# NARRATIVES IN THE ANTHROPOCENE ERA

Charles Travis, Vittorio Valentino (Editors)

Preface by Kirill O. Thompson

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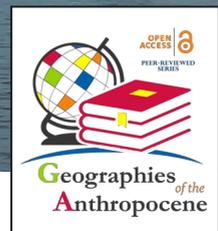
Geographies *of the* Anthropocene

Narratives in the Anthropocene era

Charles Travis

Vittorio Valentino

Editors

"Narratives in the Anthropocene era"

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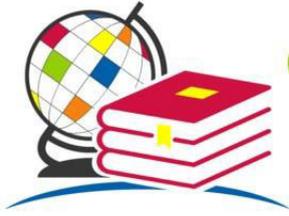
Geographies of the Anthropocene

Open Access and Peer-Reviewed series

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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Preface

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Humanity's entrapment in the Anthropocene era is evoking a cacophony of responses. Originally coined by Eugene Stormer and Paul Krutzen in 2000 to characterize the emerging geological epoch, "the Anthropocene" evokes deep-rooted fears for nature and posterity as it captures people's imaginations and grows in salience and force. Indicating a procrustean interface between nature and humanity (human activities), the term is grasped variously by scholars in a swath of disciplines from geography and geoethics to social anthropology, archaeology, sociology of environment and territory, psychology, and economics, to the environmental humanities, philosophy, and related fields. The term also piques writers, artists, and musicians and grabs people of all walks of life. I have been intrigued and provoked by this term since 2010 upon joining *Humanities for the Environment* (HfO.org) as a comparative philosopher with interests in agricultural and food ethics and concerns about the environment and climate change.

Narratives could be told of humanity's emergent grasp of the "Anthropocene". A cursory way to adjudicate the views would be to distinguish between those human activities that are driving geological and climate trends, on the one hand, and their cumulative impact, as registered in the geological and climate record, the other. While capitalism, colonialism, and industrialization have been in play for centuries, their impact only reached critical geological mass around the end of World War II. While their impact on nature - the environment, indigenous peoples, biodiversity, and climate mounted over centuries -, signature events unfolded at the close of World War II and in the Postwar period: the testing and use of atomic weaponry, atomic energy, and most importantly the Grand Acceleration of industrial and economic development, urbanization, as well as industrial scale farming, with its vast output of CO_2, widespread use of herbicides, pesticides, chemical fertilizers, overuse of antibiotics, and depletion and tainting of

aquafers[1]. Conditions have grown increasingly dire in the twenty-first century, with the greenhouse gases in the atmosphere increasing apace and the global virgin wilderness diminishing to nothingness.

Notably, since the impact of the Anthropocene is not equally due to the activities of every human being, alternative terms have been proposed that distinguish the main drivers, institutions, trends: *Capitalocene*, *Neo-Liberalocene*, *Econocene*, or *Plantationocene*. However, such distinctions don't matter geologically: what matters is that the geologic impacts are from distinctly *human* activities. And in fact, a majority of people in the world today are complicit if not responsible - by supporting environmentally irresponsible governments, using products made by irresponsible corporations, leaving larger carbon footprints. Everyone has to get on board. On that premise, it is of the utmost importance that the critical data be gathered and the causal factors considered in order to think through the mounting climate crisis "recorded by threatened corals, warming ice, and the sediments of Lake Crawford, laden with evidence of humanity's excesses" (Tripathy-Lang, 2021) [2]. For greater understanding will open paths of efficacious response.

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[1] The new phenomenon of Chinese swine production facilities rearing *gargantuan* Chinese hogs has a distinctly dystopian air-- the realization of a grotesque possibility of biotechnology. Atop remote Yaji mountain in southern China, an advanced pork production facility built and operated by Yangxiang corp. can raise 1700 super hogs the size of polar bears. Despite the facility's sparkling exterior and corporate claims of sanitation and biosecurity, the hogs live their entire lives in tight quarters, confined to one story (leaving 6 floors for management, labor, feed and supplies, and manure). Since the increased mass of the animals is geometrically greater than their increase in height and girth, it is doubtful that their joints and bones can comfortably bear their weight. Besides such physical discomfort, these intelligent, curious, gregarious animals would have no chance to root around, explore the natural environment, or even to socialize and play. Undoubtedly, such facilities would be perfect incubators for infectious disease. How many pork consumers would turn vegetarian if they were to find out how Yangxiang produces its pork? Cf. Standaert, Michael & Francesco De Augustinis, 2020, "A 12-storey pig farm: has China found the way to tackle animal disease?" *The Guardian* (18 September 2020): https://www.theguardian.com/environment/2020/sep/18/a-12-storey-pig-farm-has-china-found-a-way-to-stop-future-pandemics-

[2] Regarding the sediments of Lake Crawford, this article reads: "In sediment cores carefully extracted from the lake, scientists can see traces of Iroquois horticultural activity dating back at least 750 years, and evidence of invading European settlers in the mid-19th century, said… Ian Zalasiewicz. In the topmost layers curated by the lake, scientists can systematically search for signs of plutonium, cesium, radiocarbon, fly ash, and microplastics. Such signatures might indicate the beginning of the Anthropocene, a proposed addition to the geologic timescale governed by the International Commission on Stratigraphy (ICS)" (@DrAlkaTrip).

I posit that social science and humanities scholars offer *perspectives* on the on the human and natural forces in play in the Anthropocene while the scientists register and analyze the basic data, to compile *account books* of the cumulative human geo-impact. Taken together, these perspectives and account books disclose the complex, intricate *interwovenness* of phenomena, things, which are at once mutually implicative and open to understanding in wide swaths of perspectives. We are driven to accept that, far from being discreet, independent, and unique, phenomena, things, are interconnected and flow together and can be viewed and grasped in multiple ways.

The concept of color provides an example of our growing realization of the complexity of phenomena. A century ago, philosophers discussed colors or color sensations as examples of the most basic human sensory knowledge, as indubitable as the axioms and tautologies of logic. Colors were regarded as simple and unproblematic despite the physical conditions and causal processes known to support color perception. At the same time, while registering the subjectivity of such accounts of color, some philosophers begrudged there was an objective though imperceptible dimension of color (Moore, 1899). After having accepted the possibility of *simple* color statements in the *Tractatus* (Wittgenstein, 1921), Wittgenstein began to see problems with that view (Gierlinger, 2005). Unlike other kinds of simple statements, Wittgenstein found that alternative color statements did not manifest strict logical denials. In other words, for other kinds of simple statements, the truth of a statement implied the falsity or denial of its negation, and vice versa. However, with a color statement, such as "This patch is red", it turned out that the color is stated against a spectrum of colors so the logical exclusion and symmetry between a statement and its denial does not hold for color statements. Moreover, Wittgenstein found that colors *appear* differently when juxtaposed with different colors, so simplicity does not hold in basic color perception any more than it does in simple color statements. Such phenomena were counter examples to Wittgenstein's early insistence on the independence of basic facts and elementary statements that drove him to rethink his entire philosophical approach.

Recently, neurologist and philosopher Junichi Murata has argued there is "no definite answer" to the question "what is color?" (Murata, 2007)[3] He explains that colors and color vision do not have a single essential nature like an atomic formula; rather, they are multidimensional. On his account, while

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[3] All Junichi Murata citations herein are from the conclusion of "The Multidimensionality of Colors" (2007). In Murata, J. *Perception, Technology, and Life Worlds. UTCP 1* Tokyo: Center for Philosophy The University of Tokyo, 2007: https://www.cuhk.edu.hk/rih/phs/events/200405_PEACE/papers/JunichiMURATA.pdf.

the answers given to the question "What is color?" to date have not been "straightforwardly false", they have been "false in attempting to reduce various characters to a single essence". For guidance in understanding multidimensional concepts, Murata appeals to the later Wittgenstein's insight that some concepts display not strict unity or identity but family resemblances, commenting:

> Our understanding of such concepts should not be based on the strict identity of concepts but on family resemblances among various types. If we relate the multidimensional character to this answer, it will give us an interesting view of the resemblances.

Murata continues,

> If we take the multidimensionality of concepts into account, we cannot presuppose that the usual conception of the resemblance relation between colors is self-evident. As indicated, orange (luminous mode) is not always more similar to red (surface mode) than to blue (luminous mode). In a similar vein, the trichromatic color vision of human beings is not necessarily more similar to the trichromatic color vision of bees than to the dichachromatic or even monochromatic color vision of human beings, if we consider various factors (for example, affective factors), which are not directly related to hue discrimination but nevertheless must be considered important for color vision.

He concludes:

> Color vision is a visual recognition, which uses a wavelength difference of light to pick up information of various properties of the environment in order to live in it. As long as the ways in which to live in an environment are various, we must take the variety of properties into consideration as a candidate for colors and the many types of visual recognition as a candidate for color comparative and ecological studies and also in various examples of our experiences described in various phenomenological investigations. Wittgenstein left the following statement in his last manuscript. "The logic of the concept of color is just as much more complicated as it might seem (3-106)" (Wittgenstein, 1977, 29).

Although this statement sounds simple, it must be taken seriously, as *the complexity and multidimensionality of colors and color visions reflect the complexity and multidimensionality of the reality of our life world in which we live with other species*" (Italics added).

As more ramifications and implications of the Anthropocene come clear, we will better understand the inherent multidimensionality of all phenomena, things, and events largely due to their intricate interwovenness viewed under varieties of perspectives. It is heartbreaking to think that just as we are beginning to appreciate this deep richness of phenomena, human as well as natural, we face a looming climatic breakdown of nature as well as the erosion of local languages and cultures.

The chapters in this volume present a variety of perspectives from a swath of disciplines that enrich our understanding and bring the onslaughts of the Anthropocene into bold relief. Two chapters demonstrate how cultural considerations can enrich our understanding scientific phenomena. In the chapter *Bio-deconstructing Bioremediation: Tailings, Oil-eating Bacteria, and Microbial Agency*, Bradshaw examines the limitations of blinkered human agency in responding to pervasive environmental degradation. Focusing on the Albertan oil-sands, Bradshaw deconstructs the biotech practice—modelled on the linear causal approach of chemical engineering-- of adapting "the metabolism of microbial strains to detoxify the waste products generated by this industry and which are stored in tailings ponds." The crux is that "certain microbial strains indigenous to the waste-ecologies which thrive on the 'toxic' chemicals there, metabolizing and eating them, have driven a wave of research… into *isolating, engineering, and optimizing* these metabolic capacities" (italics added). Bradshaw questions industry's quest to "control" such processes, which strains of bacteria created spontaneously in adapting to their toxic conditions. Granting that such bacteria are "intelligent organisms with a fine-grained resolution of environmental conditions, whose complex and networked activity is ontologically irreducible to the demands of synthetic biology," could an ecological model be devised for grasping human-microbal relations in the linear, goal-oriented process of bioremediation?

And in the chapter *Becoming Aware of the Living Air*, Barniaudy addresses the contradiction that while humanity is broadly aware that gargantuan quantities of pollutants and greenhouse gases are constantly belched into the atmosphere, we remain blind to the *present* enveloping air that sustains us. How to prompt humanity to appreciate and maintain this living aery matrix, which is necessary for the existence of the biosphere and all forms of life?

Barniaudy presents scientific and indigenous narratives that embed "our body-mind into the living air in all its richness and depth." He then parlays the phenomenological method as a way to open our sensitive awareness of "the participatory nature of our sensory perception within the weather-world" (Austin, 2014)[4]. He concludes that such narratives and sensuous experiences could stir humanity's potential for forming a deep empathy for other living beings, buoyed by attentiveness to the atmosphere. Such narratives and experiences could open humanity to embrace and promote environmental education and care ethics[5]. Spawned by mindful awareness, such care ethics would reflect our sensitivity to the interdependence between self and other, inner and outer, and the human and nonhuman worlds.

Charlie Galibert's chapter presents a guidebook to stay-at-home containment tourism: *"Post-Covidum hominus tristum est" Happy and smart self-deconfinement sheet or "links to free oneself"*. Above, it was noted that the term "the Anthropocene" grows in salience and force, and particularly in a time of containment it breeds a plethora of narratives. Galibert recalls Plato's insight that humans, bestowed with imagination, are "beings of representation: of the interiorization of external reality, of the exteriorization of interior reality". Empowered by the imagination, humans draw on "all forms: concepts (science), notions (common sense), and works (art)" for cognition and expression. Since early 2020, the travails of Covid-19 have spurred Galibert to compile "a catalog of complex stories, more or less concerted or disconcerting, which is part of a possible new axis of reading of the imaginary universe". This catalog for breaking through containment forms a "*narrativium*: the story which constitutes the basis of the human relationship with the world in all its forms: cognitive, affective, oral, gestural, written, behavioral, reflective, active, creative - the *imaginary*". Galibert invites the reader to read this narrative catalog in the moment of worldwide containment, "between apocalypses and millenarisms, resignations, the risk of totalitarianism… [as] calls for a paradigm change or the refoundation of the World, between fake news and suggestions of a new spirituality".

Provocatively, Galibert asks what the history of literature portends if not "the history of the possibility of getting out of the worst confinements, whether external or internal, hated or hated, suffered or chosen, flee or

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[4] See also Skof, Leonat Skof and Petri Berndtson, ed., 2018, *Atmospheres of Breathing*. Albany: SUNY Press.
[5] James Austin. 2014. *Zen-Brain Horizons: Toward a Living Zen*. Cambridge: MIT Press. Shows the neurology of dedicated Zen meditation leading to "allocentric" (versus egocentric) awareness and compassion.

desired"? Let us unveil its portents by opening hatches, entering portals "that will allow us to escape from confinement to the universes of freedom". He collects and catalogues those common readings that might unfold the,

> connected and interconnected monads to which the current situation of confinement / deconfinement / reconfinement is reduced to us,

to open portals and routes in the universal adventure of the narrativium of literature *in order to shed light on the narrativium of confinement*.

On this Anthropocene quest, even the casual tourist in containment can learn something new, experiences surprise and delight, and return home much changed after the trip. In the guidebook, precise speleological exercises, shortcuts, bridges, rest areas, are offered to the reader who thus becomes his own guide. Galibert's guidebook extends from the larger world (our planet itself, as well as its astronomical, mythological, civilizational, societal, literary representations) to literary universes that stretch from the largest to the smallest, from the great cosmogonies and imaginary universes to miniature worlds, passing like Alice through the relativization of the categories of the large and the small, of the realistic and strange".

In the chapter *Fire and Form: Indigenous Eco-Georgic Practices in "Borri is Fire Waru is Fire" by Lionel Fogarty*, Trevor Donovan speaks for an Eco-Georgic literature based on the agricultural practices of Australian First Nations, the use of fire as an agricultural tool in particular. He confronts preconceptions of the Georgic Landscape with the reality of the Australian outback environment. In this manner, he demonstrates how a person's phenomenological experience of the Georgic is influenced by the literary representation of the Georgic and *vice versa*, in order to show both how the use of fire as a tool in agriculture is conversant with the definition of the Eco-Georgic as well as how its representation in poetry contributes to an ecocritical approach to literature.

If Georgic literature describes modified rural landscapes and the labor required to maintain them, an Australian Georgic must, in order to institute an adequate relationship between language and reality, deconstruct preconceptions of what constitutes a farmed landscape. In executing such a deconstruction, Donovan explores the use of fire as a tool in Australian First Nations agriculture. Lionel Fogarty's poem "Borri is Fire Waru is Fire" (from *Eelahroo (Long Ago) Nyah (Looking) Möbö-Möbö (Future)*, 2014) depicts ancient indigenous agricultural practices, challenging our perceptions and preconceptions of what should constitute the Australian Georgic. To what

extent does Lionel Fogarty's poem contribute to a new *georgic*, one that might present an Australian Eco-Georgic? An affirmative answer will be premised on the Eco-Georgic-- for which "each local ecology is attended to". Donovan further demonstrates the way in which '"Borri is Fire Waru is Fire" challenges the colonial control of language and land, thereby producing an aesthetic response to, and rewriting of, a Western concept of the *georgic*. In effect, this poem is a defining example of an emergent Australian Eco-Georgic literature, one that expresses the place of fire in indigenous agriculture and identity.

Given that indigenous agricultural methods had been in use since time immemorial, long before colonial displacement and oppression, the didactic nature of Georgic poetry must be adapted to "the native land", to the "local ecology", if Eco-Georgic literature is to grow out of the Australian environment. An Australian Eco-Georgic literature would need to not only reflect the specifics of the local ecology but also "place the human and the non-human within a network of agency that leads to an awareness of responsibility within ecosystems". Moreover, in the Anthropocene era, acceptance of "indigenous sovereignties" to promote "ways of being in sacred, ethical, and reciprocal relationships with 'nature'" is necessary. At the same time, any proffered Eco-Georgic literature must be adequate to the reality it represents. That is, there must be a correspondence between the object of perception and its literary representation in an Australian Eco-Georgic landscape. Fogarty observes that while the analogy between the plough and verse is a venerable mainstay in poetry, the relationship between the agricultural use of fire and its representation in poetry has yet to be fully explored and exploited. In closing, he reminds us, "Don't fire out the fire made a Thousand years ago". Fire — past, present, and future — illuminate the emergent Australian Eco-Georgic.

In the chapter *Italian Writers and the Anthropocene*, Chantal Colomb spotlights three Italian writers who critique human behavior towards animals and our planet through stories and novels. In particular, they reveal the dangers posed our Christian-Cartesian desire to make "ourselves the possessors and lords of nature." Decades ago, philosophers Peter Singer and Jacques Derrida already began to encourage their students and readers to adopt a caring and respectful regard for non-human animals. More recently, David Abram argues that humanity should "perceive the living in all its sensitivity and free from any utilitarian aim". But, does the Anthropocene portend that humanity will completely despoil nature's bounty?

Humanity's creeping dominance over our planet is beginning to threaten life everywhere through wholesale environmental destruction, biodiversity

reduction, and despoiling the biosphere. In the science fiction novel *Sirene*, Laura Pugno depicts a planet that has become uninhabitable in just this way. In *L'ordine animale delle cose* (*The Animal Order of Things*), Antonio Prete narrates a fantastic journey into the animal realm, seeking to effect an empathetic shift in the reader to the animals' vantage point, to get behind their enigmatic gaze. The stories offer creatural hymns in an era when many animal habitats, worlds of beauty, pain, and wisdom are in dire peril. And, in *Il Peso della farfalla* (*The Weight of the Butterfly*), Erri De Luca tells the story of a conflict between the leader of a chamois herd and an old poacher. In the end, this tale intimates that the poacher's way (the way of modern society) is not the way to live in harmony with nature. How to remedy the harms caused by humanity for nearly two centuries?

These Italian writers are in revolt against modern humanity's destructive mode of living in the Anthropocene. While Pasolini entreats a return to a primal sacred, inseparable from nature, Laura Pugno evokes the cautionary apocalyptic vision of a planet rendered uninhabitable. Philosophers Merleau-Ponty, Giorgio Agamben, and David Abram invite us to imagine how we would feel if we were to live like wild animals, unprotected and on our own in nature. Like these writers, many artists also do not accept modern culture's separation between humanity and nature, between humanity and other species, plant and animal. Colomb sees hopeful signs: during the Covid-19 pandemic humanity is learning it can reduce its consumption of goods. The social distancing imposed by the pandemic reminds us of the untenability of living without the other and without the possibility of maintaining contact with nature. Registering the harms to nature wrought by humanity's abuse of natural resources, Colomb salutes those artists and writers who alert us to the dire situation but offer hope. Her positive message is: by cultivating care, wisdom, and art, humanity may nurture profound respect for the natural environment and the beings who live therein.

In the chapter Animals' *Optical Democracy in the fiction of Cormac McCarthy*, Lobo notes that deep changes in American cultural perceptions in the 1960s opened the way for ethology to change in ways that challenged ways of perceiving animals in the 1970s. At the same time, the rising awareness of environmental destruction spurred people to develop aesthetic representations of nature. In this context, "Animal Studies" started to change radically, opening new links between ethology and the humanities. Cormac McCarthy devotes considerable space to animals in his fiction. He sets up porous borders between humans and animals and lets his readers encounter random violence — to better appreciate the sensory world, the quest for survival, and the importance of movement — moving for the sake of moving.

McCarthy's works are testaments to how literature can offer aesthetic answers to science. The deep connection he renders between the physical environment and the written text reveals the severe limits of anthropocentrism in the humanities.

In closing, the author relates animals' "Optical Democracy" in McCarthy's fiction to the pandemic and the climate crisis, suggesting that movement will be a factor in future survival. In his writings, McCarthy presents people and creatures in motion to intimate the irrelevance and unreliability of fixed, static, past paradigms. Reductive science is no more a panacea than religion. Modern technology and human consumerism are unsustainable but no viable substitute is in the offing. Language alone cannot deliver lasting knowledge, for due to its autonomy it constantly escapes human control. Empathy, care, and aesthetics permeate McCarthy's texts, and the questions are more evident than the answers. For example, while the question how to survive is paramount, the answers are few and fleeting. McCarthy's texts aver that survival involves finding ways to make sense of things and keep hope that people can dwell together. Seeking is more important than finding. Moving, always moving is key. Destination does not matter. Life, human and natural, keeps moving just for the sake of moving; survival lies in this. Was human life most attuned to nature when it was nomadic and survival depended on hunting, gathering, and scavenging?

In the chapter *Extinction, atavism and inevitability: life after collapse: A study of The Eternal Adam by Jules Verne and of The Death of the Earth by J.-H. Rosny aîné*, Kevin Even investigates several problems associated with the Anthropocene era through the lens of two visionary science fiction novels of the nineteenth century. He first shows how the two authors portray the collapse of the world from the perspective of a single narrator to reflect on the destiny of humankind. Enthralled by Darwin's theory of evolution which changed everything in their day and age, the authors explain the collapse of the world in terms of evolution and regression. Moreover, both novels are pessimistic and share overlapping themes. Even connects the novels with canonical texts on ecology to demonstrate the contemporary relevance of their depictions of their relations between humanity and nature, progress and science. Their questioning of incessant industrial growth a century and a half ago is poignant. Even observes that while humanity's sense of foreboding about pollution-driven climate change is nothing new, our anxiety and stress related to the collapse of the modern world have increased in step with the mounting sense of crisis and alarm which commenced with the threat of nuclear Armageddon over the past sixty years.

In the chapter *We are Not Alone in the World*, Gross asserts the proposition that "the coronavirus pandemic may have prepared us for a new ecological paradigm: we are confined on Earth with other living beings". This proposition begs the question how writers and artists are to narrate the stories of the other beings. In recent decades, scholars in the environmental humanities and social sciences have experimented with new modes of *paying attention to the world and intuiting its narratives*. They adapt practices of narration to sensitize us to the feelings and fate of other living beings, with whom — it turns out — we are inherently linked. In writing such narrations, they need to avoid being human projections or representations. They also need to reimagine the common causes that shape our common world. Could such narratives open knowledge about the inherent connections between humans and non-humans? To interrogate this question, Gross examines "the narrative practices offered by Vinciane Despret's work". She and other writers tell stories about the lives of animals and plants, serving as spokespersons for those with whom we live together but who cannot testify on their own. Gross avers that these narratives promise the possibility of multiplying our world by depicting the diverse existences of other beings in stories of dependence. They depict other ways of living on a damaged planet, hopefully to inspire us to regain a terrestrial footing.

In the context of the Anthropocene, the question becomes whether such narratives can compellingly capture "those links that support our existence, the network of beings with which we live and on which we depend." Gross considers that the links are what matter. Writers must present the fragile links in precarious narratives that detail our earthly inscriptions. Such links are important for remedying the ecological crisis as well as guiding the formation new ways to arrange society and bring us closer to other beings.

Gross further hopes such narratives may reanimate nature for readers. A problem he detects with naturalist guidebooks and scientific works is that they de-animate the world and do not mobilize us. How can we live caringly in a world that is disenchanted, a meaningless setting where only human stories unfold? He sees a serious lacuna in modern human life. Society's indifference to the devastation of the world and to the Sixth Extinction underscores it: we are anesthetized and numb. In the Anthropocene, humans are beginning to heed the cries of the world; the Earth is not silent. Indeed, other beings offer manifold suggestions for regenerating our profound interdependence. Humanity needs new arts of listening and speaking and new narratives to highlight the ethical possibilities of living among the living. Earthly beings

are not autonomous, but always connected – to parents, languages, places, ways of doing things, ancestors, progeny, other networks of the living.

In the chapter, *Young People's Geographies in the Times of Covid-19: System Threat as a Chance for System Change?,* Lydia Heilen, Andreas Eberth, and Christiane Meyer explore the question, Do young people, often regarded as drivers of the sustainability transformation, view the impact of the pandemic as a positive example of fast action and an opportunity, or do they regard this impact as a threat to their status quo? The context is twofold: the Covid-19 pandemic has shown both (1) the economic vulnerability of the entrenched capitalistic system and (2) the positive ecological consequences of rapid policy action. Previous studies have found that economic threats lead to feelings of losing control combined with a sense of differentiation between oneself and others.

For this study, Heilen, Eberth and Meyer interviewed 150 young people aged 15-24 by online questionnaire. Survey results indicated the young people see the global response to the Covid-19 crisis as an example of rapid, consistent action by politics and society. In that light, they demand that restrictions benefitting the climate during the Covid-19 crisis be maintained to mitigate the looming climate crisis. The authors conclude that it is helpful to show positive examples of successful communal efforts to overcome massive threats and uncertainties, for such examples motivate young people and give them a sense of collective efficacy.

A deeper question that drove the research is whether youth can accept that system change is necessary, that is, a shift from a capitalistic to an eco-focused sustainability system, with a post-growth orientation. The authors link this question to young people's views on the behavioral and political implications of the pandemic. The possibility that the youth see the global response to Covid-19 as a positive example of rapid and effective change could be transferred to climate action efforts warrants particular attention, as young people are a proven driving factor for sustainability transformation (UNESCO, 2020).

In the chapter, *All My Earthothers: Levinasian Tools for Deep Ecology*, Erika Natalia Molina Garcia excavates Emmanuel Levinas' moral philosophy and finds fertile ground in his "Janus-faced attitude" for ecological thinking. Attempts to extend Levinas' ethics to the nonhuman sphere to date have led to extreme positions of (1) unlimited responsibility for all alterities and (2) limiting unlimited responsibility to other humans. By drawing a distinction between Levinas' ethic of responsibility and that of vulnerability, Garcia

produces a model of sensibility as enjoyment / vulnerability that she deems able to support a deep ecology ethics. In particular, she stresses a key Levinasian notion that holds promise for non-anthropocentric or deep ecology. It is the notion of sensibility, the never forgetting that we all are exhaustion, enjoyment, need, hunger and vulnerability. She writes, "Vulnerability is both our blessing and our curse, both the source of our ethical existence -because we share it, because we care for the vulnerability of others- and the constant threat of our protective self-withdrawal".

In the chapter, *Countering Anthropos with Trans-Corporeal Assemblages in Rita Indiana's 'Tentacle'*, Sierra examines Rita Indiana's novel *La Mucama de* 2015; English trans. *Tentacle* 2018), the tale of an attempted intercession in events leading to ecological disaster in 2024. An appeal is made to the active agent of the Anthropocene, "Anthropos", to cease his world-destroying behavior. Fully autonomous and individualistic, "Anthropos" has an incessant, singular urge to satisfy personal desires. Sealed in subjectively, isolated from the environing world, "Anthropos", an epitome of human exceptionalism, fails to grasp that the life of every subject is bound up in the diversity of others. "Anthropos" emerges as a destructive force that views the powerless human and more-than-human entities as expendables that exist to embellish his privileged status. As foil to the narcissistic exceptionalism of "Anthropos", Indiana's world also features trans-corporeal assemblages. Interventions to the ecological apocalypse will depend on the collective actions of such assemblages. They are created by the dispersed consciousness of a prophesied savior, "Olokun," whose power comes from its ability to exist simultaneously in distinct moments of time. This "pluriversal" identity subsumes "Anthropos" narrower realm of linear temporality and hierarchical subjectivity. A successful avoidance of catastrophe that would decimate all sea life will depend on "Olokun's" choice: to keep his individualistic pleasures in the present or to sacrifice himself and his avatars, by altering the timeline to prevent himself from coming into existence. Despite "Olokun's" tragic struggle between self-preservation and the collective good, he engenders multi-temporal and intersubjective assemblages capable of altering the disembodied subjectivity that guides "Anthropos." The diverse assemblages that "Olokun" creates join forces to dynamically and productively converge with the many disenfranchised human and more-than-human inhabitants of the planet. The resulting constellation of actants fosters connections across temporal and spatial boundaries which induce a new, alternative ontology, one in which humanity is not exceptional but a participant in this vibrant world of diverse inhabitants.

"Olokun", prophetic savior of the sea, as the assemblage "Acilde / Giorgio/ Roque" largely fails in the mission. Sierra argues that the point of the novel is not to elevate any individual, even one dispersed in time and space, as savior of the world, but rather to foreground moments of trans-corporeal connection. Thus, at several junctures in the novel, the individuated nature of self-serving characters gets ruptured, opening a sensorial awareness of a vibrant material environment. The "Anthropos" vein that runs through humanity is countered by assemblages that upend impulses of human exceptionalism. Any individuated would-be hero must fail so that interconnected beings can deliver the vibrant, diverse world into existence. Accordingly, Indiana's novel entails an environmental ethic by undoing the binary structure isolating the humans from the more-than-human participants. Such undoing gives rise to an alternative to "Anthropos" with a polyphonic assemblages of actants that defy and displace any hierarchical spatial and temporal ontology. While a singular hero must fail, emergent diverse assemblages unveil a new ontology suitable for an environmental ethic that precludes human exceptionalism in favor of trans-corporeal connections.

In the chapter, *Idyll and Threat: Man-Nature Relationship in the History of Music, Art, and Literature*, Federico Volpe retraces the story of humanity-nature relationship as conceived and experienced in music, figurative arts, and literature across the centuries. This journey in time through was prompted by the author's meditation on the present, since the global impact of the Covid-19 pandemic impels us to reflect on humanity *vis-à-vis* nature. Volpe finds, however, that the humanity-nature nexus has been pondered throughout history. Humanity has always wondered about its manifold connection to nature. In literature and the arts, this question has given rise to innumerable works. The history of this relationship is punctuated with threat and idylls and provides a rich backdrop for reflecting on the current situation as well as tea leaves for reading the future.

Volpe emphasizes that a concern about the humanity-nature relationship does not emerge in times of pandemic, though being explored in great works of art for centuries. As history shows, humanity has always accepted that it is a part of nature, be it idyll or threat. The cycles of history remind us the dramatic situation of today, marked by the Covid-19 pandemic, that is, by "threat", is not a one-off event, but these cycles intimate that humanity and nature will resume their complicity and hopefully give rise to a new Arcadian idyll.

In the chapter, *Mapping the Anthropocene: The Harrisons' and 'The Deep Wealth of this Nation, Scotland'*, Inge Panneels reflects on *The Deep Wealth of this Nation, Scotland* (2018) exhibition by eco-art pioneers Helen Mayer and Newton Harrison, an example of mapping the Anthropocene. For the exhibition, the Harrisons use mapping to explore how a future Scotland could thrive — by drawing on scientific ecological knowledge to create surplus ecological resources. They embrace the aesthetic of cognitive mapping in conducting their environmental art. Panneels presents the Harrison's mapping as a model of Cultural Ecosystem Services (CES) in which mapping and hacking are deployed for collaborative art practice which, by homing in on the local, aim to highlight connectedness to global ecosystems and cast an "ecological eye" on the Anthropocene. Their work underscores that CES are underused, undervalued tools for policy-makers, well worth consideration in the new *ontopolitics* of the Anthropocene: for enmeshment and entanglement of culture and nature.

The Harrisons' "cognitive maps" work on an aesthetic level, as their large-scale wall maps affect and stir "a new state of mind" in the viewer by presenting the totality of climate change on the scale of a nation. Wide dissemination of these maps enables them to "do" their work in different contexts. The project bespeaks the skills of the artists as researchers, thinkers, and visionaries, informed by decades of practice.

The Deep Wealth aspires to be a political project that imagines the future, cognizant of the Anthropocene but still informed by Enlightenment values: reason and knowledge. They think that to embrace the Anthropocene without aspirations to knowledge or to reason would entail a lack of engagement with the political. These artworks invite us to action. Even if the full-scale ambitions of this project are not actionable, they still may be taken up in the corridors of power and implemented through terraforming on a nationwide scale. That would be its ultimate recognition as an efficacious artwork.

The Harrison's art practice ushers past landscapes into the present and forecasts the future -that given climate change, demand cultural and societal shifts. The exhibition departs from pessimistic, postmodern cognitive mappings, with a positive and futuristic ontological mapping on the state of *being in the world* for humanity. Paradoxically, this future will not be human-centric, but as the Harrisons propose, "one in which humans can once more find themselves at home".

In the chapter, *Covid-19 as a Wake-up Call. Potential for More Sustainable Attitudes and Behaviors in Poland*, Justyna Orłowska and Alicja Piekarz report that whereas Poland has hesitated to make significant efforts

to mitigate climate change, the Covid-19 pandemic has forced certain, at least temporary, changes in people's attitudes and the economy. The main obstacles on accepting change and adaptation are Poland's traditional, respected mining industry and new urban economic growth and consumerism. Orlowska's team surveyed individuals from the Silesian region of Poland about several common behaviors with heavy carbon footprints, e.g., daily transport, travel, consumption, and food waste, and found that the respondents were increasingly willing to make changes in some of these behaviors. The health threat and lockdown had led people to reflect on "what is really important" and reconnect with nature. If such attitudes could be encouraged and supported, they would lead to societal changes toward sustainable living.

The research team conducted quantitative and qualitative surveys to develop profiles of people's attitudes toward the Anthropocene. They conducted 150 in-depth interviews using online tools. Although their sample was not representative, it did reveal the respondents' diverse strategies and changing habits. Also, it registered different life conditions during the pandemic (e.g. of families with kids, pensioners, young adults, etc.).

Orlowska and Piekarz note the urgent need for a paradigm shift. Capitalism and the "gospel of unlimited growth" are pushing human activity to planetary limits in terms of ecosystems and natural resources. With only baby steps being taken internationally to push sustainable development and actions to prevent climate change, we are headed towards climate catastrophe. Without a wholesale change of attitudes and actions of governments, business, and civil society, progress will be impossible. But, how to trigger positive change? In 2020, a global health crisis hit the world. For the first time in many years, it affected everyone in the global South and North. Before, it was impossible to conceive what would make the world stop. But a public health crisis caused by a virulent virus crippled economies worldwide and delivered an existential threat to humanity.

As to the looming climate crisis, however, we have no time to lose. The traumatic experiences of Covid-19 should mark a turning point for stepping up the fight against climate change and radically redefining our development goals. Orlowska and Piekarz see preliminary but specific directions for continuing the pandemic triggered change in her survey results. First, the survey indicated there is potential to reduce transportation by the popularization of working remotely. Polish society had been hesitant to accept online work before; however, thanks to the pandemic experience,

people realize that remote work can be well-managed to the benefit of employees and employers, as well as the environment.

Another trend revealed by the survey was the need of society to redefine farming. The respondents indicated a bottom-up tendency for local communities to share food and the popularity of local farming. Orlowska and Piekarz suggest this trend should be supported by the authorities, such as by education to draw attention to food production. Already, at some preschools in Poland, children tend their own gardens and learn to live in harmony with and respect nature. Authorities could also favor the establishment of more food cooperatives and support small food businesses. Another trend revealed in the survey was the respondents' felt need for more green spaces and contact with nature. Orlowska and Piekarz opine that dialogue, cooperative effort, and subsidies could encourage local authorities to green the cities and towns. Fulfilling this need could result in a general change in the people's relationship with nature. The pandemic has shown that people can buy less and need less. Perhaps, the recovery from the health crisis and the need to rebuild the economy and our everyday lives will provide the chance to do it more sustainably. Orlowska and Piekarz conclude that, without a doubt, Covid-19 gifted us a lesson. The question is whether we do our homework and use this lesson wisely.

In the chapter, *On the Environmental Issue: When Poets Listen to Mother-Land,* Sébastien Aimé Nyafouna introduces Rita Mestokosho, Joséphine Bacon, Naomi Fontaine, and Natasha Kanapé Fontaine as promising voices of First Nations literature in the current international and Québec literary context. From Ekuanitshit where she was born in 1966, Mestokosho invites readers to survey her intimate geography unfolding from a painful past to a promising present. Her poetry collection *Comment je perçois la vie* (2010) is a perfect illustration. To understand this book, the reader must return, in imagination, to the dark beginning whence everything starts. From this beginning, Mestokosho's poems serve as a powerful instrument of liberation and restoration of identity, a restoration which may lead to a surpassing of the self, an opening to the "World" via the incantations of a poetic "Listening to the Mother-Land."

In Rita Mestokosho's poems, the relation of past to present consists of a search for lost identity. Suffering forced usurpation, exploitation and assimilation, the First Nations of Québec have suffered the loss of ancestral lands. As foreigners overrun their lands, their country and tongue, Innu-aimun, are lost and indiscernible in the Westernized space. This is why Indigenous writers treasure writing, especially poetry as a way to express and reclaim their humanness. For Mestokosho, it is imperative to write, i.e., to poetize

"who we are." Her poems body forth her native culture. Imbued with a tragic anthropocenic sense, they reveal the ailing "World." Through such poetry, it is possible to re-appropriate the "Mother-Land" and revive poetic contact with the local environment. To her, victimization is meaningless; like Camus, she prefers lucidity and confidence. She promotes dialogue, so her work might reach and stir more people. Mestokosho's poetry speaks to all who will heed her, no matter their place, their home, or their history; for her poetry reconnects humanity with her roots in the "Mother-Earth."

In the chapter, *Healing the Earth, Transforming the Mind: How the Covid-19 Pandemic Generates New Insights Through the Econarrative Writing Workshop*, Angela Biancofiore notes that that the Covid-19 pandemic has bequeathed humanity with a sense of loss: a loss of meaning, freedom, and in-person social interaction. At the same time, she sees potential in this because it may augur radical change in our vision of the world. She sets out to investigate how to initiate a process of transformation in our ways of perceiving our relationships with living ecosystems in the context of the current global health crisis. To this end, she examines narratives written by students at Paul Valéry University in Montpellier, France, as part of an international project of writing workshops focused on the pandemic and ecology, held January through March 2021.

Biancofiore suggests that living through an era of pandemic risk be viewed as a global rite of passage in which people are living with a sense of loss. In that sense, the pandemic has opened a new way of being in the world. In this context, college students display a new desire to write and to read their peers' writings. In their writings, the students describe moments of growth, days of self-conquest during confinement. Biancofiore reports that, in some cases, the psychic suffering caused by the loss of bearings and the absence of social interaction with friends has opened paths to realization: with no distractions, no normal life, many young people experienced "loss of presence": This prompted them to raise questions like, "What will I do? What will I choose? My projects don't match the present time anymore." Such moments of questioning and astonishment can lead to a crossroads: either we make the choice to act, pull ourselves together, take a fresh look at ourselves and others, or we sink into feeling ill at ease, indifferent, and increasingly depressed.

Biancofiore further reports that the student writings reveal a new clarity in their view of the ecological crisis and the Anthropocene era: they see that humanity has crossed critical boundaries in exploiting the planet, and we urgently need a new vision of life on Earth to change our behavior. Moreover, they now realize that *inner ecology* is linked to *outer ecology*: if we are not well, we tend to consume, shop compulsively, or pursue goals that are not in

harmony with our ecological Self, and this implies the destruction of other living beings.

The eco-narrative writing workshop encouraged students to share their suffering: one confided in an interview, "For me, this was a moment of freedom because we were allowed to express ourselves freely." Many students described the workshop itself as: a *space of freedom* where students realized they were not alone in their suffering from the current situation. The resonance generated by the workshop's collective blog encouraged everyone to be inspired by each other's blogs. By sharing each student's individual experiences of the pandemic, the workshop fostered empathy among them.

The students' willingness to express their personal feelings was due to the non-judgmental atmosphere set up during the sessions. One student emphasized the power of the imaginary in this difficult situation: "I have a dreamy nature, and this helped me so much during lockdown. I know now that what matters most is our mind, the way we see reality".

Intriguingly, the writing workshop provided occasions for the students *to work on the self*: they traveled together in search of truth, that is, existential, personal, and concrete truth, not the truth of abstract knowledge. In other words, they sought existential truth with direct impact on the self and others. In this light, Biancofiore postulates that if we are able to care of ourselves, we can care for others and the planet, and concludes it is vital today to realize the importance of inner transformation that would generate a change in our relations with other beings with other forms of intelligence. It is necessary to recognize the richness of the various forms of life on Earth -- on which our own survival depends.

The student writings from the eco-narrative workshop expressed existential fear, apprehension, and courage. Feeling at once vulnerable and robust, the students expressed their resilience and their will to enrich their understanding within a general society which pretends that things will return to pre-pandemic normalcy.

In the chapter, *An Evaluation of a Shambaa Community's Tradition of Adaptation to Local and Global Forces to Maintain Socio-economic and Ecological Sustainability, and Plague Resilience in Lushoto, Tanzania*, Raymond Ruhaak and Philemon Mtoi examine how the introduction of cash-crop farming causes dramatic landscape change, including forest fragmentation and greater risk factors for zoonotic disease epidemics. In the Lushoto District of Tanzania this cash-crop agriculture phenomenon has led to a plague epidemic while a more traditional nearby Shambaa community remained resilient during the plague outbreaks that swept through the district from the 1980s to 2004. Moreover, the forested community of Mlalo with a

mission nearby, has resumed and adapted traditional community and environmental practices, and shown diminished risk of zoonotic epidemic.

The highest incidents of the plague in the Lushoto district occurred in areas dependent upon cash-crops in the deforested regions. The cash-crop areas were intensely cultivated, leading to a decrease in biodiversity, diminishing competition and predators that control opportunistic rodent species. The most adaptable animals that could live in different ecological niches increased in population and burrow density, leading to increased infection rates. Additionally, over-cultivation reduced the soil fertility and undermined the climate stability needed for good harvests so farmers may pay off debts and to buy necessities. Many of the economic and environmental decisions in the cash-crop areas lacked local control, and were dependent on the federal government, international markets, and other international players. The information used for making decisions there was conveyed in language and knowledge from outside the local cultural geography of the Lushoto District, neglecting vital local knowledge and ecological considerations.

Unlike the cash-crop areas of Shume, the Mlalo area of the Shambaa people was only slightly affected by plague outbreak. Agriculture there was interwoven in the forest environment; soil fertility was maintained by traditional inter-cropping, controlled weeding, and forest plant-life decay, while different crops could thrive in different climatic circumstances. All of which conduced to greater biodiversity, diminished risk of large-scale pest and plant disease, greater food security, and reduced susceptibility to malnutrition among the community. The Mlalo Shambaa community was the oldest settlement in the region with the best know-how for farming sustainably, know-how that the recent migrant families lacked. The community did this by maintaining its native Shambaa language, which is tied to the local ecological system. This helped preserve the communal environmental knowledge and practices handed down from generation to generation. Furthermore, the Shambaa not only maintained their traditional knowledge, they adapted it to changing circumstances. They did not live in isolation, as the nearby Lutheran mission provided education that helped them predict, prepare, and deal with forces of globalization as well as offering networks that gave them opportunities for legal protection, political influence, and financial support.

The resilience of this Shambaa community and their narratives of how this came into being were consequences of their ability to adapt to the increased impact of human activity on the environment and the spread of disease during the Anthropocene. This ability has not required improved technology or wealth, but rather networking and learning from outside groups while

adapting their local knowledge and customs to the changes and potential changes outside forces bring. An important lesson is that too much isolation increases vulnerability to such pressures. The Mlalo community's relationship with the local mission serves as an example of the need for indigenous communities to have personal networks to tap into influential institutions that respect them and can advocate on their behalf. Moreover, these institutions could be an outlet for community members to gain understanding of the colonial/globalized knowledge and languages. Such knowledge of encroaching foreigners and the education they base their decisions on gives indigenous communities the ability to predict changes and know how to adapt to them. While communities that abandon the knowledge and customs of their cultural geography in facing these threats open themselves to the same ecological and zoonotic risks as the rest of the globalized world, those that maintain the connection to their local ecology, language, and knowledge while having networks of people familiar with threatening outside forces and their knowledge and language possess the means to be sufficiently adaptable and flexible to adjust to the looming threats.

Recent ecological crises and zoonotic epidemics/pandemics, such as Covid-19, have heightened humanity's awareness of the intimate but often invisible connections between environment and disease and deepened our understanding of the interdependent nature of solutions. The uncertainties of life in the Anthropocene drive humanity to tap into various ways — old and new — to be sustainable and resilient. The Mlalo provide a model for communities that are struggling to adapt to mounting environmental and socio-economic changes in order to increase their resistance to zoonotic disease and food insecurity.

Crucially important are a local community's connections with its own environment and with international institutions. Importantly, not all connections with international institutions are benign or beneficial; for example, some do not align with the interests or sustainability of the community. Effective community networks with international institutions are those in which the parties work together to influence and develop national and international law, with law-enforcement focused on environmental sustainability and protecting local cultural geographies and the local languages and knowledge that sustain them. These and other measures that strengthen each community's ties to its cultural geography could serve to foster these communities as centers of learning for the outside world, to help repair fraying human-environmental ties. Re-connection of communities to their local ecosystems globally to promote their sustainability and resilience

would diminish the risk factors for zoonotic epidemics, but they will also need increased protection from the depredation of global economic exploitation of their local ecosystems for this reconnection to be realized.

Taken together, the seventeen chapters comprising this volume offer a rich array of narratives of the Anthropocene era during the dark moment of global Covid-19 pandemic lockdown-- a lingering moment as mutant strains of the virus arise in turn. These narratives offer both perspectives on and accounts of the Anthropocene showing its promise as well as analyzing its ravages. Beneath the perspectives and accounts delivered through these narratives, this reader senses inklings of humanity's native but easily lost sensitivity to ecological settings and empathy for other beings. The narratives intone mindfulness (mindful breathing and attentiveness), phenomenological experience (Husserl's epoche and Merleau-Ponty's sensuous perception), sensitivity between inner ecology and outer ecology, and the like, as paths to kindling such sensitivity, the root of empathy and care ethics.

Sensitivity with such far-reaching emotional and ethical implications is generally hard won, a product of serious cultivation and rumination, although quiet, attentive hikers in the woods are sometimes stirred to a sort of enlightenment, an experience of wholeness and connectedness, when surprised by, say, an unexpected birdsong or fawn sighting. David Strong writes of gaining sensitivity to ecosystems and the signals and interactions among inhabitants by *spending time* and *being quiet and attentive* in the wilderness. Given that our mindsets have been so deeply programmed with reductive, quantitative scientific pictures of nature as a cache of resources to the exploited for human consumption, a person needs to devote considerable effort and spend *considerable time* in the wilderness to shed those human conceits and achieve a direct, sensitive appreciation of an ecosystem and its inhabitants — on their own terms[6]. Henry Bugbee (1915-1999) writes of having various experiences in boats with oars and in submarines beneath the sea of feeling and contending with unpredictable contrary motions of water—forces of nature. [7] For him, this bestowed him with a deep realization that the world was not made for us, for human consumption, but that it is we who must adjust our hearts and feelings to grasp it and work with it, at one with it. (One is reminded of the sentiments of the great surfers, their practiced attunement with the waves, ability to ride the crest, and respect for the power

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[6] See David Strong, 1995, *Crazy Mountains: Learning from Wilderness to Weigh Technology.* Albany: SUNY Press.

[7] See Henry Bugbee, 1958, 1999, *The Inward Morning: A Philosophical Exploration in Journal Form.* Athens, GA: University of Georgia Press.

of the sea, nature.) More recently, Colin Wirth compares the nature sensitivity of the Zen philosopher-monk Dogen (1200-1253) with that of Gary Snyder, both of whom practiced Zen meditation and communed with nature [8]. Whereas Dogen's communion with nature was permeated by his Buddhist compassion for every being in its suffering, Snyder also spent time with a community of Indigenous Americans in the Pacific Northwest, assimilating and entering into their way of life at one with nature, feeling their profound gratitude for nature's bounty. Finally, again, James Austin demonstrates the neurology of the enlightened satori mindset, which follows realization of the emptiness of the self or no-self (*anatman*: yielding the allocentric self at one with all) and the vacuity of things and reality (*shunyata*: there are no fixed atomic things with self-natures; everything arises and falls in context; Indra's Net). The wisdom associated with satori is *ipso facto* compassionate, and thus empathetic and consistent with an ethics of caring for all beings. But, again, it is hard-won (Austin, 2014).

Sensitivity to ecosystems and other beings can be inculcated in educational programs at schools. Besides offering the natural sciences in a more holistic and ecological manner highlighting the intelligence and adaptability of other beings, schools can teach mindfulness breathing exercises and basic meditation. Moreover, they can set up school gardens for students to care for garden plots. And, they can arrange fields trips to nature preserves for the students to experience ecosystems and view wildlife in their natural habitats, as well as to farms to experience farm life, care for livestock, and the production of food. This sort of schooling beyond the school walls already is a main staple of education in Finland.

References

Austin, J., 2014, *Zen-Brain Horizons: Toward a Living Zen*, MIT Press, Cambridge.

Bugbee, H., 1999 (1958), *The Inward Morning: A Philosophical Exploration in Journal Form*, University of Georgia Press, Athens, GA.

Gierlinger, F., 2005, "The Colour-Exclusion Problem: An Essay on the Problem of Colour-Exclusion in Wittgenstein's Tractatus Logico-

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[8] See Colin Wirth, 2017, *Mountains, Rivers, and the Great Earth: Reading Gary Snyder and Dogen in an Age of Ecological Crisis.* Albany: SUNY Press.

Philosophicus, *Philosophy in Central Europe series*, https://e-logos.vse.cz/pdfs/elg/2006/01/14.pdf.

Moore, G.E., 1899, *Mind*, New Series, Vo. 8, No. 10 (Apr 1899): 176-193.

Murata, J., 2007, "The Multidimensionality of Colors". In: Murata, J. Perception (Ed.), *Technology, and Life Worlds*. UTCP 1 Tokyo: Center for Philosophy The University of Tokyo, 2007: https://www.cuhk.edu.hk/rih/phs/events/200405_PEACE/papers/JunichiMU RATA.pdf.

Skof, L., Berndtson, P., 2018, eds., *Atmospheres of Breathing*, Suny Press, Albany.

Standaert, M. & De Augustinis, F., 2020, "A 12-storey pig farm: has China found the way to tackle animal disease?", *The Guardian* (last access: 10 november 2021): https://www.theguardian.com/environment/2020/sep/18/a-12-storey-pig-farm-has-china-found-a-way-to-stop-future-pandemics

Strong, D., 1995, *Crazy Mountains: Learning from Wilderness to Weigh Technology*, SUNY Press, Albany.

Tripathy-Lang, A., 2021, "The Difficulty of Defining the Anthropocene", *Eos*, 102, https://eos.org/articles/the-difficulty-of-defining-the-anthropocene (last access: 15 november 2021), DOI: 10.1029/2021EO156556.

Wirth, C., 2017, *Mountains, Rivers, and the Great Earth: Reading Gary Snyder and Dogen in an Age of Ecological Crisis*, SUNY Press, Albany.

Wittgenstein, L., 1921 (1973 2nd ed. Pears, D.F. & B.F. McGuinness trans.), *Tractatus Logico-Philosophicus,* Routledge and Kegan Paul, London.

Wittgenstein, L., 1977, ed., *G.E.M. Anscombe and trans. Linda Schättle. Remarks on Colour*, Blackwell, Oxford.

Introduction

Charles Travis[1], Vittorio Valentino[2]

The past years of the pandemic have forced individuals to collectively seclude and sequester themselves, forcing *homo-sapiens* of the twenty-first century to experience unprecedented periods of solipsism, intimacy and introspection. While we humans were locked away in our own domestic "enclosures", other living non-human beings were reclaiming their place in various environments of the biosphere. From the sky to the seas, from rural landscapes to the most inaccessible urban space, such species were able to experience the absence of humans, regaining, an autonomy of movement, respiration and existence, for which many *homo-sapiens* locked on the "other side of the barricade" cruelly lacked. Indeed, "barricade" seems to be the appropriate term to define the dichotomous co-existences between the families of species scattered on the surface of our planet. This alternation of "presences" has illustrated how, human beings have moved the boundaries of our existence beyond their limits. By invading the spaces of every other living being, we are leaning, ever more dangerously, in our anthropocentric domination to tipping the planetary scales towards increased levels of global warming and a Sixth Extinction. The pages of this volume, composed during the global COVID-19 pandemic assume a timely relevance. The chapters contribute to a deep reflection on the consequences of *homo-sapiens'* tyranny over other species, and constitute scientific and scriptural journeys, that our deeply rooted in the present.

The contributors to this first part of this volume focus on literary narratives which, in the face of the climate crisis, can instill for readers, a sensory empathy, followed more deeply, by a spirit of resilience. Both are necessary to change the directions of our anthropocentric world-path.

This can be seen demonstrated, in Sébastien Aimé Nyafouna's chapter who, quoting poetess Rita Mestokosho on the traces of human activities, situates them as "so pervasive and profound that they rival the great forces of Nature." The poems of Mestokosho, writer and activist of the Innu people in Quebec, are windows into the stories of an entire territory: by celebrating their

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beauty, her writing becomes a powerful tool of liberation and identity re-conquest, which extends to the defense of all dominated peoples, from all latitudes.

In a similar manner, Chantal Colomb's chapter outlines how certain contemporary Italian writers have been engaged for a long time in like-minded dynamics of preservation related to the non-human species. According to Colomb, literary fiction resounds like a cry of alarm in the face of the desire to possess nature and its living beings. In the Anthropocene era different texts and literary genres can, however, participate actively, as Dale Jamieson affirms, to the creation "of an Anthropocene ethic" that lasts and is sustained over time.

Still, as Kevin Even's chapter reminds us, in harmony with a broad ecocritical vision, some texts of the nineteenth century, from Jules Verne to J.-H. Rosny Aîné, have represented humanity facing the danger of environmental collapse with the dawn of the twentieth century. Their works provide an awareness directly linked to the industrial revolution. Rediscovered during the current climate crisis, their texts contain a profound warning against the dangers of hyper-industrialization and capitalism. They depict a future in which old fears flourish and take shape, telling stories of the decline of Western society and of the earth itself, against which each generation must fight, in order to leave a better world for the next.

Noé Gross' chapter start precisely from the fear of emptiness linked to the pandemic and the role of the living, and discusses how, researchers have begun, in recent years, to see narratives in a new light, which are now considered drawn from materials from which the world itself is constituted. With this dynamic, the incursion of non-human living beings into literature has profoundly transformed the very notion of narratives, creating inter-species dialogues becoming more typical in the Anthropocene era, in which humans are constantly negotiating with other species, often endangered ones, to preserve their very presence on Earth.

In order to explore the dialogue between science and literature, Geneviève Lobo's chapter looks at the writings of the American author Cormac McCarthy. Famous for his interest in biology and ethology, animals have always occupied a central place in McCarthy's fiction, so central that it challenges the traditional anthropocentric thinking. Lobo, through the concept of "Optical democracy" is linked to McCarthy's questions concerning the notions of "humanity" and "animality" in contemporary American literature, in her search of an aesthetic response to ethology and to its progress.

Federico Volpe's chapter also embarks on a journey into the relationship between man and nature, adopting a historical and literary point of view, to understand how the latter has been conceived and experienced in the context of literature, figurative arts and music over the centuries. From the past comes a reflection on the present, on the scientific and technological innovations that have led in recent years to an extraordinary and unexpected developments. This has allowed humans to believe in their total control over the earth and its other living beings. However expectations of this omnipotence have been disillusioned by the catastrophe of the Covid-19 pandemic. Volpe hopes, however, for a return to the complicity between "Humans" and "Nature" in which the pandemic is only one more event in the millennial history that characterizes this relationship.

Sierra's chapter explores Rita Indiana's 2015 novel *La Mucama de Omicunlé* (*Tentacle*) that details events leading to an ecological disaster in the year 2024. The protagonist known as Anthropos symbolizes a world that locates homo sapiens at the apex of a species hierarchy on the planet. In Sierra's exegesis, Anthropos does not represent all of humanity, but rather defines an ontological position systematized by a rigid binary that posits human exceptionalism against passively receptive global environments.

After discussing the relevance of literature to redefining our knowledge and our position in the current global environmental crisis, the second part of this collection feature contributions interested in transformative practices. Whether educational, cognitive, or linked to sustainable development, the following chapters speak to our estrangement from Nature and the overall degradation of our environment.

It is precisely the dualistic perception of the "Human-Nature" binary that is investigated in Clément Barniaudy's chapter. The author adopts a pedagogical vision, which takes into consideration transformative practices that renews the awareness of our bodily senses, in order to connect with the "more-than-human-world". In this sense, it adopts an exploratory originality, from the perspective of an "aerial matrix," around which the relationship between the human and the non-human are interwoven. Air, a fluid and eolian reality, in addition to leading to different forms of connections with the biosphere, is the gateway to a world of sensual relations, in which human cultural constructs, such as language or technology, are rooted. Prospecting, through this experience, a metamorphosis of our way of inhabiting the world, by adopting new forms of thought and perception of Earth is considered.

In the same vein, Angela Biancofiore's chapter combining pedagogy and sensitive perception sees in the global experience of the Covid-19 pandemic

a learning opportunity to conceive of human presence as interdependent with other living beings. According to the author, the illusory control of reality has taught us not only uncertainty, but that our anthropocentric vision is no longer adapted to our world. An awakening of the mind seems necessary to better understand this new complexity. Biancofiore's chapter focuses on ecological, social and emotional learning dynamics, based on a transformative educational concept and on global and profound ethics of *care*.

Influenced by Virgil's *Georgics*, Donovan's chapter explores the idea of an "Eco-Georgic" literature based on the use of fire as a tool in the agricultural practices of Australian First Nations. Donovan's perspective confronts our preconceived expectations of what constitute a Georgic Landscape. In this regard, the chapter demonstrates that phenomenological experiences of the Georgic and their literary representations are conversely related. The chapter illustrates that the use of fire as an agricultural tool conforms not only to an Eco-Georgic definition, but its poetic contributes to a novel ecocritical approach to literature.

Erika Natalia Molina Garcia's chapter parses the thought of Emmanuel Levinas, by reviewing ecological perspectives in his philosophy, - in francophone and anglophone spheres -, to analyze specific notions that can inform non-anthropocentric or deep ecology discourses. Garcia uncovers distinctions between the ethics of responsibility and vulnerability and arrives at explanations for the positing of a Levinasian methodological humanism. This allows her to create a schematic model of sensibility situating a binary of enjoyment/vulnerability to support deep ecology unrestricted from traditional ideas of free will, rights or value.

Bradshaw's chapter sketches a case study of the Albertan oil-sands, to ask how human and nonhuman agency might be related in responding to ongoing environmental destruction in western Canada. He analyzes the discourses and practices of metabolizing microbial strains to detoxify waste products generated by the oil-sands industry, stored in tailings ponds and which must be detoxified before the sites can be remediated to sustain the ecologies of boreal forests and wetlands. Bradshaw asks if the goal of 'controlling' such processes, arisen spontaneously from the "creative metabolism" of bacteria, undermines the outlook which drives the research into such bio-remediation processes.

Pannel's chapter is a case study on the art exhibit *The Deep Wealth of this Nation, Scotland* (2018) by eco-art pioneers known as "the Harrisons," who deploy mapping to explore how a future Scotland could thrive and create surplus of ecological resources, founded on deep scientific and ecological knowledge. The exhibit provides an example of a new Cultural Ecosystem

Services (CES) model where mapping and hacking methods engage collaborative, interdisciplinary, art practices to home in on local environs to highlight their interconnectedness with global ecosystems to provide an 'ecological eye' on the Anthropocene. The chapter proposes that CES models are underused and undervalued tools for policy-makers, and need to be reconsidered in context of a new "ontopolitics" for the Anthropocene.

The final part of this volume brings together contributions that focus on plagues and pandemics in order to illustrate the dynamics of writing, reflection and practices, that test the resilience of the human condition in the face of self-inflicted environmental threats.

Justyna Orlowska and Alicja Piekarz's chapter details the results of a survey undertaken in the Silesian region of Poland during the first Covid-19 pandemic lockdown in April and May of 2020. The survey focused on the potential of redefining people's everyday rituals for fighting climate change, by concentrating on high-carbon footprint behaviors, such as daily transport, travel, consumption, and food waste. Survey findings speculate that policies mitigating carbon footprint behaviors could be introduced, and revealed that the health crisis and the lockdown inspired a sort of national reckoning on "what was really important" and, to some extent, a reconnection with nature.

Likewise, Heilen's chapter features a survey of millennial youth whose results illustrates that young people of this generation view the Covid-19 pandemic crisis as an example of how rapid, and consistent action by political actors can be mobilized against mass dangers and hazards to society. Survey findings demand that restrictions benefitting the climate be maintained to mitigate the global warming crisis. The chapter suggests that it is helpful to broadcast widely examples of successful communal efforts to overcome massive threats and uncertainties to motivate young people and instill them with a sense of collective efficacy.

Galibert's chapter observes that human imagination is the fuel that nourishes our reflections on the world and takes all forms from concepts of science, to notions of common sense, to works of art. The Covid-19 pandemic has created a catalog of complex stories, and is part of a possible new axis of reading of the imaginary universe. The catalog of confinement includes tales, fables, legends, mythologies, medical, health, scientific, political, conspiratorial, and literary fictions. His chapter provides a selection of such readings and advises that we parse their storylines in conjunction the concept of the *Narrativium*, which comes from author Terry Pratchett's Discworld to talk about the "science of our own". Galibert asserts that framing the idea of "story" in such a manner constitutes the basis of our human relationships with

the world in all its form -cognitive, affective, oral, gestural, written, behavioral, reflective, active, creative, and most importantly -the imaginary.

Ruhaak and Mtoi's chapter assesses the resilience of a Shambaa agricultural community based in the highland Lushoto District of northeastern Tanzania during the plague epidemic years between 1980 and 2004. Utilizing a local community narratives, the chapter analyzes the factors of Shambaa cultural knowledge and subsistence practice that contributed to greater community resilience to the plague compared to nearby two distinct large-scale cash-crop agricultural communities.

Over the three parts of this volume, the reader will find, striking parallels between chapters as the threads of ideas proposed by the collections' authors are woven together by ethical, and sensory and perspectives which address the degradation of our world. Indeed, the images and the themes evoked in the chapters create echoes between the act of writing and its endless quest for human transformation. In attempting to change the foundations of our anthropocentric existence, the inter-disciplinary nature of each author's contribution take on a fuller meaning, as they bear witness to a collective call for the necessary and historical commitment to define a new human condition for our species, *homo-sapiens*.

SECTION I

Resilience: literary and sensory narratives

1. Italian writers and the Anthropocene

Chantal Colomb[1]

Abstract

Three Italian writers have used their art to denounce our behaviour towards animals, and more generally towards our planet. Fiction allows them to draw our attention to the dangers posed by our Cartesian desire to make "ourselves the lords and possessors of nature" (Descartes, 1637). Philosophers such as Peter Singer and Jacques Derrida had already invited us to see non-human animals with a careful and respectful look. David Abram goes further by encouraging us to perceive the living in all its sensitivity and free from any utilitarian aim. The man of the Anthropocene would have gradually destroyed what nature offered him. But what is the Anthropocene? Theorized for the first time by Paul Josef Crutzen, Nobel Prize in Chemistry in 1995, the Anthropocene etymologically means "The Age of Man". Crutzen writes:

> It seems appropriate to assign the term 'Anthropocene' to the present, in many ways human-dominated, geological epoch, supplementing the Holocene — the warm period of the past 10–12 millennia. The Anthropocene could be said to have started in the latter part of the eighteenth century, when analyses of air trapped in polar ice showed the beginning of growing global concentrations of carbon dioxide and methane. This date also happens to coincide with James Watt's design of the steam engine in 1784 (Crutzen, 2002, p. 23).

However, this control of man on planet Earth has put it at risk to the point that life is threatened there. Laura Pugno, using science fiction in *Sirene*, introduces us to a planet that has become uninhabitable. Antonio Prete, in *L'ordine animale delle cose*, gives voice to the animals who relearn to be attentive to them. It is part of the tradition of the fable that goes back to Aesop. As for Erri De Luca, in 2009, in *Il Peso della farfalla*, he proposes the story of a fight between the leader of a chamois herd and a seasoned poacher; his story, centred on the poacher and the dominant chamois, sets out by a

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counterexample what not to do if one wants to live in harmony with nature. Is it still possible to remedy the harms caused by man for nearly two centuries? We will begin, based on the works cited and the Italian press, by trying to define the evils related to the Anthropocene. We will then ask ourselves, based on *L'ordine animale delle cose* and the philosophy of Merleau-Ponty, David Abram and Giorgio Agamben, how it is possible to connect with the animal world, of which we are only a part, in a more sensitive way than in the past. Finally, we will try to see how, through *cura* (care), wisdom and art, it is possible to better respect our environment and the beings who live on earth.

Keywords: anthropocene, italian literature, nature, destruction, human being.

1. The evils of the Anthropocene

Because man has managed to master many aspects of nature, he has caused irreparable damage and even can destroy the earth by means of the atomic bomb. Writers, philosophers, and journalists have become for some the voices of peoples subjected to devastating industrialization and globalization but have also given their voice to make us aware of the animal distress and the ravages of deforestation. It is right that as early as the 1960s, Pasolini tried to challenge us to warn us against the destruction of the link between man and nature, a destruction which, according to him, is at the origin of the desecration of the world. In *Teorema* (1968), he shows us the awareness of a bourgeois family that has lost the true values and finds itself annihilated when a mysterious visitor with a divine character retires. The father of the family leaves his factory, and the last sequence of the film shows him wandering and screaming in the desert. Fifty years later, Laura Pugno uses science fiction, even dystopia, to alert us against the impending danger. Man is not only threatened, but he has also already destroyed his environment and caused his own loss: "In Laura Pugno's *Sirene* (2017), a deadly sun causes those who expose themselves to a violent skin tumor. The novel illustrates a dystopian, semi-apocalyptic world", writes Ludovica del Castillo (Del Castillo, 2019). Indeed, although not explicit, it seems that the cause of "il cancro nero" (black cancer, p. 10), attacking anyone who walks unprotected on earth, is the disappearance of the ozone layer because summer makes the sun deadly. Moreover, global warming seems to be the source of a desire to get closer to

the sea, and the house of Samuel, the hero, is compared to a "forno crematorio" (crematorium) because of his "southeast exposure". The land has become uninhabitable, so that cancer survivors, the leaders of the yakuza of Japanese origin, have an underwater life where they live in kinds of underwater bunkers and feed on thanks to the "riproduzione delle sirene negli allevamenti" (*Ibid*., 32), which undergo forced growth, like cattle in our real world. The world described by Laura Pugno is an apocalyptic vision of the Anthropocene.

Indeed, man used his superiority to appropriate the land, losing sight that it could not respond indefinitely to his request and that he shared it with other animals and plants. Hunting, which in prehistory was a means of food, because livestock was not yet practiced, has become today for most peoples, with the exception of those who have kept their ancestral customs and refuse to enter the Anthropocene, a simple hobby. True hunter-gatherers such as the Yali in New Guinea or the Inuit in northern Canada, although attached to their rites, now live in frequent contact with the dominant peoples and may have commercial relations with them. Their way of life is changed by the presence of people who came to settle on their land centuries ago. Jean Malaurie recounted in *The Last Kings of Thule* published in 1955 the customs of the Inuit who still lived at that time of hunting and gathering. They had only contact with Canadians or Greenlanders to sell the skins of animals killed in the hunt and to buy cartridges for their rifles or tea. Hunting in the cold was their only means of subsistence. In Europe, Lapps live on reindeer herding and no longer depend on hunting for food. When Erri De Luca, in *Il Peso della farfalla*, portrays a poacher living off the hunt, breaking with Italian society, he writes a fable and not a narrative based on reality alone. "In inverno cacciava per le tavoli degli sciatori, d'estate per l'appetito degli escursionisti e degli alpinisti, ma a novembre c'era il trofeo del ciuffo di schiena, che da solo valeva il resto del camoscio[2]" (De Luca, 2011). But it is possible that there are still poachers in Italy who, living in the Alps, where Erri De Luca practiced mountaineering, engage in poaching, as is the case in Upper Corsica. They perpetuate a way of life that has been taught to them from father to son but may have other livelihoods than hunting.

The relationship between man and nature, especially since the beginning of the Anthropocene, is most often a relationship of domination. Man appropriates the land to collect coal, oil or rare metals without worrying,

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[2] "In winter he hunted for the tables of skiers, in summer for the appetite of hikers and mountaineers, but in November there was the trophy of the tuft of back, which alone was worth the rest of the suede" (Our translation).

neither about the damage caused to the environment, nor of the violation of the living space of the natives and animals. Guillaume Pitron, author of *La Guerra dei metalli rari* (LUISS University Press, 2019), denounces the harms of extracting these metals:

> Volendoci emancipare dalle energie fossili passando da un ordine antico a un mondo nuovo sprofondiamo in realtà in un'altra dipendenza, ancora più forte. […] Bilanciamo una privazione con un eccesso, un po' come un tossicomane che per interrompere la propria dipendenza da cocaina cade in quella da eroina… In fondo, lungi dal risolvere la sfida dell'impatto dell'attività umana sull'ecosistema, non facciamo altro che spostarlo. Il fervore con cui domiamo i pericoli ambientali presenti potrebbe condurci di fronte a gravi crisi ecologiche[3] (Michielin, 2020).

As our impact on the ecosystem is not at all reduced but only displaced, it seems clear that we are only exacerbating the ecological disaster. The same applies to the current exploitation of land previously conserved in the wild. Deforestation of the Amazon, to install trees producing palm oil, is not only an ecological disaster with negative impacts on the climate, but also an attack on Amazonian populations who are deprived of the natural resources necessary for their survival, as well as a disaster in the animal world since animal species are decimated. Well known is the negative impact of Sichuan logging in China: by cutting down bamboo forests, humans have put the giant panda species at risk. The animal survives only through captive fertilization plans. The lack of respect for animals, since it is clearly shown in the conditions of raising and transporting pigs, cattle, sheep and poultry[4], has insidiously resulted in the death of thousands of human beings. Indeed, the consumption of certain animals by humans is believed to be the cause of AIDS and more recently of SARS-Covid 19. With regard to AIDS, it has

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[3] Pitron, G. quoted by Michielin, D., 2020, "Il problema con i metalli rari", in *Il Tascabile*, 20th oct: https://www.iltascabile.com/scienze/metalli-rari/ : "If we want to emancipate ourselves from fossil energies from an ancient order to a new world, we are actually sinking into another, even stronger dependence. [...] We balance a deprivation with an excess, a bit like a drug addict who falls into heroin addiction to stop his cocaine addiction... After all, far from solving the challenge of the impact of human activity on the ecosystem, we are moving it. The fervour with which we tame the environmental dangers present could lead us to serious ecological crises". (Our translation).

[4] To denounce the plight of animals destined for human food, Charles Patterson titled his book *Eternal Treblinka*, wanting to show that we reserve the same living conditions for livestock as those of the victims of the Nazis in the extermination camps.

been proven that too much promiscuity between monkeys and humans, or even the consumption of monkeys for the feeding of the poor, is at the origin of the spread of the virus to humans:

> Come in altre infezioni virali o batteriche, anche l'infezione da HIV è una zoonosi, cioè una infezione che proviene da animali. Sembra che il passaggio non sia molto vecchio e forse risale agli anni Cinquanta o almeno in questo periodo sembra essere avvenuta la prima diffusione nella popolazione mondiale. […] Il passaggio può essere avvenuto per la stretta convivenza in alcuni villaggi tra uomini e scimmie, attraverso la contaminazione di ferite, di sangue, l'uso di mangiare carne di scimmie, o altre pratiche promiscue[5] (Aiuti, 2005).

Similarly, the Covid-19 pandemic, which affects Italy like most countries in the world, is believed to have originated with the presence of bats in the Wuhan market in China, but it is not yet known how the coronavirus present in some bats may have contaminated humans[6]. Our industrial diet is also responsible for diseases such as diabetes, obesity and a sharp increase in the number of cancers. As these facts show, the dystopia used by Laura Pugno finds its veracity in the destruction of the living by man's will of man to do with the earth what he sees fit, regardless of the harmful consequences that this entails.

2. Building better relationships between people, animals and plants

Such a disaster could not last without voices denouncing it and proposing to question the way we behave towards animals, plants and minerals.

> We are the only known animal to have caused climate change, desertification, ozone depletion, ocean acidification, pollution, and

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[5] "As in other viral or bacterial infections, HIV infection is also a zoonosis, that is, an infection that comes from animals. It seems that the passage is not very old and perhaps dates back to the 1950s or at least during this period it seems to have been the first spread in the world population. [...] The passage may have occurred due to the close coexistence in some villages between humans and monkeys, through contamination of wounds, blood, the use of eating monkey meat, or other promiscuous practices" (Our translation).

[6] See on the question: 2020 "Perché il governo degli Stati Uniti ha interrotto il finanziamento di un progetto di ricerca sui pipistrelli e i coronavirus", 29th Apr: https://it.adioscorona.org/questions-reponses/2020-12-22-origine-coronavirus-pandemie-laboratoire-naturelle-zoonose.html (consulted 28th Jan 2021).

species extinctions. Until relatively recently, technologies and ways of life that enabled us to transfigure the earth in these ways were understood as expressions of our inherent superiority. Today, the Anthropocene is increasingly seen not as a mark of human exceptionalism, but as an ecological catastrophe that threatens not only non-human lives, but also our own continued existence[7].

That's why, according to Dale Jamieson, we need to create an Anthropocene ethic. It is difficult to date the beginning of the ecological movement, but it was the first initiative to try to remedy the destruction caused by the man of the Anthropocene. For Patrick Matagne, the entry into what Donald Worster called "the ecological age" would go back to the first test of an atomic bomb:

> The opening of this new age would have taken place on July 16, 1945. That morning, the explosion of the first atomic bomb in the New Mexico desert marked the culmination of the Manhattan project initiated in 1942. [...] For the first time, irreversible contamination of the atmosphere by the products of nuclear fission raised the threat of a global ecological catastrophe. Shortly thereafter, studies conducted on the military and scientific grounds of Hiroshima and Nagasaki in the aftermath of 6 and 9 August 1945 demonstrated the sustainability of the impact of fission and fusion bombs on human populations and ecosystems (Matagne, 2003, p. 27) (Our translation).

It is difficult to say whether, as early as 1945, there was a true ecological awareness. This is more clearly expressed in the 1960s and 1970s. The use of synthetic herbicides during the Vietnam War, the use of pesticides and the press's denunciation of the toxicity of DDT (Dichloro-Dipphenyl-Trichlorethane) clearly show opposition to environmental degradation by chemicals in consciences. The environmental movement materialized April 22, 1970 with a gigantic demonstration mobilizing twenty million people in the United States, earth day. From this day on, the denunciation of the attacks on life on earth will multiply, and ecology will become a political movement in several countries of the world. In Italy, the ecological movement dates back to the 1960s:

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[7] "Dale Jamieson on love and meaning in the age of humans", Yale University, 2019: http://www.whenwetalkaboutanimals.org/2019/02/25/ep-10-dale-jamieson/ (consulted 21th Apr 2021).

L'ecologia, per un intero secolo, dagli anni Sessanta dell'0ttocento è rimasta severa disciplina scientifica rivolta a comprendere e descrivere i rapporti degli esseri viventi fra loro e con l'ambiente circostante. Negli anni Sessanta del Novecento è diventata popolare con la scoperta che l'animale "uomo", con le sue scoperte e le sue attività, stava modificando prepotentemente le condizioni di vita degli altri esseri viventi e dell'ambiente naturale, con effetti diventati planetari in seguito ad alcune scoperte come quella dell'energia atomica, dei pesticidi e di molti altri prodotti sintetici non biodegradabili, "estranei" ai cicli naturali. "L'ecologia" indicava anche alcuni rimedi che presupponevano maggiori conoscenze sui cicli della materia e dell'energia e azioni politiche: pubblici controlli e divieti e imposte[8] (Nebbia, 2018).

It is the awareness of the damage of the Anthropocene that creates in the collective consciousness the desire for a life more respectful of the planet.

Humans today live very often with a pet and have learned to look at animals differently than as Cartesian "machines". Peter Singer, an Australian philosopher, was one of the first philosophers to claim rights for animals. He is an antispecist, which means he wants to "give equal consideration to the interests of humans and the interests of non-human animals[9]". Antonio Prete, professor of Comparative Literature and Leopardi specialist, knows German-language poetry, especially Rilke, for whom the animal sees what man cannot perceive. In a poem dedicated to Rosa Luxembourg, Antonio Prete writes: "Indifeso / il dolore animal[10]", highlighting this peculiarity of animal pain

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[8] "Ecology, for a whole century, since the sixties of the 0ttocento has remained strict scientific discipline aimed at understanding and describing the relationships of living beings with each other and with the surrounding environment. In the sixties of the twentieth century, it became popular with the discovery that the animal "man", with its discoveries and activities, was overbearingly modifying the living conditions of other living beings and the natural environment, with effects that became planetary following some discoveries such as that of atomic energy, pesticides and many other synthetic non-biodegradable products, "foreign" to natural cycles. "Ecology" also indicated some remedies that required more knowledge about the cycles of matter and energy and political actions: public controls and prohibitions and taxes" (Our translation).

[9] Interview with Peter Singer, by Hugo Domenach, 2019, "Animal liberation is a major political issue", *Le Point*, 24th Aug: https://www.lepoint.fr/societe/singer-la-liberation-animale-est-une-question-politique-majeure-24-08-2019-2331385_23.php (consulted 30th Jan 2021).

[10] "Helpless / animal pain" 2020 (Our translation): Poem by Prete A. quoted by Devicienti A., in "Prestare parole al desiderio. Su Tutto è sempre ora di Antonio Prete", *Zibaldoni e*

which is to be helpless, that is to say without possible recourse, unlike the pain of man who, in turn, can turn to a doctor. It is this sensitivity to the fragile being of the animal that prompts Antonio Prete to listen to him in *L'ordine animale delle cose*: "Un respiro che era quasi una voce, fatta solo di vocali pronunciate col fondo della gola, aspre e perdute, che non arrivano a diventare lingua, ma soffrivano per questo, si disperavano per questo, gridando da una lontananza soffocata e piangente" (Prete, 2008, pp. 81-82). As in his poem, Antonio Prete shows his sensitivity to animal suffering. The lexicon of pain is present through lost, *soffrivano*, *disperavano*, *gridando*, *soffocata* and *piangente.* This breath, which the poet reveals a little later, that it is that of a frightened person seen in his childhood, seems to him close to the human word, "almost una voce", and makes the poet not paying attention to rumours of ghosts. He seeks to communicate with the bird and, while silent, it is through the imitation of his voice that he causes the flight of the scare to which it judges superior to humanswho have mistaken him for a ghost. The human animal still has a long way to go before it can understand other animals. For Antonio Prete, it is the animals that hold the wisdom: "Sarà il tempo in cui, deposta infine la pretesa superiorità del vostro genere umano, e appresa dagli animali la forma profonda del pensiero, sarete anche voi pronti per una metamorfosi[11]". Man, because he has long affirmed his superiority, still has a long way to go to achieve this metamorphosis indispensable to a just perception of things. Merleau-Ponty, after recalling 1948 in *Causeries* (Merleau-Ponty, 2002) how Cartesian philosophy has diverted us from the animal world, invites us to coexist with animality:

> Some of these fragments of matter that we call living begin to draw in their surroundings and by their gestures or their behaviour a view of things that is theirs and that will appear to us if only we lend ourselves to the spectacle of animality, we coexist with animality instead of recklessly denying it any kind of interiority (Merleau-Ponty, 2002) (Our translation).

To admit that some animals have an interiority, that is, that they can experience sensations, even feelings, and that some of them can think and

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altre meraviglie, 29th Apr: https://www.zibaldoni.it/2020/04/29/prestare-parola-al-desiderio-su-tutto-e-sempre-ora-di-antonio-prete/ (consulted 24th January 2021).

[11] "It will be the time when, finally laid down the supposed superiority of your human race, and learned from animals the deep form of thought, you too will be ready for a metamorphosis" (Our translation).

have a language, is the prerequisite for an approach to animality. It should be remembered that it was not until 2015 that the French Civil Code admitted that the animal is "a living being endowed with sensitivity[12]", giving it a legal status of its own and distinct from the personal property to which it had until then been assimilated. Only writers, scholars and philosophers who do not refer to Descartes can try to understand what the animal perceives. Thus, Rilke can affirm the superiority of animal perception over man's one as early as the 1920s in the *Elegies of Duino* (Rilke, 1923), and that Uexküll, in 1909, developing the concept of Umwelt (surrounding environment), tries to expose, sketches to support, the difference between the perception of an adult man, a child and an animal. For Uexküll, each of these beings has a different Umwelt because his perception of the surrounding world is not physically the same. For Uexküll, there is not a world but a plurality of worlds, the world being only a subjective construction. Belief in one world is therefore only an illusion (Von Uexküll, 2010, p. 43). The work of Uexküll and Conrad Lorenz is at the origin of a new science, ethology, which is concerned with the perception and social life of animals. Antonio Prete's *L'ordine animale delle cose* only makes sense by the will, in accordance with ethology, to perceive the richness of the animal world. Similarly, David Abram invites us, in *How the Earth Is Killed*, to perceive the world without reference to writing. According to him, an oral language remains close to the nature it speaks while writing is a screen. He refers to the transcription of the experiences of Manuel Cerdova-Rios who, having been captured at the age of fifteen by an Amazonian tribe, had learned to hunt by communicating with animals: "Knowing how to imitate and use the signals produced by animals to communicate with their fellow human beings in different situations allowed the savvy hunter to locate the game and attract it to its sight" (Abram, 2013). Fortunately, in Europe, it is not necessary to hunt to learn how to communicate with animals. Ethologists have been able to communicate with monkeys, parrots and pets by reproducing some of the sounds or gestures they make. Europeans, long marked by Western philosophy, could not really begin to understand animals until the 20th century. Giorgio Agamben, in *L'Aperto - L'uomo e l'animal*e, has freed himself from Cartesianism by relying in particular on Rilke's "Eighth Elegy" and reminds us that for Rilke, animal perception is superior to human perception:

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[12] French Civil Code. Article 515-14 created by Law n°2015-177 of 16 February 2015. Article 2.

Nell'ottava Elegia, infatti, a vedere l'aperto "con tutti gli occhi" è l'animale (die Kreatur), opposto decisamente all'uomo, i cui occhi sono stati invece "rivoltati" e posti "come trappole" intorno ad esso. Mentre l'uomo ha sempre davanti a sé il mondo, sta sempre e soltanto di fronte" (*gegenüber*) e non accede mai al "puro spazio" del fuori, l'animale si muove invece nell'aperto, in un "da nessuna parte senza non [13] (Agamben, 2002, p. 60).

3. Respecting the Earth

The effort made by man of the twentieth century to learn to know the animal world must now extend to plants and minerals because it is the whole earth that the man of the Anthropocene has jeopardized. Man needs *cura* (care), wisdom and art to try to reconcile with the Earth. This is how Luigina Mortari proposes a *Filosofia della cura*. Drawing on the Heideggerian concepts of *Sorge* (*care*) and mitsein (being-with) present in *Being and Time* (1927), Luigina Mortari does not accept the condition of being-thrown into the world, presented by Heidegger. She uses her concept of *Sorge* (*cura*, care), to develop a philosophy of *cura* that relies in particular on her knowledge of childhood because she is Professor of Educational Sciences. It is important to remember that the child needs the *cura*, that someone has to take care of him so that he can develop. Reader of Levinas, she proposes an ethic of *cura*. Every human being must care about the other, "feel con l'altro":

Non c'è comprensione se non c'è la capacità di sentire il sentire dell'altro. Non c'è comprensione in un atteggiamento emozionalmente neutro. L'atto del comprendere è sempre emozionalmente situato (Heidegger, 1927, p. 407). Una efficace responsività all'altro comporta la capacità di "sintonizzazione emotiva", che va oltre il mero riconoscimento razionale della situazione in cui l'altro si trova [14] (Mortari, 2015, p. 192).

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[13] "In the eighth Elegy, in fact, to see the open "with all eyes" is the animal (*die Kreatur*), decidedly opposite to the man, whose eyes were instead "turned" and placed "like traps" around it. While man always has the world in front of him, he is always "in front" (*gegenüber*) and never accesses the "pure space" of the outside, the animal moves instead in the open, in a "nowhere without not" (Our translation).

[14] "There is no understanding if there is no ability to hear the other. There is no understanding in an emotionally neutral attitude. The act of understanding is always emotionally situated (Heidegger, 1927, p. 407). An effective responsiveness to the other involves the ability to

But we can go further and, as David Abram proposes in *Becoming Animal*, learn to feel the earth by our senses, not only by the touch of the hand but also by the "touch" of the eyes and skin. "The most intimate contact between the body and the earth unfolds not just at the bottom of our feet, but along the whole porous surface of our skin. For earth is not merely that dense presence underfoot - it is also the transparent air that enfolds us". David Abram invites us to feel the earth and the air around him as a wild animal world. This experience is fundamental to realize that we are in constant contact with the earth, and only an experience of this kind will allow us to take care of the earth that is only the extension of our body. The porosity of our body reveals to us the intimate presence in which we should live with the earth, and this animal sensation should lead us to stop destroying this planet without which we cannot live. The project of journeys to Mars or other planets corresponds only to the illusion of being able to replace the Earth if, by our unreasonable action, we make it totally uninhabitable. It would be better to take care of the Earth. Indeed, it takes wisdom that people learn to live in harmony with their environment. But this search for harmony that is at the heart of Eastern wisdom is hardly attainable by Westerners whose philosophy is based on the opposition between a subject and an object. The ego occupies so much space in the West that it encourages us to think only of the realization of individual desires.

> Zen è la pronuncia giapponese del carattere cinese "Chan" (禪), che a sua volta è la traduzione del termine sanscrito "Dhyana". Il suo significato letterale è "vision," ma viene spesso tradotto anche con "meditazione," intesa come "stato di perfetta equanimità e consapevolezza." La pratica del Dhyana era largamente utilizzata nel Buddismo, nell'Induismo e nel Jainismo per raggiungere l'illuminazione[15] [...].

"emotional tuning", which goes beyond the mere rational recognition of the situation in which the other is located" (Our translation).

[15] Hsin Hsin Ming, S., *Il Libro del Nulla*, translated by Clarke R. B.: http://www.gianfrancobertagni.it/materiali/zen/libronulla.htm (consulted 2th Feb 2021): "Zen is the Japanese pronunciation of the Chinese character "Chan" (禪), which in turn is the translation of the Sanskrit terminus "Dhyana". Its literal meaning is "vision", but it is often also translated as "meditation", understood as "a state of perfect equanimity and awareness". The practice of Dhyana was widely used in Buddhism, Hinduism, and Jainism to achieve enlightenment [...]." (Our translation).

However, in order to achieve Zen, one must be fully aware of being connected to the world and to all that composes it. "Satori is waking up from a dream and grasping the ego that penetrates the entire universe". This dissolution of the ego in the universe can be achieved by different practices, such as yoga, Chinese ink painting, haiku, archery, etc. Everyone can find the most appropriate form to produce awakening. But there is no awakening without a dissolution of the ego in emptiness:

> Quando gli oggetti del pensiero svaniscono, il soggetto pensante svanisce, poiché quando la mente sparisce, gli oggetti svaniscono. Le cose sono oggetti a causa del soggetto; la mente è tale a causa delle cose. Comprendi la relatività di questi due e la realtà basilare: l'unità della vacuità. In questo Vuoto i due sono indistinguibili e ognuno di essi contiene in sé il mondo intero. Se non fai differenza tra il grezzo e il fine non sarai tentato al pregiudizio e all'opinione[16].

Because Western philosophy is a philosophy based on the distinction between subject and object, it is difficult for a Westerner to achieve the letting go those alone leads to enlightenment.

Art can allow us to reconcile ourselves with the earth. Without being an oriental artist, it is still possible to empty oneself of the division between mind and things, because the artist can dissolve his ego in what he creates. Sculpture, in particular, unites subject and earth in the form that will emerge from the sculpted material. Camille Claudel's work is inseparable from the union with the minerals she sculpts. It is a question of making the living of the naked body spring from the raw stone, seized in the glare of a gesture, an affect. In the "Clotho" statue, the raw material seems to be linked to the body of the old woman, to the point that it is difficult to grasp what is the body of what is matter (De Loisy & Adam-Couralet, 2014). In the same way, the painter Alexandre Hollan, fascinated by trees, lets himself be absorbed by their presence. Thus, by looking at "In the Tree", acrylic on canvas from 2015, our gaze drowns in the blue matter of color and joins nature without the means

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[16] *Ibid.*: "When thought objects vanish, the thinking subject vanishes, because when the mind disappears, objects vanish. Things are objects because of the subject; the mind is such because of things. Understand the relativity of these two and the basic reality: the unity of emptiness. In this Void the two are indistinguishable and each of them contains the whole world. If you don't make a difference between the rough and the end you won't be tempted to prejudice and opinion" (Our translation).

of representation[17]. With dodecaphonic music, the 20th century musician has found a way to bring nature and music together. Thus, in his Songs of Birds composed on the organ, Olivier Messiaen makes the birds dialogue by the contrast of tones[18]. The poet is perhaps the artist who finds it most difficult to overcome representation because language is a screen. It was in the brevity of haiku that Japanese poets attempted to express the moment of enlightenment. In the poetry of Giorgio Caproni, who loves brevity, we can see that subject, natural element and animal are linked in a short poem where rain plays this unifying role: "Piove sulla foresta/Piove su mia testa/Piove sulla mia bestia/che s'imputa e s'arresta[19]" (Caproni, 1998, p. 772). The title of the poem, "Verlainiana" refers to the poetry of Verlaine for whom, as for Caproni, music was essential in the poem. However, Verlaine's famous poem, to which he is referred to with "Piove" did not establish a link with nature, but with the city: "Il pleure dans mon coeur/Comme il pleut sur la ville" (it cries in my heart/as it rains on the city) published in 1874 in *Romances sans paroles* was marked by modernity and celebrated the city. With Caproni, it is the union of the earth and man that is sung. Art plays an essential role in the desire to save the earth and to take it out of the damage that the Anthropocene has inflicted on it. The artist inhabits the earth thanks to his art, without the desire to possess it.

Some Italian writers have denounced the impossibility of living in the Anthropocene, whether as Pasolini by inviting to a return to the sacred that is inseparable from nature, or as Laura Pugno by using dystopia and giving us an apocalyptic vision of our uninhabitable planet. Philosophers such as Merleau-Ponty, Giorgio Agamben or David Abram make us wonder what we might feel if we lived, like wild animals, as close to nature. And the majority of artists do not see why we should separate the creation of nature, man from plant and animal. More than Westerners, Chinese and Japanese artists and sages invite us to live in harmony with the earth and the various elements that make it up. At a time when we are in the midst of the Covid-19 pandemic, we believe it is urgent to put an end to this race forward where we should consume more and more and destroy the planet to remove products contrary to life. The social distancing imposed on us by this pandemic shows us that a

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[17] Alexandre Hollan, 2015, « Dans l'arbre », acrylique sur toile, 150 x 150 cm: https://www.galerielaforestdivonne.com/fr/artiste/alexandre-hollan/

[18] Olivier Messiaen, "Chants d'oiseaux", *Livre d'orgue 4*, 1951, interpreted by Olivier Latry: https://www.youtube.com/watch?v=FzLNIL9kWtE

[19] "It rains on the forest / It rains on my head / It rains on my beast / that charges and stops" (Our translation).

world without the other and without the possibility of moving to go in contact with nature is unbearable. We are seeing the adoption of a pet everywhere to compensate for our impoverished social life. We have reached a point of no return in the Anthropocene: we are unable to put an end to the disruptions caused by our abuse of natural resources in the past decades. The artists, including the Italian writers, alerted us, but we have to pay for the abuses imposed on the Earth for nearly two centuries.

References

Abram, D. A., 2011, *Becoming animal: an earthly cosmology*, Vintage edition, London.

Abram, D.A., 2013, *Comment la terre s'est tue - Pour une écologie des sens*. Translated by Demorcy D. and Stengers I., 2013, La Découverte, Paris.

Agamben, G., 2002*, L'Aperto - L'uomo e l'animale*, Bollati Boringhieri, Turin.

Aiuti, F., 2015, *Il nostro meraviglioso sistema immunitario. Come conoscerlo e preservarlo*, Guerini e Associati, Milan.

Beau, R., Larrère, C., 2018, *Penser l'Anthropocène*, Presses de la Fondation nationale des sciences politiques, Paris.

Bonneuil, C., Fressoz, J.-B., 2016, *L'Événement Anthropocène - La Terre, l'histoire et nous*, Éditions du Seuil, Paris.

Bovay, M., Kaltenbach L., de Smedt, E.,1997, *Zen*, Éditions Albin Michel, Paris.

Burgat, F., 2012, *Une autre existence - La condition animale*, Éditions Albin Michel, Bibliothèque Idées, Paris.

Caproni, G., 1998, *Res amissa, in L'Opera in versi*, Mondadori, I Meridiani, Milan.

Crutzen, P. J., 2002, "Geology of manking", *Nature* 415, 23, 03th Jan: https://www.nature.com/articles/415023a. (consulted 25th Jan 2021).

Del Castillo, L., 2019, "Une hypothèse de sens : le changement climatique dans la littérature italienne des années Zéro (Pecoraro, F., Pincio, T., Pugno L., & Zanotti P.)", *TRANS-* [En ligne] : http://journals.openedition.org/trans/2390. (consulted 26th Jan 2021)

De Luca, E., 2011, *Il Peso della farfalla/Le Poids du papillon*, translated by Valin D., Gallimard, Folio bilingue, Paris.

Descartes, R., 1637, *Discourse of the Method of Rightly Conducting one's Reason and Seeking Truth in the Sciences*, Chapter 6, translated by Gutenberg Project E-Text 59: http://www.gutenberg.org/etext/59.

Devicienti, A., 2020, "Prestare parole al desiderio. Su Tutto è sempre ora di Antonio Prete": https://www.zibaldoni.it/2020/04/29/prestare-parola-al-desiderio-su-tutto-e-sempre-ora-di-antonio-prete/

Devillers-Peña, E., 2019, "Après le déluge, comment retrouver une terre animée?": https://www.terrestres.org/2019/03/05/apres-deluge-comment-la-terre-se-retrouve/

Drumm, T., 2015, "Réintensifier les expériences animistes. David Abram et l'écologie des sens", *Écologie & politique*, vol. 51, n° 2, p. 149-157.

Freeman, M. A., 2020, "Inuits", in L'Encyclopédie canadienne: https://www.thecanadianencyclopedia.ca/fr/article/inuit#

Hsin Hsin Ming, S., 1983, *Il Libro del Nulla*, translated by Clarke, R. B., http://www.gianfrancobertagni.it/materiali/zen/libronulla.htm- Malaurie, J., 1955, Les Derniers Rois de Thulé, Éditions Terre humaine, Paris.

Glenn A., 2020, *Les Émotions de la Terre - Des nouveaux mots pour un nouveau monde*, translated by Smith C., Les Liens qui libèrent, Paris.

Heidegger, M., 1927, *Sein und Zeit* (it. transl. Essere e tempo, Milano, Longanesi, 1976).

Improta, F., 2009, *Il peso della farfalla di Erri De Luca*, Feltrinelli, Milano: https://www.bartolomeodimonaco.it/online/letteratura-il-peso-della-farfalla-di-erri-de-luca-feltrinelli/

Matagne, P., 2003, "Aux origines de l'écologie", *Innovations*, vol. n° 18, n° 2 : p. 27-42.

Merleau-Ponty, M., 2002, *Causeries*, IV Exploration du monde - L'animalité, http://christianebailey.com/wp-content/uploads/2012/01/Merleau-Ponty_Causeries-animalite.pdf

Michielin, D., 2020, "II problema con i metalli rari", *Il Tascabile*, 20th oct, https://www.iltascabile.com/scienze/metalli-rari/

Morizot, B., 2020, *Manières d'être vivant*, Éditions Actes Sud, Paris.

Mortari, L., 2015, *Filosofia della cura*, Raffaello Cortina Editore, Milan.

Nebbia, G, 2018, "Sinistra ed ecologia in Italia, nel post-'68: una bella sintesi", *Green Report*, https://www.greenreport.it/news/comunicazione/sinistra-ed-ecologia-italia-nel-post-68-bella-sintesi/ (last access: 29th Jan 2021).

Patterson, C., 2004, *Eternal Treblinka: Our Treatment of Animals and the Holocaust*, Lantern Books, Brooklyn.

Pitron, G., 2019, *La Guerra dei metalli rari*, LUISS University Press, Rome, 2019.

Prete, A., 2008, *L'ordine animale delle cose*, Nottetempo editore, Indice, Rome.

Pugno, L., 2017, *Sirene*, Marsilio editore, Venice.

Rilke, R.M., 1923, Duino Elegies. translated by David Young (W. W. Norton, New York, 1978).

Von Uexküll, J., 2010 [1909], *Milieu animal et milieu humain*, translated by Martin-Fréville, C., Éditions Payot et Rivages, Bibliothèque Rivages, Paris.

Winter, N., 2020, "Sirènes - Humanité à la dérive", *Juste un mot*, 02th Jul: https://justaword.fr/sirènes-163706a4ae99

Websites

"Dale Jamieson on love and meaning in the age of humans", 2019, Yale University: http://www.whenwetalkaboutanimals.org/2019/02/25/ep-10-dale-jamieson/ (last access: 21th Apr 2021).

"L'Elogio sottile della lontananza per Antonio Prete", 2008, *Il Corriere di Firenze*, 14th Oct: https://www.edizioninottetempo.it/pub/media/productattach/files/1/leggi- la-recensione-d1315.pdf

"Perché il governo degli Stati Uniti ha interrotto il finanziamento di un progetto di ricerca sui pipistrelli e i coronavirus", 29th Apr 2020: https://it.adioscorona.org/questions-reponses/2020-12-22-origine-coronavirus-pandemie-laboratoire-naturelle-zoonose.html (last access: 28th Jan 2021).

Interview with Peter Singer, by Hugo Domenach, 2019, "Animal liberation is a major political issue", *Le Point*, 24th Aug: https://www.lepoint.fr/societe/singer-la-liberation-animale-est-une-question-politique-majeure-24-08-2019-2331385_23.php (last access: 30th Jan 2021).

Film

Pasolini, P. P., 1968, *Teorema*, 98 minutes, Italy.

Music

Messiaen, O., 1951, "Chants d'oiseaux", *Livre d'orgue 4*, interpreted by Olivier Latry: https://www.youtube.com/watch?v=FzLNIL9kWtE

Radio program

de Loisy J. & Adam-Couralet S., 2014, "Clotho, Camille Claudel ose la laideur la plus radicale", 06th dec: https://www.franceculture.fr/emissions/les-regardeurs/clotho-sculpture-de-camille-claudel

Pictures

Hollan, A., 2015, « Dans l'arbre », acrylique sur toile, 150 x 150 cm: https://www.galerielaforestdivonne.com/fr/artiste/alexandre-hollan/

Legislation

French Civil Code. Article 515-14 created by Law n°2015-177 of 16 February 2015. Article 2.

2. *Extinction, atavism and inevitability: life after collapse.* *A study of* The Eternal Adam *by Jules Verne and of* The Death of the Earth by *J.-H. Rosny aîné.*

Kevin Even[1]

Abstract

The goal of this chapter is to examine two texts from the early twentieth century addressing problems related to the Anthropocene Era -*The Eternal Adam* by Jules Verne and *The Death of the Earth* by J.-H. Rosny aîné- in order to understand the effects the environmental issues has had on the imagination of writers since the XIXth century. Through a study of these texts I will demonstrate in a dynamic way how these two authors depict collapse from the point of view of one individual, while questioning the destiny of humanity as a whole. I will examine the different characters' perceptions of the cataclysm which is at the heart of each narrative, as well as the depiction of matters related to evolution and regression. I will also comment on the pessimistic tone of these texts and link their common themes together. While I will go back and forth between these novellas throughout three sections, I will also link them with canonical texts about ecology to show how their views on the relationship between man and nature, progress and science, are still very much relevant today. Indeed, we will see that the way they question industrial growth reminds us that since the Industrial Revolution we have always been a society that struggles with its natural habitat. In conclusion, we will understand that these novellas show that the fear of climate change is ancient, but also that the anxiety related to the collapse of our modern world has only increased since the beginning of the XXth century.

Keywords: Jules Verne, Rosny aîné, ecocriticism, collapse, Anthropocene

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Introduction

In 1910, French authors J.-H. Rosny aîné and Michel Verne (under his father's name) published two post-apocalyptic novellas: *The Death of the Earth* and *The Eternal Adam*. In both fictions, these authors depict the collapse of human societies from the point of view of one individual, while questioning the destiny of humanity as a whole. Frequently used to describe the possible future of industrial societies since Jared Diamond's 2005 essay *Collapse: How Societies Choose to Fail or Survive,* the term "collapse" is indeed adequate to describe humanity's destiny in these novellas. Facing natural disasters, climate change, scarcity of resources and massive extinctions, the characters discuss their beliefs and wonder about their ability to survive in a world that is no longer welcoming to them. Debating the matters of hubris, evolution and regression, these texts share the same pessimistic tone and comment on the fate of powerful and arrogant societies that are unable to consider the possibility of their decline.

While extinction is the main threat in these fictions, the authors also imagine the modality of life after collapse. As humanity is reduced to a small number of individuals, the matter of survival leads to reflections about the decay of human faculties. Using Lamarckian and Darwinian theories, both authors represent evolution at work and depict the regression of the last survivors, or their replacement by species more suited to the new environmental conditions. Matters of heredity and atavism - the reappearance in one individual of an old genetic trait lost for generations - are also represented and show for dramatic purpose that the triumph of man is not set in stone. It is also notable that if both authors use primitive apocalyptic images such as earthquakes and tidal waves to set their stories, they very much reflect on their own time. At the beginning of the XIXth century, anxiety about industrial progress increased and continued into the beginning of the XXth century as new fears emerged. Scientific discoveries such as radioactivity, as well as the progress of chemistry and weaponry were indeed announcing a grim future. At that time more than ever, thinkers and writers wondered where industrialism would lead western societies. Therefore, if these fictions are apocalyptic tales in their own right and are set so far in time and location that they were not intended to be realistic, their conclusions all revolved around the nature of human progress. Relying on science-fiction themes to comment on their present time, Rosny and Verne wonder: Is industrial progress limitless? Can a species that has the unlimited power to subdue the entire planet be destroyed? And if so, would

a new start be possible? As both titles show, one text comments on the eternal restart of everything while the other leans towards the perspective of total annihilation. Before going further, a summary of each novella is in order.

Publishing under his father's name, Michel Verne's novel recounts the discovery of an old manuscript narrating the extinction and the regression of humankind caused by an immense tidal wave. Found millennia after the event by Sofr, an arrogant scientist belonging to an advanced society that is unaware of this ancient extinction, the text is a diary documenting the disaster from the point of view of one man. The narrator, a bourgeois Frenchman, does not know why the collapse happened and thus narrates instead the lives of the last surviving members of his species. He describes the slow decay of the intellectual faculties of his peers and the new forms of life emerging from the seas and underscores the frightening thought that his world is now forever gone. Nonetheless, the focus of Verne's tale is not only one individual's fight for survival. He also provides a pessimistic commentary on hubris and shows humankind's precarious situation on Earth. Indeed, right before the disaster occurs the narrator recalls a conversation between characters about progress, technology and the purpose of human societies. The participants praise the success of industries and the "definitive victory of man over nature". Immediately after the conversation, an earthquake destroys everything and there begins the journal. Returning to the frame narrative, Sofr understands that his civilization comes from the small group of people that survived - but regressed - thousands of years ago, and more significantly that his society, which he perceived as the most advanced that ever existed, is bound to disappear as well. The moral lesson of this text is that humans are stuck in a loop where the fight for survival leads individuals to thrive and conquer, but are nonetheless condemned to start all over again. Indeed, no matter how advanced human societies become, Earth is and will always be untamable.

Rosny's novella describes the extinction of the "Last Men" thousands of centuries from the present, when a new form of life made of iron, the *ferromagnetals*, has become the dominant species on Earth. Targ, the main character of the story, is a young human trying to save his community on a planet that rejects organic forms of life. Water has been sucked into Earth's underground cavities and the climate is so disturbed that the sun's heat has become unbearable. As a result, humans no longer have the will to live and simply await their time to disappear. Meanwhile, the *ferromagnetals* thrive

on a planet that has become more amenable to their existence. Portrayed as a living force with a will of its own, Earth is indeed displayed as a planet that now rejects humans by depriving them of water. In the meantime it is also notable that humans are the cause of their own replacement. Indeed, the *ferromagnetals* are a life form that has emerged from their industries centuries ago during the "radioactive era". Questioning natural selection, evolutionary processes and industrial manipulations to "improve" human life, Rosny's pessimistic views are close to contemporary discourses about the extinction of biological species. The world of his characters is collapsing and its representations question the wrongdoings of previous generations as humans have now become an endangered species.

These works of fiction do not offhandedly touch upon human extinction to frighten young readers. While they may both deliver a dense adventure tale using expected motifs and situations, they more importantly comment on the relationship between an immensely powerful species and its equally powerful habitat. The similar questions raised by these authors, notably those revolving around hubris and evolution, as well as the different answers both of them give to these questions invite parallels between the texts. Moreover, it is obvious that despite being published in 1910, they address problems related to the Anthropocene Era and encourage similar responses of humility and prudence - a common approach found in contemporary texts on the Holocene extinction. Indeed, they work like many other early science-fiction novels as cautionary tales for the industrial age. This is why in addition to studying these texts from a literary perspective it is important to reflect on the ideology that powers them. They offer satirical commentary on modernism that still resonates today, with a sense of emergency that did not exist before. The natural catastrophes depicted in each novella are unreasonable, but our current time has become more receptive to collapse fictions.

Indeed, these works are a crucial reminder that while global warming, the sixth mass extinction and now the Covid-19 pandemic have put the matter of environmental crisis at the heart of social, political and cultural preoccupations in recent years, the representation of environmental threats has been a constant theme in Western literature since the XIXth century. The Industrial Revolution inspired writers to question the wonders of technology as well as the massive destruction those technologies can bring upon both humankind and nature. While I do not intend to recount the entire history of collapse fictions, nor to insinuate that the current collapse discourses are

passé, it is important to understand that fictions about the excesses of capitalism and industrialization have been around for a long time and are now being rediscovered and reinterpreted as our global environmental degrades. The cultural representations of collapse are essentially grim and hopeless, and these novellas are such because they question hyper-industrialization and greed. Therefore, the catastrophes they depict must be understood as allegorical and not only as narrative devices.

1. From *Terra mater* to "the homicidal planet"

> I will sing to the mother of all, firmly rooted Gaia,
> the oldest deity, who feeds all the world's life-
> whether on divine land, in the deep sea,
> or flying about- all beings feed from your plenty.
> Fine children and rich harvests arise from you,
> O Queen. (Rayor, 2014, p. 100).

The depiction of Earth as an anthropomorphized figure is a very ancient cultural phenomenon. Often called Gaia or Gê, the globe has often been portrayed as both a nurturing entity and a destructive force to be feared and respected. Even during the XVIIIth and XIXth centuries, as humankind took giant steps toward mastery of Earth's resources, seen by some as finally fully realizing God's will[2] (*Genesis* 1:28), fiction authors were among those wondering if Gaia was really beaten, or if she was just waiting to take her revenge. Jules Verne, for example, always depicted the wonders of technology to praise industrial genius, but at the same time would write about the weakness of humans compared to natural forces. Even at a time where ideologies such as positivism and industrialism promoted technological wonders, the victory of man against nature was rarely perceived as being complete. On the contrary, it was often challenged by greater forces who seemed to express the growing wrath of an upset and vengeful planet.

Rosny's representation of Gaia indicates that he too was interested in showing her immense power. In his novella, he frequently personifies

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[2] *Genesis* 1:28: "God blessed them and said to them, 'Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground.'"

natural phenomena and refers to Earth as an entity willing to destroy its children. The story begins by introducing the "malevolent voice" (Rosny aîné, 1975, p. 126) of the "frightful north wind" (*Ibid.*) and its terrible consequences on the Last Men. Indeed, the wind fills the remaining oasis "with dread and sadness" (*Ibid.*) and implies from the very start that the natural conditions in this distant future are not ideal. The clouds are nowhere to be seen, the sun's heat is unbearable and, most importantly, all water is gone. Over centuries, countless earthquakes have made every water source disappear into the ground. Once again, Rosny uses personification to imply the active role of Gaia in man's decline as this dialogue between two gloomy characters shows:

> "We shall see the end of the world!' insisted the thickest man. So much better!" said Dane's great-grandson. "Let Earth drink up the last springs this very day" (*Ibid.*, p. 128).

The vocabulary used in these two examples to describe natural phenomena, whether it's the noun "voice" or the verb "drink", is not only used for stylistic purposes - it implies that Gaia actively works against humanity. The name of the third chapter, "the homicidal planet", makes this even clearer. By denying humans the ability to sustain themselves, the Earth is killing them. We can therefore understand why the Last Men "attribute a slow and irresistible will to the planet" (*Ibid.*, 37). Throughout the course of the story, as she destroys every remaining oasis, Gaia instills fear among survivors. However, she is not portrayed as a villain to be fought against. For unknown reasons, she is simply no longer on the side of humans. As the narrator points out:

> initially favorable to the realms to which it gives birth. The Earth let them acquire great power; the mysterious moment when it condemned them was also that when it began to favor new realms (*Ibid.*).

Aware of Darwin's work, Rosny uses the principle of survival of the fittest to show how the natural environment plays a central role in the survival of creatures. Here, Earth is dry and hot and humans are no longer suited to be the dominant species. If they disappear and are replaced it is a mere matter of evolution. Very much like in James Lovelock's Gaia Hypothesis, Earth is a "physiological and dynamic system" (Lovelock, 2008, p. 30) that is actively favoring or disfavoring realms. In both

Lovelock and Rosny's texts, it becomes obvious that humans are nothing more than a minor part in a bigger system.

In *The Eternal Adam,* Michel Verne does not personify Earth but rather uses near-biblical situations to illustrate the fragility of man. The narrator of the embedded story, an unnamed Frenchman, recounts the events that caused the destruction of mankind sometime after the year two thousand. While entertaining guests in his house in Rosario, he learns a flood has struck the coast of Argentina, forcing him and his guests to run for their lives. Horrified by the magnitude of the earthquake, the Frenchman observes the landscape he always knew and remains struck by fear. The only thing he can do is wonder in disbelief about what happened to this "nature which (he) consider(ed) in essence immutable" (Verne, 2019, p. 24). After being rescued by a boat, the group of survivors finds itself stranded in the middle of an unknown ocean and unsuccessfully tries to find land. As they navigate above America, Europe and Asia, the narrator concludes that Earth has become an infinite desert made of water. Like in Rosny's novella, the characters find themselves defenseless against natural disasters. It's important to note that, here the collapse is less a matter of evolution than it is a demonstration, a kind of *Deus ex machina*, imagined by Verne to punish the hubris of his characters. Indeed, the embedded narrative begins with a cosmopolitan dinner party where the narrator and his guests, who are all rich politicians, contractors, doctors and industrials, are praising man's undisputed power:

> In short, it was a real dithyramb, in which I contributed my own part, I must admit it. It was agreed on this point that humanity had reached an intellectual level unknown before our time, and which permitted us to believe in its definitive victory over nature (*Ibid.* p. 22).

It is clear that Verne destroys his fictional world to comment on the arrogance of modern man. This retelling of his guests' enthusiastic speech is even preceded by a remark made by the narrator himself indicating how readers should understand the disaster to come. The Frenchman says that the only reason he remembers these remarks is that "the brutal commentary that would soon be made does not fail to give them some piquancy" (*ibid*. p. 21). Relying on with more than *finesse*, Verne's commentary on the opposition between man and nature is nonetheless very close to Rosny's. No matter how advanced a society is, Earth is always running the show and can destroy those haughty enough to think that they can defeat her. As señor Mendoza, the only "cultivated mind" (*ibid*. p. 20) of the dinner and the one

skeptic about man's supposed victory, says to the other guests: "I do not see anything absurd, in principle, to admit that the entire surface of the globe might be upset at the same time" (*Ibid*. p. 24). When considering the measures humanity should take in order to protect the rights of nature in his 1990 essay *The natural contract,* Michel Serres began his reflections in the same fashion:

> Through our mastery, we have become so much and so little masters of the Earth that it once again threatens to master us in turn. Through it, with it, and in it, we share one temporal destiny. Even more than we possess it, it will possess us, just as it did in the past (Serres, 1995, pp. 33-34).

Reflecting on power dynamics, hubris and time, Serres and Verne both determine that it is the arrogance of industrial man that prevents him from realizing he is not separate from or greater than the Earth; rather, they share the same destiny. Moreover, if they were to compete against one another, no matter how powerful man thinks he is, his fate would always rest in the hands of his environment.

2. Man is a wolf to man

> *The finally unbound Prometheus calls for an ethics that prevents the power of man to become a curse for himself* (Jonas, 2013).

While the main story of *The Death of the Earth* is set in a future so far forward as to be unimaginable, the narrator frequently steps back in time to recount the decline of humanity before the events of the story occur. Recounted from the point of view of an early XXth century author, the description of this era of decaying humanity neatly summarizes the anxieties of the Industrial Revolution. Earth is overpopulated, the wilderness has been destroyed, food and water are artificial, and industrials rule man's lives. This grim depiction is nothing unusual for a science-fiction novella, even from this time. We must recall that ever since the publication in 1846 of Emile Souvestre's *The world as It Shall Be*, the future of mankind in the genre is essentially menacing. Although, it is interesting to note that Rosny also comments on the mindset of this advanced civilization, as if its mastery of nature had become a curse. This is not only the view of the reader, but is directly noted in the text as a feature of the characters themselves. Indeed, it is a burden to the point where "Suicide ended up as the most dreadful

sickness of the species" (Rosny aîné, 1975, p. 135). Going further, the narrator points out that even if the societies from this time had mastered nature to the point where they could use the atoms for their benefits: "the people from that powerful age lived an anxious existence" (*Ibid.*). As the story unfolds, we then understand that this anguish has been caused by the systematic destruction of every lifeform in existence. In addition to the annihilation of "the woods, the heaths, the marshes, the steppes and the fallow grounds" (*Ibid.*), wild animals no longer exist, while the captive ones are victims of a horrific industrial system. Indeed, they had become "hideous ovoid masses with limbs transformed into vestigial stumps and jaws atrophied by force-feeding" (*Ibid.*). It is clear that from the narrator's perspective the enslavement of nature is wrong by essence as it is not only destroying life, but also causing humans to destroy themselves. He also points out that, ironically, these powerful humans from the past were not concerned by the disappearance of water, because they were so confident in their ability to master "artificial methods of cultivation and nutrition" (*Ibid.*). Even if these few pages placed at the beginning of the third chapter have little to do with the main story, they offer a notable commentary on how these so-called "modern societies" alienated themselves as they were destroying their natural habitat. Here, Rosny uses fiction to share an opinion on the relationship between progress, nature and wellbeing, and his reading resonates not only with general popular sentiment now alarmed by the destruction of biodiversity, but also with contemporary philosophy. Consider Arne Næss' discussions of deep ecology. Næss is deeply concerned by the effects the destruction of nature has on man himself. Commenting on the matter and pleading for the rejection of anthropocentrism, Næss notes in his famous *Inquiry* paper that the man's quality of life:

> depends in part upon the deep pleasure and satisfaction we receive from close partnership with other forms of life. The attempt to ignore our dependence and to establish a master-slave role has contributed to the alienation of man from himself (Næss, 1973, pp. 95-100).

The implications of both Rosny's and Næss' texts are clear: if Mankind violently imposes its will on other creatures, it will soon become its own arch-nemesis. In Verne's novella, the two intertwined narratives mirror each other. While the story of the main protagonists, Sofr and the Frenchman, are set in different times, they are linked by their commentaries on human progress. Even with its title, the novella argues that man's history is a never ending cycle. Recounting the growth of Zartog's evolution, – the name of

Sofr's civilization – the narrator summarizes the conflicts between humans and the eternal "struggle against nature" (Verne, 2019, p. 8) that led the species to increase "the amplitude of its victory" (*Ibid.*) over the planet. This chronicle recalls the "insatiable rage (that) had watered the earth" (*ibid*., p. 9) with man's blood, as well as the extraordinary discoveries he made throughout history. Though the name of this civilization may differ from the Frenchman's, the description mirrors human history as we know it. It is as if humans were bound to repeat themselves over and over again. The narrator of the frame story praises man's wonders, just as the Frenchman does at his dinner. The Zartogs mastered coal, steam, electricity and made countless discoveries. Sofr's present is very much the equivalent of our early twentieth century. Indeed, Verne does not intend to create another world or to tell a new story. Well aware of the XIXth century's fascination for archeology and ruins, his point is that there's only one story and it is repeating itself. As señor Mendoza suggests in the embedded narrative, the history of the Babylonians, the Egyptians and even the Atlantean prove that civilizations inevitably go through a cycle of birth, growth and death. From there, it is possible to think that such a scenario could apply to the species itself.

So what is Sofr's take on this assumption? One might recall that he is depicted as a brilliant and yet arrogant scientist. He remains convinced of the superiority of his people and unwilling to admit the possibility that Zartogs could have been preceded by stronger civilizations. His views on the matter are exactly the same as the ones made by the Frenchman's guests. And although he will not be crushed by a natural disaster like them, he too will have to realize that the ever-growing progress of man has its limits. Indeed, his society is similarly threatened by ancient and insidious ideologies such as racism, nationalism and populism. Yet limited to a couple paragraphs, this implies alone the fragility of this so-called peaceful empire. The narrator even wonders: in order to maintain its unity, would man have to go through war and massacres again? The skeletons found by Zartogs deep in Earth's soil offer another example of this. As they dig in the ground, the ancient skulls they find are smaller than their own, following the laws of evolution. However, at a certain point, the skulls have become much larger than expected, suggesting that their most ancient ancestries were as evolved as them but had inexplicably devolved. Despite being a staunch devotee of evolutionary theory, Sofr rejects this discovery as he considers its meaning. Indeed, his views on human history as a "slow but steady march" (Rosny aîné, 1975, p. 13) towards "perfect knowledge and the absolute domination

of the universe" (*Ibid.*) are complicated by the suggestion that human history is nothing but a cycle. As we can see here, the structure of the novella repeats itself to defend a theory that is frequently used in Jules Verne's work, as he refers to the fate of the Atlantide numerous times in the *Extraordinary Voyages*, but also in many other science-fiction texts. For example, in Pierre Boule's *Planet of the Apes* (1963) the plot twist revolves around how and why apes had managed to thrive on a planet once mastered by man. We can assume that Boule might have read or been familiar with Rosny's *The Death of the Earth*, as its story recounts the replacement of man by another species. Unlike in Verne's novella, humans are part of the cycle of life, but they are not at the center of it. The disappearance of their societies or even the disappearance of their species is likely because it would be nothing but natural. For all their differences in plot and setting, these texts share a sense of the modern man as full of himself and unaware of his natural surroundings.

3. The end is the beginning. The beginning is the end.

> *The endless necrology of every creature, including ourselves, is the essential complement of the perpetual renewal of life* (Lovelock, 2017, p. 225).

Fascinated by science, Rosny always used specific scientific terminology and theories in his texts. At the time of the publication, he was aware of the newest discoveries surrounding radioactivity and thus imagined that the ancestors of the "Last Men" had fully mastered the atoms. But while he was fascinated by man's mind, Rosny was also aware of the ambivalent discourses about science that had run through the XIXth century. This is reflected in the text when the narrator mentions the diseases that had been created during the radioactive era by the industry that crafted artificial food. Indeed, this era is presented as being the most glorious period of man's history and yet the most dangerous for its survival. Rosny's real-world contemporary fear surrounding the excesses of scientists in their quest to master nature is made even clearer when it is revealed that the *ferromagnetals* were accidentally created by man's industry. Even as they are introduced as a peaceful and thriving species, they are deadly to the last men, sucking the blood of the individuals that get too close to them. They therefore represent the last nail in man's coffin. Doing his best to save his species, Targ is sad and helpless as he observes this new realm. Without overanalyzing Rosny's narrative, which states that the *ferromagnetals* are

not an immediate threat to humans, the story still reminds us that science without conscience can lead to the ruin of the soul. Far from advocating for the unconditional enslavement of creatures and energies, Rosny warns about the unlimited power provided by science to a creature that is not as perfect as its own creations. Therefore, he places himself within a long tradition of skeptics towards scientism. When the German sociologist Ulrich Beck describes the way modern societies organized themselves in response to risk in the 1990s, as environmental anxieties were expanding, he is essentially re-stating what Rosny's narrator suggests about the radioactive era. As brilliant as man can be, if power is combined with greed and carelessness, it could bring about the end of the entire species. Summarizing Beck's thinking about the amount of risks taken by advanced societies, Aline Debourdeau states that:

> the entry into the risk society seals the collapse of this distinction between risk and danger because of the eruption of a new kind of danger: uncontrollable, suitable for unnatural catastrophes generated by human actions, whose effects are unpredictable, untamable, incommunicable and compromising life on Earth (Debourdeau, 2013, p. 282) [my translation].

But while his novella has a pessimistic tone, resonating with the warnings of our own contemporary philosophers, Rosny also finds ways to show how man should act towards its natural environment. He offers some redemption in the cooperation between the last men and the only animals that remain alongside them – the birds. Both species live together and communicate so they can survive when earthquakes hit the oases. Similar to Arne Næss' views on the struggle for existence principle, the narrator implies that species should not destroy themselves when they can cooperate. By representing on the one hand a society that has alienated itself by destroying creatures by industry and, on the other, a group of survivors who cooperates with another intelligent life form, Rosny is making a clear statement. His narrative defends a more peaceful relationship between man and nature. In this novella, as Arne Næss states:

> the so-called struggle of life, and survival of the fittest, should be interpreted in the sense of ability to coexist and cooperate in complex relationships, rather than ability to kill, exploit, and suppress. 'Live and let live' is a more powerful ecological principle than 'Either you or me' (Næss, 1973, pp. 95-100).

Although he does not rely as much as Rosny on the survival of the fittest principle, Michel Verne also seems convinced by Darwin's work and gives a nod to evolutionism in *The Eternal Adam*. He does so primarily through his descriptions of the ways his survivors must adapt to their new life conditions. After sailing for months without finding land, the group surrounding the Frenchman finds an island that has just emerged from the sea. As they settle and try to create a new society from scratch, they observe that plants, flowers and even fishes have already evolved since their arrival. Observing evolution in the making, the narrator also points out that the human faculties of his peers had dramatically decreased in just a matter of decades. The children of the group, who know nothing other than life on this island, do not read nor speak and therefore terrify the Frenchman, as he understands that future generations will inevitably regress. Lacking intellectual stimulation and focusing only on survival, his people became naked savages unable to communicate: "To eat, to eat is our perpetual goal, our exclusive concern" (Verne, 2019, p. 53). Here, the repetition of the verb effectively shows the obsession of the desperate narrator. It also announces the fate of a group that is simultaneously composed by the last men of a glorious realm, and by the savages who will have to evolve on their own in order to write their story. Sofr, reading this text written by the Frenchman and kept underground for millennia, at last understands that his own civilization emerged from this group. Intelligence, social skills, art and science were lost and then reappeared in the course of Zartog's history. Here, evolution and atavism illustrate the cyclicality of life but also ultimately the vanity of human progress, as the species is bound to be constantly destroyed and rebuilt. Disenchanted, Sofr is left with a fundamental existential anxiety as the narrator wonders if human's "insatiable desire" (*Ibid*., p. 58) would be ever satisfied.

Although not opposed to human progress, Verne concludes that man's quest for power leads him to forget what he already has. This final revelation echoes the last chapter of Rosny's book and confirms the pessimistic tone of the novella. Atavism also plays a strong part in the novella in the character of Targ, who is described as a young adventurer in a society that does not care for such people. Whereas the last men are almost exclusively depressed and resigned to their fate, Targ is an anomaly in acting as if a future is possible for his community. He saves injured people, finds water, gets married and talks frequently about the times when the future was unwritten. But the story's ending is as grim as expected: Targ's community is destroyed and, as he refuses to be euthanized, he effectively

commits suicide by going to the *ferromagnetals*. In this way: "a few particles of the last human life entered humbly into the New Life" (Rosny aîné, 1975, p. 177). Unlike in Verne's story, here atavism did not save man; rather, Targ's prowess and will to survive simply delayed man's disappearance. Still, the cyclicity of life is a recurring theme in both novellas. While Verne goes for a somewhat reassuring apocalyptic story, which states that man could always have a chance to do better, Rosny imagines that life is indeed a cycle but that humans are a negligible part of it. From this perspective, mankind's disappearance is tragic but ultimately natural. We can understand the message from both novels to be that while man obsessively destroys life around him - and even brags about it - he forgets to simply enjoy his time on Earth as a dominant species, one who could use its intelligence to work with other creatures to make life worth living.

Conclusion

In conclusion, these novellas offer interesting and profound points of view regarding matters that are still relevant today. While some of their motifs are outdated and their use of scientific theories is extravagant, their takes on subjects such as human progress, environmental issues and hubris strikingly echo the questions of our present time. Indeed, we can see that their commentary on the modern age sometimes hews closely to the views of current eminent thinkers on ecology. If they were not ahead of their time, as many XIXth century authors had already pointed out the dangers of industrialism, the way they question industrial growth and greed reminds us that we have always lived in a society that struggles with its natural environment. These texts invite us to understand that the fear of climate change is not strictly contemporary, but also that the anxiety related to the collapse of our modern world has only increased since the beginning of the XXth century. As our currently anticipated future remains unsettling, to say the least, now is as good a time as any for man to heed the warnings, from writers or scientists alike, if he wants to reduce the impact of the irreversible destruction caused by the Anthropocene.

Acknowledgments

References

Debourdeau, A., 2013, *Les Grands Textes fondateurs de l'écologie,* Flammarion, Paris.

Jonas, H., 2013, *Le Principe responsabilité* [1979], Flammarion, Paris.

Lovelock, J., 2008, *La Revanche de Gaïa* [2006], J'ai lu, Paris.

Lovelock, J., 2017, *La Terre est un être vivant. L'hypothèse Gaïa* [1979], Flammarion, Paris.

Næss, A. 1973, "The Shallow and the Deep, Long-Range Ecology Movement. A Summary", *Inquiry*, 16, 95-100.

Rayor., D. J. (ed), 2014, *The Homeric hymns: A translation with introduction and Notes,* University of California Press, Berkeley.

Rosny aîné, J.-H., 1975, *Récits de science-fiction*, Bibliothèque Marabout, Paris.

Serres, M., 1995, *The natural contract* [1990], Translated by Elizabeth MacArthur and William Paulson, University of Michigan Press, Ann Arbor.

Verne, J., 2019, *The Eternal Adam* [1910], Translated by Denis Bridoux, Kindle Edition.

3. We are not alone in the world

Noé Gross[1]

Abstract

Across the world, the coronavirus pandemic may have prepared us for a new ecological paradigm: we are confined on Earth with other living beings. But we still need to know how to tell the stories of these beings. In recent decades, scholars in the environmental humanities and social sciences have experimented with new ways of paying attention to the world and all its narratives. They have thus invented practices of narration to thwart our insensitivity to the fate of other living beings with whom we are linked. These practices cannot be reduced to human representations or projections, but are rather proposals for imagining various common causes and, ultimately, what Bruno Latour calls a common world. My inquiry in this chapter is to collect these narratives as real methods of knowledge about the connections between humans and non-humans. To illustrate these new knowledge experiences, I discuss the narrative practices offered by Vinciane Despret's work, as well as the importance of entangled stories in Donna Haraway, Baptiste Morizot, and Deborah Bird Rose's writing. By telling stories about the lives of animals and plants, these researchers have become the spokespersons for those with whom we live together but who cannot testify alone. These narratives are therefore capable of multiplying our world through diverse existences, stories of dependence, and other ways of living in a damaged planet. The hope is that they inspire us to regain a terrestrial footing.

Keywords: non-human narratives, togetherness, imagination, versions, cohabitation.

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"It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories".

(Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, Durham: Duke University Press, 2016, p. 12).

1.   After the Crash

Recall the end of Alfonso Cuaron's picture, *Gravity*. Dr. Ryan Stone gets out of her ruined spaceship, trying to go back to the surface but her heavy equipment pulls her down, threatening to drag her toward the abyss. A frog crosses the screen and goes up to the light. Then, she moves, takes off her suit, struggling to breathe. She coughs, turns her eyes to the sky. Like her, we are dizzy. We see materials, far away, entering the atmosphere like a rain of comets. She barely makes it to the edge of the lake, and crawls painfully onto the shore. It is the end of the film. Dr. Stone, the only survivor of a space adventure, has crashed on Earth. Her head rest at the line drawn by the water in the sand. Her body is pulled by the Earth's gravity. She grabs a handful of soil, gets up painfully, disoriented, she staggers forward, her arms dangling.

It is interesting to revisit *Gravity* today. Many have demonstrated the extent to which the film testifies to a change of paradigm, or more generally, to a change of spatial perspective (Latour, 2015a, p. 24). What the protagonist must escape from is no longer "the blue planet", the place it would be necessary to escape, but rather outer space, the dangerous and void. This paradigm shift is made through a brutal return to Earth, illustrated by the crash of Dr. Stone. With her, the audience leaves the debris of the space station to rediscover the link to Earth, shared with other beings. Notice the human voices that our astronaut needs to stay alive, that frog that appears in the water and guides her to the surface, that butterfly on the edge of the lake – or was it a dragonfly? All conspire, without meaning to, to the survival of our protagonist, to her will to stay alive, to go back home, here, on Earth. But where is she? And what beings will she meet from now on?

Although we have known this for a while, the coronavirus pandemic has dramatically reminded us that we are not alone in the world. Moreover, the climate crisis is forcing us to deal with a series of new actors or "social

actants" (Latour, 2005) well beyond humans. The time has ended when we considered ourselves, as humans, the only true actors in our history freely debating whether the Earth should be available for our needs or whether it should be protected (Stengers, 2009; Latour, 2015b).

In 1984, the anthropologist of science, Bruno Latour, described in a Tolstoyan style, the war that Louis Pasteur and his disciples waged against microbes. This scientific adventure – that is, the Pasteurian revolution – marked a deep transformation in human experience. It was then necessary to learn how to coexist with a new invisible world: the world of microbes. To link the laboratory to society and to shed light on this world that *we* cannot see, Pasteur invented what Latour calls the "Pasteurian style'. This incisive style is not only a way of narrating, but also a way of modifying the beliefs and perceptions of those to whom it is addressed. Perhaps we are today in a Pasteurian moment: leaving this period of confinement, we will have to explore terrestrial spaces in which there are forgotten beings – viruses – with which we will have to learn to live. Following Pasteur's example, the test of narrativity must reveal the importance and the place of the living on Earth, which is the product of their cumulative efforts over billions of years. By allowing them to express their narrative, they might teach us – humans with dangling arms – to orient ourselves on an Earth we share with others.

1.1 Cromwell's Cry

Since what is called "ecology" has imposed itself as the common problem of future generations, society shares with contemporary anthropology the same apprehension of things: they are both inhabited by deontological urgencies. Faced with the multitude of daily challenges posed by our lifestyles, it no longer suffices to adopt a position of critical denunciation. We must indispensable to draw attention to the consequences of our collective actions.

Where do we finds ourselves now and what beings are we going to encounter? We are today in a "decisive moment" defined by a complete overhaul of our vision of the world: the end of certainty (Prigogine, 1996) and of the stable foundations of science (Whitehead, 1948). A Nemesis would then await those who try to avoid the necessity that everything be reinterpreted, that is, time, space, matter, or organisms (Whitehead, 1948,

p. 18). The world has been different ever since Darwin (Gould 1977). Henceforth, Cromwell's cry relayed by Whitehead echoes through the ages: "My brethren, by the bowels of Christ I beseech you, bethink you that you may be mistaken" (Whitehead, 1948, p. 17). Here, the art of paying attention intervenes (Stengers, 2009), that is, the art of being attentive to the conditions of life in the grip of destruction, which marks our time and our entry into what scientists, after the Holocene, have proposed to name, despite its key problems (Bonneuil & Fressoz, 2013), the Anthropocene. This era is characterized by the destruction of ecological refuges (Tsing, 2015; Savransky & Stengers, 2018). However, it also defines the moment when the Earth's stories have changed in nature and in scale: we no longer write stories to tell the creation or the course of the world, but to conjure its end. From this perspective, the "Extinction Rebellion" movement and the interests related to the theme of collapse have shown, in recent years, the concern that current generations feel in the face of the end of the world, conditions of habitability and "troubles with engendering" (Latour, 2021).

1.2 Dic cur hic

The exigency echoed by Whitehead asks us, in turn, the following questions: what should we pay attention to? To which consequences? What are the dangers?

Thinking about attention is classically relegated to rhetoric that seeks to capture it to exert persuasive force (Pelletier, 2017). But everything happens as if, in our new ecological regime, neither reason nor affects could excite the art of attention. Everything happens as if we should wake up, "remind ourselves and think: Say, why are you here? (*Dic cur hic*?)" (Leibniz, 1923, p. 276).

Leibniz calls attention the reflection on the reasons we are here. Of course, no one can possess ultimate access to the truth of his reasons, nor can he define or foresee their end. But the Leibnizian requirement asks us to reflect on – to pay attention to – all the reasons that do not transcend this world: *dic cur hic* (say why this?), without forgetting the maxim, *respice finem* ("consider the end"). Thus, to let oneself be affected by "this", by *this* world, to the point of generating an instantaneous metamorphosis (*momentanea metamorphosi*), is always to pay attention to the multiplicity of "reasons that make this world exist rather than another" (Debaise &

Stengers, 2015, p. 10). However, it is also to suspend the time of certainty –
Cromwell's cry – so as to be attentive to everything that opens up amid the
emergency, and that could eventually allow us to roll the dice again.

1.3 In Pandemic: Amidst the Ruins

During lockdown, many citizens around the world heard birds singing.
The temporary halt of human affairs and the reduction of noise in the cities
has indeed allowed the birds to remind us of their existence as if they
flourish now under the wings of the virus. In this new human silence,
ornithologists of the "Institut Català d'Ornitologia" (ICO) in Barcelona have
obtained the sonograms of sixteen species of birds evolving in urban areas
during rush hours. These patterns can tell us, for example, when the birds
were singing, how much and with what intensity. They then compared the
results with figures obtained in the previous decade. Their study showed
that during lockdown the birds sang earlier and longer.

In Europe, the pandemic arrived in the spring, when avian territorial
issues were at their peak. Due to the silence and our available attention, they
have amazed many city dwellers, like this blackbird that reminded the
philosopher Vinciane Despret of the importance of singing with the
enthusiasm of its whole body. By beginning her book *Living as a bird*
(2021) with this detail, the song of a blackbird that catches the ear through
the bedroom window at dawn, Despret enables us to grasp the drama that
takes place when another being we no longer hear begins to matter once
more. It is, of course, through the work of Donna Haraway that Despret has
learned to make herself more present to the world and to welcome in her life
and research what the anthropologist Eduardo Viveiros de Castro calls
variations of importance. It is with this concept that he proposes both a
definition of anthropology and a resource for multiplying our sense of the
world (Viveiros de Castro, 2009, p. 169).

A blackbird sings… but what does it do? Is it part of evolutionary stories,
contingencies, and biographies that are all adventures of life from which to
draw the threads of an explanation? Does it answer problems we don't
know, so that we are in front of it as if in front of the whole of history itself,
looking for the traces of enigmas we cannot perceive? Or, perhaps, it is
obeying a general theory of behavior that would allow us to find some order
when faced with an infinity of undisciplined ways of being? By asking

ourselves the questions that Vinciane Despret puts forth, we understand that only certain versions allow us to give importance and attention to the emergence of an existence or a metamorphosis, however small they may be.

It is about metamorphosis. Birds that had lived together calmly during the winter suddenly start to choose a spot, to draw its limits, to watch the movements of their neighbors, to challenge those who would defy its borders. They defend their territory. Narrating the stories of different ways of making territory, Despret tells us the stories of the birds' lives. And these stories are woven into a thin pellicular layer, a contact zone, that Bruno Latour and his geologist colleagues call "the critical zone" (Latour & Weibel, 2020). Being called upon to tell these stories requires us to defy the trends of what is happening to us. We live in a time when we can no longer ignore that the species we hear out the window may soon no longer be. This awareness of living in the ruins of ancient dreams (Tsing, 2015) has marked our perceptions of the possibility of loss. For living in this damaged world prevents us from addressing the animal question without directly addressing the question of their destruction and disappearance. Earthly narratives are precarious, as is their duration and our future with them. Moreover, they demand that we give them justice, that we accompany their possibilities (Debaise, 2020). By writing what captures our attention, even the song of a blackbird, we can give beings singular lives.

2. Animals: new versions.

2.1 A biographer becoming

If the Anthropocene is characterized by the transformation of resources and landscapes into actors with whom we negotiate our terrestrial cohabitation, how do we bring the narratives of non-humans (animals, for example) into politics? Definitely, the world has changed ever since Darwin. The history of the animal is no longer a history of the past, an evolution with invariants and stable instincts. The transformations linked to an eventful history are no longer exclusive to humans: the bears of the Brasov suburbs in Romania, the wolves of the French Alps, the dolphins of Monkeymia in Australia, the baboons of Saudi Arabia, or the keas parrots of New Zealand, all have become the protagonists of astonishing stories and spectacular transformations (Despret, 2002). Bears can become urbanized, keas can become "urban terrorists", and dolphins can become therapists.

Our animals have changed, and so with them have the questions we pose to them (Despret, 2012), or what Despret calls the "versions" we tell about them. It is not just our representations of society, relationships, roles, and politics that have changed, as if everything was only an all too human affair. For some years now, animals have acquired biographies through these humans (Lestel, 2000). The paleontologist Stephen Jay Gould, pursuing the beautiful ambitions of natural history, has written about Irish elks as well as about orchids, zebras, and pink flamingos. The theory of evolution has some beautiful oddities to recount. Each story is then singular and the work of changes that have mobilized humans to accompany them and to carry their narratives.

One fundamental thing that appears to me is that the stories we tell do not leave other animals unchanged, as they directly concern them. The ornithologist Bernd Heinrich has shown how the stories we tell about ravens determine attitudes that, in turn, will modify the ravens' own behavior (Heinrich, 1989). But which ravens are we talking about? It is through this question that we can ask the meaning of the "biographer becoming" of certain researchers. These scholars have taught us that, as we generally do not speak of "humans" without excluding or including too many people in the definition of a few, we must ask ourselves who are the animals we are talking about, how do we speak to them, and whether we give them "a chance" to testify otherwise.

Heinrich's ravens are the great ravens of the Maine forests, solitary and shy. These ravens leave their researcher with an enigma, a behavior that is absurd from the point of view of the traditional models of evolutionary theory: they share the food of a carcass where logic would have it that the first to arrive would be the first to be served. In her account of this "enigma of the raven", Vinciane Despret unfolds all the versions proposed to explain the phenomenon. These versions include the art of luring and trickery, as well as the transformation of the researcher. Heinrich was recruited by his animals in the mode of becoming "with the ravens", where what matters to them also matters to him. The cries of the ravens eventually generated an emotion in him, and their testimonies altered his own questions. He was recruited in a mode of decentering in the attempt to understand the way questions arise for a raven. To do this Heinrich had to invent the relevant modes by which to address his ravens and to speak on their behalf. This required some real imaginative work. Due to his apprenticeship and his "becoming a spokesman", Heinrich strives to exonerate ravens in Germany

from uncommitted crimes against livestock. He also assist colleagues in noticing an astonishing interspecific association between them and wolves in Yellowstone Park.

We see with Heinrich how much the beings who do not have a voice engage their researchers in "biographer becoming" where what is at the stake is adequate representation. I would like to give another example of the successful mobilization of researchers. In contrast to primates, which have succeeded in mobilizing many biographers to represent and defend them, parrots, excluded by behaviorist logic and from laboratories, have remained "voiceless" for a long time. But by modifying enthusiasm for research and the devices of experiments, the psychologist Irene Pepperberg revealed to us the astonishing capacities of her grey parrot Alex, exceeding the abilities expected of a non-human: he can accomplish complex cognitive tasks, he counts, he describes, he uses abstract categories and even concepts (Pepperberg, 2008). For Pepperberg, Alex does not testify for all parrots, but shows what parrots could be made capable of, how we could accompany them and cohabit with them. This is one of the fundamental elements of science studies today: the possibilities of transformation, exchange, cohabitation, and political proposals, all made necessary by the Anthropocene, could perhaps emerge if we ask animals the right questions, and if we listen to what they have to teach us.

2.2 Imagination and Togetherness

I strongly believe that narratives in the Anthropocene can eventually help us understand the lifestyle of each living being, and all the exchanges that we can weave with them. Gould's scientific and narrative work has allowed us to imagine that it is possible to tell a story for each species and that, at this stage, no hierarchy is desirable. Indeed, natural history, when it was attentive to all beings without exception, was a crucial resource that managed to combine the strengths of science and literature. As historian Romain Bertrand writes, it is not that humans do not really matter, it is that *everything* matters infinitely (Bertrand, 2019). Extinct species, insects, children, and wolves can neighbor one another in narratives that do not order themselves in an ontological gradation.

To give an account of an existence is to explore all that links it to others so that they compose together a history in a defined cosmos. But to think this cosmos of living beings linked to each other, Vinciane Despret seems to

require the imagination function as a diplomatic faculty. To be solicited and requisitioned by the existence of other living beings, we must allow ourselves to imagine their stories, both scientifically and literarily. We must tell their stories so that they enter our common history.

The philosopher and wolf tracker, Baptiste Morizot, while perceiving in the snow two territorial markings of two wolf packs, each isolating its border, realized that we do not have a monopoly on the capacity for *modus vivendi*, i.e. negotiating how to live together (Morizot, 2019). For millions of years, wolves have been setting up pack boundaries to reduce mutual aggression. They thus invent what Morizot calls pacification devices (Morizot, 2020). Tracking wolves can therefore teach us about their way of life, and how to live differently in a world of otherness.

We can see that the practice of biographers moves us away from an abstract universality to concrete versions of this universality that multiply points of view: a baboon, a raven, a parrot, wolves. Those who were once "nobody" in our stories become people. A person is therefore "the one whose importance to him or her can be taken into account by someone" (Despret, 2002, p. 258). Responding to this requirement involves considering "what matters" in to the network involved: from male baboons to female baboons, from ravens to humans trying to understand them, from wolves to trackers. These new "actors" are vectors of scientific stories that explore new ways of living together. Isn't this what is at stake in the Anthropocene as a matrix of narratives?

We must therefore welcome in our stories, far beyond the human, even the most fragile existences, surrounded by a range of possibilities that can multiply their existence. Of course, to multiply existence is to see one's existence consolidated and supported by good "spokespeople" who have been tasked with telling and defending this existence. As Despret points out, the animals did not enter alone into our narratives; they had to be accompanied each time by a human who narrated as a witness. David Lapoujade, in his commentary on the philosophy of Étienne Souriau, has chosen the figure of the lawyer as advocate, to define the one who pleads on behalf of entities whose legitimacy he wants to establish (Lapoujade, 2017). How can narratives function then to make more real what exists? That is the question.

2.3 Common causes

I would argue that narratives make existences more real when they give justice to the connections between human and non-human beings which naturalism has often conceived in terms of separation (Descola, 2005), resulting in a detachment from earthly things. This distance between humans and "natural beings", far from being natural itself, is a modern invention. It is itself an operative narrative and belief (Latour, 1991).

Therefore, against this tendency, I follow Deborah Bird Rose's proposal to conceive narratives as a method to grasp connectivity (Rose, 2019, p. 27). In her fieldwork, this anthropologist has collected stories of connectivity between different species that allow us to understand how the world is made up of stories that already exist, and which must be collected and told. Telling is necessary because events do not happen one after another in a random order. They are linked to each other, they affect or cause each other. And as Thom Van Dooren, the philosopher of extinction studies and disciple of Rose, points out, narrative is always about these connections and relationships. However, a story not only testifies to the existence of links, it also weaves new ones that can define common causes. This is what I would like to defend by relaying a story of connection that Baptiste Morizot once told.

In the 1980s, India was home to the largest population of vultures in the world, with several million species including the white-rumped vulture (*Gyps bengalensis*) and the Indian vulture (*Gyps indicus*). These vultures played an important role in India which, at the time, had a huge cattle population, approximately 500 million, of which only 4% was destined for slaughter because the Indians did not eat their cows very much. Vultures, therefore, contributed to public sanitation by devouring the carcasses of cattle. However, in the 1980s, a spectacular decline in vulture populations was observed. Why did this happen? Researchers including Lindsay Oaks have shown the link between this massive disappearance and an antibiotic (Diclofenac) given to cattle that poisoned the vulture populations, so that more than 95% disappeared. The story does not end there, because this decline has produced disastrous environmental effects. First, there was the contamination of drinking water sources in the villages as the carcasses that were no longer eaten by the vultures rotted next to these water sources. Second, the vultures were replaced by rats and stray dogs. However, where the scavengers contained the pathogens that they ingested, the rats and dogs

spread these pathogens to wildlife and humans, and one of the consequences of this was the resurgence of rabies.

This case shows that, as soon as one poses the problem in terms of cohabitation, it involves common causes between humans and non-humans. And when a certain species that plays an important role in an ecosystem disappears, it produces an effect that Rose calls "double death" (Rose, 2012). She proposes the idea that the disappearance of a species breaks a vital connectivity and produces chain effects that diminish the living conditions of a whole series of other species, human and non-human. Indeed, the human is not discernible from the whole of its relations with the biotic communities and the ecosystems which found it. If the narratives in the Anthropocene teach us anything, it is that the interests of humans and the interests of living beings are now intertwined. We must therefore imagine common causes. If imagination becomes one of our most political resources (as we proposed with Despret), it should not give right to one individual rather than another, but to the relations that weave together humans and non-humans, what Morizot will call ethics of relations (Morizot, 2016).

3. Of what are narratives capable

It appears to me that the question that the Covid-19 pandemic has raised in recent months has also been: how can we imagine a cohabitation that would no longer be based on a mode of eradication? Because with their war rhetoric, governments have forgotten that epidemics are a dimension of bio-social history; that bacteria make life possible and kill us at the same time, humans and non-humans alike; that the history of the living is one of dependances on the lives of others, on which beings feed on one another.

The literary theorist Yves Citton has shown very well how current and future mutations cannot be "defeated" or "eradicated". Instead, we must "deal with" them, so as not to become powerless, which is a matter of active collaboration (Citton, 2021). Thus, it is necessary to welcome the agency of the world and the idea that we are not alone in nor in charge of the world. Narrations engage in their writing and their way of making us feel: it is not a question of being innocent or guilty anymore (vis-a-vis the state of the world), but of paying attention, of inventing an art of words that can produces the capacity to respond (*response-ability*, Haraway, 2016) the

consequences. In other words, we must dare new versions as Despret does, to twist the majoritarian narratives, to disconcert anticipations, and to surprise the catastrophe.

This is what the biologist and historian of science Donna Haraway has been doing for several years. She writes from the ravages of our globalized world at the beginning of the 21st century, which has inherited an acceleration and intensification of neoliberal capitalism. But, she also writes from a perspective according to which the sciences alone cannot prevent us from simplifying, from resigning, from bending to business as usual, from dreaming of apocalypse or final salvation. So many ways of not paying attention to what is here, of getting rid of the problem, of evacuating the disorder. So many ways of "living without", rather than "dealing with", that render us powerless. Haraway has, on the contrary, shown the way in which we must "stay with the trouble" (Haraway, 2016) inherited from the stories that constitute us through prodigious inventions and inflections in narrative practices in order to make the great binary divisions falter. The reality, for Haraway, itself produces interesting and problematic figures: Mixotricha paradoxa, an entity whose individuality is problematic, neither one nor many; OncoMouse™, a genetically modified mouse for breast cancer research (Haraway, 1997); the lichen, a symbiotic entity linking an alga and a fungus. Telling the story of the existence of these beings inevitably challenges our categories of individualistic ontology and nature. Thus, this world is not populated by autonomous, autotrophic, autopoietic, separate beings. But of hybrid beings that always depend on the activity, the "doing", of the others, what Donna Haraway names sympoiesis.

The sciences of the living are then for us a source of narrative matrices with inexhaustible experiences of entanglements, partnerships, and sympoiesis. I would say with Donna Haraway that we are made of stories. We are born in a *landscape of histories* (Haraway, 2000) that determine both a common history that we inherit and an intimate history in which we make our first dreams. As a young white girl in the Rocky Mountains, Haraway dreamed of being kidnapped by the Indians. Growing up meant inheriting histories of colonization and extermination, of land exploitation and territorial disputes, and becoming a responsible partner in the Native American situation. It matters where our stories and dreams are made because we are not independent organisms in environments that merely background us. We are never alone in the world, but always caught up in sympoietic relationships where every being involves the lives of others (Hustak & Myers, 2012).

How then to deal with childhood dreams, damage, other beings, bacteria, viruses? How to live-with and die-with each other well? This is the issue according to which Haraway isolates a particular task: "think we must" (Haraway, 2015). Perhaps a story best illustrates this. In her proposal to "stay with the trouble," Haraway predicted the emergence of compost communities, where humans must become Earthbound to deal with the biotic and abiotic powers that have been populating air, land, and sea for much longer than we have. In these "compostists" communities, humans and humus share the same root, and symbiotic and multispecies alliances have been formed. It is a matter of thinking and acting with other beings that make them live and die, with beings that live and die with them. Thanks to this type of story provided by Haraway, we might be able to think of a future in which humans are less solitary and arrogant, a future where they have become multispecies, become compost, where they have been "recomposed" into earthlings among others. These humans, perhaps, will have learned to live in the ruins of the ancient dreams of modernization. So what is the problem? We will say it simply: to conceive the ongoingness, as Haraway says, of these sympoieses in a more ambitious and joyful way than that of the simple survival. To think not only about the habitability of the earth against the extinction of species, but also of humans and of ways of living together. For it is not "life" in general that is threatened, but this very world sheltering forms of life with tangled destinies.

4.   Narrating in the folds

Our love of storytelling is so strong that Gould has said we should call ourselves *Homo narrator* instead of *Homo sapiens*. Of course, some will say that it is more common to say *Homo faber*. As we know, the history of our species is easily simplified by the list of tools and technologies that Man has invented. His intelligence finds in this technical inventiveness the ideal criterion that would allow us to specify and distinguish Man from other species. But which tools? In *Homo faber*'s story, pottery and the nuclear bomb, paper and the firearm are juxtaposed. Ursula Le Guin, through her story *The Carrier Bag Theory of fiction* (1986), has rallied against these epic and virile stories defining a conquering Man as a manufacturer of weapons. She protested against the way in which these narratives do not take any care of those who populate them. By telling stories of small things – of inventions of containers, envelopes, gourds, nets, and boxes – Le Guin

offers a diversity of fragile things to populate our imaginations. These are things that take care of the beings and the things they keep, transport, or protect. There are certainly crucial inventions, however small and local, to be made visible in the face of capitalized narratives: communities of life, political experiments, and compositions of place. For our places never form a society as in a garden of Eden, since they are conflicting, disputed, and crossed by incompatible desires. I previously illustrated the way in which certain places can shelter individual and collective experimentation through the Foucauldian concept of heterotopia; how they are both material of exclusion and envelope for emancipation (Gross, 2020).

To loosen the impasse in which the debate between the Anthropocene and the Capitalocene is becoming bogged down, Donna Haraway proposes to multiply these narratives by showing the way in which each one draws our attention to a dimension that has something to tell. By using the term "Phonocene" to describe our era, she seeks to alert us to the future of the earth's sounds. We would be in the era where the sounds of the earth which have not yet disappeared are still audible. As Despret's account has taught us, a sound can uniquely summon sensitivity and generate a joy of attention and presence that attracts and engages in ways as important as the visual can strike us. Bioacoustician Bernie Krause, who records soundscapes, has created libraries of the richness of the sound world while also archiving the accelerating rate of species extinction. Fifty percent of the sound heritage is now degraded or extinct (Krause, 2015).

I would be one of those who follow Gould when he assumed the importance of safeguarding the worldly diversity and excellence that manifests itself in myriad places and whose difference and variation must be defended (Gould, 1996). Our modern attitude has been to banalize the experience of the living by destroying what Baptiste Morizot calls prodigies, those experiences that fill us with wonder when we "learn that the maple tree in the street communicates with the lilies in the flowerbeds, that bees know how to dance cards, that dolphins hear shapes" (Morizot, 2020, p. 46). To politicize the wonder and to thwart the crisis of sensibility which characterizes the late modernity, Morizot proposes the idea of a culture attuned to the living richness of knowledge and narratives which pushes the lives of non-humans into the field of attention. A culture, as a device, implies the importance of what it designates, the living, in the common world and in the common imaginary, making it difficult to neglect the phenomenon that it promotes. This is undoubtedly what researchers are

doing today by making it possible to write about birds (Despret, 2021), wolves (Morizot, 2016), mushrooms (Tsing, 2015), forests (Kohn, 2013), or microbes (Brives, 2010).

Never are these stories defended as forms of secondary curiosity, but rather as indispensable elements of our common world and thus of our economic, ethical, and political considerations. Bees have infiltrated our economic interests, soil fauna our agriculture, birds have imposed themselves just as much in our reflections on the city and architecture as the importance of trees has. With all this mass of non-humans entering as both political actors and actants of narratives, humans are being transformed as a collective in new ways (Houdart & Thiery 2011). The narratives in the Anthropocene can then be devices of attention that cultivate new forms of sensitivity towards the living. And the word Anthropocene can itself be understood as a proposal for narratives that attach creatures to one another, a demand to regain a terrestrial footing.

For the narratives in the Anthropocene, it is always a question of capturing those links that support our existence, the network of beings with which we live and on which we depend (Latour, 2021). It appears to me that this constraint must be conceived as a method of telling. For the links are what matter. Against the economy of attention, Yves Citton has theorized the ecology of attention as taking care of the fragile links and the precarious narratives that detail our earthly inscriptions. These links are important not simply to remedy the consequences of the ecological crisis, in the way Arne Naess opposed a superficial ecology to a deep ecology whose challenge is to work on the cause. Rather, the links are resources for composing other ways of making society and challenging the ways we present ourselves at a distance from things. Thus, Jean-Philippe Pierron, who continues the re-composition of our ways of doing things with those whom Bruno Latour calls the Terrestrials, invites us to think of our life stories in relation to the Earth, that is to say, to bring the whole environment into the biography, to transform it into an exercise of ecobiography (Pierron, 2021).

We can hope that these narratives can respond to David Abram's proposal to "animate" Earth. I would say that this is a major problem with naturalist guides or classical scientific works: they de-animate and do not mobilize us. How can we be required to live in a world that is disenchanted, mute, reduced to a meaningless setting where only human stories unfold? In our personal and collective lives, something is missing. The indifference to

the devastation of the Earth and to the sixth extinction of species proves it: we are anesthetized. Yet, in the Anthropocene, the Earth is not silent. We are full of suggestions for regenerating our multiple modes of interdependence. As we have seen, these require new arts of speaking, new narratives, that support the ethical possibilities of understanding ourselves as living among the living. For we are only human in contact with that which is not human (Abram, 2013, p. 16). Earthly beings are not autonomous, but always attached – to parents, languages, places, ways of doing things, ancestors, other networks of the living. This is what made Tobie Nathan choose as the title of his book one of his major lessons in ethnopsychiatry: *We are not alone in the world* (2001).

Acknowledgements

References

Abram, D., 2013, *Comment la terre s'est tue: pour une écologie des sens*, La Découverte, Paris.

Bertrand, R., 2019, *Le détail du monde*, Éditions du Seuil, Paris.

Bonneuil, C., Fressoz, J., 2013, *L'événement anthropocène. La Terre, l'histoire et nous*, Éditions du Seuil, Paris.

Brives, C., 2010, *Des levures et des hommes: anthropologie des relations entre humains et non humains au sein d'un laboratoire de biologie*, doctoral thesis, Ethnologie. Anthropologie sociale et culturelle, Bordeaux 2.

Citton, Y., 2021, *Faire avec. Conflits, coalitions, contagions*, Les liens qui libèrent, Paris.

Debaise, D., 2020, "Le récit des choses terrestres: Pour une approche pragmatique des récits"*, Corps-Objet-Image*, 4.

Debaise, D., Stengers, I. (ÉD.), 2015, *Gestes spéculatifs. Colloque de Cerisy*, Les Presses du Réel, Dijon.

Descola, P., 2005, *Par-delà nature et culture*, Gallimard, Paris.

Despret, V., 2002, *Quand le loup habitera avec l'agneau*, Les Empêcheurs de penser en rond, Paris.

Despret, V., 2012, *Que diraient les animaux, si... on leur posait les bonnes questions?*, La Découverte, Paris.

Despret, V., 2021, *Living as a bird*, Polity Press, Cambridge.

Gould, S. J., 1977, *Ever since Darwin: reflections in natural history*, Norton, New York.

Gould, S. J., 1996, *Full House: The Spread of Excellence from Plato to Darwin,* Harmony Books, New York.

Gross, N., 2020, "Sur les hétérotopies de Michel Foucault", *Le Foucaldien*, 6 (1), 10.

Haraway, D. J., 1997, *Modest witness second millennium: femaleman meets oncomouse: feminism and technoscience*, Routledge, New York.

Haraway, D. J., Goodeve T. N., 2000, *How like a leaf an interview with Thyrza Nichols Goodeve*, Routledge, New York.

Haraway, D., 2015, Sympoïèse, SF, embrouilles multispécifiques. In: Debaise, D., Stengers, I. (ÉD.), 2015, *Gestes spéculatifs. Colloque de Cerisy*, Les Presses du Réel, Dijon.

Haraway, D., 2016, *Staying with the trouble: Making Kin in the Chthulucene*, Duke University Press, Durham.

Haraway, D., Vincent, C., 2019, "Avec le terme chthulucène, je voulais que l'oreille entende le son des terrestres", *Le Monde*, 31 janvier.

Heinrich, B., 1989, *Ravens in winter: a zoological detective story*, Summit Books, New York.

Houdart, S., Thiery O., 2011, *Humains, non-humains: comment repeupler les sciences sociale,* La Découverte, Paris.

Hustak, C., Myers N., 2012, "Involutionary Momentum: Affective Ecologies and the Sciences of Plant/Insect Encounters", *Differences: A Journal of Feminist Cultural Studies,* 23 (3), 74-118.

Kohn, E., 2013, *How forests think: toward an anthropology beyond the human*, University of California Press, Berkeley.

Krause, B., 2015, *Voices of the Wild Animal Songs, Human Din, and the Call to Save a Natural Soundscape*, Yale University Press, New Haven.

Lapoujade, D., 2017, *Les existences moindres*, Minuit, Paris.

Latour, B., 1984, *Les microbes, guerre et paix. suivi de : Irréductions*, Métailié, Paris.

Latour, B., 1991, *Nous n'avons jamais été modernes : essai d'anthropologie symétrique*, La Découverte, Paris.

Latour, B., 2005, *Reassembling the social: an introduction to actor-network-theory*, Oxford University Press, Oxford.

Latour, B., 2015a, Différencier amis et ennemis à l'époque de l'Anthropocène. In: Debaise, D., Stengers, I. (ÉD.), 2015, *Gestes spéculatifs. Colloque de Cerisy*, Les Presses du Réel, Dijon.

Latour, B., 2015b, *Face à Gaïa. Huit conférences sur le nouveau régime climatique*, La Découverte, Paris.

Latour, B., 2021, *Où suis-je ?: Leçons du confinement à l'usage des terrestres*, La Découverte, Paris.

Latour, B., Weibel, P., 2020, *Critical zones: The science and politics of landing on earth*, MIT Press, Cambridge.

Le Guin, U. K., 2019, *The carrier bag theory of fiction* (1986), Ignota Books, London.

Leibniz, G. W., 1923, *Sämtliche Schriften und Briefe*, VI, 2, Édition de l'Académie des Sciences de Berlin-Brandebourg et l'Académie des Sciences de Göttingen, (Darmstadt) Berlin.

Lestel, D., 2000, "Faire la paix avec l'animal", *Études 392*, nᵒ 1, 37-48.

Morizot, B., 2016, *Les diplomates. Cohabiter avec les loups sur une autre carte du vivant*, Wildproject, Marseille.

Morizot, B., 2019, *Pister les créatures fabuleuses*, Bayard, Paris.

Morizot, B., 2020, *Manières d'être vivant. Enquêtes sur la vie à travers nous*, Actes Sud, Paris.

Nathan, T., 2001, *Nous ne sommes pas seuls au monde : les enjeux de l'ethnopsychiatrie*, Les Empêcheurs de penser en rond, Paris.

Pelletier, A., 2017, "Attention et aperception selon Leibniz : aspects cognitifs et éthiques", *Les Études philosophiques*, 1, N° 171, 103-118.

Pepperberg, I., 2008, *Alex & Me: How a Scientist and a Parrot Discovered a Hidden World of Animal Intelligence – and Formed a Deep Bond in the Process*, Harper Collins, New York.

Pierron, J-P., 2021, *Je est un nous : enquête philosophique sur nos interdépendances avec le vivant*, Actes Sud, Paris.

Prigogine, I., 1996, *La fin des certitudes*, Odile Jacob, Paris.

Rose, D. B., 2012, "Multispecies Knots of Ethical Time", *Environmental Philosophy,* 9 (1), 127-140.

Rose, D. B., Robin, L., 2019, *Vers des humanités écologiques : suivi des Oiseaux de pluie*, Wildproject, Marseille.

Savransky, M., Stengers, I., 2018, "Relearning the Art of Paying Attention: A Conversation", SubStance, Volume 47, Number 1, 130-145.

Stengers, I., 2009, *Au temps des catastrophes : Résister à la barbarie qui vient*, La Découverte, Paris.

Tsing, A. L., 2015, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, Princeton University Press, Princeton.

Viveiros de Castro, E., 2009, *Métaphysiques cannibales : lignes d'anthropologie post-structurale*, Presses universitaires de France, Paris.

Whitehead, A. N., 1948, *Science and the modern world: Lowell lectures, 1925*, New American Library, New York.

4. Animals' Optical Democracy in the fiction of Cormac McCarthy

Geneviève Lobo[1]

Abstract

From the 1960s onward, American cultural perceptions started to evolve greatly. The development of ethology in the 1970's begun to challenge ways of perceiving animals; more broadly, the concern spurred by the destruction of nature encouraged new aesthetic representations of nature. Animal Studies started to develop, opening a new connection between ethology and humanities. Animals occupy a great deal of space in the writings of Cormac McCarthy. The borders between human and animals are blurred, as the reader navigates unilateral violence, the importance of the sensorial world. the quest for survival, or the importance of movement – with characters and texts that seem to be moving just for the sake of moving. Literature can be seen as a possible aesthetical answer to science. The connection between the physical environment and the written text underlines the limits of anthropocentrism in the field of humanities.

Keywords: Animals, Cormac McCarthy, USA, Ecocriticism, Democracy

Introduction

One year ago, the Covid19 pandemic started to turn the 21st century human society upside down. The age of the Anthropocene, with human beings at its head and in control of all things, is at its end. Capitalist society, until then considered as the dominant model of efficiency, has now given proof of its weakness and failures. Aside from the increasing number of deaths, either from Covid or collateral damages, humanity seems to be challenged in its presumed superiority. Human beings have turned out to be once again dependent, vulnerable and craving for alternative ways to be able

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to survive. Environment, long considered as the mere food and fuel reservoir for humans, is now what we have to save and protect in order to carry on. In academia, the sharp divide between "hard" sciences and social sciences and humanities, which were kept in the background, also tends to falter a call for more transdisciplinary dialogue. Indeed, literature is often considered a mere entertainment. Ecocriticism studies the link between fictional text and physical environment. Animal Studies conceptualizes the animal as the central subject of transdisciplinary studies including sociology, literature and ethics. The writings of the American author Cormac McCarthy embody such a dialogue between science and literature. Originally from Rhode Island, the author of ten novels is known for his interest in Chaos theory, and the numerous hours spent at the Santa Fe institute learning about physics and biology, but also directly interacting with scientists. In 2017, he wrote "The Kekulé Problem", a non-fiction piece about the origins and definitions of language:

> The sort of isolation that gave us tall and short and light and dark and other variations in our species was no protection against the advance of language. It crossed mountains and oceans as if they weren't there. Did it meet some need? No. The other five thousand plus mammals among us do fine without it. But useful? Oh yes. We might further point out that when it arrived it had no place to go. The brain was not expecting it and had made no plans for its arrival. It simply invaded those areas of the brain that were the least dedicated. I suggested once in conversation at the Santa Fe Institute that language had acted very much like a parasitic invasion and (…) our president said that the same idea had occurred to him (McCarthy, 2017).

Comparing the spread of language to the spread of a virus obviously recalls the current pandemic. The mention of other animal species as capable of existing on their own without language already gives insight into McCarthy's treatment of non-humans. McCarthy's concrete interest in natural sciences is present in his books. From the early Southern Gothic novel *Outer Dark* (1968), and famous western *The Border Trilogy* (1992-1998), to the latest postapocalyptic novel *The Road* (2006), animals occupy a great deal of space in McCarthy's fiction, and often come to challenge traditional anthropocentric tendencies of humanity.

Outer Dark tells the story of the incestuous relationship between brother and sister Culla et Rinthy Holme. This forbidden intercourse results in the conception of a child. Immediately after his birth, the baby is abandoned in

the woods by Culla and taken away by a tinker. Rhinty spends the novel in search of her lost baby, while the brother wanders indefinitely. Three anonymous riders frequently make irruption within the text to kill and spread fear among characters with no obvious purpose. In this dark portrayal of America, the reader is confronted to the darkest tendencies of humans. The three volumes of *The Border Trilogy* – *All the Pretty Horses*, *The Crossing*, and *Cities of the Plain* – narrate the back and forth of young riders across the American Mexican border, just before, during, and after WWII and the development of the nuclear. Characters wander with no family attachment, and extreme violence overwhelms the text. Horses are at the heart of the three volumes, and their presence often debunks myths of the old west. On the whole, *The Border Trilogy* focuses on the falling of agricultural society and the loss of the cowboy way of life. The recent post-apocalyptic novel *The Road* portrays the wanderings of an anonymous father and his son through a world from which any and all kind of nature has now vanished, reducing humans to the mere status of isolated survivors, for whom cannibalism is now a common trend. As opposed to the previous writings, *The Road* is not so much about the presence of animals anymore, but about their absence. The themes of loss, violence, past, religion, science, and nature landscapes are central issues in every McCarthy's book.

As stated by Erik Hage in *Cormac McCarthy, a Literary Companion*, McCarthy's peculiar style involves "absolute empirical accuracy", which underlines McCarthy's interest in the natural sciences (Hage, 2010, p. 17). However, one must not reduce McCarthy's prose to mere scientific descriptions integrated to fiction. Indeed, he is also famous for his peculiar use of anachronisms, the scarcity and minimalism of dialogues, or the striking lack of punctuation – McCarthy describes commas as "weird little marks".[2] In order to further understand the place animals occupy within the frame of McCarthy's idiosyncratic prose, it is useful to analyze the concept of Optical Democracy, introduced in *Blood Meridian*, McCarthy's earlier and perhaps more violent western:

> In the neuter austerity of that terrain all phenomena were bequeathed a strange equality and no one thing nor spider no blade of grass could forth claim to precedence. The very clarity of these articles belied their familiarity, for the eye predicates the whole on some feature or part and here was nothing more luminous than another and nothing more enshadowed and in the optical democracy of such landscapes all preference is made whimsical and

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[2] See bibliography, Morgan G. Wesley, « A Note on "Weird Little Marks" ».

amanandarock become endowed with unguessed kinship. (McCarthy, 1985, pp. 258-259).

As stated by David Holloway in *The Late Modernism of Cormac McCarthy*, "Optical Democracy seems to mean first of all looking at a landscape and then writing about a landscape, in such a way that any anthropocentric assumption of human primacy over the natural world is rejected (…)." (Holloway, 2002, p. 153). The vocabulary of optics is indeed omnipresent in these lines. Such emphasis on the importance of "looking at" on the one hand, and the egalitarian turn on the other, embeds McCarthy's literary concept within the context of the contemporary issues raised by animal studies. Indeed, this literary rendition and view of equality carries an essential ethical dimension. The followings arguments will try to show to what extent the place of animals in McCarthy's fiction, in light with the concept of Optical Democracy, might give some clues to understand not only the way fiction can portray, but also frame contemporary world.

1. Animals and The Crisis of Humanity

The first striking element in McCarthy's depictions of animals might be man's fundamental incapacity to control them. In *The Border Trilogy*, numerous examples of such incapacity can be noted. In *The Crossing*, young cowboy Billy Parham finds a pregnant "she-wolf" on the Texan border and assumes she comes from Mexico. He eventually fails just after entering New Mexico, where the wolf gets killed for its skin.

> Doomed enterprises divide lives forever into the then and the now. He'd carried the wolf up into the mountains in the bow of the saddle and buried her in a high pass under a cairn of scree. The little wolves in her belly felt the cold draw all about them and they cried out mutely in the dark and he buried them and piled the rocks over them and led the horse away. He wandered on into the mountains. He whittled a bow from a holly limb, made arrows from cane. He thought to become again the child he never was (McCarthy, 2002, p. 437).

In the present excerpt, the vocabulary of death and darkness, as often in McCarthy's fiction, invades the text. The notion of unavoidable failure is underlined by the adjective "doomed". In addition, the idea of idleness and wandering is present, suggesting that the character has nothing left to do after his "doomed enterprise". Also striking is the narrative voice and

incursion into the point of view of the wolf cubs who "felt the cold in her belly". Furthermore, the division between "past" and "present" suggests that the burial marks a form of trauma in the character's story. Since the wolf is often regarded as the epitome of a wild animal, the failure to domesticate, in this case, could at first sight be understood to be conveying the irreducibility of wildness – a common trope in American pastoral literature. However, Billy setting his "horse free" seems to indicate that domestic animals are not to be completely controlled either. This is the case in *All The Pretty Horses*, where main character John Grady Cole fails at riding a horse that has been supposedly "badly" trained, and eventually gets hurt (McCarthy, *The Border Trilogy*, p. 757). If humanity is portrayed in its weakness and failed attempts at controlling nature, it also seems that traditional distinctions between "wild" and "domestic" for animals are no longer valid, and that no living being "can forth claim to precedence".

To go on with the idea of humanity's fall, the notion of evil is omnipresent in the works of Cormac McCarthy. The climax of *All the Pretty Horses* shows two characters trapped in a Mexican jail after their anonymous companion has been captured for horse theft. They do face extreme violence with no possible escape, and the scene end with a bloody knife fight under the eyes of the prison guards (McCarthy, 2002, pp. 201-205). It seems that no law or justice is there to protect them. Similarly, the walk of father and son in *The Road* is frequently disrupted by cannibalistic attacks from undefined and unidentified groups of survivalists. *Outer Dark* not only depicts incest and child abuse, but also free killing, embodied by the three anonymous and cannibalistic riders who come throughout the text without any apparent narrative function in the main plot. A shortsighted reading of Cormac McCarthy could mislead the readers into interpreting such depiction of "evil" as a way to denounce human's darkest conducts on earth. However, the treatment of evil goes far beyond that cynical portrayal. Erik Hage argues that despite "the brutality and grimness of [McCarthy's] vision, the "originality of his natural descriptions rival his penchant (…)., and "his descriptions sometimes ascribe "natural" beauty to terrible things and "terribleness" to a natural world that is traditionally rendered as beautiful". (Hage, *Op. Cit*., pp. 117-119). As a matter of fact, harshness and violence are also conferred to animals. In *Outer Dark*, Culla Holme crosses a river – for no specific reason – and gets trapped on a boat with a terrified horse that seems to irrupt directly from a nightmare.

> When the horse came at him the third time he flattened himself half
> crazed against the forward bulkhead and howled at it. The horse

reared before him black and screaming, the hoofs exploding on the planks. He could smell it. It yawned past him and crashed and screamed again and there was an enormous concussion of water and then nothing. As if all that fury had been swallowed up in the river traceless as fire (McCarthy, 1968, pp. 172-173).

Here, the motif of human loss of control above mentioned is there again. Indeed, a first analysis might suggest that the humans fail to control the true nature of a horse while forcing a fearful animal to cross a howling river tied in a boat. However, the horse is described as not only terrified, but also terrifying. The vocabulary of explosion – flattened (…) against, exploding, enormous concussion – reinforces the horrifying aspect of the horse. In addition, the double occurrence <scream>, unusual in the field of horses, complicates the distinction between human and animal. Moreover, the end of the excerpt brings the idea that evil is not only inherent to the horse, but to the force of the river itself. Here, McCarthy directly gives "'terribleness' to a natural world that is traditionally rendered beautiful" (Hage). Therefore, one can argue that McCarthy challenges the very definition of "nature" itself.

Also essential is the motif of survival and vulnerability that pervades in McCarthy's body of works. The most obvious example appears in *The Road*, where father and son are compared to "two hunted animals trembling". Ancient elements of the American consumer society appear as the only ruins for the eye to see. Green landscape and living creatures are mere illusions of a world that no longer exist. Color is nowhere to be found and darkness is not only a feature, but seem to be the essence of the world itself.

> He walked out in the gray light and stood and he saw for a brief moment the absolute truth of the world. The cold relentless circling of the intestate earth. Darkness implacable. The blind dogs of the sun in their running. The crushing black vacuum of the universe. And somewhere two hunted animals trembling like ground-foxes in their cover. Borrowed time and borrowed world and borrowed eyes with which to sorrow it (McCarthy, 2004, p. 138).

The terms "gray light", "darkness", "black", "blind" reinforce the idea of "vacuum" and nothingness. This extract contrasts and at the same time resonates with the idea of a "luminous" Optical Democracy. The importance of "looking" is still emphasized, but there is nothing left to look at. The last sentence, with the repetition of "borrowed", reinforces the fragility of the

"two hunted animals". Once again, it is essential not to reduce McCarthy's piece of fiction to the sole idea that humanity as come to an end. Rather, the author might describe the end of humanism, as suggested by Adrew Este: "*The Road* depicts the end of humans, but also the end of humanism. […] Nature in the form of wilderness spaces has ceased to exist. Likewise, the human communities have been (almost) wiped out as well. The natural and the human depend upon each other to such extent that the destruction of the one necessarily entails the other's demise" (Este, 2017, p. 7). The constant motif of survival may fuel the idea that beings all depend on each other. It replaces humans within their environment – instead of mere spectators of it. In "Introduction Posthumanism in Literature and Ecocriticism", Serenella Iovino reminds us of the essential tropes of post-humanism.

> Situated by definition in a mobile space of matter and meanings, the posthuman […] moves relentlessly, shifting the boundaries of being and things of ontology, epistemology, and even politics. And these boundaries, especially those between human and nonhuman, are not only shifting but also porous: based on the – biological, cultural, structural – combination of agencies flowing from, through,and alongside the human, the posthuman discloses a dimension in which "we" and "they" are caught together in an ontological dance whose choreography follows patterns of irremediable hybridization and stubborn entanglement. […] Taking a closer look, finally, we can see that the posthuman's house is (…) also operationally open. […] It is a collective house for "nomadic" comings and goings, and most of all for belonging-together and multiple becomings (Iovino, 2016, p. 15).

This definition retakes the point of Rosi Braidotti, who dedicates her works to a rethinking of the very definition of what human means. According to this proposal of definition, McCarthy's portrayal of animals can be understood in a post-humanist dynamic.

2. Animals and post-humanities: acknowledging uncertainty

Understanding McCarthy's writing of animals through the lens of post-humanist theories thus, requires closer analysis of the idea of 'hybridization' and the 'choreography' of the 'we' and 'they'. These motives constantly reappear from *Outer Dark* to *The Road*. This paragraph taken from the beginning of *All the Pretty Horses* is an outstanding illustration of a

"combination of agencies" in the "collective house for 'nomadic' comings and goings":

> When the wind was in the north you could hear them, the horses and the breath of the horses and the horses' hooves that were shod in rawhide and the rattle of lances and the constant drag of the travois poles in the sand like the passing of some enormous serpent and the young boys naked on wild horses jaunty as circus riders and hazing wild horses before them and the dogs trotting with their tongues aloll and foot-slaves following half naked and sorely burdened and above all the low chant of their traveling song which the riders sang as they rode, nation and ghost of nation passing in a soft chorale across that mineral waste to darkness bearing lost to all history and all remembrance like a grail the sum of their secular and transitory and violent lives (McCarthy, 2002, p. 5).

Here, young cowboy John Grady Cole leaves the ranch riding his horse "at the hour he'd always choose when the shadows were long and the ancient road was shaped before him in the rose and canted light like a dream of the past." Striking in these lines is McCarthy's typical avoidance of punctuation that transforms a series of propositions into one single unique flow. This long stream of literary riding replaces the common omniscient narrative perspective by an "agency". The pronoun "they" gathers all the livings – and deads – of the text, in a collective "belonging-together". Mentions of "the horses", "breath of horses", and "horses hooves" suggest that horses directly dive in the narrative. It seems that animal agency is at play in this extract, as if the horse itself was vector of history and of the "remembrance" of beings' "secular and transitory and violent lives". In addition, the description of the riders' song and the vocabulary of movement gives the extract an aspect of a choreography. This extract reinforces Serenella Iovino's idea that wilderness should not be read as a "refuge" "out there", but rather "within and across human". She argues in favor a "co-presence" of beings that is largely present in the description of the "soft chorale" (Iovino, 2016, pp. 13-14). The peculiar irruption of animal agency within the fiction of Cormac McCarthy, therefore, reinforces the idea that frontiers between species are "porous".

The displacement of anthropocentrism in McCarthy's prose also leads to a focus on the importance of the unknown, and even the unknowable, regarding non-human animals. It seems that the author wishes to explicit the impossibility of knowing everything by inserting direct questions about the nature of animals.

> The constant currying of the brush and greenwood in the mountains had carried off all trace of the stable and the horse gave off a warm and rooty smell. The horse had dark hooves with heavy hoof walls and the horse had in him enough grullo blood to make a mountain horse by both conformation and inclination and as the boy had grown up where talk of horses was more or less continual he knew that where the blood carries the shape of a hock or the breadth of a face it carries also an inner being of a certain design and no other and the wilder their life became in the mountains the more he felt the horse subtly at war with itself. He didn't think the horse would quit him but he was sure the horse had thought about it (McCarthy, 2002, p. 444).

This extract from *The Crossing* gives an insight in Billy's questioning about his mountain horse – called Bird. After weeks riding in the landscapes away from the ranch, his horse seems more and more feral and the character, far from trying to go against this change, quietly wonders about the "inner" nature and "inclinations" of his horse. What might be striking in these words is the preciseness of biological knowledge involved in the description. For instance, the term "grullo" demonstrates a precise understanding of horse breed and history from Cormac McCarthy[3]. On the other hand, the idea of a horse wanting to leave his rider questions the very possibility of controlling and knowing animals. Also remarkable is the peculiar treatment of wilderness, which is described as "inner" and in "bec[oming]". This irreducible alterity is also mentioned in *Cities of the Plain*, where two characters evoke a "horse with two brains" (McCarthy, 2002, p. 894). This can be read as an explicit reference to the ethological knowledge that horse is provided with binocular vision and different perception on the right and left-hand. Here, one character argues that horses are "crazy" because they have "an eye for each side". On the other hand, other cowboy states that "if the two sides of the horse aint even speaking to one another you would have some real problems." To better understand this dialogue between science and literature, it is interesting to note that *Cities of the Plain* was published in 1998, at the time where ethologists where merely starting to understand that the two sides of a horse brain could actually communicate, going against the previous idea of each side being "a new

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[3] The Term "Grullo" stands for mouse-colored hair on the horse, with peculiar features typical in ancient horse breeds.

side of the horse".[4] This dialogue given by Cormac McCarthy can then be interpreted as an ironical criticism of scientific dogmatism.

Acknowledging uncertainty and the unknowable is therefore a key issue in Cormac McCarthy's work. Science should not be read as the only paradigm through which to see the world. Science is perceived as necessary as it is incomplete. Religion, however largely evoked in McCarthy's fiction, does not seem to offer any key to the unknown either. Discussions about the presence or absence of God permeate McCarthy's fiction, and characters – and readers – wonder frequently about the existence of God, without never finding any answer. The survival journeys of non-human animals and humans in a "dark" world even seem to suggest that religion is a mere human construct with no accurate reality whatsoever. This idea is summarized in the well-known sentence "there is no god and we are his prophets". (*The Road*) In "A Style of Horror: Is Evil Real in Cormac McCarthy's Outer Dark", Christopher R. Nelson explains:

> Animate menace pervades the world. […] By refusing the traditional separation of nature from the moral sphere, the novel again complicates moral judgment. […] The material world is dreadfully unknowable. […]
> It is not that human fail to conquer the wild unknown […]. Instead, explanatory paradigms prove insufficient: nature has not been corrupted form an ideal, divine creation, or right order. […] Scientific laws cannot resolve [everything] (…) neither does the text invoke supernatural answers (Nelson, 2012, p. 42) [1].

Contradicting the absolutism of religion and science pushes anthropocentrism aside, and sets the scene for a post-humanist reading of McCarthy's writings. In *The Posthuman*, Rosi Braidotti defines what she calls "the new ecological posthumanism":

> Post-anthropocentrism displaces the notion of species hierarchy and of a single, common standard for "man" as the measure of all things. In the ontological gap thus opened, other species come galloping in: this is easier done that said in the language and methodological conventions of critical theory. Is language not the anthropological tool *par excellence*? (Braidotti, 2013, p. 67).

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[4] See Lauren Brubaker et Monique A.R. Udell, "Cognition and learning in horses (Equus caballus): What we know and why we should ask more", Behavioural Processes, Elsevier, 2016, 128.

Here, Braidotti underlines the necessity and at the same time difficulty of dealing with the limits of human discourse through discourse itself. The limits of language evoked by McCarthy in "the Kekulé problem", added to the incompleteness of science and absence of religion, could place McCarthy's dark pieces of fiction within the frame of nihilism. However, McCarthy states that language itself is an autonomous entity. If darkness is at the heart of McCarthy's depiction of animals, it seems that the end of living forms on earth is not the sole issue for him. In *The Road*, where apparently nothing is left to support the characters, hospitality is strangely at play, and so is it the case in *Outer Dark* and *The Border Trilogy*. Therefore, "a nihilistic reading of the narrative (…) would discount the moral center of the novel in the devotion, care and solicitude shared by the father and the son" in *The Road*, and every human and non-human character of McCarthy's fiction (Hillier, 2015, p. 974).

3. Animals and the ethics of moving forward

In order to better understand the idea of language as a dynamic and partly autonomous identity, it is relevant to evoke animism and dreams, two recurring elements in McCarthy's prose.

> In his sleep he could hear the horses stepping among the rocks and he could hear them drink from the shallow pools in the dark where the rocks lay smooth and rectilinear as the stones of ancient ruins and the water from their muzzles dripped and rang like water dripping in a well and in his sleep he dreamt of horses and the horses in his dream moved gravely among the tilted stones like horses come upon an antique site where some ordering of the world had failed and if anything had been written on the stones the weathers had taken it away again and the horses were wary and moved with great circumspection carrying in their blood as they did the recollection of this and other places where horses once had been and would be again. Finally what he saw in his dream was that the order in the horse's heart was more durable for it was written in a place where no rain could erase it (McCarthy, 2002, pp. 283-284).

In this excerpt from *All the Pretty Horses*, animal agency is again at play. Once again, biology and history are linked with the idea of horses "carrying in their blood as they did the recollection of this". The notion of history comes reinforced by the terms "ancient ruins", "antique site" "where horses

once had been". Remarkable is the use of sensory vocabulary – "he could hear" – that intermingles the motif of the dream with reality. Also interesting is the fact that the first appearance of horses seems to refer to the actual environment of the character, as if real animals were concretely irrupting his dream. In addition, the stylistic repetition "he dreamt of horses" and "the horses in his dream" further complicates the distinction between dream and reality. Dreaming animals recalls the Indian tradition of animism, where the presence of animals in dreams was believed to deliver a message from remote realities.[5] Indeed, the idea that "there is no god" allows to avoid any religious interpretation of animism, to rather focus on the notion of reality. The intersection between reality and dreams fits McCarthy's view that "subconscious is older than language", as stated by Steven Frye: "The narrative thus blends the tactile realm of action, work and daily living with the human instances of desire, hope, and the ever-present reality of dreams, which as McCarthy renders them demand equal claim upon the real" (Frye, 2009, p. 138). Moreover, the idea of "the order in the horse's heart" being "written in a place where no rain [can] erase it" as opposed to "some ordering of the world" who "has failed", raises attention of the living, rather than the universal. "Beyond the insufficiency of large-scale paradigms of human knowledge and control such as religion, science, or civilization, the novel unsettles the use of immanent grounds to decide what things mean" (Nelson, 2012, p. 46).

No "large-scale paradigms" are there to help understand the world, and "absolute truth of the world" (McCarthy, 2004, *The Road*, p. 138) is not fully accessible to humans. Yet, it appears that aspiring to truth, without even finding it, is relevant. No universal moral is there to rule McCarthy's world, but small scale "care, devotion, and solicitude" are central to every piece of his fiction. Animals and human welfare are essential at every point of McCarthy's narratives. In *The Road,* the boy hears a dog and keeps worried about its safety. He begs his father not to hurt him.

> The dog that he remembers followed us for two days. I tried to coax it to come but it would not. I made a noose of wire to catch it. There were three cartridges in the pistol. None to spare. She walked away down the road. The boy looked after her and then he looked at

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[5] « *Le rêveur établit une relation personnelle avec un être lointain spatialement ou ontologiquement. Ces êtres, que le rêveur connait toujours, peuvent entrer dans un dialogue avec lui ou délivrer un message. Le sens des rêves est similaire à leur contenu explicite* », Barbara Tedlock, « Rêves et visions chez les Amérindiens, produire un ours », *Anthropologie et Sociétés*, Vol. 18., n. 2, 1994, 18.

me and then he looked at the dog and he began to cry and to beg for the dog's life and I promised I would not hurt the dog. A trellis of a dog with the hide stretched over it. The next day it was gone. That is the dog he remembers. He doesn't remember any little boys (McCarthy, 2004, p. 91).

In this extract, father and son realize that there are not alone on the road. Interestingly, this insight in the father's thoughts begins with the words "the dog he remembers", suggesting that even the existence of the dog might be questioned. In addition, the presence of a dog in a family seems to make stronger impression to the boy than the existence of a family at all. Generally, the boy keeps worried about ethics and safety throughout the book. So is it the case in *The Border Trilogy*, where cowboys constantly wonder about their horses' welfare. The occurrence "he talked to the horse" constantly reappears throughout the trilogy – without any mention of the content of the characters' talk. No "large-scale" moral is there to guide humans' conducts, but the search for the "right" choice is essential. *The Road* ends with the death of the father, and the encounter of the boy with a family. In a wary discussion with the man, the boy asks "Are you one of the good guys?" and "Are you carrying the fire?" (McCarthy, 2004, pp. 302-303). The metaphor of "carrying the fire" indicates a need to look for good actions, even in a world of nothingness.

For McCarthy, any usual trope seems unactual and even meaning itself is challenged. Yet, ethics and research are fundamental motifs. This idea inserts McCarthy's post-humanist animals into the contemporary frame of the ethics of care. This transdisciplinary movement focuses on empathy, the importance of vulnerability and the interdependence of every beings. It should not be understood as a set social model, but rather, an "open" place "for belonging-together and multiple becomings" (*Op. Cit.* Braidotti). Indeed, these new alternatives meet the need of the ecological urgency, that is also to be found in McCarthy's novels. In the paper "*Introduction. Théories et pratiques du Care*", Clément Barniaudy and Angela Biancofiore state that interdependency does apply to all the beings and "phenomena", idea that is present in McCarthy's Optical Democracy. Similarly, they argue that survival on earth is necessarily conditioned to the conscience of fragility and weakness, as McCarthy underlines that "no one thing nor spider no blade of grass could forth claim to precedence". Generally, the ethics of care advocate the importance of paying attention. Barniaudy and Biancofiore insist on importance of literature as a practice of care, as it allows humans to envision their "familiarity" and "unguessed kinship". (Barniaudy & Biancofiore, 2020, p. 2).

In order to close this analysis of animals' Optical Democracy in McCarthy's fiction in light of the current pandemic, and more generally of global climate collapse, the idea of motion will be retained as a major element of survival. Indeed, the passages quoted above proved the inaccuracy of almost any fixed and past paradigms. Science can no longer be read as the answer to all things, nor can religion. Evil is not proper to animal realm, nor good to humanity, but the reverse also proves inaccurate. Human consumerist society vanishes without any efficient model to replace it. Language itself cannot be the key to knowledge, as its autonomy constantly escapes human control. Indeed, empathy, care, and aesthetics constantly cry out in McCarthy's texts, and questions seem more important than impossible answers. In "Okay means okay"; Paul. D. Knox analyses the repetition and multiplicity of meanings of the term "okay" in *The Road*. He concludes his analysis with the words: "McCarthy leaves the reader with one insight on how to survive: survival requires finding a way to make sense of the world and of retaining the hope that community is possible. If we can do that, we might just be okay» (Knox, 2012, p. 99). Therefore, it seems that research is more important than results, and that motion is essential. Indeed, the countless trips of both humans and animals, from *Outer Dark* to *The Border Trilogy*, indicates that destination does not matter. Horses, feral dogs, mountain lions, wolves and humans seem to be moving just for the sake of moving, as does McCarthy's prose.

> He touched his horse with his heels and rode on. He rode with the sun coppering his face and the red wind blowing out of the west across the evening land and the small desert birds flew chittering among the dry bracken and horse and rider and horse passed on and their long shadows passed in tandem like the shadow of a single being. Passed and paled into the darkening land, the world to come. (McCarthy, 2002, p. 306).

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References

Biancofiore, A., Barniaudy, C., 2020, "Introduction. Théories et pratiques du Care", *Notos*, 5, 1-4.

Braidotti, R., 2013, *The Posthuman*, Polity Press, USA.

Brubaker, L., Udell, M., 2016, "Cognition and learning in horses (Equus caballus): What we know and why we should ask more", *Behavioural Processes*, Elsevier, 126, 121-131.

Estes, A., 2017, "Cannibalism and Other Transgressions of the Human in *The Road*", *European journal of American studies*, 12, 3, DOI: 10.4000/ejas.12368.

Frye, S., 2009, *Understanding Cormac McCarthy*, The University of South Carolina Press, Columbia, SC.

Hage, E., 2010, *Cormac McCarthy*, *A Literary Companion*, McFarland, USA.

Hiller, R., 2015, "Each the Other's World Entire: Intertextuality and the Worth of Textual Remembrance in Cormac McCarthy's *The Road*", *English Studies*, 96, 6, 670-689, DOI: 10.1080/0013838X.2015.1045734

Holloway, D., 2002, Chapter 4: Nature / Language: Figuring Utopia in McCarthy's Ecocritics of Style in: *The Late Modernism of Cormac McCarthy*, Greenwood Press, USA, 145-174.

Iovino, S., 2016, Introduction. Posthumanism in Literature and Ecocriticism. In: Iovino, S., Marchesini, R., Adorni, E., (Eds.), *Past the Human: Narrative Ontologies and Ontological Stories: Part I, Relations. Beyond Anthropocentrism*, 4, 1, 11-30.

Knox, P. D., 2012, "'Okay means okay': Ideology and Survival in Cormac McCarthy's *The Road*", *The Explicator*, 70, 2, 96-99, DOI: 10.1080/00144940.2012.666579

McCarthy C., 1968, *Outer Dark*, Picador, London.

McCarthy, C., 1985, *Blood Meridian, or the Evening Redness of the West,* Random House, USA.

McCarthy, C., *The Border Trilogy – All the Pretty Horses* [1992], 1-307, *The Crossing* [1994], 307-743, *Cities of the Plain* [1998] 743-1037, *Picador,* 2002.

McCarthy C., 2004, *The Road*, Picador, London.

McCarthy, C., "The Kekulé Problem", 2017, [online] available at: https://nautil.us/issue/47/consciousness/the-kekul-problem [accessed 08/05/2021].

Nelson, C., 2012, "A Style of Horror: Is Evil Real in Cormac McCarthy's *Outer Dark*?", *Critique: Studies in Contemporary Fiction*, 53-1, 30-48, DOI: 10.1080/00111611003717709.

Tedlock Barbara, 1994, "Rêves et visions chez les Amérindiens, produire un ours", *Anthropologie et Sociétés*, 18, 2, 18.

Wesley, M. G., 2009, "A Note on 'Weird Little Marks'", *The Cormac McCarthy Journal*, Penn State University Press, 31.

5. Idyll and threat: man-nature relationship in the history of music, art and literature

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Abstract

The aim of this paper is to retrace the history of man-nature relationship as it was conceived and experienced in the world of music, figurative arts and literature throughout the centuries. This journey through history stems from a reflection about the present time, since the unpredictable disaster of the Covid-19 pandemic has clearly led us to meditate on the real human condition with respect to nature. But the man-nature debate has far more ancient origins. Throughout history, men have always reflected on their relationship with nature, wondering whether to surrender or challenge, to consider nature simply as a frame where men can act freely or as an essential part of the universe deserving respect and worship. In the world of literature and arts, this theme has given birth to inestimable works: poets, painters and musicians have created masterpieces entirely based on the issue of man-nature relationship. The history of this relationship is a history of threat and idyll and provides us with cause for reflection on the current global situation and a possible future reading of the evolution of this indissoluble relationship, as both the present and the future are children of the past.

Keywords: man, nature, music, art, literature.

Introduction

Retracing the history of man-nature relationship in art is not an easy task. In the first place, because this topic has been widely analysed by eminent historians, art historians, philosophers and critics who have produced innumerable outstanding, and often very detailed, studies and interpretations. In the second place, because it is a millenary history, as

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since the appearance of human beings on Earth, men have always reflected on their relationship with nature, trying to describe their reflections, either positive or negative, through the various forms of art. In light of these preliminary considerations, it would be evidently impossible to cover this topic thoroughly, nor is this the ambition of this chapter. The aim of these pages is to provide a brief excursus of the evolution of man-nature relationship throughout the centuries investigating the world of art, from figurative arts to music and literature, from the Old Age[2] to the 19th century. We will make a comparison, to the extent possible, between the various artistic fields, and by tracing the main steps of this evolution and highlighting the two main interpretations of the natural world, seen as idyll and pleasure or threat and danger, we hope to contribute to a "historical" reading of the present time.

As a matter of fact, though on the one hand the scientific and technological innovations of the last years have led to extraordinary developments allowing the human species to believe in full power and control over the planet, on the other hand the unpredictable disaster of the Covid-19 pandemic has clearly disillusioned the omnipotence expectations of human beings, leading us to meditate on the real human condition with respect to nature, on the possibility to dominate nature or on the inevitability of being its victims. What matters in this context is to understand that the pandemic is just the last of a series of questions that have been a real leitmotif in the history of art, a millenary history.

1. From *locus amoenus* to divine punishment: nature in ancient literature

Among the main representations of nature produced by men over the centuries, there is nature as an "idyllic" environment, a source of serenity, a place to live an isolated and moderate life, dedicated to rustic work. A lifestyle often praised by authors to the detriment of the excessive pleasures, richness and splendour of the city. This concept of the natural world was widely spread since the Old Age, and countless examples of idyllic nature can be found in both Greek and Latin literature. Some of these works, particularly renowned and meaningful, are certainly worth-mentioning.

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[2] We usually call "Old Age" the long historical period of the ancient civilisations (Egyptians, Greeks, Romans etc.) and we conventionally consider 476 A.D. (the year of Western Roman Empire's fall) as the end of this Age and the beginning of the Middle Ages.

The "journey" in this chapter starts with the *Odyssey*. Homeric poems provide an endless number of natural landscapes and rural settings, often described in detail. We choose to pick the landscape of the island of Phaeacians out of Homer's innumerable possible examples. On his way back from the war of Troy, after wandering in the Mediterranean for years, supported by some divinities and hindered by others, Odysseus lands on an island of happiness, where the intent of the peaceful inhabitants is neither to poison nor to deceive him, but just to help him. The Homeric description of the island starts with an image of a river with crystal clear water and a field of soft grass where princess Nausicaa and her maids are grazing their mules. After washing the clothes in the water, they bathe, spread their skin with plenty of oil and start to play a game, waiting for the washing to dry in the sun (*Odyssey*, VI, 85–100). This image can be identified as one of the models for the development of the literary *tópos* of the *locus amoenus* in the authors of the centuries to come.

However, Homeric poems contain verses where nature is described as the bitter enemy that seriously endangers man's safety. Among the possible examples, we decide to list just two of the threatening natural phenomena described by Homer: the stormy sea and the pestilence. The former is widely depicted in the misadventures of Odysseus, who is persecuted by Poseidon and forced to face sea storms, struggling to survive. The literary *tópos* of the sea storm and the resulting shipwreck is actually prior to Homer and will be used well after the age of the Greek poet. A clear demonstration of this is given by two simple examples. One is an Egyptian papyrus dating back to the period around the 12th–13th dynasty (1938–1630 B. C.)*,* telling the story of an official of the pharaoh, the only survivor after a sea storm, shipwrecked on a desert island inhabited by a speaking snake; needless to say, the other example is Daniel De Foe's *Robinson Crusoe*.

The other natural phenomenon that is particularly relevant in Homer's work is the pestilence, equally triggered by the rage of a numen: when Chryses, a priest of Apollo, attempts to ransom his daughter from Agamemnon, he refuses to release her, thus provoking the rage of Apollo, who sends a plague sweeping through the armies. This type of event will be represented in the literature of later periods, not just as the fruit pure imagination, but rather as the description of real epidemic outbreaks: take, for example, the plague of the 5th century B.C. depicted by Thucydides or the plague of the 14th century described by Boccaccio.

Now, going back to the *locus amoenus,* some notable examples can be found in several authors subsequent to Homer. In the *Works and Days*, the poet Hesiod instructs his brother Perses in rural work, and gives full

description of the seasons: the most striking picture is summer, with its blooming cardoons, singing cicadas, best wine and passionate women; the season to eat the most delicious heifermeat and drink the sweetest goatmilk, with good bread and clear water, sitting in the shadow, turning to the breeze of Zephyr (*Works and Days*, 582– 596). Interestingly enough, this image of summer nature is recalled with extraordinary similarity, between the end of the 7th and the beginning of the 8th century B.C. by the poet Alcaeus, who describes blooming cardoons, cicadas, and women, and invites them to "wet" their lungs with wine (fr. 347 V.).

As mentioned above, the models provided by Homer, Hesiod and Alcaeus represent the foundation of the bucolic poetry, and Theocritus (VI–III sec. B.C.), the creator of the idyllic literary genre, is its first prominent figure. The *Idylls* by Theocritus are scenes of pastoral life, characterised by dreamy descriptions of peaceful and sunny Mediterranean settings, probably inspired by the native Sicily, where abstract spatial coordinates mix with precise elements of time reference, given by the blooming summer season or the calm and quiet midday time. The nature in Theocritus is the nature of the ἀσυχία, of peace and serenity, far from the world of war and violence (*Idylls*, VII, 122–127).

A more evanescent serenity can be found in the nature represented by Virgil (1st century B.C.). The *Bucolics* of the Latin poet are clearly modelled after the *Idylls* and the typical conventional traits of the *locus amoenus*: the shepherd-poets ― idealised men devoted to poetry, music and love, as in Theocritus, ― live in an uncontaminated nature made of woods, spring waters and brooks, set and inspired by the Mantuan area of the Po Valley, where the poet was born. But unlike what is described by Theocritus, Virgil's nature is threatened by looming upsetting forces, revealing the concern for the civil wars tormenting Rome and Italy between the thirties and forties of the 1st century B.C. Nevertheless, the natural world is portrayed with idyllic beauty, celebrated with images of fresh water (*Bucolics*, V, 47) and colourful flowers (*Bucolics*, IX, 40–42). Rustic life is idealised and praised in both the *Bucolics* and the *Georgics*, where Virgil states that farmers would be more than lucky if they only were aware of what they have (*Georgics*, II, 458–459).

Besides the mentioned geographical settings, i.e. Sicily and the Po Valley, there is a third place where both poets set their works: Arcadia, a mountainous and arduous region in the centre of the Peloponnese, in ancient times inhabited by shepherds who worshipped Pan, god of the wild. The link between bucolic poems and Arcadia will lead to important developments in

modern Italian literature, resulting in 1690 in the foundation of the Literary Academy of Arcadia in Rome, analysed later in this chapter.

2. A gift of God

The period between the last centuries of the Old Age and the beginning of the Middle Ages, as we all know, coincided with the progressive decline of polytheistic religions and the spread or consolidation of monotheistic faiths such as Christianity in Europe and Islam in the Near East, which joined Judaism in the number of the most professed religions in the world. Deeply and increasingly rooted in all social classes, religious ideology in the Middle Ages pervaded and influenced every aspect of human activity, from daily work to art and literary production. The concept of nature was obviously among the most affected by medieval religion.

Throughout the Middle Ages, nature was mostly interpreted symbolically, analogically, and, at a later stage, allegorically. Symbolic and analogic interpretations see in nature the presence of God and the signs of magic and mysterious forces in a rather straightforward identification based on criteria of intuitive similarity. Every detail immediately acquires a symbolic meaning, a transcendent and mysterious value. The treatises on animals (the so-called "bestiaries"), for example, do not study their objective and factual specificity, but largely focus on their moral or religious interpretation, without making any distinction between existing and imaginary animals such as dragons and unicorns. In the transition towards the late Middle Ages, nature starts to be interpreted allegorically: rational effort and intellectual research are now needed to move beyond the threshold of the literal meaning and find the transcendent essence of the natural world (Luperini, 2011a, pp. 14–15).

As for European literature, the linguistic unity that has been a distinctive trait all over Europe up to the barbarian invasions, gradually breaks apart. Latin, which used to be the main common language to communicate, gives birth to a variety of "vulgar" languages still spoken today from Portugal to Romania, while Germanic languages start to take shape in the central-northern part of the continent. Interestingly enough, the first Italian work conventionally referred to as the first example of "vulgar" literature is a religious hymn to nature: the *Laudes creaturarum* by Francesco d'Assisi (1224 ca.). As easily inferable from the title and the author as well, the poem is about the divine origin and essence of the natural world. In the canticle Francesco addresses God, praising him and all his creatures: the sun

that gives us light and is the expression of God himself; the moon and the stars shining in the sky; the wind and the sky, whether cloudy or sunny; water, fire, earth and even death (of the body, of course), which no man can escape. Needless to say, the prayer is permeated by a positive view of nature, which remains absolutely positive even when it deals with the theme of death, implicitly seen as the passage to eternal life. Moreover, the image of the Creator is reflected in every creature, and this generates a feeling of "brotherhood" between man and the natural world: Francesco refers to the elements of nature as "brother" and "sister" , placing nature and man on the same level. But having free will, man has moral responsibilities and will get to paradise only by observing the laws and the will of God.

In the Middle Ages, the main innovative expressions of figurative arts take shape in architecture and sculpture, while painting appears to be still linked to Byzantine art. Prevailing works are frescos and mosaics, purposely designed to decorate architecture surfaces. Examples of nature representation in the art production are easily found in church interior murals, witnesses of the close link between nature and God. Certainly worthmentioning is the Christ *Pantocrator* (Greek: παντοκράτωρ, "almighty"). As in the variant of the Christ on the Throne, the theme here is clearly derived from early medieval models, in both the iconographic meaning and stylistic features (Dorfles, 2010a, p. 369). A meaningful example is the Basilica of San Clemente in Rome, rebuilt at the beginning of the 12th century, under pope Paschal II, after being destroyed by the Normans in 1084. The symmetry axis of the apse wall upper part is represented by a cross with Christ *Patiens* surrounded by natural, animal and vegetal elements: landscapes with deer, peacocks, swans, doves, herons, and a wide variety of flowers. Being creatures of God, these elements of nature are all symbols of salvation: a heavenly garden showing the indissoluble link between the Creation and the Creator (Dorfles, 2010a, p. 375).

Another notable mosaic is the cycle of the Creation, dating back to the 13th century, located inside one of the domes of the St. Mark's Basilica in Venice. Arranged in three concentric circles, the work is divided into twenty-six scenes carrying excerpts from the Genesis. The Creation starts with nature, and the scenes in the mosaic illustrate the days where God separates light from darkness and water from land masses, and gives birth to all kinds of species, creates the sun and the moon, fills waters with fish and the sky with birds, and creates animals portrayed in couples: lions, tigers, leopards, elephants and all the others. And naturally present is the sixth day, when God creates man "in his own image". The abovementioned link

between the creation and the Creator is therefore deeply rooted in medieval mentality and man is as involved in it as the whole world of fauna and flora. This concept is clearly reflected in several sublime examples of medieval art production, and will characterise the world of the western art for many centuries to come (http://www.basilicasanmarco.it/basilica/mosaici/il-patrimonio-musivo/antico-testamento/, consulted on April 18th 2021).

In line with this concept, though breaking with it at the same time, is Leonardo da Vinci. In his *Gioconda*, the background behind the portrait of the woman represents a quite peculiar landscape. Identified as the Arno valley, the setting appears as a primordial frame, with rocky peaks, waterways and undefined flora. It is like a world undergoing a transformation process, where the air fine dust filters a light that is meant to change depending on the weather. Continuous change and transformation underlie Leonardo's vision of the universe, and express his concept of beauty, which does not respond to precise and strict rules but rather to the profound harmony existing among the elements of the universe. And human beings are undoubtedly a part of this universe featuring natural and divine essence, sharing with it mutability and mystery (Dorfles, 2010b, p. 244). Nevertheless, sometimes this ever-evolving natural world does not include any human component. In his first autograph drawing, *The Arno Valley landscape,* unlike anything expected in the western culture practice, the landscape is "pure", autonomous, not a mere background for a main subject in the foreground. The observer does not concentrate on a particular element but on nature as a whole. Furthermore, abandoning the clean and pure line typical of the Florentine tradition, Leonardo opts for a blurred and segmented trait to convey the transitory essence of phenomena and, therefore, the relativity of appearance (Dorfles, 2010b, pp. 230–231).

3. Landscape painting and Arcadia

While Leonardo is, in some ways, the forerunner of landscape painting, it is fully established in the early 17th century, when more and more representations have natural spaces as the absolute protagonists, rather than subordinate to a subject. In these landscapes, where nature is depicted in abundance and precision of detail, the role of the human being is rather peculiar. The human figure itself is always small and seems almost to be crushed by the size and vastness of nature. However, these landscapes feature a constant and evident presence of human constructions, works made

by man, such as houses, castles, bridges, towers, etc., always represented with care and a sense of geometry. An example of this can be seen in Annibale Carracci's *Flight into Egypt* (1603): similarly to other paintings of the time, here natural reality is idealised, harmonious, ordered, almost "aristocratic", and man is perfectly integrated into it as evidenced not by his mere presence, which is very discreet and almost irrelevant, but rather through traces left behind, such as the castle he built, which stands in the middle of the composition and seems almost to rise naturally from the meadow and the hills (Dorfles, 2010b, p. 420).

Now, there are two possible ways in the history of art to understand the evolution of landscape painting and, consequently, of the representation of the relationship between man and nature. The first way takes us to Northern Europe, to analyse artists such as Paul Bril or Jan Bruegel, in whose landscapes the human figure gradually disappears. Take for example some works by Bril: *Feud of Rocca Sinibalda* leads us to similar observations to those made about Carracci, since the canvas depicts small men in the foreground and, behind them, an imposing fortress rising from the hill. However, human works become less relevant in *Landscape with Roman ruins* or in *The Campo Vaccino with a gipsy woman reading a palm*, both depicting human figures, again small in size, and buildings, now ancient, crumbling, eroded by the passage of time. The same happens in the painting *Ruins and Figures*, but here the constructions are much less crisp and above all much smaller, just like the human beings, so both man and his works are minimised and, in a way, overwhelmed by the trunks, branches and rocks of the natural landscape. But even more impactful are, perhaps, some paintings such as *The stag hunt*, where human works disappear leaving the man in the action of hunting, in a sort of struggle with nature, or *Landscape with a marsh*, where even the human being has now completely gone, and nature has taken over as the undisputed main character.

The second path that can be taken, starting from Carracci, leads us to the Arcadian landscape of the French painters. As already mentioned, Arcadia was a Greek region historically connected with the bucolic poetry of Theocritus and Virgil, and in late 17th century even an important Roman literary academy was named after it. Poets working in the academy aimed to offer an alternative to the baroque "bad taste" by getting back the aesthetic canons of the classical world and Petrarca. But even before the Academy was founded, Arcadia had become the subject of the representations of painters such as Nicolas Poussin or Claude Lorrain, whose brushes produced pastoral scenes with man and nature blending in perfect harmony. The myth of Arcadia is the expression of the ideal and rational peace given

by living immersed in nature, with clear reference to the poet-shepherds of antiquity. And that is exactly what we see in the painting *Et in Arcadia Ego* by Poussin (1638–1639). The painter depicts a scene of shepherds, but it is clearly not a reproduction of peasant life: from the regal robes of the figures to their calm gestures, every element in the painting ennobles the simplicity of the shepherds, giving them a heroic attitude and transforming naturalness into the sublime. But this condition of idyllic peace the shepherds live in is, perhaps, only an illusion pervaded with a subtle sense of melancholy, as in the centre of the painting the characters are looking at a tomb with an inscription: *Et in Arcadia ego*, which gives the title to the composition. Some critics, such as Erwin Panofsky, argue that the ego subject is death, and that therefore the epigraph can be roughly translated as "Even in [the mythical world of] Arcadia, there am I[, the death, exist]". Deeply rooted in the consciousness of Baroque man, the idea of death would thus end up obscuring and threatening even a blissful and beautiful place such as Arcadia, but the ideal and immobile nature surrounding the protagonists sublimates the painful experience into an idyllic atmosphere of calm sweetness (Dorfles, 2010b, p. 467).

The subtle threats and veiled senses of melancholy almost completely disappear from Arcadian landscapes, especially during the 18th century, when shepherd-poets immersed in nature continue to be a frequently painted subject (as, in fact, even in the following century). From the first decades of the 18th century, the desire to take refuge in a welcoming nature is due to the need for freedom from city life. The park becomes the new ideal environment, a sort of middle ground between the forest and the garden, capable of blending nature and civilisation in a perfect balance. One example is *The meeting* by Jean-Honoré Fragonard (1773), where human elements are so seamlessly blended with those of nature that neither of them seems to prevail. Perhaps, never as in this time has nature been experienced by artists as beautiful and kind, a place for a tranquil and pleasant everyday life, a reflection and, in some way, "guardian" of a still aristocratic but no longer heroic man's ambition: happiness (Luperini, 2011c, p. 709).

4. Nature in 18th and early 19th-century music

Our journey through nature is now entering the world of music. As previously underlined with respect to poetry and figurative arts, it would be impossible to mention the whole production related to the representation of nature, but it is certainly possible to trace the trend and the evolution of the

relationship between composers and nature throughout the centuries. At an early stage, the purpose of music is to "describe" nature: Vivaldi's *Four seasons* (1725) is probably the most meaningful example. Composed while dreaming of an ideal world dominated by nature and country life, each concert is accompanied by a sonnet (presumably written by Vivaldi himself) depicting seasonal scenes, and the author's intent is to "translate" them into music. From the bird songs of spring, passing through the violent storms typical of summer and the harvest and hunting scenes of autumn, to the gelid wind of winter, Vivaldi's composition is among the first examples of what is generally referred to as "program music", i.e. an essentially descriptive music. As for man, in these "seasonal representations" whether portrayed as a shepherd, a farmer or a hunter, he appears relaxing in *The Spring*, frightened for the coming storm in *The Summer* , in an idyllic state of elation in *The Autumn*, and in a calm acceptance of cold weather in *The Winter.* Yet, the composer does not identify with the protagonist of the sonnet, not explicitly at least: he gives an objective description of the various situations, except for last movement of *The Winter*, where the "joy" that the season brings about is fully expressed (Brown, 1992, pp. 42–43).

The same descriptive intent can be found in other European composers, such as Philippe Rameau for example, whose *Le rappel des oiseaux* (1724) is a clear example of program music on the notes of the harpsichord. But even later composers are influenced by Vivaldi: Franz Joseph Haydn in 1798 starts a composition called *The seasons*, and Ludwig van Beethoven between 1807 and 1808 creates one of his most famous symphonies, the *Pastoral.* However, Beethoven's work shows a considerably different view and, in fact, leads the beginning of the second stage in the evolution of nature representation in music. Particularly meaningful is the title given to the symphony, *Pastoral*: as a matter of fact, this masterpiece is a real monument dedicated to nature. At that time, Beethoven spends most of his time in the countryside and he is extremely attracted to the serenity and pleasure he finds in that environment, so attracted that he tries to find his inner peace through nature. Unlike Vivaldi, Beethoven does not depict nature per se, but the feelings that nature is able to inspire, thus creating a number of "sentimental scenes", assembled in one of his greatest and most famous works. The first movement is entitled *Awakening of cheerful feelings on arrival in the countryside*. The melody is in the key of F major, the tempo is *Allegro ma non troppo,* without any introductory note or bar: the theme liveliness immediately starts, just like a novel opening *in medias res*. This structural solution perfectly renders the idea of a sudden awakening in the middle of a luxuriant green, with all the cheerfulness it

brings about. *Scene by the brook* is the second movement, *Andante con moto,* in the key of B flat major. This movement is fluid but placid at the same time, and the not too rapid semiquavers played by the strings imitate the flowing water, which is as pure as the soul of the man contemplating nature. The third movement, *Merry gathering of country folk*, returns to the initial key of F major. This *Allegro,* as indicated by the composer, fully meets the mood of the scene, and although Beethoven's aim is not to merely describe pastoral settings but rather to reveal the feelings that these images generate, the atmosphere conveyed by the movement inevitably makes us imagine the happy country folk living their joyful pastoral life. The melody now shows a wider sonority, and acquires an almost "rustic" character, vigorous but simple. The fourth movement brings *The storm,* and here nature unleashes its violence and threat. In this *Allegro* in the key of F minor, some of the instruments play a fundamental role: timpani, for example, create a feeling of sudden fright, while trumpets and trombones generate unprecedented sound effects. The rapid notes of the cellos and contrabasses express interior torment, and the high-pitched notes of flutes and piccolos sound like cry of terror. But the storm does not last long, after all, and with no interruption between the fourth and the fifth movement, we get to *The Shepherd's song. Cheerful and thankful feelings after the storm*. The last movement is an *Allegretto* in the key of F major. In an almost undulating pattern, the clouds dissolve under a solemn melody relying on the sweetness of the clarinets at first, followed by the magnificence and profound warmth of the horns and the ample breath of the strings. When the different sectors of the orchestra play together, the result is a true hymn to nature and seems to demonstrate the awe we feel on contemplating and admiring nature on one side, and, again, the joy to be a part of it on the other. A feeling of joy that is not immune from menacing and perturbating forces, but feels even stronger in this awareness: the awareness of living in perfect harmony in a serene and idyllic balance.

5. From Romanticism to Impressionism

The spread of Romantic ideals and aesthetics in the early 19th century is a real nutriment to the increasing importance of nature in arts. This is partially due to one of the aspects that characterise Romanticism: the attention drawn to the Middle Ages, a time filled with an air of mystery where man lives in close relation with God and nature. As a matter of fact, at the beginning of the 18th century, artists and writers separate from the bourgeois society that

has turned to material and technical world, in search of a more intense relationship with nature. The awareness of the distance existing between man and nature, which is seen as a place of harmony and pantheistic ensemble with the Absolute, so much missed by the artist, results in an impelling need to recover the link between the finite and the infinite, between the individual and cosmic life. In some Romantic poets, this positive view of nature as a goal to reach occasionally co-exists with a totally opposite counterpart, and Giacomo Leopardi is probably the most emblematic figure.

Leopardi deals with nature in his reflections about unhappiness, a feeling that man experiences constantly. At an early stage of his thought, nature is not responsible for human unhappiness. On the contrary, it is considered a positive and beneficial entity, favouring solid and generous illusions that enable man to experience virtues and nobility of spirit. One of the most outstanding of Leopardi's "idylls", where nature is a source of illusion and imagination, is *L'infinito* (1819). In a later phase, what actually generates unhappiness is civilisation, which can destroy the illusions that embellish the human soul and lay bare the "arid truth" of the existence on earth. A clear example can be seen in *Dialogo della Natura e di un islandese* (1824), where unhappiness ceases to be a "historical" human condition characterising the evolution of man, and becomes one of its intrinsic traits. Unhappiness springs from a constant aspiration to pleasure and the consequent realisation that once you have reached the goal, you will always be longing for a greater pleasure in an ever-lasting search. Therefore, nature is considered responsible for determining a need that will never be actually satisfied (Luperini, 2011, *Leopardi*, pp. 17–18).

In art, the Romantic representation of nature is deeply influenced by the theory of the sublime, resumed by the German philosopher Immanuel Kant in 1790 after Edmund Burke's first treatise of 1757. As far as nature is concerned, the sublime describes any experience that exceeds the ordinary limits of an individual's capacities, exciting complex feelings ranging from repulsion to attraction at the same time. Natural phenomena such as storms and blizzards can be objects of both terror and attraction, stressing the enormous disproportion between the immensity of nature and the smallness of man. The aim of Romantic art is not to faithfully represent nature, but rather to express those feelings that nature is able to create. As a consequence, in most cases, nature is seen more as a threat than as an idyll, and tends to demonstrate its power and superiority to man. In Romantic painting, man is often depicted alone, facing the immensity of nature, as in *Wonderer above the sea of fog* or *The monk by the sea* by Caspar David

Friedrich; at times, the observer is not even present in the painting, but the view of nature takes shape through incredibly surprising pictorial effects, as in *Light and colour, The morning after the Deluge*, *The burning of the Houses of Lords and Commons* and *Vesuvius in eruption* by William Turner.

As Romantic canons gradually decline, the European art framework becomes extremely varied. In general terms, the spread of Realism restores a basically Arcadian landscape, with subtle atmospheres and suffused lights, as in *The bridge at Narni* di Jean-Baptiste Corot (1826–1827). However, the persistence of a vivid Romantic heritage is witnessed by the representation of man in an almost symbiotic relationship with nature, as in *Ophelia* by John Everett Millais (1852), or with God, as in *The Angelus* by Jean-François Millet (1858–1859) (Dorfles, 2010b, pp. 615–616, 622). In the second half of the 19th century, French impressionists turn their attention to landscape painting. They often spend long periods of time away from big cities, living on the banks of the Seine or other rivers, where they can catch and immortalise extraordinary light effects, as in the famous series of *Water lilies,* painted by Claude Monet in his garden in Giverny.

As for music, in the transition between the 19th and the 20th century, composers no longer describe nature in itself, nor the feelings arising from it: now nature becomes a sort of "inspiring muse", something that fosters creativity without constraints. A clear example of this is represented by Claude Debussy's *Préludes*, where the titles are written at the end of each piece and are preceded by ellipses. By doing so, the title appears rather indefinite, allusive in relation to the object or the event it refers to. Which does not mean that the object or the event have no relation with the music (the blowing wind, the steps in the snow, and other find their musical correspondence that is not only symbolic but even onomatopoeic), but the choice to place the title at the end indicate the need to exceed any suggestion due to surrounding images and painting in music, to proceed towards abstract art (Rattalino, 1992).

Conclusion

The artistic production of the 20th century allows for innumerable reflections on the relationship between man and nature, in literature, figurative art and music as well, and it would be impossible to explore the whole landscape of the cultural movements flourishing in this period. What is definitely worth-mentioning, however, is the outbreak of the two world wars as the events that most profoundly affected the representation of

nature, and its assimilation to human condition, as in Ungaretti's poetry, for example, where the caducity of man is compared to the uncertainty of autumnal leaves.

As we all know, the issue of man-nature relationship does not arise at the time of the pandemic, but it has always been a core theme throughout the centuries and has left indelible marks in every work of art, and, as a matter of fact, after this brief excursus through nature, we can conclude that man has always believed to be a part of it, whether idyll or threat. The recurring cycles of history tell us that the dramatic situation we are experiencing today, marked by the Covid-19 pandemic, and, therefore, by a "threatening" nature, is not really a one-time event (epidemics were described by Homer, Thucydides and Boccaccio, as mentioned above), but this cyclic history also suggests that man and nature will inevitably resume their complicity, hopefully giving rise, once again, to a new Arcadian idyll.

References

Brown, P., 1992, *Antonio Vivaldi*, Exley, Watford.

Dorfles, G., Dalla Costa, C., Pieranti, G., 2010, *Arte. Artisti, opere e temi*, 2, Atlas, Bergamo.

Dorfles, G., Ragazzi, M., Recanati, M. G., 2010, *Arte. Artisti, opere e temi*, 1, Atlas, Bergamo.

Luperini, R., Cataldi, P., Marchiani, L., Marchese, F., 2011, *La scrittura e l'interpretazione. Storia della letteratura italiana nel quadro della civiltà europea*, 1, Palumbo, Palermo.

Luperini, R., Cataldi, P., Marchiani, L., Marchese, F., 2011, *La scrittura e l'interpretazione. Storia della letteratura italiana nel quadro della civiltà europea*, 3, Palumbo, Palermo.

Luperini, R., Cataldi, P., Marchiani, L., Marchese, F., 2011, *La scrittura e l'interpretazione. Storia della letteratura italiana nel quadro della civiltà europea. Leopardi, il primo dei moderni*, Palumbo, Palermo.

Privitera, G. A., Heubeck, A., 2015, *Omero. Odissea*, Fabbri Centauria, Milano.

Rattalino, P., December 2nd 1992, *Programma di sala*, Accademia di Santa Cecilia, Roma.

Voigt, E. M., 1971, *Sappho et Alcaeus. Fragmenta*, Polak&Van Gennep, Amsterdam.

West, M. L., 1978, *Hesiod. Works and Days*, Oxford University Press, Oxford.

Virgilio, 1978, *Bucoliche*, translation and notes by Canali, L., introduction by La Penna, A., BUR, Milano.

Virgilio, 1983, *Georgiche*, translation by Canali, L., notes by Scarcia, R., introduction by La Penna, A., BUR, Milano.

Web references

http://www.basilicasanmarco.it/basilica/mosaici/il-patrimonio-musivo/antico-testamento/ (consulted on April 18th 2021).

6. Countering Anthropos with Trans-Corporeal Assemblages in Rita Indiana's Tentacle

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Abstract

Rita Indiana's 2015 novel *La Mucama de Omicunlé*, translated in English as *Tentacle* in 2018, portrays an attempt to intercede in the events leading to an ecological disaster in the year 2024 by appealing to the agent of the Anthropocene, Anthropos, to restrain from world-destroying behaviors. Characterized by an exceedingly autonomous and individualistic nature, Anthropos is compelled by an incessant and singular focus to fulfill personal desires. Seemingly isolated from the environing world, Anthropos – as an embodiment of human exceptionalism – fails to comprehend that every subject lives entangled with diverse agents at any given moment. The character of Anthropos emerges, then, as a destructive force that interprets the powerless human and more-than-human entities as expendable objects reserved for the improvement of its privileged position in the world. In contradistinction to the self-perceived exceptionalism of Anthropos, Indiana's novel also generates trans-corporeal assemblages. Successful aversion of the apocalyptic ecological event depends upon these assemblages created by the dispersed consciousness of a prophesied savior, Olokun. This figure's power emerges from the ability to exist simultaneously in distinct moments of time, what Walter Mignolo characterizes as 'pluriversal' that counters the Western hegemonic idea of unilineal temporality and hierarchical classification of subjectivity. However, avoiding the catastrophe that decimates all oceanic life will depend upon a decisive moment when Olokun is forced to choose between his individualistic pleasures to live in the present or to sacrifice himself and his avatars by altering the timeline that would prevent his emergence. In spite of Olokun's doomed human struggle between self-preservation and the collective good, he engenders multi-temporal and intersubjective assemblages capable of altering the disembodied perspective that guides the Anthropos. These diverse entities that he creates - or actants to use Jane Bennet's terminology - unite and display the dynamic and productive

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experience of converging with the richly populated disenfranchised human and more-than-human inhabitants of the planet. The constellation of actants generates potent connections across temporal and spatial boundaries and produces an alternative ontology that resists conceiving of humanity as removed or above a vibrant and diversely inhabited world.

Keywords: Anthropocene, Anthropos, Trans-corporeal, Rita Indiana, *Tentacle*, *La Mucama de Omicunlé*, Environmental Disaster.

1. Introduction

Rita Indiana's 2015 novel *La Mucama de Omicunlé*, translated in English as *Tentacle* in 2018, portrays an attempt to intercede in the events leading to ecological disaster in the year 2024 by subverting the world-ending behavior of the agent of the Anthropocene, Anthropos. This figure emblemizes a specific positioning toward the world that locates members of what Val Plumwood (1993, p. 23) terms the master model of the human species that sits at the apex of a hierarchy that allows for exploitation of the marginalized human and more-than-human occupants of the planet.[2] This hierarchy establishes western binary structures that have perpetuated exploitative practices. The concept of Anthropos does not represent all of humanity, but rather defines the ontological position of the occupants of the master model on the power side of the binary who claim their human exceptionalism against a passively receptive nature (Oppermann, 2018, 6). Aníbal Quijano posits that this dyad structure emerged as a new global power in the sixteenth century with the conquest of America (2000, p. 533). He explains that the new model of global power, which he terms "coloniality of power", inheres in the idea of Modernity. This naturalized discourse imagined an essential distinction between the conquerors and the conquered through the idea of race and as a "new structure of control of labor and its resources and products" (2000, p. 534). Quijano continues that it presupposed "a […] different biological structure that placed some in a natural situation of inferiority to the others" (2000, p. 533). The legacy of

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[2] In *Feminism and the Mastery of Nature*, Plumwood explains the category of the master model in terms of its oppression of both nature and the feminine. She elaborates that it is a "[f]ramework of assumptions in which the human/nature contrast has been formed in the west [and] is one not only of *feminine* connectedness with and passivity towards nature, but also complementarily one of exclusion and domination of the sphere of nature by a white, largely male elite…" (1993, pp. 22-23).

this Eurocentric ontology directly bears on the perception of a naturalized inferiority, read as a primitive and historically less-developed state of a vast majority of human and more-than-human inhabitants of the planet. Stripped of their agency within this hegemonic interpretation of the world, the disenfranchised suffer on the powerless side of the binary and are continuously subjected to the consequences of Anthropos's overreach.

Walter Mignolo elaborates that Modernity is a fictional discourse that perforce silences its exploitative processes in order to sustain the machinery of progress. He adds that "[t]o say it explicitly would be to run against the very promises of modernity. It cannot be said that slavery is the exploitation of human beings for the benefit of other human beings" (2018, p. 141). In this light, we see Anthropos as the figure that emerges as protagonist of Modernity and the principle agent of the Anthropocene that suppresses the testimony of the exploited entities inhabiting the planet. As Serpil Oppermann elaborates: "…the anthropos conceals rather than reveals personal traumas, injustices, climate-related diseases, or even loss of habitat and 'trans-boundary pollution'" (2014, p. 6). By analyzing the identifying tendencies of Anthropos as a pathogenic condition of Western hegemony, we pursue decoloniality that "delinks from the narratives and promises of modernity…" (Mignolo, 2018, p. 146). Decoloniality rejects the unilateral depiction of time and space as linear and hierarchical, which opens intersubjectivity to an "awareness of the integral relation and interdependence amongst all living organisms" (Mignolo and Walsh, 2018, p. 1).

In this manner, Indiana's novel, *Tentacle,* is decolonial in that it directly challenges the Anthropos posture buttressed by human exceptionalism reserved for a small percentage of the world's population by asserting a trans-corporeal assemblage of agents. Stacy Alaimo explains trans-corporeality's role to agents

> …as a theoretical site, […] where corporeal theories, environmental theories, and science studies meet and mingle in productive ways. Furthermore, the movement across human corporeality and nonhuman nature necessitates rich, complex modes of analysis that travel through the entangled territories of material and discursive, natural and cultural, biological and textual (2010, p. 3).

For Alaimo, here, transcorporeality is a node of convergence that challenges homogenized and hierarchical classifications, echoing Alonso

Quijano's and Walter Mignolo's decolonial thinking. For her part, Jane Bennet selects the term 'actants' over 'agents' as the former comes to express the distributed "collaboration, cooperation, or interactive interference of many bodies and forces," thus creating an assemblage of vibrant materiality (2010, p. 21). Indiana's novel invites a temporal and spatial capaciousness that traverses and subverts bounded limitations imposed by the hierarchies embedded in the rhetorical fictions of Eurocentric Modernity. Through a distributed tripartite consciousness, Indiana's protagonist(s) Acilde/Giorgio/Roque exist simultaneously in distinct historical times, producing assemblages who are motivated by an ecological imperative to restrain Anthropos from triggering the decimation of oceanic creatures.

2. Anthropocene, Anthropos, and Material Ecocriticism

Anthropocene writings have prompted insightful endeavors in mediating the environmental crisis, but they also have provoked reactionary responses that criticize the human-centered focus of the "informal" geological term. As has been well documented, Eugene Stoermer and Paul Crutzen suggested the new epochal designation to mark what Dipesh Chakrabarty has conveyed as the transgression of humans from biological agents to a geological force (2009, p. 206). Stoermer and Crutzen predicate their proposed name change from Holocene to Anthropocene by stating that "[t]he expansion of mankind, both in numbers and per capita exploitation of Earth's resources has been astounding" (2000, p. 17). In spite of Jason Moore's shift to the use of the term Capitalocene he acknowledges that Anthropocene writings have brought much needed attention to human -induced climate change: "The Anthropocene argument shows Nature/Society dualism at its highest stage of development. And if the Anthropocene- as a historical rather than geological argument- is inadequate, it is nevertheless an argument that merits our appreciation. New thinking emerges in many tentative steps" (2016, p. 3). While others analyze the (in)adequacy of the term 'Anthropocene,' Oppermann turns toward the aggressive subject who stands behind the epochal nomenclature: "The anthropos (the so-called 'mankind') of the Anthropocene in affecting these processes [human-driven alterations of the planet] is so overpowering that even after its extinction, writers proclaim, its signature will be operative through unthinkable geological time spans" (2018, pp. 1-2). While necessary work continues to bring focus to the human and more-than-human

populations that have not participated in anthropogenic geological change, Menely and Oak Taylor affirm that "[t]he point is not that *all* humans are transforming the Earth system but that a single species in the biosphere is transforming the planet, a significant event in geologic time" (2017, p. 9). My analysis accepts this proposed use of the Anthropocene as stratigraphic trace of human-as-species while also accepting that the destructive forces on the planet cannot be attributed to the entire human population, but rather to a privileged small sector who has exerted the power of domination and exploitation on the disenfranchised entities of this world.

Material ecocriticism hones in on the complexity of the Anthropocene that defies simple classification of the term as a geological phenomenon. This is not to state that the term Anthropocene is definitively inadequate, but rather a material approach expands the concept and speaks to the intersectionality of issues that the anthropogenic impact has realized on the biosphere. The materiality of the Anthropocene invites an intermingling of stories that Serenella Iovino envisions as "an emerging paradigm [that] elicits not only new nonanthropocentric approaches, but also possible ways to analyze language and reality, human and nonhuman life, mind and matter, without falling into dichotomous patterns of thinking" (2014, p. 2). Anthropos assumes a particular perception of the world, but one that perforce excludes active and vibrant more-than-human/nonhuman stories of material participants. It envisions a dematerialized individualistic subject isolated from the external material world- the privileged Eurocentric subject of Mignolo's elaboration of Modernity. For Anthropos, objects of nature and exploitable populations lack an ontological status when perceived through the lens of human exceptionalism.

3. La Mucama de Omicunlé / Tentacle

Tentacle begins in the year 2027 depicting an environmentally degraded Dominican Republic after a catastrophic accident had spilled chemical waste into the Caribbean three years prior. The incident decimated all oceanic life and transformed the water into a vast contaminated sludge. The disaster triggers a series of encounters that brings together different assemblages of people, species, and objects unified by a prophesied savior capable of undoing the ecological disaster. A particular series of encounters initiate the events beginning when Eric Vitier, a Cuban doctor and one of the acolytes of the *santería* priestess, Esther Escudero, discovers the mark of the predicted savior- legitimate son of Olokun- by the seven moles circling

the head of an adolescent female, Acilde, while she works as a prostitute. Eric delivers Acilde to Esther with the promise that the priestess will financially support the young woman's dream of becoming a chef. Acilde's culinary dream is only second to her desire to undergo transition from female to male, particularly after learning of the non-invasive Rainbow Bright- a pill that generates a cellular level alteration without undergoing invasive surgery.[3] Frustrated with the slow progress toward her transition, she discovers in a closed-off room of Esther's house a rare anemone, one of the last living sea creatures after the ecological disaster.

Coordinating with Morli, a black-market dealer, Acilde prepares to steal the anemone; however, her relationship with the elder woman evolves into a unique bond that causes Acilde to hesitate in her self-serving desires. The thieving Morli, anticipating the financial windfall from such a rare acquisition, breaks into the home killing Esther, but Acilde prevents him from stealing the anemone with which she flees in search of Eric. She proposes to the Cuban doctor a trade of the anemone for Rainbow Bright. Without realizing it, Acilde fulfills the first preliminary preparations of the prophecy for which both Eric and Esther had prepared. Eric oversees Acilde's gender transformation and, once completed, the doctor attaches the anemone to the crown of moles thus disseminating the tripartite consciousness across time into the 1600s as Roque, the late twentieth century as Giorgio, and Acilde's consciousness in 2027 to activate the prophetic mission. The narrative follows the events in the three timelines but avoids a linear progression as Indiana presents the shared consciousness through simultaneous juxtaposition. Once projected across time, Roque/Giorgio/Acilde collaborate to arrange the circumstances manipulating encounters that potentially diverge the timeline away from the catastrophic environmental disaster. Ultimately, the crucial moment dramatizes the antagonism between the individualistic Anthropos and the intermingled and trans-corporeal actants.

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[3] In Paul Humphrey's analysis of Indiana's novel, he outlines alternative readings of the novel, one of which examines the implications of pharmacological abuse on bodies. He elaborates: "The process of rapid transition from a female to a male body by taking Rainbow Bright, an almost exclusively chemical procedure that does not require invasive surgery, lends itself to analysis in light of Paul B. Preciado's work on pharmaco-and bio-politics. He examines gender as a "techno-political ecology" in which contemporary politics regarding sex, gender, body, image, and reproduction are closely intertwined with the pharmaceutical and technological industries" (2016-17, p. 112).

4. The Prophecy: Human Exceptionalism or Trans-corporeal Revolution

In Guillermina de Ferrari's reading of *Tentacle*, she considers the messianic tone as pervading the work in considering the tripartite distribution of Acilde's consciousness (2020, p. 5). As she states, *Tentacle* does not produce a martyred sacrificial savior, but rather a conflicted and very human subject. Whereas de Ferrari emphasizes the high sacrifice expected of Acilde/Giorgio/Roque as savior, this analysis considers his/their struggle between an identity immersed in the bounded and isolated Anthropos and a trans-corporeal assemblage, which becomes more conspicuous in light of the additional allusion in the novel to a specific Greek mythical hero. The prophecy vaguely outlines Acilde's mission, which is to save humanity and to save the sea. Prophecies are stubbornly resistant in revealing detailed instructions and thus the specific role assigned to Acilde in rescuing the environment remains obscure. It does, however, present certain problematics. Does the prophecy elevate a singular being to rescuer of the world? If so, that invites perpetuating the Anthropos exaltation of humanity above the diversely inhabited planet. As we shall see, human arrogance does emerge as the fatal flaw and appears with a degree of subtlety in the novel with a suggestive reference to Achilles. When Acilde enters the room where Esther worships Yemayá-goddess of the sea- she notices a "replica of a Greek jar three feet tall" upon the altar (Indiana, 2018, p. 19). The design that encircles the vessel features "an image of a woman holding a boy by the ankle as she goes to submerge him in a pool of water" (Indiana, 2018, p. 19). The Greek design on the vase recalls the myth of the nearly infallible hero when Achilles's mother Thetis, a sea nymph, had feared for her mortal son's vulnerability. By dipping him into the river Styx, she fortified his skin with the powers of immortality, except for the small area around his ankle from where she gripped his body. This remaining vulnerable spot preserved a connection with his mortal identity, but it also signals a weakness that metaphorically symbolizes a mortally dangerous flaw.

In *Tentacle*, human exceptionalism and self-serving desires endanger not only the hero, but the entire biosphere, again emphasizing the interconnected relation of all life on the planet. The similarity in nomenclature between Acilde and Achilles further emphasizes the heroic potentiality of the future Olokun, but not without effectively warning against incurring this fatal human tragedy. Contributing to this struggle is

Acilde's predisposition toward self-interested individualism arising, in part, from her materialistic egoism, but also from a traumatic childhood in which her grandparents subjected her to "corrective rape" when she demonstrated masculine tendencies. Yet, her desire to undergo a transition to the male gender implies an openness that belies the rigidly bounded self. These two poles present a constant tension in Acilde's character.

Before transitioning, the young woman's behavior emblemizes that of Anthropos in which the environing and vibrant external world exists for her either as a personal benefit or as lacking value. The opening scene of the novel presents Acilde employed as a servant in Esther's home, which is replete with items that reflect the elder woman's deep connection to the ocean as her *santería* name reflects, Omiculné-cloak that covers the sea. The doorbell had been altered to produce a simulacrum of a wave gently breaking on the shore creating an acoustic reproduction of the sea that accompanies the many visual displays of the ocean in Esther's home. The decor suggests an invigorating space infused by the natural world, but the items are fragments of a dead ocean that can only persist through cheapened replicas. Esther attempts to conjure the memory of the sea through the diverse items, but the enclosed isolation of her home in which there are just a few remnants of the ocean accentuates the ecological loss.

Acilde moves about the space inattentive to the significance of the seascape that surrounds her. Furthermore, the young woman filters her perception through electronic implants she uses that buffer her connection to a vibrant world. As a result, she lacks a sympathetic response to suffering and observes the extermination of human and more-than-human entities with cold detachment. As example, while cleaning Acilde notices a desperate individual pressing the doorbell to Esther's flat "to its limit and unleashes the sound over and over, canceling out the beach-like effect of the bell" (Indiana, 2018, p. 9). The individual's assault on the button converts the peaceful replica of a wave into a violent rupture. Distanced by a thick security wall, Acilde "sees one of the many Haitians who've crossed the border, fleeing from quarantine declared on the other half of the island" (Indiana, 2018, p. 9). She briefly considers the intolerable conditions for the Haitians, but quickly draws back from that empathetic position. As she watches impassively, "[r]ecognizing the virus in the black man, the security mechanism in the tower releases a lethal gas and simultaneously informs the neighbors, who will now avoid the building's entrance until the automatic collectors patrolling the streets and avenues pick up the body and disintegrate it" (Indiana, 2018, p. 9). The alert to avoid the front entrance

erases the value of the man's life converting him into waste of which the neighbors can comfortably ignore until his body has been disposed.[4]

Nevertheless, this distance represents a false security as the contaminated biosphere presses on the boundaries of the edifice. As the refugee dies, Acilde looks on indifferently only to verify that "he stops moving" and then she "disconnect[s] and return[s] to cleaning the windowpanes, encrusted on a daily basis with sticky soot" (Indiana, 2018, p. 9). The human refuse and the sticky soot constantly threaten to breach the boundary of the isolated and separate space, but Acilde continually tries to sanitize the border demarcating the inside from the outside. This act reifies the rhetoric of Modernity that imagines the elimination of its darker side, coloniality, through silencing or extermination of dissonant voices or images that belie the myth. Carlos Garrido Castellano elaborates that "[e]l universo distópico que inicia la novela conforma un paisaje apocalíptico, donde las personas sobreviven aisladas en edificios de alta seguridad…" [The dystopic universe that begins the novel conforms to an apocalyptic landscape, where people survive isolated in buildings with heightened security] (2017, p. 354). The isolation conveys the status of what emerges in the novel as the condition of Anthropos. It is an insistence in perceiving humanity (again, only those belonging to the master model) as isolated and separate from the environing world. Whether on a small scale, as in Acilde's daily removal of pervasive environmental waste along the edge of the windows, or the numerous cases of 'human' waste eradicated by the automatic collectors, it becomes clear that Anthropos views its by-products of Modernity as contamination. However, it also establishes the impossibility of the privileged to live beyond or outside of the environment; that which had been expelled beyond the social sphere of Anthropos begins to creep back into its perceived protected space.

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[4] The Haitian refugee exemplifies the pervasiveness of extensive environmental abuse that has turned his body into a biological toxin produced by the excessive chemical dumping in Haiti. In their analysis of the novel, Deckard and Oloff articulate the extensive abuse of Haiti predominantly by US interference: "In Haiti, the 1915-1934 US Occupation brought changes to landholding patterns that dispossessed scores of farmers, transforming them into a mobile workforce employed in Cuba and the Dominican Republic in low-paying jobs" (2020, p. 7). They add that the longstanding interventionist stance led to destabilization of the territory's ecological health: "Haiti's contemporary levels of extreme deforestation and environmental degradation are a well-documented result of over a century of US resource extractivism and economic restructuring" (2020, p. 7). The Haitian refugee seeking asylum at the doors of Esther's apartment building represents what Elizabeth DeLoughrey calls the "urban wastescape" (2019, p. 122).

Accepting Acilde as savior in light of her indifference toward human and more-than-human suffering provokes Eric to attempt to bypass her ascension to Olokun. He attaches the anemone to himself becoming severely ill with what appears to be an allergic reaction, but also suggests a divine rejection of his usurpation of the prophetic role. Acilde's flawed and arrogant humanity necessitates that she realizes the mission, because it is her struggle with this human exceptionalism that makes the potential sacrifice worthy. She comes to represent the Anthropos tendency that envisions the world in terms of self-serving needs and desires, a tendency she must struggle against by transitioning into a new disseminated actant entangled across diverse times and spaces. This experience dismantles the unyielding binary that separates Anthropos from the world.

Acilde's transition from female to male becomes an integral part of the prophecy in that he becomes the legitimate son of Olokun. The transition conveys an openness that defies the closed and often dematerialized exceptionalism of Anthropos. Breaking down these rigid barriers also allows for fluid exchanges across entities that refute a hierarchical and static structuring of identities and value. The totalitarian president Bona Said, follower of Esther, shares the priestess's posthumous holographic message revealing the mission to the newly formed male Acilde: "'If you're seeing this, it means everything's gone well,' said the ghost, smiling and calm. 'Eric initiated you and now you know you are Omo Olokun: the one who knows what lies at the bottom of the sea. Said depends on me, so use the powers you have begun to discover for the good of humanity. Save the sea, Maferefún Olokun, Maferefún Yemayá'" (Indiana, 2018, p. 83). Acilde, now as Olokun, reproduces his avatars in the past thus initiating the mission to alter the events that led to Said's catastrophic decision in which "he agreed to warehouse Venezuelan biological weapons in Ocoa, [but] the 2024 seaquake had done away with the base where they'd been kept and dispersed their contents into the Caribbean Sea. Entire species had vanished in a matter of weeks. The environmental crisis had spread to the Atlantic" (Indiana, 2018, p. 82). Acilde/Olokun's power emerges as a shared consciousness across three different moments in time yet connected through a simultaneity that defies the linear hegemony of temporal experiences of Anthropos.

5.   Distributed Assemblages

Assemblages of diverse actants challenge the hegemony of the bounded/isolated and self-serving Anthropos. Bennet reminds that "[a]ssemblages are not governed by any central head: no one materiality or type of material has sufficient competence to determine consistently the trajectory or impact of the group" (2010, p. 24). Collaboration and entanglement provide the most effective force against singular desires of one entity. Individualism against assemblages: this contrast permeates the novel as all characters navigate the tension between individual desire (Anthropos) and trans-corporeal assemblages, but it is only in the latter that they emote any connection to the refugees of the world, both human and more-than-human.

The dispersal of Acilde's mind across the 1600s, 2001, and post-2027 initiates subgroupings of human actants that work in concert toward the environmental rescue mission of the prophecy, albeit unbeknownst to most of them. The three groupings chronologically occur in different times, but the dispersed consciousness interconnects the different groups producing a juxtaposed simultaneity rather than linear time. In the post-2027 years, Acilde, an old Iván de la Barra- discredited art curator, and the totalitarian president, Said Bona interact as a specific assemblage. In 2001, Giorgio Menicucci and his wife Linda-an environmental biologist- live on the coast with Ananí and Nenuco-Taíno guardians of the portal for Olokun. They invite a young Iván de la Barra to guide a group of up- and- coming artists for the Sosúa Project to create innovative pieces for the Menicucci Contemporary Art Gallery that will fund the couple's environmental rescue operation for endangered sea creatures. Giorgio/Acilde identify these artists from a documentary to celebrate Dominican Republic artists in the post-disaster future. Giorgio seeks the younger versions in his time and brings Argenis Luna, Malagueta Wolcot, and Elizabeth Méndez to Playa Bo to participate in the launching of the art experiment. The assemblage of artists has an accidental effect as the painter, Argenis Luna, enters the bluish underwater cave that houses the anemones through which Giorgio had emerged years earlier as Olokun. Argenis's allergic reaction triggers another dispersal of consciousness locating his avatar in the earlier 1600s alongside Roque/Giorgio/Acilde, and other buccaneers abandoned on the island, which completes the third grouping.

The central constellation of events centers on the 2001 Sosúa Project and the self-absorbed Argenis Luna. His character displays misogynistic, racist, and homophobic tendencies while indulging his ego in excessive self-pity.

As a failed artist with impeccable technique imitable to that of Francisco de Goya, he feels the world has betrayed him by not rewarding his talent. In the School of Design at Altos de Chavón, his professor, using his nickname, strives to inculcate a new direction in Argenis that stimulates a socially engaged artistic focus: "Wake up, Goya, get it together. You have impeccable technique but nothing to say. Look around, damn it, do you think a bunch of little angels is what's needed here?" (Indiana, 2018, p. 30). Argenis's participation in the Sosúa project offers him a chance to implement this artistic entanglement with the world, but his self-absorbed posture prevents him from escaping his isolation. Once his bifurcated consciousness traverses temporal boundaries, however, a trans-corporal engagement stimulates artistic innovation in the present and the past. Argenis of the 1600s, diverges from the bounded Anthropos and achieves a unique convergence with the environing world: "At dawn he covers the plates with canvas and contemplates the loneliness of the landscape surrounding him, neither prosperous nor cozy, the border between the beach and the forest at the mercy of a lethal attack from a Spanish crew…." (Indiana, 2018, p. 96). He recognizes nature here as independent from human materialistic value as well as its vulnerability to human aggression. However, when the Spanish finally do attack, Argenis flees with Roque and the other buccaneers as they are all pursued with equal ferocity by nature and human aggressors. Succumbing to the bites from swarms of mosquitos and gnats Argenis "overflowed with venom" (Indiana, 2018, p. 109). The nature referenced here is not the pure virginal one conquered by Anthropos, but rather one full of trans-corporeal movement, which recognizes "that the environment […], is, in fact, a world of fleshy beings with their own needs, claims, and actions" (Alaimo, 2010, p. 2). Nature is indeed vulnerable but also defensive against attacks underscoring that humans are not above our outside of the environing world. In spite of an apparent consciousness-raising through the Argenis of the past, that avatar pays for the crimes of the 2001 man, the one who refuses to dismantle his hierarchical exceptionalism. With his ego significantly battered by the Sosúa Project co-members, Argenis lashes out and kills Linda's beloved dog.

The present Argenis realizes that Giorgio/Roque are the same, also straddling two temporal periods with the intent to use the artist's engravings from the 1600s to fund the present environmental project. Argenis comprehends that Giorgio intends to dig up the buried images 'accidentally discovering' priceless artefacts. Simultaneously in the past and present, Argenis rushes toward the spot to detain Giorgio in the present and to remove the engravings in the past where he had just buried the chest as they

fled from the Spanish conquistadors. Roque/Giorgio look directly at Argenis, in both times, conflating them into one experience and asks the artist in unison "[a]nd now what is the matter with you?" (Indiana, 2018, p. 117). Argenis fails to recognize the interconnected temporal conditions of life and Giorgio takes advantage of the artist's self-absorbed behavior to benefit the Sosúa environmental project. Roque/Giorgio's manipulation of the artist provokes a violent reaction and leads to Argenis's murder in the past and his present removal from Playa Bo and the Sosúa project, relegating him to an unrecoverable obscurity. His stubborn disconnection with the external world in the end isolates him to this non-location in time and space.

The other participants fluctuate between self-serving desires and an openness to the world that influences their artistic expression as well, but unlike Argenis the lessons learned keep them integrated in the assemblage of heterogeneous elements of life. Elizabeth, member of the wealthy elite in the Dominican Republic, displays shifting interests across diverse pop-culture media often motivated by a general tedium of the passé. She represents the drive of modernity to propel toward a continual newness equated with progress. Indicative of an increasing consumer culture, referenced in her reading of Guy Debord's *Society of the Spectacle* (1967), Elizabeth appears depthless treating others with varying degrees of indifference. Nonetheless, no one character is irredeemable. They all move beyond the status of the arrogant Anthropos in moments of tremendous convergence with the marginalized. In spite of Elizabeth's self-absorption, a transcendental musical experience disrupts her isolated positioning in relation to the external environment provoking instead an empathetic assemblage or interconnection:

> Under a canopy of branches, three long drums had kept beat of an all-encompassing rhythm, unfurling hysteria in the polyphonic horns that sought out a marching movement in everybody's legs and bellies. […] An old man possessed by Papá Candelo walked on coals toward her patiently picking one up to light his pipe. When he stood by her side, she felt infused by his presence and discovered, specifically and eloquently, the extreme poverty suffered by Haitian workers, the tragic ties with which the ancient ceremony held on to the present, the permanency of a kind of slavery that now dressed itself up as paid labor, and the power of a music that lodged deities in human bodies…. (Indiana, 2018, pp. 112-113).

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Elizabeth's opening to the experiences of the marginalized also alters her perception of time as an isolated and hierarchical chronology to an interconnected temporal existence. This moment permeates her music producing a multi-sensorial homage to the endangered sea.

Malagueta's compassionate treatment of others emerges from a life of dehumanizing experiences. He recognizes in Argenis a pervasive prejudicial vein that imposes differentiation and mistreatment on the marginalized populations in the Dominican Republic: "They'd come to his childhood beach and look at him and his little friends as though they were dirty pigeons from the plaza. They'd enjoy the sea and sun, avoiding their dark little bodies as if they were dirt balls obscuring the view" (Indiana, 2018, p. 118). Conflated with useless nature, they are seen as waste and Malagueta's alignment with these nonhuman/more-than-human categories expands his perception of the vibrant world. Through his experience at Sosúa, Malgueta finds a voice to articulate the way in which the powerless absorb the systemic abuse:

> 'Black,' he heard himself say as he breathed smoke out of his mouth. A small word swollen over time by other meanings, all of them hateful. Every time somebody said it to mean poor, dirty, inferior, or criminal, the word grew; it must have been about to burst, […]. His body was a vessel containing the word, inflated now and again by the odious stares from those others, the ones who thought they were white. He knew Argenis, curiously the darkest of them all after Malagueta, didn't see it this way, and his condescending look, the same look he used with animals, women, and faggots, hurt him. (Indiana, 2018, p. 120).

Malagueta, unlike Argenis, seeks trans-corporeal empowerment through an expansive interconnection across multivalent categories. His broad conceptualization of vibrant life imbues his work as a performance artist with powerful activation of the material world.

Linda only reluctantly participates in the artists' commune, limiting her activities to observing the potential of the artists to generate financial support for her life's work in protecting the coral reefs. She negates arrogant human exceptionalism manifesting instead a potent empathetic entanglement with oceanic life: "Where others saw a gift from God, given for enjoyment of humankind, she saw an ecosystem fallen victim to a

systematic and criminal attack" (Indiana, 2018, p. 98). Linda distinguishes herself from Anthropos through her trans-corporeal connection with the more-than-human life, which endows her with a unique perceptive gift: "Where others saw scenery, Linda Goldman saw desolation. Where others heard relaxing subaquatic silence, she heard the shrieks of life disappearing" (Indiana, 2018, p. 98). Her openness to the more-than-human world imbues material actants with vibrancy. While these references may suggest a reduction of ecological diversity to a mere anthropomorphic projection, Jane Bennet reminds us: "Maybe it is worth the risks associated with anthropomorphizing [...] because it, oddly enough, works against anthropocentrism: a chord is struck between person and thing, and I am no longer above or outside a nonhuman 'environment'" (2010, p. 120). Her empathetic passion to save and protect the endangered sea and its creatures is what first draws Giorgio to Linda aligning his mission as Olokun with her efforts. However, as it becomes apparent and predicted by the earlier reference to the images of the heroic but flawed Achilles, Giorgio confronts a difficult choice.

In spite of the mission to save humanity and save the sea, Acilde/Giorgio/Roque suffer a myopic view toward the vibrancy of the natural world. With the power to fold back on time and adjust events to avoid the environmental catastrophe, the Olokun assemblage has two paths before them: one to save the world through sacrifice, or one that prioritizes individualism. Considering the specific interactions with the diverse assemblages they create across time, it becomes apparent that the tripartite assemblage collapses back into human exceptionalism. Through diverse avatars, Roque/Giorgio/Acilde exploit the vulnerabilities of the different actants within the assemblages maneuvering incidents deftly across time and space. Laudably motivated by a mission instigated by Esther's prophecy, the assemblage never grasps the extent of the sacrifice demanded of them. In fact, Acilde loses control of Giorgio as the 2001 manifestation asserts his self-serving interest and hierarchical supremacy that ultimately disrupts the salvage task to protect the ocean.

Shortly after expelling Argenis from the compound, the Menicucci's throw a lavish celebration to showcase the artists' finished pieces. Elizabeth's musical composition transmits a sensation of intertwining threads that move through the guests' bodies. In this musical multi-sensorial wave, Giorgio's euphoria culminates as he looks across the dance floor at Linda: "She was his queen. Suddenly, the idea struck him as real: he was a king, the king of this world, the big head, the one who knew what was at the bottom of the sea" (Indiana, 2018, p. 129). Where the assemblages produce

a strong ethical bond among the participants and the environing world, Giorgio proclaims his individualized uniqueness delinking from the transcorporeal connection. In this moment, he assumes his work is complete and he has successfully diverged the timeline from the apocalyptic future "of acid rains and epidemics in which prison was preferable to the outside" (Indiana, 2018, p.128). Giorgio's success and assertion of hierarchical superiority occurs moments before he recognizes a twenty-two-year-old Said Bona before him: "Here was the reason for his initiation. All that for this. Quickly and overwhelmingly, he had before him the real goal of his mission: to give Said Bona a message- as president, to avoid accepting biological weapons from Venezuela" (Indiana, 2018, p. 129). Giorgio must decide between the collective well-being and his individual exceptionalism, as king of his social world. Unsure whether he would disappear and unwilling to lose his unique privilege, he chooses not to reveal the future to Said Bona. He asserts dominance over the assemblage untethering himself from the connection with Acilde and Roque. Acilde dies by suicide and Roque, is killed in battle with the invading Spanish conquistadors. Giorgio's shortsightedness also foregoes the greater mission his wife embraces. He acknowledges the pain she would experience when the seas die; nonetheless, he chooses present gratification that satisfies his desires over the long-term goal that initially drew him to Linda. As predicted, the hero's journey risked a collapse into self-serving motivations. This, I argue, is the essence of Anthropos whose self-centered tendencies spread pathogenically impelling individual choice toward human exceptionalism and away from convergence with the voiceless human and more-than-human refugees of the world.

6.   Conclusion: Inevitable Apocalypse or Trans-corporeal Hope?

As Olokun, the prophetic savior to rescue the sea, the assemblage Acilde/Giorgio/Roque predominantly fails in the mission. However, I posit that the novel does not intend to elevate an individual, albeit one that is dispersed through time and space, to rescue humanity, but rather to foreground the moments of trans-corporeal connections. Several incidents rupture the individuated nature of self-serving characters producing a profound sensorial awareness of a vibrant material environment. The novel emphasizes the Anthropos vein that runs through humanity, but is countered by the assemblages that disrupt notions of human exceptionalism. The hero necessarily had to fail so that the interconnected beings could emphasize an

alternative to bringing the vibrant material world into focus. Indiana's novel adheres to an environmental ethics by destabilizing the binary structure that isolates humans from the more-than-human participants. This undoing forces an alternative to Anthropos's dominance that encourages a polyphonic assemblage of actants that defy a hierarchical spatial and temporal ontology. The singular hero fails, but the diverse assemblages open a path for an environmental ethics that preclude human exceptionalism in favor of trans-corporeal connections.

References

Alaimo, S., 2010, *Bodily Natures, Science, Environment, and the Material Self*, Indiana UP, Bloomington.

Bennet, J., 2010, *Vibrant Matter: A Political Ecology of Things*, Duke UP, Durham.

Chakrabarty, D., 2009, "The Climate of History: Four Theses", *Critical Inquiry*, 25, 2, 197-222.

Crutzen, P., J., Stoermer, E., F., 2000, "The 'Anthropocene'", *The International Geosphere-Biosphere Programme Newsletter*, 41, May, 17-18. http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf

Deckard, S., Oloff, K., 2020, "'The One Who Comes from the Sea': Marine Crisis and the New Oceanic Weird in Rita Indiana's *La mucama de Omiculé* (2015)", *Humanities,* 9, 86, 1-14.

De Ferrari, G., 2020, "Science Fiction and the Rules of Uncertainty", *Small Ace*, 24, 1, 1-10.

DeLoughrey, E., M., 2019, *Allegories of the Anthropocene*, Duke UP, Durham.

Garrido Castellano, C., 2017, "'La elocuencia que se entrenamiento como artista plástico le permitía.' Subalternidad, cultura e instituciones en *La Mucama de Omiculé* de Rita Indiana Hernández", *Hispanic Research Journal*, 18, 4, 352-64.

Humphrey, P., 2016-17, "El manto que cubre el mar: Religion, Identity, and the Sea in Rita Indiana's *La mucama de Omiculé*", *Sargasso*, 1&2, 109-125.

Indiana, R., 2018, *Tentacle*, translated by Achy Obejas, And Other Stories, Sheffield.

Iovino, S., Oppermann, S., 2014, Introduction. In: Iovino, S., Oppermann, S*., Material Ecocriticism*, Indiana UP, Bloomington, 1-17.

Menely, T., Taylor, J. O., 2017, Introduction, In: Menely, T., Taylor, J.,O., (Eds.), *Anthropocene Reading: Literary History in Geologic Times,* University Park, The Pennsylvania State UP, 1-24.

Mignolo, W., 2018, The Decolonial Option, In: Mignolo, W., Walsh, C., (Eds.), *On Decoloniality*, Duke University Press, Durham, 105-277.

Mignolo, W., Walsh, C., 2018, Introduction, In: Mignolo, W., Walsh, C., (Eds.), *On Decoloniality*, Duke University Press, Durham, 1-12.

Moore, J., 2016, Introduction, In: Moore, J., (Ed.), *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, Karios, Oakland, 1-11.

Oppermann, S., 2018, "The Scale of the Anthropocene: Material Ecocritical Reflections", *Mosaic: An Interdisciplinary Critical Journal*, 51, 3, 1-17.

Plumwood, V., 1993, *Feminism and the Mastery of Nature*, Routledge, London.

Quijano, A., 2000, "Coloniality of Power, Eurocentrism, and Latin America", *Nepantla: Views from the South*, 1, 3, 533-580.

7. On the environmental issue: when poets listen to Mother-Land

Sébastien Aimé Nyafouna[1]

Abstract

Within the framework of current configuration of the international and Quebec literary sphere, Rita Mestokosho, along with Joséphine Bacon, Naomi Fontaine and Natasha Kanapé Fontaine, is likely to remain one of the most promising voices of Native literature. From her far-off Ekuanitshit where she was born in 1966, she invites her reader to enter her intimate geography that unfolds in a painful past and a promising present. And to that point, her collection of poems *Comment je perçois la vie* (2010) is the perfect illustration of this temporal correlation. That's because the poetic writing is, first and foremost, the unveiling from within that Mestokosho feels the imperative to go through this channel to express her deep Being. Shown in its greatest accessibility, her poetry arises from the outset as a constituent of an existential quest that crosses all her literary creation. Thereupon, to understand the work requires surreptitiously to return to this dark beginning from which everything starts. Applied to the text of Mestokosho, we believe that literature is a powerful instrument of liberation and identity reconquest of the dominated peoples, a recapture which, in our view, must necessarily lead to a surpassing of the self, an opening to the World via the poetic Listening of the Mother-Land. We talk about Antropocene. Our study is mainly focused on Rita Mestokosho's poems without forgetting to deal with other poets to strengthen our analysis.

Keywords: Identity, Memory, Writings, Great North, Territory, Foster-Mother, Quebec Indigenousness, Tradition, Modernism, Anthropocene.

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Introduction

As François Paré points out: "I don't think it is possible to write a work in which places of identity belonging are not a predefined source of interpretation [...] (Paré, 1994)[2]". This helps understand the literary approach of Rita Mestokosho, all the more as her poetry is deeply rooted in Quebec's Far North (Mestokosho, 2010). Each poem constitutes itself a picture, an opened window on this territory full of histories. Mestokosho calls for reviewing, exploring it: « Concerning the environmental issue: when poets listen to the Mother-Land ». Therefore, it is through this title that we aim at examining her short story *Comment je perçois la vie*. Patrick Chamoiseau has already depicted what it means to write from the standpoint of the dominated (Chamoiseau, 1997). As for Mestokosho, writing has a restoring function: it cures, liberates, transforms, fortifies, réconciliates, i.e the subject hurts it soul itself. Moreover, it becomes relevant to look at the poet's relationship with the French language. Finally, we shall see that Mestokosho's poetry has the particularity of celebrating the world. In the calm of nature, nothing goes unnoticed; everything makes sense, and it is a question of revealing, through the poetics of words, the singularity of each being that is there. Writers and poets, in particular, make environmental issues their own. Therefore, it is clear that the anthropocene as an epistemological reflection on human action on Nature hardly appears as a poor blind spot lost in the interstices of the planet of Letters. At least, in the light of what has just been mentioned, it will be necessary to see in what ways the anthropocene perspective finds its articulation with literature.

1. Writing to find oneself, writing to 'repair' oneself, writing to overcome oneself

As usual with Rita Mestokosho, the writing bears the scars of an original wound. Some of the poems cause exaltation, others are full of melancholy. Clearly, each word, each line of the last category expresses an inner tear, that of the Innu people fundamentally dispossessed of their Mother Land by these "men machines" (Mestokosho, 2010, p. 49). The latter, whom the author chooses not to name explicitly, refer to the settlers

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[2] The translations are ours.

Land "usurpers". It goes without saying that human activities have a significant impact on the future of humanity:

> Human activities have become so pervasive and profound that they rival the great forces of Nature and are pushing the Earth into planetary terra incognita. The Earth is rapidly moving into a less biologically diverse, less forested, much warmer, and probably wetter and stormier state. The phenomenon of global change represents a profound shift in the relationship between humans and the rest of nature (Steffen *et al*., 2007).

These are so many symbolic wounds inflicted to Mother Earth who, enduring the weight of centuries of deforestation and industry, has constantly suffered the consequences of the capitalist relentlessness of natural wealth. The disruption of *ecosystem* balances sustained by the abusive exploitation of our biotope can only lead to the loss of the biocenosis. As a victim of his own greed, man is thus signing his own demise. At the same time, many scientists agree that the spread of most infectious diseases, including the Covid-19 pandemic, is the result of the disruption of the natural ecosystems that used to ensure the harmony of life. Zoonotic diseases are thus developing almost everywhere, i.e. a system of virus transmission that takes place essentially between humans and animals, with the precision that the contamination is of course carried out in both directions. The French researcher Serge Morand makes this observation: «Studies on emerging infectious diseases attribute their increase to human activities» (Morand, 2018, p. 27). Further on, he supports his argument on the origin of these pathologies:

> The explanatory factors are those of ongoing global changes: climate change and its variability, globalization with economic development and international trade, land use changes including deforestation and associated biodiversity loss, and biological invasions. The impacts of these changes on arthropod vectors, such as the Asian tiger mosquito, are among the most cited examples. EIDs[3] are a phenomenon related to these global changes that is characteristic of a new geological era: the Anthropocene (Morand, 2018, pp. 27-28).

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[3] Emerging infectious diseases (EIDs).

In the context of Quebec, the destruction of indigenous ways and ways of being is more than overwhelming to an extent that it causes a sustainable loss of benchmarks with multiple consequences on the environment. Between Heaven and Earth, there is the smoke of the factories that rises to the point of polluting all the airspace. As a result of this long-lasting suffocation, the ozone layer is shrinking considerably due to the consequent emission of greenhouse gases:

> May the memories of lost children come back to me between heaven and earth and I would say of this land my land what my father said "Bout de bois de Dieu," that native who drove a big machine on two wires of iron, the most stupid creature of the white gods, and who only one day left his way (Diallo Falémé, 2011, p. 21).

In this passage, Djibril Diallo Falémé evokes the eclipse of the landscapes of his childhood cruelly carried away in the symbolic passage of a train that the poet takes great care to designate by the sinechdoche «a big machine on two wires of iron, the most stupid creature of the white gods». In the meantime, something has changed in the scenery. The title of the collection *Mon coeur à l'envers* (2011) stages very rightly this sudden change of period, a sign of a timid shift in a destructive modernity of the living environment. Once the African forest was a peaceful place, now the same place has lost its sacred part. Poaching, trafficking of ivory, wood and precious stones are so devastating. «Habitat fragmentation and agricultural and livestock intensification affect local biodiversity in terms of both species richness and the composition of animal and plant communities» (Morand, 2018, p. 28). The observation is that humans no longer have their *Residence on earth*. Roughly speaking, they are engaged in resistance to Nature, at least through the gestures they make against it. This is a trend that we see everywhere. The lack of understanding remains global. Let us recall only that the climate disruption causes the melting of the ice without forgetting these tons of waste dumped in the oceans, of what to be, for Pablo Neruda, nostalgic of a time, of a time where one still held a great respect for the Earth. The being of the Chilean poet suffers greatly:

> There will always be/ between my feet and the earth, / manufactured goods, stockings, shoes, / or simply an infinite air, / reinforcing the isolation and loneliness of my being, / something tenacious (Neruda, 1972, p. 61).

Neruda witnesses helplessly as the fauna and flora were desecrated. Mother Earth was stripped of its original purity. Henceforth, " manufactured products " interpose themselves between the poet and the Earth, impossible - at this level of fragility - to operate a real poetic transparency between beings who inhabit the World. As the adverb of time "always" attests so well, the rupture, that is to say the crisis of the ecological link, only spreads over time. If nothing is done, then we are going to disaster. In instant, new arrivals - carefree business people, shall we say - begin to buy hectares of land. Equipped with chainsaws and tractors, they were already in a hurry to cut down trees and clear vast tracts of lands. As a result, large-scale modern agriculture replaces traditional subsistence crops. Policies to extend the area under cultivation have accentuated the use of natural habitats, mainly for the benefit of industrial livestock. The argument of profitability has become for the majority of the rulers an excuse of barely veiled convenience. In the past, the indigenous peasants had a few plots they exploited to live in respect of Nature. Today, this is not the case: the latter are struggling to make a living from their vicious Earth. At the same time, Elizabeth May, the leader of the Canadian Green Party, is warning about the considerable dangers of certain environmental practices, largely related to the immoderate extraction of schist gas:

> In our desperation to hang on to something that is in declining supply, and increasing in price, we are prepared to spend more money, more energy, and do more environmental damage to squeeze out the last bits, such as scraping bitumen in Alberta [tar sands], such as trying to blow apart rock with high-pressure water to liberate natural gas, at the same time running the risk of massive water contamination (Burrows, 2011).

We never cease to reduce our Mother Nature to a wretched skin of sorrow which, even in its moments of agony, continues to attract all the lusts of the great economic powers. It is interesting to note that the consequences of human activity on nature are more than disastrous: drought, climate change, groundwater contamination, scarcity of fisheries resources or deforestation which continues to gradually decimate the indigenous cultures of Canada and elsewhere:

> We live between two worlds, modern and traditional one. The equilibrium between the two is not easy due to the fact that our traditional land is threatened by destruction of the big forestry

companies, hydroelectric dams and mines. Our life and survival are linked to that of rivers, forests and lakes (Mestokosho, 2010, p. 71).

Daniel Chartier reviews the literary figures that, generally, cover the northern space:

> Several figures and characters that populate the northern narratives evoke the displacement, the journey and the relationship of the being to the territory. Whether Natives (Amerindian, Inuit, Métis or Sami) or Scandinavian (Viking or Wanderer, as in Knut Hamsun's novels) people living in the Arctic, settlers, gold diggers, missionaries, trappers and hunters from the historic North, or even the imaginary characters of popular narratives (Santa Claus, polar bear, monster, iceberg and supernatural characters), all are defined by a movement or a displacement that is their own. Gold digger goes to North looking for wealth, Santa plans his way from home to home from the North Pole, Inuit pursues caribou herd, the colonizer extends the limits of inhabited regions etc (Chartier, 2006, p. 132).

The native writers take a stand. They find in the literature the only way to express themselves, to make themselves known to others, to make themselves heard, beyond the borders of Quebec.

> According to Amin Maalouf, the intimacy of people, is their literature. It is there that they reveal their passions, aspirations, dreams, frustrations, beliefs, worldview around them, their perception of themselves and others, including ourselves (Maalouf, 2009, p. 206).

It is in itself a survival instinct to take the pen. In any event, it would be unreasonable to do otherwise, to indulge in this infamous ostrich policy which would have us accept the unacceptable powerless. Consequently, literature becomes a space of struggle in which a liberating word is intensely elaborated, launched into the tumult of the world. The commitment, in the sense of the French philosopher Sartre, resurfaces. We don't need to insist on it. Faced with the circumstances of the moment, it is non-negotiable and unconditionally imposes itself. It is up to the authors-singers of their peoples to take their responsibilities. Jean-Marie Gustave Le Clézio[4] confirms this view:

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[4] The collection *Comment je perçois la vie, Grand-Mère : Eshi uapataman Nukum. Recueil de poèmes en innu et en français* was prefaced by Jean-Marie Gustave Le Clézio.

Today, in the aftermath of decolonization, literature is one of the means for the men and women of our time to express their identity, to claim their right to speak, and to be heard in their diversity. Without their voice, without their call, we would live in a silent world (Le Clézio, 2010, p. 74).

However, there are not only men in this noble endeavor for recognition; women also take part. Writing is everyone's business. Distinguishing herself from all literary paternalism, Rita Mestokosho writes freely as she sees fit, as she feels. In this regard, Quebec poet Hélène Dorion supports this idea:

Women bent down to write, to remake a face to language, desire, poetry. They knew how to give a feminine body to the poetic approach. Without territory but also without borders, the writing of women has circulated in the infinite tremor, rivaling the intimate with the collective, making the concrete resonate in the abstract and breaking up the partitions of the genders so that the feminine circulates (Dorion, 2005, p. 34).

Of course, "today we are on this stage where nothing can be done without women" (Slama, 1981, p. 65). As a bearer of cultures, Mestokosho is fully aware of her mission to fertilize a better tomorrow: "What to live in a community/ It is learning day after day/ What is my true identity/ In the hope of a better day» (Mestokosho, 2010, p. 57).The question of identity is not to be excluded in the reading of Mestokosho's poems, it constitutes evidence. Maurizio Gatti, whose work focuses on Quebec's Autochthony, makes this characteristic observation of the full necessity of writing to exist:

Literature and message of artists can indeed be as effective in the long run as politics, if not more: they have the power to focus international attention on specific issues, but more fundamentally to give pride and dignity. Subversive, they can contribute to the autonomy, expressive and mental freedom that totalitarian or repressive regimes around the world have always tried to control. Quebec's Francophone Amerindian literature has now become an area of knowledge that contributes to the understanding of Amerindian and Quebec realities and issues (Gatti, 2004, p. 25).

Gatti's remark is relevant enough to capture the scope of the "message" of Native authors in search of singularity. They hope, through art, literature, dance, cinema and music, to be the voice of their peoples face to what we consider as an expropriation of their Mother Earth. Let us not lose sight of the fact that the collection *Comment je perçois la vie* (2010) is also placed under the sign of otherness. The poet promises: "I will not forget to learn/ And share to others" (Mestokosho, 2010, p. 57). Mestokosho refuses to submit to the backward fold to break the locks of hatred. She lets herself be invaded by the song of appeasement and forgiveness, with a real conviction that openness always prevails. Thus, it paves the way towards diversity and reconciliation that, let us say, do not directly imply a renunciation to the self, to what makes us, defines us in a short, to our existential ontology. In what to think of the poetics of the various in the slippery sense: "The Various is reborn when men are concretely diversified in their different freedoms. Then he no longer demands that we renounce ourselves" (Glissant, 1969, p. 101). Certainly, "writing in French so as not to forget" (Mestokosho, 2010, p. 71), but also and above all writing to think bigger, let us hear, to surpass ourselves while remaining oneself, adopting "a true Innu way" (ibid., 63): "And then came a day when I saw the light / A light that invited me to forgive myself / And even if it is said that happiness is fleeting / I erased from my mind the dark corridor of my past, to make room for the light" (ibid., 39).

These words mark the prefiguration of a new ray of hope, "a breath of hope" (ibid., 17), which contrasts with the great abyss of the past, that of domination, that of the rape of the territory. Basically, writing is part of a posture of encounter. The poetess systematically refuses to languish in an eternal lamento. As a result, it should be noted that the motif of light — not unlike Uashtessiu, Uashtessiu, lumière d'automne (2010) (Désy & Mestokosho, 2010), another collection co-written with the Quebec poet Jean Désy — runs through the entire collection. In this, it can only be revealing of the illumination of consciousness which, transfigured, goes to the great « meeting of giving and receiving »[5] where the North and the South meet to do, in the most sincerity, the praise of fraternity, that of hearts' pacification to a worldwide scope.

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[5] « I'll wrap up. Marx and Engels ignored us quite a bit. Teilhard invites us Negro-Africans, along with the other peoples and races of the Third World, to make our contribution to the "meeting of giving and receiving". He gives us back our being and invites us to Dialogue: to *be more*» (Senghor, 1993, pp. 12-13).

White and Black people are all sons of the same mother land.
And they sang in multiple voices, singing
Hosanna Alleluia !
As in the the childhood realm (kindgom), once upon a time when I
dreamt
So, they sang the innocence of the world, and danced the
blossoming
Danced forces that punctuated, punctuated the
Force of forces : Justice granted, that is
Beauty Goodness
(Senghor, 2006, p. 310).

It is clear that, from now nothing will be without this ability to listen the two parties. As such, writing provides the possibility of enchanting the present in which autochthones and allochthones live in harmony in the world through a poetic language that sings cultural diversity and approaches.

2. A poetic language across cultures

Mestokosho's inspiration appears from the plurality of ancestral voices responsible for enlightening the spirit for the vitality and the preservation of native roots. Let us remind the poet has a lot inspired from her native culture. For her, the speech is an echo; it deeply resonates in all the ages, as we can read in her poem «Née de la pluie»: «I was born from sounds and music / With the rhythm of the ancestral drum / Which captures all cynical silence / And warms this theatrical cold» (Mestokosho, 2010, p. 55). Mestokosho's writing and her narratives all imbued with an important orality, are rooted in tales, myths and legends in which she grew up from childhood: «You told me stories» (Mestokosho, 2010, p. 67). In this example «tu=you» refers to Nukum, the grand-mother of the poet whose evocation is ensuring.As it arises, the situation of enunciation here testifies an emotional closeness bringing together the two beings who never leave each other when they are no longer of the same world. The imperfect tense confirms the absence of Nukum. As the guardian of secular traditions, is no longer. However, the dialogue gives flesh to this person who is so dear to the poet. We come significantly to a poetic absence that can, at any time, be converted into a dazzling presence. Formally, the exchange participates in its materialization. The poem is understood as the prayer rhythmic of a

gentle invocation. After all, the adult becomes again the child who used to listen to the wise words of Nukum, omnipresent in the writing of the collection.

Now, back to the title *Comment je percois la vie, Grand-Mere*. It foresees life as grasped by the poet, in the sense that it does not dissociate with that of her grand-mother. Therefore, a link is established between two conniving feelings and two glances. Meanwhile, the effect of the comma is considerable: it is not exclusive as one could believe at a first glance. It is rather inclusive. This punctuation sign aims at empowering the contact between Rita Mestokosho and Nukum, and beyong, with her earlier ancestors :

> I crossed the gate which destroyed my universe
> But some people have seen me doing that
> Because I was like water in the river
> That freezes in winter.
> I flied towards the eternal lands of my ancestors
> And I became the prodigious child
> My body is here but my spirit remains there
> Far away, very far in my ancestors' lands
> I talked to them with opened eyes, everything faints
> I open the eyes to learn how to fly
> Towards all my brothers who need me
> My life is going forward
> (Mestokosho, 2010, p. 62).

Mestokosho's language is animated by an energy that always leads him to expand to new lands. The book, once published, does not have to lock itself in a given territory. It has to escape, to dispossess itself of his author to fall into the hands of a virtual reader, the time of an incursion into the universe of fiction. The latter can only come into contact with the unconscious of the writing subject through a language intended to convey the writer's thought and message. The literary text obeys the universalization which becomes, on this occasion, text-world. It goes beyond the categories, flying over national, geographical or even psychic borders: When a space is brought back to the territory that embodies politico-institutional set considered as homogeneous, or to the « nation », which is an historicization of such a set, it is inevitably governed by this stereotypy» (Westphal, 2007, p. 234).

What Westphal mentions regarding the dangers of the spatial assignation can be adapted in our study by a simple shifting of terminology. Relatively,

without compelling the equivalence, we substitute «space» to «literature». Mestokosho has not chosen to linguistically stiffen her collection. Its richness finds all its relevance in the heterogeneity and the media coverage that find their expression culminated in virtuosity of a language and that interfers with the terms of the native land. Thus, the poet does not prevent herself from incorporating in her poems. For sure, that does not mean the author should flout his/her native land to be read. In this regard, we will not forget that one's writes according to his/her own experience, added to or adjusted to the familiar areas that surround us. Andrée Chedid shares this idea as follows:

> I tried to join my land, to the earth; / Words, to the frame of silence; / The wide, to the veiled song. / Tempted to say the possible meeting, / Free the place from the traps of the refuges; / Bow the floor, to the point of sharing it.
> (Chedid, 1987, p. 230).

On these junctures, the poetic language highlights the nature of the landscape; it is at the same time a song, an expression and literary making more aesthetic the real-life.

Then, the collection *Comment je perçois la vie* of Rita Mestokosho is incarnating the mother tongue of the poet — l'innu aiamun — that can be combined with the French language in her writing. By way of illustration, let us see that as follows:

> *Shena tshitei*
> *Tshika uapaten assi tshe uitshikun*
> *Tuta tshipuamuna tshetshi inniuimakaki*
> *Tshika uapaten tshitinniun e minuashit.*
> (Mestokosho, 2010, p. 16).

> *Let your heart opened*
> *You will see that nature will help you*
> *Let your dreams blossom*
> *You will see your life will change…*
> (Mestokosho, 2010, p. 17).

The superposition of linguistic mediums is not innocent. It must be said that Mestokosho does not reject the French language. She hopes, through this judicious interference of languages, to reach a wider audience. The

work no longer belongs; it escapes from itself to submit to logic of reappropriation through reading. Hence the need to write in a language other than the mother tongue. Mestokosho finds no alibi there. She is more concerned with being read and understood by others. Starting from this process of circulating the text, here is what she says about it: "Writing in a language, the French language is also a necessity. To be able to broadcast our concerns to a broad audience in a poetic language" (Mestokosho, 2010, p. 71). She promotes the diversity of tones and styles. Is it a truism to fin it in her poem "l'arbre de la vie" [6] (Mestokosho, 2004, p. 94) biblical references ("the third day", "the fifth day", the "seven days")[7] ? Not at all. In fact, all those intertexts echo Genesis Story. As it appears in the collection, the references to the sacred text considerably enriches Rita Mestokosho's book that keeps on calling for the celebration and reconciliation with the World, a theme which is dear to the poet. She does not only marvel at the beautiful eyes of the Nature-Earth: she metaphorically transforms her pen to a weapon of struggle. Her literary approach is merely Anthropocene. Brian R. Cook, Lauren A. Rickards and Ian Rutherfurd precise:

> The Anthropocene stands out as a statement about the planet, encompassing and extending the challenge of thinking globally, which echoes the discourses surrounding global climate change and sustainable development (Cook *et al*., 2015, p. 1).

We understand that the Anthropocene is part of the horizon of a future that takes hold in the present. From a strictly temporal point of view, we will say that the Anthropocene philosophy follows the trajectory of a collective becoming: it is a question of the future of humanity, of the phenomenological relationship of man to Mother Nature. In this context, the

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[6] Genesis 2.9 « And out of the ground made the Lord God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of knowledge of good and evil.», The Holy Bible, Translated out of the Original Tongues and with the Former Translations Diligently Compared & Revised Set forth in 1611 and commonly known as the King James Version. Online: http://www.gasl.org/refbib/Bible_King_James_Version.pdf.

[7] *Ibid.* / Genesis 1.13 «And the evening and the morning were **the third day**», The Holy Bible, Ibid ; Genesis 1.23 «And the evening and the morning were **the fifth day**.», *ibid.* ; *Genesis* 2.3 « And God blessed **the seventh day**, and sanctified it: because that in it he had rested from all his work which God created and made. », The Holy Bible, *Ibid.*

poets have, once again, something to tell us. Let us immerse ourselves in the river Rhapsodies of El Hadj Abdoul Hamidou Sall, where the author returns to the singular attention that the poet gives "to beings and things":

The poet is, more than any other, attentive to beings and things, to what passes and changes. He is the one who, always, through time passing through a space where everything is both precious and threatened, remains the attentive guardian of the temple and the harmonious bugle of the future (Hall, 2010, p. 58). A poem-anthropocene, both in form and in the message it delivers, Sall's text sufficiently alerts us to the necessity of renewing, while there is still time, the phenomenological link between man and the world. At the end, as Julio Cortázar states in his "Open Letter" to Neruda,

[…] the poem is born to be more than a poem, stone in the edifice of a future disconnected humanity, hammer or handshake in the multitudinal workshop where slowly begins to forge another image of man on the planet (Cortázar, 1972, p. 8).

Man, from the pedestal of his sufficiency, continues unconsciously to destroy the planet, to harm it, a fatal blow that anticipates its next extinction. We are hardly in a fairy tale: we are talking here about our sustainable ecological footprint, the scientifically observable and measurable global consequences, without losing sight of the pollution of the seas and oceans, To which must be added the soils contaminated by the use of pesticides, chlordecone is a revealing example in Martinique. One wonders if there are still any of these corners of Nature with the wild charm that still resists civilization. Yet, it seems to us, humans (at least some) forget that somewhere their destiny, therefore their survival here below, remains unconditionally bound to that of Earth. If we formulate things more simply, we will say that to destroy Mother-Nature is to destroy oneself in the short and long term does not go against the climatosceptic theses. That such a reality should not be seen as a matter of pure bad faith when our future is terribly threatened…It therefore seems urgent to change our way of being in the world. Preserving nature at the same time means thinking about future generations.

At such a rapid rate of over-exploitation, the Earth as a whole is inevitably subject to exhaustion. In fact, we will be held accountable. In light of all these crucial questions, we understand that it is high time to do something before it is too late. It is now or never will be said to make our Earth better: "And I am in your hand/ Earth my beloved land my stake and my cause" (Chedid, 1955, p. 19). Obviously, given the urgency of the

moment, long speeches will not have been enough. In this way, in order to respond to what we call the Great World Devotions, action necessarily becomes the horizon of a vital praxis that adjusts to the dynamics of an environmental ethic in the perspective of a global governance of the planet. The 2015 Paris Conference on Climate Change is an example of an initiative to encourage for a better well-being of all, but we must moderate our consumer appetites for a while by turning to renewed energies, This presupposes adopting other alternative ways of producing more respectful of our biosphere. This naturally requires an awakening pedagogy based on a mesology orientation that reflects seriously on the relationships between humans and their environments, their living environments in a way. It is a question, i.e, of making people aware of the dangers of their bad practices on the environment.

In the preface of his book entitled Poetics of the Earth : Natural History and Human History, Augustin Berque makes this relevant remark:

> The environment is a universal given (an Umgebung, as Uexküll calls it), while the milieu, or ambient world (Umwelt), is a unique elaboration of this given. It is an elaboration of meaning which is proper to each species (of living beings) and proper also to each culture (for the human species) (Berque & Feenberg-Dibon, 2019, p. 10).

It emerges from this the protection of Nature (our common good) becomes the business of all. For this reason, an environmental ethic that does not separate from the question of Antropocene must adopt a transdisciplinary reading in order to establish an Antropocene of the plural where geographers, historians, ecologists meet, literature, doctors, etc. in order to reflect on the scourges that humanity is experiencing. In his interview with Jean-Marc Moura, Bertrand Westphal recognize the richness of this approach:

> Today, it seems difficult to limit the study of literature to the strict field of text and language as has been the case in recent decades, because literature too is in the world, as are those who examine the hypotheses and variations (Westphal & Moura, 2018, p. 171).

Once again, literature grasps the planetary actuality to question the meaning of existence while advocating, within the framework of poetry, the tender celebration of the World.

3. A poetry of celebration and reconciliation with the World

Writing is also, to a certain extent, à poetic celebration of the beautiful world.

In the same literary order of analysis, Jean-Jacques Rousseau (Les Rêveries du promeneur solitaire), Lamartine (Méditations poétiques), Chateaubriand (Mémoires d'outre-tombe), Bernardin de Saint-Pierre (Études et harmonies de la nature), Hugo, Musset, Sand and Vigny have found in Nature their only place of refuge, a space with sober singularities in which they find the tranquility of the soul. Lulled by an enjoyable silence, romantic poets draw poetic inspiration from this place of incredible shows. In other words, Nature, "the sanctuary into which God enters" (Chateaubriand, 2014a, p. 15), is conceived, according to such a reading, as a label of transformation and inner transfiguration. It should be noted that for these writers the internality of being is renewed in pure contemplation of the world. Some will go so far as to see in Nature the very manifestation of divinity. Philippe Jaccottet clearly restores the quintessence of this poetry of celebration and reconciliation with the World in these words:

> We stop being disoriented. Without being able to fully explain it, or to prove it, one experiences an impression similar to that given by the great architectures; there is new communication, balance, between the left and the right, the periphery and the center, the top and the bottom. Murmuring rather than radiant, a harmony is perceived. Then one no longer wants to leave this place, to make the slightest movement; one is forced, or rather inclined to recollection. This enclosure of crumbling walls where oaks grow, that sometimes crosses a wild rabbit or a partridge, is it not our church? We enter more willingly than in others, where the air is lacking and where, far from igniting, we are lectured (Jaccottet, 1993, pp. 128-129).

In Rita Mestokosho's writing, the beauty of Nature-Earth seizes itself in the crucible of a spiritual alliance between here and elsewhere, connected by poetic reverie. We can read:

> Through my dreams, my moher
> The Earth leads me to another world.
> I travel with the Great Eternal Spirit on the eagle's back (Mestokosho, 2010, p. 38).

These lines highlight a language with chthonian vibrations whose breath finds its resonance in the abysses of the world. Mestokosho's poems make the reader travel through the song of the Earth, which constitutes his breath and pulsations, echo the fascinating voice of Walt Whitman:

> My respiration and inspiration, the beating of my heart, the passing of blood and air through my lungs, / The sniff of green leaves and dry leaves, and of the shore and dark-color'd sea-rocks, and of hay in the barn, / The sound of the belch'd words of my voice loos'd to the eddies of the wind, A few light kisses, a few embraces, a reaching around of arms, / The play of shine and shade on the trees as the supple boughs wag, / The delight alone or in the rush of the streets, or along the felds and hill-sides, / The feeling of health, the full-noon trill, the song of me rising from bed and meeting the sun (Whitman, 1885, p. 30).

For Mestokosho et pour Whitman, this is to rediscover the fragrance of nature that stems from the cosmopoetic relationship between beings. To poetize, presupposes to stage a holistic vision of existence through which things and beings communicate spiritually. Far from being anthropocentric, even egocentric, the poetry of Rita Mestokosho takes above all an anthropocenic orientation. It is worth noting that her collection of poems *Comment je percois la vie, Grand-Mere : Eshi uapataman Nukum* applies well to the ecocritical reading which tries to give the scoop to the literary treatment of Nature in its composite set :

> If for the scientist, ecology is the study of the interaction between organisms and the environment, for the general public, the term refers to an attitude that takes into consideration the interconnection of all human beings and is concerned about how we inhabit the Earth. This responsibility of man towards the environment is reflected in ethical and political positions, the range of which is wide and varies considerably from one country to another (Schoentjes, 2015, p. 15).

In the same order of analysis, the rapprochement between people should lead to another rapprochement, and not the least, that of the great openness to the World. In this case, we are no longer in a Cartesian logic of possession. Let's see, according to Michel Serres, to *natural convenant* of poetic solidarity with the Living:

Back to nature, then! That means we must add to the exclusively social contract a natural contract of symbiosis and reciprocity in which our relationship to things would set aside mastery and possession in favor of admiring attention, reciprocity, contemplation, and respect; where knowledge would no longer imply property, nor action mastery, nor would property and mastery imply their excremental results and origins. An armistice contract in the objective war, a contract of symbiosis, for a symbiont recognizes the host's rights, whereas a parasite-which is what we are now-condemns to death the one he pillages and inhabits, not realizing that in the long run he's condemning himself to death too (Serres, 1995, p. 38).

It remains to learn to listen to the beats of Mother Earth, in other words, to become familiar with her poetry. Men have long misrepresented Nature:

The traces of our action are visible everywhere! And not in the older way that the Male Western Subject dominated the wild and savage world of nature through His courageous, violent, sometimes hubristic, dream of control (Latour, 2014, p. 5).

A policy of the Anthropocene must put reconciliation with the World at the centre of its action. Following the Amerindian cosmogony that establishes a continuum between beings and things, Rita Mestokosho's poetry proceeds from a calm relationship with the dark forces. From the outset, a relationship is born, at the maternal boundary between the poet and his native space:

My thought is intimately linked to the Earth From her entrails; I taste Life She plunged me into the deep waters of her mother's womb so I could feel the beating of her heart, even when I sleep (Mestokosho, 2010, p. 38).

In this excerpt, all the majesty (or even the capital letter) returns to the "Earth". It is to the honor. The poet, in addition to snuggling in her, makes Gaia a being in her own right. We are in the hymn register. The further we go in the reading of the collection, the more we realize that it merges with Foodland. In reality, the waltz of alliterations in [m] and [s], combined with the assonance in [é], gives the poem a tranquility mixed with lyricism. There emerges from this passage an endless rapture as we notice in verse 3, whose significant length continues in the following verse. This

stretch-span follows the slow trajectory of the "waters"»[8]. The poet Diallo Falémé plunges his soul back into the blessed waters of his Falémé, this tributary that he never ceases to carry in his heart, for he says to himself that the rivers are the sign of intercontinental integration, concord and brotherhood between people: "I'm going to seek love throughout waters. / Because in the ground of my consciousness grow bad weeds nostalgia for my sleeping April" (Diallo Falémé, 2011, p. 23). "And the water lilies, among the reeds, / The large water lilies on unruffled waters" (Verlaine, 1960, p. 65). We find, in this regard, the Bachelardian semantics of poetic reverie, of the nest and from the cellar as places of refuge. This lexicon of secrecy is intended, among other things, to reveal the primary innocence that draws the contours of Intimacy:

> In its current meaning, intimacy is a matter of the self and the family circle. It is of the order of the nearest subject. It is, in particular, that territory from which the subject measures both his identity and his availability to the world, that territory from which he autonomously modulates the hospitable nature as we find, for example, an indication in the expression «I welcomed him in my intimacy» (Serfaty-Garzon, 2003, p. 69).

From the above lines, Mestokosho's text clearly reveals this poetic communication that aims at renewing the relation to the Nourishing Earth. In a globalized world that obeys the capitalist law of profit, the protection of ecosystems remains little in sight. With a few rare exceptions, many industrialists find it difficult to grasp the importance of promoting sustainable development for the great happiness of humanity. As for Rita Mestokosho, she makes the preservation of Nature her ultimate battle horse: "Your message is to protect the land / I will protect it as long as I live with it" (Mestokosho, 2010, p. 15).The future form calls for a destiny that lasts as testifies by the temporal
adverb " long time". While there is still time, the poet erects ramparts-poems against the abusive exploitation of natural resources. Certainly, one day, there will be scarcity, then exhaustion. In the meantime, something must be done to anticipate the planetary disaster:

Do not take the earth's last breath

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[8] « The water is milk as soon as it is sung with fervor, as soon as the feeling of adoration for the motherhood of the waters is passionate and sincere » (Bachelard, 1942, p. 141).

Allow our mother to breath
And see her chidren running out of breath
In the nature that is my shelter
(Mestokosho, 2010, p. 49).

From this questioning, one can read all the commitment of Rita Mestokosho. She writes to awaken and draw attention, by insisting on epiphora «breath». Hence, the power of demanding advice, that is to say, she solicits a favor through which the secular addressee would understand the ecologic emergency of moment. «We will not always inhabit these yellow lands, our delight ...» (Perse, 1960, p. 124). One day or another we will go, we will no longer be here. Let us, in this ephemeral time of our stay in the world, to treat the Land that shelters us with elegance. It is in this respect the poet François-René de Chateaubriand expresses his last wish:

I want to end my career;
Entered the night of the tombs,
My shadow still quiet and lonely,
In the forests looking for rest
(Chateaubriand, 2014b, p. 31).

The Quebec poet Gaston Miron seems to express the same query than Chateaubriand:

Finally, I can look at you face to face / in the most vegetal maintenance of space / earth alternately taciturn and tormenting / earth all at once in heat and chilly… / so that one day I finally rest/ in your lowest flight… (Miron, 1999, p. 166).

We bear in mind that nature takes a major place for the poets. Any existence, whether human or not is sacred. There is any reluctance to preserve and above all to respect it. In the final analysis, this is what summarizes all the topicality of their writing. From the questions they raise, their poems touch and talk to us by all means.

Conclusion

In a nutshell, the relation of the past to present for the poet Rita Mestokosho, is centered in a search for identity where time regulates life. Between usurpation, exploitation and assimilation, the Natives of Québec

have suffered for a long time regarding the deprivation of their lands. Foreigner in his own country, Innu has become unrecognizable due to the Westernization of consciousness. To this point, the writers consider writing as a means of expression and claiming for the Human Being. What can gain literature? (Audeguy & Forest, 2014). For Mestokosho, it is absolutely and unavoidable to write, i.e to poetize, in fact, who we are. Her poems embody the native culture. As we pointed out, her poetry, that is imbued with an anthropocenic dimension, is revealing the World. In this way only, it becomes possible to re-appropriate the Mother-Land, to re-activate the poetic contact with the immediate environment. Victimization is meaningless for her. Instead, she prefers lucidity and confidence to the future. She promotes dialogue between people, this would be necessary to emphasize linguistic interference to make more visible her work that Le Clézio praises: «Rita's poetry alludes to all of us, wherever we are in the world, no matter how are our origins and our history» (Le Clézio, 2010, p. 10). In short, we bear in mind that Human Being can't get rid of Nature where he/she draws his/her subsistence.

References

Audeguy, S., Forest, P., 2014, *Que peut (encore) la litterature ?* In *La Nouvelle Revue Française*, 609, Gallimard, Paris.

Bachelard, B., 1942, *L'eau et les rêves. Essai sur l'imagination de la matière*, José Corti, Paris.

Berque, A., Feenberg-Dibon, A-M., 2019, *Poetics of the Earth: Natural History and Human Histor*y, Routledge, London.

Bouvet, R. Carpentier, A. & Chartier, D. (Eds.), *Nomades, voyageurs, explorateurs, deambulateurs : les modalites du parcours dans la litterature,* l'Harmattan, Paris ; Budapest ; Kinshasa [etc.].

Burrows, M., 2011, "Green party leader Elizabeth May assails natural gas fracking". Available online: https://www.straight.com/article-386451/vancouver/green-leader-assails-natural-gas-fracking; (last access : 16th October 2021).

Chamoiseau, P., 1997, *Écrire en pays dominé*, Gallimard, Paris.

Chartier, D., 2006, Vers l'immensité du Grand Nord. Directions, parcours et déroutements dans les récits. In: Bouvet, R. Carpentier, A. & Chartier, D. (Eds.), *Nomades, voyageurs, explorateurs, déambulateurs : les modalités du parcours dans la littérature*, l'Harmattan, Paris, Budapest; Kinshasa [etc.].

Chateaubriand, F.-R., 2014a, *Le Soir au bord de la mer*, Tableaux de la Nature, Ressouvenances, Villers-Cotterêts.

Chateaubriand, F.-R., 2014b, *L'Amour de la Campagne, Tableaux de la Nature*, Ressouvenances, Villers-Cotterêts.

Chedid, A., 1987, *Textes pour un poème 1949-1970*, Flammarion, Paris.

Cook, B.R., Rickards, L.A. & Rutherfurd, I., 2015, "Geographies of the Anthropocene", *Geographical Research*, 53 (3), 231-243.

Cortázar, J., 1972, Lettre ouverte. In: Neruda, P., 1972, *Résidence sur la terre*, Gallimard, Paris.

Désy, J. & Mestokosho, R., 2010, *Uashtessiu, lumière d'automne: chronique*. vol. 1. Collection Chronique, Mémoire d'encrier, Montréal, Canada.

Dia, H., 2005, *Les remparts de la mémoire, Présence africaine*, 1999, Dakar, Paris.

Dorion, H., 2009, *Sous l'arche du temps*, SNELA La Différence, Paris.

Diallo Falémé, D., 2011, *Mon cœur à l'envers*, Les Éditions Salamata EDISAL, Dakar.

Gatti, M., 2004, *Littérature amérindienne du Québec. Écrits de langue française*, Hurtubise HMH, Montréal Québec.

Gatti, M., 2006, *Être écrivain amérindien au Québec : indianité et création littéraire*, Hurtubise HMH, Montréal (Québec).

Glissant, É., 1969, *L'intention poétique*, Éditions du Seuil, Paris, 1969.

Jaccottet, P., 1993, *Paysages avec figures absentes*, Gallimard, Paris.

Latour, B., 2014, *"*Agency at the time of the Anthropocene*", New Literary History* Vol. 45, pp. 1-18.

Le Clézio, J.M.G., 2010, Preface. In: Mestokosho, R., *Comment je perçois la vie, Grand-Mère : Eshi uapataman Nukum. Recueil de poèmes en innu et en français*, Beijbom Books, Göteborg.

Maalouf, A., 2009, *Le dérèglement du monde : quand nos civilisations s'épuisent,* Bernard Grasset, Paris.

Mestokosho, R., 2004, L'arbre de la vie. In: Gatti, M. (Ed.), *Littérature amérindienne du Québec. Écrits de langue française,* Montréal, Québec, Hurtubise HMH.

Mestokosho, R., 2010, *Comment je perçois la vie, Grand-Mère : Eshi uapataman Nukum. Recueil de poèmes en innu et en français*, Beijbom Books, Göteborg.

Miron, G., 1999, *L'homme rapaillé*, Les Presses de l'Université de Montréal, Montréal.

Morand, S., 2018, Biogeography and the ecology of emerging infectious diseases. In: Morand, S. Figuié, M. (Eds.), *Emergence of infectious diseases: Risks and issues for societies*, Éditions Quæ RD 10, Versailles Cedex, pp. 13-33.

Neruda, P., 1972, *Résidence sur la terre*, Gallimard, Paris.

Ouellet, P., 2000, *Poétique du regard : littérature, perception, identité*, PULIM, Limoges.

Perrault, P., 1985, *De la parole aux actes : essais*, l'Hexagone, Montréal (Québec).

Perse, S-J., 1960, *Éloges ; suivi de la Gloire des rois, Anabase, Exil*, Éditions Gallimard, Paris.

Hall. E, 2010, *Rhapsodies fluviales*, La Cheminante, Ciboure.

Schoentjes P., 2015, *Ce qui a lieu : essai d'écopoétique*, Éditions Wildproject, Marseille.

Senghor, L.S., 1993, *Liberté V : Le Dialogue des cultures*, Seuil, Paris.

Senghor, L.S., 2006, *Œuvre poétique*, Seuil, Paris.

Serfaty-Garzon, P., 2003, *Chez soi. Les territoires de l'intimité*, Armand Colin/SEJER, Paris.

Serres, M.; translated by Elizabeth MacArthur and William Paulson, 1995, *The natural contract*. Ann Arbor, University of Michigan Press, cop.

Slama, B., 1981, "De la « littérature féminine » à « l'écrire-femme » : différence et institution", *Littérature*, 44, p. 65. Online: https://www.persee.fr/doc/litt_0047-4800_1981_num_44_4_1361 (last access: March 23, 2021 at 3:11 p.m.).

Steffen, W., Crutzen, P.J. & McNeill, J.R., 2007, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?"*, Ambio* , 36, 8, pp. 614-621.

The Holy Bible, 1611, *Genesis 2.9*, King James Version, Online: http://www.gasl.org/refbib/Bible_King_James_Version.pdf (last access: 10/12/2021).

Todorov, T., 1982, *La conquête de l'Amérique : la question de l'autre*, Éd. du Seuil, Paris.

Verlaine, P., 1960, *Poèmes saturniens suivi de Fêtes galantes*, Librairie Générale Française, Paris.

Westphal W., 2007, *La géocritique : réel, fiction, espace*, Les Éditions de Minuit, Paris.

Westphal W., Moura, J-M., 2018, "Entretien avec Bertrand Westphal", *Revue critique de fixxion française contemporaine*, n. 16, pp. 171-178.

White, K., 1994, *Le plateau de l'albatros : introduction à la géopoétique*, Grasset, Paris.

White, K., 1992, "Petit album nomade". In : Alain Borer *et al., Pour une littérature voyageuse*, Éditions Complexe, Bruxelles.

White, K., 2008, *L'esprit nomade*, Librairie générale française, Paris.

Whitman, W., 1885, *Song of Myself*, from frontispiece of 1855 edition. Collection of U.S. Library of Congress.

SECTION 2

Transformative Action and Global Ecological Sustainability

8. Becoming aware of the living air: from scientific and indigenous narratives to care ethics

Clément Barniaudy[1]

Abstract

Every day, vast quantities of gaseous effluents and industrial pollutants are rejected into the atmosphere. Although we are fully aware of this, as human beings living in Western societies, we continue to ignore the invisible and subtle element that is air, considering it an empty space, a conveniently forgotten dump site. This paper invites us to become aware of the importance of the aerial matrix which intertwines human and non-human, recognizing that all forms of existence can be possible only because of the presence of this more-than-human medium, both inside and outside of us. For this purpose, we first consider scientific and indigenous narratives capable of embedding our body-mind into the living air in all its richness and depth. Secondly, we explore the phenomenological approach as a skillful means of activating the participatory nature of our sensory perception within the weather-world. From these sensuous and narrative experiences, we can see the potential for the emergence of profound empathy for every living being, grounded in a renewed attentiveness to the living land and atmosphere that sustain us, and that can be the basis for integrative environmental education and care ethics.

Keywords: air, scientific narratives, indigenous narratives, phenomenological approach, care ethics

Introduction

From the early days of spring 2020, there was something in the air, something imperceptible that provoked distrust and anxiety. The air had a

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bitter taste. There was something suspicious about the wind. Open air became rare. A great many of us lacked air. We tried desperately to create moving air in an effort to ease those most affected. Our relationship with the outside world was strained as we tried to avoid airborne droplets, as it was with the inside world as we tracked any signs of a possible invasion of our airways. We became increasingly aware of our breathing. Coronavirus SARS-CoV-2 has woven a new web around our lives, our breaths. Many of us feel stifled behind closed doors, forced to breathe in stagnant indoor air. Even though we were used to living mainly inside in our Western societies, the lack of fresh air overtook us at that point. We felt powerless in the face of such a tiny, invisible virus, capable of hiding in every corner of the atmosphere. More than ever, we are living an 'airproof experience' as the French poet Paul Valéry wrote in *Le Cimetière Marin*: "The wind is rising!... We must try to live!" (*Le vent se lève !... Il faut tenter de vivre !*) (Valéry, [1920]1957, p. 151).

1. Forgetting about air: meanings, effects, and issues

This ordeal has undoubtedly not been a vain struggle, and the Covid-19 pandemic may help us emerge from our 'forgetting' about air. For decades now, forgetting about air has been deeply embedded in our ways of perceiving and acting within the Earth's atmosphere:

> In the world of modernity, the air has indeed become the most taken-for-granted of phenomena. Although we imbibe it continually, we commonly fail to notice that there is anything there. We refer to the unseen depth between things - between people, or trees, or clouds - as mere empty space. The invisibility of the atmosphere, far from leading us to attend to it more closely, now enables us to neglect it entirely. Although we are wholly dependent upon its nourishment for all our actions and all our thoughts, the immersing medium has no mystery for us, no conscious influence or meaning (Abram, 1996, p. 258).

These sentences by the geophilosopher David Abram resonate even louder today, as we know that air pollution makes us more vulnerable to the coronavirus. Certainly, there remains much debate between scientists on the role played by pollution from particles suspended in the air, as an important

vector for the propagation of the virus[2]. However, there is no doubt that road traffic emissions and the use of pesticides damage the mucous membranes in the respiratory tract (making them more permeable to pathogens), nor that long-term exposure to these air pollutants weakens our immune system.

Beyond this pandemic, forgetting about air has killed millions of people in the past few years. Ambient air pollution has become one of the main global health risks, causing significant excess mortality and decreased life expectancy, especially through respiratory and cardiovascular diseases, as a recent study shows: "Global excess mortality from all ambient air pollution is estimated at 8.8 (7.11–10.41) million/year, with an LLE (Loss of life expectancy) of 2.9 (2.3–3.5) years, being a factor of two higher than earlier estimates, and exceeding that of tobacco smoking" (Lelieveld *et al.,* 2020, p. 1910). In Europe, the impact of air pollution is estimated to be responsible for 790 000 premature deaths per year (*ibid.*: 1912). The major pollutants are gases (nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide), combined with natural fine particles (sand, algae, ash, dust, etc.). These fine combined particles can be deposited in our lungs (if they are smaller than 10 microns: PM10), even crossing the barrier of the pulmonary alveoli to penetrate into the blood system (if they are smaller than 2.5 microns: PM2.5). The human body often reacts through an inflammatory response and a wide range of disorders (neurological, endocrinal, metabolic, stroke, among others).

All these figures on the effects of air pollution are a clear sign that we have neglected the air, despite its great importance for our lives. Following the reflections of David Abram in *The spell of the sensuous*, we think that such carelessness has a particular significance:

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[2] No one has failed to notice that the first major outbreaks of Covid-19 in spring 2020 corresponded to heavily polluted areas: Wuhan region (China), the Po Valley (Italy), Ile-de-France region (France), New York State (USA), among others. In this context, the Italian society of environmental medicine (SIMA) has hypothesized in a position-paper published on 17 March 2020 that pollutant particles may have played a decisive role in the propagation of the virus in the Po Valley (https://www.simaonlus.it/wpsima/wp-content/uploads/2020/03/COVID19_Position-Paper_Relazione-circa-l'effetto-dell'inquinamento-da-particolato-atmosferico-e-la-diffusione-di-virus-nella-popolazione.pdf). This position-paper, based on previous studies related to the transmission of other diseases, was challenged in subsequent scientific publications; for an overview of this subject and the issues for public policy, there is the report by the observatory for Ile-de-France regional health (ORS), 28 September 2020, Available online: https://www.ors-idf.org/nos-travaux/publications/pollution-de-lair-et-covid-19/ (accessed 20 April 2021).

Phenomenologically considered – experientially considered – the changing atmosphere is not just one component of the ecological crisis, to be set alongside the poisoning of the waters, the rapid extinction of animals and plants, the collapses of complex ecosystems, and other human-induced horrors. All of these, to be sure, are interconnected facets of an astonishing dissociation - a monumental forgetting of our human inherence in a more-than-human world. Yet our disregard for the very air that we breathe is in some sense the most profound expression of this oblivion. For it is the air that most directly envelops us; the air, in other words, is that element that we are most intimately *in*. As long as we experience the invisible depths that surround us as empty space, we will be able to deny, or repress, our thorough interdependence with the other animals, the plants, and the living land that sustains us (Abram, 1996, p. 260).

Air is considered by our Western cultures to be a lifeless space, separate from us, and without any 'agentivity'. Denying its importance can be correlated with our inability to challenge our behavior in the face of global climate change and ecological crises. In other terms, the problem here is first and foremost a question of *perception*: perception of air and self-perception within air. Since the beginning of the 20th century, industrial civilization and science have instilled in us two comfortable misconceptions: on the one hand, that human action should not disturb the climate and air, and on the other, that rich societies have nothing to fear from its upheavals (Fressoz & Locher, 2020). Our skill for paying attention to living air has been relegated to bourgeois, conservative and esthetic issues, to the point that it is no longer part of our 'collective and political attention' (Morizot, 2020).

With our common sense, we draw the earth as a ball-like shape surrounded by an outline of sky. For Tim Ingold, "this image, supposedly representing the 'correct' scientific view, leaves people as 'exhabitant' of the earth, stranded on its outer surface." (2008, p. 32) The exhabitant of the earth is a person who feels separate from the sky, strictly distinct from the aerial world and capable of observing it from the point of view of a flat earth. One of the ambitions of Tim Ingold's thinking is to understand how we can move from habitual ways of perceiving air as exhabitants of the earth, to new ways of dwelling, as 'inhabitants of weather-world'. In this weather-world, also called 'open world', there is no longer an absolute division between earth and sky, and our place in the environment changes radically: "To inhabit the open is not to be stranded on a closed surface but to be immersed in the fluxes of the medium, in the incessant movements of

winds and weather." (*ibid*.) Inhabitants of the weather-world are people who perceive themselves as porous beings immersed in the movements of the air, dwelling *within* a 'world of becoming', where the air and wind *are* agency and interconnect all life forms.

Faced with the pandemic and environmental crises, are we condemned to passively enduring or wearing masks indefinitely, trying our best to filter the eight liters of air that an adult inhales every minute? Can we find solutions to road traffic emissions other than these 'air purifiers' which are proliferating in the domestic spaces of major cities such as Delhi? We believe that the prevailing critical situation is also a fabulous opportunity to go beyond this belief that multicolored smoke and chemical fumes can all cancel each other out, somehow, in the invisible emptiness. Many people in Europe, and indeed around the world, have recently fled from big cities to the countryside, responding to the desire for better air quality. But the question still remains: how can we overcome the collective amnesia that has reduced air to nothing more than a dump site, and how can we remember the importance of this aerial medium that flows both inside and outside of us, allowing all forms of existence to flourish?

2. Aerial narratives: dialog between scientific knowledge and indigenous cultures

Answering this question first implies mindfully considering the *narratives* that lead to us embodying the point of view of a weather-world inhabitant. Narratives are not simply anodyne fairy tales; they are also *meaningful ways of creating sense and affecting us deeply*, *both emotionally and cognitively* (Weik von Mossner, 2017). In the Anthropocene era, narratives introduced an inclusive way of reasoning, as emphasized by Deborah Bird Rose and Libby Robin: "It may be that narrative is the method through which the reason of connectivity will find its most powerful voice. This method offers the profound possibility of telling stories that communicate, invoke, and invigorate connections." (Rose & Robin, 2004) Within stories, these authors invite us to consider in particular new scientific narratives developed equally around both ecology and indigenous narratives "because in many areas they already have connective concepts of the relationships between humanity and the biosphere." (*ibid*.) This dialog between scientific knowledge and indigenous cultures prevents us from falling into the official narrative of the Anthropocene which only gives the key to 'spaceship Earth' to engineers (Bonneuil & Fressoz, 2013, p. 13). In

fact, expert discourse in Western modernity has systematically evicted or mocked narratives that did not come from a 'blind' third-person point of view, while narratives assuming their point of enunciation support a 'point of life' aesthetic, which is also an antidote to the 'hubris of the zero point' (Bonvalot, 2019). Yet considering these new narratives is the very condition needed for the emergence and re-emergence of 'incorporeal universes of reference' which can transform how individual and collective historicity unfolds (Guattari, 1989, p. 26). From this perspective, we will consider 'aerial narratives' that include any kind of narrative that highlights the relationship between the human, non-human and air. And the first 'narrative track' we would like to explore in this way concerns the biology of air.

2.1 Scientific narratives of the living air

As the heirs of modern thinking, we are so accustomed to determining the reality of something by using our eyes, that we have forgotten that air is a lively and evolving habitat, full of multispecies connectivity. Far from being inanimate and inconsistent, natural scientists tell us that the air is populated with an entire cohort of all kinds of beings: viruses, spores from bacteria and algae, fungi, vegetative cells, ferns, protozoan cysts, without forgetting more visible ones such as birds, insects, pollen, seeds, and small airborne animals. Yet, many of these organisms use air only as an ideal mode of transport, a means to settle elsewhere and begin a new life. Nevertheless, a large number of species *inhabit* the air in the true sense of the word, at least temporarily, settling there in adulthood.

This invisible ecology of the air is far from being anarchic, with each territory generally correlated to the thermal stratification of the atmosphere and global wind systems. On the basis of these two criteria, biologists specializing in the atmosphere define areas with specific aeroplankton composition that also vary in relation to local conditions (topography, interaction between land and sea, regional and local winds, among others). The area with the richest biodiversity corresponds to the 'planetary boundary layer' (with an average thickness of 1000-2000 meters, although it can be reduced to 50 meters depending on winds and luminosity) where the constantly moving air is directly influenced by its contact with the planetary surface. To understand the abundance of life in this area, the great biologist Lyall Watson invites us to imagine a column of air measuring one kilometer above our shoulders: this column contains a delicate balance of around 30 million living beings (1986, p. 188). The 'free atmosphere' above this

column, traversed by huge fluxes related to the Earth's rotation, is also inhabited by a myriad of organisms.

Barricading ourselves inside an air bubble, purged of all bacteria and viruses, is simply impossible. We need to learn how to cohabit with all the species blowing in the wind. Air is a sort of primordial soup, full of powerful evolutionary forces, and it cannot be placed under control, or even 'pasteurized'. It is also the place for the fruitful interactions between lifeforms, genetic mixing and interbreeding that have enabled life on earth to flourish in all its diversity and richness. When subjected to closer scrutiny, our suspicion that air flow is a refuge for misplaced viruses should subside and we should be able to recognize its power to renew fertilization. Although plants are sedentary and can only enjoy sexual pleasures by proxy, wind plays its part in the transfer of male reproductive cells to female ones. Only 10 percent of plants use air transport (rather than insects and pollinating animals), yet they represent 90 percent of the plant mass on earth (*ibid.*, p. 201). A wide variety of plant species entrust their fruits and seeds to the wind, developing surprising forms that look like parachutes or gliders with one wing in order to travel easily. The moving air also nourishes the soil by providing organic matter over long distances.

Following this scientific narrative of the living air, we start to become aware that every breath we take is in an *invisible air cauldron* which is *the very fabric of life*. If we truly want to be part of this world, we have no choice but to recognize our interdependence with the aerial world and take care of it.

2.2 *Narratives of indigenous peoples: Nilch'i, the 'Holy Wind' of the Navajo*

These scientific narratives resonate with those of indigenous peoples who see air as a sacred matrix thanks to its utter invisibility, combined with its obvious influence on various phenomena. And it is precisely through this contact with the ineffable and efficacious presence of air that populations with an oral tradition have formed narratives, capable of embracing this paradox. Indigenous narratives, reiterated and embedded in rituals, are learning patterns, comparable to scientific discourse in the West: they are respected voices, forwarded and embodied in cosmovisions and ontologies (Descola, 2014). They thus form another 'narrative track' that can help us becoming aware of the air, contrasting with our habitual way of perceiving air as empty space. Some of the most interesting narratives about air are

those of the Navajo Nation (also called 'Diné'), who inhabit the Colorado Plateau (South Western USA).

For the Navajo, the air, wind, and breathing are referred to as '*Nilch'i*'. What is referenced by the term *Nilch'i* is firstly the air or atmosphere in its entirety, conceived as having a holy quality and powers that are not acknowledged in Western culture (translated into English by the expression 'Holy Wind' or 'Holy Wind Spirit': McNeley, 1981). Air permeates Nature in its entirety and forms a relationship of unity between all sentient beings. It is a *moving atmospheric matrix*, an interdependent network that links, in a subtle manner, every element in the living world (humans, plants, animals, minerals) within a common texture.

But *Nilch'i* can also be 'The Wind within one' (*nilch'i hwii'sizinii*), which is the air inhabiting and swirling inside of each being. It is this invisible phenomenon that activates lifeforms from within. Some Christian Fathers, seeing how the Navajo thought and wanting to evangelize them, interpreted this concept of 'the wind within one' as a deviant belief in the soul: a soul that entered the individual at birth and left at death, dominating the individual's behavior throughout his or her life. But the ethnologist James K. McNeley – whose wife is a member of the Navajo community and who has thus lived with them for decades – shows that the more autonomous aspect of *Nilch'i*, 'the wind within one,' should be understood as the dwelling place of the global 'Holy Wind', and is one of its multiple centers, like a knot in a web.

Nilch'i has the power to move every element in the living world internally and to make all these elements interact externally. Each 'being of wind' is influenced by others 'beings of wind' and by the 'Holy Wind'. Yet each being also plays a part in modeling the global wind through its intentions, thoughts, desires, speeches and actions. No person is passive in their relationship with the sacred wind: they participate in it as one of its parts. By influencing the shape of the surrounding wind, they also have an influence on the events occurring in the territory (seed germination, animal reproduction, cloud formation, and precipitation, etc.). Therefore, each 'being of wind' is invited to follow the 'Windway,' which is the way leading to peace within oneself that enables one to restore *Hozho* (harmony) in the world. Some specific practices – in particular meditation, prayers, and chants – serve precisely as a support for actualizing self-respect, respect for other 'beings of wind' and for the 'Holy Wind'. From this perspective, human wellbeing depends directly on the reciprocal care relationships with sentient beings (human and non-human), natural phenomena (water,

mountains, the sun, stars, etc.) and more generally with this subtle matrix composed of moving air that conditions how phenomena occur.

In Navajo narratives, *Nilch'i* is never a property that is separate from the world, a permanent and distinct self, but is instead a property of the medium in which every sentient being participates. These indigenous narratives define what Arturo Escobar calls 'relational ontology' in which "all things of the worlds are made of entities that *do not preexist the relations that constitute it*" (Escobar, 2018, 75). Is this sense of animate entities present in moving air, used as a basis for a relational ontology, unknown in our Western cultures?

The answer to this question is, in fact, no. In ancient Mediterranean cultures, we find many terms referring to similar understanding of the wind and air. For example, there is the pair *ruach–neshamah* in Hebrew: *ruach* means both wind, breath, and spirit (Lys, 1962). *neshamah* has a meaning close to 'the wind within one,' denoting both breath and the soul. Breath plays a specific role in ancient Semite scribes, as only consonants are written, and it is breath that creates vowels – which are nothing other than sounded breath – giving form to the text. In ancient Greek, we also find the word *psukhé* which signifies not merely the 'mind' or 'soul' but also 'breathing' or 'blowing' (Llyod, 2008), and from which we derive the terms 'psychology', 'psychotherapy', etc. Similarly, the Latin word *anima* (from Greek *anemos*) referred to an elemental phenomenon that included the air and 'that which thinks in us' (*animus*) and from which evolved such terms as 'animate', 'animism', etc. Another ancient Greek word with a similar sense is *pneuma* (and its derivatives: 'pneumatic', etc.) which can be used for 'air, wind or breath' and also to signify a vital principle within the animate world. We find the same connotations in the Latin word *spiritus* (and *spirit* in English). Of course, this understanding of air is not limited to our European civilizations, as we can see with the terms *prana* in Sanskrit, *lung* in Tibetan, and *qi* in Chinese. But we are also familiar, in a certain sense, with experiencing air as the very matter of awareness or the mind, something that is neither separate from the rest of Nature, nor a passive medium.

3. A phenomenological approach to recall the air and activate our sensory perception

This way of considering air, of allowing ourselves to experience the invisible presence of the aerial medium as vibrant matter, has not completely disappeared today. Of course, during my doctoral research, I observed that most wind experiences try to 'grasp' or 'capture' movement in the atmosphere (Barniaudy, 2016). These experiences involve the ability to disengage ourselves from the environment using technology (especially for meteorological occurrences, using highly complex *dynamic simulation models* that can be accessed on every smartphone or computer). These technical tools are inherently linked to normalized knowledge that tries to represent moving air within a virtual space that is separate from the living world. All this knowledge and technology is used to optimize practices, for economic purposes and using a utilitarian approach. This approach along with technological hybridization result in deterritorialization of actions that are no longer able to take place in the weather-world, but instead try to control it, from an exhabitant point of view (Barniaudy, 2018).

However, these are not the only practices that exist and, although not common, I have also encountered, in some very windy North Western Mediterranean rural areas, geographical actors (sailors, farmers, architects or simple habitant) that commit their entire being, their body-mind to the weather-world, to such an extent that they seem embedded into the folds of the atmosphere (Barniaudy, 2021). In this case, they need to develop attentional skills and a sensitive disposition in order to connect with their surrounding environment. The effort of reading the signs of present and future weather events in the aerial matrix reinforces the *situated knowledge* and *embodied action* that are territorialized in the inhabiting world. These actors are also those that have the most significant and holistic relationship with the weather-world, including many dimensions of inhabiting (practical and economic, but also cultural, poetic, and existential).

These experiences lead us to consider our sensory perception and the role played by the body-mind in experiments on flow and aerial reality. After narratives by scientists and anthropologists, we now consider the philosophical field, for another way to describe and recount our experiences, helping us to become aware of the living air.

Becoming aware of the air implies *activating our sensory perception*. This is first made possible by enhancing our direct and immediate experience of the 'Life-world,' to borrow Husserl's expression

([1913]1950). Phenomenological thought opens us up to a path where our most important cognitive activities are understanding how real life makes itself present to us, and familiarizing ourselves deeply with this experience of a sensory, carnal world, before trying to measure, quantify, represent, or control it. Merleau-Ponty (1945) created the concept of 'body subject' to highlight that our bodily senses are not merely passive sensory receptors that send messages to an overhanging consciousness. In fact, our various senses converge in the perceived phenomena of the surrounding environment and provide it with coherence. The 'body subject' is not just a physical and mechanical body, but also an *embodied self*, an open and active body, intertwining with the fabric of the present, perceiving the 'rays of the world' or 'nexus of experience'.

From this perspective, perception is a dynamic activity of receptivity and creativity by which we converse with others and orient ourselves in the world, an activity that gives perspective to the world that we might inhabit it. Because the act of perception is already an act of participation, we do not need to search for external conditions that can bring us back to living air. We simply need to be aware of our bodily senses, connecting us with the 'breathing earth' (Abram 1996) and thus synchronizing our own rhythms with the rhythm of things themselves. This understanding obtained thanks to the phenomenological perspective is very close to that of the cittamātra Buddhist philosophy (also called Yogacārā school, 4th century AD, ancient India) which considers direct sensory perception as a skillful means of accessing the 'domain of thusness' (the reality as it is), which is not distorted by our patterns of thinking (Thich Nhat Hanh, 2001).

A philosophical method of this type should help us to overcome certain dualisms (subject/object, organism/environment, body/mind, sensitive/cognitive) that are grounded in our way of perceiving the world, and which prevent us from enacting the inhabitant's point of view. If perception is basically participatory (sometimes suspended when our attention is captured by artefacts), it suggests that the perceiving body is always in an active interplay relationship with the perceived phenomenon. Perception is no longer a process that allows the consciousness to interpret and organize sensations, but it is always a mutual embrace or a 'coupling', in the words of Francisco J. Varela (1991), between organism and environment. The organism persists in its own being, successfully maintaining vital constants such as a body temperature of 37° C, only because it is coupling with its environment. This sensory coupling can define a relational ontology from which the identity of no organism is ever

fixed and keeps becoming, according to the relationship woven into its environment.

Recovering the sensorial dimension of experience also brings reconnection with a creative and iterative way of knowing; in the context of the Covid-19 pandemic, many of us have rediscovered a sensual world infused with birdsong, insects flying and light waves. From this rediscovery emerges a sense of wonder and awe that we do not get when we co-evolve with telephones or other mass-produced artefacts that are built for specific functions and are thus utterly predictable. The dialogue with animate lifeforms needs the ongoing adjustments and creativity of our perception. And it is through this dialogue that we can leave our self-referential world, centered only on human language, while the flesh of language is composed of breaths, wind, rivers, and all the voices of the earth. It is also a way to extend our self-conception, from a tight ego identity to an 'ecological self' including all the relationships of which we are constituted (Naess, 2017).

The good news is that we can cultivate skillful perception by reawakening our senses and intentionally sensing with our entire body-mind. We can train ourselves in perceptual practices in order to see our ecological condition more deeply and care for it (Sewall, 1995), thus opening up new horizons in the field of education and training.

4. Recognizing the air as a living medium: issues for integrative environmental education in the Anthropocene Era

What types of learning and experience are needed to embody these narratives, activate sensory perception, and engage learners in caring for human and more-than-human worlds? In the particular case of air, how can teachers and educators help students recognize the importance of the aerial medium, pay close attention to it, and act responsibly?

As a first response, we must consider the need for high-quality science literacy on the subject of air. Scientific narratives of the living air should be present in environmental education, whether in the teaching of natural sciences (biology, climatology, etc.) or humanities (geography). Schoolchildren and students will thus be able to recognize the lifeforms that live in air, as well as the importance of air as a central element for us to inhabit the world. This science literacy includes climate and weather

literacy[3], which need to be developed, primarily, in pre-service and in-service teachers. In France, the aim of creating the *Office for Climate Education* (OCE) after the COP21 in Paris was to improve teachers' cognitive skills levels, and 20 000 scientific articles are published every year on this subject. Despite these publications, understanding of the atmosphere system and mechanisms of climate change remains very limited in most countries in the world: an analysis of curricula in 78 countries shows that only 35% mention climate change (Unesco, 2016, p. 293). And even when students gain complex and effective knowledge of climate change, as they do in Finland, how they perceive and act in the air is rarely affected (Hermans & Korhonen, 2017). It is the whole issue of climate change education, which focuses primarily on disembodied knowledge transmission, that fails to touch the experience and habits of learners.

This is why education that aims to recall the air should also consider pedagogical practices and arrangements that both engage the body-mind of students in active learning, and transform their way of inhabiting the air. From this perspective, the research group on eco-training (*Groupe de Recherche en Eco-Formation*) – developed in French-speaking countries since the 1990s – highlights the importance of outdoor learning with regard to the pedagogy of imagination (Bachelart *et al*., 2005). This approach joins the phenomenological perspective by emphasizing the potential of education *in* and *through* the environment, going beyond education on (the subject of) the environment. Eco-training takes root in a sensitive and immersive experience of the world, an eco-somatic process that allows children and teenagers to feel part of liveliness (Clavel, 2017). It continues by exploring the symbolic and poetic dimension of our relationship with the elements, following the work of Gaston Bachelard (on air: Bachelard, [1943]1992; Pineau, [1992]2015).

Eco-training strongly resonates with studies by authors who underscore the potential of narratives for coping with climate change and ecological crises (Siperstein *et al*., 2017). In classroom and training arrangements,

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[3] We identified a first definition of 'climate literacy' as a result of a three-day workshop "Climate & Weather Literacy" at UCAR in Boulder (2007), bringing together a group of scientists and educators: "A climate literate person understands the essential principles of Earth's climate system, knows how to assess scientifically credible information about climate, communicates about climate and climate change in a meaningful way and is able to make informed and responsible decisions with regards to actions that may affect climate." (NOAA, 2009, *Climate Literacy: The Essential Principles of Climate Science,* Available Online (accessed 21 April 2021): https://cpo.noaa.gov/sites/cpo/Documents/pdf/ClimateLiteracyPoster-8_5x11_Final4-11LR.pdf)

these narratives may take the form of first-person narratives - including environmental autobiography (Cottereau, 2017), sumbiography (Albrecht, 2019), and ecobiography (Pierron, 2021) – or fiction and non-fiction storytelling in the first, second, or third person (writing workshops, filmmaking workshops, creative anticipation, role-plays, etc.). All these narrative practices are tools that enable students to develop extended empathy for all sentient beings, involving the ability to put themselves in someone else's mind, understand their feelings, perception, and thoughts from within, and recognize the value of their experience. In the case of air, we can for example imagine placing ourselves in the skin of a sentient being that breathes like us (an animal, an insect or even a plant or tree). We can try to feel how it is to breathe, move and interact in the air, with the body of this sentient being. To also feel how human activities affect its way of inhabiting and what kind of message we can address to humans, on behalf of this lifeform (Seed *et al.,* 2007).

Narratives, cognitive skills and sensitive experiences each contribute in their own way to returning our perception to a world *co-habited* by humans and non-humans. Including these three dimensions in a more integrative environmental education, teachers and educators can lead learners to both recognize air as a living medium that sustains their life, and generate the desire to care for it, by committing themselves to individual and collective actions.

Conclusion: from attentiveness and narratives, to care ethics

To become aware of the air, we need to carefully examine scientific and indigenous narratives, as well as the phenomenological approach. This is not only a question of insight, but also a question of ethics, as David Abram states:

> It may be that the new 'environmental ethic' toward which so many environmental philosophers aspire – an ethic that would lead us to respect and heed not only the lives of our fellow humans but also the life and well-being of the rest of nature – will come into existence not primarily through the logical elucidation of new philosophical principles and legislative strictures, but through a renewed attentiveness to this perceptual dimension. That underlies all our logics, through a rejuvenation of our carnal, sensorial empathy with the living land that sustains us (Abram, 1996, p. 69).

The power of these narratives enhanced by attentiveness is to lead us toward care ethics which consist firstly in an ethic of mindfulness, and an ability to raise awareness of what happens in our experience. It is an ethic that promotes, above all, care of our ordinary and daily reality, care of what provides and sustains the continuity of life (Gilligan, 1982; Tronto, 1993). Such attentiveness to the subtle relationships that build our world has the ability to make visible the simple gestures, regards and inhabiting knowledge that are fundamental for our life. It also has the ability to increase awareness of the interdependence between self and others, inner and outer, and human and more-than-human worlds (Laugier, 2015; Biancofiore, 2016; Barniaudy, 2020).

In fact, narratives do not impose moral principles on what should be good or bad. They create a fresh empathy that is also recognition of shared vulnerability between all elements in the living world, and from which emerges a profound feeling of conviviality with all life forms. The key is to find a way of inhabiting the worlds that include others, and not just humans, widening care circles to all the conditions that allow us to breathe in the medium of air. To activate our sensory perception and renew our manner of enacting the world, we need to remember or create meaningful narratives. Narratives that ground human desires and act in a more-than-human world, that help us to care for ourselves, others, and the air intertwining through all life forms.

References

Abram, D., 1996, *The spell of the sensuous*, Vintage, New York.

Albrecht, G., 2019, *Earth Emotions : New Words for a New World,* Cornell University Press, NY: Ithaca / London.

Bachelard, G., [1943]1992, *L'Air et les Songes. Essai sur l'imagination du mouvement*, Libraire Générale de France, Paris.

Bachelart, D., Cottereau, D., Moneyron, A., Pineau, G. (eds.), 2005, *Habiter la terre : écoformation terrestre pour une conscience planétaire*, L'Harmattan, Paris.

Barniaudy, C., 2016, *Habiter au gré des vents en Méditerranée nord-occidentale*, PhD. in geography, Université Paul-Valéry Montpellier 3, Montpellier, Available online : https://hal.archives-ouvertes.fr/tel-02293838/document (accessed 20 April 2021).

Barniaudy, C., 2018, *Aménager au gré des vents: la géographie au service de l'action*, Anthropos / Economica, Paris.

Barniaudy, C., 2020, "Prendre soin du milieu, préserver la Terre : pour une éthique du *care* en action", *Notos*, 5, Available online: https://hal.archives-ouvertes.fr/hal-02866565 (accessed 20 April 2021).

Barniaudy, C., 2021, S'inscrire dans les plis de l'atmosphère ou comment faire émerger un maillage de multiples identités dénué d'identité. In : Fournier, L. S., Bernié-Boissard, C., Chastagner, C., Crozat, C. (eds.), *Identités imaginées*, Presses Universitaires d'Aix-Marseille, Aix-en-Provence, 83-100.

Biancofiore, A., 2016, Land Ethics and the Appropriation of Living Beings. In: Pérez, R. (ed), *Agorapoetics*, The Davies Group Publisher, CO: Aurora, 199-228.

Bonneuil, C., Fressoz, J.-B., 2013, *L'évènement Anthropocène : la Terre, l'histoire et nous*, Seuil, Paris.

Bonvalot, A.-L., 2019, "Écologies du plurivers et (dé)colonialité dans quelques fictions d'enquête environnementale du Sud global", *e-cadernos CES*, 32, Available online: http://journals.openedition.org/eces/4957 (accessed 20 April 2021).

Clavel, J., 2017, Expériences de Nature, investir l'écosomatique. In : Fleury, C., Prévot, A.-M. (eds.), *Le souci de la nature : apprendre, inventer, gouverner*, CNRS éd., Paris, 257-269.

Cotterau, D. (ed.), 2017, *Dehors : ces milieux qui nous trans-forment. Récits éco-biographiques nés d'ateliers d'écriture*, L'Harmattan, Paris.

Descola, P., 2014, *La composition des mondes : entretiens avec Pierre Charbonnier*, Flammarion, Paris.

Escobar, A., 2018, *Sentir-penser avec la terre*, Seuil, Paris.

Fressoz, J.-B., Locher, F., 2020, *Les révoltés du ciel : une histoire du changement climatique*, XVe-XXe siècle, Seuil, Paris.

Gilligan, C., 1982, *In a different voice: psychological theory and women's development*, Harvard university press, Mass, Cambridge, London.

Guattari, F., 1989, *Les trois écologies*, Galilée, Paris.

Hermans, M., Korhonen, J., 2017, "Ninth graders and climate change: Attitudes towards consequences, views on mitigation, and predictors of willingness to act", *International Research in Geographical and Environmental Education*, 26, 3, 223-239.

Husserl, E., [1913]1950, *Idées directrices pour une phénoménologie*, Gallimard, Paris.

Ingold, T., 2008, Earth, sky, wind and weather. In: Hsu, E., Low, C. (eds.), *Wind, life, earth*, Blackwell / Royal Anthropological Institute of Great Britain and Ireland, Oxford, 17-35.

Laugier, S., 2015, "Care, environnement et éthique globale", *Cahiers du genre*, 59, 127-152.

Lelieveld, J., Pozzer, A., Pöschl, U., Fnais, M., Haines, A., and Münzel, T., 2020, "Loss of life expectancy from air pollution compared to other risk factors: a worldwide perspective", *Cardiovascular Research*, 116, 1910-1917, Available Online: https://doi.org/10.1093/cvr/cvaa025 (accessed 28 April 2021).

Llyod, G., 2008, Pneuma between body and soul. In: Hsu, E., Low, C. (eds.), *Wind, life, earth*, Blackwell / Royal Anthropological Institute of Great Britain and Ireland, Oxford, 129-139.

Lys, D., 1962, *Rûach : le souffle dans l'Ancien Testament,* P.U.F., Paris.

McNeley, J. K., 1981, *Holy wind in Navajo philosophy*, University of Arizona Press, Tucson.

Merleau-Ponty, M., 1945, *Phénoménologie de la perception,* Gallimard, Paris.

Morizot, B., 2020, *Manières d'être vivant*, Actes Sud, Arles.

Naess, A., 2017, *La réalisation de soi*, Wildproject, Marseille.

Pierron, J.-P., 2021, *Je est un nous : enquête philosophique sur nos interdépendances avec le vivant*, Actes Sud, Arles.

Pineau, G., [1992]2015, *De l'air : essai sur l'écoformation*, L'Harmattan, Paris.

Rose, D. B., Robin, L., 2004, "The ecological humanities in action: an invitation", *Australian Humanities Review*, 31/32, Available online: http://australianhumanitiesreview.org/2004/04/01/the-ecological-humanities-in-action-an-invitation/ (accessed 21 April 2021).

Seed, J., Macy, J., Fleming, P., Naess, A., 2007, *Thinking like a mountain: towards a council of all beings*, New catalyst books, Gabriola Island.

Sewall, L., 1995, The skill of ecological perception. In: Roszak, T., Gomes, M. E., Kanner A. D. (eds.), *Ecopsychology*, Counterpoint, Berkeley, 201-215.

Siperstein, S., Hall, S., LeMenager, S. (eds.), 2017, *Teaching climate change in the humanities*, Routledge, London / New York.

Thich Nhat Hanh, 2001, *Transformation at the base: fifty verses on the nature of consciousness*, Parallax Press, Berkeley.

Tronto, J., 1993, *Moral boundaries: a political argument of an ethic of care*, Routledge, New York.

Unesco, 2016, *Education for people and planet: creating sustainable futures for all*, Unesco, Paris.

Valéry, P., [1920]1957, *Œuvres*, vol. 1, La Pléiade, Gallimard, Paris.

Varela F. J., 1991, Organism: a meshwork of selfless selves. In: Tauber A. (ed.), *Organism and the origin of Self*, Kluwer Academic Publishers, Dordrecht, 79-107.

Watson, L., [1984]1986, *Le souffle d'Éole : histoire naturelle du vent*, Londreys, Paris.

Weik von Mossner, A., 2017, *Affective Ecologies: Empathy, Emotion, and Environmental Narrative,* Ohio State University Press, Columbus.

9. An Evaluation of a Shambaa Community's Tradition of Adaptation to Local and Global Forces to Maintain Socio-economic and Ecological Sustainability, and Plague Resilience in Lushoto, Tanzania

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Abstract

Dramatic landscape change, as needed for cash-crop agriculture, promotes forest fragmentation and greater risk factors for zoonotic disease epidemics. The Lushoto District of Tanzania illustrates the cash-crop agriculture phenomenon that led to a plague epidemic, but a more traditional Shambaa community next to a Lutheran mission had been able to be remarkably resilient during plague outbreaks that swept through the district from the 1980s to 2004. This forested community of Mlalo has benefited from the connection to the mission to resume and adapt more traditional community and environmental practices than their neighbours, which resulted in their diminished risk for a zoonotic epidemic. Mlalo community member, Professor Kihiyo, gives insight of these community practices that this chapter puts in the larger Lushoto context and illustrates how Mlalo was able to largely avoid the plague.

Keywords: Plague; zoonosis; Lushoto, Tanzania; Shambaa; sustainability; resiliency

Introduction

The development of the COVID-19 pandemic has underlined the importance of understanding the activities, systems, and institutions that instigate vulnerability or create resilience for a zoonotic epidemic. Recent studies of human zoonotic (animal reservoir initiated) epidemics have identified risk factors for such epidemics that illustrate a strong connection to rapid ecological change. These ecological/biological risk factors and

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socio-economic factors of human activity that affect human zoonotic vulnerability are assessed in this investigation. This work assesses the resilience of a Shambaa community based within epidemic regions of a 1980-2004 plague epidemic in the highland Lushoto District of north-eastern Tanzania. This case study investigation, utilizing a local community narrative, analyses the reasons behind the greater resilience to the plague of this agriculture community based on Shambaa cultural knowledge compared to nearby two distinct large-scale cash-crop agricultural communities.

2. Lushoto/Usambara Region

The Lushoto District is located in Tanzania's Usambara Mountains at an altitude ranging from 1400-1600 meters above sea level. Lushoto is humid, with a daily air temperature ranging from 12−17°C and mean annual precipitation of 1000 mm.

The Usambara Mountains are bordered by the Umba Plains in the north, the Pare Mountains in the Northwest and the Maasai Steppe, which stretches westwards to the foothills of the Mbulu/Babati highlands, in the south. Situated between 4^0 30' and 5^0 15' south, the mountainous block is sub-divided by the Lwengera river valley into two massifs: the West and East Usambara (Mtoi, 2017, pp. 31-32). The West Usambara covers an area of 1,740km (Egger, 1980, p. 14), with their mountainous parts almost exactly delineating Lushoto District. The region's topography is characterized by hills, steep and mountainous slopes, dissected by narrow valley-bottoms, with undulating basin and range landscapes in Mlalo. The agricultural areas are mainly between 1,000 m and 2,000 m above sea level, located on the valley-bottoms and on slopes (Egger, 1980, p. 14). Due to its mountainous relief, the climate of the West Usambara is characterized by extremely high rainfall variability. The mean annual precipitation in the Usambaras varies from 2,000 mm/year in the southwest to 600 mm/year in the north. There are two main rainy seasons in the region, one from March to May and a shorter one from November to December. Most of the West Usambara typically has a dry spell from June to November, but the central area contains high altitude belts that have an intermediate rainy season (Egger, 1980, p. 14).

3. Methods

This research was conducted through Participatory Rural Appraisal (PRA) methods, with use of the *Table of Inquiries into risk of Human Zoonotic Epidemics* assessment tool (see Fig.1), which is based upon the *One Health* approach (One Health Commission, 2021), socio-ecological and zoonotic resilience research and transdisciplinary methodologies. The ultimate purpose of this assessment tool is to identify the factors which determine vulnerability or successful resilience to zoonoses, and to be able to predict areas of escalating or diminishing risk "based upon ecological change, human activity and the socio-economic institutions and systems that facilitate these risks" (Ruhaak, 2019, p. 8). Each inquiry on this table illustrates a spectrum of high vulnerability to high resilience to a human

zoonotic epidemic. This table begins with inquiry 1, which is based upon Laudisoit's (2017), Begon's (2013), and McMichael's (2004: 1054-1057) vulnerability factors of zoonotic disease (See Appendix), which are aptly summarized in Plowright *et al*'s (2021, 4) *The zoonoses spillover cascade: loss of landscape immunity as the pandemic trigger*.

Causal hierarchy of spillover from wildlife to humans		Stressors on landscape immunity	
		Stressors to ecosystems that reduce landscape immunity	Consequences of ecosystem stress
Wildlife	Infect / Shed — Wildlife host distribution and density	• Habitat fragmentation, degradation, and augmentation • Changes in ecological structure (eg. trophic structure) and process (eg. hydrology) impacting resource availability or distribution	• Movement of wildlife in close proximity to humans (eg. crowding around remaining and augmented resources) • Altered population structure and changes in food webs
	Wildlife host susceptibility to infection Pathogen prevalence and intensity of infection Pathogen release from wildlife host	• Decreases in natural resource abundance and condition • Resources become scarce • Introduction of biological toxicants and other pollutants	Mechanisms that increase infection and shedding beyond background level: • Energetic, nutritional, and physiological stress increase vulnerability to infection and lead to increased pathogen prevalence and shedding • Crowding that increases transmission
Wildlife–human interaction	Pathogen survival outside of host	Changed environmental conditions that improve pathogen or vector survival	Pathogen persistence in the environment
	Human exposure	Human behaviours that lead to contact with a pathogen or vector	Increased human–wildlife proximity
Humans	Spill — Human susceptibility to infection / Spillover	Declines in human population health associated with degraded environments: • Pre-existing conditions and infections • Energetic and nutritional stress • Decreased immune function	Increased susceptibility to infection
	Spread — Person-to-person transmission	Crowding and movement of people, products, and services	Epidemics and pandemics

Figure 2. Plowright *et al*'s (2021, p. 4) *The zoonoses spillover cascade: loss of landscape immunity as the pandemic trigger,* begins with an increase in habitat fragmentation and degradation that diminishes resource availability and leads to smaller wildlife habitats, forcing some to leave the habitat or die off, while others experience a population boom, leading to altered population networks that may also include invasive species. These rapid changes bring stresses that threaten many wildlife species, increasing the vulnerability to infection and thus increasing pathogen prevalence. Changes to the soil, animal, and plant life improve vector

and/or pathogen survival, while human exposure is heightened. Human populations are under greater risk of infection with decreased immune system function, while transmission is intensified by higher population density.

Table 1 - *Inquiries into risk of human zoonotic epidemics (updated version of Ruhaak 2019, p. 3).*

Area of Inquiry:
Ecological and Biological Spheres
1) Based upon the vulnerability factors for a human zoonotic epidemic (as exemplified by McMichael 2004: 1054-7), is there evidence of change in the level of risk at the site?
2) Is there evidence of food insecurity and malnutrition/co-infections? OR A focus on locally sourced food, medicine, and health services sustainably meeting the needs of the population?
3) Is there evidence of deforestation, vegetative clearance, &/or erosion? OR Is there evidence of re-forestation that is increasing biodiversity with decreasing erosion rates?
Other Spheres: Socio-economic, language & education/enculturation, collective authority/spirituality & collective perception of past
4) Has there been an increasing emphasis upon language built for trade over ecological observation? OR Has there been greater emphasis upon learning language(s) or an older version of a trade-based language that was based in a certain cultural geography?
5) Is there evidence of trade/economic change leading to educational change in society? OR Is education/enculturation of sustainable socio-economic and ecological systems prioritized over short-term wealth growth through international trade?
6) Is there evidence of: Growth in social organizational size and complexity, which diminished the society's problem-solving efficiency? OR Is there a systematic focus on local control of problems with stakeholder

7) Is there evidence of societal instigation of ecological crises through unsustainable socio-economic systems and institutions?
OR
Are there local organizations that are tied to the ecosystems that they depend upon and enforced rules are in place to sustainably maintain this connection?

8) Is there evidence of isolation in regard to a lack of network connections outside the community/society as well as to the knowledge and knowledge systems they use?
OR
Is there evidence for strategic alliances, networks, and knowledge that gives them valid and reliable assessments of human hazards that threaten them?

Inquiries 2 and 3 focus on the connection between healthy and dynamic ecological systems and the capacity of these systems to grow to a sufficient and sustainable number of environmental services upon which local people depend. These inquiries address major biological/ecological risk factors that will be assessed on a continuum of high risk (e.g., inquiry #2 - persistent food insecurity & malnutrition) to high resiliency (e.g., inquiry #2 - sustainable food and medicine for the local population).

If vulnerability to a zoonotic epidemic is largely determined by anthropogenic change to the ecological systems, then it is critical to uncover what systems and institutions instigate these activities that heighten such risk. Inquiries 4 -7 focus on these systems and institutions that spur human activity triggering changes that increase the risk of a zoonotic epidemic, as well as that which affect a population's connection to their local ecologies. These systematic and institutional changes may also affect peoples' capacity to observe their local ecologies, and to make any necessary responses to potential threats to their lives.

The last inquiry focuses on how well connected a community is to outside communities, and the knowledge and knowledge systems on which they base their assessments, decisions, and actions. Those who are well informed and connected to outsiders are better able to form strategic alliances and networks, while also taking preparation within the community/society to address any threat(s) they might experience from these groups (Friere, 1970; Goodyear-Ka'ōpua, 2009; Shiva, 2005). However, those that are quite isolated from knowledge and people from outside their communities may be especially at risk of violence,

advancement of outside exploitation and/or settlement onto their territory, and the ecological and zoonotic repercussions resulting from these changes (Shiva, 2005; Thomella *et al.,* 2006).

4. The History of Plague Epidemic in Lushoto, Tanzania

According to Kilonzo, Makundi, and Mbise (1992, p. 323), "plague has been endemic in Tanzania for more than a century" and was "introduced into the country through Uganda and Kenya" long before Europeans arrived. They also state that "most of the currently active and quiescent foci of the disease are found along these ancient routes" taken by the slave and ivory trade. Even though the bubonic plague was first recorded in the late nineteenth century, many communities had named the disease and put measures to limit its impact well before that time (Kilonzo, Makundi & Mbise, 1992, p. 323). Though the bacterium, *Yersinia pestis*, which is responsible for the high-mortality epidemic, was present before the European colonization of East Africa, it only reached epidemic proportions beginning in the late nineteenth century. The period between 1886 and 1969 marked the establishment of multiple epidemics in different parts of the country, from the tsetse fly boom and sleeping sickness, to the cattle epidemic, Rinderpest, and the start of the Plague (Kilonzo, Makundi & Mbise, 1992, p. 324).

The spread of *Y. pestis* and the subsequent geography of bubonic plague cases grew to encompass a large area in East Africa from the time of German and British colonialism up through the early post-colonial period. Upon independence, Tanzania had established British institutions and multinational corporate influences that were largely managed by the same professionals as the British colonial period. The Nyerere government also wanted to create a wealth surplus as the previous colonial administrations, but sought for it to be shared by all Tanzanians. Villagization along with the refugee camps of the 1980s and 1990s greatly impacted local resources. It was at this time that the first recorded instance of the bubonic plague appeared in the Lushoto district in the Usambara mountains. The first outbreak in 1980 affected two villages in the district, which resulted in 49 cases, 11 of which were fatal. Subsequently, until 2014 outbreaks occurred every year. In July 1990 there were 3,148 confirmed or suspected cases, with 311 fatalities from 45 villages (Kilonzo, Makundi & Mbise, 1992, p. 324). The expansion of the plague from 2 to 45 villages within a decade illustrates the inadequacy of the control mechanisms in place at the time.

Due to villagization, it is probable that many, if not most, people did not possess strong roots in the areas in which they were settled. Consequently, most probably had limited knowledge of their new area's ecology and potential vulnerabilities. Additionally, the lack of established community histories would have affected the migrants' potential to adapt, since they were only beginning to learn about local environments, customs, and how to effectively organize in order to address serious issues. Co-operation between native and newly established settlers was in its infancy. Subsequently, people were probably more dependent upon the Tanzania government – newly formed villages were typically not self-sufficient and relied on government handouts, though the government ran out of food support in the 1970s (Shao, 1986, pp. 219-239).

Another aspect of the villagization program was the Nyerere government's standardized approach to combat the bubonic plague through sanitary improvement, health education, and the use of chemicals to kill rodents and fleas (Kilonzo *et al.* 1992, p. 324). This included the indiscriminate spraying of 10% DDT in affected villages' homes from 1983 to 1987. Nevertheless, plague outbreaks continued every year. The standardization of these control measures without regards to local environments and risk factors may have heightened risks in some locations. For instance, houses that were sprayed with 10% DDT, a dangerous poison to humans, may have contributed to lowering people's immune system effectiveness (Corsini *et al.,* 2008, p. 673; Corsini *et al.,* 2013*;* Hermanowicz *et al.* 1982, p. 338). Additionally, deforestation may have lengthened the period of relative warmth above 16° C in highland Tanzania, which may be tied to the extended outbreak period (Kilonzo *et al.*, 1992: 324). Micro-climates may have played a role in expanding animal reservoirs, as these cleared areas have a significant warming effect on shallow ground water and ground temperature (Bense & Beltrami, 2007, p. 9; Ellison *et al.,* 2017; Hesslerová *et al.,* 2013). This is especially true for the surface soil temperature, which is an important factor in escalating population density in rodent burrows, leading to increased risks for human populations (Ari *et al.,* 2011, p. 4; Meliyo *et al.,* 2014, p. 6; Stenseth, 2006, p. 13112). Additionally, clearing fields have long been known to increase wind and water erosion, as well as evaporation, all of which often leads to soil salinisation (Hassani et al., 2020; Singh, 2015). *Yersinia pestis* has been shown to thrive in saline soils (Barbieri *et al.*, 2020) while deforestation and vegetative clearance disperses hosts and vectors of zoonotic pathogens that leads to greater contact with humans (Friggens & Beier, 2010; Ziwa *et al.*, 2013, p. 5).
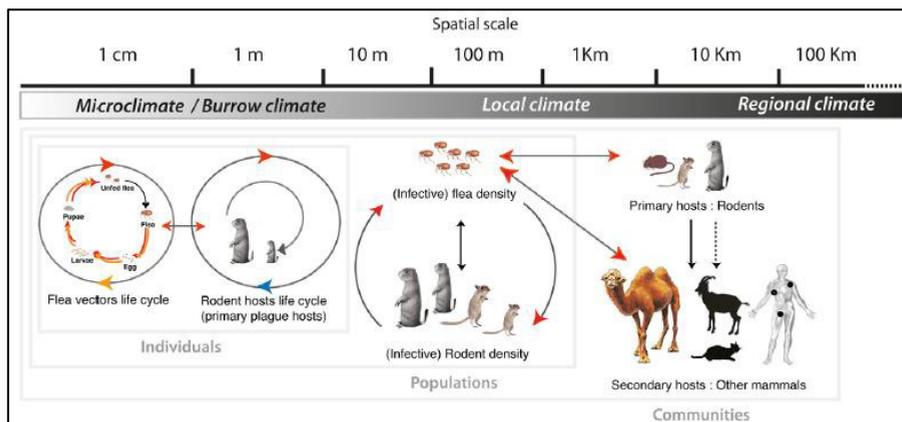
Figure 3 - *Ari et al. (2011, p. 4) illustrate the impact climate has "on the plague cycle as a function of spatial scale", with the arrows representing the "connections affected by climate".*

5. Land use and microclimate-plague relationship

Hall *et al.* (2009) note that the West Usambara Mountain region in Tanzania lost 0.82% per year of forest between 1955 and 2000 (most intensively before 1975), -the highest percentage in the Eastern Arc Mountains, which span across 14 districts of Tanzania and Kenya. In addition, a relationship between the plague disease and the activity of firewood collection in this region (see Fig. 3) was observed by Hubeau *et al.* (2014).
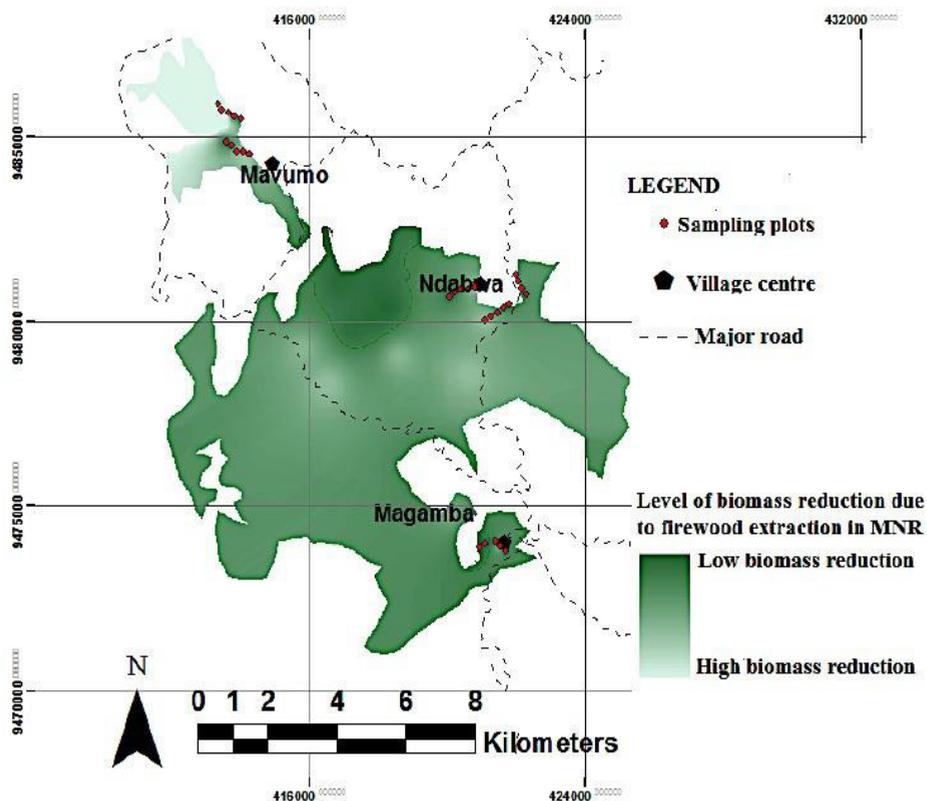
Figure 4 - *Spatial distribution of biomass changes due to firewood collection in the Magamba Nature Reserve, Lushoto, Tanzania (2009-2013). Mwabumba (2015, 28) demonstrates example that the small, fractured forest by Mavumo is frequently being sourced for firewood, as is the forest by Nbabwa. The percentage of human activities that included firewood collection in Mavumo was 22% versus 27% in Nubawa (Mwabumba, 2015: 22). However, the plague frequency observed by Hubeau et al. (2014) was 0.611 for Mavumo and 0.278 in Nbadwa, which may in part be due to the fractured size of the forest Mayumo and the lack of continuous forest.*

Clearance of vegetation is also seen as a risk factor as land use changes and conversion of the land to agricultural production leads to different vegetation and thus, niches being created (Ceradini & Chalfoun, 2017, p. 1823). Wood and Singleton (1994, p. 45) note, "in higher lands of eastern Africa, the dominant cash and food crop is maize, which is subject to heavy rodent attack." They also explain "other cereals, legumes, tomatoes, root crops and cash-crops like cotton and sugarcane also can be damaged" (Wood & Singleton, 1994, p. 45). Consequently, the introduction of crops develops a new niche that some rodent species take advantage of, in turn creating disturbances of interactions between species that often include

domesticated animals (Morand *et al.,* 2019). Additionally, as settled agriculturalists become more prevalent, friction grows with herders that need to find new grazing areas (Conte, 1999). This escalation of land cultivation and animal use also leads to greater contact between domestic animals and humans. Intensified cultivation is not unique in fostering rodent population growth as many studies have shown a tie between intensification of livestock grazing and feeding areas with the augmentation of some small mammal populations (Bueno *et al.*, 2012, p. 22; Davidson *et al.,* 2010, p. 3189; Duplantier & Rakotondravony, 1999, p. 452; Jones & Longland, 1999, p. 1; Ronkin, Savchenko & Tokarsky, 2009, pp. 282-4; Shi, 1983, pp. 181–187).

Duplantier and Rakotondravony (1999, p. 452) observed that during the plague season in Madagascar, the rodent and flea populations were abundant around cattle pens and it was "where the highest antibody seroprevalence against *Y. pestis* was noted among rats". Specific herding practices have also been linked to higher infection rates of the zoonosis, *Peste des petits ruminants* virus (PPRV), in goat, sheep, and cattle livestock in northern Tanzania, including: "goat or sheep introduction or seasonal grazing camp attendance, cattle or goat death or sales, and goat given away in the past twelve months" (Herzog *et al.,* 2020, p. 930). The frequency of such practices may be correlated with the demand for animal commodities. Economic and political environments that emphasize the commodities trade have been found to drive ecological risks, as overgrazing (Darkoh & Mbaiwa, 2002; Kreike, 2009; Jimoh, *et al.,* 2020) that have been tied to small mammal population spikes (Fan *et al*., 1999; Gao & Li, 2016: 804; Harris, 2010; Nikol'skii & Ulak, 2005, p. 50, Ronkin & Savchenko, 2004; Savchenko & Ronkin, 2018; Wilson & Smith, 2015). These mammals are often commensal, and their population booms have been shown to increase risk for human plague outbreaks (Li *et al.*, 2005; Meliyo, 2014, p. 6; Suntsov, 2012; Suntosov & Suntsova, 2000).

Intensified cultivation and animal husbandry should not be seen as mutually exclusive, but as the demand for land grows, so does the contact between these domesticated and commensal animals that live off this intense, large-scale agricultural production. Even though Kaoneka and Solberg (1994, p. 209) observe that it was agricultural settlements and the introduction of cash-crops that "resulted in the removal or modifications of the forest," overgrazing from intensive herding has also been a serious contributor to land degradation (Kaoneka & Solberg, 1994, pp. 208, 212) contributing to circumstances leading to forest fragmentation. The movement towards settled agriculture also stimulates population growth, as

labour is in greater demand during harvesting. This fosters habitat changes advantageous to opportunistic commensal species expansions, and subsequently increases in the risks of contact between people and vectors of zoonotic disease.
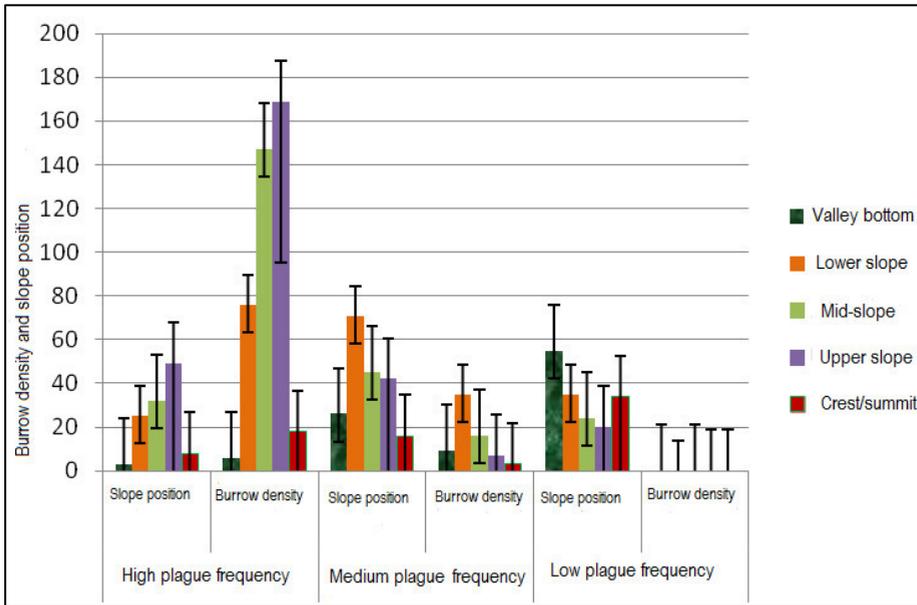
Figure 5 - *West Usambara Mountains, Tanzania- Burrow Sampling & Presence of Bubonic Plague. Meliyo's chart (2014:6) illustrating the correlation of plague frequency with rodent burrow density and the altitude position of the burrows on the slopes. As noted previously, deforestation and clearance create relatively warmer areas (0.5-2 degrees Celsius) (Parker, Atinmo & Titanji, 2007: 5) which have been known to attract greater rodent populations and greater burrow densities. However, anthropogenic activity that diminishes vegetation diversity has also been seen to decrease the diversity of small mammals (Ralaizafisoloarivony et al., 2014: 9). Looser, formally ploughed soils are thought to be easier habitats for rodents, and fallow land has led to greater population densities of some rodent species (Makundi, Kilonzo & Massawe, 2003, 20-24; Meliyo et al, 2015: 105-119). Additionally, high altitudes have been cited as a significant factor for bubonic plague outbreaks in sub-Saharan Africa (Laudisoit et al., 2007: 687), which may be due to the more temperate climate that favoured large-scale agricultural practices started by European colonisation.*

6. Plague resilience through the deeply rooted cultural geography of a Shambaa community

Figure 6 - *Mlalo Site of Late Nineteenth Century German Missionary and Regional Home of the Shambaa People. Photo taken in the Mlalo area of the Lushoto District, Tanzania during an excursion of the LEPUS Conference Soils, Land Use and Plague.*

This Mlalo site is atop a forested hill that has been established by a German Lutheran missionary that came from Tanga in 1891 during German colonization. Professor Kimaro, who led the LEPUS (Landscape-ecological clarification of bubonic plague distribution and outbreaks in the West-Usambara Mountains, Tanzania) conference excursion, stated the Shambaa people have settled in the area since 1500 and are the most traditional people of the region. According to the LEPUS Conference Excursion Guide,

> "The Mlalo basin in source of water for a number of settlements. The area is remarkable by its lush vegetation, and for a number of horticultural products [...] The Shambaa people have lived in this region from around 1500" (LEPUS, 2013, p. 25).

This site had much deeper ancestral roots than others of the area, which had all been post-eighteenth-century settlements. This site is also significant as the outbreaks on the eastern side of this region, closer to this missionary site, did not have the large outbreaks that were seen in the western part of the region. The mission is of German Lutheran origin as part of the Bethel missions, *Evangelische Mission nach Deutsch Ostafrika* (EMDOA), in the North-Eastern diocese of Tanzania. German missions attempted to establish themselves in Tanzania for about a decade before gaining footholds (Snyder 2013, p. 182). Synder (2013, p. 152) notes that these missions were not in accordance with colonial policy and would have provided some protection against colonial over-exploitation of local resources. This was evident in the late 1890s, when, as Synder (2013, pp. 182-183) explained, "the collective impact of a series of ecological disasters resulted in a destructive famine," which resulted in many deaths and the EADOA missionaries becoming safe havens with food security, as the German government was doing little at the time to assist them. This famine was triggered by a zoonotic disease, Rinderpest, which devastated the cattle population (Synder, 2013, p. 183), thereby greatly diminishing the availability of fertilizer.

The missions were still faced with widespread suspicion and according to founding missionary Earnest Johanssen, its members needed to "learn about local cultural practices if they hoped to see their philosophy take root" (Johanssen, 1917, p. 69 translated by Snyder, 2013, p. 183). Missionary efforts bore fruit and continued to expand under British occupation, with Christian converts reaching 10% of the population in 1938 (Mesaki, 2011, p. 252), compared to only 2% in 1914. In addition to the missions being relative safe havens in the midst of colonial agendas, they also became perceived as important education centres. As Mesaki (2011, p. 252) notes, "Christianity was seen as a literary movement, and the Christians were called *wasomaji* ("those who can read")." Lemmi Tamilwai Baruti recently focused on the missions and practices of ancestor veneration, which had been commonplace from the time the religious institution was initially established. Baruti (2011, p. 13) notes how profound the reverence to ancestors is, noting:

> "They [ancestors] know the needs of men, they have recently been here with men, and at the same time they have full access to the channels of communicating with God directly or, according to some societies, indirectly through their own forebears. They are guardians of family affairs and may even warn of impending danger or rebuke those who have failed to

follow their special instruction [...] This is to say that in African life the ancestors are very important since the surviving of the living depends much on the dead".

The importance of the Mlalo community giving respect to their ancestors was highlighted during Philemon's interview with community member, Professor Vicent Benard Kihiyo. This deep-rooted connection to the community's predecessors is evident in Professor Kihiyo's discussion of his ancestors being in the area for more than 200 million years and his description of what is necessary for *Kuzifya shi*, (healing the land). He explains to heal the land it is first necessary to seek, 'forgiveness from ancestors' in part through sacrifices being done in their honour. He continues on to describe the causes of *Kubana shi,* (harming the land) to be 'going against the directions of the elders and sin against God,' which would lead to 'very clear and vivid' consequences, as drought, erosion, lack of water etc. Accordingly, the Shambaa Mlalo community has understood that their lives have depended upon the strong, continuous connection to their local environments that gave them the necessities of life. Thus, it is also recognised that diminishing this connection threatens the community as a whole, which is reflected in how deeply serious the education of their children is taken.

Professor Kihiyo, focusing on boys' education, stated that if a teenage boy is not keeping up with the tutelage he is receiving, then, tradition advocates his expulsion from the community. Kihiyo explains that this education is elder led and informal, concentrating on assimilating needed practical knowledge. This guidance is often through Shambaa proverbs on their local environment as well as preparation for issues the boys will likely have to face. Kihiyo states these issues include learning how to survive in the forest, feeding and protecting their future families, how to treat their future wives and help them through pregnancy, as well as how to get along with their neighbours.

The Mlalo community lessons and cultural practices in developing a sustainable, healthy environment have been linked to food and water security, zoonotic disease resilience, and the social functioning of the community. Trees and forests have been seen to play an especially critical role in the health of the environment, ecosystem services (as food and water), and the well-being of the community. Professor Kihiyo explains that it is taboo to cut certain species of trees and planting trees and bushes, which are key to control slope erosion. Additionally, he states that preserving the forests has been critical to limit rodent populations and

zoonotic disease, while forest clearance and population have been the primary causes of the water problem.

Agricultural practices are also important parts of maintaining environmental sustainability that leads to food and water security. According to Professor Kihiyo, slash and burn agriculture has been used to fertilise the soil on virgin land, while crop rotation, mixed cropping, and traditional irrigation systems have also been used to cultivate healthy, sustainable crops production. Additionally, the hand hoe has been the main tool of cultivation, which has allowed for greater environmental observation and care with the agricultural labour being done. Cassava, maize and the diversification of food crops, especially drought-resilient crops, have also been seen as keys for food security.

Food and water insecurity have been tied to fostering malnutrition, immune-system weakness and subsequently leading to a greater risk of disease (Katona & Katona-Apte, 2008, pp. 1582-1588; Rosinger & Young, 2020, pp. 1-22). Accordingly, the community's focus on environmental sustainability and food security help limit the chances for a zoonotic epidemic to develop in the first place. Additionally, the Shambaa Mlalo community has instituted quarantines for infectious disease outbreaks and the community's high altitude limits their exposure to tropical diseases.

Kihiyo illustrates the success the Shambaa's community has had in its growing population and their long roots to the region. Accordingly, the respect for the accumulated knowledge of their local ecologies, human health, and disease prevention as well as family and community relationships have been thought to be critical for the community's present and future well-being. Families have been expected to store food for difficult times, and family networks have taken the primary responsibility for food distribution as well as other primary issues they may have faced. However, the whole community must work together to heal the land as well as deal with other issues at the communal level or to assist family networks when they have needed support. Additionally, the community has had a clear structure in place for community decision-making and information sharing from the family level to the community. Recently, the involvement of community members in decision-making has fallen dramatically while the mode of communication has increasingly been through electronic means – mobile phones. Nevertheless, the reasons behind most decisions made are self-apparent, as the need for the community to clear roads, cleaning wells, etc. Thus, everyone feels responsible to comply. However, compliance for decisions made is also backed by penalties supported by the community.

African indigenous communities particularly in Mlalo employed myth to ensure that the environment was well conserved. Forestry was disallowed in the forest beyond mid-day. After mid-day, the gods and spirits were actively in charge of protecting the forest. The violation of this prohibition would result in the heavy punishment of the entire community for interfering with the realm of gods and spirits through natural disasters like heavy storms, floods, severe drought, epidemics disease, and the like. The Shambaa on the slopes of mounts Usambara, which are known for its waterfalls and as a source for water, had a myth called, "Kandee Kamp'aa." People were disallowed to farm or pasture around this area as it was believed that such places were getaways of spirit and ancestors. Anyone who disobeyed this myth was swallowed by 'Kandee Kamp'aa' and taken into the underworld where he/she could be enslaved or killed. The 'Kandee Kamp'aa' myth was however enforcing the community decisions that aimed at protecting source of water and environment at large. Punishments were also common mechanisms for enforcing law and order in the communities. For example, among the Shambala, whoever was found cutting or clearing the forest, was to undergo torture, or pay a fine of cows.

Professor Kihiyo's insights sheds light as to why the Mlalo community has been able to continue to be a forested area in the Lushoto District marked by deforestation and clearance for Western style cultivation. This may indeed signal the importance of interconnected biodiversity/complexity in deciphering the different degrees of vulnerability to bubonic plague. The importance of this biodiversity is bolstered by the Mwangoi site, which had a greater degree of biodiversity than the Shume agricultural sites, and thereby less vulnerability to the devastating impact of pests and plant diseases, that would appear to lead to greater food security. The Mwangoi site also had significantly fewer plague outbreaks than the Shume sites. The use of the land in these two areas were quite similar except for the development of a *Pinus sp*. plantation forest in Shume, an indicator of its diminished biodiversity due to the area's more intensive human activity (LUPUS, 3013, pp. 19, 23).

Figures 7-8 - *The two photos are of cash-crop areas in the Lokome-Shume area, Lushoto, Tanzania that were epicentres of bubonic plague. The deforested areas around fields had the greatest prevalence of overpopulated rodent burrows that are believed to spread Y.pestis. Note the limited potential & adaptability of this western-style agricultural system to deal with a change in climate/precipitation, insects/pests, crop disease in order to be able to meet the high demanded output needed by the population. Photos taken during an excursion of the LEPUS Conference.*

Figure 9 - *A moderately affected plague area of mixed vegetation in Mwangoi-Mao area. This scene shows greater variety of vegetation than seen in the cash-cropping areas using western agriculture, while have much smaller outbreak of the Plague. Photo taken in the Mwangoi-Mao area of the Lushoto District, Tanzania during an excursion of the LEPUS Conference Soils, Land Use and Plague.*

Conclusion

The highest incidents of the plague in the Lushoto district were areas especially dependent upon cash-crops in the most deforested regions and thus required people to chop firewood from nearby forested areas. These cash-crop areas were intensely cultivated which led to a decrease in biodiversity, diminishing competition and predators for opportunistic rodent species. These adaptable animals that could live in different ecological niches increased in population and burrow density, leading to greater infection rates. Additionally, over-cultivation reduced soil fertility and undermined the climate stability on which agriculturists depended for sufficient harvests to pay debts and to buy what they needed. Many of the economic and environmental decisions in the cash-crop areas largely lacked local control, but rather depended upon the federal government, international markets, and other international players. The information used to make decisions was typically through using language and knowledge developed outside of the local cultural geography of the Lushoto District, instead of incorporating local knowledge and ecological considerations.

The Mlalo area of the Shambaa people contrasted with the cash-crop areas of Shume in that it was the least affected by plague outbreak and was also exceptional in its forested topography. Agriculture was interwoven in the forested environment, while soil fertility was maintained by traditional practices of inter-cropping, controlled weeding, and forest plant-life decay, while different crops would thrive in different climatic circumstances. All of this led to greater biodiversity, diminished risk for large-scale pest and plant disease, greater food security and therefore less vulnerability for malnutrition among the community.

The Mlalo Shambaa community benefited from having the longest history of settlement in the region and therefore has been familiar with how to sustainably survive off the land, knowledge that many recent migrant families did not have. The community has been able to accomplish this by maintaining their native Shambaa tongue, which is still tied to the ecological systems within which the language developed. This helped safeguard the environmental knowledge and practices passed down through the generations and contributed to maintaining their human-environmental connection. Intrinsic cultural ties and local environmental health have been interwoven with the functioning of the local community practices of *kuzifya shi* and avoiding *kubana shi*.

Furthermore, the Shambaa people in keeping up with much of their traditional knowledge were able to adapt and apply it to changing

circumstances. They were not isolated as the nearby Lutheran mission offered education that helped predict, prepare, and adapt to forces of globalisation as well as offering important networks that provided gave the opportunity for greater legal protection, political influence, and an outlet for financial support.

The resilience of this Shambaa community and their narratives of how this came into being is a consequence of their ability to adapt to the increased impact of human activity on the environment and the spread of disease during the Anthropocene. This ability has not required greater technology, or wealth, but networking and learning from outside groups while adapting the local knowledge and customs to the changes or potential changes outside forces may bring. These threats by outside forces have been commonplace as colonisation and globalisation have encouraged military and economic expansions into indigenous people's territory around the world, and too much isolation brings vulnerability to these pressures. The Mlalo community's relationship with the local mission serves as an example of the need for indigenous communities to have personal networks to tap into influential institutions that respect them and could advocate on their behalf. Additionally, these institutions could also be an important outlet for the community members to gain some understanding of colonial/globalised knowledge and language(s). This knowledge of the encroaching foreigners and the education that they base their decisions upon gives indigenous communities the ability to predict changes and how to successfully adapt to them. However, those communities that abandon the knowledge and customs of their cultural geography due to these threats are also open to the same ecological and zoonotic risks as the rest of the globalised world. Thus, those that maintain the connection to their local ecologies, language and knowledge while having networks of people familiar with threatening outside forces and their knowledge and language have the means to be sufficiently adaptable and flexible to adjust to the threats they are faced with.

The Anthropocene may be viewed as an era of upheaval in human-environmental relationships, where short-term threats to survival through daunting owner-debtor relationships or armed force has led communities and societies to disconnect themselves from the local environments upon which they ultimately depend. However, this example of the Mlalo Shambaa community illustrates another way for both short and long-term security, through networking and incorporating different knowledge systems, as they continue their own indigenous knowledge practices based in their local cultural geography. This has shown success because in our globalized

world the demand to re-connect with local environments is intensifying and the greater recognition that environmental disconnection has enormous consequences.

Recent ecological crises and zoonotic epidemics/pandemics, as COVID-19, have heightened the awareness of interconnections between environment and disease in the world, as well as understandings of the interdependent nature of solutions. The uncertainty of our modern world implores the need to tap into different ways to be sustainable and resilient and its basic principles that these are built upon. The Mlalo example can be part of such a model of communities adapting to environmental and socio-economic changes that have increased their resilience to zoonotic disease and food insecurity.

The key aspects of a local community's connection with their own environment and to international institutions is certainly a topic that deserves more attention. Certainly not all connections to international institutions would be equally beneficial, as some would not sufficiently respect or advocate for the community. Effective community networks with international institutions could work together to influence and develop national and international law, law-enforcement focused on environmental sustainability; as well as protecting local cultural geographies and the local language and knowledge that sustain them. These and other measures that can help strengthen each community's tie to its cultural geography could also foster these communities as centres of learning for the outside world, in order repair the human-environmental ties that have frayed. Re-connection of communities around the globe to their local ecosystems to promote their sustainability and resilience would diminish the risk factors for zoonotic epidemics, but they would need protection from the continued global economic exploitation of their local ecosystems for this to be realised.

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References

Barbieri, R., Texier, G., Keller, C. & Drancourt, M., 2020, "Soil salinity and aridity specify plague foci in the United States of America", *Scientific reports* 10, no. 1: 1-9.

Baruti, L.T., 2011, *The practice of Easter morning service and its theological implication into Christian faith: In North-Eastern diocese of Lutheran Church of Tanzania*, Master's thesis..

Begon, M., 2013, *Consultation on vulnerability factors for a human zoonotic epidemic*.

Beldomenico, P.M., & Begon, M., 2010, "Disease spread, susceptibility and infection intensity: vicious circles?", *Trends in Ecology & Evolution* 25, no. 1: 21-27.

Bueno, C., Ruckstuhl, K.E., Nils A., Aivaz, A.N. & Neuhaus, P., 2012, "Impacts of cattle grazing on small-rodent communities: an experimental case study", *Canadian Journal of Zoology* 90, no. 1: 22-30.

Ceradini, J.P., & Chalfoun, A. D. "When perception reflects reality: Non-native grass invasion alters small mammal risk landscapes and survival", *Ecology and Evolution* 7, no. 6 (2017): 1823-1835.

Corsini, E., Liesivuori, J., Vergieva, T., Van Loveren, H., & Colosio, C., 2008, "Effects of pesticide exposure on the human immune system." *Human & experimental toxicology* 27, no. 9: 671-680.

Corsini, E., Sokooti, M., Galli, C.L., Moretto, A. & Colosio, C., 2013, "Pesticide induced immunotoxicity in humans: a comprehensive review of the existing evidence", *Toxicology,* 307, 123-135.

Darkoh, M.B.K., & Mbaiwa, J.E., 2002, "Globalisation and the livestock industry in Botswana", *Singapore Journal of Tropical Geography* 23, no. 2, 149-166.

Davidson, A.D., Ponce, E., Lightfoot, D.C., Fredrickson, E.L., Brown, J.H., Cruzado, J., Brantley, S.L. *et al.* "Rapid response of a grassland

ecosystem to an experimental manipulation of a keystone rodent and domestic livestock", *Ecology,* 91, no. 11 (2010): 3189-3200.

Duplantier, J.-M., & Rakotondravony, D., 1999, 21. The Rodent Problem in Madagascar: Agricultural Pest and Threat to Human Health. In: Singleton, G.R., Hinds, L.A., Leirs, H., Zhang, Z. (Eds.), *Ecologically-based Management of Rodent Pests*, Australian Centre for International Agricultural Research, Canberra, 441-459.

Egger, K., 1980, "Soil Erosion Control and Afforestation in the West Usambaras (Phase I)." *Immediate report on findings of the feasibility study teams, Tanga Integrated Rural Development Project TIRDEP,* Gottingen.

Ellison, D., Morris, C.E., Locatelli, B., Sheil, D., Cohen, J., Murdiyarso, D., Gutierrez, V. *et al.* "Trees, forests and water: Cool insights for a hot world", *Global Environmental Change,* 43 (2017): 51-61.

Naichang, F., Zhou, W., Wei, W., Wang, Q., & Jiang, Y., 1999, Rodent pest management in the Qinghai-Tibet alpine meadow ecosystem". In: Singleton, G.R., Hinds, L.A., Leirs, H., Zhang, Z. (Eds.), *Ecologically-based Management of Rodent Pests*, Australian Centre for International Agricultural Research, Canberra, 285-304.

Feierman, S., 1974, *The Shambaa kingdom: A history*, University of Wisconsin Press, Madison.

Freire, P., 1970, "Pedagogy of the oppressed (Myra Bergman Ramos, trans.)", *New York: Continuum,* 65-80.

Friggens, M. M., & Beier, P., 2010, "Anthropogenic disturbance and the risk of flea-borne disease transmission", *Oecologia* 164, no. 3: 809-820.

Gao, Jay, & Li, X., 2016, "Degradation of frigid swampy meadows on the Qinghai–Tibet Plateau: Current status and future directions of research", *Progress in Physical Geography,* 40, no. 6: 794-810.

Goodyear-Ka'ōpua, N., 2009, "Rebuilding the 'auwai: Connecting ecology, economy and education in Hawaiian schools", *AlterNative: An International Journal of Indigenous Peoples* 5, no. 2: 46-77.

Hall, J., Burgess, N.D., Lovett, J., Mbilinyi, B., & R.E. Gereau, 2009, "Conservation implications of deforestation across an elevational gradient in the Eastern Arc Mountains, Tanzania", *Biological conservation* 142, no. 11: 2510-2521.

Harris, R.B., 2010, "Rangeland degradation on the Qinghai-Tibetan plateau: a review of the evidence of its magnitude and causes", *Journal of Arid Environments* 74, no. 1:1-12.

Amirhossein, H., Azapagic, A. & Shokr, N., 2020, "Predicting long-term dynamics of soil salinity and sodicity on a global scale", *Proceedings of the National Academy of Sciences* 117, no. 52: 33017-33027.

Hermanowicz, A., Nawarska, Z., Borys D. & Maślankiewicz, A., 1982, "The neutrophil function and infectious diseases in workers occupationally exposed to organochloride insecticides", *International archives of occupational and environmental health* 50, no. 4: 329-340.

Herzog, C.M., de Glanville, W.A., Willett, B.J., Cattadori, I.M., Kapur, V., Hudson, P.J., Buza, J., Swai, E.S., Cleaveland, S. & Bjørnstad, O.N., 2020, "Peste des petits ruminants Virus Transmission Scaling and Husbandry Practices That Contribute to Increased Transmission Risk: An Investigation among Sheep, Goats, and Cattle in Northern Tanzania." *Viruses* 12, no. 9: 1-20.

Hesslerová, P., Pokorný, J., Brom, J., & Alžběta Rejšková–Procházková, 2013, "Daily dynamics of radiation surface temperature of different land cover types in a temperate cultural landscape: Consequences for the local climate" *Ecological Engineering* 54: 145-154.

Hubeau,, M., Gulinck, H., Kimaro, D.N., Proches H., & Meliyo, J., 2014, "Influence of human activity patterns on epidemiology of plague in Western Usambara Mountains, Tanzania", *Tanzania journal of health research* 16, no. 3.

Johanssen, E., 1917, *Führung und Erfahrung in 40 jährigem Missionsdienst*. Vol. 2. Verlagshandlung der Anstalt Bethel.

Jones, A.L., & Longland, W.S., 1999, "Effects of cattle grazing on salt desert rodent communities", *The American Midland Naturalist* 141, no. 1: 1-11.

Kaoneka, A.R.S., & Solberg, B., 1994, "Forestry related land use in the West Usambara mountains, Tanzania", *Agriculture, ecosystems & environment* 49, no. 2: 207-215.

Katona, P., & Katona-Apte, J., 2008, "The interaction between nutrition and infection", *Clinical Infectious Diseases* 46, no. 10: 1582-1588.

Kilonzo, B.S., Makundi, E.H. & Mbise, T.J., 1992, "A decade of plague epidemiology and control in the western Usambara mountains, north-east Tanzania", *Acta tropica* 50, no. 4: 323-329.

Kreike, E., 2009, "De-globalisation and deforestation in colonial Africa: closed markets, the cattle complex, and environmental change in North-Central Namibia, 1890–1990", *Journal of Southern African Studies* 35, no. 1: 81-98.

Laudisoit, A., Leirs, H., Makundi, R.H., Van Dongen, S., Davis, S., Neerinckx, S., Deckers, J., & Libois, R., 2007, "Plague and the human flea, Tanzania", *Emerging infectious diseases* 13, no. 5: 687-693.

Laudisoit, A., 2017, Personal communication on review of material and discussion on vulnerability factors for a human zoonotic epidemic.

Hieronimo, P., J. Meliyo, H. Gulinck, D. Kimaro, B. Msanya, L. Mulungu, N. Kihupi, S. Deckers & Leirs, H.. "LEPUS Tanzania Excursion Guide Lushoto Excursion Guide August 30-31, 2013", *LEPUS Conference Soils, Land Use and Plague. Lushoto*, Tanzania (2013): 1-32.

Min, L., Song, Y., Li, B., Wang, Z., Yang, R., Jiang, L., & Yang, R., 2005, "Asymptomatic yersinia pestis infection, China", *Emerging infectious diseases* 11, no. 9: 1494-1496.

Makundi, R.S., Kilonzo, B.S. & Massawe, A.W., 2003, "Interaction between rodent species in agro-forestry habitats in the western Usambara Mountains, north-eastern Tanzania, and its potential for plague transmission to humans". In: Singleton, G.R., Hinds, L.A., Krebs C.J., Spratt, D.M. (Eds), (Eds.), *Rats, Mice and People: Rodent Biology and Management*, Australian Centre for International Agricultural Research, Canberra, 20-24.

McMichael, A.J., 2004, "Environmental and social influences on emerging infectious diseases: past, present and future", *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 359, no. 1447: 1049-1058.

Meliyo, J.L., Massawe, B.H.J., Msanya, B.M., Kimaro, D.N., Hieronimo, P., Mulungu, L.S., Kihupi, N.I., Deckers, J.A., Gulinck, H., & Leirs, H., 2014, "Landform and surface attributes for prediction of rodent burrows in the Western Usambara Mountains, Tanzania", *Tanzania Journal of Health Research* 16, no. 3: 1-14.

Meliyo, J.L., Brabers, L., Massawe, B.H.J., Msanya, B.M., Kimaro, D.N., Mulungu, L.S., Kihupi, N.I., Deckers, J.A., Gulinck, H., & Leirs, H., 2015, "The effect of soil physical properties and soil microclimate on rodent burrows' abundance and their characteristics in Western Usambara Mountains, Tanzania", *Journal of Agriculture and Ecology Research International* 2, no.2: 105-119.

Mesaki, S., 2011, "Religion and the State in Tanzania." *Cross-Cultural Communication* 7, no. 2: 249-259.

Morand, S., Blasdell, K., Bordes, F., Buchy, P., Carcy, B., Chaisiri, K., Chaval, Y. *et al.*, 2019, "Changing landscapes of Southeast Asia and rodent-borne diseases: decreased diversity but increased transmission risks", *Ecological Applications* 29, no. 4: 1-15.

Mtoi, P., 2017, "A History of Bubonic Plague in Eastern Tanzania from 1920s to 2004." Masters Thesis, University of Dar es Salaam.

Mwabumba, M.F., 2015, "Influence of human activities on the degradation of Montane forests in Magamba nature reserve, Lushoto District, Tanzania", PhD diss., Sokoine University of Agriculture.

Nikol'skii, A. A., & Ulak, A., 1841, "Key factors determining the ecological niche of the Himalayan marmot, Marmota himalayana Hodgson, *Russian Journal of Ecology* 37, no. 1 (2006): 46-52.

One Health Commission, "What is One Health?" https://www.onehealthcommission.org/en/why_one_health/what_is_one_health/.

Parker, I., T. May, A.J., Titanji, V., 2007, "Health and Human Well-being in Sub-Saharan Africa", ICSU Regional Office for Africa Science Plan. International Council for Science Pretoria, South Africa.

Plowright, R.K., Reaser, J.K., Locke, H., Woodley, S.J., Patz, J.A., Becker, D.J., Oppler, G., Hudson, P.J., & Tabor, G.M., 2021, "Land use-induced spillover: a call to action to safeguard environmental, animal, and human health", *The Lancet Planetary Health*: 237-235.

Ralaizafisoloarivony, N.A., Kimaro, D.N., Kihupi, N.I., Mulungu, L.S., Leirs, H., Msanya, B.M., Deckers, J.A., & Gulinck, H., 2014, "Vegetation habitats and small mammals in a plague endemic area in Western Usambara Mountains, Tanzania", *Tanzania journal of health research* 16, no. 3: 1-12.

Ronkin, V. I., & Savchenko, G.A.. "Effect of cattle grazing on habitats for the steppe marmot (Marmota bobak) in north-eastern Ukraine." *Vestnik zoologii* 38, no. 1 (2004): 55-60.

Ronkin, V., Savchenko, G., & Tokarsky, V., 2009, "The place of the steppe marmot in steppe ecosystems of Ukraine: an historical approach", *Ethology Ecology & Evolution* 21, no. 3-4: 277-284.

Rosinger, A.Y., & Young, S.L., 2020, "The toll of household water insecurity on health and human biology: Current understandings and future directions", *Wiley Interdisciplinary Reviews: Water* 7, no. 6: 1-22.

Ruhaak, R., 2019, "Towards an Alternative Black Death Narrative for Ireland: Ecological and Socio-Economic Divides on the Medieval European Frontier", *Journal of the North Atlantic* 2019, no. 39: 1-16.

Savchenko, G. & Ronkin, V., 2018, "Grazing, abandonment and frequent mowing influence the persistence of the steppe marmot, Marmota bobak", *Hacquetia* 17, no. 1: 25-34.

Schonmeier, H.W., 1977, *Agriculture in conflict-The Shambaa case*. Kubel Foundation.

Shao, J., 1986, "The villagization program and the disruption of the ecological balance in Tanzania." *Canadian Journal of African Studies/La Revue canadienne des études africaines*20, no. 2: 219-239.

Shi, Y.Z., 1983, "On the influence of range land vegetation to the density of plateau pika (Ochotona curzoniae)", *Acta Theriologica Sinica*, 3, no. 2: 181-187.

Shiva, V., 2005, *Earth democracy: Justice, sustainability and peace*, Zed Books.

Singh, A., 2015, "Soil salinization and waterlogging: A threat to environment and agricultural sustainability", *Ecological indicators,* 57: 128-130.

Smith, L.T., 2021, *Decolonizing methodologies: Research and indigenous peoples*. Zed Books Ltd..

Snyder, E.N., 2013, "Work not alms: the Bethel Mission to East Africa and German protestant debates over Eugenics, 1880-1933", PhD diss., University of Minnesota.

Suntsov, V.V., 2012, "Origin of the plague microbe Yersinia pestis: structure of the process of speciation", *Biology Bulletin* 39, no. 1: 1-9.

Suntsov, V. V., & Suntsova, N.I., 2000, "Ecological aspects of evolution of the plague microbe Yersinia pestis and the genesis of natural foci", *Biology Bulletin of the Russian Academy of Sciences* 27, no. 6 (2000): 541-552.

Tainter, J., 1990, *The collapse of complex societies*, Cambridge university press, Cambridge.

Thomalla, F., Downing, T., Spanger-Siegfried, E., Han, G., & Rockström, J., 2006, "Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation", *Disasters* 30, no. 1: 39-48.

Van der Leeuw, S.E., 2009, "What is an 'Environmental Crisis' to an archaeologist", *The Archaeology of Environmental Change: Socionatural Legacies of Degradation and Resilience,* 40-61.

Whorf, B.L., 2012, *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*. edited by J.B. Carroll. Martino, London, UK.

Wilson, M.C., & Smith, A.T., 2015, "The pika and the watershed: The impact of small mammal poisoning on the ecohydrology of the Qinghai-Tibetan Plateau", *Ambio* 44, no. 1: 16-22.

Wood, B. J., & G. R. Singleton, 1994, "Rodents in agriculture and forestry." in Rodent pests and their control, edited by A.P. Bucke, R.H. Smith. 45-83, Oxon, U.K., CAB International: 45-83.

Ziwa, M.H., Matee, M.I., Hang'ombe, B.M., Lyamuya, E.F., & Kilonzo, B.S., 2013, "Plague in Tanzania: an overview", *Tanzania Journal of Health Research* 15, no. 4: 1-9.

Appendix

A. Risk Factors for a Human Zoonotic Disease Epidemic

McMichael's Six Vulnerability Factors for a Human Epidemic of a Zoonotic Disease:

a) Altered habitat, with proliferation of reservoir or vector populations: (i.e. increasingly wet areas, dramatically increasing rodent populations' ideal habitat).

b) Biodiversity change and habitat fragmentation (e.g. deforestation)

c) Ecosystem changes, loss of predators and host species imbalance (e.g. Forest fragmentation).

d) Intensified farming and animal husbandry (e.g. closer interaction with animals lead to new strains of virus or bacteria being created, making it better adapted to avoid immune defences).

e) Niche invasion (e.g. the emergence of some infectious disease results from a pathogen invading a new or recently vacated niche.")

f) Human-induced climate change (e.g. land cover change has been tied to regional climate change.) (McMichael 2004: 1054-57).

Begon's Vulnerability Factors for a Human Epidemic of a Zoonotic Disease:

1) The increased presence of emerging infectious disease (EID) in area wildlife.

2) The increased interaction of area wildlife with humans.

3) The increase vulnerability of human populations to infectious disease.

4) The increase potential for human to human transmission through greater population densities and increased movement both within and among different populations (Begon 2013, personal communication).

Laudisoit's factors of risk for a zoonotic epidemic (adapted for assessment of diverse geographies)

A) High population fertility and the population growth next to hotspots is higher than in non-forest areas (urban bloom is mainly due to immigration – rural exodus).

B) Encroachment in pristine forests.

C) Bushmeat consumption.

D) Land-use changes and conversion of land in agricultural surface.

E) Disturbance of interactions between species causing species range shifts and increased contacts with domestic animals and humans (one health).

F) Trade of forest products and bushmeat and the illegal or uncontrolled nature of the trade.

G) Increase in edges of the forest as these regions are broken down into smaller fragments, leading to greater human (anthropic) disturbed surface and a greater interface between humans and fauna and the zoonotic pathogens they carry (Laudisoit, 2017, personal communication).

(See also Jones,K.E. *et al.* 21/02/2008. Global Trends in Emerging Infectious Diseases. Nature. 451:990-993; Wolfe,N.D. *et al.* 17/05/2007. Origins of Major Human Infectious Diseases. 447:279-283; Wolfe,N.D. *et al.* Bushmeat Hunting, Deforestation, and Prediction of Zoonotic Disease. Perspective.11.12:1822-1827).

B. Interview of Professor Vicent Benard Kihiyo of the Mlalo Shambaa community

1) What is your name and the name of your community?
"Prof. Vicent Benard Kihiyo"

2) How long is your ancestry been in the area?
"For more than 200 million years".

3) Describe how children are taught within the community.
"Before the coming of European[s], African[s] particularly [the] Shambaa community had their own way of educating their children. They did not have [a] formal [education] system, but it was the best way which moulded children to be the better citizen in the community." He continues saying that, "Children when [they] reach the [age] of adolescence he is [they] are] taken to the special place normally in the forest and stayed there for more than three months. During this time, they are taught, to handle their wives, to feed, protect family. How should you behave when your wife she in pregnant? Furthermore, do not fight with wife, how to live with your neighbours. He must know how to defend his community. If a boy failed to catch up the instruction he is eliminated. They were taught by very experienced elders and through actual environment".

4) Describe the Shambaa language in the community and what knowledge it is based in.
"Most people in my community speak Shambaa as the major way of communication. And its [a] very rich language items of knowledge, skills and experiences through proverbs. Example;
Ukiita kweombeza kabogha uituke na kako kashashizeko"

Translation

"When you go to bring vegetables to your neighbour make sure you have yours that is about to go waste".

The above proverb entails that, before you request for help make sure you have something in your possession because when you don't get you can still have something. This reveal[s] that the Shambaa language has a lot of wisdom within".

5) How does your community's knowledge of the local ecology differ from that of neighbouring communities?

"The ecological knowledge of Shambaa and their neighbours like Pare and Chaga are the same, this is because when you visit the burial place of these communities you find that there is tendency of planting of trees. And also, there is taboo which prohibited to cut certain species of trees in these communities. The only thing to note is that Pare community they are so good [better] in terracing than Shambaa community".

6) Describe the difference of food security of your community compared to surrounding communities for the last few generations.

-"Food security was as follow[s]: Cassava, maize. Also, the diversification of food helps the community to have strong food security. While Pastor Msafiri Mbillu has different perspective on this; food security is only taken at the family level. This is to say that every family has the responsibility of taking care of his/her family because. Food security depends on the availability of harvests in that particular year. If it has rained enough that means food will be available for a couple of months if not years. In my community people just own small pieces of land therefore they cannot have enough to save for a very long period of time. Compared to other neighbouring community where there is other possibility of growing some cash crops such as vegetables etc. They can therefore have possibility of selling vegetables and purchase other food crops such as maize etc.".

7) Describe the difference in health of your community compared to those in surrounding communities for the last few generations.

-"To be honest [the members of the] Shambaa community they are very health[y] that's why they have high [large] population. And to them every disease that arise[s] has its medicine. Furthermore, according their climatic condition[s] they have few relative tropic diseases. But [it is] important note here is that if there is [was] [an] eruption of very deadly diseases like bubonic plague and leprosy, thus, people had to be placed in quarantine".

8) Why was your community less affected by the previous plague outbreaks compared to nearby Western-style farming areas?

-"First of all, our grandparents they had local knowledge for the prevention of the diseases and whether the disease seemed to be very fatality they isolated the sick one until they are healed or die. Secondly is the climatic condition of the Shambaa community[, which] favour[ed] them with [low rates of] tropical disease and they had proper ways of preserving the forest which were the main reserve of rodents".

9) Describe your agricultural system and how and why it is resilient to food shortages.

-"In my community they prefer to use communal production by using hand hoe. The area was very resilient to food security because of the diversification of crops and most of the crops can sustain drought".

10) Describe how the soil is fertilised, keeps moisture, protected from erosion and temperature changes.

-"First in the virgin land they burn the bushes for fertilizer, crop rotation, mixed cropping, planting trees to avoid erosion and they had developed traditional irrigation."

11) How did ecological changes for your community's lands differ from lands outside of the community before and during the plague years?

"It also should be noted that, the destruction of ecological system[s] has resulted to serious social and economic effects due to the fact that, it resulted to unknown diseases and hence swept the population of an area. This was well cemented by the following H. Kjekhus[3], M. Turshen[4], who, collectively, view issues of health and diseases as outcomes of the way society is organized, especially the way subsistence and surplus are produced and distributed among the members of society."

12) Describe the locations and basic characteristics of different plots of land that belongs to the people.

-"Plain[s] area[s, which] are located in valley and they collect water from the hills.

[3] H. Kjekshus. *Ecological Control and Economic Development in East African History*: *The case of Tanganyika, 1850-1950.* (Dar es Salaam, Mkuki na Nyota, 1996)., p. 126.
[4] M. Turshen. *The Political Ecology of Disease in Tanzania*. (New Brunswick, N.J: Rutgers University Press, 1984).

-Hills".

13) How are problems or potential problems uncovered and observed by the community? and,

14) What is the procedure for addressing problems within the community?

-"In all cases it begins from the family level and continuous to the next level through oral means. The procedure of addressing problems is by local administration and later to the official rulers of our organisation. This means the problem is addressed from the village level and later by the higher authorities."

15) Has this procedure changed over the generations? If so, could you describe these changes.

-"To be honest there [are] huge changes particular in medium of communication, now days phone and other medium they are used in calling the meeting. Furthermore, few people are involved now[-a-]days in the decision making compared to the past".

16) How are limited resources shared within the community?

-"In our community and Africa in general the only social safety net remained for the distribution and sharing of the limited resources is extended family. Family is the only and powerful means of help in Africa and particular in my community".

17) Is water a limited resource in the community, at times? If so, how is that dealt with?

-"In the past water was not a serious problem but as time goes on water has been a very serious problem because the population has grown which resulted to high demand of land. Clearing of forest has sped up the problem."

18) Describe how decisions are made within the community.

-"In my community is more organised because there is clear structure to be followed from the family level to the community. Through these structures all information are shared and therefore decision[s] can easily be made through based on this. The selected elders become the member the decision board".

19) Why are these decisions adhered to?

-"Since the decisions are reached through this structure, it is an obligation of each to follow and obey what has been decided. Myth, penalty has been the main enforcement mechanism. Most decisions are for the benefit of all community members e.g. clearing roads during and after rain seasons, cleaning water wells etc., therefore everyone feels responsible to comply with the decisions because of the direct benefit".

20) What is done if people need assistance for food and farming?
- "In my community, during this time, people are organised to go and work in nearby community in exchange of food."

21) Is there a responsibility for those receiving assistance to reciprocate it in some way? If so, please describe how the help would be reciprocated.
- "Working in farm or any other activities given to them."

22) What are the consequences of *kubana shi* "harming the land"?
- "The consequences are very clear and vivid to any because of the visible draught, erosion, lack of water etc."

23) What leads to *kubana shi* "harming the land"?
- "According to my community, going against the direction of the elders, and sin against god has been the source of the Harming the land."

24) Please describe what is needed for *kuzifya shi*, "healing the land" to take place.
-"First of all to seek forgiveness from ancestors and provide sacrifices then the following should also be part of the next steps.
- the proper use of manure instead of artificial fertilizers
- crop rotation
- terrace farming
- planting some erosion protecting plants on the hills of mountains
- zero grazing and reduction of animals such as cows."

25) What is thought to be important to maintain good health?
- "food, drinks, fruits.
- reduce excessive use of fat, alcohol etc.
- maintain weight"

26) What are different ways that illness can be dealt with in the community?

- "The use of local herbs, proper use of prescribed medicine."

27) What are present problems or potential problems that the community is faced with?
- "Water, electricity, food security, climate change, diseases like coronavirus…

traditional ways of living has been affected".

28) What actions are being taken by the community to address these problems?
-"To be realistic we cannot escape the effect of globalization because our economic system has been integrated to the capitalist system. However, the following can be taken into consideration to mitigate the problem
- Political will of our leaders
- Strong political institutions like local council, parliament, judiciary and executive.
- Practising inclusive economy".

landscape as it is by poetry's descriptions thereof. Both contribute to our conceptual understanding of the georgic.

However, what the Virgilian model also implies is that the tools used to transform the environment are not of the environment itself. The plough, whose image is at the origin of the adjective *georgic*, is perceived as an exterior technology applied to the land to produce the georgic landscape. Introduced to the land by an outside agent, such technology reinforces the opposition between nature and culture. In contradistinction, the use of fire as a tool, by firstly being present in nature, is part of an agricultural practice that blurs the distinction between the natural and the technological.

The use of fire as a tool in agriculture also has implications for the representation of the georgic in poetry. It is this relationship between the use of fire as a tool in agriculture and its representation in poetry that I will explore in this article. I will argue that the use of fire in the agricultural practices of Australian First Nations develops what I call an Eco-Georgic literature. To do so, I will analyse the poem "Borri is Fire Waru is Fire" by the Aboriginal poet Lionel Fogarty.

In order to develop the idea of an Eco-Georgic literature, I will first define the georgic and its relationship to the environment. I will then turn to the use of fire as a tool in the agricultural practices of Australian First Nations. Finally, I will analyse the poem "Borri is Fire Waru is Fire" by Lionel Fogarty to demonstrate how the use of fire as a tool in agriculture is represented in poetry.

landscape as it is by its literary representation.[3] If georgic literature describes modified rural landscapes and the labour required to maintain them, an Australian georgic must, in order to institute a more adequate relationship between language and reality, deconstruct preconceived ideas of what constitutes a typical farmed landscape. Accordingly, the following paper considers the specific use of fire as a tool in agriculture.[4] Taken from Lionel Fogarty's collection *Eelahroo (Long Ago) Nyah (Looking) Möbö-Möbö (Future)*, the poem "Borri is Fire Waru is Fire" considers ancient indigenous agricultural practices and challenges our perception and understanding of what constitutes the Australian georgic (Fogarty, 2014, p. 111-114). Far from being known as a georgic poet, Lionel Fogarty, a Yugambeh man, has been described as a "Guerilla Poet," one who "uses [the English] language in an effort to tear down the language structures which have been imposed on him and his people" (Johnson, 1986, p. 48). Consequently, the current study will determine the extent to which Lionel Fogarty's poem contributes to a new georgic narrative, one that is capable of representing a typically Australian *Eco-Georgic*. To do so, the notion of the Eco-Georgic, where "each local ecology is attended to", constitutes our starting point (Fairer, 2011, p. 214).[5] Furthermore, the study will demonstrate the manner in which "Borri is Fire Waru is Fire" challenges colonial control of language and land, thereby producing an aesthetic response to, and rewriting of, a Western concept of the georgic. Our aim is to provide an example of an Australian Eco-Georgic literature, one that fully considers the place of fire in indigenous agriculture and identity.

2. Poetry, Property and Agency: Deconstructing and Reconstructing the Australian Georgic

In his essay, "'Where Fuming Trees Refresh the Thirsty Air': The World of Eco-Georgic", David Fairer observes that in georgic poetry "[…] 'Nature' repeatedly breaks down into its discrete phenomena; instead of an emphasis on inspirational or mystical effects there is a commitment to the minuter readjustments and qualifications that allow life to continue" (Fairer,

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[3] In this regard, "[…] the georgic is particularly vulnerable because it courts that burden of referentiality as no other poetic genre does" (Heinzelman, 1991, p. 192).

[4] "Anthropogenic fire is increasingly recognized as an important constructive force in shaping plant communities around the world, and its impact in Australia has been argued to be particularly significant" (R. Bliege Bird *et al.*, 2008, p. 14796).

[5] For David Fairer, an Eco-Georgic literature applies ecocritical theory to Georgic Literature (Fairer, 2011, p. 214).

2011, p. 207). Such "readjustments and qualifications" correspond to the concrete actions undertaken by those concerned about continuous and predictable access to food. In other words, they are rational decisions based on an intimate knowledge of the land. Although the "inspirational or mystical effects" of fire are not absent in Fogarty's "Borri is Fire Waru is Fire", the pragmatic use of fire is equally present.

Therefore, to establish an Australian Eco-Georgic that represents a "local ecology," one must first of all consider the representation of current capital-intensive modes of agriculture. Any romantic views of a supposedly sound agriculture practiced by farmers disappear once the reality of the Australian environment is considered. The antipastoral poetry of John Kinsella notably refutes a pastoral idyll which "is neither obtainable nor desirable because it was never a good thing in itself. It was about control, exclusion, bigotry, cultural determinism, exploitation of animals, as much as vitality, order positivism, pantheism, life celebration" (Kinsella, 2004, p. 363). The poetry of John Kinsella reflects the consequences of inappropriate agricultural practices applied to vast territories, instead of an agriculture that considers the local ecology. No longer able to represent the idyllic nature of the pastoral, Kinsella criticizes "the rapaciousness and insensitivity of culling and hunting and the ruination of land due to over-clearing and salination" (Clark, 2003, p. 16-17). Consequently, what can be transposed onto the Australian context is not some typical rural landscape defended by romantic poets such as Wordsworth or Coleridge, but the suspicion towards "the depredations caused by the incursion of capitalist financial relations into the subsistence economy of a more traditional rural world" (Rigby, 2013). Indeed, it is this "traditional rural world" that needs to be redefined in the Australian context if an Eco-Georgic literature is to see the light of day.

In addition, the supposed idle and inactive nature of Aboriginal people in regards to land management and the subsequent literary representation must be contested.[6] In his article, "Pastoral and Priority, The Aboriginal in Australian Pastoral," Ivor Indyk compares the dispossession of Molibeous in Virgil's *Eclogues* to that of the First Nation's dispossession at the time of colonisation, stating that the "Australian pastoral is haunted by a similar sense of violation, caused by the upheaval of no lesser magnitude – that of the displacement of an indigenous population by the settlers of a colonizing power" (Indyk, 1993, p. 838). Indyk also mentions the supposed absence of Aboriginal agency in Australian Pastoral literature, as they are seen as

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[6] Richard A. Gould highlights the importance of fire in Aboriginal communities and the misinterpretation of previous observers who misread the "seemingly lackadaisical attitude towards fire", (Gould cited in Bowman, 1998, p. 389).

"passive, accepting white domination," being at once irrational and representative of a state of ignorance where moral judgement is impossible (Indyk, 1993, p. 845). However, to represent the First Nations as prosperous and privileged in their unproductivity, languishing rather than laborious, denies any influence on the land and any efforts in the organization of their future.[7]

Dispelling the "primitivist rhetoric" of Australian pastoral poetry is the first step in the elaboration of a definition of an indigenous Australian Eco-Georgic (Indyk, 1993, p. 844). In other words, the myth of an unaltered, pristine 'Nature' from the pre-colonial period must be questioned, since "in Australia ecologists cannot retreat to the 'wilderness' to study an archetype of nature because the 'wilderness' has long included people" (Bowman, 1998, p. 405). As William Cronon argues: "[…] everything we know about environmental history suggests that people have been manipulating the natural world on various scales for as long as we have a record of their passing" (Cronon, 1996, p. 17). Moreover, any romantic view of the Australian environment as an untouched wilderness set aside in Western thought as *acultural*, – priviliged sites that forge identity, that induce the metamorphosis of the self, places of spiritual introspection or rites of passages – erroneously respond to a false perception of the Australian environment (Clark, 2012). Such a portrayal of the Australian environment as a "wild nature" ignores the reality of those who, for thousands of years, have modified and exploited it.

However, having obtained a deep knowledge of the relationship between fire and the growth of certain comestible food sources, the colonial presence subsequently denied the First Nations the use of this site-specific tool. This is why "Aboriginal people who have been forbidden to light fire by in their minds, ignorant and irresponsible Europeans, tenaciously hold to the view that fire is an important humanising force in landscapes, and remain distressed by prohibitions on starting landscape fires" (L. Head cited in Bowman, 1998, p. 389). Problems arise when colonial powers, past and present, impose inappropriate environmental land management, incompatible with the Australian context, notably because "the premises underpinning Western reductionist science are deeply rooted in specific cultural ideas, yet rather than acknowledging the cultural specificity of

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[7] In response to the description of the unadapted farming practices by settlers in Australian literature, Indyk consequently defines an "ironic georgic – of the relentless, ill-fated work, the consequence of which […], is not the fruitfulness of the country but its transformation into a desolate wasteland, its fertility squandered, its people driven away or destroyed" (Indyk, 1993, p. 845).

Western science, it is heralded, promoted, and protected worldwide as 'rational', 'objective', 'universal', and culturally neutral approach to addressing environmental issues" (Muller *et al.*, 2019, p. 400-401).

Acknowledging the cultural specificity of Western science, as well as the notions of property, agency and local ecology, allow us to consider "Borri is Fire Waru is Fire" as an example of a poetic response to David Fairer's Eco-Georgic. Rather than subsuming particuliar world views inherent to First Nations, the aim of transposing a Western cultural notion onto indigenous Australian culture will be to show how specific indigenous agricultural practices and traditions relate to Fairer's Eco-Georgic definition. As John Charles Ryan observes, "indigenous Australian epistemologies of the environment largely resist the Western categorical distinction between 'human', on the one hand, and 'non-human', on the other." (Ryan, 2015, p. 939). Nowhere is this more evident than in First Nations relation to Country, since "Country is multi-dimensional – it consists of people, animals, plants, Dreamings; underground, earth, soils, minerals and waters, surface water, and air. There is sea country and land country; in some areas people talk about sky country. Country has origins and a future; it exists both in and through time" (Rose, 1996, p. 8).[8] Thereby, Country is not merely the landscape, but "a living entity with a yesterday, today and tomorrow, with a consciousness, and a will toward life" (Rose, 1996, p. 7). Fogarty's literature is an act of mediation, it brings together elements of song poetry and written poetry, Western epistemology and First Nation knowledge, revealing another possible worldview in a period of environmental upheavel.[9]

The pragmatic and controlled use of fire allows us to define its agricultural use as Georgic, understood as an intellectual and physical entreprise, as it reflects the idea that "georgic labour is more likely to be uncertain, challenging, and occasionally frustrating, and the 'nature' within which it operates usually sets its own agenda. It rarely yields rewards easily without some degree of struggle" (Fairer, 2011, p. 204). Therefore, if David Fairer's statement that georgic poetry refers to a "challenging context,"

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[8] John Charles Ryan highlights that "country and song poetry are crucibles for Aboriginal cultural knowledge. indigenous technological practices also involve environmental and cultural understandings, particularly of country. " (Ryan, 2015, p. 941).

[9] In his study, "Tracing a Trajectory from Songpoetry to Contemporary Aboriginal Poetry," Stuart Cooke demonstrates "how Aboriginal literature can act as a political mediation between indigenous and settler philosophies" (Cooke, 2013, p. 90). According to John Charles Ryan, "Fogarty's verse is notable for hybridizing the orality of song traditions and the configurations of literary modernism […]" (Ryan, 2015, p. 951).

where "human labour is endless, and the proper tools – well maintained of course – are necessary," then "Borri is Fire Waru is Fire" encapsulates that idea in an Australian context (Fairer, 2011, p. 206). It is for this very reason that Virgil's Countryman labours "his native land," as each context, each local ecology requires a specific reponse. Indeed, in this site-specific context the "proper tools" become the instrumental use of fire, the knowledge of which is maintained through practice and transmission. As we will see, Fogarty's poem offers an example of Eco-Georgic literature determined by the particularity of place, one "that really struggles with nature, recognises diversity, tries to understand how an interdependent system can be *sustained* and properly *exploited*" (Fairer, 2011, p. 212. Emphasis in the original). If successful agriculture involves testing certain limits, namely "of how much control, and of what kind, will encourage life to flourish", then it seems possible to consider the use of fire as an essential element of an Australian Eco-Georgic (Fairer, 2011, p. 208).

3. The Role of Fire in an Australian Eco-Georgic Poetry

In a paper originally published in 1969, Rhys Jones suggests the expression 'fire-stick farming' to describe both the deliberate and random use of fire in various Aboriginal groups (Jones, 2012, p. 7).[10] Such a method of farming supposes an intimate knowledge of site-specific ecosystems, and its presence is still averred today, since "Aboriginal people consciously and deliberately use fire to promote the well-being of particular types of ecosystems" (Rose, 1996, p. 63). The use of fire as an agricultural tool in the delibrate alteration of the land requires both discernment and perspicacity over long and short periods of time. The inherent struggle and uncertainty of georgic labour must therefore be recognized as much in the use of the plough as in the use of fire.[11] Research has established "the correlation between Aboriginal presence and landscape-level effects, concluding that […] fire increases nutrient availability and removes 'climax' vegetation (more slowly growing hummock grasses and woody shrubs), enhancing the

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[10] See also Bill Gammage, 2011, *The Biggest Estate on Earth: How Aborigines made Australia*, Crows Nest, Allen & Unwin.

[11] The nineteenth century explorer Major Thomas Mitchell writes of the "considerable labour" necessary to transform what would have been "thick jungle" into "open forests", while the explorer George Grey refers to the burning of Typha swamps in southwest Western Australia as "a sort of cultivation" (Bowman, 1998, p. 388).

short-term productivity of herbaceous plants and increasing in patch diversity" (Bird *et al*., 2008, p. 14796). In other words, the proper use of fire increases food production as it promotes the development of certain plant and animal species subsequently exploited by Aboriginal communities. Consequently, ignoring fire as an agricultural tool hinders the acceptation of what is considered agricultural land in both literature and reality. This is why any Eco-Georgic literature would need to conciliate the mental construction of an agricultural landscape with the reality of the environment. In other words, in Eco-georgic literature, any representation of agriculture needs to be in closer adequation with the reality it describes.

The controlled use of fire in site-specific agriculture designed to increase certain crops supposes intellectual planning and physical work, both of which find poetic form in "Borri is Fire Waru is Fire." However, rather than a description of fire's properties and characteristics, or even its exploitation in agriculture, the first verse establishes the status of fire based on the Aboriginal people's long established understanding and practical use: "Fire is our right" (Fogarty, 2014, p. 111). Moreover, such a right precedes settler laws, since later in the poem the poet affirms that "Aboriginal's fires are power over laws." As David Fairer notes, "georgic never underplays the fact that *nature imposes a responsibility*, and in Virgil and his eighteenth century imitators natural forces have a way at getting back at you" (Fairer, 2011, p. 205. Emphasis added). Fogarty claims a right that is also a responsibility incumbent on the First Nations, "These fires are under ground waiting for house / That disrespect man using," where the two verbs in the present continuous aspect demonstrate the situation in which the First Nations find themselves in relation to the current mis(use) of fire (Fogarty, 2014, p. 111). However, it must not be forgotten that "settler states have acted to suppress indigenous responsibility to Country, but that does not mean that indigenous nations are not asserting their rights and obligations to place" (Muller *et al*., 2019, p. 399). Placed above and beyond any colonial based laws, fire is in the very nature of the Australian landscape, it is used to care for Country. The importance and role of a physical *and* spiritual Country are subsequently expressed in Fogarty's reference to an ancient history and a contemporary evidence: "Can't stop old fire / Can't stop young fire" (Fogarty, 2014, p. 111).

Consequently, the poet reminds the First Nations that "You and we are without age-old fires" (Fogarty, 2014, p. 111).[12] Fogarty employs a language that speaks directly to each individual, made evident through the

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[12] In "No More Boomerang," Oodgeroo Noonuccal also regrets the absence of firestick burning and firestick farming (Ryan, 2015, p. 949)

utilization of the second person pronoun *you*, while the first person plural *we* reinforces the sense of community. The absence of fire within the individual and within the community reinforces their requisition to property and agency or, in other words, the restablishment of their right. The exclusion of the white-settler, both past and present, in the pronoun *you* subsequently restores a sense of pride based on the notions of property and agency. Therefore, from the lack of agency ascribed to the First Nations comes the patient anticipation of their acknowledged right to use fire. The recent increase in the amount of massive, destructive bushfires makes Fogarty's poetic reminder that "The fire can kill, when not looked after" all the more relevant (Fogarty, 2014, p. 111). However, far from ignoring the potential destructive nature of fire, Fogarty describes an environment that requires the respectful use of fire, as "Much death as fires for a life / Much life as fires for a death" and where the intelligent use of fire is promoted: "Fire on fire to put out fires" (Fogarty, 2014, p. 112-113).

Without doubt, the Original Custodians harnessed an indiscriminate fire that spread across the landcape and, after having closely observed the positive outcomes of natural fires, they learned to shape the distinct ecosystems of each indigenous community's Country. Characteristic of georgic literature, "Borri is Fire Waru is Fire" is didactic in nature, it informs and teaches. And yet, fire precedes man, inasmuch as there is a "Fire made not by man but natures" (Fogarty, 2014, p. 111). Fogarty refers to natural fires, which are both unpredictable and timeless, spreading uncontrolled across the land, allowing indigenous communities to observe the positive consequences of this natural phenomena: "Winds were and are friends to fires" (Fogarty, 2014, p. 111). Therefore, despite an evident spiritual conception of fire, whereby "Humanities are fire / My race is fire / The spirit if fire," fire is ultimately grounded in its pratical use (Fogarty, 2014, p. 112). For if on the one hand, Virgil states in one of his lessons "The ways to propogate a tree are many" (Fallon, 2015), Fogarty's poem also serves a Georgic didactic agenda when he writes "The future will always say fires will state again for seeds are sprang by fires" (Fogarty, 2014, p. 113). And when Virgil implores the farmer to react accordingly to the meteorological conditions, "From the sun's first tender touch, run your / mighty teams / through fertile fields" (Fallon, 2015), the Georgic nature of Fogarty's poem is made evident in verses such as "The trees never grow without fires," (Fogarty, 2014, p. 111) or "Being in side fire the grass growth" (Fogarty, 2014, p. 112). Insomuch that Virgil's *Georgics* are the poetic reponse to the vital need to fructify the earth in a geographically delimited context, Fogarty relates fire's capacity to create prosperous and

healthy *local* communities. In much the same way that occidental farming tools increased the prosperity of villages and cities throughout the ages, fire nurtures, since "fire brings sex rest and cares" (Fogarty, 2014, p. 111). Fire promotes community, strengthens bonds, it nourishes, so that "safe by fire makes new peoples a unity" (Fogarty, 2014, p. 111).

Furthermore, in keeping with the Georgic apsect of the poem, the difference between rural imagery and rural reality is equally captured in Fogarty's poem. Much like the country lanes that facilitate the exploitation of what has come to exemplify a typical rural landscape, in First Nations' Country, "Our roads when made needs fires" (Fogarty, 2014, p. 112). The ephemeral nature of these roads does not contradict the image of what is rural. A phenomenological experience of what is considered rural may be reinforced by a literary experience. Inversely, literature can predetermine our expectations of a rural landscape. In this sense, if the rural relates to the country – areas found far from large cities – then the absence of fire, as much as the absence of the sickle in both its archaic or modern form, defines the city: "The city be nothing without fires / The countries be nothing without fires" (Fogarty, 2014, p. 112). Fire is rural, it creates Country. Fire is agriculture, insomuch that it is *not* the city.

The agricultural use of fire therefore responds to current ecocritical theory's need to create new narratives, for "If there's no fire, earth dead and the world will be misunderstood" (Fogarty, 2014, p. 112). The use of fire as a tool defines a site-specific Eco-Georgic in that it questions " [the] processes of colonisation [which] have meant that colonisers have inscribed new ecologies onto indigenous territories— ecologies that reflect colonising cultural narratives and values in order for colonising cultures to flourish" (Whyte *et al*., cited in Muller *et al*., 2019, p. 402). Any new narrative must in fact be understood as a very ancient one, albiet surpressed or ignored by colonial powers, since "these territories were already inscribed with indigenous ecologies that reflected indigenous sovereignties and cultural narratives for indigenous survival" (Muller *et al*., 2019, p. 402). Indeed, fire promotes the idea of an Eco-Georgic poetry capable of creating an "interconnected environment [that] is at the heart of ecology," all the while "[carrying] a local empirical practicality" (Fairer, 2011, p. 211). It is this "local empirical practicality," that defines fire as an appropriate agricultural tool that is subsequently represented in Eco-Georgic literature.

The use of fire in agriculture leads to a transformation in our perception of what constitutes an agricultural landscape, while its presence in poetry

signals an evolution in the georgic narrative.[13] The Eco-Georgic is born out of the literary representation of direct phenomenological expériences that consider the local ecology. If language determines and influences our acceptance of what constitutes 'Nature,' then the same process applies to Eco-Georgic literature.[14] Any Eco-Georgic literary description must therefore be in adequation with the reality of the land it describes, because our comprehension and acceptance of the Georgic is as much a result of a literary experience as it is the result of a phenomenological one. It is worth considering that in his article, David Fairer refers to the neglect and degradation of the land after years of civil war in Virgil's *Georgics*. After years of colonial misuse of the land and fire, a similar situation in Australia is to be deplored.

4. The Poetic Form of Fire

In his article, "Ecoaesthetics and ecocriticism," Cheng Xiangzhan deplores the absence of sound literary analysis in "ecoliterature," stating that "what is unsatisfying is that most ecocritical studies are more like 'cultural criticism' than a literary´ one" (Xiangzhan 2010, 787). Xiangzhan considers that "from the perspective of ecoaesthetics, ecoliterature is certainly an important type of aesthetic object and ecoliterariness is the sum of the aesthetic qualities of ecoliterature" (Xiangzhan, 2010, p. 787). Fogarty, who sees himself as "a speaker, not a writer", disrupts the expected codified use of language in order to create an aesthetic response to both language and fire, their place and application becoming all the more pertinent in the process (Buchanan cited in Shoemaker, 2004, p. 220). Fogarty's poetic form exploits "the language of the invader in an urge to destroy that imposition and recreate a new language freed of restrictions and erupting a multi-meaning of ambiguity" (Johnson, 1986, p. 53). Any reader of "Borri is Fire Waru is Fire" unfamiliar with the importance of fire is simultaneously confronted with an unfamiliar language which has been "purposely externalised from an easy understanding of the text" (Shoemaker, 2004, p. 221). It is this disruption of expected grammar in Fogarty's poetry that

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[13] David Fairer writes that "[…] the compromised, and comprising, georgic, whose interest in mixture, alteration, contingency, and various kinds of trial-and-error, hinders it from the big vision, the saving answer", that pastoralism seemed to offer to ecocriticism (Fairer, 2011, p. 209).
[14] William Cronon highlights the influence of the romantic movements language on writers such as Thoreau in their appreciation and description of nature (Cronon, 1996, p. 7).

exemplifies the very nature of fire, being at once destructive and regenerative, promoting new growth in language *and* nature. By deforming the grammar of the English language, Fogarty is able to restore indigenous property, control and agency through the use of the very language that oppressed them. Such a reappropriation of language is also a reappropriation of fire.

Subsequently, fire enters into an aesthetic relationship that reunites language with the environment. This is made apparent by the fact that, for First Nations, "there is a well defined aesthetic – country which has been burned is country which looks cared for and clean" (Rose, 1996, p. 65). In much the same way that traditional agricultural practices are valued in other cultures, the use of fire is equally valued, since "you can see that people are taking care of it" (Rose, 1996, p. 65). Yet, fire precedes its aesthetic form, it comes before language, existing before its intellectualisation and subsequent representation. This is why Fogarty highlights the preexistence of fire and its potential aesthisation, since "Fire gives all written painted artist what we have now animals fire" (Fogarty, 2014, p. 112). Fogarty gives fire a literary form, placing a very ancient fire at the centre of a paradoxically new narrative, one that recalls the First Nation's past, and one that continues to recount the present struggle: "Oh he got the fire in his speak let it be of greater peace / If to write be to fight, do it with fire better and right with the good campfires stories" (Fogarty, 2014, p. 114). Indeed, in "Borri is Fire Waru is Fire" fire gives voice and forms identity, since "For the stories are kept by these fire stories / Fire now is the book of face fires" (Fogarty, 2014, p. 113). Fire transforms poetic language into one that translates the determination of engaged writing: "No poetry is alive without fire, / Words are fires written for action. / All poet stand as fire, No one is poet without fires" (Fogarty, 2014, p. 113). Without question, the use of fire forms Country as much as it forms language and identity. It is this interrelationship between the human and the non-human that creates an aesthetic response corresponding to ecocritical theory.

Accordingly, the extent to which "Borri is Fire Waru is Fire" responds to both the aesthetic requirements of literature and the political or ethical viewpoints that eco-literature sets out can be measured by its capacity to postulate a return to concrete and observable indigenous methods of land mangagement, as well as an acceptance of the place of fire within a modified ecosystem.[15] Ecocriticism's inherent urgency demands a literature that sparks collective cultural change. However, fire resists language, it

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[15] On the relation between aesthetics, ethics and politics, see Richard Kerridge, "Ecocritical Approaches to Literary Form and Genre: Urgency, Depth, Provisionality, Temporality".

refuses to be understood uniquely through a scientism that does not take into account the phenomenological experience and its subsequent representation. This is because "the great paradox of the 'scientific world-view' is to have succeeded in *withdrawing historicity* from the world. And with it, of course, the inner narrativity that is part and parcel of being in the world" (Latour, 2014, p. 13. Emphasis in the original). Fogarty's poem acknowledges and asserts the historical importance of fire, one that enters into story and identity, and one which is slowly being recognised as empirically justifiable.

However, if an Australian Eco-Georgic poetry is to be defined, then one must consider fire not only as sacred, but also as profane. The secularization of a sacred fire is the *right* given to the Original Custodians that Fogarty mentions in the first verse of the poem: "Fire is our right". If the sacredness of fire encourages a hermeneutic interpretation, it also has more secular, observable and quantifiable properties. Sacred, fire is at once omnipotent, "We use fires spirits to heal," (Fogarty, 2014, p. 112) and omnipresent: "Waru Borri walk / Waru Borri talks / Waru Borri our eyes / Waru Borri dances us nice / Waru Borri loves the lovers / Waru Borri can hate / Waru Borri can kill / Waru Borri live for death / Waru Borri can rainbow your days / Borri sits even as wits in lit" (Fogarty, 2014, p. 113). Secular, Waru Borri is used as a tool: "Let the control off the fires be always man's / Knowing its powers" (Fogarty, 2014, p. 113). It is this double aspect of the sacred and profane that Fogarty's poem captures, where fire provides a spiritual connection to Country and the means to nourish a community. Consequently where fire is used for agricultural purposes an intimate relationship is born between two seemingly hermetic entities: the sacred and the profane.[16] In other words, if fire is applied in a concrete manner by Original Custodians, it remains an abstract entity that retains its spirituality.

Ecoliterature must be wary of creating an aesthetic object diassociated from the reality that it represents. Furthermore, the aesthetization of the environment cannot exclude a human presence and, in particular, the presence of indigenous communities. If the environment is seen as harsh, unforgiving, unrelentless and needing to be modified in order to respond to a preconceived idea of 'Nature,' or in the current case an preconceived image of the georgic, then an Australian Eco-Georgic literature is not yet possible. In other words, the idealisation or management of the environment as seen through Western cultural frameworks distorts the reality of the local ecology. In this regard, "Borri is Fire Waru is Fire" responds to ecocritism's

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[16] "It is this sense of the sacred and the intimacy of relationships that enables a 'depth of knowing' that is not available in worldviews separated from an objectified 'nature'", (Whyte *et al.*, cited in Muller *et al*., 2019, 404)

concerns in the sense that it posits, through the double aspect of the sacred and the profane, a return to more adapted farming techniques that protect rather than destroy fertile soils. If, as Richard Kerridge remarks, "ecocritics must be concerned with whether a concentrated revelatory moment is an isolated moment, itself split off from practical daily life," then Fogarty's poem offers an example of how we can consider fire as something that is at once "split off from" and undeniably part of the quotidian (Kerridge, 2013).

Conclusion

Being that indigenous agricultural methods existed before colonial displacement and oppression, the didactic nature of georgic poetry must be adapted to "the native land", to the "local ecology," if an appropriate Eco-Georgic literature is to grow out of the Australian environment. Therefore, an Australian Eco-Georgic literature needs to be one that not only considers the specificity of the local ecology, but also one that places the human and the non-human within a network of agency that leads to an awareness of responsibility within ecosystems. In what is becoming known as the Anthropocene period, the notion of "indigenous sovereignties," that promote " ways of being in sacred, ethical, and reciprocal relationships with 'nature'" is all the more necessary (Muller *et al*., 2019, p. 408). Finally, any Eco-georgic literature needs to be in adequation with the reality it represents. This can only occur once the object of our perception corresponds to the literary representation of an Australian Eco-Georgic landscape and vice versa. Indeed, if the analogy between the plough and verse has long been established in poetry, the relationship between the agricultural use of fire and its representation in poetry is yet to be fully exploited. As Lionel Fogarty reminds us, "Don't fire out the fire made a Thousand years ago", the past, present and future of fire characterize an Australian Eco-Georgic (Fogarty, 2014, p. 113).

References

Bliege Bird, R. *et al*., September 2008, "The 'fire stick farming' hypothesis: Australian Aboriginal foraging strategies, biodiversity, and anthropogenic fire mosaics", *Proceedings of the National Academy of Sciences of the United States of America*, National Academy of Sciences, 105, 39, 14796-14801**.** URL: https://www.jstor.org/stable/25464315. Tuesday 15 December, 2020.

Bowman, D., November 1998, "Tansley Review no. 101. The impact of Aboriginal Landscape Burning on the Australian Biota", *The New Phytologist*, Wiley on behalf on the New Phytologist Trust, 140, 3, 385-410. URL: https://jstor.org/stable/2588473. Tuesday 15 December, 2020.

Clark, G., June 2003, "Rethinking Literary Ecology: Social Ecology, Anarchism and the Poetry of John Kinsella", *Antipodes*, Wayne State University Press, 17, 13-20. URL: http://www.jstor.org/stable/41957258. Tuesday 08 December, 2020.

Clark, T., 2012, Old World Romanticism. In: *The Cambridge Introduction to Literature and the Environment*, Cambridge University Press, Cambridge, 15-24. URL: https://doi.org/10.1017/CBO9780511976261.004. Wednesday 21 April, 2021

Cooke, S., 2013, Tracing a Trajectory from Songpoetry to Contemporary Aboriginal Poetry. In: Wheeler, B., (Ed.), *A Companion to Australian Aboriginal Literature*, Boydell and Brewer, Rochester & Suffolk, 89-106.

Cronon, W., January 1996, "The Trouble with Wilderness: Or, Getting Back to the Wrong Nature", *Environmental History*, 1, 1, 7-28. URL: https://www.jstor.org/stable/3985059. Tuesday 23 March, 2021.

Fairer, D., 2011, "'Where Fuming Trees Refresh the Thirsty Air': The World of Eco-Georgic", *Studies in Eighteenth-Century Culture*, Johns Hopkins University Press, 40, 201-218. URL: https://doi.org/10.1353/sec.2011.0006. 17 December, 2020.

Fallon, P., (ed.), 2004, *Oxford's World Classics: Virgil: Georgics Book 2*, Oxford University Press; Oxford's World Classics, online July 2015. URL: https://www.oxfordscholarlyeditions.com/view/10.1093/actrade/9780199538836.book.1/actrade-9780199538836-book-1. Wednesday 21 April, 2021.

Fogarty, L.G., 2014, "Borri is Fire Waru is Fire", *Eelahroo (Long Ago) Nyah (Looking) Möbö-Möbö (Future)*, Vagabond Press, New South Wales.

Heinzelman, K., Summer 1991, "Roman Georgic in the Georgian Age: A Theory of Romantic Genre", *Texas Studies in Literature and Language*,

University of Texas Press, 33, 2, Romans and Romantics, 182-214. URL: https://www.jstor.org/stable/40753554. Tuesday 08 December, 2020.

Indyk, I., 1993, "Pastoral and Priority, The Aboriginal in Australian Pastoral", *New Literary History*, The Johns Hopkins University Press, 24, 4, Papers from the Commonwealth Center for Literary Cultural Change, 837-855. URL: http://www.jstor.org/stable/469397. Sunday 20 December, 2020.

Johnson, C., September 1986, "Guerilla Poetry: Lionel Fogarty's Response to Language Genocide", *Westerly*, 31, 3, 47-55. URL: https://westerlymag.com.au/digital_archives/westerly-313/. Wednesday 21 April, 2021.

Jones, R., 2012, "Fire-stick farming", *Fire Ecology*, 8, 3, 3-8. Reprinted from Australian Natural History (September 1969), 16, 7, 224-228. URL: https://doi.org/10.1007/BF03400623. Wednesday 21 April, 2021.

Kerridge, R., 2013, Ecocritical Approaches to Literary Form and Genre: Urgency, Depth, Provisionality, Temporality. In: Garrard, G., (ed.), *The Oxford Handbook of Ecocriticism*. DOI: 10.1093/oxfordhb/9780199742929.013.020. Wednesday 21 April, 2021.

Kinsella, J., Summer 2004, "Is There and Australian Pastoral ?", *The Georgia Review*, Georgia Review, 58, 2, 347-368. URL: https://www.jstor.org/stable/41402499. Tuesday 08 December, 2020.

Latour, B., 2014, "Agency at the Time of the Anthropocene", *New Literary History*, The Johns Hopkins University Press, 45, 1, 1-18. URL: http://www.jstor.org/stable/24542578. 14 December, 2020.

Muller, S., Hemming, S., Rigney, D., November 2019, "Indigenous sovereignties: relational ontologies and environmental management", *Geographical Research*, 57, 4, 399-410. URL: https://doi.org/10.1111/1745-5871.12362. Wednesday 21 April, 2021.

Rigby, K., 2013, Romanticism and Ecocriticism. In: Garrard, G., (Ed.), *The Oxford Handbook of Ecocriticism*, Oxford University Press, Oxford. DOI: 10.1093/oxfordhb/9780199742929.013.003. Wednesday 21 April, 2021.

Rose, D. R., 1996, *Nourishing Terrains, Australian Aboriginal Views of Landscape and Wilderness*, Australian Heritage Commission, Canberra. URL: https://www.academia.edu/43504044/Deborah_Bird_Rose_-_Nourishing_Terrains_Australian_Aboriginal_views_of_landscape_and_wilderness Wednesday 21 April, 2021.

Ryan, J.C., 2015, "'No More Boomerang': Environment and Technology in Contemporary Aboriginal Australian Poetry", *Humanities*, 4, 938-957. DOI: 10.3390/h4040938.

Shoemaker, A., 2004, The Poetry of Politics: Australian Aboriginal Verse. In *Black Words White Page: New Edition*, ANU Press, Canberra, 178-230. URL: https://www.jstor.org/stable/j.ctt2jbkhp.13. Wednesday 28 October, 2020.

Xiangzhan, C., Autumn 2010, "Ecoaesthetics and ecocriticism", *Interdisciplinary Studies in Literature and Environment*, Oxford University Press, 17, 4. URL: https://www.jstor.org/stable/44087678. Tuesday 08 December, 2020.

3. the pastoral or idealization of the technologically less developed world;

4. animal revaluation;

5. female embodiment and experience, often from ecofeminist standpoints; and

6. the biological dimension of such ethico-political discourses.

These six families are traversed by transdisciplinary concerns and by a search for new theoretical tools, capable of supporting deep or non-anthropocentric ecologies. Even if some have judged his philosophy as resolutely anthropocentric, the work of Emmanuel Levinas is, in this context, more and more studied as a rich source of inspiration. It is indeed on the crossroads of several of these research families, especially the second, fourth, and sixth, that we find ecological readings of his philosophy.

Levinas, whose philosophy has been welcomed as the ethical turn of phenomenology, if not of the entire twentieth-century philosophy, surely has a lot to offer to green theories. His humanism of the other man is a humanism of alterity, a humanism that promotes respect, openness, and responsibility. Yet, this philosophy focuses on human alterity and tends to exclude, or at least to subordinate, other non-human alterities. The tension is thus ready, and the Levinasian corpus has been the object of many opposing interpretations regarding its ecological impact. In what follows, I propose first a review of these ecological readings (§2), organized in both Francophone and Anglophone spheres. I then focus on specific Levinasian terms that might be particularly helpful for a non-anthropocentric or deep ecology (§3). The main results of this investigation are a distinction between the ethics of responsibility and the ethics of vulnerability, an explanation of Levinasian compulsory or methodological humanism, and a schematic model of sensibility as enjoyment/vulnerability capable of supporting deep ecology without the traditional notions of free will, rights, or values.

3. Gaia, a single homeostatic biosphere;

4. ecotheology, a spiritual holism of the material world;

5. ecofeminist ethics of care against patriarchal subjugation, the earth as a female being;

6. sustainability, the regulation of our current models to prevent the overexploitation and further degradation of nature as a human habitat and resource.

These themes develop, gain or lose traction, legitimacy and usefulness, depending on the discursive domain they belong to, whether political, economic, spiritual, etc. Even if the ideas they carry are philosophical, the fact that philosophical discourse as an institutionalized practice can focus on one or many of these six themes, or on ecological issues in general, already represents a contemporary achievement in our culture. This is because, at least in the Western tradition, philosophy has, indeed, been marked by the ideas that presumably led us to the ecological crisis we are in. Philosophy is the place where the ideas of a subject separated from its natural habitat and of unlimited progress formed. It is therefore not a simple task to develop an ecological reading of a philosophical work, especially when its author has not faced the ecological challenges we face today. Even if we consider a gross simplification of these six discursive lines and distinguish only between surface and deep ecology, the task is still complex.

In this text, I will examine the case of Emmanuel Levinas in the context of deep ecology.

For half a century, a distinction has been made between an ecology inherently anthropocentric and reluctant to consider nonhuman entities as more than instruments, and an ecology that seeks to value all forms of material, cultural, and biological diversity beyond their utility (Drengson, 2008, p. 27). Deep ecology can thus be understood as an attempt to establish a new sense of non-dominant coexistence with nonhuman alterities, even though these efforts may seem unrealistic and often fall back into traditional ideologies.

In order to read Levinas not only from an ecological point of view but from a deep-ecology perspective, we need to examine his thoughts on humanism, animal value and against a particular idea of nature. To do this, it is necessary to understand certain historical elements that surround his philosophy. This philosopher, widely recognized as one of the most important ethical thinkers and the most original in the twentieth-century continental tradition (Atterton & Calarco, 2004, p. xx), has, however, also been extensively criticized for his inability to provide satisfactory solutions to moral questions. From secularism to feminism, from ecology to antispeciesism, his work has been declared at

best an important but outdated reference, and at worst a pernicious artefact of patriarchal anthropocentrism.

To bring more clarity into these debates, I conduct a bibliographical survey of ecological readings of Levinasian philosophy and examine those that I consider to be his most useful concepts from the perspective of deep ecology.

2. Ecological readings of Levinas' work

In this section, I address the trajectories Levinasian ideas have had in the context of ecological thought by examining Francophone and Anglophone academic literature separately.

To follow a particular concept across different times and geographies and to understand the hermeneutical reasons for its persistence or disappearance, it is important to distinguish between explicit and implicit influence and to try not to dismiss implicit references as inexistent. This is particularly important in the case of Levinasian concepts. Levinasian theories and vocabulary that play a criticizing but crucial role in Western philosophy as a whole, as well as in specific disciplines relevant to ecology, such as somatic phenomenology or ethics, are often present in ecological thought, but usually treated as familiar, unproblematic concepts and therefore not explicitly referred to the author, even when the assumed meaning of these concepts in a given text is clearly not general but technical and specifically Levinasian.

Baptiste Morizot, for example, presents an ecology against objectivism and reductionism, warns against ecological neo-animism, explains how ecology must become sensitive to the *immemorial* and *do justice* (*faire justice*) to alterity (Morizot, 2020), without referring to Levinas, but simply repeating the author's theories, and thereby *de facto* rebranding them under his name. Similar to this form of omission and appropriation, certain conceptual genealogies will minimize the influence Levinas had. For example, Catherine Larrère traces the questioning of our dominating relationship with nature to Michel Serres asking *how can we dominate our domination; how can we master our own mastery?* (Serres, 1995, p. 172) and to Hans Jonas' ethics of life.

We should assume that the authors are not obliged to retrace the countless philosophical responses to social change. We also acknowledge that Serres and Jonas are very important ecological sources and that, for Larrère, Serres is one of the first to diagnose the Anthropocene as such, as the end of the separation between natural and human history (Larrère, 2018, p. 137). The minimalization of Levinas' authorship is nevertheless remarkable:

While humans share a defining vulnerability with all living things, they also have a specific responsibility for the present vulnerability of the Earth […] Here, the obligation comes from another, but it is his weakness that imposes it on us. It is therefore from the heart of dependence that responsibility arises. We can undoubtedly see a reference to Levinas in this way of talking about others and the obligation they impose on us. But the link thus established between power, vulnerability and responsibility is typical to Jonas (Larrère, 2014, p. 3).

These attempts to erase Levinas or minimize his relevance to ecological reflection go so far as to actively set up alternative genealogies for such distinctive terms as alterity -as used by Levinas-, ethical asymmetry, epiphany of the face, ethics of vulnerability, or the link between power, vulnerability and responsibility.

They might nevertheless have certain grounds. The omission or trivialization could be a means of overcoming aspects of Levinasian thought that are considered incompatible with ecology. If Levinas is indeed considered an anthropocentric author, and ecology should extend responsibility to nonhuman life, it is understandable that some would seek to minimize the philosopher's importance. Even if the author's anthropocentrism is not assumed, the path of omission/minimization might simply be chosen to avoid the inconvenience of discussing his anthropocentrism.

Tacit or overt references to Levinas's theories could also be coincidences favored by a particular *zeitgeist*, *viz.* by the possibility that a generation defined by the sharing of collective experiences might produce thinkers with common insights, diagnoses, struggles and ideals. These would translate into unconsciously similar positions.

2.1. Francophone readings

In the Francophone sphere, Serres, Latour and Descola, prominent proponents of environmentalism in the last third of the twentieth century, espoused Levinasian ideas, particularly in relation to the critique of Cartesian dualism, *viz.* a critique of Reason, disembodiment, the separation of the subject from various material alterities, including nature, and the violence-producing superiority of the ego. They also share the subsequent praise of the Other, difference and discontinuity.

In the second half of the twentieth century, this critical gesture was ubiquitous, even if it had to be insisted upon and applied to different domains to become what is now the mainstream of ecological discourse: the responsibility of each one of us for the health and future of our planet as a whole. In this philosophical development, the ideas of Levinas and his particular version of the critique of Cartesian dualism were crucial. This version was a Husserlian version.

Although phenomenology is usually understood as egology or intentional analysis of the ego -which is only a small portion of phenomenological studies-, Husserl's critique of Cartesian dualism already contained a structured set of ecological claims: a critique of naturalism and naturalistic sciences, the extension of the moral subject from the ego to the intersubjective community -which did not necessarily exclude nonhuman life-, and the revendication of the *lebenswelt* (life-world) as the source of meaning:

> […] psychology began with a concept of soul which was not at all formulated in an original way but which stemmed from Cartesian dualism […]. Thus, psychology was burdened in advance with the task of being a science parallel to physics and with the conception that the soul -its subject matter- was something real in a sense similar to corporeal nature, the subject matter of natural science. As long as the absurdity of this century-old prejudice is not revealed, there can be no psychology which is the science of the truly psychic, i. e., of what has its meaning originally from the life-world (Husserl, 1970, p. 212).

Inheriting this phenomenological analysis through Levinas, current versions of the critique of dualism develop and radicalize it further. In this sense, Serres, Latour and Descola multiply the fields of translation/application of this critique, taking it to their research areas: philosophy of science, sociology, and ethnology. These authors represent in the theoretical field an increasing sense of urgency in the will for change concerning our knowledge paradigms, expressed by Husserl, and in the call for consequential change in our behavior, made by Levinas.

This ever-increasing urgency is related to countless historical events and social changes, of which Husserl and Levinas witnessed only the beginnings, only a fraction: health scandals, natural disasters, linked, among other things, to the exponentially accelerated rate of industrialization and thus the concrete pollution/destruction of our environment. Countless philosophical and sociological factors, but also the tangible and snowballing multiplication of these events and their dissemination through mass media, lead to the still

rather deficient cumulative awareness we can have of our interdependence, of the effects of our common habits and models of development, and of the still unclear question of how these are interrelated and perhaps even have their origin in the metaphysical and epistemological models to which we -rather mechanically- adhere.

Almost three decades ago, Michel Serres formulated this question as follows:

> […] the relation of metaphysics to knowledge, and the relation of the latter to domination come together in the same place, at the outcome provided by death. For Plato and a tradition which lasted throughout the classical age, knowledge is a hunt. To know is to put to death […] These epistemologies are not innocent: at the critical tribunal they are calling for executions. […] Today we live out the major results of these wolfish actions. […] The reason of the strongest is reason by itself. Western man is a wolf of science. Nothing is new under the sun of identity and nothing is kept under the same old sun. Nothing new and nothing born, there is no nature. […] The angle of inclination cures the plague, breaks the chain of violence, interrupts the reign of the same […] The minimal angle of turbulence produces the first spirals here and there. It is literally revolution (Serres, 1995, p. 100).

Serres expresses here that Western metaphysics and classical epistemologies are, if not the main cause, at least one of the causes of our predatory behavior toward nature and of our societies structured by domination. This is one of the main tools of Levinasian philosophy that can nourish ecological thought. The account of Lucretian atomism as an antidote and metaphysical alternative to rationalism and sameness, crafted by Serres along these lines, is also found in Levinas (Levinas, 1974, p. 107).

Apart from the apparent adoption of ecological phenomenology by these authors, which is not acknowledged, there are philosophers who explicitly build their ecological reflection with -for or against- Levinas, including Derrida, Pelluchon, and the feminist thinkers Irigaray and Chalier.

Derrida, even in his earliest works, attempted to adopt Levinasian discourse embracing ecologically relevant ideas. He adhered explicitly to the Levinasian critique of metaphysics, his search for another language that cannot be recovered by the philosophy of presence, and the relation of the self to alterity as the fundamental horizon. If we were to select the most important of the ideas adopted, it would be the fact of actively maintaining the indeterminability of the form of justice or of the concrete political formula

that best corresponds to the ethics of alterity. This is a Levinasian silence that Derrida shares and greatly appreciates (Derrida, 1997, p. 201).

In order to make these ideas and philosophical gestures his own and give them a new scope, Derrida worked with the Levinasian terms in which they were distilled. For example, with *the trace* (Derrida, 1967, p. 103), the idea of a past that was never present, irretrievable but there, the elusive condition of sensibility.

Late in his work, Derrida will redefine his deconstructive project as a critique of *carnophallogocentrism* (Derrida, 2006, p. 144). With this term, he extends the Levinasian critique of Western metaphysics as logocentric, identity-oriented, and phallocentric, to the realm of animal subjugation, exploitation, and consumption. Western metaphysics needs to be deconstructed, not only in those aspects that are hurtful to us humans, but also in those that hurt others. With this recalibration of deconstruction as a defense of all forms of life, Derrida separates himself from Levinas and joins the interpretation that assumes Levinas valued only humans. Derrida thus places our philosopher in the tradition that, from Aristotle to Heidegger and beyond, rejected responsibility for nonhuman life and justified its violent domination (*Ibid.*, p. 54).

Irigaray and Chalier lay out a critique of Levinas that does not address nonhuman alterities but remains ecologically relevant.

If the crucial ecofeminist gesture is to interpret Western traditional paradigms as a common source of violent oppression of women and all *earthothers*, i.e. children, other human adults, animals, plants, earth, air, (Plumwood, 1993, p. 137), Levinas should always remain an element of reflection because of his relentless critique of ontology and his commitment to building a future in which embodiment and the ethics derived from it are the foundation.

Simone de Beauvoir, however, started a particular hermeneutic path that still prevents ecofeminist readers from finding the resources, ideas, and inspirations that Levinas has to offer. In a brief footnote, de Beauvoir expressed her amazement at Levinas defining women in terms of mystery, while adopting a condescending perspective, the perspective of a man (de Beauvoir, 1989, p. 16). Even though Levinas refers to femininity as a principle rather than a term to describe women or their attributes, the doubt remains: Why use *a term so scarcely neutral as that of the feminine?* (Chalier, 2001, p. 178). The central role of the feminine as a form of alterity that, according to Levinas, enables culture to change does not justify his vocabulary. Irigaray remains puzzled by this secondary role of the feminine and the heroic narrative of masculinity liberated by it. Why would Levinas make the feminine a helper for masculinity to change, for patriarchy to

evolve? For Irigaray, as for Derrida, it is not the language chosen that is problematic, but the ideas that Levinas seems unable to leave behind. Moreover, Irigaray finds Levinas incapable of describing the erotic experience in a non-sublimating, less appropriative way (Irigaray, 2008, p. 16) and too committed to an emphasis on asymmetry, which could undermine reciprocity and democracy (*Ibid*., p. 70).

Finally, Corine Pelluchon is the only Francophone author who explicitly places Levinas at the center of a solid ecological reading. Ecology, usually unable to move beyond the anthropocentrism/ecocentrism opposition, unable to offer non-traditional affects, change our behavior, improve our relationships, transform democracy or meaningfully modify our economic model, can get closer to doing all these things if we existentially rewire it to the human condition (Pelluchon, 2019, p. 4).

In Levinas, Pelluchon recognizes this connection and the descriptions of existence that might allow us to build an ecological philosophy without imposing individual values that would go back to subjective choice and thus to the ego: "I would say that [in Levinas] there is the promise of a philosophy that makes of corporeality, of the body of others, perhaps even of the body of other living beings, the place of ethics; a place [Levinas] did not develop so much for he was so focused on the responsibility for other people that this may have eclipsed the rest" (Pelluchon, 2020, min.10).

2.2. Anglophone readings

Although Levinas has not been sufficiently recognized as an ecological author in the Francophone world, ecological interpretations of his work in an English-speaking context are numerous.

Richard Kearney asked the philosopher in 1984 whether the ethics of alterity has any meaning in our world dominated by habits, custom, politics, and regular language. Levinas answered almost accidentally by revealing his *anthropological machine* (Agamben, 2002), i.e. his human-defining strategy: language is human because humans can lie and thus respond, be responsible. Children, like animals, are pure vulnerability (Kearney, 1984, p. 65), unable to protect themselves through deception and therefore choosing sincerity over it. This short answer is important. It distinguishes two ethics that are often confused: that of responsibility and that of vulnerability. They are one when we are dealing with human-able adults. They differ when we adopt other perspectives, that are also subjective, also moral, but not responsible because they belong to merely vulnerable beings. This nuance is rarely noted, but is the heart of the haunting doubt about Levinasian anthropocentrism: if animals

do not have a *face* in the Levinasian sense, do we have obligations toward them and if so, why? (Bernasconi & Wood, 1988, p. 172).

Dave Boothroyd has recently divided the ecological readings of Levinas into four groups, focusing on 1. *the face* for nonhumans, 2. anthropocentrism, 3. philosophy of existence and immanence, and 4. metaphysics of substance excluding philosophy of transcendence (Boothroyd, 2019, p. 770-771). The bibliographical density condenses in the first group, especially around the animal issue. Beginning with the interview with Richard Kearney, this group was greatly enlivened by John Llewelyn, who as early as 1985 was concerned with the Heideggerian anthropological machine (Llewelyn, 1985, p. 16) and the ethical power of the *face of the Other* (*Ibid.*, p. 192), publishing an ecological essay that brought together Heideggerian and Levinasian postures. Beyond this questionable gesture that Llewelyn maintains (Llewelyn, 2003, p. 67), the result is the tacit assertion that Levinas can and should be used to further ecocritical research because his philosophy and his notions invite us to think ethics in a richer, untraditional way. As Llewelyn puts it: *as with a tree or a stone there is neither mouth to speak or eat nor eyes in which mortality can be read, it is not easy to suppose a face. But it may not remain impossible. As is perhaps shown by Levinas himself.* (Llewelyn, 1991, p. 199).

Also concerning nonanimal nonhumans, Michael Welsh tries to apply the Levinasian philosophy of Eros to the erotic encounter of a person with wild nature (Welsh, 1998, p. 56).

In the last two decades, multiple publications have touched on Levinasian ecology (Brown & Toadvine, 2003; Atterton, Calarco & Friedman, 2004; Atterton & Calarco, 2004, 2010; Edelglass *et al.*, 2012; Morgan *et al.*, 2019). Beyond the positions Levinas seemingly held or would express on anthropocentrism or inclusive ecology, this proliferation suggests there is fertile ground for meditation.

3. Levinasian concepts for non-anthropocentric ecologies

> *Ph. Nemo: How does one begin thinking?* […]
> *E. Levinas: It probably begins through traumatisms*
>
> (Levinas, 1985, p. 21)

Even if it could be argued that for Levinas *nature* and *materiality* ought to be overcome to access humanity as such (Ellis, 2019, p. 696) and it could thus be said that he *is anxious to lend emphasis to the separation between*

ourselves and other animals (*Ibid.*, p. 698), I would like to show that his seeming anthropocentrism could simply be a rhetorical device, even possibly compulsory for the philosopher. I think this becomes clear if we examine the historical and biographical motivation of his work.

If we go back to 1934, Levinas explains what is to him the philosophical core of Hitlerism: the identification between the self and its body (Levinas, 1994, p. 30). At the time, the young author indicates that this unity of self and body does not abolish dualism, is not really a novelty but a continuation of Western ontology that only makes it exponentially more destructive: subject and body identified, and the body interpreted as fully biologically determined, identity becomes static, linking us naturally, materially to our homeland, to the earth as unmovable native soil, to our place under the sun, and to a racial community.

It is not only modern positivistic naturalism -the one phenomenology, since Husserl, tries to counteract- but most importantly this racist essentialism that Levinas seeks to circumvent, developing through the years his philosophy of alterity, his ethics as first philosophy and his reinterpretation of the body, sensibility and of the self as defined by his responsibility for others. It is to prevent dualism radicalized in biological essentialism from taking over again that he keeps warning us against hypnotic ideas like nature, essence, identity, *Dasein*, *sorge* and *conatus*. Is this historical reality that makes even ancient versions of dualism preferable to the Hitlerian one, for spirit is, for example, a notion that propagates, according to the author, without violence, without attachment to an autochthonous origin (*Ibid.*, p. 32). In time, the author will attempt to elaborate his own materialism and concept of transcendence beyond and against essentialism.

In this sense, I argue that Levinas insistingly defines ethics around interhuman relations not to avoid actual *earthothers*, trees or rivers, dogs or mountains or to deny them moral existence nor empathy or compassion but to prevent Hitlerian racism from awakening and spreading. All Levinasian concepts indicated here are to be understood from this perspective, this forced and possibly only rhetorical humanism.

3.1. Against-One: the metaphysical gesture

The first Levinasian step is the critique of Western tradition as developed from Parmenides (i.e. totalizing, ontological, logocentric) and Plato (i.e. transcendentalist, intellectualist, dualistic) through modern rationalism until Heidegger's care for Being and for the Dasein's death. Coinciding with

ethnographical and feminist accounts, Levinas singles this tradition of ontology before ethics as the common source of practically all evils.

> The brutality of its assertion [that of the fact of being] is absolutely sufficient and refers to nothing else. […] Western philosophy, in effect, has never gone beyond this. The insufficiency of the human condition has never been understood otherwise than as a limitation of being (Levinas, 2003, p. 51) The visage of being that shows itself in war is fixed in the concept of totality, which dominates Western philosophy (Levinas, 1961, p. 21). The relation with Being that is enacted as ontology consists in neutralizing the existent in order to comprehend or grasp it. […] Such is the definition of freedom: to maintain oneself against the other […] *I think* comes down to *I can* -to an appropriation of what is, to an exploitation of reality. Ontology as first philosophy is a philosophy of power (*Ibid.*, p. 46).

As seen in these lines, for Levinas, our predatory behavior and our difficulty to see others as anything else than an enemy or a possession is linked to Western philosophy being an ontology.

This first Levinasian gesture, his critique of ontology, is vital for an ecology aspiring to escape to any form of totalitarianism due to the expansion of the self, an ecology that would then *care* for all *earthothers* only because the self has absorbed them. Could this idea prevent deep ecology from becoming a simple *autology*, i.e. from reducing all differences among alterities, from caring only for the realization of humans when -falsely- claiming to be anti-anthropocentric (Plumwood, 1993, p. 175)?

The constructive side of this critique that denounces the totalizing ontology of identity, is the proclamation of the ethics of alterity that Levinas developpes under the title of *Otherwise than being*, signifying with one term the new discontinuous metaphysical paradigm, the new themes, events, experiences and concepts he will treat, the new style of thinking and the emerging new language this *other* reflection should provoke.

To summarize, the most important elements of this first twofold (critical and constructive) gesture are, first, the diagnosis, namely, to find the common source of our troubles in Western tradition, and the solution, specifically, to put ethics as *prima philosophia*, before ontology. An important element of this solution is to caution us against all forms of subjectivity that would reproduce ontological sedimentations, for example, the sovereign, individualistic, free-willed *ego*, and to think instead of an embodied subjectivity. This last point is particularly relevant for ecology, often reduced

to a question of rights and extension of rights (Plumwood, 1993, p. 173). As Pelluchon puts it: *in speaking of the sensible world as that of nourishment, and in insisting on the vulnerability of the man who is hungry, Levinas is resolutely opposed to the philosophies that think of human beings first of all as freedom and define it as the capacity to make choices* (Pelluchon, 2019, p. 13).

3.2. Enjoyment, vulnerability and filiation

In the beginning was hunger
(Levinas, 2019, p. 193)

The second important Levinasian concept refers to the retheorization of the self just mentioned, no longer as a free-willed ego but as sensibility: the concept of the sensible dynamic of *interalterity* -to avoid the term inter*humanity*. This isn't some fortuitous part of this philosophy but its core, the result of years of work, the basis of Levinasian ethics. As shown by Pelluchon, this interpretation of sensibility is a fertile ground for ecology. This form of eco-phenomenology, Levinasian eco-phenomenology, should be distinguished from those built upon Husserl or Merleau-Ponty, upon the ideas of *life-world* or of *the flesh of the world*.

In 1974, Levinas developed all the avatars of sensibility he had been working on at least since 1947: position, enjoyment, consumption, caress, contact, vulnerability, maternity, filiation. None of these emerge in ontological or phenomenological frameworks for these remain unable to address the more-than-passive non-phenomenon of *the encounter*, of the ethical relation of sensible alterities.

If naturalism deals with objects, ontology with entities and Being, and phenomenology with the intentional architecture and its passive substratum that allows all of these layers to emerge, appear and have meaning, Levinas works at the pre-phenomenological level of *proximity*. With this term, he designates the twofold sensible dynamic that intersubjectivity or interalterity is. This duality is not that of two subjects, nor internal to each one of them, for sensibility makes of each alterity both one and transcorporeal; it is a twofold dynamic present in each and every one, a process that relates us all to all other alterities. Here *enjoyment* and *vulnerability* are the main titles for each aspect.

Proximity or sensibility has necessarily this double structure, also called *the-one-for-the-other* (Levinas, 1974, p. 26): it closes and opens, delineates subjectivity in enjoyment and consumption but also breaches its boundaries as obsession for the other, through a shared vulnerability, up until making subjectivity lose its closure, until what Levinas calls *ethical substitution*. These two movements happen together for as long as we live and feel. They both equally define each sensible-therefore-ethical alterity as unique.
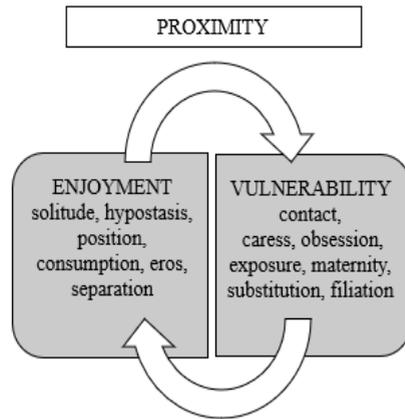
Figure 1 - *The two-fold dynamic of sensibility.*

Here we can understand the Levinasian concept of filiation or fecundity, *viz.* the idea that we are responsible not only for everyone present, but past and future, and for the universe itself: *The self is a sub-jectum; it is under the weight of the universe, responsible for everything. The unity of the universe is not what my gaze embraces in its unity of apperception, but what is incumbent on me from all sides* (*Ibid.*, p. 116).

3.3. Utopia, diachrony and the third party

> *Technology is less dangerous than the spirits of the Place*
> (Levinas, 1997, p. 323)

In the context of Levinas' global philosophical gesture or *otherwise than being* (2.1) and the notion of sensibility as proximity it gives rise to (2.2), other notions also relevant for ecology emerge like his concepts of space, time and the political. Their description has always two aspects: critical and affirmative. Concerning space, Levinas opposes all the perspectives tradition has adopted: ontology, positivism and phenomenology. He opposes any static notion of place (hence of nature, *milieu*, home or world) and any rooting or attachment to it:

> Paganism is the local spirit: nationalism in terms of its cruelty and pitilessness […] The tree grows and retains all the earth's sap. A humanity with roots that possesses God inwardly, with the sap rising from the earth, is a forest or prehuman humanity. One must not be fooled by the peace of the woods. If Europe had been

> spiritually uprooted by Christianity, as Simone Weil complains, the evil would not be great (Levinas, 1997, p. 137).

This critique to the most immediate notion of space tradition has to offer should already warn us against any ecotheology or spiritual holism. Following Husserl (Husserl, 1970, p. 56), Levinas opposes positivistic reductions of space: pure Euclidean space formally defining entities as coordinates, that may be multiple and related but never as more than juxtaposed or overlaid. He looks for a notion of space not only capable of assuming multiplicity but of doing so beyond the Cartesian plane. More importantly, he also opposes phenomenological, *experienced* or *lived* space (hence the *life-world*) for it doesn't suffice for space to be qualified and sensed, it also needs to not be the product of Consciousness. Concerning time, Levinas also opposes any synchronous notion produced by Consciousness. This is why not only nature as an *esse*ntial *place*, nor only the purity of a plane, but also the world experienced by a subject is rejected.

> The subject called incarnate does not result from a materialization, an entry into space and into relations of contact and money which would have been realized by a consciousness […] It is because subjectivity is sensibility and because matter is the very locus of the for-the-other, the way that signification signifies before showing itself as a said in the system of synchronism, the linguistic system, that a subject is of flesh and blood, a man that is hungry and eats, entrails in a skin, and thus capable of giving the bread out of his mouth, or giving his skin. (Levinas, 1974, p. 77) To transcend oneself, to leave one's home to the point of leaving oneself, is to substitute oneself for another. […] The openness of space as an openness of self without a world, without a place, utopia, the not being walled in (Levinas, 1974, p. 182).

As shown in these lines, the twofold sensibility determines the Levinasian concept of space, on one side, as position and habitation, due to the dynamic of enjoyment. On the other, it defines it as utopia, a non-place where we don't communicate as classical subjects would do but rather are together in an asymmetric (for each time it's *me* more than any *other*) responsibility for each other, due to the dynamic of vulnerability.

Sensibility in these terms allows Pelluchon to build her ecological work as a *phenomenology of nourishment* (of the subject that is sensible in this sense, hungry and vulnerable) and to develop it as a *phenomenology of habitation*

(Pelluchon, 2019, p. 85), even if in her case this also includes the questionable usage of Heideggerian ideas:

> The habitation not only is connected to the residence, to the home, but rather also implies a manner of arranging a place, which organizes the space, that is to say my being-with-others-and-with-things […] the habitation presupposes that we think about that which is between beings and things […] the outside and the inside, between the fence (or the enclosure) and the opening, between nature and culture, the country and the city, rest (or withdrawal) and work (*Ibid.*, p. 83-84).

The idea of a sensible being that by enjoyment/vulnerability becomes responsible for all *earthothers* that have lived and will live (which do not make them part of a totality nor make them ever comparable but maintains an absolute asymmetry and individuality among them), seems particularly useful for ecology.

According to Levinas, this might be difficult to grasp but does not have to be difficult to translate into real-world behaviors. If with the previous vision of *human-earthothers* (Gaard, 2017, p. xvii) we had to build our Hobbesian societies upon the fear of each other and constantly try to limit our violence, in this new perspective we should build them trying to limit our -sometimes violent- obsession for others, our extreme concern and our absolute responsibility for them. This limitation is what Levinas conceptualizes as the *third party*: the other of the other, the one by whom the other by which I am obsessed is obsessed. Because of this *third party* the self tames its excessive concern for the other.

4. Conclusion

> *Sure, he was my son. But I think to*
> *him they were all my sons. And I guess*
> *they were, I guess they were.*
> (Miller, 1957, p. 126)

I read Arthur Miller's drama *All My Sons* early in life and I saw it performed only recently. Its impact remains the same but with time and the readings of Levinas and other authors, a subtle, disconcerting feeling has appeared in relation to it. I am sure I do not fully grasp its complexity, yet there are elements of clarity, moments of the play that come back and resonate

with philosophical readings and make me question anthropocentrism, or rather help me understand why I question it, moments that take me back to a time when I felt intuitively the truth of our radical responsibility and how easy, how well equipped we are to unsee it.

The common but strange normalcy that imposes itself over great tragedies; the mother refusing to assume not the death of her flesh and blood but the guilt of a father that caused inadvertently, carelessly, mechanically (and almost joyfully in his not-knowing), the death of his son and many others; this mother situated as a *third party*, being responsible for normalcy because of her pain, but also responsible for the burst of truth and justice (Ann: *you are making me do this!*); the young man, the brother, who forces everyone to be better, to do better than humanly possible; the unfathomable responsibility itself, made palpable by a simple, almost silly choice that results in the death or trauma of a whole generation; and finally, the enormous guilt, evident to everyone but to the one who should feel it, the father, blind and violent because of his attachment to a biological image of family (*I'm his father and he's my son, and if there's something bigger than that I'll put a bullet in my head!* Miller, 1957, p. 120). These scenes, these roles, replay in my mind, I recognize them at different points, in different landscapes, internal and external, like archetypes of the ever-repeating tragedy of the banality of evil and willful blindness.

Levinas allows us to understand this blindness and to think, not about the reach of our responsibility and actions, but -assuming they are universal- about sensibility. To think about sensibility, about proximity, about the vulnerability of those who we can hurt and our own, is to pause and question what determines if we stop when seeing them, when seeing we have hurt them, when seeing we ought to help them, if we feel concerned or not by others, by all earthothers, their needs, their deaths.

Talking about Cain, the philosopher explains:

> It is in the Face of the Other that the commandment comes which interrupts the progress of the world […] Why would I feel responsible in the presence of the Face? That is Cain's answer when someone says to him: Where is your brother? He answers: Am I my brother's keeper? […] Cain's answer is sincere. Ethics is the only thing lacking in his answer; there is only ontology: I am I, and he is he. We are separate ontological beings (Levinas, 1998, p. 110).

As indicated before, to understand Levinas' positions on humanism, animal value and his stance against a particular idea of nature, it is necessary

to grasp the context and content of his philosophy. The context of the rise of nationalism, his captivity and the Holocaust, and the content of the twofold, transcorporeal, all-encompassing sensibility and the absolute responsibility it implies.

His undecided answers on animality or his problematic notion of *the face* should not be used to make of him a moment of anthropocentrism. His philosophy is not about affirming human-*earthothers* over the rest but about preventing the barbaric imposition and violent domination of some humans over everyone and everything else.

It is not a question of inclusion or exclusion in the sphere of what is valuable because is not a question of individuals nor a question of a free subject that has rights and confers value.

This is why the author can say that ethics owes nothing to values and values owe everything to ethics (Levinas, 1992, p. 225) and why Miguel Abensour considers that simply saying that Levinas is an ethical thinker is meaningless (Abensour, 2012, p. 41).

After all the concepts here reviewed, if only one was to be kept, it should be the Levinasian notion of sensibility. We should never forget that at every moment we are embodied subjects, *viz.* we all are both enjoyment and vulnerability, desire and exhaustion. Sensibility is both our gift and our curse. Our embodied experience is both the source of our ethical existence because we share it, we recognize it on each other, we care for how vulnerable others are, and at the same time is the constant threat of our protective self-withdrawal for we all have needs and therefore fears.

References

Abensour, M., 2012, *Emmanuel Levinas, l'intrigue de l'humain*, Hermann, Paris.
Agamben, G., 2002, *L'Ouvert*, Payot & Rivages, Paris.
Atterton, P., Calarco, M., 2004, *Animal philosophy*, Continuum, New York.

Atterton, P., Calarco, M., 2010, *Radicalizing Levinas*, SUNY Press, New York.

Atterton, P., Calarco, M., Friedman, M., 2004, *Levinas & Buber. Dialogue & difference*, Duquesne University Press, Pittsburgh.

Bernasconi, R., Wood, D., 1988, *The Provocation of Levinas*, Routledge, London.

Boothroyd, D., 2019, Levinas on ecology and nature. In: Morgan, M. (Ed.), *The Oxford handbook of Levinas*, Oxford University Press, Oxford, 769-788.

Brown, C., Toadvine, T. (Eds.), *Eco-phenomenology: back to the earth itself*, SUNY, New York.

Buell, L., 2009, *Writing for an endangered world*, Harvard University Press, Cambridge MA.

Chalier, C., 2001, The exteriority of the feminine. In: Chanter, T. (Ed.), *Feminist interpretations of Emmanuel Levinas*, University Park, Pennsylvania, 171-179.

De Beauvoir, S., 1989, *The second sex*, Vintage Books, New York.

Derrida, J., 1967, *De la grammatologie*, Minuit, Paris.

Derrida, J., 1997, *Adieu à Emmanuel Levinas*, Galilée, Paris.

Derrida, J., 2006, *L'animal que donc je suis*, Galilée, Paris.

Drengson, A., 2008, *The ecology of wisdom*, Counterpoint, Berkeley.

Edelglass, W., Hatley, J., Diehm C., 2012, *Facing nature*, Duquesne University Press, Pittsburgh.

Ellis, F., 2019, Levinas on nature and naturalism. In: Morgan, M. (Ed.), *The Oxford handbook of Levinas*, Oxford University Press, Oxford, 689-708.

Gaard, G., 2017, *Critical ecofeminism*, Lexington Books, Maryland.

Husserl, E., 1970, *The crisis of European sciences*, Northwestern University Press, Evanston.

Irigaray, L., 2008, *Conversations*, Continuum, New York.

Kearney, R., 1984, *Dialogues with contemporary continental thinkers*, Manchester University Press, Manchester.

Larrère, C., 2014, "Vunérabilité et responsabilité : un autre Jonas ?", *Alter*, 22, 181-193. https://doi.org/10.4000/alter.304

Larrère, C., 2018, "Réflexions autour de la philosophie de l'environnement", *Essais*, 13, 135-151. https://doi.org/10.4000/essais.533

Levinas, E., 1961, *Totality and infinity*, Nijhoff, The Hague.

Levinas, E., 1974, *Otherwise than being or beyond essence*, Springer, Netherlands.

Levinas, E., 1985, *Ethics and infinity*, Duquesne University Press, Pittsburgh.

Levinas, E., 1992, *De Dieu qui vient à l'idée*, Vrin, Paris.

Levinas, E., 1994, Quelques réflexions sur la philosophie de l'hitlérisme. In: Levinas, E., *Les Imprévus de l'histoire*, Fata Morgana, Montpellier.

Levinas, E., 1997, *Difficult freedom*, Johns Hopkins University Press, Baltimore.

Levinas, E., 1998, *Entre nous, on thinking-of-the-other*, Columbia University Press, New York.

Levinas, E., 2003, *On escape*, Stanford University Press, Stanford.

Levinas, E., 2009, *Carnets de captivité*, Grasset et Fasquelle IMEC, Paris.

Llewelyn, J., 1985, *Beyond metaphysics*, Palgrave Macmillan, London.

Llewelyn, J., 1991, *The middle voice of ecological conscience*, Macmillan, London.

Llewelyn, J., 2003, Prolegomena to any future phenomenological ecology. In: Brown, C., Toadvine, T. (Eds.), *Eco-phenomenology: back to the earth itself*, SUNY, New York, 51–72.

Llewelyn, J., 2004, *Seeing through God*, Indiana University Press, Bloomington.

Miller, A., 1957, *Collected plays*, Viking Press, New York.

Morgan, M. (Ed.), 2019, *The Oxford handbook of Levinas*, Oxford University Press, Oxford.

Morizot, B., 2020, *Manières d'être vivant*, Actes Sud, Arles.

Pelluchon, C., 2019, Nourishment: a philosophy of the political body, Bloomsbury Academic, New York.

Pelluchon, C., 2020, *Pour une éthique du vivant*, Interview by Frédéric Worms, France Culture, 01/29/2020, last accessed 05/06/2021, https://www.franceculture.fr/emissions/matieres-a-penser/matieres-a-penser-emission-du-mercredi-29-janvier-2020

Plumwood, V., 1993, *Feminism and the mastery of nature*, Routledge, London.

Serres, M., Latour, B., 1995, *Conversations on science, culture, and time*, University of Michigan Press, Michigan.

Smith, W., Smith, J., Verducci, D., 2018, *Eco-phenomenology. Life, human life, post-human life in the harmony of the cosmos*, Springer, Cham.

Welsh, M., 1998, "From the interpersonal to the environmental: extending the ethics of Levinas to human ecology", *Human ecology review*, 5, 2, 49-57.

12. Bio-deconstructing Bioremediation: Tailings Ponds, Oil-eating Bacteria, and Microbial Agency

Aaron Bradshaw[1]

Abstract

The Anthropocene is characterised by the paradox of a human agency that both creates and must respond to the rapid degradation of the environment. At the same time, certain forms of nonhuman agency display profound resilience and ability to respond to these changes. Using the case study of the Albertan oil-sands, this chapter analyses the relation between human and nonhuman agency in the discourse and practice of using microbial bioremediation to detoxify the waste products generated by this industry. These products are stored in tailings ponds now containing ~1 trillion litres of highly toxic water that must be detoxified before they can be reclaimed and host the kinds of ecologies which they have replaced. Certain microbial strains indigenous to these waste ponds that thrive on and degrade the toxic chemicals found there have driven a wave of research into isolating, engineering, and optimising these metabolic capacities for eventual reclamation of the ponds. I ask if the goal of controlling these processes, which have arisen spontaneously through the creative activities of bacteria, undermines the conditions that make this goal possible. Moving to a view of bacteria as intelligent organisms who have a fine-grained resolution of environmental conditions, and whose complex and networked activity is ontologically irreducible to the prerogatives of biotechnology, I ponder an alternate model for thinking about human-microbe relations in the goal oriented process of bioremediation.

Keywords: Oil-sands, tailings ponds, bioremediation, bio-deconstruction, naphthenic acids

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1. Introduction

If the Anthropocene is characterised by large-scale anthropogenic disruption of biogeochemical cycles and the destruction of ecological systems, this chapter asks what might be the role - and limits - of human agency in responding to these changes and disruptions in a positive way. The unintended effects of human activity on the functioning of the earth system, and the correspondent alterations of the geological record, embodies a certain kind of tension: humans are at once responsible and the effective cause of widespread and far-reaching changes to the earth - even so much as to alter its geology - and yet this same fact threatens to undermine our ability to effect change in intended and predictable directions. Instead of serving to recast the environment as a passive recipient of human activity, the fact that humanity has altered the earth so pervasively, and potentially permanently, brings nonhuman activity and inhuman processes to the fore. In other words, humanity has become one force *amongst many* in the trajectory of the earth system (Clark and Szerzynski, 2020). What is at stake, then, is not the affirmation or negation of human agency in responding to environmental issues, but a reconceptualization of its position in relation to other forms of agency in these issues.

This chapter explores two very specific instances of these agencies - human scientists and microorganisms - to ask how they are related in the goals of remediating and detoxifying polluted sites. Certain strains of bacteria are able to metabolise chemicals, often the fall-out of industrial operations, which are toxic to most other forms of life, and these microbes therefore represent potential and promise for regenerating sites that human activity has degraded. These processes, known collectively as 'bioremediation' are intensely studied by scientists, and already deployed in certain contexts like waste-water treatment. Here, these processes are contextualised with reference to the tar sands mining operation in Alberta, Canada, and the ongoing efforts to utilise bioremediation to treat some of the enormous amounts of waste produced by this operation. My aim is to question the assumptions of control that guide aspects of this research by deconstructing received wisdom about the mechanical and automaton-like behaviour of microorganisms. The analysis doesn't conclude with a negative critique of bioremediation, however, and I attempt to offer a sketch of an alternative model for understanding human-microbial relations. In line with the view of multiple forces acting in concert and sometimes conflict, this model understands bioremediation research and practices as the sharing

of agencies across species boundaries, and the attendant challenges and promises of such an arrangement.

2. Oil extraction and tailings ponds

The mining of the tar sands in Alberta, Canada, is among the most destructive industrial projects currently unfolding on earth (Leahy, 2020). In addition to increasing the use of fossil fuels and contributing to global heating, there are more direct and localised effects of the operations. Although the tar sands boast the second largest reserve of oil in the world, the oil present there is mixed with sand, clay, silt, and other 'impurities' that prevent its extraction by conventional means like drilling. Instead, the oil-sands must be stripped from earth in huge mining operations and the evolution of the tar sands industry has centred on technological developments that make the downstream separation of oil from sand an economically viable procedure. Despite this, the viability of the industry undergoes frequent oscillations, in addition to (and partly because of) being extremely energy intensive and producing an inordinate amount of waste by-products. The process of separation essentially follows a gravity floatation mechanism in which the oil-sands deposits are mixed with large volumes of warm water - taken from the nearby Athabasca River - and pumped through chambers. Here, the oil floats to the top where it is skimmed off and transported for 'upgrading.' The water, meanwhile, containing clay, silt, as well as residual hydrocarbons from the oil, is fed out of the bottom of the chamber and transferred into huge lakes where it is stored. These lakes - termed 'tailings ponds' - are generally disused mines that have been exhausted of their valuable deposits, and sit like scars on the landscape.

The volume of water in tailings ponds is now estimated to exceed one trillion litres, and the ponds themselves cover thousands of square kilometres. Where there used to be boreal forests, interconnected with wetlands and complex ecosystems, providing habitats for numerous large fauna, flora, and microorganisms, there now stands vast reaches of toxic-gloop ponds that exclude almost all life. The issues with these pools are numerous. In addition to destroying vast areas of dense biodiversity, their polluted waters leach into neighbouring hydrological systems and produce cascading biological effects far beyond their own borders. Moreover, the operations in the tar sands inflict violence upon Indigenous peoples in the Albertan region and are intimately connected with settler-colonial violence,

causing the ongoing destruction of important habitats, ecosystems, and ways of life, and the connections between them (Murphy, 2008). One of the deepest concerns about these ponds is their longevity - left in their current state, they will, in all likelihood, outlive the viability of the mining operations that produced them, leaving the responsibility of managing these fetid pools of toxicity to those who opposed the mining operations in the first place and certainly did not profit from them.

In light of growing opposition to this ecological devastation, the future of the tar sands is now quite often explicitly linked to the ability of the industry to clean up after itself and mitigate the alarming damage inflicted upon local environments. Tailings ponds are at the centre of these debates. Therefore, although these ponds are accumulating at an alarming rate, and there are at present no clear or proven means for dealing with them, their proliferation is tied into discourses around ideals of reclamation and restoration. In theory, tar sands actors are committed to returning the previous sites of tailings ponds back to their former productivity. Despite the significant (and well founded) doubts regarding the integrity and motivations of the formal regulatory procedures driving these goals, there is, at the least, a growing recognition by the tar sands industry that cleaning up their waste is becoming central to their efforts to continue mining in the region. And although it is important to be critical about promises to clean up the ponds, especially in light of their ongoing proliferation and the currently only marginal success of restoration programs, critique in this case may have the effect of inducing a sense of hopelessness that will in fact leave the ponds intact. In other words, these ponds are already there, and their effects continue to unfold, regardless of how we conceptualise and analyse their generation.

As such, it is not my aim in this chapter to discuss the ecological, economic, social, or racial violence perpetrated by the oil sands mining operations, or the shortfalls of regulatory procedure, but rather to focus instead on something that is, at face value, a technological issue - the reclamation of the ponds. However, as my analysis unfolds it becomes clear that this is not a 'technological' issue at all, at least insofar as technology is the means by which humans control and manipulate their environments, but rather an issue that takes us to the core of agency and the very ability to control and manipulate the environment. Fundamentally, my discussion offers a practical perspective on these issues that at the same time contends with the foundations of practice: what are the limits to human agency in restoring the tailings ponds (and by implication other large scale ecological destruction)? How does the capacity of nonhumans to alter the earth -

particularly microbes - inflect this understanding, and how are the two related when it comes to large scale environmental issues?

3. Emerging discourse of bioremediation

Notwithstanding the debates around the realities of reclamation, even taken at face value - that is, how the oil companies present the process - the ambitions of this project present massive technological challenges. The conceptual scheme offered by the oil sands industry is to basically reverse the process of pond formation: to remove the water, refill the pits with the topsoil that was initially removed from them, and plant shrubs and trees native to the area. Once this is out the way 'Nature' takes over to do the rest, filling in the details of this pastoral image with colonisation and ecological succession (see Suncor Energy, 2010 for a video representation). The reality of course is more complex than this highly schematised process. For instance, the presence of clay and silt in the water of the tailings ponds means instead of acting like a liquid that can easily be removed, the majority of their volume below the thin surface layer is actually a viscous colloid that sometimes acts like a liquid, sometimes like a gel. The rheological qualities of this material inhibit its intentional manipulation, meaning that prior to dewatering and refilling, the suspended clay particles need to sediment out, a process that, if left to itself, takes on the order of centuries. Before facing the rheological complexities of this colloid, even, and the remaining feats of geotechnical engineering, the surface layer of these ponds – referred to as 'oil sands process affected water' (OSPW) - also needs to be dealt with. Although this layer is water-like in its physical properties, it is saturated with chemicals that have leached from the bitumen and needs to be detoxified before it can be returned to the surrounding watersheds.

It is only once this water is removed that the processes of sedimentation in the lower layers can be accelerated, the topsoil filled back in, and ecology able to take over. It is hard to overstate the toxicity of these tailings ponds; when migratory ducks were forced by bad weather to land on them in the winter of 2008, and again in 2010, thousands of the animals were killed by just coming into contact with the ponds (The Canadian Press, 2010). These ponds are also unable to sustain aquatic organisms like fish and amphibians. They are, to ordinary perception, completely barren and lifeless. Despite this appearance of lifelessness, and the presence of active toxicity, however, these ponds are home to billions of microorganisms that thrive in the different strata of the water. The presence of microbial communities in the

tailings ponds has been studied for a long time and has always been tied, in one way or another, towards understanding the biological and geological trajectories of these systems. The production of methane by microorganisms in the lower regions of these ponds, for instance, is a concern for global warming, and a lot of investigations have focused on the presence of other bacteria within the ponds that assimilate methane in their metabolic cycles thus mitigating this concern (Saidi-Mehrabad et al. 2013). Other early studies tried to understand how microbes might accelerate the sedimentation rate of the suspended clay and silt in OSPW samples (Hocking, 1977), a research avenue still followed today and considered by some as a partial solution to overcoming the issues of manipulating the colloidal lower layers of the ponds (Siddique et al. 2014). In addition to the metabolic couplings between microbial communities within the tailings ponds and the biogeochemical transformations they enact, scientists are also interested in the ability of certain indigenous microorganisms to metabolise the toxic contaminants found lurking there. Some of these chemicals, which are toxic to most organisms, are essentially food for these strains of bacteria who thrive in the upper layers of these ponds. One of the most toxic components of the OSPW is a collection of chemicals termed naphthenic acids, hydrocarbons that cause acute and chronic toxicity to aquatic organisms, and which are incredibly persistent in the environment, but which certain strains of microorganisms indigenous to the ponds have been shown to digest. Microorganisms have been known to biodegrade components of oil for a long time and the activities of these organisms have generated a lot of media attention in coverage of large oil spills, like the Exxon *Valdez* and the Deepwater Horizon disasters. To be sure, there is nothing 'new' about these oil-eating microbes, and it was certainly not 'our' actions that ushered them into being in the first place. Oil has formed over deep time and in extreme locations under the earth's surface and these microbes - and their appetites - have evolved alongside it. Indeed, the activity of microorganisms was central to the formation of these deposits in the first place.

Bioremediation in the wake of large scale uncontained oil spills is often promoted as a viable strategy for combating their devastating ecological effects. Deploying microbes to combat the persistent toxic chemicals found in the oil-sands tailings ponds is an extension and reapplication of this process. Although naphthenic acids are generally recalcitrant to biodegradation, with metabolism of these components occurring only slowly and incompletely, new research avenues within the field of synthetic biology are focusing on how these processes might be isolated, sped up and optimised, and configured to operate at large scales. The reflection of this

research in media discourses has also proliferated over the past decade, and numerous articles discuss the potential of bioremediation as a 'natural solution' for overcoming the intractable toxicity of the tailings ponds. The content of news articles and other media coverage of research into bioremediation tend to reproduce the underlying dynamic of the research itself, in that they rely on a future-oriented discussion of the potential of these technologies. Likewise, the study of bioremediation is strongly allied to industrial-academic collaborations and biotech spinouts, and is underwritten by venture capital investment into the *promises* of bioremediation in the future, rather than its unfolding in the present (Cooper, 2008).

This dynamic is exemplified by the recent formation of Evok Innovations, a partnership between Silicon Valley entrepreneurs and companies that operate in the oil sands, including Suncor Energy and Cenovus Energy, and who are responding to "demand for environmental performance" (Evok Innovation, n.d.). One of the start-ups on the original portfolio of Evok was a biotech spinout called Metabolik Technologies whose aim was to capitalise on academic research into naphthenic acid biodegradation. In early 2021 the assets of Metabolik were absorbed by Allonia, a company with expertise in bioremediation technology that is also attempting to target PFAS chemicals in the environment (also known as 'forever chemicals'). In a press release, one of the people working on the initial project - prior to its assimilation to Allonia - suggested that although microbes indigenous to these ponds are able to degrade naphthenic acids, the process is painfully slow when reflected against the scale of the tailings ponds issue. The central issue that is generally presented in bioremediation discourse is reconciling this slow, patient, and generally promiscuous metabolism of microbes with the pressing urgencies of responding to pollution, often composed of specific chemical toxins at relatively low concentrations spread throughout large volumes. The article discusses how the researchers are attempting to isolate the genetic components of naphthenic acid biodegradation from indigenous microbes, optimise, and eventually transplant them into e-coli, a robust bacterial strain that grows rapidly and is referred to as the "the biotechnological workhouse." (DiNardo, 2017).

In 2020, Metabolik researchers filed a patent application detailing the labs' approach to defining, and eventually engineering, these pathways of naphthenic acid degradation (Chegounian and Yadav, 2020). The procedures detailed involve enriching microbial strains from the tailings ponds, and assessing all the genes that are differentially expressed in those

strains versus those who have not been exposed to naphthenic acids. This information is then tied back to functional information about the respective gene products, and used to reconstruct the metabolic pathways operating in these bacteria. The patent also covers the engineering of novel bacterial strains to express and perform these functions.

These plans aim to circumscribe a naphthenic acid degrading module within a host organism, to precisely demarcate its function in space and time, to make it more efficient, and to transplant it into a novel organism. But the vision of control and containment goes further than this: by fitting the engineered strain with a 'suicide unit' that is activated only when the organism is not exposed to those chemicals it is designed to metabolise, the goal is to prevent the modified strain from entering and proliferating in neighbouring ecosystems, and to inhibit its interaction with other organisms. As the researchers note, this process is referred to as "bio-containment, or engineering a "kill switch."" (DiNardo, 2017). The article continues:

> The idea is that once the E. coli has performed its function of neutralizing the toxin, it destroys itself. "There is no chance of damaging [living organisms] in the natural environment or causing any contamination issues,"... They plan to use [the kill switch] to engineer E. coli strains that rely on signals unique to OSPW. "If it were to leave these environments, the signals that it would normally receive in the tailings pond are not going to be available and therefore the strain will then essentially start producing suicide genes. (DiNardo, 2017, n.p.)

As the passage above, with its quotes from academics working in the field make clear, the goal of bio-containment is homologous to the ideal of demarcating an essentialised module of naphthenic acid degradation. But here the logic of abstraction and dissection is applied to the whole organism, which takes on the same ontological status as a gene network or cellular module. This is part and parcel of the synthetic biology approach in which functions can be chopped and changed between various organisms to produce novel hybrids with desired functions. In the next section I explore some of the assumptions and tensions in research and discourse on the application of synthetic biology to bioremediation and ask how it re/configures understandings of microbial *and* human agency.

4. Bio-deconstructing bioremediation

Those reporting on bioremediation tend to emphasise the 'naturalness' of the process by reminding us that microbial metabolism of organic compounds is already occurring in nature all the time. At the same time, however, these reports focus on how these processes are in fact sub-optimal, that they need a helping hand by humans to be made more efficient and deployed in the correct contexts and at large scales. Underlying the promise of bioremediation, then, appears to be a certain paradox: on the one hand, it relies upon the open-ended innovation of microbial evolution to engage with and transform environmental chemicals into benign products, whilst on the other it is committed to the goal of controlling - essentially closing down the options of - this very ability. By 'fixing' the desired process, however, is the potential for the emergence of other novel processes, as the condition of possibility for that desired process, overlooked?

The biotechnological imaginary is tied to a view of microbial naphthenic acid degradation as a seamless process executed by a fully compartmentalised being, whose only lasting effects in the environment are of a positive nature. Recent research on microbes with the ability to degrade naphthenic acids, however, suggests that interacting with other microorganisms to form complex communities (i.e. their context) may underlie their ability to perform this function (Demeter et al. 2015). In other words, the inter-species metabolic couplings of detoxifying bacteria is not incidental to their function, but central to it, suggesting that their ability to detoxify naphthenic acids might not be separate - and therefore not separable - from their interactions with other organisms.

The point I want to draw from these considerations is that the contained organism capable of expressing a precisely determined function is a myth or fantasy of the biotechnological paradigm.[2] The ontological

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[2] There is an interesting parallel here with the idea of a 'posthuman biology'. Tamar Sharon (2014, 113-134) for instance, sees movements in biotechnology and synthetic biology as embodying and refracting the philosophical orientation of a radical and critical posthumanism with its commitment to the understanding of entities not as bounded individuals but in constant flux and exchange with each other and their environments. Whilst I agree there are certain important parallels between the philosophical underpinnings of posthumanism and how biotechnology conceptualises its object of study, I would argue that attempts to isolate and transplant specific functions from one context to another also has important parallels with a humanist ontology, at least insofar as it constructs a human agent who is able to manipulate the world as desired, even if it does concede a certain degree of agency to nonhuman others. A thorough discussion of the relations between

stabilisation of discrete organisms, whilst (arguably) technically possible in the restricted sense, gets in the way of understanding how that organism is able to perform the operations that may be of value in a particular context.[3] If we take cues from emerging thought in bio-deconstruction,[4] then we might argue that it is precisely through their openness to the outside - the environment, other organisms, even their own cellular context - that bacteria come to evolve their host of complex metabolic features, including those deemed 'desirable' by human agents. Vicki Kirby refers to this creative exploration of their environment as "the code-cracking and encryption capacities of bacteria" as they "decipher the chemistry of [their environments] and reinvent themselves accordingly." (Kirby, 2009, 111).

Tracing the binaries that structure synthetic biological research into bioremediation ultimately converges on the question of agency and its distribution across different forms of life. Whilst biological discourse tends to describe microbial activity as composed of deterministic and predictable processes, this stance implicitly assumes a consciousness that is rational, purposeful, and self-identical, and that has the ability to characterise and control these processes. But in this view, in its characterisation of microbiological life as able only to *react* rather than to respond, are not the very assumptions of control and determination themselves a reaction, the realisation of a socio-cultural code transmitted from the depths of Western metaphysics? At the same time, who are we to adjudicate on which environmental situations are issues, and to decide upon their most favourable outcome over time? To what extent are preferences for what constitutes a 'good response' conditioned reflexes masquerading as insightful analyses? But bio-deconstruction doesn't only trouble the binaries of programmatic and deterministic on the one hand, and self-aware and rational on the other by questioning human autonomy, but by also ascribing it to the non-human world.

In other words, actions, behaviors, responses, and reactions are constantly cross-contaminating one another. Francesco Vitale (2018) characterises this situation in his analysis of Derrida's reading of Monod, the molecular biologist who won the Nobel Prize in 1965. Derrida takes

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post/humanist ontology and biotechnology and synthetic biology is beyond the scope of the current chapter.

[3] See Schrader (2010) for an interesting example.

[4] Biodeconstruction is concerned with applying the insights of Jacques Derrida to the life sciences, and is also interested in discussing Derrida's own engagement with the life sciences, and particularly molecular biology in his seminar *La Vie La Mort*. Francesco Vitale, Vicky Kirby and Astrid Schrader among others have adopted this term to describe some of their work.

Monod's analogy between the genetic code ('deterministic') and human memory ('self-aware') to task, arguing that the relation between them isn't one of two homologous yet separate systems, but rather differentiations internal to the same system, thus destabilising Monod's analogical device. In other words, the distinction between the 'biological' and the 'cultural' - or 'genetic memory' and 'cerebral memory' - is, in Vitale's words, more of a "quantitative than qualitative" one, characterised by a relation of "continuity" rather than "rupture." It may be tempting to see this view as a kind of biological determinism, suggesting that human consciousness and intentionality is a mere evolutionary by-product with no relation to how the world 'really is.' But just as this move challenges the view of microbes as mindless automata, in doing so it must similarly concede a degree of agency to human endeavours. In other words, this insight does not fully evacuate agency, but rather repositions it in a grander network of interaction and influence. The question of control and manipulation - that is, the goal of directing microbial behaviour for bioremediation - can be reopened in light of these thoughts. What does the ability of microbes to be "open to the outside", and the correspondent features of humans, mean for the relation between the two systems, their correspondence, or the ability for an agent within one system - i.e. the human - to intervene upon and directly influence the behavior of another - i.e. the nonhuman?

If, as Vitale notes, non/humans are, for their survival, bound by the "necessity of interpreting what comes from outside" whilst at the same time expressing their own iterations of agency - thus sending their own messages back to this "outside" - there is the sense that human research on microbes is a project characterised by bi-directional transit, communication, and translation between these two systems. In other words, human study of microorganisms isn't the story of an objective deciphering of microbial activity, but an ongoing exchange between humans and microbes, in which the two accommodate - to varying degrees – to the other. The conclusions of this are twofold. Firstly, synthetic biological research into bioremediation unfolds through a different ontology than how it is usually characterised, and secondly, this rift between the 'theory' and 'practice' of bioremediation indicates that there is a possibility to bring the two into closer alignment.

5. Participation as an alternative paradigm

Up to this point in the chapter I have approached the discourse and practice of bioremediation as a question of agency. As such, I have not

discussed the limitations of biotechnological research into bioremediation as emerging from a limitation in technical capacity – as interpreted in the discourse of biotechnology itself - but rather as unfolding through an ontological irreducibility that characterises the relationship between human and microbial life. The limits to intentional manipulation of microbiological life emerge within an ontological relation between humans, microbes, and other forms of life in which the positions of subjects and objects as active and passive parties are in constant flux. Just as we humans create our experimental apparatus and material arrangements, bacteria too are engaged in their own form of "ontological epistemologising" (Kirby, 2009, 111), only bacterial interactions with the material world are far more spatially resolved than our own, and more readily able to transform themselves in the face of environmental disruption than homo-sapiens.

The practice of bioremediation, as framed this way is already a meeting of agencies, a negotiation across the borders of species and between different ways of being. My concern however, is the distinction between these two agencies, and correspondent representations of this difference. Mainstream biotechnological rhetoric paints the picture of two agencies populating either side of impassable divide: on the one side there is the rational agency of the conscious scientist who can arbitrarily impose his/ her will upon the object of their study, whilst on the other is the passive and deterministic microbe, so often the object of that study, who reacts only mindlessly to environmental conditions. However, in looking closely at the capacities of microorganisms, and of scientists researching with and on them, these two images become somewhat subverted. In the view I have sketched out here, scientific agency is reconfigured as not entirely rational, as historically constructed, socially situated and embodying its own limitations, whilst at the same time microbial agency becomes a creative force responding innovatively and intelligently – indeed, rationally - to environmental fluctuations and "reinventing [itself] accordingly" (Kirby, 2009, 111).

My suggestion, then, is that biotechnology possesses a distorted image of its own capacities, as well as of the 'object' that it works upon. And whilst the prerogatives of its technoscientific approaches may produce successes in certain applied contexts, these successes are material captures of its own disciplinary presuppositions. In other words, bioremediation is perhaps not radical enough in its attempts to 'harness' and 'exploit' the microbial world; it effectively shuts this world down by selecting and expanding those specific features of it that align with its own views. The point is that, in order to create conditions for life to thrive - of which bioremediation is one

example - microorganisms need, to some extent, to be left alone and to figure out the specific ecological milieu for themselves, instead of being presented with our abstracted image of it. The difficulty here rests in cultivating a degree of trust and patience, in the capacities of microorganisms; the "abstracted image" of the environment with which microbes are presented in bioremediation experiments invariably encode a degree of urgency and a deep concern that arises out of the contemporary climate emergency. This opens ourselves up to the difficult position of understanding that what microbes *can* do versus what they may *want* to do, might not link up so well with our own ideals. Our relationship to bacteria isn't one of equal partners engaged in a negotiation; bacteria are profoundly more powerful than us, in the sense that though we depend on them for our existence, they, by and large, do not depend on ours (Clark and Hird, 2013; 2018).

This is another perspective from which to consider our attempts to precisely control and direct microbial evolution and metabolism. Our actions will likely amount to only a small ripple in the great chain of microbial existence that extends back 4.3 billion years in the planet's history, and in all likelihood forward into its deep future. However, in this reformulation of human and microbial agency the impasse between them is broken down and reconfigured in a way that may allow more meaningful transit across it. In transcending the vision of ultimate precision and fine-grained control, bacterial agency moves into spaces which are potentially of value for humans. The central point is that if bacteria are open to their environments, and not mindless automata reacting to it, then they are also open to our attempts to collaborate with and relate to them. 'We' necessarily form part of that environment to which bacteria are exposed - as clearly demonstrated by synthetic biology - and as such have some choice in how we relate to these microbiological entities.

For me, this ends up converging on the question of forming relationships with microbes that take on board their capacities not as fixed programs but as emergent and dynamic responses to a toxic world. The shift here is from viewing microbes as "chassis" or vectors for defined metabolic programs, towards viewing them as "participants" in those experiments. Participation as a "metaphor" for doing synthetic biology (Szymanski, 2018) works to embed those understandings of bacteria given above into the very rubric of experimentation. Indeed, the apparently lofty and detached insights of bio-deconstruction call for *more* experimentation with microbes, not less. But this might be a different form of experimentation that is less hubristic than anthropocentrically guided technological fixes to environmental issues, one

that distributes agency across the human-microbe continuum. The fact that agency cannot be located in one place at one time but emerges continuously through intra-action is perhaps less a limitation to biotechnology than an opening (Barad, 2007). But only insofar as it dispenses with those views that would prejudicially code it as a limitation. Therefore, this model of sharing expertise across species boundaries is also strongly interdisciplinary, one that calls for engagement from scholars across the biological sciences, social sciences, the arts and humanities.

References

Barad, K., 2007, *Meeting the Universe Halfway*, Duke University Press, Durham.

Chegounian, P., Yadav, V. G., 2020, *Biodegradation of toxic organic compounds in contaminated environments*, Allonia Inc. Patent no. US20200318163A1, available at https://patents.google.com/patent/US20200318163A1/en [accessed 21/05/21]

Clark, N., Szersrzynski, B., 2020, *Planetary Social Thought*, Polity, Cambridge.

Clark, N., Hird, M. J., 2013, "Deep Shit", *O-Zone: A Journal of Object-Oriented Studies*, 1, 44-52.

Clark, N., Hird, M. J., 2018, Microontologies and the Politics of Emergent Life. In: Agnew J. A., Coleman, M. (Eds.), *Handbook on the Geographies of Power*, Edward Elgar Publishing Limited, Cheltenham, 245–258.

Cooper, M., 2008, *Life as Surplus*, University of Washington Press, Washington.

Demeter, M. A., Lemire, J. A., Yue, G., Ceri, H., Turner, R. J., 2015, "Culturing oil sands microbes as mixed species communities enhances ex situ model naphthenic acid degradation", *Frontiers in microbiology*, 6, 936.

DiNardo, T., 2017, "A Suicidal Solution" *CIMMAGAZINE* https://magazine.cim.org/en/environment/a-suicidal-solution/ [accessed 21/05/21]

Evok Innovations, https://www.evokinnovations.com/, accessed 25 November, 2021.

Hocking, B., 1977, "Physical characterization and microbiological settling-rate modification of aqueous suspensions from hot-water-process oil-sands extraction", *Fuel*, 56, 3, 334-339.

Kirby, V., 2009, "Tracing Life: "La Vie La Mort"", *CR: The New Centennial Review* 9, 1, 107-126.

Kirby, V., 2018, Un/Limited Ecologies. In: Fritsch, M., Lynes P., Wood, D. (Eds.), *Eco-Deconstruction: Derrida and Environmental Philosophy*, Fordham University Press, New York, 121-140.

Leahy, S., 2019, "This is the world's most destructive oil operation—and it's growing" *National Geographic*, https://www.nationalgeographic.co.uk/environment/2019/04/worlds-most-destructive-oil-operation-and-its-growing [accessed 15/04/21]

Murphy, M., 2008, "Chemical Regimes of Living", *Environmental History*, 13, 4, 695-703.

Schrader, A., 2010, "Responding to Pfiesteria piscicida (the fish killer): phantomatic ontologies, indeterminacy, and responsibility in toxic microbiology", *Social Studies of Science*, 40, 2, 275-306.

Saidi-Mehrabad A., He Z., Tamas I., Sharp C. E., Brady A. L., Rochman F. F., Bodrossy L., Abell G. C., Penner T., Dong X., Sensen C. W., Dunfield P. F., 2013, "Methanotrophic bacteria in oilsands tailings ponds of northern Alberta", *ISME J*, 7, 5: 908-21.

Siddique, T., Kuznetsov, P., Kuznetsova, A., Arkell, N., Young, R., Li, C., Guigard, S., Underwood, E., Foght, J. M., 2014, "Microbially-accelerated consolidation of oil sands tailings. Pathway I: changes in porewater chemistry", *Frontiers in microbiology*, 5, 106.

Suncor Energy, 2010, "Reclamation of Tailings Pond 1 - Suncor Energy" https://www.youtube.com/watch?v=PbmIFiM9lCY&t=2s [accessed 21/05/21]

Szymanski, E. A., 2018, "Who are the users of synthetic DNA? Using metaphors to activate microorganisms at the center of synthetic biology", *Life Sciences, Society and Policy*, 14, 15.

Sharon, T., 2014, From molar to molecular bodies: Posthumanist frameworks in contemporary biology. In: Sharon, T., *Human nature in an age of biotechnology*, Springer, Dordrecht, 113-134.

The Canadian Press, 2010, "Oil sands death of hundreds of ducks in 2010 blamed on weather, no charges laid" *National Post*, https://nationalpost.com/news/canada/oil-sands-death-of-hundreds-of-ducks-in-2010-blamed-on-weather-no-charges-laid [accessed 21/05/21]

Vitale, F., 2018, "Reading the Programme: Jacques Derrida's Deconstruction of Biology", *Postmodern Culture* 28, 3.

13. Healing the Earth, transforming the mind: how the COVID-19 pandemic generates new insights through the Econarrative writing workshop

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Abstract

In this chapter we will analyse how we can initiate a process of transformation in our ways of perceiving the relationships with living ecosystems in the context of the global health crisis unfolding in the Anthropocene era. More specifically, we will examine the narratives produced by the students at Paul Valéry University in Montpellier, France, in the frame of an international project of writing workshops (ECONARRATIVE) centered on the pandemic and ecology, held from January to March 2021, with the support of the MSH-SUD (Maison des Sciences de l'Homme) in Montpellier.

Keywords: Pandemic, Narrative, Ecocriticism, Transformative learning, Eco-anxiety

1. A global rite of passage: living a sense of loss in times of COVID-19

Now we begin to see some of the epistemological fallacies of Occidental civilization. In accordance with the general climate of thinking in mid-nineteenth-century England, Darwin proposed a theory of natural selection and evolution in which the unit of survival was either the family line or the species or subspecies or something of the sort. But today it is quite obvious that this is not the unit of survival in the real biological world. The unit of survival is

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organism plus environment. We are learning by bitter experience that the organism which destroys its environment destroys itself (Bateson 1972, p. 489).

At the core of the Coronavirus pandemic which started to spread across the whole planet in January 2020, humanity experienced a sense of loss: a loss of meaning, freedom, and social physical interaction. This experience entails nevertheless a great potential because we believe it can become a starting point for a radical change in our vision of the world.

With the outbreak of Covid-19 in January 2020, we entered a new era of high pandemic risk, which engendered a new way of being in the world. Scientists, who had been studying the multiple causes of climate change for years, now have raised the red flag. Dr Peter Daszak, President of the EcoHealth Alliance and Chair of the IPBES workshop, declared:

There is no great mystery about the cause of the COVID-19 pandemic – or of any modern pandemic, the same human activities that drive climate change and biodiversity loss also drive pandemic risk through their impacts on our environment. Changes in the way we use land; the expansion and intensification of agriculture; and unsustainable trade, production and consumption disrupt nature and increase contact between wildlife, livestock, pathogens and people. This is the path to pandemics. (IPBES 2020, see also Daszak 2020)

Humanity is living a *global rite of passage*, according to Joan Halifax (2021), we can genuinely experience that in our everyday life. The French ethnologist Arnold Van Gennep (1909), identified three phases in rites of passage:

1. Separation
2. Threshold
3. Integration

We experienced isolation, corresponding to the first stage in the rite of passage; we have been compelled to isolate ourselves in order to restrain the spread of the epidemic. Learning and many other activities take place online, cutting us off from our physical relationships with others. We communicate mostly through the visioconference platforms on the web, even though they cannot wholly replace the quality of direct communication between people.

During the pandemic, many of us experienced *loss* and *grief*: the loss of a loved one, or the loss of paid work engendered by the crisis and lockdown.

These are painful events which in many cases produce a loss of meaning, instability and a fear of the future. The absence of direct contact with others and the rapid transformation of social relationships, had a significant impact on our inner *ecology*: research shows a rise in psychic fragility and an increase in both suicide rates and suicide attempts (Gunnell et al., 2020).

Furthermore, we were able to experience the *second stage of the rite of passage*: the *threshold*. People experienced the end of lockdown with no certitude that they would return to "normal life", because the spread of the pandemic is still very present worldwide.

We are in a situation of global uncertainty: this is a position that is diametrically opposite to the will to control the entire ecosystem, which characterizes human attitude in the Anthropocene era. The threshold stage nevertheless corresponds to disillusion, and it can drive a new deeper understanding: we are not the masters of the world, rather, we live in close relationship with all living beings. Therefore, the loss of one species has a significant impact on all living beings.

The action of a tiny virus has put the entire planet on alert: this is a profound teaching for us on interdependence, the essential feature of living.

At the time of writing, the coronavirus has resulted in almost 3.5 million deaths around the world and, what is even more difficult to bear, many people have passed away without saying goodbye to their loved ones. However, the deep understanding of inter-being springing out from this extremely difficult situation for humanity, is capable of transforming our relationship with the *more-than-human-world.* According to David Abram*,*

Right now, the earthly community of life—the more-than-human collective—is getting a chance to catch its breath without the weight of our incessant industry on its chest. The terrifying nightmare barreling through human society in these weeks has forced the gears of the megamachine (all the complex churning of commerce, all this steadily speeding up "progress") to grind to a halt—and so, as you've likely noticed, the land itself is stirring and starting to stretch its limbs, long-forgotten sensory organs beginning to sip the air and sample the water, grasses and needles drinking in sky without the intermediating sting of a chemical haze (Abram 2020).

The time of rest for human activities, the silence generated by stopping traffic or slowing down machines, have favoured the emergence of another kind of attention towards the non-human.

Through these circumstances, we have been better able to contemplate non-human beings and, in return, those fellow beings can see us; at the age of Anthropocene, we can develop an *ecology of knowledge* leading us to change our view and extend the boundaries of our attention (Biancofiore

2020). When we become deeply aware of the vital links between humans and other species, and between humans and the ecosystems they are involved in, we understand that the survival of humanity depends on the nature of its relations with the living world.

As Gregory Bateson reminds us, it is not enough to consider the survival of a species individually, but always within the context of its own ecosystem. Otherwise, the species which wants to survive alone to the detriment of other species, will itself inevitably disappear.

In his book *Manières d'être vivant,* Baptiste Morizot (2020) underlines the fundamental role played by interdependencies: when we explore how they function, we understand what we ourselves are made of. We are intimately formed by our interdependencies, and if we look deeply, we can perceive, through the story of evolution, the connexion between us and a sponge.

In the same way, when we observe the role of viruses in the development of mammals' DNA, the COVID-19 pandemic will no longer be perceived by us as a bad science fiction movie, but rather as one notable event in the history of our evolution as a species connected with other species. The pandemic reminds us of our own vulnerability, in opposition to the idea of control and omnipotence that has haunted Western thought for centuries.

Through the mad long rush to exploit the Earth, coronavirus calls upon us to remember that we are the most widespread species on the planet, and that we are thus increasingly exposed to epidemics, the function of which is to re-equilibrate the relationships between species within living ecosystems (Courchamp, 2020).

Moreover, deeply understanding the links of interdependence means realising that we are not alone on Earth and that it is urgent to bring other species, "familiar aliens", our relatives through the complex history of evolution, *into the field of our attention*. Widening the circle of *care*, moving the lines of concern, and understanding within the term "care" the ethical dimension that Socrates gives it: *Epimeleia heautou*[2], the care of oneself does not imply a selfish posture: when we take care of ourselves, we take care of others and the planet. *Taking care of oneself* implies taking care of all Ecologically Significant Species and Community Properties (ESSCP) which allow us to live. In a sense, we can find in this ecological action a

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[2] "Epimeleia" signifies a sense of worry, such that in the phrases "epimeleia heautou" ("souci de soi-même"), the self is a source of concern. "Le souci de soi-même" is a posture of concerned attention for oneself as well as a practice of working on oneself (see Foucault 2005).

political concern; we are definitely able to say that – at the same time – we also take care of the city (the community of citizens and the body politic).

The ethics of the *care of the Self* was broadly developed by Michel Foucault which does not consider it through an individualistic dimension; on the contrary, it constitutes the starting point for a work on the Self, the first step that opens up the possibility of transformation. The work on the self appears necessary in order to touch the truth, which is not an abstract truth limited to pure knowledge. Rather, it is a truth that helps the subject inhabit the city and living ecosystems.

Today, in the era of climate change and biodiversity loss, a new thought is emerging a *new narrative* which is not coming from nowhere: the framework of this story was progressively woven over the centuries of our co-evolution, it is the *choral inter-specific poem* celebrating a new alliance between humans and non-humans, in a non-dual perspective.

Radical oppositions have brought multiple misunderstandings and great suffering in the context of our relationship with the living: life and death, human and non-human, animate and inanimate, man and animal… A deep ecological thought can not be founded on sharp oppositions coming from a dualistic and mechanistic vision of reality: in fact, from an ecological point of view, death can no longer be considered the opposite of life for the simple reason that it has always played an important role in the dynamic relationships of interdependence.

Death sculpts the living, as Jean Claude Ameisen stated (2018). A deeply ecological view integrates the role of death into the life of a species, including that of humans. The philosophy of the absurd (Camus) considers the universe as chaotic and meaningless; however, death gives the very sense to our lives because we are literally "made" of all these beings that lived before us.

On the other hand, from an ecological point of view, we cannot consider ourselves as "thrown into the world" ("*geworfen*", see Heidegger 1996), because we are capable of acknowledging the significant role of all the connections that allow us to be alive, and then we realize that we are entirely embedded in the web of Life.

When humans separated animate matter from the inanimate (see Descartes' philosophy on this subject), they separated themselves from the web of life and started to see the Earth as a stock of raw materials that could be used at will. However, if we relocate humans in the context of ecosystems, this new insight allows us to concretely move the boundaries of concern.

Within this perspective, we are able to extend and actualise the ethical thought of Emmanuel Levinas, who referred to alterity as the *human face calling us*, the presence of others in our own skin; thus, we can expand the idea of *alterity* and include within it the immeasurable fellow beings living in the biosphere. Animals, mountains, lakes, oceans, rivers: their presence concerns us as they participate in our *eco-mental space* (Bateson). It is just an illusion to imagine that we can feel well if we pollute a river or if we destroy a mountain: in reality, our ideas of domination and exploitation of ecosystems have a direct impact on the environment and on our own well-being.

In other terms, there is an *ecology of ideas* as well as there is an *ecology of ecosystems,* an inner ecology that is no less important than outer ecology, because the influence of ideas, feelings and emotions is tangible in the process of transformation of the planet: the *disenchantment of nature* initiated by Descartes drove the legitimization of the structural violence of our relationships with the living. Finally, we need to make peace with the Earth, recognizing the significant role played by all beings in the web of life; however, to restore a peaceful relation with the Earth means making peace with ourselves and with others, welcoming and identifying our own emotions, thoughts and feelings. In other terms, a person who is dominated by fear or anger will not be respectful towards the entire ecosystem and will be more inclined to over-consumption (see Egger, 2020).

Today, we can come out from an unhealthy relationship with the living, built on extractivism: this is the first step on the path in order to establish new interdependencies based on "diplomatic" links between species (Morizot, 2020), founded on care of oneself and care of others: through this approach we can definitively acknowledge differences, *the multiple ways of being alive.*

With the slowdown of human activities, a space has opened up for us that allows us to look at the living from another point of view: the silence, the cessation of activities were necessary to the upsurge of a renewed perception during pandemic and lockdown; many people have listen for the first time the song of the birds. Many wild animals, deer, foxes, have appeared in urban neighbourhoods emptied of human business.

Animals, too, have noticed something totally new: a new silence, a strange slowdown: during the lockdowns and curfews, we had the opportunity to become more familiar with non-human languages; in fact, if we observe animals respectfully and discretely, we can learn that they, too, are capable of empathy (Darwin [1872] 2012).

2. The pandemic is a period of sowing: another vision of the Earth

If we look deeply at this period of suffering and worldwide disease, we can perceive the emergence of something new, a possibility of making a shift in our behaviour, in our way of seeing the world. According to the Italian writer Erri De Luca,

> Despite the multiple bereavements, the hecatomb in retirement homes, I believe that we will remember this time as a fertile period, a period of sowing. […] This pandemic is only the first one, it inaugurates a new era, it is not an accidental occurrence. I do not consider myself either an optimist or a pessimist. I only witness the present (De Luca, 2020b).

In another article, the Italian writer perceives a kind of punishment, reminding us of the laws of *contrappasso* (similar to the condemnation of souls in Dante's *Inferno*), through an action either resembling or contrasting with sin (De Luca 2020a): people affected by Covid-19 need oxygen in the same way the living ecosystem stifled by human activities does.

The pandemic disrupted intense human activities as governments introduced restrictions and slowdowns: a relatively short downtime in the production system rapidly generated various signs of recovery throughout living ecosystems.

"Saturday belongs to the Earth", according to the Holy Scriptures, De Luca reminds us. This order has been ignored, and therefore the Earth has been deprived of its time of rest. This is why we can say that a pandemic is a *period of truce* for our ecosystems, an open invitation to make peace with the Earth.

The beauty of nature is not bare scenery, for the Italian writer. Rather, it is a state of temporary balance between tremendous energies such as eruptions, earthquakes, hurricanes, fires…and pandemics. In this challenging time, we have been able to perceive a stunning overthrow: for the first time, the economy, always considered the supreme authority, has been replaced by public health, which was perceived as a matter of primary interest for many countries all over the world.

Normally, a public health issue is not a priority: if we take the widespread use of asbestos in the Susa Valley (Italy) into account, or the severe pollution of the city of Taranto, public health has always been addressed as a secondary question. If the killings caused by environmental destruction were considered collateral damages of legitimate activities, they are rather *war crimes committed during peacetime* (De Luca, 2020a).

The pandemic, with its slowdown in social relations and activities, has compelled us to look inside in order to take care of ourselves. The eco-mental space, in Bateson's words, plays a major role, as our ideas and values have a significant impact on living ecosystems:

> When you narrow down your epistemology and act on the premise 'What interests me is me, or my organization, or my species,' you chop off consideration of other loops of the loop structure. You decide that you want to get rid of the by-products of human life and that Lake Erie will be a good place to put them. You forget that the eco-mental system called Lake Erie is a part of your wider ecomental system - and that if Lake Erie is driven insane, its insanity is incorporated in the larger system of your thought and experience (Bateson, 1972, pp. 489-490).

Through these challenging times, we are learning, from our experience of the global climate crisis, that a species which destroys its own environment destroys itself, according to the critical thought of Gregory Bateson.

3. Working on ourselves: the econarrative writing workshop

In January 2021 we offered the 3rd year students doing a BA in Italian Studies a writing workshop on the relationships between *pandemic and ecology* in the context of the international project ECONARRATIVE[3]. In a sense, we intended to encourage them to express themselves in Italian about their experience of the lockdown and curfew, within the setting of a hybrid course, with both in-person classes and e-learning. This was a way of working on ourselves within the group of students, creating a space for generating new insights.

Together with a trainee teacher, Soukhaina, we proposed different kinds of documents: videos and texts on the link between the pandemic and ecological crisis, and a selection of articles by writers, journalists, and scientists who reflected on how humans and non-humans were experiencing

[3] ECONARRATIVE (*Narration as a factor of resilience and care in the face of health and ecological crisis)* is a project centred on various narrative workshops on pandemic and ecology; it involves schools and universities in 5 countries (Tunisia, Italy, Sweden, France and Chile) and is supported by the MSH-SUD (Maison des Sciences de l'Homme) in Montpellier, France. For more information, please visit the website: https://www.mshsud.org/recherche/equipes-projets-msh-sud/235-econarrative-3.

the COVID-19 pandemic. The writers we chose included Erri De Luca, Paolo Di Paolo, Franco Arminio, Mariangela Gualtieri, Massimo Recalcati, Mauro Corona, and Giovanni Gugg. The texts we read during the workshop had a significant impact on the texts produced by the students because the reading created an atmosphere within the group that focused the collective attention on one main issue; to *change the point of view* of the narrator, we also proposed the film, *Le grain de sable dans la machine* by Alain de Halleux. Once the students had watched the film, Soukhaina (the trainee teacher) asked them to write as if they were the coronavirus itself sending a message to humans!

Immediately after a video or the collective reading of a text, students were invited to write their vision of the pandemic in resonance with the documents proposed: afterwards, their writings were read aloud (there were, at the same time, both distant and on-campus students) and were briefly commented without underlining language errors to avoid a climate of self-censorship. For this reason, we preferred to send the linguistic corrections to the students by email.

The texts produced during the workshop were published by the students themselves in a blog created on the Moodle platform (using the tool "glossary"). In this way, each student could publish his/her own text and read those by the others. This was an aspect that has proven highly effective within this specific pedagogical tool because the sense of sharing helped the students to no longer feel alone in their own suffering or sadness coming from pandemic and the changes it brought about.

The Italian writer Paolo Di Paolo highlighted that, during the pandemic, many people all over the world were writing 21st century humanity's "global novel" in a time of great trial.

In their writings, the students focused on the *past* (the announcement of the pandemic and the first lockdown); the *present* (distance learning, the situation in France and the rest of the world, their personal situation, and changes); and the *future* (further education perspectives, their job, their relationships, and the situation of the planet as a whole).

The reflections were oriented on various issues such as personal life, family and friends, the situation of the country, and the life of the entire planet. Three different dimensions could thus be distinguished: *individual, group*, and *system.*

Table 1 – *The dimensions, individual, group and system, in the context of the past, the present and the future. Source: author.*

	Past	Present	Future
Individual	Memories of previous life, parties, culture, regrets	Isolation, solitude, Stress, anxiety attacks, lack of relationships, lack of cultural events, loss of orientation about their studies, loss of motivation	Change of view, reorientation, Reappraisal Search for new values for personal well-being
Group	Relationships with loved ones, friends, and other students, view of society, Definition of 'normality'	Loss of contact with teachers, Lack of festive moments, Absence of moments of sharing, constraints of lockdown and curfew, Opposition between generations	Imagining alternative operating models on a social level, Less exploitation, more solidarity Living together, social well-being, Commitment to work which gives meaning Building a sense of purpose

System	The state of the planet The loss of biodiversity	Economic crisis, health crisis, ecological crisis, Breakdown of the systemic state of balance.	Defence of biodiversity, Building new relations with animals, plants Enhancing respect for living ecosystems

By analysing the texts produced during the workshop, we were able to distinguish three main tendencies which highlight how students experienced the pandemic and lockdown:

1. *Taking care of oneself*: recognizing one's own suffering and vulnerability, the difficulties of isolation, after the initial moment of astonishment;

2. *The emergence of new insights*: a shift in point of view, or a reappraisal, can arise in times of incertitude and loss of bearings. A new understanding that expands the boundaries of attention: the understanding of inter-being;

3. *Change of habits and postures*:

a. Building a quality of the presence to oneself, to others, to environment which involves opening up, resiliency, fulfillment, and fostering empathy and compassion for oneself and for others;

b. Switching into self-confinement, addictions (more specifically: Internet Addiction Disorder, IAD), depression, withdrawal, frustration, physical disease, or sleep disorders.

Different kinds of reaction towards the pandemic could be observed among the students who participated in the workshop: the announcement of the lockdown by President Macron in March 2020 has remained etched in their memory. This official speech provoked a variety of responses: many students felt relieved because they could take time for themselves, others saw the breakdown in their social life and were unable to bear the solitude. The difference in reactions was generally determined by the relationship with the family: when parents could offer a place of refuge, the family home, lockdown was a less challenging experience; students who decided to live through the confinement alone experienced loneliness and, in some cases, the loss of physical contact with friends generated a true psychic suffering.

Many students expressed in their texts the difficulty of coping with social isolation: "the human being is a social animal", wrote Maëli, quoting Aristotle.

However, in certain cases, isolation bore fruit: Nordine lived through the difficult 55-day period spent in isolation in his small room, his gaze turned inwards. The suffering produced new insight and inspired a new vocation: to be teacher, because it is "a sacred job":

> This is my thought for my teachers who have felt the emotions of their students; teachers with whom we previously only shared a classroom have become a source of motivation for us; teachers who wrote a little phrase full of kindness at the top of their mail, just a few words reminding us how the work of a teacher is a sacred job: they were able to instill in us the strength we needed, and I thank them immensely.

The sense of concern that certain teachers demonstrated towards their students during lockdown was a source of motivation: in particular, Nordine was able to find a job at the end of confinement and has become an animator for children in an elementary school in Montpellier. Paradoxically, after an initial period of deep suffering, for him the pandemic and lockdown represented a source of flourishing enhancing his self-reflection and fostering the motivation to act. In this sense, through the econarrative workshop, we discovered that for some, the pandemic was a real source of *empowerment.*

Other students, in particular the girls, showed a clear tendency to take care of themselves: once they had recognized their vulnerability and the difficulty of the situation they were confronted with, they developed a form of attention to their own well-being: "I sunbathe on my balcony, I use a beauty mask on my face, I go for a walk". These different attitudes towards the pandemic illustrate different types of *grounding* in order to cope with these difficult times.

Friends and relatives, in many cases, provided genuine well-being:

"I called my friend on the phone everyday at 6 p.m." (Thémis).
"I spoke on the phone with my father every two days because he lives in Italy…" (Alessia).

Family relationships provided the students with real help and support, despite the fact that, in certain cases, some mentioned quarrels in their texts, sparked by the confinement. Some *rituals* were introduced during the

pandemic: young people who felt the need to have reference points of sorts in everyday life started to do sport regularly thanks to social networks that broadcast online exercise classes for a large community of web users. Some students underlined the use of social media by older people to mitigate feelings of loneliness.

The opportunity to offer to oneself a moment of soothing at the heart of a shattering event was a real source of well-being: in particular, contact with nature provided nurturing moments; one of the adopted *rituals* was *to take a nature walk* which can provide an intense experience of *awe*, if we open our senses to the living ecosystem and the beauty of natural forms and landscapes. Today many meaningful studies illustrate the importance of this topic (see Carson, 1987; Piff *et al.* 2015; Ricard, 2019).

Among the students, Vishakha wrote that she found her intimate relationship with the earth by making compost for the first time on her balcony. She learnt how to make compost and she managed to do it with the organic waste from her meals; in other terms, she was seeking a daily interaction with the earth to find a source of healing.

As the first part of the workshop, we offered the students texts and videos as elements for thought and sources of inspiration to orient their attention to the relationships between humans and the ecosystem. In this way, we were able to explore the origin of the pandemic which is linked, according to many researchers, to deforestation and increased contact between wild animals, deprived of their natural environment, and farmed animals and humans.

One student even stated that "human being is the virus": a *loss of confidence in human beings* gradually emerged from the students' texts, to a such degree that we were able to notice, through the writings, a form of *anger* against older generations who have exploited the planet to the point that they have provoked this disaster.

Furthermore, Clara T. wrote the stunning phrase: "debt of life", meaning that young people now feel that they have been condemned by adults to pay a heavy price because they will never get their twenties back.

Generally, students expressed a tragic vision of the situation: they are fully aware, more than many adults, of the world they inherit, and they want to ask a lot of questions. Frequently, a pessimistic view appeared in the writings ("humans cannot change, despite pandemics"), although sometimes an optimistic perspective emerged ("we are going to cope thanks to our endurance and our capacity for resilience and solidarity"). Every student, during the *econarrative workshop*, went through *various stages of understanding* with regards to the links between the pandemic and the

ecological crisis, so this new realization, in some cases, was even able to transform their intimate relationship with the living ecosystem.

One student went so far as to describe his "imprisonment": he felt "self-confined" and could no longer find any motivation to go out, do sport, see friends, or go to the university. He could not achieve his plan to go and study abroad and this broke his spirit; he then gradually sank into an addiction to video games, even though he was aware of the psychological damage related to this excessive use of the computer.

4. From a loss of meaning to the quality of presence in the world

The choral "novel" by the students has unfolded gradually before our eyes: they showed a desire to write, as well as to read other students' writings (something that was actually made possible thanks to the "glossary" activity we created in Moodle). Many students testified to a *moment of growth*: "for me, every day is a conquest" said a student, in a trembling voice, during the discussion after the writing session. And she added: "At this moment, I am growing very fast".

In some cases, the psychic suffering caused by the loss of bearings and the absence of social interaction with friends generated a path to realization: when no distraction was possible, when normal life collapsed, young people experienced a "loss of presence": "what will I do? What kind of studies will I choose? My projects don't match the present time anymore."

This first moment of *astonishment* can lead to a crossroads (see on this point Worms' essay *Sidération et résistance*, 2020): either we make the choice to act, to pull ourselves together, to take a fresh and constructive look at ourselves and others, or we sink into ill-being, indifference, and depression.

Two students wrote a text together on working from home and the way in which each one set it up (for example distant learning): having a daily work rhythm helped the students to cope, even at the heart of the storm of emotions and contradictory informations arising throughout this unprecedented health and social situation.

"We are now experiencing what caged animals live all the time", stated one student: it seems that a new *inter-species fraternity* has emerged through the writings: "Life is a cycle and you receive what you give", another student wrote; actually, some students were able to seize this fundamental truth: what we do to the ecosystem we do to ourselves. We are

not far from the idea of *ecological Self* elaborated by Arne Naess, namely a Self which is aware of all the inter-species relationships it is made of.

The students' writings revealed the clarity of their vision on the ecological crisis and Anthropocene: humanity has crossed now critical boundaries in its exploitation of the planet, and we urgently need a new vision of Earth in order to change our behavior. *Inner ecology* is fundamentally linked to *outer ecology*: if we are not well, we tend to consume, shop compulsively or pursue goals that are not in harmony with our ecological Self, and this inevitably implies the destruction of other living beings.

The econarrative writing workshop enabled students to share their own suffering: one student explained during the interview in the context of our inquiry: "for me, this was a moment of freedom because we were allowed to express ourselves freely". This was the opinion of many of the students who participated in the workshop: at the heart of the lockdown, this educational device generated a *space of freedom* enabling students to realize that they were not alone in their suffering from the current situation. The resonance generated by the collective blog of the workshop allowed everyone to be inspired by others' writings even though *each* student could express his/her *unique* way of living the situation. Concretely, by sharing the individual experience of the pandemic, the writing workshop had the capacity to foster empathy among the students.

Moreover, it is worth noting that the students had the courage to expose their personal feelings individually thanks to the non-judgmental atmosphere that was set up during the sessions. Maëli emphasized the power of the imaginary in this difficult situation: "I have a dreamy nature, and this helped me so much during lockdown. I know now that what matters most is our mind, and the way we see reality".

In a sense, we realize that a work on the self was made possible through the writing workshop: we traveled together along part of a road in search of truth, an existential, personal, and concrete truth which is not limited to the sphere of abstract knowledge. In other words, a truth that has a direct impact on the self and others. A work on the self that flows from an ethics of care of oneself (see Foucault, 2005).

If we are able to care of ourselves, we can care of others and of the planet; therefore, it is vital today to understand the importance of an inner transformation that will generate the change in our relations with other fellow beings provided by multiple forms of intelligence. It appears necessary today to recognize the richness of these various forms of life on Earth and on which our own survival depends: an albatross is capable of

finding its way over the great expanse of the ocean, a salmon can swim upstream, a bee performs a complex mapping dance… an algae has acquired the capacity for photosynthesis and can release oxygen…

The sense of wonder in the face of all the diversity of our biosphere generates an attitude of reverence in the presence of each form of life: according to an old Native American saying, we can see the result of our actions in seven generations to come; young students, those who were "20 years old in 2020" have realized that their actions will be decisive for the future of the Earth and humanity: "we are the first generation to undergo the effects of climate change and the last with the power to act" stated Vishakha.

The econarrative workshop's writings are infused with fear, apprehension, and courage. At the same time, both vulnerable and robust, the students showed their fundamental capacity for resilience and their will to broaden and deepen their understanding within a society which pretends that things will return to what they were before the pandemic. The educational device of the workshop enhanced the consistency of the class, and the writing process was able to foster a sense of purpose in a world that had suddenly became unfamiliar.

According to Arundhati Roy (2020), throughout history, pandemics have always brought a great change: despite a feeling of frustration, loss and crisis, we can decide to make this exceptional event a "portal", an opportunity for us to change in the perspective of a transformative education.

References

Abram, D., 2020, "In the Ground of Our Unknowing", *Emergence Magazine,* 7 April 2020, viewed 23 april 2021, <https://emergencemagazine.org/essay/in-the-ground-of-our-unknowing>.

Ameisen, J. C., 2018, *Les chants mêlés de la Terre et de l'Humanité*, N. Truong (ed.), éditions de l'Aube, La Tour d'Aigues.

Biancofiore, A., 2020, "Care et éducation: pour une transformation de l'esprit", *Notos. Espaces de la création: arts, écritures, utopies*, n. 5, viewed 24 mai 2021, <https://notos.numerev.com/articles/revue-5/1495-care-et-education-pour-une-transformation-de-l-esprit>.

Biancofiore, A., 2021, Etica della cura e vita affettiva: un percorso di trasformazione attraverso la piena consapevolezza. In: L. Mortari and F. Valbusa (Eds.), *Il sentire che noi siamo*, Carocci, Roma, 37-60.

Biancofiore, A., Brami, C., 2020, "Le dehors au dedans : méditation de pleine conscience et souffle à l'ère du Covid-19", viewed 23 april 2021, <https://theconversation.com/le-dehors-au-dedans-meditation-de-pleine-conscience-et-souffle-a-lere-du-covid-19-134605>.

Carson, R., 1987, *The sense of wonder*, Harpercollins, New York.

Courchamp, F., "Les virus sont une des forces majeures qui façonnent la biosphère", *Le Journal du CNRS*, viewed 23 april 2021, <https://lejournal.cnrs.fr/articles/les-virus-sont-une-des-forces-majeures-qui-faconnent-la-biosphere>.

Darwin, C., [1872] 2012, *The Expression of the Emotions in Man and Animals*, John Murray, London, viewed 23 april 2021, <http://darwin-online.org.uk/content/frameset?pageseq=1&itemID=F1142&viewtype=text >.

Daszak P., 2020, "We are entering an era of pandemics – it will end only when we protect the rainforest", *The Guardian*, 28 Jul 2020, viewed 23 april 2021, <https://www.theguardian.com/commentisfree/2020/jul/28/pandemic-era-rainforest-deforestation-exploitation-wildlife-disease>.

De Luca, E., 2020a, "Perché la natura ci soffoca. Il contrappasso ambientale", *La Repubblica,* 18 march 2020, viewed 23 april 2021, <https://rep.repubblica.it/pwa/commento/2020/03/17/news/perche_la_natura_ci_soffoca-251569264>.

De Luca, E., 2020b, "Pour Erri De Luca, la pandémie fut un moment d'unité en Italie", *Le Figaro*, 10 may 2020, viewed 23 april 2021, <https://www.lefigaro.fr/culture/pour-erri-de-luca-la-pandemie-fut-un-moment-d-unite-en-italie-20200510>.

Di Paolo, P., 2020, "Caro diario, mi isolo. Il romanzo globale della quarantena", *La Repubblica*, 30 may 2020, viewed 23 april 2021, <https://ricerca.repubblica.it/repubblica/archivio/repubblica/2020/05/30/caro-diario-mi-isolo-il-romanzo-globale-della-quarantena21.html>.

Egger, M. M., 2020, *Se libérer du consumérisme. Un enjeu majeur pour l'humanité et la Terre*, éditions Jouvence, Geneva.

Foucault, M., 2005, *The Hermeneutics of the Subject : Lectures at the Collège de France 1981–1982*, translated by G. Burchell, Palgrave MacMillan, New York.

Gugg, G., 2020, "Riti della pandemia", *Dialoghi Mediterranei,* viewed 23 april 2021, <http://www.istitutoeuroarabo.it/DM/i-riti-della-pandemia>.

Gunnell, D., Appleby, L., Arensman, E., Hawton, K., John, A., Kapur, N., Khan M., O'Connor, R., Pirkis, J., 2020, "Suicide risk and prevention during the COVID-19 pandemic", *Lancet Psychiatry* 2020 Jun; 7(6):468-471, doi: 10.1016/S2215-0366(20)30171-1.

Halifax J., 2021, "Are we in a global rite of passage ?", viewed 23 april 2021, <https://www.lionsroar.com/are-we-in-a-global-rite-of-passage>.

Heidegger, M., 1996, *Being and Time. A Translation of* "*Sein und Zeit*"*,* translated by J. Stambaugh, SUNY Press, Albany, New York.

IPBES, 2020, "Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services Pandemics Report: Escaping the 'Era of Pandemics'", <https://ipbes.net/pandemics>.

Le Grain de sable dans la machine, dir. Alain de Halleux, Zorn Production International, INS, RTBF, ARTE, Pictanovo, 2020, film.

Morizot, M., 2020, *Manières d'être vivant*, Actes Sud, Arles.

Piff, P. K., Dietze, P., Feinberg, M., Stancato, D. M., & Keltner, D. (2015). "Awe, the small self, and prosocial behavior", *Journal of Personality and Social Psychology,* 108(6), 883–899, https://doi.org/10.1037/pspi0000018.

Ricard, M., 2019, *Émerveillement,* Éd. de la Martinière, Paris.

Roy, A., 2020, "The pandemic is a portal", *Financial Times*, 3 April 2020, viewed 23 april 2021, <https://www.ft.com/content/10d8f5e8-74eb-11ea-95fe-fcd274e920ca>.

Van Gennep, A., 1909, *Les rites de passage,* Emile Nourry, Paris.

Worms, F., 2020, *Sidération et résistance. Face à l'évènement (2015-2020)*, Desclée de Brouwer, Paris.

SECTION 3

Crisis and pandemic: dynamics of writing and thinking

14. COVID-19 as a wake-up call. Potential for more sustainable attitudes and behaviors in Poland

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Abstract

Poland has been quite hesitant to adopt changes (both systematic and on the individual level) necessary to mitigate climate change. The country's economy is heavily dependent on coal mining, which is supported by a very powerful Silesian (main coal region in Poland) culture, with the miner being the most respected profession in society. In addition, there being a rather "young" European democracy, paradigms of economic growth and consumerism are still dominant development drivers. In this context, introducing a societal change to support the necessary energy transitions and drastically cutting fossil fuels emissions seem extremely challenging. However, COVID-19 pandemic has forced certain, at least temporary, changes to people and the economy. In our study, we have investigated what potential comes from redefining people's everyday rituals for fighting climate change. We have focused on different behaviors with high-carbon footprints, such as daily transport, travel, consumption, and food waste. It turned out that some of these changes could be introduced in the future. What is more, the health crisis and the lockdown inspired sort of national reckoning on "what is really important" and, to some extent, reconnection with nature. If appropriately supported, it gives a great potential for societal change towards sustainable living. The study was conducted in April and May 2020, during the so called 'first national quarantine'. It was based on the combination of qualitative and quantitative methods. For purposes of this paper, we focus on the results of the former method only, which provides much better insights into the narratives of the Anthropocene in the Silesian region. The survey was based on 150 in-depth interviews conducted via online communication tools. Although such a sample is not representative by definition, it aims to display diverse strategies and changing habits of various subjects in different regions of Poland, as well as

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various life situations in the context of the COVID-19 pandemic (families with kids, pensioners, young adults, etc.).

1. Introduction

Although the exact effects of climate change are impossible to measure with 'surgical precision', humanity managed to translate preventive measures into very specific requirements that each country is obliged to meet. The general goal for the international community is to drastically cut emissions of fossil fuels, the main contributor to climate change, and to become carbon neutral. Countries contribute to climate change to different extents depending on how their economies and societies are organized. In the case of Poland, which is heavily dependent on coal mining, it is necessary to reduce emissions of fossil fuels by 40% commensurate with 1990 levels. This requires a complex transformation of the energy production and distribution systems. Such systematic changes that are the responsibility of governments need to be accompanied by increased awareness and openness of the societies to accept certain compromises connected with cutting emissions. Hence, achievement of climate-neutrality is a civilizational challenge, also for people individually. This requires changing our way of thinking about the interactions between humans and environment, the use of the natural resources and an awareness of the importance of individual choices for contributing to climate change.

After the first coronavirus cases in Poland were identified in March 2020 and the infection started to spread, the authorities decided to introduce various preventive measures. Probably the most strict and significant one from the perspective of our study was the prohibition to leave home freely, but for a few exceptional reasons. This was accompanied by a temporary closure of most public institutions, markets, common spaces, restaurants and service points. Similar lockdowns were introduced in many countries. In a way, the world stopped. This unusual situation led some people to redefine how they organized their social, family and work lives. Also, being locked at home, inspired certain existential thoughts, including these on global threats or relationships between humans and the environment.

The main aim of the research presented in this chapter was to analyze to what extent the COVID-19 pandemic could positively lead to societal change in regards to environmental sustainability. The results are based on qualitative interviews with 150 participants from different regions of Poland and characterized by different social variables. What we can learn from the interviewees and their accounts are subjective descriptions of their everyday routines during the first national lockdown and more general feelings about the pandemic. During these in-depth conversations, we were searching for some patterns that could foreshadow a change on the level of individual consciousness and actions towards more sustainable living, which is necessary to overcome environmental crisis and slow down global warming.

2. Theoretical perspective

The environmental crisis that we are facing as a human species requires an interdisciplinary approach. Physical sciences provide hard data and evidence of the catastrophic effects of our actions. Technology is expected to provide a wide range of solutions for saving energy and conversing to renewable resources, which present key challenges for sustainable economies. However, the upcoming changes of our reality have to be compatible with social acceptance and, preferably, also a rise of awareness on environmental issues. This implies the grand role that the social sciences and humanities can play in the 'green transition.' Until recently, these disciplines were underestimated in facilitating actual change. Carolyn Merchant points out that it is not just their ephemeral contributions, but that the humanities directly influence ecological management strategies. In her view, we need a "new story," and a new ethic, which will help us transfer from the Anthropocene to sustainability (2020, 144).

That "new story" can be interpreted as narratives that refute humans as those controlling nature. Some contemporary philosophers go even further. Rosi Braidotti believes that our traditional perceptions of the human species is now completely obsolete. She argues that the world of animals, humans and machines overlap and interpenetrate one another, questioning the subjectivity of man (Braidotti, 2013). Certainly, the first step on the pathway for us to overcome environmental crisis is to start considering ourselves as one of the million species, on planet Earth, which we are in fact are.

The need for an interdisciplinary approach to change our reality from Anthropocene to sustainability is also reflected in economic studies. Jeffrey Sachs underlines that sustainability combines economic, social and environmental objectives (2015). Equality, justice and inclusiveness are dominant values in the discourses of sustainable development. A dominating discourse is that it is possible to maintain economic welfare without exploiting the Earth. Some of the practical reflections of such approaches are the United Nations' Sustainable Development Goals and, to some extent, the European Green Deal.

But how to transform these ideas into actual change?
A discipline which can meet the current need of providing framework for the change of behaviours is Geoethics. Its role is to redirect human behaviours and practices so that they respect "preservation of nature, territory and the common good" (De Pascale, Roger, 2020). A key concept for geoethics is that humans influence the natural environment and are resposible for the planetary system (Peppoloni, Di Capua, 2017).

3. Methodology

The methodological approach of our study strictly matched to its goal, which was to explore circumstances for meaningful change in collective behavior towards becoming a sustainable society. On one hand, it was important to collect data that was representative of the whole country. On the other, it had to probe more deeply with qualitative approaches that would allow to us to discover nuances in people's attitudes. As a result, we combined quantitative and qualitative research methods, which complemented each other. For purposes of this article, however, the qualitative material seems to be much more useful, as it clearly shows actual narratives of human relationships with the surrounding environment in the context of COVID-19 pandemic.

The project was designed as a longitudinal study in order to identify any potential changes in attitudes as situations changing over time. The first part was meant to capture attitudes from the beginning of the pandemic and was conducted in April and May 2020, during the so called 'first national quarantine.' The main research question was: what are the key changes in everyday life that could help achieve climate neutrality? In other words, what limitations – from those forced by the pandemic – that people viewed as acceptable to adopt to some degree even after the pandemic is over and such limitations are no longer obligatory. A following survey was initially

planned to be repeated approximately a year later, which we assumed would be 'after the pandemic'. When we realized that the world health crisis might be stretched over a much longer period of time, we decided to conduct the second part of the research in the fall of 2021. The main aim of the second part is to compare declarations for change with the actual change in people's everyday lives. When the whole project is completed, we will be able to juxtapose the openness to changes and the actual capability to introduce them by the same group of interviewees. In this chapter, we focus on the potential of changing everyday routines as experienced during the first stages of the pandemic as described in our interviews.

The unusual situation created by COVID restrictions was potentially interesting from the perspective of possible benefits to the environment from the universal slowdown of daily life. At the same time, the ban on social interactions implied certain challenges for our research methodology. Our aim was to collect in-depth data on people's attitudes, so individual face-to-face interviews would have been our first choice in normal circumstances. However, during the quarantine, when both interviewees and interviewers were 'trapped' at home, we decided to attempt to conduct them via remote, mostly online communication tools. In some cases, we allowed telephone interviews in order to avoid digital exclusion, especially among the elderly interviewees and country dwellers who had limited access to stable internet connections,

In this manner, we spoke to 150 adult Poles. As our sample was quite large for qualitative methods, we decided to make it partly purposive, and partly per quota. This means that although the data may not be representative for the whole population, we recruited interviewees that represented certain characteristics in certain proportions. The main criteria included the variables of: gender, the region of Poland (three of the Northern voivodships, namely pomorskie, warminsko-mazurskie and podlaskie; Central: wielkopolskie, lodzkie, mazowieckie; Southern: slaskie, malopolskie i podkarpackie), place of residence (rural areas, towns or cities) and life situations. However, the groups' sizes were too insignificant to conclude differences depending to these criteria.

We used semi-structured interviews as they resembled a casual, everyday conversation, in which the participants could feel comfortable to express their true opinions and feelings. There was a discussion guide known to the data collectors, so they could make sure all areas of interest were covered in each interview. These included: everyday life during the lockdown, homelife, work, use of public spaces and attitudes towards the world and global risks. The core subject of the research, i.e. the potential for reducing

individual carbon footprint, was not directly communicated as involuntary accounts were treated as a new valuable set of data.

The average length of interviews was 53 minutes, and altogether 8,000 minutes of recorded interviews were collected. All contents of the recordings were transcribed in an anonymized way to protect personal data. The result is 3,000 pages of text which was analyzed with the use of MAXQDA software dedicated for qualitative analysis.

4. Results

For every individual, it is possible to estimate a carbon footprint, which is the total greenhouse gas emissions coming from their activities and lifestyle. The way we commute, travel, shop, eat, use energy and water, and manage household waste – all these factors contribute to fossil fuel emissions. Carbon footprints can also be estimated for a production process, a service, an event, a place, etc. In our research, we examined if Poles reduced their carbon footprints as a consequence of the lockdown and to what extend they would continue with it after the pandemic. Before the collection of data, we pre-identified some elements of everyday life which have impact on the environment (especially such connected with fossil fuel emissions). We did not aim to measure precisely the change in carbon footprint. Instead, we asked them to describe the changes in their daily routines. We drew special attention to transport, consumption and shopping patterns, use of energy, waste management, and leisure time. Results in some of these areas showed very clear patterns (e.g. transport), other were too difficult/subtle to observe by the interviewees (e.g. most were unsure if they changed energy consumption).

Apart from discussing their everyday lives, we also invited research participants to share how they perceived the contemporary health crisis in the wider perspective of multiple global threats. Freezes in the public sphere, and remote work connected with stress and uncertainty triggered various existential thoughts. A common anxiety, fear of the new disease, and finally the lockdown itself inspired feelings that could work as a wake-up call and facilitate a critical evaluation of the contemporary world. It could inspire societal change towards sustainability, which humanity certainly needs due to the environmental crisis.

The two sets of the collected data, answering questions in the described areas, have potential of showing to different ways towards sustainable society. The first one, regarding a change of habits with high carbon footprint is more direct. Basing on changes during the pandemics, it shows

what people could do in a different way in the future. The second one refers to ideas and attitudes, rather than actions, but is equally important. The increased awareness of environmental crisis plays an important role in 'green transition'. Following these two areas for potential change, it could start on two levels: a more practical change in everyday living to less harmful to the environment and a conscious change of attitudes towards the planet, environment, and nature to non-predatory ones in order to limit its exploitation on purpose.

4.1. Reduction of habits with high carbon-footprint

In the interviews, we investigated changes in everyday routines caused by the restrictions imposed during the pandemic. We drew special attention to those which directly link with carbon emissions and contribute to climate change. Among those we looked for changes of behaviors in the use of transport, the organization of work, household and leisure time, consumption models, etc. For the purpose of this article, we will describe the most apparent trends.

4.1.1. Commuting to work

One of the areas of life which was significantly changed by the pandemic was the way people work. The restrictions forced many companies to close their offices and move to remote work. This in turn created changes in the use of transport to and from workplace. One third of research participants shifted to online work at least partly and they voiced extreme emotions towards it. Interestingly, the need to introduce remote work was like a real-life experiment for previously non-conventional solutions in Poland. The biggest highlight of online work, directly connected with fossil fuel emissions was the limited need to physically go to workplace. During the strictest period of the lockdown, once-busy streets became quiet and empty with no cars; only few means of public transport were left. On the other hand, the interviews revealed a crisis of confidence in the mass communication system. While some people started to walk or cycle to work in order to avoid using cars others increased their use. The first model of change in behavior seems attractive from the perspective of fossil fuels emissions.

- So, you are saying that you use your car less than before?
- Yes, definitely. Much less as I don't go to the office (...).
Now, I use the car, when I have something to do and it is too far
to walk. But, if I have a choice, I prefer to walk. I need to take
exercise (woman, 30 years old, project coordinator, kids,
Pruszkow near Warsaw).

Now, we can see that city traffic is back, which can be interpreted as the
trend of limiting use of cars that our research revealed was only temporary.
However, at the same time, results showed a high potential for the
popularization of remote work in the future, which – as already announced
by many companies – will be partly maintained even after the entire
population is vaccinated. By testing remote work in real life, both
employees and employers recognized its benefits. It proved to be just as
effective; however, face-to-face meetings should be continued from time to
time. Limiting driving to work and use of the office buildings gives hope for
some progress in cutting emissions. Unfortunately, another clear trend
showed by the research was substituting public transport with the private
car. In other words, some people who used bus, tram or tube to commute,
had switched to their cars for safety reasons and convenience. Apart from
fear of infection, mass transit became a less trusted way of getting around.
The interviewees reported their disappointing experiences, such as an
inability to enter a vehicle due to exceeding the limit of passengers allowed
on board. It is likely that it will take time before trust in public
transportation will be regained. Still a large part of Polish society is not
willing to get vaccinated, so public transportation can continue to be
perceived as connected with a higher risk of infection.

4.1.2.   Food and shopping

Another clear and new trend recognized in the analysis of everyday
habits during the pandemic was certain changes in the way research
participants shop and eat. It showed a tendency for more conscious
shopping, rational buying and some self-imposed restrictions in this area.
On one hand, it was connected with the need to limit physical presence in
potentially dangerous public spaces such as stores and supermarkets. In
many houses, one person was delegated to do the shopping. People reduced
ad hoc shopping in the local shops in favor of less frequent supermarket
shopping. In addition, some people started to buy their groceries online. The
willingness to reduce complementary shopping enforced better planning of

menus and less opportunity for extra spontaneous shopping. Unfortunately, less frequent grocery shopping was also connected with buying plastic and paper packed products more often, which were considered safer, but are harmful to the environment. What is more, some interviewees (also a strong trend noticed in the second, quantitative part of the research) recognized the pointlessness of shopping for pleasure. As shopping malls were closed, people could not spend their leisure time going there, and many of them came to the conclusion that it was dispensable.

Apart from better planning, reluctance to visit shops and supermarkets also awakened a certain need for food self-sufficiency. Supplies of fresh products and bread, which in Poland are often bought in the local shops, became one of the biggest issues during the lockdown. Bread is a staple of Polish cuisine, and fruit and vegetables were important for immunity during the pandemic. As a result, many people started growing plants and herbs themselves and baking bread, which was one of the most spectacular examples for pursuit of self-sufficiency at that time. It was becoming popular even before, but limited access to fresh and "safe" bread during the health crisis additionally reinforced this trend. Interestingly, bread baking inspired local solidarity among families, communities and friends expressed by sharing the sourdough necessary for baking bread. Many people also started to buy milk, eggs, vegetables and fruit from the local farmers as such products were considered safer than those from the supermarkets. An additional trigger for producing their own food that the interviews revealed was an economic insecurity connected with the health crisis. The worry of losing jobs and the rising inflation meant that for some it was a way to save money:

> *At first (when the pandemic was officially introduced), there was this madness, the panic that there would be food shortages. This was when I thought that it would be much better to be self-sufficient. We own a plot of land (...), tomatoes can be grown there, other things too. We have just planted lettuce and radishes there* (woman, 35 years old, psychologist, kids, Gdynia).

It is important to know that Polish people experienced food rationing in the post-war era. As the democratic transition took place only back in 1989, the typical image of empty shelves in the stores before 1989 is still vivid for the elderly and the middle-aged. The pandemic brought these memories

back and triggered panic at first, followed by the search for alternative solutions. All these pandemic practices significantly increased the popularity of permaculture and local farming. As food production is also a great contributor to environment pollution and climate change, this positive trend has a great potential to change the existing paradigm in farming to a sustainable one.

4.1.3.   Back to nature

One of the interesting results in the context of this book that we did not pre-identify is a re-evaluation of green spaces. Apart from stress, fear and several inconveniences connected with the lockdown, many people suffered due to the very fact of being locked at home. It was especially painful for those city dwellers who do not own gardens, as even parks and forests were closed for the public for some time. On the other hand, those living in houses or owning summer houses, allotments or cabins outside the city felt much more comfortable as the safety of their home expanded outside. The realization how beneficial it can be to own an allotment resulted in a great rise in demand for them, and hence, in their prices across Poland. How to explain such sudden great interest in owning a plot of land? According to our study, during the pandemic, gardens and other types of private recreational greenery were seen as an asylum protecting from the threats to civilization; it is safe as there are no other humans (strangers) there. Some interviewees described green spaces as "clean" and "safe to touch". Another benefit of being outdoors which gained value during the pandemic were the therapeutic qualities of nature, so desirable during the health crisis. As the research results show, during the pandemic nature was also rediscovered as an intrinsic value. One of the interviewees directly expressed their belief, which inspired the research that the experience of pandemic can be beneficial in fighting climate change.

> *Air is less polluted, that's for sure. I was actually searching for such positive news, like the one about dolphins returning to Venice when people got locked, wildlife starting to come out of hiding… Nature…When we went to the summer house of my mother-in-law by the river Narew, we immediately noticed that there are many more birds. This is when we started realizing that. I wish, and I think it is that way a little, I wish people started to appreciate nature more (…) I think they do, at least a*

little bit. It is a sort of awakening (woman, 35 years old, psychologist, kids, Gdynia).

It is also symptomatic that restrictions on use of forests and parks met the greatest public disapproval. Appreciation for nature can be an important ethical and educational result of the COVID-19 pandemic.

4.2. Pandemic as a wake-up call

Analysis of the data from the interviews show that the COVID-19 pandemic was also an important stimulus for many people to reflect on their lives, the state of the country and global issues. Interesting results regarding climate change, ecology and sustainable living could be found in all three categories because during the interviews this subject was not indicated as a separate block in the questionnaire. In order to learn true attitudes, we waited until the main issues of our interests were voluntarily mentioned. In terms of thoughts on own life inspired by the lockdown, interviewees spoke predominantly on how the pandemic made them realize that before it started, they had lost their life-work balance and did not have enough time for themselves and their families. When forced to work from home or go on a leave, along with the school and nursery shut-downs, many people realized how much they had needed such changes in their daily routines. Many came to the conclusion that they had been overworked, which often led to stress and neglection of personal needs, influencing their overall well-being. Interestingly, from the perspective of this chapter, one of the topics stressed by the interviewees was their will to minimize consumption in the future. Such declarations were made by the majority of those who shared their reflections on own life during the pandemic (20% of the whole sample) and mostly by those possessing a university degree. This repeated sentiment is clearly expressed in the following quotation:

We probably now all realize that this chase after money, the profit, higher turnover is… it can be all destroyed in a couple of days. So, does it really matter? This fast pace of the world. I think many people can agree with this opinion that such coronavirus was necessary for people to slow down a little, stop, look around and notice things that are truly important in life, what their goals are and what they are doing that makes them

really happy. So, this is also a time for reflection (woman, 28 years old, kids, on maternity leave, Lesser Poland).

The dominant understanding of *minimizing consumption* in the accounts of the research participants was the desire to reduce their orientation for possessing things. One possible explanation can be that limited access to certain products and services motivated them to question whether they are essential in their lives. From the above quote, it can also be seen that the will to reduce consumption is connected with the feeling of participating in the incapacitating chase for profit. The author of the words above believes that contemporary people may feel trapped in a vicious circle of earning and spending money, but the lockdown and the health crisis made them realize the pointlessness of such attitude.

Certain reflections inspired by the pandemic and related to the wider societal or global perspective were shared by the vast majority of the research participants (130 people). Some interviewees, were inspired by the pandemic to question the surrounding world in more general terms. Dominant capitalism with its logic of constant growth imposes a high pace of life which people do not feel comfortable with. For the purpose of this article, the most crucial reflections are those related to the environment. These turned out to be the main subject when discussing the topic of nation- and world-wide problems. They were mentioned by half of the sample (predominantly in voluntary way), which can prove the rising awareness in this area. However, it is important to say that environmental issues were discussed almost uniquely by interviewees with high school or university educations. Apart from the issues strictly related to climate change, research participants mentioned a wide spectrum of other problems connected with the natural environment: water scarcity, renewable energy, air pollution from transportation, world hunger, overpopulation and smog from coal burning, which is a widely-discussed subject in Poland in the recent years. Some of the interviewees shared apocalyptic beliefs, where humans were presented as the biggest threat to the Earth, possibly leading to its demise. In one of the statements, a person highlighted solidarity as key for the survival of humanity:

> *If we want humans to survive and identify with humankind, we should now focus on improving our behavior towards the Earth. What difference does it make that China or United States are the most powerful economies in the world if we can all die from the pandemic? There is none. So, as I said. Our goal*

should be the common good of the Earth and human solidarity. No matter who is who. We should have a clear-cut vision of what is good for all of us (young man, HR, Warsaw).

The spread of the pandemic was discussed as an example of how all people are equal in face of global risks:

I think we all know what is most important. The problem is to change this knowledge into action, to start caring more for what is most valuable, let me call it the homeland of humanity, the Earth, so we don't destroy it, don't kill it, don't make it subjected to us, like it has been happening for the whole history of our species. To make the Earth subjected to us means exploit it (…) the Earth and the environment we live in are key for our species to survive. Smart people say: "The Earth can cope without us, but we cannot live without the Earth. We will die without the Earth. If we continue to treat GDP as an idol, it will always contribute to the destruction of the Earth and the environment". So, what really can be more important than where we live and how we live? (man, 60 years old, country dweller).

During the interviews, we also asked if people believed that lessons coming from the pandemic can have a lasting effect. The majority of research participants were skeptical about this, although they believed that changes – in terms of ecology, economy, also politics – are desirable. The general attitude can be accurately summarized by what one of the participants said "Everyone is just waiting in the starting blocks to return to business as usual". What is quite striking is that the interviewees believe that it is valid especially for Poles in particular not to learn a lesson from the pandemic.

I think it could be (a lesson), but probably won't, because people are reluctant as a masses, masses of man are reluctant to learn, so we probably won't learn anything. I guess it depends on society. I don't think that our Polish society will learn anything, but, some other probably will. Some more developed ones. I don't know: British, Germans, Scandinavians. But us – no. In a year we won't remember what was happening. And if it

(pandemic) continues by this time we will be as lost as we are now (Man, 40 years old, kids, product manager, Warsaw).

The common idea shared by the interviewees was that Polish society is characterized as able to unite and be ready for heroic gestures under an impulse, but it never lasts long. The interviewees mentioned some key events for Poles in the past decades, which prove this point: death of Pope John Paul II, the Smolensk air disaster, and now the pandemic:

There could have been some positive aspects and we could have learned an important lesson, but I doubt it will happen. It won't last. It reminds me of the great thrill in the Polish nation, many great reflections, and some grotesque situations, such as mending fences by football hooligans from feuding clubs, miracles happened, everything just for a moment to return to normal (man, 38 years old, kids, carpenter, country dweller in Silesia).

Many interviewees shared such fatalism and did not believe that even traumatic situations can change societies.

You know what? Human never learns anything. No matter how meaningful is the lesson, people return to business as usual. There has been a pandemic 10 years ago and they were telling people to vaccinate. Some did and some didn't, but life continues and everyone is fine. 100 years ago there was a Spanish flu and people survived it. There have been wars. Did people learn aything? First, Second World War… nobody learns nothing. They go through with this. (Man, 56 years old, kids, office work, country dweller, Sub-Carpathian region).

Some research participants believe that – unlike the pandemic – issues related to climate change and environment are a crawling crisis: a slowly developing process with long-term effects. They believe that the only trigger to any actual change of human actions and habits towards more sustainable ones can be a tangible and direct threat to the individuals and their families, such as water scarcity or very high energy prices.

If you say, for example, that ice sheets are melting, it doesn't have a direct impact on life of an avarage Kowalski, does it? Kowalski will not come out on the street because of this (to

come out on strike). However, if you take away something specific from his life, then you can possibly make him angry. People need to be aware of a specific threat, then they can actually feel the power to go out together in solidarity. However, as long as it (a threat) is vague, then it won't work that way, in my view (Woman, 66 years old, Cieszyn).

The research participants talked about benefits from experiencing COVID-19 pandemic, some of which can have also positive influence on societal transformation towards sustainability. Creating better procedures for risk management, establishing international procedures, but also strengthening patterns for social self-organization, are among the expected benefits of the current crisis. Some interviewees also mentioned increased social responsibility and discipline in obeying regulations imposed by the authorities. Interestingly, it was also said for the younger generation of Poles who did not experience Second World War, like their grandparents did, or like their parents the Russian occupation, the COVID-19 pandemic was the first threat of this scale that they were to experience. Such an event is likely to sensitize them to other issues, including climate change, as it helps not to take peace and safety for granted:

Every experience is a lesson. The question is: are we doing our homework, or not. In my view, many people will. The most important thing is that the elites do their homework as they have real, direct and immediate influence on our reality. I am sure that some of the currently established procedures can be used in case of another epidemic, they will help as to act more effectively. But will it transfer to other things, such as climate change or other global issues? I think, that current needs and political profit will always be most valued (man, 38 years old, culture manager, kids, Bielsko-Biała).

The above quotation precisely indicates the key questions that arise from our analysis: has the pandemic taught us anything and, if yes, will this lesson be temporary or permanent? In the first stage of our research, we examined whether there was any room for change. Whether this potential was strong enough to bring about the actual long-lasting change? For now, it is difficult to say, but we hope to learn more after the second stage of our research.

5. Summary and discussion

The world has reached a moment in history where there is an urgent need for a change of paradigms. Capitalism and an economy promoting unsustainable growth led us to the limits of the planet in terms of balancing ecosystems and natural resources. Despite certain steps in the international arena to unite in efforts for sustainable development and actions to prevent climate change (e.g. Paris Agreement, European Green Deal), we still seem to be heading towards a catastrophe. Without a major change of attitudes and actions of governments, businesses and civil society, it seems progress will be impossible to achieve. The question is how to trigger such change. In 2020, a global health crisis hit the world. For the first time in years, it affected everyone: global South and North. Before, it was unimaginable to see what would make the world stop. But it happened. A severe health emergency caused by a new dangerous virus crippled the economies around the world and caused an existential threat for everyone. Can such shock awaken humanity?

Of course, we don't know it yet. Perhaps it will be possible to properly evaluate over the course of coming generations. However, faced with the ongoing environmental crisis, we have no time to lose. We should use traumatic experiences of COVID-19 for the benefit of fighting climate change, make it a turning point in the Anthropocene and redefine our development goals. Our research gives preliminary, but very specific directions, in which the pandemic triggered a change that could be continued. First of all, it showed a great potential of reducing transportation followed by popularization of remote work. Polish society was rather hesitant to accept online work before. However, when it was the only option during the lockdown, research participants had to take a position and examine their feelings about it. Thanks to this real-life experiment, it can now be managed better and benefit employees, employers, and the environment.

Another clear trend revealed by our research is the need and will of the society to redefine farming. The research showed a bottom-up tendency for local communities to share food and popularity of local farming. This trend should be supported by the authorities. The first way to support it is to introduce education, which draws much more attention to food production. This trend has already started in some preschools in Poland: children have their own gardens and learn to live in harmony with and respect for nature. Such approach should be mainstream. Authorities could also favor more

food cooperatives and support small food businesses. One more trend visible in the research result is the need for green spaces and contact with nature. Probably a dialogue, cooperation and subsidies could encourage local governors to make the cities and towns greener. Fulfilling this need should be the result of a collective change in the way people perceive their relationship with nature. Thoughts shared by the research participants and presented in this article give hope for societal readiness. The pandemic showed that people can live with buying less, and, in fact, needing less. Perhaps, the recovery from the health crisis and the need to rebuild the economy and our everyday lives provides a chance to do it in a better, more conscious, and more sustainable way. There is no doubt that COVID-19 gifted us a lesson. The question is whether we do our homework and use this lesson wisely.

References:

Buell, L., 1995, *The Environmental Imagination: Thoreau, Nature Writing and the Formation of American Culture*, Belknap Press of Harvard University Press, Cambridge, MA.

Braidotti, R., 2013, *The posthuman*. Cambridge: John Wiley & Sons Inc.

De Pascale, F., Roger, J.-C., "Coronavirus: An Anthropocene's hybrid? The need for a geoethic perspective for the future of the Earth", *AIMS Geosciences*, 6(1): 131–134. DOI: 10.3934/geosci.2020008

Greenfield, P.M., 2009, "Linking Social Change and Developmental Change: Shifting Pathways of Human Development", *Developmental Psychology*, Vol. 45, No. 2, 401-418.

Latour, B., 2011, *Waiting for Gaia. Composing the common world through arts and politics*. Lecture at the French Institute, London.

Merchant, C., 1990, *The Death of Nature: Women, Ecology, and the Scientific Revolution,* Harper & Row, New York.

Merchant, C., 2020, *The Anthropocene and the Humanities: From Climate Change to a New Age of Sustainability,* Yale University Press

Peppoloni, S., Di Capua, G., 2017, "Geoethics: ethical, social and cultural implications in geosciences"*, Annals of Geophysics,* 60, Fast Track 7, 2017; doi: 10.4401/ag-7473

Sachs, J. D., 2015, *The age of sustainable development*, Columbia University Press, New York.

15. Young People's Geographies in the Times of Covid-19: System Threat as a Chance for System Change?

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Abstract

The far-reaching consequences of the Covid-19 pandemic have not only demonstrated the economic vulnerability of the current capitalistic system, but also the positive ecological consequences of rapid policy action. Previous studies have shown that economic threats lead to a sense of lost control along with a subsequent differentiation of oneself in comparison to others. The question that arises is whether young people as drivers of the sustainability transformation will see the pandemic's impact as a positive example of fast action and therefore an opportunity, or whether they will view the phenomenon as a threat to their status quo. In this study 150 young people ages 15-24 were interviewed using an online questionnaire. The results show that young people see the Covid-19 crisis as an example of rapid, consistent action by politics and society. They demand that restrictions benefitting the climate be maintained to mitigate the climate crisis. This suggests that it is helpful to show positive examples of successful communal efforts to overcome massive threats and uncertainties, as such examples motivate young people and give them a sense of collective efficacy.

Keywords: Covid-19, Sustainable Development, Post-growth Economy, Young People's Geographies, Collective Efficacy.

In this chapter, we draw on research which states that a system change must take place, shifting from a capitalistic to an eco-focused sustainability worldview which places ample consideration into post-growth perspectives

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(e.g., Haraway, 2015; Escobar, 2018; Braun, 2005; Nolet, 2016). We connect these approaches with debates on young people's geographies (Bethan, 2008; Jeffrey, 2011; Skelton & Aitken, 2019) and the current Covid-19 pandemic, focusing on young people's perspectives on the behavioural and political implications of the pandemic. The question that arises is whether they see this as a positive example of rapid and effective change that could be transferred to climate action efforts or not. The perspectives of young people warrant particular importance, as they are a main driving factor of sustainability transformation (UNESCO, 2020).

1. System Change: Covid-19 and Climate

The Covid-19 pandemic was preceded by worldwide demonstrations by the youth-led and organised Fridays for Future protests. At the time, the slogan "system change not climate change" was chanted repeatedly. This demand for a change of the system can be related to questions concerning the economic system. It also challenges existing human-environment relationships by demanding different priorities for economic, ecological as well as social factors.

1.1 System Change: shifting the economic paradigm and transforming people's worldviews

The current economic model, characterised by capitalism and neoliberalism, is increasingly coming under criticism. While young people are demanding a system change in the context of the Fridays for Future demonstrations, there are also many well-founded scientific critiques of current political-economic systems (e.g. Harvey, 2018; 2019; Jackson, 2016). These critiques emphasise a clear connection between the climate crisis and the economic growth paradigm (Harvey, 2020, p. 96ff.; p. 136ff.; Haraway, 2016, p. 99ff.). In this regard, critiques focus particularly on the dramatic extent of deforestation and the use of land for the cultivation of monoculture cash crops. Such phenomena prompted Donna Haraway (2015; 2016, p. 99ff.) to speak of the current era not necessarily as the Anthropocene, but as the Plantationocene and Capitalocene. There are many concrete examples of this, based on well-founded (geographical) field studies. Monocultural cash crop cultivation of the modern plantation system stands as a symbol for the exploitation of human labour. Furthermore, it is

an ecologically unsustainable economic system that leads to devastated landscapes, a fact that has acquired a scientific consensus (Sassen, 2014). The Kenyan Nobel Peace Prize winner Wangari Maathai describes such changes in human-environment relations as the result of Western colonisation and missionary projects (Maathai, 2009, p. 174). Similarly, Arturo Escobar found that the development of modern plantation products within the Colombian port city of Tumaco had gradually replaced mangrove and rain forests, echoing the histories of colonialism. Escobar points to two important aspects regarding the dramatic change from forests to plantations:

> … first, the plantation form effaces the relations maintained with and by the forest-world; emerging from a dualist ontology of human dominance over nature, the plantation is one of the most effective means to bring about ontological occupation of local relational worlds. Second, plantations are unthinkable from the relational perspective of forest-worlds (2018, p. 70).

To understand the emergence of unsustainable practices of intensive agriculture, one must first link it to the promises of and desire for rapid economic profit. Unsustainable exploitation of the earth and the labour of 'others' appears entrenched within our every mode of thinking and acting within the capitalist mode of production we live in (Moore, 2017). Capitalism and climate are therefore increasingly understood as antagonists to one another (Klein, 2014). Nevertheless, alternatives continue to be conceived and experimented on within various scales. This applies to various changing economic models, including "Doughnut Economics" posited by Kate Raworth (2017), degrowth or post-growth campaigns (Lange *et al*., 2021; Escobar, 2018, p. 137ff.) and Utopian projects (e.g. Haraway, 2016). In addition, a multitude of initiatives around the world are working on alternatives to growth orientated economies (e.g. Burkhart *et al.*, 2020). Despite their very different emphases, all these initiatives are working on coming closer to a kind of "sustainability worldview" (Nolet, 2016) to help promote democratic, participatory, inclusive, pluriverse, and sustainable societies (Escobar, 2018).

1.2 Covid-19 Crisis and Climate Crisis

"Corona can be an effect of climate; not the other way around. More importantly, the two are interlaced aspects, on different scales of time and

space, of what is now one chronic emergency" (Malm, 2020, p. 91). Andreas Malm (2020, p. 36ff.) summarises his argument by stating that a possible transmission of the SARS-CoV-2 Corona virus from wildlife to humans could be closely related to a global increase in land cover along with changes in land use. Historical corollaries on human agency and environment support this, a notable example being the Spanish flu, as its spread was related to steamship travel (Malm, 2020, p. 69ff.). Even though viruses mutate naturally, it is questionable whether there are any real natural disasters. It depends on human action whether the circumstances of mutation become life-threatening. It has been argued that the magnitude of the effects of a vastly spread virus on the economy and society as a whole depend on the pre-existing weaknesses of the capitalist economy along with its hegemonic orientation (Harvey, 2020, p. 180ff.). David Harvey observed that "within the geographic discipline, diagnoses of 'crisis' are often associated with neoliberalism and capitalism apparently producing manifold social, economic and political stresses" (Brinks & Ibert, 2020, p. 1; also see Jones & Ward, 2002; Larner, 2011). Analyses in times of crisis show the vulnerability of an economic system that is geared towards mass consumption:

> COVID-19 is underpinning not a wild fluctuation but an almighty crash in the heart of the form of consumerism that dominates in the most affluent countries. The spiral form of endless capital accumulation is collapsing inward from one part of the world to every other. The only thing that can save it is a government-funded and inspired mass consumerism conjured out of nothing (Harvey, 2020, p. 186).

The tourism sector is a particularly vivid example of this. Before the Covid-19 restrictions came into place, international tourism was on the rise, increasing from 800 million international visits to 1.4 billion between 2010 and 2018. For this kind of consumerism, a great amount of infrastructure was needed, including airports, airlines, hotels and restaurants and cultural events. However, due to global travel restrictions that ensued as a result of the pandemic, every aspect of tourism began to struggle in 2020 and continued to do so well into 2021, with airlines on the verge of bankruptcy, empty hotels trying to stay afloat, and the hospitality industry inundated with mass unemployment (Harvey 2020, p. 185). In addition, restaurants and bars in general have been affected with the Covid-19 restrictions. In many places they have been closed or reduced to a take-out service, which

many people still find too risky. Furthermore, employees of the 'Gig' economy and other similar types of service have been laid off without effective and adequate compensation and support (ibid.). This illustrates that: "Much of the cutting-edge model of contemporary capitalist consumerism is inoperable under present conditions" (ibid.). The slumps within the tourism sector also illustrate how quickly nature is able to recover from being overused by mankind. Tourism is closely linked to the mobility sector and therefore to global air traffic and cruises both being notorious for their negative impact on the environment. After the outbreak of the Covid-19 virus in China, domestic flights dropped by 70 percent in just two weeks leading to a significant decrease of CO_2-emissions in total for China. Emissions dropped by a quarter in only one month – the most significant drop that has ever been measured. This is especially remarkable, considering that China is one of the biggest polluters worldwide and that, due to the widening of the pandemic, similar mechanisms and restrictions would be repeated all over the world (Malm, 2020, p. 8f.; for further examples see Harvey, 2020, p. 188; Näre *et al.*, 2020, p. 1).

The realisation of the effects of mass tourism as well as its collapse during the Covid-19 pandemic, have lead tourism studies to discuss alternatives under the slogan "The end of tourism as we know it" (Kagermeier, 2021, p. 205). This seems to be an example of how the pandemic can be seen as a portal, a "gateway between one world and the next" (Roy, 2020). It can be the trigger to imagine another world even on a broader level (ibid.): "We can take this situation as an opportunity to rethink our way of life. Rethinking requires both individual and collective effort" (Näre *et al.*, 2020, p. 3f.). In regard to human agency, Fareed Zakaria (2020, 235) outlines the possibility that the Covid-19 crisis will give more impetus to the acceptance of mitigation measures in response to climate crisis. Change is already occurring, and in times of change further measures become easier to implement. Also, the perception of one crisis could enhance that of another since all crises are perceived in terms of uncertainty, threats and urgency (ibid; Brinks & Ibert, 2020). However, in comparing the climate crisis with the Covid-19 crisis, one central difference becomes apparent: the time factor. As Zakaria stated in his work, "Even the most alarming scientific reports about climate change are not sufficient to mobilise a collective sense of urgency" (Zakaria, 2020, p. 277). This differs from the urgent and direct perception of threat of the Covid-19 pandemic. Accordingly, reactions include fear, denial, and measures of adaption (ibid., p. 2). At the state level, fundamental differences between the Covid-19 and climate crisis become evident. Many countries, including the European

Union, are sealing themselves off, borders are being closed, measures are being taken at the nation-state level, with vaccines being procured by states. In contrast, to fight climate change, not the state level is pivotal but instead decisive international supranational action is needed (ibid., p. 13).

2.   Young People's Perspectives on the Covid-19 Pandemic: System Threat as a Chance for System Change?

It is not clear how young people perceive both crises and if they see more similarities or differences between them. Due to worldwide restrictions on individuals' social behaviours, the Covid-19 pandemic has placed global youth protests on hold. At the same time, governments around the world are spending immense sums of money to fight the economic downfall the many restrictions left in their wake. Both the implementation of behavioural restrictions, as well as economic constraints, could be a first step in changing environmentally unfriendly behaviour and serve as an example for consequent, fast action by politicians, society, and corporations in crisis:

> Corona and climate share one structural quality that invites comparison; the amount of death is a function of the amount of action or inaction on the part of states. Left untreated, both afflictions become self-amplifying – the more people infected, the more will be infected; the hotter the planet, the more feedback mechanisms heat it up further – and once underway, the sole way to terminate such spiralling burns is to cut the fuse. States in the global North have now offered proof that this is possible. It will not be easy to erase (Malm, 2020, p. 26).

Hence forth people may recognize the pandemic as a transformational starting point and demand the implementation of policies that can be quickly realised. In other words, the pandemic shows that alternative priorities can be set within a very short time. Globally active companies like General Motors (GM), for example, have vowed to no longer pursue profit as their top priority. Car manufacturers suddenly switched their production to produce respirators, while coffee filter manufacturers like the Melitta company used their production capacities to make face masks (Malm, 2020, p. 7). However, the pandemic could also have the opposite effect. Psychological studies show that people tend to become more prone to status symbols due to a sense of losing control in life threatening situations such as

the Covid-19 pandemic (Fritsche *et al.,* 2008; Greenberg *et al.*, 2004). Along with the threat of losing one's life, dour economic threats can also result in feelings of losing control (Fritsche & Jugert, 2017). To gain back control people tend to place themselves before other groups, e.g., other ethnic groups but also non-humans and ecosystems (Stephan & Stephan, 2000; Fritsche & Häfner, 2012; Vaes *et al.*, 2014), which consequently prevent people from demanding a transformative process. Instead it would lead to a continued capitalistic exploitation of the ecosystem.

On average, the Covid-19 crisis has been found to have a far greater impact on low-income populations than on those who are financially better off. In this respect, social divisions have tended to increase during the pandemic (Zakaria, 2020, p. 147ff.). Various studies show how important it is to examine the geographical concepts of place, emotional geographies and everyday geographies in order to better understand young people's geographies (Tani & Surma-aho, 2012; Pimlott-Wilson, 2017; Blazek, 2018; Eberth, 2021). This is particularly evident in relation to the Covid-19 crisis, as its repercussions are directly felt in the everyday lives of young people and provoke strong emotional reactions. While of course applicable to the illness itself, the effects of this pandemic also extend to politically enforced protective measures, such as shop closures or curfews. Areas of sustainable development and climate protection have also been impacted and, in this respect, young people as addressed by UNESCO.

> … have, and continue to envision, the most creative and ingenious solutions to sustainability challenges. In addition, young people are an important consumer group and the way their consumption patterns evolve will greatly influence the sustainability trajectory of their countries (2020, p. 32).

What we see here is "that entire generations of young people […] are targeted and invested with responsibility for a nation's future" (Horton & Kraftl, 2014, p. 129) – and currently that means not only on the national scale but on a global scale for the world's future. John Horton and Peter Kraftl state "that almost all youth policies, to some extent, display a social construction of young people as 'the future'" (2014, p. 130). This example also explains the special role young people play regarding the three geographical concepts previously mentioned. Many decisions related to sustainability and climate protection will have to be made in everyday life on local levels which will be accompanied by different emotions, as well as cognitive conflicts. For example, the collective emotional statements of

young people and their political demands articulated in the context of the Fridays for Future protests are based on their perceived conflicts of implemented climate action in regard to research findings such as the IPCC reports. However, geographical analyses show that such protests are an expression of a strong youth agency. Craig Jeffrey highlighted the perseverance and resourcefulness of young people while theorising their agency as a whole (2012, p. 250). On the one hand, he emphasised the local engagement of young people and on the other the increase in global networking via digital (social) media (ibid.). He even traces, "how 'youth' can provide a window on subaltern responses to economic restructuring" (ibid., p. 245). Against this backdrop, we show below what perspectives young people from Germany have taken on the Covid-19 and climate crises and whether or not they see a connection between these crises and, if so, to what extent.

As aforementioned, the perspective of young people is especially important as they are a relevant driving factor in the sustainability transformation which they demand more and more publicly (see e.g. Fridays for Future). At the same time, adolescents are more in danger of experiencing a greater loss of control when they perceive the pandemic as threat, particularly in individualistic cultures. They are especially susceptible to harsh and unpredictable environments but cannot utilize their regular coping mechanisms as their freedom is restricted (Chang *et al.,* 2019; Zhu *et al.*, 2020). This leads to the question of whether the Covid-19 crisis will be seen as the tipping point that will change priorities or a threat to the status quo. The following section of this chapter will examine young people's understanding of the Covid-19 pandemic. Do they believe it will simply reinforce the dynamics of the multiple crises that already exist (Brand, 2016)? Or do they perhaps see the experiences with the pandemic as a means to implement climate protection in a more committed and effective way?

3. Research Findings of Young People's Perspective on Covid-19 and Sustainable Development

The reflections in the previous chapters lead to the following research questions:

1.	What importance do young people attach to system change in the sense of post-growth[4]?
2.	How do they assess the influence of the Covid-19 pandemic on climate protection and sustainable development measures?
3.	Do young people see the Covid-19 crisis as a threat or as a positive example for fast changing behaviours and priorities?

To answer these questions, we conducted a standardized online survey from September 2020 to December 2020 targeting on young people ranging from the ages of 15 to 24 in Germany. The survey focused on priorities and learning effects concerning the current economic system along with sustainable development during and after the Covid-19 pandemic. 150 young people with an average age of 21 participated in the questionnaire. With a share of 91.2 %, the sample group was mainly between the ages of 18-24. The respondents of the online questionnaire were acquired primarily via social media, mailing lists of special organizations like Fridays for Future or study courses and special portals for surveys. Due to these sampling methods, it should come as no surprise that most participants were actively engaged in politics. 63.1 % of the sample group participated in the Fridays for Future demonstrations and 27.1 % were also involved in the organisation of these protests. Furthermore, 6.4 % of all participants were members of environmental organisations. Participants were predominantly female (63.3 %) while 32.7 % identified as male and 2.7 % as non-binary. 65.6 % of the respondents were students at universities. 9.4 % were students at school, most of whom were striving for a Higher School Certificate ("Abitur"). Hence, the sample is characterized by a relatively high level of education, is predominantly female and political active and therefore is not representative of German youth in general. Questions were developed by sourcing literature about post-growth (e.g., Göpel, 2016; Jackson, 2016; Klein, 2014) as well as current media coverage of environmental and economic aspects of the Covid-19 pandemic. The results can be found in table 1 and table 2.

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[4] We relate this term to a growing discourse on alternative and diverse economies, which is conducted under the catchwords de-growth and post-growth. They can be understood as collective terms for activities, initiatives, concepts, models and theories that do not put growth orientation in the foreground and, as a search movement, try out other lifestyles and explore possibilities of sustainable coexistence (Gibson-Graham 2008; D'Alisa et al. 2015; Krueger et al. 2018, 569).

## 3.1. Post-growth as a Means to achieving Sustainable Development?

The results of the survey revealed that most respondents had not heard of the concept post-growth yet (92.7 %). Nevertheless, 85.4 % thought that the demand for a "system change not climate change" is at least partly right (see table 1 for results). A majority blamed the capitalistic focus of the economy for the climate crisis (74.7 %) and thought that an alternative to economic growth was necessary in order to achieve sustainable development (82,7 %). Therefore, young people in our survey considered it necessary to implement new ways of thinking about the economy but did not know about specific concepts yet. This insight is in accordance with their wishes, that post-growth as a topic (83.3 %) as well as related initiatives (78 %) should find its way more into schools, universities, and other trainings. Different economic systems and their core aspects should be promoted within educational systems. So far, the neo-liberalisation of markets and politics have also led to a focus on economic growth within education in many countries of the world (Mitchell, 2018). Therefore, curriculums need to be scrutinised and altered to incorporate a broader knowledge of contrasting economic systems. Through this, young people can form more informed opinions and therefore develop concrete strategies and solutions to current problems. To help young people develop a better idea of what an alternative, non-human centred economic system would be like, educators can implement different eco-centred worldviews and stories of their successes into lessons. Geography as a discipline should therefore explore this field more thoroughly and develop pedagogical approaches about post-growth geographies – both at universities as well as within schools (Lange *et al.*, 2021).

Table 1 - This table shows answers to questions about the post-growth economy above 1 %, N = 150.
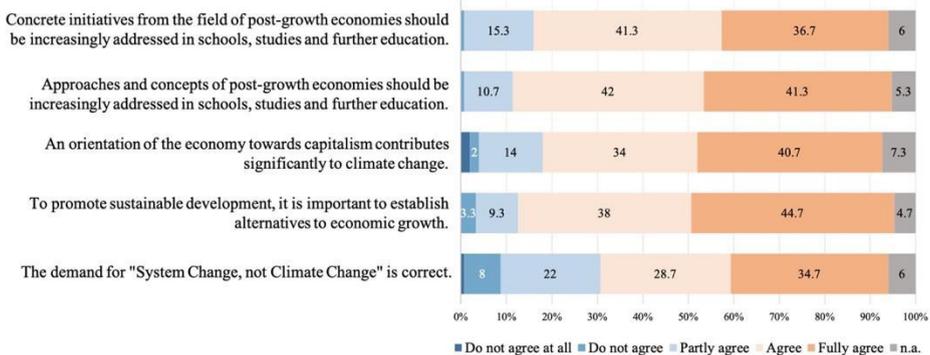
The general acknowledgment of the necessity to change economic paradigms to enhance sustainable development also transfers to young people's views on the Covid-19 pandemic and its toll on the economy. 80.7% of the respondents at least partly recognised that the Covid-19 crisis was also an economic crisis while 70 % agreed that it emphasized the pro-growth economy's vulnerability. There also were high ratings for prioritising sustainable development and acting against the climate crisis (see results in table 2). For example, 82.6% of young people were in favour of an economic recovery plan that consequently implements actions for protecting the environment. Furthermore, 78.7% disagreed that the economy was more important than sustainable development during the Covid-19 crisis. At the same time, young people rejected the idea that the economy should come first by deferring sustainable development measures in order to get the economy going again (89.3% disagreement). These results underline the aforementioned conclusions. Young people place sustainable development over economic growth and therefore prioritise sustainability over economic benefits. Even during a pandemic that hit the global economy hard with thousands of people losing their jobs and/or incomes (El Keshky *et al.,* 2020), adolescents did not waver in their demand for more climate action. It could be argued that this is due to their young age and their status as students, which commonly only allows for them to do certain jobs (e.g., restaurants, cafés, cultural activities). However, many typical student jobs in Germany were also negatively affected by pandemic restrictions. Their personal willingness to restrict economic gains to protect the environment strengthens their general demand for systematic changes geared towards creating an economy that is more eco-friendly.

Statement	Do not agree at all	Do not agree	Partly agree	Agree	Fully agree	n.a.
The Corona crisis has shown that nature recovers quickly and thus no major climate protection efforts need to be made.	63.3	20.7	8.7	6	1.3	
The Corona crisis has shown that it is possible to change climate-damaging habits.			12	39.3	48	
Even after the Corona crisis, we should refrain from climate-damaging abehaviour.			8	29.3	62	
An economic stimulus package after the Corona crisis must be linked to consistent climate protection measures.	4	12.7	31.3	51.3		
I don't see the Corona crisis as an economic problem because the economy will recover quickly.	12.7	36.7	31.3	14	4.7	
We should maintain restrictions that protect the environment at the same time, even after the Corona crisis	4	24	32	38.7		
The Corona crisis has shown how good it is for nature when humans are slowed down in their actions.	1.3	10	40	48		
The Corona crisis has shown that we are economically vulnerable.	1.3	6.7	21.3	50.7	19.3	
The same principle of flattening the curve also applies to the climate crisis.	3.3	7.3	26.7	33.3	28	1.3
The Corona crisis has shown that rapid political action is possible.	2	12.7	39.3	45.3		
We can learn a lot from the Corona crisis for tackling the climate crisis.	5.3	20	48.7	25.3		
During the Corona crisis, a stable economy is more important than sustainable development.	40.7	38	17.3	2.7	1.3	
After the Corona crisis, we should reduce sustainable development measures to get the economy going.	56	33.3	3.3	1.3	2	

Do not agree at all · Do not agree · Partly agree · Agree · Fully agree · n.a.

3.2. Young People's Perceptions of the Covid-19 Pandemic in Regard to the Climate Crisis and Sustainable Development

Along with prioritising sustainability over economic interests, respondents also rated sustainability as the driving factor for action. When asked whether restrictions that benefitted the environment should stay implemented after the Covid-19 pandemic, 70.7% supported this idea. Moreover, 91.3% of the respondents agreed that we should refrain from climate-damaging behaviour even after the crisis. These findings suggest young people are willing to restrict their behaviours as long as it benefits the environment. This is helped along by the enhanced perception of collective efficacy that has arisen in the wake of the collective actions undertaken during the pandemic. 87.3 % agreed that the Covid-19 crisis has shown that it is possible to change climate-damaging behaviour. Young people have seen for themselves that the changes they had been calling for over the last few years are indeed possible and that politicians can act quickly when the general population is under threat (84.6 % agreement). Moreover, young people regard the Covid-19 pandemic as a catalyst for overcoming the climate crisis (74 % agreement). Rather than experiencing a loss of control in the face of the pandemics economic and life threats, young people seem

to be looking on the bright side. They instead see the possibilities for positive development in regard to the environment, so long as policies are swiftly and strictly put into action and the society at large participates. Therefore, it does not lead to protecting the pre-pandemic status quo and focusing on one's own social reference group or non-environmental factors (Stephan & Stephan, 2000; Fritsche & Häfner, 2012; Vaes *et al.*, 2014). Young people's sense of collective effectiveness has instead been revitalized. Research on this matter revealed that 88% of young people recognize that nature can recover only if humans take care to curb their harmful actions. The majority therefore understood that nature's restorative powers are no match to human's destructiveness, with 84% disagreeing with the statement "no climate action is needed." Furthermore, news reports of more wildlife sightings, cleaner water and less smog can lead young people to realise the impact of humans on nature and make the decision to act on this knowledge. This perception of the Covid-19 crisis as a tipping point rather than a threat of uncertainty – especially in regard to sustainable development – may be due to its uniqueness as a phenomenon of recent history. In the beginning of the crisis, politicians in Germany acted quickly. Additionally, large media attention focused on the similarities between the Covid-19 and climate crises as well as the positive environmental effects that were occurring from the pandemic. For example, it was widely publicised that the Earth Overshoot Day, marking a date when all-natural resources would be consumed by humans was delayed about three weeks (Earth Overshoot Day, 2020). Furthermore, lots of comparisons were made about the goal of flattening the curve for the Covid-19 pandemic and the climate crisis (Chakhoyan, 2020; Akintunde & Ntousas, 2020). Viewing the positive impact collective action has on the environment can boost young people's sense of control and collective efficacy. This could be especially true as more countries began to realise just how nature has begun to recover when the pandemic brought daily life to a standstill. For example, Thailand now plans to close more than 100 national parks for two to four months a year to allow nature to recover. This tourism ban has led to more and more sightings of rare animals (Carstens, 2020). This is especially remarkable, since tourism accounts for a fifth of the country's economy (ibid.). This stands as a positive example of what happens if politicians and society at large realise their effects on the environment. From these experiences, young people can draw hope for success in future actions. Such experiences could also help them not to lose sight of the importance of sustainable development: "Crisis, in other words, is strongly associated with the idea of

an open future […] that can be created through individual or collective agency" (Brinks & Ibert, 2020, p. 4).

Members of this younger generation were too young to fully experience the financial crisis of 2008, where politicians acted fast and decided on strict behavioural and economic restrictions. This means that the Covid-19 pandemic is the first worldwide crisis they have experienced.

This experience can be a reference point for when young people demand climate action in the future. If politicians can act fast when deciding on far-reaching measures during the Covid-19 pandemic, it stands to reason why they should not be able to do this when addressing the climate crisis. Having seen these actions, young people might not be content with politician's previous statements that the economy cannot change in a trice and hard cut measures are not possible. This is especially true, since the climate crisis is way more far fetching and dangerous than the Covid-19 pandemic.

4.   Conclusion and Outlook

In conclusion, young people's demand for systematic changes towards a more sustainable world have not ceased despite the Covid-19 pandemic's impact on society and the economy. The young people who participated in the survey find it important to achieve a system change towards a different economic paradigm, even though they do not know much about other forms of economy. The educational system in Germany has to adhere to young people's wishes to incorporate more forms of economic systems, such as post growth economy, in their school education. By doing so, young people could learn more about alternatives to the capitalistic mode. This would enable young people to form more reflective and informed opinions when generating solutions to current problems.

The conviction that a change is necessary was not diminished by the Covid-19 pandemic. This shows the deep-rooted conviction of young people that the climate crisis is an immediate threat which can be achieved through an economic paradigm shift. Young people were also in favour of keeping the strict measures used against the spread of the Covid-19 virus that have helped the environment recover and could further prevent climate damage. This is especially interesting since young people are often accused of only wanting to skip school and not really being interested in climate issues in the context of Fridays for Future demonstrations. Wanting to maintain strict behavioural measures as well as restricting personal freedom

to protect the environment, does not fall into this picture. Instead, it shows the determination of young people and their knowledge that a mere continuing does not work. Their determination is coupled with their questioning of the never-ending growth story being predominantly told (Mitchell, 2018).

Our findings also show that it is important for young people to see that change is possible. Positive examples of communal efforts successfully overcoming massive threats and uncertainties help motivate young people. Through the experience of fast and consequential actions, young people developed a sense of collective efficacy, which can be translated to scenarios regarding the climate crisis. The Covid-19 pandemic has shown that measures can be taken to prevent dangerous crises. Young people now demand that such measures are also taken in regard to the climate crisis or kept if they serve both. Therefore, they do not see the Covid-19 pandemic as a threat to their status quo but as a starting point from which politicians and society should go further to prevent the climate crisis. However, it is important to keep in mind that the sample is not representative of all young people in Germany as the sample group reflects only the perspective of highly educated youths. Therefore, all conclusions drawn focus on this subgroup of young people. Finally, it must be mentioned that the survey was finished before the third wave of the Covid-19 virus in Germany. During the winter months of 2020/2021, the resolute actions of politicians ceased while political strategies changed frequently which meant in the public eye consequent actions were abandoned. This could lead to different results, including a generally more negative viewpoint from participants, but makes it all the more apparent how important it is to convey examples of consequent and positive action.

References

Akintunde, I., Ntousas, V., 2020, *"Flattening the Curve: COVID-19 and the Climate"*, Hoffmann Centre for Sustainable Resource Economy. Accessed 13rd April 2021. https://hoffmanncentre.chathamhouse.org/article/flattening-the-curve-covid-19-and-the-climate-emergency/.

Bethan, E., 2008, "Geographies of Youth/Young People", *Geography Compass,* 2, 5, 1659-1680. https://doi.org/10.1111/j.1749-8198.2008.00147.x.

Blazek, M., 2018, Children and Young People's Emotional Geographies. In: Skelton, T., Aitken, S. (Eds.), *Establishing Geographies of Children and Young People (Geographies of Children and Young People 1)*, Springer, Berlin, 1–21.

Brand, U., 2016, "How to Get Out of the Multiple Crisis? Contours of a Critical Theory of Social-Ecological Transformation", *Environmental Values*, 25, 5, 503–525. https://doi.org/10.3197/096327116X14703858759017.

Braun, B., 2005, "Environmental issues: Writing a more-than-human urban geography", *Progress in Human Geography,* 29, 635–650. doi: 10.1191/0309132505ph574pr.

Brinks, V., Ibert, O., 2020, "From Corona Virus to Corona Crisis: The Value of an Analytical and Geographical Understanding of Crisis", *Tijdschrift voor Economische en Sociale Geografie,* 0, 0, 1–13.

Burkhart, C., Schmelzer, M. & Treu, N. (Eds.), 2020, *Degrowth in Movement(s): Exploring Pathways for Transformation,* zero books, London.

Carstens, P, 2020, "Corona-Effekt: Thailändische Nationalparks schließen jedes Jahr für einige Monate - um sich zu erholen", GEO. Accessed 9th April 2021 https://www.geo.de/reisen/reisewissen/23400-rtkl-thailand-corona-effekt-thailaendische-nationalparks-schliessen-jedes.

Chakhoyan, A., 2020, "What has COVID-19 taught us about tackling climate change?", World Economic Forum. Accessed 13rd April 2021 https://www.weforum.org/agenda/2020/10/we-need-to-flatten-the-curve-on-climate-too/.

Chang, L., Lu, H.J., Lansford, J.E., Skinner, A.T., Bornstein, M.H., Steinberg, L., Tapanya, S., 2019, "Environmental harshness and unpredictability, life history, and social and academic behavior of adolescents in nine countries", *Developmental Psychology,* 55, 890–903.

D'Alisa, G., Demaria, F., Kallis, G., (Eds.)., 2015, *Degrowth: A Vocabulary for a New Era*, Routledge, London.

Eberth, A., 2021, Teaching about Space and Place: Everyday Geographies of Young People living in the Slums of Nairobi, Kenya. In: Fargher, M., Mitchell, D., Till, E. (Eds.), *Recontextualising Geography in Education*, Springer Nature, Cham (Accepted, will be published in November 2021).

Escobar, A., 2018, *Designs for the Pluriverse: Radical interdependence, autonomy, and the making of worlds*, Duke University Press, London. https://doi.org/10.1111/camh.12408.

El Keshky, M. E. S., Basyouni, S. S., Al Sabban, A. M., 2020, "Getting Through COVID-19: The Pandemic's Impact on the Psychology of

Sustainability, Quality of Life, and the Global Economy – A Systematic Review", *Frontiers in Psychology*, 11. https://doi.org/10.3389/fpsyg.2020.585897.

Earth Overshoot Day, 2020, "Delayed Earth Overshoot Day points to opportunities to build future in harmony with our finite planet". Accessed 13rd April 2021 https://www.overshootday.org/newsroom/press-release-august-2020-english/.

Fritsche, I., Häfner, K., 2012, "The Malicious Effects of Existential Threat on Motivation to Protect the Natural Environment and the Role of Environmental Identity as a Moderator", *Environment and Behavior*, 44, 4, 570–590. https://doi.org/10.1177/0013916510397759.

Fritsche, I., Jonas, E., Fankhänel, T., 2008, "The role of control motivation in mortality salience effects on ingroup support and defense", *Journal of Personality and Social Psychology*, 95, 3, 524–541. https://doi.org/10.1037/a0012666.

Fritsche, I., Jugert, P., 2017, "The consequences of economic threat for motivated social cognition and action", *Current Opinion in Psychology*, 18, 31–36. https://doi.org/10.1016/j.copsyc.2017.07.027

Gibson-Graham, J.K., 2008, Diverse economies: Performative practices for 'other worlds', *Progress in Human Geography,* 32, 613–632. doi: 10.1177/0309132508090821.

Göpel, M., 2016, *The Great Mindshift. How a New Economic Paradigm and Sustainability Transformations go Hand in Hand,* Springer, Berlin.

Greenberg, J., Koole, S. L., Pyszczynski, T. A., 2004, *Handbook of Experimental Existential Psychology*, Guilford Press. doi: 10.1002/9780470561119.socpsy001020.

Haraway, D., 2015, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin", *Environmental Humanities,* 6, 159–165. https://doi.org/10.1215/22011919-3615934.

Haraway, D., 2016, *Staying with the Trouble. Making Kin in the Chthulucene*, Duke, Durham.

Harvey, D., 2018, *The Limits to Capital*, Verso, London.

Harvey, D., 2019, *Spaces of Global Capitalism. A Theory of Uneven Geographical Development*, Verso, London.

Harvey, D., 2020, *The Anti-Capitalist Chronicles. (Red Letter),* Pluto Press, London.

Horton, J. & Kraftl, P., 2014, *Cultural Geographies. An Introduction*, Routledge, London, New York.

Jackson, T., 2016, *Prosperity without Growth: Foundations for the Economy of Tomorrow,* Sterling VA: Earthscan, London.

Jeffrey, C., 2011, "Geographies of children and youth II: Global youth agency", *Progress in Human Geography,* 36, 2, 245–253. https://doi.org/10.1177%2F0309132510393316.

Jones, M., K. Ward, 2002, "Excavating the Logic of British Urban Policy: Neoliberalism as the 'Crisis of Crisis-Management'", *Antipode,* 34, 473–494.

Kagermeier, A., 2021, *Overtourism*, UVK, München.

Klein, N., 2014, *This Changes Everything: Capitalism vs. The Climate,* Simon & Schuster, New York.

Krueger, R., Schulz, C., Gibbs, D. C., 2018, Institutionalizing alternative economic spaces? An interpretivist perspective on diverse economies, *Progress in Human Geography,* 42, 4, 569–589. doi: 10.1177/0309132517694530.

Lange, B., Huelz, M., Schmid, B., Schulz, C., Ed., 2021, *Post-Growth Geographies. Spatial Relations of Diverse and Alternative Economies,* transcript, Bielefeld.

Larner, W., 2011, "C-change? Geographies of Crisis", *Dialogues in Human Geography,* 1, 319–335.

Maathai, W., 2009, *The Challenge for Africa*, Arrow, London.

Malm, A., 2020, *Corona, Climate, Chronic Emergency. War Communism in the Twenty-First Century*, Verso, London, New York.

Mitchell, K., 2018, Changing the Subject: Education and the Constitution of Youth in the Neoliberal Era. In Skelton, T., Aitken, S., (Eds.), *Establishing Geographies of Children and Young People*, Springer, Singapore, 1–19. https://doi.org/10.1007/978-981-4585-88-0_6-1.

Moore, J.W., 2017, "The Capitalocene Part 1: on the nature and origins of our ecological crisis", *The Journal of Peasant Studies,* 44, 3, 594–630.

Näre, L., Bendixsen, S., Holley, P., 2020, "Notes on the Corona Crisis", *Nordic Journal of Migration Research,* 10, 2, 1–4.

Nolet, V., 2016, *Educating for sustainability: Principles and practices for teachers*, Routledge, New York, NY.

Pimlott-Wilson, H., 2017, "Individualising the future: the emotional geographies of neoliberal governance in young people's aspirations", *Area,* 49, 3, 288–295.

Raworth, K., 2017, *Doughnut economics: seven ways to think like a 21st century economist,* Chelsea Green Publishing, White River Junction, Vermont.

Roy, A., 2020, "The pandemic is a portal", Financial Times, 3rd April. Accessed 8th April 2021 https://www.ft.com/content/10d8f5e8-74eb-11ea-95fe-fcd274e920ca.

Sassen, S., 2014, *Expulsions. Brutality and Complexity in the Global Economy*, Harvard University Press, Cambridge.

Skelton, T., Aitken, S. (Eds.), 2019, *Establishing Geographies of Children and Young People*, Springer, Singapore.

Stephan, W., Stephan, C. W., 2000, An Integrated Threat Theory of Prejudice. In Oskamp, S. (Eds.), *Reducing Prejudice and Discrimination*, Psychology Press, 23–46.

Tani, S., Surma-aho, O., "2012, Young people and the hidden meanings of the everyday: Time-space path as a methodological opportunity", *International Research in Geographical and Environmental Research,* 21, 3, 187–203.

UNESCO, 2020, "Education for Sustainable Development. A Roadmap"*,* UNESDOC Digital Library. Accessed 8th April 2021 https://unesdoc.unesco.org/ark:/48223/pf0000374802.locale=en.

Vaes, J., Bain, P. G., Bastian, B., 2014, "Embracing Humanity in the Face of Death: Why Do Existential Concerns Moderate Ingroup Humanization?", *The Journal of Social Psychology*, 154, 6, 537–545. https://doi.org/10.1080/00224545.2014.953027.

Zakaria, F., 2020, *Ten Lessons for a Post-Pandemic World*, W. W. Norton, New York.

Zhu, N., O, J., Lu, H. J., Chang, L., 2020, "Debate: Facing uncertainty with(out) a sense of control – cultural influence on adolescents' response to the COVID-19 pandemic", *Child and Adolescent Mental Health*, 25, 3, 173–174. https://doi.org/10.1111/camh.12408.

Acknowledgment

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.

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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.

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[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 compiled 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

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[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,

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[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.

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.*

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[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 CO_2 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.
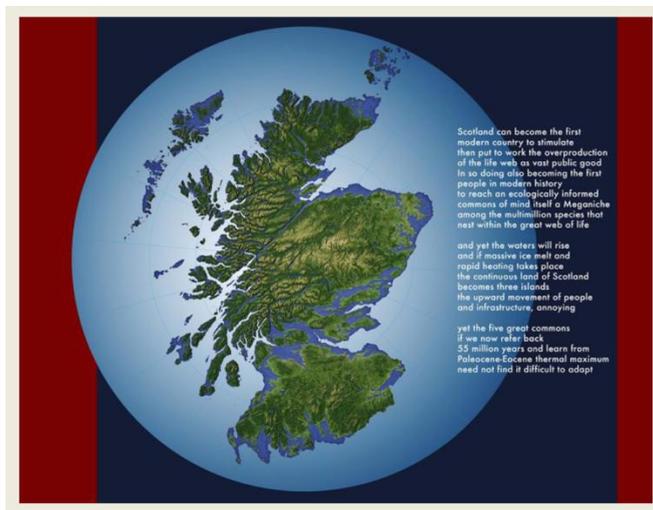
Figure 5 - *The Deep Wealth of This Nation, Scotland. The Harrisons, 2018.*

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

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[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.

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_AandH Annex2_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 °C*. 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.

17. Prolegomena to containment tourism.
Happy and smart self-deconfinement sheet or "links to free oneself"

Charlie Galibert[1]

Abstract

The anthropocene at the time of confinement feeds on stories and fictions. Literary, scientific, ideological, common sense, the anthropocene arouses and generates a *world of representations of the world*. With the support of this duplication resulting from the imaginary in reality from Plato, man is the being of representation: of the interiorization of external reality, of the exteriorization of interior reality. The imagination is the fuel that nourishes our reflection on the world and the form that thought takes. We can therefore use all forms: concepts (science), notions (common sense), and works (art). Covid 19 has given rise in less than a year to a catalog of complex stories, more or less concerted or disconcerting, which is part of a possible new axis of reading of the imaginary universe. This narrative of confinement (tales, fables, legends, mythologies, medical, health, scientific, political, conspiratorial, literary fictions) borrows from what Terry Pratchett (2006) calls the *narrativium* : the story which constitutes the basis of the human relationship with the world in all its forms: cognitive, affective, oral, gestural, written, behavioral, reflective, active, creative - the *imaginary*. The author invites reader to read this narrative catalog at the stage of our current planetary confinement, one unprecedented even in the history of the anthropocene, between apocalypses and millenarisms, resignations, the risk of totalitarianism, calls for a paradigm change or the refoundation of the World, between fake news and suggestions of a new spirituality.

Keywords: Anthropocene, imaginary, representation, narration, Covid 19, confinement.

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1. Introduction

"Would our gift for seeking the truth have helped us survive?" maybe… sometimes… but not as much as our gift for reassuring us with dreams, illusions, fables. Ostriches have a very remarkable longevity. And then it's over.

(Nancy Huston, 2020, 'Les mythes,' in Pablo Servigne and Raphael Stevens, *Aux origines de la catastrophe,* Paris, Les Liens qui nous libèrent, 142-147).

As Nancy Huston so aptly writes, "humans are animals" who tell their story, animals which cannot survive without stories" (Huston, 2020, 143). Non-humans are in the *presentation*, not in the *representation.* Their world is not a stage, ours is. It is not so much the reality that is represented, it is the representation that constructs, brings about, reality. The world is representation.

In support of this original duplication of the imaginary in reality, Plato even provides, in the *Cratylus*, a fanciful but instructive etymology of anthropos: Man was named "Man", because "reconsidering what he saw" (*an athron ha opope)*. Man is the being of representation (the being of the representation of Being) of the interiorization of external reality, of the exteriorization of interior reality.

And in the *Timaeus*, he even proposes a reversal of the predominance of reality over imagination by the idea that, for man, at the beginning of everything, lies the imaginary and the imagination. "Suppose that giving a career to our imagination, we make a tale (*muthos*) (…). If therefore in many points, on many questions concerning the Gods and the birth of the world, we do not manage to make ourselves capable of bringing coherent reasoning from all points to the last exactitude, do not be surprised. But if we bring you some that do not yield to any other in plausibility, we must congratulate us, reminding us that we are only men, so that we only have to accept in these matters a *plausible tale* and that we must look no further"(Plato, *Timaeus*, 29, c-d).

If we take Plato seriously, the world that the sciences call true reality, may well be a mind game. The *muthos* - the tale, the myth - would be what gives to believe in reality, what gives to think. Reality is nothing but a

plausible tale, the zero degree of the imaginary. Realism is always-already a tale, which its supporters want to pass off as the primary text, but in the end, there is a tale at the beginning.

Because the opposite is true. The real is the imagination separating from itself - *poïesis.* At the beginning is poetry. There is no remainder: everything is already literature. Myth and literature, imagination and language, produce the real world as a moment or a crystallization of the mind, and not the other way around. Society is first established as the creation of imaginary social meanings which connect men and give birth to their action. There is an "imaginary institution of society" (Castoriadis, 1999). With a touch of negative thought, one could say that there is only literary reality and that there is only literature that is human confinement in the imaginary. The study of human societies is that of the human imagination. We are all Platonists: the real is the imagination separating from itself, a tale. The "folle du logis" is "la mère retrouvée du logos".

2. Literature of absolute confinement and relative confinement of literature

The legacy of Covid 19, global viral confinement, confinement, has given rise in less than a year to a catalog of complex narratives, plausible tales more or less concerted, more or less disconcerting. This catalog of a *literature of absolute confinement* (in relation to the *relative confinement of literature* in the imaginary) is inscribed as a possible new axis of access, introduction and reading, to the fundamental imaginary universe of human representation, and therefore of course of the literary universe.

The narrative of confinement (covering tales, fables, legends, mythologies and medical, health, scientific, political, conspiratorial, literary fictions, etc.)[2], its narration, overlaps with what Terry Pratchett (2006) calls

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[2] The reader will experience with rare happiness and astonishing power the richness of individual creativity in a situation of confinement through the remarkable experience of expression, essentially literary, opened by the Corsican publisher Albiana, under the title of *Décaméron 2020,* which in the space of two months has put online nearly 400 texts of some 150 "confined islanders" (https://www.albiana.fr/blog/decameron-libero), since published in a sumptuous book (*Décaméron 2020, Collaborative project in the time of confinement Read, dream, write, live* ; Collective, 16.5 x 24 cm - 736 pages, ISBN 9782824110707; https://www.albiana.fr/litterature/1791-decameron-2020-litterature.html

the *narrativium*[3]*,* this narrative which constitutes the basis of the human relationship with the world in all its forms: cognitive, affective, oral, gestural, written, behavioral, reflections, actions, creations - and that, in all continuity, we can name the imaginary. Faculty of the pure possible that history has of course socialized, the imaginary conjoins the *plausible tale* evoked by Plato as the very image of the world and the openness-of-man-to-the-world evoked by phenomenology.

The anthropocene in the time of confinement feeds on stories, narratives, fictions. Literary, scientific, ideological, of common sense, the Anthropocene arouses and generates a world of representation of the world. A representation of the world is indeed essential for humans to read their life, orient themselves in it, make it acceptable, rational, livable. The imaginary is the fuel that feeds our thinking about the world and the form that thinking takes. It inseparably contains common sense, science and art. We can therefore use all forms: from concepts (science) to notions (common sense) through works (art).

Without claiming to be an exhaustive inventory, this narrative catalog of the planetary confinement stage, unprecedented even in the history of the Anthropocene (*Covidian stage confinans* as a sub-stratum of *the Poubellian*?) includes apocalypses and millenarisms, resignation, risk of totalitarism, call for change. of paradigm and refoundation of the World, triumph of the negative and fakes news, suggestion of a new spirituality.

The encyclopedia of the *narrativium* devoted to confinement stretches from the universal literature of *"Ubu Roi"* to the universe of Kafka, from the "*Dictionary of nowhere and elsewhere*" by Guadaluppi-Manguel (1981) to "*The Encyclopedia of Science-Fiction* " by Versins, from" *Voyages of Marco Polo* "to *The Lancet revew* from the improbable" *Codex Seraphinianus* "by Luigi Serafini to" *Revelations from the Great Ocean* "by

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[3] « Our minds make stories, and stories make our minds. Each culture's Make-a-Human kit is built from stories, and maintained by stories. A story can be a rule for living according to one's culture, a useful survival trick, a clue to the grandeur of the universe, or a mental hypothesis about what might happen if we pursue a particular course. Stories map out the phase space of existence (II: 327). Humans add narrativium to their world. They insist on interpreting the universe as if it's telling a story. This leads them to focus on facts that fit the story, while ignoring those that don't. (I:233) ; https://wiki.lspace.org/mediawiki/Narrativium

Reunion Islander Jules Herman, from the *Quanon conspiracy* to obscurantists in the *science-unique solution*.

We now have a *narrative of confinement* covering a considerable narrative imaginary, both heir to the literary history bequeathed by tradition but also innovative and creative, but also, within the very literary representation that existed before this. new story, all the literary stories devoting the time spaces of our life, like so many more or less autonomous spheres, independent of each other, closed, confined: work, friends, family, intimacy, love, worries, wars, disasters ...Georges Perec's (1978) image of "*La vie mode d'emploi*" which tells the story of the life of a building through the people and families who live in and follow one another in its apartments, presented in a romantic way in the form of a puzzle under construction, could make the link between the literature of confinement (the stories of confinement) and the confinement of literature (literature as an expression of our lives since its historic birth with Robinson Crusoe (1719).

The "compartments" of our lives are represented in universal literature with such richness that they can be said *to border on infinity*! Confinement thus plays and composes oxymorally with the infinity of possibilities. A kind of infinite library that contains all the books already written on all possible subjects as well as those yet to be written, real and imaginary, all possible and imaginable libraries, including those yet to come. This idea exists for good, it was written by the Argentinian writer Jorge Luis Borges in 1941. It is called "*The library of Babel*" (https://www.oeuvresouvertes.net/spip.php?article1017 ; 1941, Mar del Plata, Uploaded June 29, 2011 © Jorge Luis Borges, June 9, 2014, accessed August 24, 2021)[4].

3. Ambition of the Containment tourist guide

To say that the *idea of confinement* opens on to *literary infinity*, which infinity opens on to all the ways out of an unhappy, aversive, stressful confinement, is to make it clear that the most confined, the most confined, the most reduced (like the broom closet in which Harry Potter lives at the

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[4] For an exegetical comment:
https://fr.wikipedia.org/wiki/La_Biblioth%C3%A8que_de_Babel.

beginning of the Dursleys' saga) (Rowling, 1997, Harry Potter and the Sorcerer's Stone) can become, with a wave of a literary magic wand, the most deconfined , the most open, the largest, as well as the smallest room can become the greatest voyage (Xavier de Maistre, *Voyage autour de ma chambre,* 1794).

And since the history of literature is the very history of the possibility of getting out of the worst confinements, whether external or internal, hated or hated, suffered or chosen, flee or desired, we might as well take advantage of it to unfold, if not its hair like *Rapunzel*, at least a few ladders (or tie a few sheets) that will allow us to escape from confinement to the universes of freedom.

My present contribution proposes, in a perhaps iconoclastic and incongruous way, to share with the reader common readings capable of deconfining the more or less connected and interconnected monads to which the current situation of confinement / deconfinement / reconfinement is reduced to us, to make a piece of route in the universal adventure of the narrativium of literature to shed light on *the narrativium of confinement*, in the form of a *short guide to reading confinement*.

Anthropology is the science of meeting and reciprocal exchange between people and different societies, and the story of this discovery. However, the contemporary world of confinement / deconfinement would rather be an apology for intolerance, the refusal to meet and listen, under the domination of two fundamentalisms: that of standardization (technological, media, cultural, civilizational) and that of withdrawal. on oneself (identities, communitarisms).

The reader can choose in this journey levels of difficulty and progressive initiations, according to his tastes, his penchant for the express visit or the slow discovery, his appetite for the straight line or the labyrinth, his desire for historical, philosophical, artistic detours. . When it comes to the fabrication of the human through the art of encounter and discovery, the anthropologist is an empathetic and permissive guide who imposes no choice. Even if the tourist in confinement is, optimally, the one who learns something new, who is surprised, and who comes back different at the end of the trip. In-depth speleological exercises, shortcuts, bridges, equipped rest areas, are offered to the reader who thus becomes his own guide.

Yves Citton (2009) evokes the need for a "literary society" in order to help us understand our human condition as well as the behaviors and passions of our fellow human beings: "a certain attitude made up of patient, attentive, loving, interventionist exploration , reconfiguring, messages that circulate between us and within us. Literary studies are all the more necessary to teach us to cultivate our sensitivity to the nuances crushed by the urgency of communication, to give us the means of a critical analysis of the texts that program us, to allow us to develop modes of non-consumption of cultural objects as well as non-oppression of oneself and others"(Yves Citton, 2009, 175).

This disconcerting guide *buissonnier*, willingly *maquisard* and *brown* aims to make the tourist of confinement aware of a journey in the infinite diversity of the imagination which, let us remember, founds, from Plato to Castoriadis, reality, less from a knowledge than questioning, surprise, wonder, as a means of access to walk in the imagination.

The short guide below extends from the larger one (our planet Earth itself, as well as its astronomical, mythological, civilizational, societal, literary representations). As regards literary universes, these also stretch from the largest to the smallest, from the great cosmogonies and imaginary universes to miniature worlds, passing through the relativization of the categories of the large and the small, of the realistic and strange.

4. Containment tourist guide or small Guide to Literary Survival in Containment:

4.1. From the biggest...

Thematic:
With our earth spinning at 30 km / second in space towards Alpha Centauri, our greatest confinement is in a galaxy in the middle of an infinity of galaxies, a concentrate of space-time in infinite space-time. Our planet Earth can thus be understood as the greatest variant of confinement!

- Stephen Hawking, "A Brief History of Time: From the Big Bang to Black Holes" (1981) is a popular science book dealing with the science of the laws that govern the universe, cosmology:
http://excerpts.numilog.com/books/9782081404342.pdf

(accessed August 24, 2021).

- The different ways that the peoples of the world have used to represent their own cosmogony (myths and images of creation)
https://www.google.com/search?sxsrf=ALeKk01LMCURJgenvXvfIzgC v9xvob5O1g:1588499980471&source=univ&tbm=isch&q=mondes.+mythe s+et+images+de+l%27univers+images&client=firefox-b-d&sa=X&ved=2ahUKEwi92b7It5fpAhXqz4UKHVh0A_IQsAR6BAgLEA E&biw=1366&bih=654 (accessed August 24, 2021).

- *"The Last and the First"* is a science fiction novel by British author Olaf Stapledon, published in 1930. It chronicles the adventure of humanity over the next two billion years. During this period, no less than eighteen different human species will grow and disappear in turn:
https://fr.wikipedia.org/wiki/Les_Derniers_et_les_Premiers (consulté le 24 aout 2021).

-   Human civilizations :   https://www.scienceshumaines.com/vie-et-mort-des-civilisations_fr_37964.html (accessed August 24, 2021).

-   Societies : Roy Lewis : *« Pourquoi j'ai mangé mon père »* (1960) :
The novel : http://ekladata.com/_z2tD2bon0e6df13iIUEIdF4UuQ/Lewis-Roy-Pourquoi-J-ai-Mange-Mon-Pere.pdf (accessed August 24, 2021).

A reading sheet
http://blog.ac-versailles.fr/lespetitesquerelles/public/DOSSIER_SUR_POURQUOI_J__AI _MANGE_MON_PEREdocx.pdf (accessed August 24, 2021).

4.2. The relativity of our knowledge and our life

-   *"Flatland"* (Abbott, 1884) is an allegory which illustrates the 2-dimensional world (point, line, surface) visited by an inhabitant of the 3rd dimension (volume), the sphere, and the misunderstanding of it. born

The   book :   https://lehollandaisvolant.net/files/abbot_flatland.pdf (consulté le 24 aout 2021)
The   movie   :   https://www.youtube.com/watch?v=eyuNrm4VK2w (accessed August 24, 2021)

- Miner, 1957, « *Body Ritual among the Nacirema* »

Article presented to a very serious American anthropological journal mocking the language of anthropologists by presenting the magical body treatments of a North American tribe that is none other than ... the Americans ("*American*" backwards)

Original:
https://www.sfu.ca/~palys/Miner-1956-BodyRitualAmongTheNacirema.pdf
(accessed August 24, 2021)
http://www.sens-de-la-vie.com/forums/viewtopic.php?topic=72&forum=12 (accessed August 24, 2021).

Comments, analysis:
http://coulmont.com/blog/2007/03/09/nacirema-anthropologie/
(accessed August 24, 2021)
- A pastiche quite close to nacirema but relating to the micro world of soprani was written by Georges Perec:
- https://static.mediapart.fr/files/2018/04/30/perec-fr-tomato-1.pdf (accessed August 24, 2021

4.3. Some imaginary worlds

They include the great literary sagas (from "The Odyssey" of Homer or "The Epic of Gilgamesh" to "Lord of the Rings" by Tolkien, "Dune" by Herbert, "The Iron Throne" by JRR Martin, the 40 volumes of Terry Pratchett's "Disc World" https://www.google.com/search?sxsrf=ALeKk01RH3ty1WGK9BmEuxqoz Q0u4ZXtsg:1588511977202&source=univ&tbm=isch&q=40+volumes+du+ %C2%AB+Disque+Monde+%C2%BB+de+Terry+Pratchett&client=firefox -b-d&sa=X&ved=2ahUKEwj-iv2g5JfpAhWF2eAKHRV3BPoQsAR6BAgJEAE&biw=1366&bih=654) through the 27 volumes of "Men of good will" by Jules Romains…

- The "Gormenghast" trilogy is a good example. It tells the story of a huge castle constituting a universe in which a character will slowly climb the steps that will lead him to power and to his fall:

- Presentation: https://charybde2.wordpress.com/2014/03/04/note-de-lecture-la-trilogie-gormenghast-mervyn-peake/
- Extracts: https://booknode.com/la_trilogie_de_gormenghast_tome_1_titus_d_enfer_065566/extraits
- The BBC made a miniseries: https://www.youtube.com/watch?v=faoFmLRzk2Y)

- The "Codex Seraphinianus" is the encyclopedia of an imaginary world composed and illustrated (1981) by Luigi Serafini:
https://blog.kolesnik.info/pictures/files/Codex_Seraphinianus.pdf
https://booknode.com/la_vie_mode_d_emploi_01052/extraits
http://escarbille.free.fr/vme/?txt=vme26

4.4. ... to the smallest

"Le Petit Poucet": original text of Perrault's tale:
https://francois-combe.pagesperso-orange.fr/00-Telechargements/Le%20Petit%20Poucet.pdf
Text read: http://clpav.fr/lecture-poucet.htm

Other moral tales that illustrate the role of the little ones, the weak, the left behind (and for a fairy tale!): Puss in Boots, Donkey Skin, Cinderella ...

- *"The Shrinking Man"*
Novel by Richard Matheson (1956) whose author then wrote the screenplay for the film of the same title. Tells through the story of a shrinking man how the familiar can become alien: https://booknode.com/l_homme_qui_retrecit_015958/extraits

A reading sheet of the film for school use: https://web.ac-reims.fr/dsden10/exper/IMG/pdf/lhomme_qui_retrecit.pdf

- *"Peter Pan",* or the child who did not want to grow up, shows the essential importance of the little ones!
http://touslescontes.com/biblio/conte.php?iDconte=635

4.5 The Ends of the World

Maxime Chattam, in "*L'Autre Monde*", tells the story and the quest of 3 teenagers surviving after the apocalypse in 7 books https://fr.wikipedia.org/wiki/Autre-Monde_(s%C3%A9rie

Jean Pierre Andrevon wrote in 2010 a post apocalyptic novel, *"Le Monde, enfin"*
An old man rides his horse across France, emptied of its inhabitants like the entire planet, following a devastating pandemic forty-five years earlier. On his way, he passes through overgrown towns populated by wild animals, as well as some communities of octogenarian survivors. At the twilight of his life, sifting through his memories, he wants to see the sea one last time. Https://www.noosfere.org/livres/niourf.asp?numlivre=2146565903

- Matheson *"I am a legend,"* (1954),
I Am Legend is a novel by American author Richard Matheson published in 1954 and adapted for cinema in 1964, 1971 and 2007.
The novel chronicles the tragic fate of the last man on Earth, the only human being not to have suffered the consequences of a pandemic.

4.6. The infinity of the finite world, the finite of the infinite world

- The *"Guide to nowhere and elsewhere: for the use of the intrepid traveler in many imaginary places of universal literature*" by Gianni Guadalupi and Alberto Manguel, Editions du Fanal, 1981.
In this large volume - large format, 420 pages - we find descriptions of countries, cities, islands, invented by authors, whether they are authors of Antiquity, or modern ones.
It is as well the places evoked by the Greek poets, that the country of the wonders of Alice, the middle earth, Narnia or Earth sea which are depicted to us, cartography in support.The big names of the imagination, creators of worlds are present: Rabelais, Peake, Tolkien, Vernes, Swift, etc ...

- Pierre Versins and "*The Encyclopedia of Utopia, Science Fiction and Extraordinary Voyages*" (1972) https://resf.hypotheses.org/977

4.7. The origin and the end ...

Containment is symbolically close to the image of the microcosm, which can take on figures as varied as that of the island, the egg, the uterus, at the origin of the world.

Where do we come from ? Who are we? Where are we going ? is precisely one of the most famous works of Paul Gauguin, painted in Tahiti in 1897-1898, https://fr.wikipedia.org/wiki/D%27o%C3%B9_venons-nous_%3F_Que_sommes-nous_%3F_O%C3%B9_allons-nous_%3F

This large canvas introduces us to fundamental questions of philosophy, with which we will end this quick overview of liberating confinement opening up to all possibilities.

4.8. Philosophy

Confinement can thus be seen as a kind of foundation of thought and freedom.

- Pascal's two infinities: https://www.bacdefrancais.net/pascal-deux-infinis.php

- Kant was concerned with providing a decisive answer to the following three questions: "What can I know? " " What should I do ? "" What am I allowed to hope for? Which constitute par excellence the program of all philosophy. At the end of his life, he will add to them: "What is man? "https://www.scienceshumaines.com/la-philosophie-en-quatre-questions_fr_28877.html
http://www.perspectivesvoyageuses.com/article-philosophie-que-puis-je-connaitre-que-dois-je-faire-104217869.html

- Nietzsche has this famous formula which gives every reason to hope: "Become what you are": https://www.franceculture.fr/emissions/les-chemins-de-la-philosophie/quatre-malentendus-nietzscheens-44-deviens-ce-que-tu-es

- Sartre https://la-philosophie.com/homme-condamne-etre-libre-sartre#Sartre_et_la_philosophie_de_la_liberte

It is up to the reader to continue, thus becoming an actor in his self-deconfinement.

References

(*works cited in the body of the guide itself are not taken into account*).

Albiana éditions, 2020, *Décaméron 2020*, *Projet collaboratif au temps du confinement. Lire, rêver, écrire, vivre,* Collectif, 16,5 x 24 cm - 736 pages, ISBN 9782824110707 ; https://www.albiana.fr/litterature/1791-decameron-2020-litterature.html ; (accessed August 24, 2021) et https://www.albiana.fr/blog/decameron-libero (accessed August 24, 2021)

Braidotti, R., 2016, *le post humain,* Post éditions, Paris.

Citton, Y., 2007, *Lire, interpréter, actualiser. Pourquoi les études littéraires ?* Editions Amsterdam, Paris.

Galibert, C., 2007, *L'anthropologie à l'épreuve de la mondialisation,* Paris, L'Harmattan,

Galibert, C., 2020, *L'Homme du Monde*, Il Sileno Edizioni, Geographies of the Anthropocene book series, Lago, Italy; https://www.ilsileno.it/edizioni/ebooks/ (accessed August 24, 2021)

Guadaluppi, A., Manguel, G., 1981, *Dictionnaire des lieux imaginaire*, Editions du Fanal, St. Alban.

Huston, N., 2020, Les mythes. In : Servigne, P. et Stevens, R. (Eds.), Aux *origines de la catastrophe,* Les liens qui nous libèrent, Paris, 142-147.

Latour, B., 2015, *Face à Gaïa : Huit conférences sur le nouveau régime climatique*, La Découverte, Paris.

Le Guinn, U., 2018, "La théorie de la fiction panier", *Terrestres,* https://www.terrestres.org/2018/10/14/la-theorie-de-la-fiction-panier/ (accessed August 24, 2021)

Montin, S., 2020, *Lorsque je doute de ma liberté*, 25/03/2020, Université Nice-Côte d'azur, Nice. https://newsroom.univ-cotedazur.fr/lorsque-je-doute-de-ma-liberte (accessed August 24, 2021)

Perec, G., 1978, *La vie, mode d'emploi*, Hachette, Paris.

Platon, 2006, Cratyle, dans *Œuvres complètes*, Flammarion, Paris.

Preciado, P. B., 2019, *Un appartement sur Uranus*, Grasset, Paris.

Revue en ligne *Terrestres :* http://www.terrestres.org/a-propos-de/ (accessed August 24, 2021).

Vincent, C., 2020, "Cohabiter avec tous les vivants", *Le Monde*, 20-26 juillet.

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Inge Panneels is an artist and academic researcher at Edinburgh Napier University looking at how data and data driven technology could be deployed, or is missing, to help the creative industries to embrace a quintuple bottom line (purpose, people, planet, profit and place) as part of a Net Zero economy. She is mostly interested in the role culture at large, and the creative industries specifically, can play to engender a culture shift required to deliver functional climate action. Previous research (Northumbria University) on the topic of 'Mapping the Anthropocene: an investigation of Cultural Ecosystem Services through artists' engagement with environmental change in Scotland' (2021) looked specifically at mapping as a tool for future speculations and culture change. Panneels has previously published on the topic of creative mapping practices and mapping in art.

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Federico Volpe deals with historical and musical divulgation. He has an MA in Piano from the Conservatory of Bologna (2020), an MA in History and Oriental Studies from the University of Bologna (2021), and is currently attending a PhD course in Studies and Practices of the Arts at the University of Quebec in Montreal. He works as a teacher of Music in Bologna and as a free-lance consultant for RSI (Radiotelevisione svizzera di lingua italiana) and Rete8 television network. He writes on subjects ranging from music to history and is the author of "La Ballata. Storia di una forma letteraria e musicale" (Manzoni, 2021). He is a member of the Società Italiana di Musicologia.

"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.

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