what had been missing in their oeuvre, was the human as a 'form determinant' shaping the planet. Although they do not use the term itself, they clearly refer to the Anthropocene. The term *Force Majeure* is a legal term, also known as an act of God, which literally translates as 'superior force'. However, this is not a get-out clause for the Harrisons, but one that forces us to take responsibility for human consequences as a major force. In their vision of the Center, detailed in the *Manifesto for The Twenty First Century*, an assumption is made that most tipping points have already been reached and that the focus has remained both human-centric and on technological fixes. The Center argues that planet-wide entropy has been created in local systems. The *Limits to Growth* reports (Meadows *et al*.,1972, 1992 & 2004) made clear that lowering entropy within living systems would require a transformation of all economic systems 'based on exploitation, and their regeneration into systems of exchange' (Harrison, 2016, p. 377). The Harrisons observed that if lowering entropy in the exploited systems would be a pre-condition for the continuing survival of many species, 'including our own', then large-scale systems thinking was required to enable the lowering of entropy to take place. It is this fundamental principle that has underpinned their thinking in the *Force Majeure* projects. Under the auspices of the Center, seven works at seven scales have so far been developed, many of which emerged from projects during the 1980s and 1990s and includes their last project before Helen's death in 2018: *The Deep Wealth of this Nation, Scotland.*

The Harrisons' guiding principle is to go to a place only by invitation with 'the eye of the stranger' and 'to listen to people who care about a place, who have something to say, who have knowledge'. In February 2017, the Harrisons were invited by The Barn, a multi-arts centre in Banchory, Aberdeenshire, which has environmental awareness and social responsibility as its guiding principles. The Harrisons were invited to generate ideas for helping communities along the River Dee address the issue of flooding, following major floods in the winter of 2015-2016. In response to the invitation, the Harrisons observed that the Dee and Don watersheds join at their outfalls on either side of the city of Aberdeen and proposed: 'Let us do a work for the Dee and the Don and let the Dee and the Don tell us what to do' (Center for the Force Majeure). They requested a flight over the estuary in a small Cessna plane that allowed an overview of the valleys during their site visit in September 2017. The two fundamental questions of 'how big is here?' and 'how long is now' are the guiding

principles in all the *Force Majeure* projects and are transposed to whichever site is under investigation, and act as a device to open up the conversation with the local community to consider human beings in relations to the ecological system. The Harrisons collaborated with The Barn and the James Hutton Institute, who provided scientific input for this project.

The twin watersheds became a model for the larger vision that was developed for Scotland as a nation. The guiding narrative for this large-scale work is a poem typical of the Harrisons *modus operandi*, and functioned as both a guiding metaphor for thinking and informed the subsequent mappings. The text argues that Scotland as a nation has enough wealth in its commons, with its natural riches of topsoil, oxygen, trees and water, to not only make it carbon neutral but allow it to create a surplus to sustain the population of 5.3 million inhabitants. They argue that this model is particular to Scotland and perhaps ten other small nations with large natural resources. Ten large-scale maps, printed on thick paper by specialist printers, were produced for the exhibition at The Barn (11-22 September 2018) (Fig. 3). The Harrisons' work is immersive. Maps and photographs are printed large: often 2.4 metres high and many metres long, hung five to ten centimetres off the ground, giving the illusion upon approach of being able to step into the work. The ability to find one's home, or place of relevance, is critical in making the work relatable. The eye can see simultaneously the whole, and the detail in context of the whole can clearly be seen. Sometimes the images are moved from the wall to the floor, which changes the bodily response to it. The Harrisons' deep knowledge of art, art history and philosophy informs their work profoundly.

The Deep Wealth of this Nation, Scotland project takes place in Aberdeenshire but provides a vision for Scotland as a nation engaging in, and planning for the Anthropocene. This project bears the intellectual inheritance of the Scottish Enlightenment: Adam Smith's two seminal works *The Theory of Moral Sentiments* (1759) and *An Enquiry into the Natures and Causes of the Wealth of Nations* (1776) in particular; the abbreviated title of the latter giving the name to the Harrison's project. Smith is generally perceived to be the father of modern economic theory. But far from being the advocate of a *laissez-faire* doctrine, Smith argued in his treatise *The Theory of Moral Sentiments* (1759) that benefits of individual liberty and a free market economy need not, indeed should not, neglect the social contract and the fulfilment of basic human needs.

Figure 3 - *'On the Deep Wealth of This Nation, Scotland' (2018), Helen and Newton Harrison. Exhibition: The Barn, Banchory – September 2018. Image: Inge Panneels.*

The first map, *On The Deep Wealth of This Nation, Scotland* (Fig. 4) locates Scotland in relation to the rest of the UK and its northern European neighbours, and 'from the perspectives of the waters, the topsoil, the forest, the atmosphere and the body of mind' sets the tone overall.

Figure 4 - *On the Deep Wealth of this Nation, Scotland, The Harrisons, 2018.*

The wall mounted maps offer a circular map of Scotland set into a background of solid blocks of colour and explain the principle of the commons that this project identifies as being critical to the deep wealth of this nation. The commons are identified as: Atmospheric (air), Aquatic (water), the Topsoil (earth), the Forest and Commons of the Mind. These commons, if taken care of, will deliver *The Deep Wealth of This Nation, Scotland*.

The Atmospheric Commons can be increased if the production and sequestering of CO2 by trees allows oxygen production to be greater than its consumption.

The Aquatic Commons can be increased by capturing half of the current rain run-off and divert those 40 billion cubic metres of water in estuarial lagoons or catchment basins that will feed drought ridden farming areas and in turn increase food production and reduce the costs of flood mitigation. It argues for pre-emptive planning that would allow natural flood plains to be restored and farmers to be compensated for their losses by the savings made in flood defences. Not only would the aquatic commons increase, but also the biodiversity, as lagoon estuaries are known to be one of the most biodiverse ecologies, thus increasing the deep wealth of the nation.

The Commons of the Topsoil can be increased by composting all organic waste, thereby enabling the regeneration of carbon depleted topsoil to take place. The continued regeneration of carbon in the topsoil, while at the same time also banning 'all inorganic fertilizer', would increase productive farmland by 10%, which in turn would increase food production capacity.

The Commons of the Forest is expanded by increasing forest coverage to 25% of the landmass of Scotland (The *Scottish Government Forestry Strategy 2019-2029* set a target of 21%) and collectively release 4.2 million tonnes of oxygen into the atmosphere, and in turn would sequester 1.6 tonnes of carbon annually. The Harrisons' proposed expansion of forest would not be based on Sitka spruce, currently so prevalent on large estates as a cash-crop, but what Newton called the 'Elders': trees such as yew, oak, alder, walnut, chestnut, birch, sycamore, ash and rowan. These are boreal forest trees which are slow growing and have survived for millennia, through droughts, fires, earthquakes.

Finally, the Commons of the Mind requires Scotland's 'modest but well-educated population' of 5.3 million inhabitants in relation to its 30,000 square miles to collectively decide to begin nationwide conversations on 'the well-being of the commons'. The Harrisons argued for a country wide conversation, using the digital platforms and tools available. The current carbon footprint of the Scottish people outstrips three times its physical size: meaning that Scotland produces three time more carbon than it currently sequesters.

If the *Deep Wealth of This Nation, Scotland* is to be realised then its carbon footprint will reduce and create a surplus through an overproduction in its commons. In these terms, the proposal becomes a vehicle to deliver climate mitigation. Critics of the far-reaching vision of the works have argued that the proposals are hubristic, as they would require vast land reforms and substantial funding. This argument was countered by the Harrisons who noted that humans have changed the landscape on this scale already, so why would the re-forming of the land to re-instate its more natural water holding capacities be any different? The Harrisons reiterate the point that change is happening, and faster than anticipated by science, so why leave this profound change to chance? Their final map (measuring approximately four metres across and three metres high) (Fig. 5) depicts Scotland as no longer one land mass but, as the waters rise, as transformed into three distinct islands.

Figure 5 - *The Deep Wealth of This Nation, Scotland. The Harrisons, 2018.*

Human society has always adapted to climate change, through migration or extinction. Migration, the Harrisons argue is not possible due to the accelerated timescale in which climate change is taking place and extinction remains possible. Instead, the Harrisons contend, we must create new cultural imagery for a new coupling of consciousness and nature (Malina, 2016, p. 450). This is closely followed by the question: who is going to take responsibility for 'assisting a viable ecosystem to form?' (Harrison, 2016, p. 406). Thus, the Harrisons follow in the tradition of eco-art that is 'like a friend of the earth and sounder of alarms combined'. […] 'A deep humanism defines 'eco-art'. Inseparable from a new, revitalised vision of life, this kind of art maintains that relations between humanity and its environment, need to be rethought in favour of a new, re-founded harmony' (Paul Dardenne cited in Reiss, 2019, p. 52). And through this emphasis on the human factor, artists also signal hope (p. 63). It centres the human in the Anthropocene, but from an entangled, enmeshed perspective rather than remote and separate.

3. Ontopolitics of the Anthropocene

The political theorist Fredric Jameson had called for 'a new aesthetic of cognitive mapping' (1988) as a means to understand the 'totality,' particularly in relation to social structures on a global scale. Cognitive mapping as an aesthetic, he argued, would not displace other forms of aesthetics, but would be an additional one that would be required if we were to make any sense of the spatial representations of capital, particularly of what he calls 'late capitalism': of the multinational networks in which even the nation-state itself has ceased to play a central function and formal role. It was prescient of the globalised networked market place enabled by the internet. The cultural signifiers for this post-modern era were not only evidenced in late capitalism but also 'in the end of the avant-garde, the end of the great auteur or genius' and 'the disappearance of the utopian impulse of modernism' (Jameson, 1988, p. 359). For him the traditional formulations of art 'to teach, to move, to delight' had been virtually eclipsed from contemporary criticism and theory. In this sense, Jameson was prescient of the socially engaged art practices that emerged from the social movements of the 1960s, but became more defined in the relational aesthetics (Bourriaud, 1998) of the participatory arts (Bishop, 2006) that emerged in the 1990s where the *social* replaced the idea of the lone 'genius' artist. It finds resonance in Beuys' concept of Social Sculpture, where everything is

art, and everyone has the potential to be an artist. Social Sculpture is a connective practice towards social and ecological justice, which articulates the social 'usefulness' of art (Adams, 1992; Bonami, 2005; Social Sculpture Research Unit, 2012). The connectivity between environment and cultural practices was also understood by the nineteenth century Scottish town planner and environmentalist Patrick Geddes, whose 'intertwined strands of the regeneration and the sustaining of the environment on the one hand and of the revival and sustaining of culture on the other' (Macdonald in Walter, 2004, p 61) were fundamental to his thinking. Geddes' key concept of 'think global, act local' (Walter, 2014) advocates a move away from the universal to the local. The Harrison's Center of Force Majeure proposes to 'think globally, act globally', turning Geddes' thinking on its head as the Anthropocene forces us to acknowledge that local actions may have inadvertent consequences elsewhere in the world.

The United Nations' (UN) *Millennium Ecosystem Assessment* (2005) study of the human impact on the environment found that human actions are depleting the Earth's natural capital to such an extent that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted. The Ecosystem Services framework posits that four Ecosystem Services (provisioning, regulating, supporting and cultural ecosystem services) are considered as critical to the benefit of society. Cultural Ecosystem Services (CES) includes cultural practices which provide spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences (Millennium Ecosystem Assessment, 2005; Chan *et al*., 2011; Coates *ed.*,2014a, 2014b; Church *et al.*, 2014) as expressed through art, literature and the media. I am arguing that Geddes' concept of cultural practices in relation to environmental places can be found in the Cultural Ecosystems Services approach. It is argued that CES are critical to communicate the non-material benefits of Nature as expressed in *non-use* values which speak of place, spirituality, heritage and social relations (Chan *et al*., 2011) but are often intangible and difficult to identify and measure.[7] CES are a tool to bridge gaps between disciplines, with societal relevance to real-world problems and with the potential to help foster alternative logics to both societal and ecological issues (Milcu *et al*., 2013). A range of quantitative and qualitative research techniques are required to gather evidence of CES (Church *et al*., 2014). Whilst conceptually and

[7] Non-use values are all those uses which are different from use values. Use values means direct (consumptive and non-consumptive) and indirect use of ecosystem services and goods.

methodologically challenging, this evidence can be found in publicly available datasets and in the participatory and interpretive research techniques developed in social sciences and the arts and humanities. Participatory and creative mapping, and particularly deep mapping (Biggs, 2010), are identified as being critical tools which can contribute meaningful to policy-making. Arts and humanities perspectives 'are grounded in the ambiguity, variety, irreducible difference, contingency, unpredictability and incertitude of human experience' (Church et al., 2014, p.6), in contrast to social sciences' attempt to generalise and systematize knowledge about human relationships of place, locality, nature and landscape. Paying attention to these qualities improves, rather than impedes, understanding of the values and benefits attached to ecosystems and environmental spaces. Church *et al.* (2014) argue that engaging with this diversity of approaches in decision-making processes is vital.

In policy, the Anthropocene has also informed new forms of rule and governance which take account of the new ontological understanding of non-linearity, complexity and entanglement. Political theorist David Chandler calls this the '*ontopolitics* of the Anthropocene' (2018). Chandler outlines three modes of governance grounded in the ontological assumptions of the Anthropocene: Mapping, Sensing and Hacking. These modes he argues, upend the modernist modes of centralised, 'top down' government and challenges assumptions of progress, universal knowledge and linear causality. Indeed, these modes of governance are becoming more adaptive to framings of contingency and complexity. Mapping has morphed from its cartographic, geographic origins to the tracing of social, historical and economic relations of a particular area or society to map causality. It requires in depth knowledge and is best suited to adaptation. Sensing, in contrast, lacks in-depth knowledge but uses Big Data to see correlations between emergent processes, thereby not preventing problems but minimising their impact and disturbance. Hacking (Wark, 2004), Chandler argues, is the most radical, open and experimental of governance modes which develop a greater awareness of new possibilities and where creativity is key.

The mapping practices of *The Deep Wealth of this Nation, Scotland*, is framed here as a mapping 'hack' fit for the Anthropocene as suggested by Chandler (2018), although mapping is not considered here as a mode of governance but rather a critical cognitive aesthetic as argued for Jameson (1988) which could be deployed in a policy context. *The Deep Wealth* was

due to be presented in the Scottish Parliament but as it was debating the new Climate Change Bill at the time, there was a concern from the politicians who had sponsored the Harrisons' proposed presentation, that the work could be seen as 'lobbying'. Furthermore, I argue that is an exemplar of the use of CES as a critical tool to foster a better understanding, and challenging, of the ontological assumptions of the Anthropocene.

Conclusion

The Deep Wealth of This Nation, Scotland is presented here as a significant model of CES where mapping and hacking are methods for collaborative, often interdisciplinary, art practices which, by specifically homing in on the local, highlight interconnectedness to global ecosystems. It proposes that they are underused and undervalued tools for policy-makers, to be reconsidered in context of the new ontopolitics of the Anthropocene, one of enmeshment and entanglement of culture and nature as Geddes and Beuys had anticipated and argued for and within Smith's moral framework. The 'cognitive maps' produced work on an aesthetic level, as large-scale wall hung maps but with an ability to affect and bring forth 'a new state of mind' and conceptualise the totality of climate change on the scale of a nation. The dissemination and consumption of these maps in exhibition, talks, videos, online and public discussion enable the work to 'do' much in different contexts. The project speaks of the deep skill of the artists as researchers, thinkers and visionaries, informed by a half century of practice, and one that takes its intellectual and political responsibilities seriously. As such, *The Deep Wealth* is a deeply political project that imagines the future cognisant of the context of the Anthropocene but firmly informed by the values of the Enlightenment: of reason and knowledge. Chandler cautioned against the embrace of the concept of the Anthropocene, at the expense of Enlightenment aspirations to knowledge or to reason, which he argued, translates into a concomitant lack of engagement with the political. These works are thus a signifier of hope for a better future and challenge the helplessness of the Anthropocene but instead invite us to use our imagination to 'open up much more complex understanding of what a human society is capable of' (Anne Douglas in interview 24 September 2018). These artworks then, invite us to action. Even if the scale and ambition of this visionary project may not be enacted upon and just remain on the walls of galleries and museums, it may also be discussed in the corridors of power and could be implemented through terraforming on a

nationwide scale. That would be its ultimate recognition as an artwork of value; not in the collection of museum or collector but acted upon by a nation. Thus, the Harrison's art practice helps us to understand our past landscapes in the present and forecast to the future in the context of climate change which will require cultural and societal shifts. *The Deep Wealth of This Nation, Scotland* moves away from Jameson's postmodern cognitive mapping, embodying a helplessness, towards Chandler's ontological mapping, embodying a more practical *being in the world* whereby 'man is returned to the world' (Chandler, 2018, p. 199). Paradoxically, this means being at home in a world that is no longer human-centric, but as the Harrisons proposed, one in which humans can once more find themselves at home.

Acknowledgements

The author wishes to thank Emeritus Professor Anne Douglas, Chris Fremantle (EcoArtScotLand) and Mark Hope (The Barn) for their support in the field study part of this research and to Prof David Chandler and the Centre for Global Cooperation Research, University of Duisberg, Germany for the two workshops which informed this chapter.

Funding

AHRC, Northumbria University, UK

References

Adams, D., 1992, "Joseph Beuys: Pioneer of a Radical Ecology", *Art Journal,* Vol. 51, No 2, Art and Ecology (summer, 1992), 26-34.

Biggs, I.,2010, "Deep Mapping: A Brief Introduction". In: Till, K. E (Ed.) *Mapping Spectral Traces*, Virginia Tech, Blacksbury, 5-8.

Bishop, C. (Ed.), 2006, *Participation: documents of contemporary art.* Whitechapel Gallery, London.

Bourriaud, N., 1998, *Relational Aesthetics*. Presses Du Réel, Dijon. English Translation (2002).

Brady, E., 2006, “Aesthetics in Practice: Valuing the Natural World”, *Environmental Values*, 15/3, 277-91.

Brady, J. (Ed.), 2016, *Elemental: an arts and ecology reader*. Cornerhouse Publications, Gaia Project Press, Manchester.

Bonami, F., 2005, “The legacy of a mythmaker: Joseph Beuys”. Tate website. Available at: https://www.tate.org.uk/tate-etc/issue-3-spring-2005/legacy-myth-maker [Accessed 10 May 2021].

Casey, E. S., 2002, *Representing Place: Landscape Painting and Maps*. University of Minnesota Press, Minneapolis.

Casey, E. S., 2005, *Earth Mapping: Artists Reshaping Landscape.* University of Minnesota Press, Minneapolis.

Centre for Study of the Force Majeure, 2021, “On The Deep Wealth of This Nations, Scotland”. Website. Available at: http://www.centerforforcemajeure.org/deep-wealth-of-this-nation-scotland/ Accessed 10 May 2021.

Chan, K. M.A. *et al.*, 2011, “Cultural Services and non-use values”. In: P. Kareiva *et al.* (Eds.) *Natural Capital: theory and practice of mapping ecosystem services.* Oxford University Press, Oxford, 206-228.

Chandler, D. 2018, *Ontopolitics in the Anthropocene: an introduction to Mapping, Sensing and Hacking*. Routledge, Abingdon.

Church, A. *et al*., 2014, *UK National Ecosystem Assessment Follow-on. Work Package Report 5: Cultural Ecosystem Services and Indicators*. UNEP-WCMC, LWEC, UK. Available at: http://uknea.unepwcmc.org/LinkClick.aspx?fileticket=l0%2fZhq%2bgwtc%3d&tabid=82 [Accessed 6 December 2018].

Coates, P. (Ed.), 2014a, *UKNEAFO WP5: Arts and Humanities Annex 2 – Additional Cultural Values Work.* Available at: http://randd.defra.gov.uk/Document.aspx?Document=12304_WP5_AandHAnnex2_AdditionalCulturalValuesWork_25June.pdf [Accessed 6 December 2018].

Coates, P. (Ed.), 2014b, *Arts and Humanities Annex 2: Arts and Humanities Perspectives on Cultural Ecosystem Services (CES): Art and Humanities Working Group (AHWG): Final Report* (2014) Available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=t884TkrbVbQ%3d&tabid=82 [Accessed 14 December 2016].

Crutzen, P.J and Stoermer, E., 2000, “The Anthropocene”. *Global Change Newsletter*. 41, May 2000, 17-18. Available at: http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf [Accessed 9 December 2016].

Davis, H. and Turpin, E. (Eds.), 2015, *Art in the Anthropocene: encounters Among Aesthetics, Politics, Environments and Epistemologies*. Open Humanities Press, London.

Demos, T.J., 2017, *Against the Anthropocene: Visual Culture and Environment Today*. Sternberg Press, Berlin.

Fremantle, C., 2018, "Helen Mayer Harrison (1927-2018)" Blog, 3 April. EcoArtScotLand Available at: https://ecoartscotland.net/2018/04/03/helen-mayer-harrison-1927-2018/ [Accessed 5 November 2018].

Ghosh, A., 2016, *The Great Derangement: Climate change and the Unthinkable*. University of Chicago Press, London.

Haraway, D., 2015, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin", *Environmental Humanities*, Vol. 6, 2015, 159-165. Available at: http://environmentalhumanities.org/arch/vol6/6.7.pdf [Accessed 28 August 2018].

Harmon, K. , 2004, *You Are Here: personal geographies and other maps of the imagination*. Princeton Architectural Press, New York.

Harmon, K., 2009, *The Map as Art: contemporary artists explore cartography.* Princeton Architectural Press, New York.

Harrison, H. M., Harrison, N., Kruse, P. & Reschke, K. (Eds.), 2016, *The Time of the Force Majeure: After 45 Years Counterforce Is On The Horizon.* Prestel Verlag, Munich.

Hawkins, H., 2014, *For Creative Geographies: Geography, Visual Arts and the Making of Worlds*. Abingdon: Routledge.

IPCC, 2018, *Special Report: Global Warming of 1.5 ℃.* Available at: https://www.ipcc.ch/sr15/ [Accessed 12 April 2019].

Ingold, T., 2017, "The Art of Paying Attention". Art of Research conference, 29-30 November 2017. Conference Keynote Talk. Available at: http://artofresearch2017.aalto.fi/keynotes.html [Accessed 12 March 2019]

Jameson, F., 1988, "Cognitive Mapping" In: Nelson, C. and Grossberg, L. (Eds) *Marxism and the Interpretation of Culture.* University of Illinois Press, Urbana and Chicago, 347-360.

Kastner, J. and Wallis, B. (Eds.), 1998 *Land and Environmental Art.* London: Phaidon Press Ltd.

Kolbert, E., 2014, *The Sixth Extinction: an unnatural history.* London: Bloomsbury.

Lacy, S. (Ed.), 1994, *Mapping the Terrain: New Genre Public Art*. Bay Press, Seattle.

Latour, B., 1993, *We Have Never Been Modern*. Translated by Porter, C., Harvard University Press, Cambridge, Massachusetts.

Lewis, S. L. and Maslin, M. A., 2018, *The Human Planet: How We Created the Anthropocene.* Penguin Random House, London.

Macdonald, M., 2004, "Patrick Geddes: Environment and Culture". In: Stephen, W. (Ed.) *Think Global, Act Local: the life and legacy of Patrick Geddes*. Luath Press, Edinburgh.

Macfarlane, R., 2016, "Generation Anthropocene: How Humans have altered the planet forever", *The Guardian,* 1 April 2016. Available at: https://www.theguardian.com/books/2016/apr/01/generation-anthropocene-altered-planet-for-ever [Accessed 3 April 2016].

Malina, R. F., 2016, Force Majeure: Performing the Data of Climate Change. In: Harrison, H. M., Harrison, N., Kruse, P. & Reschke, K. (Eds.) *The Time of the Force Majeure: After 45 Years Counterforce Is On The Horizon.* Prestel Verlag, Munich, 447-450.

Meadows, D. H., Meadows, D. L., Randers, J. & Behrens, W.W. III, 1972, *The Limits to Growth*. Universe Books, New York.

Meadows *et al.,* 1992, *Beyond the Limits: Confronting Global Collapse.* White River Junction, Chelsea Green Publishing Company, Vermont

Meadows, D. H., Meadows, D. L., Randers, J., 2004, *Limits to Growth: The 30 Year Update.* White River Junction, Vermont: Chelsea Green Publishing Company.

Milcu, A.I., Hanspach, J., Abson, D., and Fischer, J., 2013, "Cultural Ecosystem Services: A Literature Review and Prospects for Future Research", *Ecology and Society*, Vol 18, No.3 (3):44. Available at: https://www.ecologyandsociety.org/vol18/iss3/art44/. doi: 10.5751/ES-05790-180344 [Accessed 14 December 2014].

Miles, M., 2014, *Eco Aesthetics: art, literature and architecture in a period of climate change*. Bloomsbury, London.

Millennium Ecosystem Assessment, 2005, *Ecosystem and Human Well-being: synthesis.* Island Press, Washington, DC. Available at: https://www.millenniumassessment.org/documents/document.356.aspx.pdf [Accessed 14 December 2016].

Mirzoeff, N., 2014, "Visualizing the Anthropocene", *Public Culture*, April 2014. Available at: https://www.researchgate.net/profile/Nicholas_Mirzoeff [Accessed 26 February 2019].

Moore, J. W. and Patel, R., 2017, "Unearthing the Capitalocene: Towards a Reparations Ecology", *Roar*, Issue #7. Autumn 2017. Available at: https://roarmag.org/magazine/moore-patel-seven-cheap-things-capitalocene/ [Accessed 14 April 2019].

Morton, T., 2013, *Hyperobjects: philosophy and ecology after the end of the world*. University of Minnesota Press, Minneapolis

Neal, L., 2015, *Playing for Time: making art as if the world mattered*. Oberon Books, London

Panneels, I., 2018, Mapping in Art. In: Kent. A.J and Vujakovic. P (eds.) *The Routledge Handbook of Mapping and Cartography.* Routledge, Abingdon, 517-527

Patrizio, A., 2019, *The Ecological Eye: Assembling an Ecological Art History.* Manchester University Press, Manchester

Reddleman, C., 2018, *Cartographic Abstraction in contemporary art: seeing with maps.* Routledge, London

Reiss, J., 2019, *Art, Theory and Practice in the Anthropocene*. Vernon Press, Malaga

Rogoff, I., 2000, *Terra Infirma: Geography's Visual Culture.* Routledge, London

Scottish Government (2019) *Scotland's Forestry Strategy: 2019-2029.* 5 February 2019. Available at: https://www.gov.scot/publications/scotlands-forestry-strategy-20192029/ [Accessed 16 March 2019]

Spirn, A. W., 2016, The Art of enquiry, Manifestation, and Enactment. In: Harrison, H. M., Harrison, N., Kruse, P. & Reschke, K. (eds.) *The Time of the Force Majeure: After 45 Years Counterforce Is On The Horizon.* Prestel Verlag, Munich, 434-438

Social Sculpture Research Unit, 2012, "*Beuys, Transdisciplinarity and a Sustainable Future"*. Available from: http://www.social-sculpture.org [Accessed 1 March 2017]

Solomon, S., Plattner, G.K.,Knitti, R., Friedlingstein, P., 2009, "Irreversible climate change due to carbon dioxide emissions", *PNAS*, February 10, 2009, Vol 106, Nr 6, 1704-9. Available at: http://www.pnas.org/content/106/6/1704.full.pdf [Accessed 10 December 2016]

Steffen, W., Broadgate, W., Deutsch, L. Gaffney, O., Ludwig, C., 2015, "The Trajectory of the Anthropocene: The Great Acceleration", *The Anthropocene Review***,** Vol 2(1), 81-98. [Online] DOI:10.1177/2053019614564785

Thompson, N. and Independent Curators International, 2008, *Experimental Geography: Radical Approaches to Landscape, Cartography and Urbanism*. Melville House, New York

Thompson, N., 2015, *Seeing Power: art and activism in the 21st century*. Melville House, Brooklyn – London.

Uglietti, C. U., Gabrielli, P., Cooke, C.A., Vallelonga, P. and Thompson, L. G., 2015, "Widespread pollution of the South American atmosphere predates the industrial revolution by 240 y", *PNAS* February 24, 2015 112 (8) 2349-2354; first published February 9, 2015; https://doi.org/10.1073/pnas.1421119112. Online. Available at: https://www.pnas.org/content/112/8/2349 [Accessed 8 May 2021]

Wark, M., 2004, *A Hacker Manifesto*. Harvard University Press, London. Available at: https://monoskop.org/images/8/85/Wark_McKenzie_A_Hacker_Manifesto.pdf [Accessed 29 August 2019]

Watson, R., 2009, "Mapping and Contemporary Art". *The Cartographic Journal,* Vol 46, Nr 4, 299

Weintraub, L., 2012, *To Life! Eco Art In Pursuit of a Sustainable Planet*. University of California Press, Berkeley

Zalasiewicz, J., Waters, C.N, Ivar do Sul, J.A., Corcoran, P. L., Barnosky, A.D., Cearreta, A., Edgeworth, M., Gałuszka, A., Jeandel, C., Leinfelder, R., McNeill, J.R., Steffen, W., Summerhayes, C., Wagreich, M., Williams, M., Wolfe, A., Yonan, Y., 2016, "The geological cycle of plastics and their use as a stratigraphic indicator of the Anthropocene", *Anthropocene*, Volume 13, 4-17, https://doi.org/10.1016/j.ancene.2016.01.002.

"The Anthropocene has still the rank of a scientific hypothesis. Yet, it has already sedimented in our imagination with its stories of climate change and mass extinctions, global pandemics and energy crisis, technofossils and oceanic plastic, social justice and new minerals that are changing the face (and the bowels) of the planet. Investigating this imagination from multiple angles, Narratives in the Anthropocene Era, brilliantly edited by Charles Travis and Vittorio Valentino, is an indispensable tool for situating these stories into the conceptual horizon of the environmental humanities".

(Serenella Iovino, University of North Carolina at Chapel Hill)

Charles Travis *is an Assistant Professor of Geography and GIS with the Department of History at the University of Texas, Arlington and a Visiting Research Fellow with the Centre for Environmental Humanities in the School of Histories and Humanities at Trinity College, The University of Dublin. With research interests in quantitative and qualitative GIS data applications which integrate methods in literary, cultural, historical geography, the digital, environmental humanities and geo-ethics, Travis is an editorial board member of the journal Literary Geographies and the Springer Press Historical Geography & Geosciences Series and has published over 120 peer reviewed publications.*

Vittorio Valentino*, born in Naples in Italy, lived in France for several years, from the late 90's, where he graduated with a thesis in Italian literature studying the theme of travel in Erri De Luca's writing. In 2013, he obtained a PhD in Romance languages working on the link between "engaged" French and Italian literature and migration in the Mediterranean between 1950 and 2013. His research fields include migrant literature, postcolonialism, feminine writing, ecocriticism and Care. He has published several papers focusing on authors like De Luca, Lakhous, Scego, Abate, Santangelo, Camilleri and Iovino. Vittorio Valentino has been teaching as an Assistant professor at the University of La Manouba - Tunis, in Tunisia, since 2015.*

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