Mutating Ecologies in Contemporary Art

Edited by Christian Alonso

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UNIVERSITAT DE BARCELONA

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Introduction

As our world changes so does art practice and the thinking of art. How are the problems we are confronting today both as individuals and as societies are resonating within aesthetic creation? How can art, cultural becomings and institutional practice be considered in terms of environmental sustainability in the technologically-mediated era of the Anthropocene? How to reinvent modes of life when trying to make it compatible with the material and techno-scientific transformations brought about by advanced capitalism? How can we think new ethical modes that may anticipate sustainable social practices through the practice of art? How might the desire to live another world organize our everyday life in such a way that it may overturn the established order?

In light of the pressing urgencies brought about by ecological upheavals, degeneration of social relations and homogenization of habits of thought as a result of the subjecting mechanisms of advanced capitalism, both artistic and philosophical practice might concern the imagination of other subjective formations. The exploration of this hypothesis was the backbone question guiding the program of the two editions of the International Symposium *Mutating ecologies in contemporary art*, which is the source of this book. Félix Guattari claimed it is our duty to see to what extent each one of us can put into operation political, theoretical, libidinal and aesthetic, revolutionary machines that may accelerate the crystallization of a different mode of social organization. The impulse underlying the publication of this book follows Guattari's mandate.

Organized by the research group AGI (Art, Globalization, Interculturality, University of Barcelona) and hosted in the MACBA's Auditorium on December 1, 2016 and February 21, 2018, the symposiums sought to delve into the notion of an expanded – social, environmental and mental – ecology in the arts. The events brought together transdisciplinary artistic, cultural and curatorial proposals that dismantle traditional oppositional dualisms between mind-body, reason-emotion, human-animal, theory-practice, the material and the discursive, and the actual and the virtual, trying to think life and the world otherwise. The objective was to advance an understanding of art practice as provid-

ing different ways to comprehend, contest and interrogate our relation to the earth through discursive, visual and sensual strategies and methodologies, experimenting beyond disciplinary confinements and generating new posthuman subjectivities.

The symposiums departed from the premise that the Anthropocene and climate change not only define the biogeophysical planetary conditions in the early decades of the 21st century but also describes an unprecedented social and cultural space in which environmental crisis coexists with, and is related to, humanitarian disaster and multiple geopolitical conflicts on a global scale. Capitalism as a historical form of progress, biological determinism and cultural essentialism are today being imposed as dominant metanarratives. In this new territory, distinguished by structural inequalities and the rise of the logic of expulsions, the governmentality of our technologically-mediated societies operates according to a logic of manufactured risk with economies unfolding on the basis of a delusional boundless availability of natural reserves, ignoring the ecological limits of the planet. The understanding of the multi-faceted implications that these conditions entail for the sphere of relations between human and non-human entities and the configuration of possible political horizons remains an elemental issue for human sciences and the arts of our time.

The ecological paradigm of Félix Guattari constitutes an opportunity with which to consider the generative encounters bewteen ethics, aesthetics and epistemologies in the era of the Anthropocene. In their gambit for an expanded approach to ecology that not only includes the natural (environment), but also the social (socius) and the mental (psyche) spheres, the analysis links planetary sustainability as the capability to think through these three registers. This methodology manages to grasp the toxic effects of the logic of advanced capitalism and neo-liberal globalization in a cognitive, social and structural level. As a way to assume our responsibility in the face of our historicity, our relations to the planet and other species become inseparable from the analysis of the power conditions and relations that define our location. As argued by the critical posthumanist, neomaterialist philosopher Rosi Braidotti, the challenge as well as the opportunity of living posthuman times consists in seizing the opportunities for new kinship systems with sexualized, racialized and naturalized otherness with which sustainable relations are built, fostering a life-centred egalitarianism that will anticipate a new social nexus.

The book *Mutating ecologies in contemporary art* seeks to expand on the value and the effectiveness of the philosophical tradition of vital materialism as a non-dualist model of political ecology that enables ways of imagining alternative forms of relation and political action. This model of thought nourishes

current artistic imagination, modulating compounds made of forces and materials, imbuing proposals that can be seen as going beyond blind spots of liberal individualism and deep ecology in the affirmation of the rhizomatic, embodied and embedded nature of subjectivity, which is inherently ethical. Just as we need a philosophy after nature it becomes imperative engaging in imagining an art after nature understood as a the practice of composing a common world that both expresses and conquers immanence as the plane upon which nomadic subjects build alternative ethical relations.

The artists, curators, philosophers, researchers, writers and art historians included in this book are working with environmental sustainability as a methodology, both as instituting practice and as a critique of institutional behaviours. The diverse contributions act out new possibilities of inhabiting another earth, another body and new forms of relation between and beyond humans on the basis of interdependence and mutual coexistence across species. The various voices gathered bring forward narratives, cartographies and figurations of the mutating universes of value taking place in our contemporary societies through the thinking and the practice of art. It is precisely the will to bridge theory and practice that explains the diverse character of the texts, shifting indistinctively from a more analytical to essayistic nature.

I want to thank all the agents that made possible the realization of the two editions of the symposium and the further development into this book publication. First of all, I want to deeply thank Anna Maria Guasch, Director of the Research Group AGI, University of Barcelona, for being so supportive of this initiative from the very beginning, both in relation to the production of the events and the funding of this book. I want to thank Pablo Martinez, head of Public Programs and Education at MACBA Museu d'Art Contemporani de Barcelona, for believing in the appropriateness of the two editions of the symposium to be hosted at MACBA Auditorium. My most sincere gratitude to every participant whose talks shaped a very interesting, critical, geographically and disciplinary diverse program:[1] Maja and Reuben Fowkes, Anne Sauvagnargues, Anna-Maria Hällgreen, Mitra Azar, Joana Moll, Laura Benítez Valero, Maria Heras López, Marta Dahó, Radek Przedpełski, Helena Torres, Fiona Curran, Christine Mackey, Pablo DeSoto, Ila Nicole Sheren, Daniela Voss, Quelic Berga, Javier Melenchón, Pau Alsina, Hanna Husberg, Carles Garcia O'Dowd, Beatriz Regueira, Chiara Sgaramella, Alfredo Puente, Begonya Saez Tajafuerce, Claudia Villazón, Lukas Masewicz, Ignacio Acosta, Jean-Sébastien Laberge, Sergi

1 For further details on the program and the call for papers we launched on occasion on the symposium, visit https://artglobalizationinterculturality.com/activities/symposiums/.

Selvas, Caterina Almirall and Quim Packard.[2] I wish to thank all the contributors to this book for their disinterestedness and for being so patient and collaborative with all the editorial process. Last but not least, I want to thank Clàudia Baixeras Muñoz and Julia Ramírez Blanco for the technical assistance they provided during both editions of the symposium.

Christian Alonso

2 Graphic and textual documentation can be found at http://caosmosis.net/.

Former nature, former human, former art: thresholds of intensity

Christian Alonso

In the context of a globally-linked, technologically-mediated world defined by an increasing resource depletion and raising inequalities, the ascent of wars under the regimes of necropolitics, biopiracy and dispossession, we – human animals, non-human animals and all living entities – are exposed like oil, gas or minerals to exploitative, extractivist and commodifying practices through which advanced capitalism keeps on accumulating and producing value. Within this framework, humanities are compelled to envision an analysis that might account for the systemic and fluid complexities of our times affecting our existence, one that would incorporate a call for action anticipating modes of being together otherwise. This analysis would have to trace more intricate, multi-layered interdependence between nature, culture and technology, shifting the simplistic vision of the effect of shared vulnerability of current catastrophic, end-of-the world narratives, into productive, generative trans-species alliances for the sake of the sustainability of life on the planet. In short, it becomes imperative to provide a more self-critical, egalitarian and ecological understanding of the present and the future.

Guattarian ecosophy manages to grasp this complexity through the notion of transversality. To think ecosophically is to be capable of tracing relations between individual subjectivity, social relations and the environment from a transversal perspective, considering the problems affecting the three systems from an integrated approach. Nature, culture and technology are situated in a radical flat ontology where ecology is defined as the method of grasping interactions between the infinite machines populating the world. Former essences are now defined as machines invested in setting couplings and connections with other machines in a permanent flux of transmission. These machines are being understood as auto-poietic systems capable of reading intensities and negotiating equilibrium through their feedback loops. Through the power relations traversing us, processes of subjectivation escaping them could be opened, allowing us to access other existential modes. Posthuman ecophilosophy devel-

oped by Rosi Braidotti gives further impetus to Guattarian ecosophy insofar as the acknowledgement of the structural, transversal and post-anthropocentric bond implied in the position of the posthuman subject provides a decisive opportunity for the creation of a new social nexus. This would have to be forged on the basis of a redefinition of elemental notions such as kinship, interdependence and accountability not only among humans but also between non-anthropomorphic and technologically-mediated others.

Both approaches point to the presumption that living in posthuman times, basic notions such as nature and the human have undergone profound mutations determining the question of subjectivity. This is to say, recent material and socio-economic reconfigurations of the world proves a quest for examining how ways of being and acting in that world may have undergone transformations. The post-anthropocentrism implied in both models points not merely to the criticism of humanism but amounts to the productive creation of alternative conceptions of the self, the human, society and the arts that may imagine a world yet to come. Far from being exhausted in the advent of the second decade of the twenty-first century, Guattarian radical ecology deserves more than ever further scrutiny. It compels us to act out multiple explorations into how his philosophy may be implemented by practical and experimental applications into everyday life. In this essay I will explore how Guattarian ecosophy ressonates with Braidotti's posthuman ecophilosophy in terms of envisioning others forms of habitual dominant subjective formations and by being committed to the invention of new possibilities of life, and by reconsidering our relation with alterity, engaging in routes toward more openness, new sensibilities, by generating post-anthropocentric and anti-humanist ethics and politics.

If the decline of the centrality of Man and the dislocation of the human brought about by the emergence of posthuman discourses has led to a new understanding of the relation of humans and non-human life and to more complex interactions, what would be the place of art within these parameters? If the practice and study of art used to be centred on humanness, what would be the role of art within a planetary, geo-centred, cosmic frame anticipated by the posthuman predicament? Following Anne Sauvagnargues' account of art as a machine modulating forces and materials unfolding upon maps of affects, I expand into how art makes visible the intensities and forces of materiality beyond cultural machines of representation and interpretation. I argue that the art encounter is capable of opening up thresholds of intensity unleashing an active, self-expressing matter with which we interact in a process in which meaning and affect interweave, allowing new forms of subjectivity to take place. The ecosophic artist opens up, materializes, composes a new world, a new existential territo-

ry always there yet unhabited, and in so doing we meet the deterritorializing power of the machinism operating in art. In creating micropolitical mutations and posthuman becomings, generating new existential territories and universes of value, the praxis of the ecosophic artist can be seen as operating a rupture with capitalistic forms of subjection, anticipating new forms of relation and modes of being together otherwise.

Guattarian radical ecology

> How do we change mentalities, how do we reinvent social practices that would give back to humanity – if it ever had it – a sense of responsibility, not only for its own survival, but equally for the future of all life on the planet, for animal and vegetable species, likewise for incorporeal species such as music, the arts, cinema, the relation with time, love and compassion for others, the feeling of fusion at the heart of cosmos? (Guattari, 1995, pp. 119–120)

Félix Guattari thought that only through the affective powers of the art encounter we would be able to counteract the environmental, social and psychological challenges posed against us in the twenty-first century. He believed art preserves infinite existential territories that could be inhabited by simultaneously political, ethical and aesthetic projects. This is to say, following Guattari's words, the art encounter is the bearer of a new constellation of universes of reference that enable the bifurcation of our existence away from capitalistic modes of life. The aesthetic dimension of his ethical-aesthetical paradigm described creativity as an elemental tool for the process of singularization – largely described as a rupture of sense, a cut, the detachment of a semiotic content – that would originate mutating vectors of subjectivation (Guattari, 1995, p. 18). The territories preserved in art are glimpsed in the art encounter, an event in which lines of flight pave the way to uncharted journeys. These lines of flight may be seen as passages allowing exodus from habitual dominant subjective formations and from the dull everyday life, towards unfamiliar, productive journeys.

By 1989 Guattari was already well aware of the state of environmental unsustainability affecting all living entities: "The Earth is undergoing a period of intense techno-scientific transformations. If no remedy is found, the ecological disequilibrium this has generated will ultimately threaten the continuation of life on the planet's surface" (Guattari, 1995, p. 27). However, as he rightly noted, the degradation of the environment was only a partial sign of a larger problem. Guattari thought that environmental pollution caused by advanced capitalism had to be

seen in direct relation to the colonization of imaginaries of individuals and the erosion of the solidarity of the social fabric. In a passage from *The Three Ecologies* written in 1989 he commensurates the invasiveness of the algae spreading in the lagoon of Venice with the toxic effects of real estate speculation and gentrification instigated by Donald Trump and the degenerate images and statements populating TV screens. Just as dead fish proliferate as a direct effect of the algae, the evicted and dispossessed thousands of poor families resulting from the takeover of entire districts of New York and Atlantic City grow, and we are increasingly subdued to repeat the roles and reproduce the prefabricated modes of life supplied by mass media. The ecology of the social field is intertwined with the ecology of nature and so is the ecology of the mind. When facing environmental upheavals it is not sufficient to turn our attention to ecosystems in an isolated way, but we need to operate simultaneously from a mental ecology (psyche), social ecology (socius) and natural ecology (environment), which do not find themselves confined but they coexist in the same plane of reality and influence one another. Any rooted and lasting change would necessarily entail the confrontation of the problems affecting the three systems through an integrated approach.

This attempt to think complexity is analogous to the way Saskia Sassen considers today the relations between small farmers being evicted from their land due to the development of palm plantations, now slum dwellers in vast megacities, government workers in Greece cut out of their jobs, now unemployed as a result of the EU demands to reduce the debt, and vast portions of former rich, productive land are poisoned by toxic emissions from mines or factories, now expelled from working land and forgotten (Sassen, 2014, p. 215). Sasken argues the key logic underlying these trends is the dynamic of expulsion (economic, social biospheric) arising from the decaying political economy of the twentieth century as a result of the move from Keynesianism to the global era of privatization, deregulation, and open borders for some entailing the expelling of others (Sassen, 2014, p. 211). These conditions define a systemic edge that is largely the result of a very narrow conception of economic growth both our economies and forms of social organization have fallen under. These destructive forces traverse our conceptual tools with which we used to imagine the economy, society, ideologies, and so on, but become invisible to the eye, hence, as Sasken states, it is a problem of finding adequate cartographies of these fluidic dynamics. Only the conceptual recognition of these subterranean conditions traversing the three ecologies will allow "new spaces for making – making local economies, new histories, and new modes of membership" (Sassen, 2014, p. 222).

The interest turned towards ecology was developed by Guattari more explicitly in his later writings from an embodied, practice-based activism that fuelled

a wholly philosophical project that, combining politics, environmentalism and art, posited an ethico-aesthetic paradigm he named Ecosophy, one of his most notable contributions to twenty-first century emancipatory political imagination. To think ecosophically is precisely to be capable of tracing unseen, transversal relations between individual subjectivity, social relations and the environment. Far from standing as a logic of discursive sets (functions, dynamics), ecology is here defined as a new logic of intensities generating creative, qualitative analysis allowing crossings and connections between disparate domains. The generalization of ecology into ecosophy can lead to a new understanding of the social, the technical, and the aesthetic, anticipating new attributes of subjectivity in light of the globally linked, technologically mediated societies defined by increasing uneven access to economic and environmental resources.

Some of Guattari's ideas may seem familiar to us, inhabitants of the twenty-first century. We might even feel its effects, but there's no doubt they were not as recognizable by his time. Guattari saw in the 1980s how the modest attempts to repair the "ecological unbalance" from an early environmentalism were narrowing its scope by only focussing on the field of industrial pollution from a technocratic perspective. Capitalism also deteriorates social relations, and so erodes collective and individual human modes of life. Guattari noted that the relation of subjectivity with alterity was experimenting a regression, now confined in unidimensional universes of value that are ruled by the axiom of profit. This axiom does not obey a program of an ideological nature but a mode of production that targets our desire as a new territory for its expansion. The only effective response to the ecological crisis, as Guattari argued, would bring about "an authentic political, social and cultural revolution, reshaping the objectives of the production of both material and immaterial assets". This revolution must concern not only the "visible relations of forces on a grand scale" but also the "molecular domains of sensibility, intelligence and desire" (Guattari, 2000, p. 28). Because for Guattari capitalism is a system of semiotization, homogenization and of transmission of forms of power over goods, over labour, over subordinates, family relatives, and so on, only the emergence of other forms of relation would transform the fixation of desire of individuals towards capital and its diverse forms of crystallizations of power (Guattari, 2000, p. 239). Ecosophy would pave the way to the construction of a post-media era involving new sensibilities, new desires, facilitating individual and collective processes of enunciation and the transformation and reinvention of institutions. Guattari's hypotheses are of greater pertinence today, perhaps even more than they were in his time, since the problems of his time have only intensified in ours.

What led Guattari to see that not only are ecosystems exposed to pollution but also our symbolic universes determining social relations was his elemental insight on the perception of capital as integral to power formations, that is, as a subjugating force of planetary scope, as a force attempting to model our mentalities. In other words, the Guattarian socio-political analysis was his insight on how the capitalist mode of subjectivation as a generalized lifestyle based purely on consumerism could be equivalent with human thriving. His account of machinism and machinization developed in partnership with Gilles Deleuze contributed to cast light on this issue. For Deleuze and Guattari, advanced capitalism is no longer understood as a mode of production but as a subjectivation machine taking control of the load of desire that defines us as individuals and collectivity. This machine puts to work a set of devices of "social subjection" and "machinic enslavement" through which capitalism exerts control upon us (Guattari, 2009, p. 244). The former devices refer to mechanisms of domination through which capitalism produces us as subjects and fixes us with a specific form according to the needs of power (sex, identity, nationality...) and the latter, to the apparatus of precognitive colonization of our affects, perceptual functions and sensations, that is, unconscious behaviours preceding the formation of the subject. Subjection operates upon the molar, individuated level, and enslavement intervenes in the molecular, preindividual, presocial dimension. It is upon this double bind that accumulation, exploitation and value production takes place.

It is in accordance with the operational mode of this second set of devices that we can see ourselves as an integral part of the machine, as parts or components. Not of a technical machine, but of a more general form of power device that requires our permanent participation and complicity. This conception of machinism, however, does not simply constitute a form of domination but also retains an infinite repertoire of possibilities given its capacity to open up processes of creation. As Guattari maintains, from the power relations traversing us, processes of subjectivation escaping them could be opened, allowing us to access other existential modes. But this openness enabling possibilities must be built. It is precisely this element of creation that defines the aesthetic dimension of Guattari's ethical-political project. And it is from this point of view that aesthetic practice takes on a vital importance. To battle the capitalist form of subjectivation does not mean to go back to a pre-technological as some strand of deep–shallow ecology may claim, but to explore alternative forms of subjectivity and social organization through technology. Guattari thought that the only possible liberation from what he called Integrated World Capitalism had to come from a praxis-based molecular revolution that would em-

ploy the tools and devices of techno-scientific capitalism, namely digital technologies, that have the potential for subversion. The emancipatory potential of digital technologies is drawn from its capacity to allow access to an ever changing, always shifting, open, rhizomatic space where infinite molecular connections and productions could be made, connecting bodies and materializing new environments.

Guattarian ecosophy offers a radical new conception of environmental practice insofar as it amounts to a redefinition of our very basic notions and principles. The urgent need for implementing an ecosophy departed from his analysis of the unsustainability of the modes of conceiving and inhabiting life on Earth. This concern led Guattari to call for the development of new subjectivities, the urgent task of experimenting with other forms of living that would institute change. But current categories of meaning and customary conceptual tools would not help advancing this goal. Guattari believed that in order to build sustainable futures, a radical reconfiguration of thought was needed, because, as he claimed, in order to act differently we must think differently. The questions of who are we? and who do we want to become? become of paramount importance in his ethical-political ecological project.

What would a radical reconfiguration of thought and life entail? For Guattari, as for Deleuze, the important question underlying their thought was finding a way of gearing nature and physics into culture and the psychic, and the other way around. In other words, their philosophical project they named Geophilosophy aims at developing a non-representational paradigm of nature and materiality. While deep ecology objectifies nature and species providing them with subjective status, Deleuze and Guattari intensify non-human life revealing its expressionism, paving the way for encounters and interactions between non-human life and machines. The goal is to reveal what is cultural and mental in the material, and the material and cultural in thought, through a cosmic and ethical sensibility.

While the postmodern, social and linguistic constructivism largely understood nature, the material and the real as a mere effect of language, perceiving it as translation within the limits of representation and thus systematically excluding the material real from the realm of representation, geophilosophy might be understood as a method of unleashing nature as real materiality by tracing nature-culture feedback loops. The limitations perceived in the account of nature by linguistic constructivism led Deleuze and Guattari to seize the opportunities for a philosophy of the suppressed of representation, this explains the attention given to the prepersonal, pre-individual, infra-social, the non-human, the non-signifier, and so forth.

Generalized machinics

The intelligent materialism developed by Deleuze and Guattari aspired to rethink the very notions of nature and the human from a non-anthropocentric perspective, placing them into a continuum that included technology. Far from seeing them as separate realms or spheres that would presuppose technophobia or the privileging of non-human wilderness, these three fields are now perceived as operating on the same level of the real, influencing and determining one another. Nature is not any more understood as separated from humans and technology. Hence, former distinctions between natural and artificial, organic and inorganic, human life and non-human life are no longer valid. Humans, nature and technology are conceptualized as immanent to a machinic ground. These three elements are conjoined as machines, a central conception in their philosophical model to understand complex relations between human and non-human life, both intelligent or auto-poietic:

> [...] we make no distinction between man and nature: the human essence of nature and the natural essence of man become one within nature in the form of production or industry [...] man and nature are not like two opposite terms confronting each other – not even in the sense of bipolar opposites within a relationship of causation, ideation, or expression (cause and effect, subject and object, etc.); rather, they are one and the same essential reality, the producer-product. (Deleuze and Guattari, 1983, pp. 4–5)

Essences are now seen as machinic aggregates. Matter is machinic insofar as the world is populated by a variety of machines: self-enunciative machines, biological machines, desiring machines, signifying, non-signifying machines, cultural and discursive machines, aesthetic creation machines and machines of cultural representation, among others. These regimes constitute the elements in which ecology, now described as machinism, operates as the method to grasp resonances, vibrations, interactions between human and non-humans and their environment. What define machines are precisely connections, assemblages, couplings and productions. Machines are

> [...] at work everywhere, functioning smoothly at times, at other times in fits and starts. It breathes, it heats, it eats. It shits and fucks. What a mistake to have ever said the id. Everywhere it is machines – real ones, not figurative ones: machines driving other machines, machines being driven by other machines, with all the necessary couplings and connections. (Deleuze and Guattari, 1983, p. 2)

Everywhere there are machines, and the feedback loops between them. The world is inhabited by a multitude of machines, infinite auto-poietic systems capable of reading intensities and negotiating equilibrium and disequilibrium. The population of machines can't be totalized into a single unity or essence. Matter is not passive or inert to be conformed by an outside subject or God in order to become alive, but is already alive, organized, intelligent and molecular: "unformed matter, the phylum, is not dead, brute, homogeneous matter, but a matter-movement bearing singularities or haecceities, qualities, and even operations" (Deleuze and Guattari, 1983, p. 512). Evolution is not anymore centred in single species or in the technologization of evolution but in the consistence and productive operations of the bio-socio-technical assemblages comprised of elements of both the biosphere and technosphere and stratified by the environmental, the social and the mental ecology.

Intelligent materialism is a philosophy concerned with intelligent, auto-poietic or self-expressive matter. Matter is not an effect of language, trapped in the domain of semiotics but is productive, generative, expressive. The important question is not how a subject consciously accounts for the world but how a subject is formed from affects and percepts, from a vital experience, from a lived reality, from a pre-personal and pre-individual relation to materiality. The model of thought, action and relationship they elaborate takes as a starting point the Spinozist monism in the rejection of the Hegelian and Marxist dialectic of consciousness and otherness. The new analysis is articulated on the basis of a concept of power understood not as negative or restrictive (potestas) but as affirmative and empowerment (potentia) and criticism not as negation (opposition consciousness) but as creativity (affirmation, proposition). The body – it can be an animal, an idea, a social body, etc. – is no longer defined by its form, organs or function, but by a complex relationship between acceleration and slowness, motion and rest (longitude), and by the power to affect and be affected (latitude). The conjunction of the two variables maps the body and at the same time constitutes nature, the plane of immanence, always variable. This Spinozist account of nature's expressionism underlies Deleuze's naturalism and Guattari's radical ecology.

Within Spinoza's theory of affections, the individual is defined not as an immutable essence but as a singular degree of power (potentia), equipped with a capacity of being affected. Rather than being described in terms of genera or species, non-human animals are defined by their capacity of being affected, by the affections of which they are capable (Deleuze, 1988, p. 27). While taxonomy and classification refers to a morality associated with transcendental values, ethics are defined as an ethology, understood as a typology of modes of exist-

ence (good or bad replacing the dichotomy of the values good-evil). Whereas morality is grounded in a system of representation, leaving no room for deformation, ethics are intertwined with aesthetics, as it seeks to invent new possibilities of life, new ways of existing in terms of experimenting with new relations towards other bodies and of how it is to affect and to be affected by.

In the case of an ethology of human animals, there are two modes of affections: actions, originating inside the individual, and passions, emerging from outside the individual. The capacity of being affected is defined both as a power of acting (action) and power of being acted upon (passions). There are two kinds of passions, of joy and sadness. We are affected by joyful passions when two bodies set themselves in a relation of composition or complementarity increasing our power of acting. On the contrary, the effect of sad passions upon us operates as subtraction, diminishing our power of acting, henceforth fostering impotency. If to exist is to endure, to tend to preserve (conatus, as formulated by Spinoza as the striving for self-preservation and enduring), it follows that ethics is necessarily an ethics of joy, because taking us close to action, creation, affirmation and proposition, thus enhancing our bodies' powers to act: "ethical joy is the correlate of speculative affirmation" (Deleuze, 1988, p. 29).

Far from following the linguistic constructivism project of deconstructing the metaphysics of presence (over absence) guiding the desire for immediate meaning, Deleuze and Guattari posit an ontology of difference: subject (being) is not transcendent or grounded in a unitary structure or totality (namely signifier or God). Rather than this, Deleuze develops a differential metaphysics focussing on becoming and multiplicities and the field of the virtual. He is not interested in going beyond any philosophy but creating a whole new philosophy: the task of philosophy is to create concepts. We need to think differently in order to act differently.

As a model that combines in a single system the articulation of material, cognitive and affective relations, geophilosophy then stresses the importance of immanence over transcendence, expressionism (matter) over constructivism (language), production over representation. Contrary to traditional metaphysics which stresses hierarchical ontology/ecology, vital materialism as new, differential metaphysics focuses on the productive plane of flat ontology – ecology. While the former performs an anthropocentric approach insofar as it reinforces hierarchies, the goal of Deleuze and Guattari's perspectivism is to dissolve boundaries, binaries and dualisms. Instead of essences, substances and organs, they see machines, functions, processes and singularities. The infinite connections machines enable define the subject formation as dynamic and not as a stable structure. The potential couplings they enable describe a force occupied

not in solving the mystery of life (reflective philosophy) but invested in the invention of possibilities of life and productive ethical relations (creative philosophy), henceforth, one might say, committed to biodiversity.

The problematization of the notion of the human resulting from the projection of the immanent plane where machines are situated is formulated from a non-anthropocentric perspective. The human is exposed to a process of transformation by being open and affected to the domain of non-human machines. This existential mutation is triggered by different processes of becoming other: becoming animal, earth and machine. These processes aim at the disappearance of the "outside" of what is human in order to resituate the human within a broader non-human world, leading to what Guattari would refer to as an existential catalysis. These non-human becomings aspire to challenge the privileges assigned to what is human that Western traditions have inherited. This criticizes the anthropocentrism with which the liberal humanist subject protects some members of the human species excluding others from their status and privileges. This fact expresses a violent history of political exclusions based on gender, race and bodily disabilities. This is why the non-human becoming of man emerges as a parallel project to becoming women, gay, transsexual and a whole list of significant alterities when trying to envision sustainable futures.

Non-human power

The question of the dislocation of the very notion of the human, the de-centring of Man as a mesure of all things, has gained further reinvigoration with the emergence of posthuman theory in the last decade. In short, the proposal of the posthuman predicament is to see how scientific and technological advances in the fields of informatics, communication and biotechnology invite us to radically rethink the notion of the human, our politics and our mode of relating to non-humans from a non-anthropocentric perspective. Second life, reproductive technologies, genetically modified food, our everyday life prostheses (smartphones, smartwatches, our permanent connectivity to internet) blur former distinctions between the human and non-human, the human-machine, revealing the non-naturalistic basis of our contemporary society. The human subject is not anymore conceptualised as an isolated singularity, but as a hybrid compound in permanent metamorphoses. This constitutes an opportunity to pursue alternative schemes of thought, knowledge and self-representation, as critical posthumanism puts forward. It is the posthumanism of scholars

like Rosi Braidotti which gives further impetus to Guattari's project in the call for the recomposition of subjectivities in order to tackle environmental, social and cultural crises. If Guattari asks himself how to reinvent social practices restoring the sense of responsibility to humanity for the survival of all life on the planet, Rosi Braidotti would answer:

> [...] the posthuman emphasis on life/zoe itself can engender affirmative politics. Critical post-anthropocentrism generates new perspectives that go beyond panic and mourning [insofar as] it produces a more adequate cartography of our real-life conditions because it focuses with greater accuracy on the complexities of contemporary technologically mediated bodies and on social practices of human embodiment. (Braidotti, 2013, pp. 103–104)

For Braidotti, the posthuman predicament entails the end of a particular conception of the human dominating Western humanist culture. Against a liberal humanist conception of the subject, the vision of the posthuman sets itself as a new resource when considering the intricate relations between human life, non-human life and technology in their planetary becoming, fostering an effective qualitative transformation of subjectivity. The ethical dimension projected by the acknowledgement of the structural, transversal and post-anthropocentric bond implied in the position of the posthuman subject aims at the creation of a new social nexus and new forms of connection with techno-others. This is how Braidotti's nomadic approach fuelled by a conception of matter as self-organizing and the generative, dynamic force of non-human life (zoe)[1] provides means for an eco-philosophy of becoming. The crucial question becomes: "What kinds of bonds can be established within the nature-culture continuum of technologically mediated organisms and how can they be sustained?" (Braidotti, 2013, p. 123). The task of the eco-philosophy of inclusive becomings would necessarily be occupied with creating concepts, affects and new planetary subjectivities, redefining elemental notions of kinship and accountability not only towards humans but also towards non-anthropomorphic and technologically-mediated others.

In the following lines I would like to open up an itinerary triggered by the axes of becoming that define Braidotti's eco-philosophy engendered by the political economy of the posthuman subject. According to Braidotti, the diverse mutations defining the new structure of the post-human subject are brought

1 Braidotti defines zoe as the generative power that flows across all species as opposed to bios, or discursive life limited to the anthropos (Braidotti, 2013, p. 103).

about by a new proximity with non-human life, the planetary dimension and the high levels of technological mediation we are immersed in the Anthropocene, the geological era of modern man also known as capitalocene, the geological era of capital (Moore, 2016). The anthropological exodus is activated by a variety of becomings, namely becoming-animal, becoming-earth and becoming-machine. These three becomings are instigated by a radically different conception of the animal, the earth and the machine. The particular use of "former" becomes an analytic and creative method of de-familiarization and de-codification aiming at transforming institutionalized habits of thought, generating alternative figurations. These new figurations are perceived as the basis for new ways of being with and relating to others. The starting point is the disaffection to notions of moral rationality, unitary identity, transcendent consciousness and universal moral values. The critical awareness towards the dominant vision of the subject and its effects of power upon our very thought becomes the condition of possibility for creative alternatives involving the envisioning of different kinship systems and experimentation with ethical relations.

Braidotti's thinking is underlain by the philosophy of Deleuze and Guattari in departing from a Spinozist monism as a basis from which to overcome hierarchical and binary thought, locating the question of the environment in its full complexity. I would argue that Deleuze and Guattari's and Braidotti's vital materialism provide a more egalitarian, self-critical and ecological understanding of the present and the future, insofar as it allows for going beyond the privileged positions of humans as the only carrier of agency and meaning generation that distinguishes the anthropocentric paradigm of Western culture. The geological, socio-economic and cognitive condition of the Anthropocene we are all immersed in calls for the recomposition of subjectivity from a post-anthropocentric, geo-centred approach, promoting a life-centred egalitarianism. We, dwellers of the Antropocene, geophysical agents of planetary scale in the advent of the third decade of the twenty-first century, live in nature-culture continuum as evidenced by the environmental collapse compromising all life on Earth. But moving from a pessimistic lament, the posthuman condition, where human and non-human bodies are connected through a pan-human bond, constitutes a call for reconfiguring our relation to our habitat, our milieu, and the renovation of subjectivity.

This is possible because the subject is not anymore seen as unitary, but embodied, embedded and extended. Instead of basing the moral intentionality on the cognitive universalism of rational individualism promoted by humanism, the subject is inscribed according to the effects of truth and power of their actions over others as anticipated by Foucault and Deleuze. Moving from the

universalism of liberal humanism that privileges individualism, the position of the posthuman subject is seen as structured in power locations from which an ethical accountability is projected: the nature of the subject lies in its relational structure, not alien to the coordinates of gender, sexuality and race. No longer trapped in the logic of dialectics, the subject is linked and bound up to multiple others as it merges with its environment. Posthuman theory emerges as a project aimed at experimenting with what the bio-technologically modified bodies are capable of doing as transversal, relational and vitalist subjects.

The decentring of the human as a measure of all things and the fall of human uniqueness and exceptionalism that is central to the posthuman condition implies the blurring of the former borders and relations between man and his others. The decadence of humanism paves the way for the emancipation of not only racialized and sexualized others, but also technological and naturalized others: animals, planet, and the cosmos. This opens up productive possibilities, new alliances between humans and non-human entities in new forms of more-than human cosmopolitics.[2] The political economy of the posthuman subject is unfolded by the Spinozist monism operating through the method of life-centred egalitarianism, which is centred in the role of ethics based on relations and interdependence, valuing human, a-personal and non-human life. It is geared to the transversality of relations across material, symbolic and discursive lines, and to the force of affect. In the posthuman predicament, notions of difference and dissymmetry of power relations continue to be central: the differences based on the coordinated of sexualization, racialization and naturalization function as a mechanism for the production of alternative transversal forms of subjectivity extending beyond humans.

Posthuman becomings

The decadence of humanism translates into a generative and productive reconfiguration of the relation of human-animal from an anti-oedipal perspective within a fast-changing techno-culture causing transformations in every field. The old way of relating to animals is being rearticulated through a non-human egalitarianism that urges us to engage with more equitable relationships with naturalized others. As Braidotti argues, the bio-genetic stucture of advanced capitalism that sees all living entities as marketable and profitable constitutes

2 For an account of the possibilities of art to be understood as a model of more-than-human cosmopolitics, see Alonso (2018).

an opportunity to reconsider kinship systems and questions of accountability between the two former separate realms. Post-anthropocentric posthumanism suggests that "no animal is more equal than any other, because they are all equally inscribed in a market economy of planetary exchanges that commodifies them to a comparable degree and therefore makes them equally disposable. All other distinctions are blurred" (Braidotti, 2013, p. 71). The acknowledgment of the common vulnerability of our bonds can lead to new forms of community. There is a particular need of implementing transpecies links beyond humanization of animals and the perspective of empathy. We need new figurations, representations and cartographies of these new postnatural filiations. The becoming animal of the anthropos would precipitate a relation of familiarity between, for instance, female humans with the material and symbolic positioning of sheep Dolly and oncomouse understood as hybrid creatures, as nature-culture compounds.[3]

The renewed subjectivity enabled by the planetary dimension brought by ecological upheavals engenders a geo-centred, post-anthropocentric subject immersed in the dynamics of the posthuman condition. The becoming-earth is set in motion by a materialist and immanent approach linking the planetary dimension with the cosmic one. The starting point is the acknowledgement of a vitalist conception of matter as capable of self-organization. From this follow the perception of the co-dependency between human and non-human entities. The becoming-earth introduces mediated relations with technology that are elemental for the subject formation. We need to extend the scope of our subjectivity to post-anthropocentric immanent relations. Spinozist monism implies "open-ended, interrelational, multi-sexed and trans-species flows of becoming through interaction with multiple others" (Braidotti, 2013, p. 89). The geo-centred posthuman subject is then seen as a transversal entity encompassing the human, the non-human, technology, and the earth as a whole. In acquiring its planetary dimension, the posthuman subject inhabits another earth.

Spinoza's mind and body continuum underlying Braidotti's posthuman subject points to the disappearance of everything considered outside of man, what is exterior to man, claiming that everything is in immanent connection. From this very basic principle it follows that if we damage our environment we will cause damage to ourselves. Spinoza's monism is the basis from which Braidotti posits what she calls a life-centred egalitarianism that would ensure the sus-

3 Sheep Dolly is the first mammal in history to be cloned from an adult, somatic cell. Oncomouse is the first patented laboratory mouse, genetically modified to carry an oncogene, widely used for cancer research. See Haraway (1997).

tainability of the subject in its relationship with the sexualized, racialized and naturalized others. This ethical question replaces the logic of recognition by the notion of co-dependence between species and the moral philosophy of rights for an ethics of sustainability. Sustainable futures will thus emerge inasmuch as we understand life not as an estimate, but as a project; not organised around need but around desire, understood as an ontological force of becoming, which encourages us to go on living, to endure. It is in this sense that affirmative ethics offers an eco-philosophy of multiple belongings and the adscription of subjects constituted in multiplicity.

The nature-culture continuum pressuposed by the Anthropocene is technologically-mediated. Technology is our environment transforming our relation to the social ecology and the ecology of the mind. The merging of the bodies and technology translates into a transversal, hybrid and vital compound offering renewed possibilities for the subject formation and our reconfiguration with our habitat. Just as matter is self-generative, machines are autopoietic and hence they have their own forms of subjectivity. Desiring machines are exhorted to pair up with technological, non-human machines as with organic, non-human machines, creating symbiotic relationships. It is in this way this posthuman nature-culture-technological hybrid compound might be perceived as an ecophilosophical unit operating in the nature-culture-technology continuum. Braidotti argues, following Guattari, the relations of this ecophilosophical unit are sustained by the vitalist ethics of mutual trans-species interdependence. Ecology is generalyzed into an ecosophy that aims at signalling the multiple nodes connecting the subject with both living and non-living entities. Moving from a vision of the subject as unitary, of trascendental consciousnes and innate moral and universal values from which the success of the liberal humanist subject is postulated, the attention is shifted now to non-profit ethical relations and the experimention with multiple virtual possibilities escaping from commodification. This is geared by a praxis, a methodology, rather that a normative, dominant conception of thought.

Posthumanist ecophilosophy becomes a materialist method of tracing the network of intricate relations connecting subjects with environmental ecology, social ecology and the ecology of the mind. Far from abolishing difference, it profoundly rearranges the process of sexualization, racialization and naturalization central to the necro-biopolitical governmentality of advanced capitalism. In other words, the realization of the hierarchization of differences with which the humanist Man justifies exclusions based on the axes of sexualisation, racialization and naturalization, producing disposable other-than-humans in his system of representation, would not entail the dissapearance of differences

but these would become the pillars around which a criticism of what counts as human would be held (Braidotti, 2013, p. 95). The disidentification with the unitary vision of the self, the "not-One" that is integral to the posthuman subject, becomes a difference in itself, and produces forms of ethical responsibility that are embedded in it. The not-One structures our subjectivity through the acknowledgement of the bonds linking ourselves with the multiple others. The experience of the not-One is the very effect of the encounters, interactions, affectivity, and desires coming from others and from everywhere. A materialist posthuman politics of difference and accountability based on the experience of the not-One is capable of guiding social practices of a collectivity, recomposing the socius on the basis of a recognition of the structural interdependences connecting ourselves with the multiple others.

I suggest the post-anthropocentric coordinates where the posthuman subject is located can lead to a radically different understanding of the art practice. Following Guattari's radical machinic ecology and Braidotti's generative eco-philosophy of becomings, I argue that art can be seen as a machine enabling exodus from former conceptions of animal / nature / the human by intensifying them. The intensifications of the art machine lead to a zone of indetermination that is open to non-familiar durations. They actualize a different sense of space, and are of a collective nature since they anticipate a new collectivity, a new social body. These intensifications come about in the interactions held in the aesthetic encounter as an event of shared materiality, which is situated between the actual and the virtual. It is from this conceptualization of art with a clear ethical orientation that we can think art, instiutional practice and cultural becomings in terms of environmental sustainability in the postnatural and posthuman, technologically-mediated era of the Anthropocene.

Art eco-machinics

The dehumanizing force and the simultaneous emergence of non-human agency brought about by the posthuman predicament becomes the condition of possibility to rethink our modes of relation and cultural practices, including art creation. If there is nothing but machines, art can be considered as one, as Guattari does. Guattarian machinism, as it operates in art, is engaged in arranging signifying and non-signifying, human and non-human, natural and cultural, material, discursive and representative elements, recomposing universes of subjectivation beyond capitalistic formations. These elements are assembled in a machine, which is stratified by multiple ecologies (environmental, social, men-

tal). Because a machine does no other thing than connections, coupling and pairings in a regime of permanent flux and exchange, the machinic understanding of art provides generative ways of infusing a new sensitivity towards borders, transitions and becomings of bodies. It also brings possibilities to critically reconsider visual regimes historically dominating the relations of art-nature-technology, shifting from a reified vision seduced by their own imaginaries trapped in the domain of representation, to an ethical-political practice enabling survival of all living entities.

Art, for Deleuze and Guattari, consists of an intensive practice pointing at the creation of new styles of thought and the sensation of and experimentation with the infinite possibilities of life. The diverse components of the machine connect art with the material forces surrounding us: animal, vegetal, mineral, molecular, etc. Art machines constitute themselves in a conglomerate of mutating values. They organize themselves in self-enuntiative systems configuring complex affective subjectivities and mediatized in multiple ways. Against the reductionism imposed by phallogocentrism over contingency, linear causality and the signification of its allegedly stable structures, machines of aesthetic creation manage to reveal the strangeness of the world, forging universes of value and opening up lines of flight to new existential territories, thus contributing to a radical redefinition of life's self-generative power. It is in this way Guattarian art machines may counteract environmental and social unsustainability in the era of the Anthropocene.

Within the parameters of our posthuman condition defined by a new human-non-human interdependence, it becomes imperative to rethink the notion of matter as the shared realm where bodies encounter within a vibrating flux of energies. I would argue that art has the potential to encounter non-anthropocentric traits of matter. In revealing other semiotics than language, such as affects and sensualities, a more graspable and tangible effect of materiality is possible through the art encounter. If affect, according to Spinoza's theory of affections, is a transmission of two sorts of affections originated inside and outside the individual, it follows that to affect is to be affected by particular bodies which are immanent to a machinic ground as the shared field of encounter in which we open ourselves up, letting ourselves affect and be affected by bodies. This capacity to affect, to open up, is preserved in artwork as blocs of sensations, as compounds of affects and percepts, as described by Deleuze and Guattari. Affects and percepts are independent from whoever experiences them: "The percept is the landscape before man, in the absence of man". Each artist uses their own style "to raise lived perceptions to the percept and lived affections to the affect" (Deleuze and Guattari, 1994, pp. 169–170). Style is not

understood in terms of identity, personological, of unitary signification that would pressupose a trascendental ego, but rather as an asignifying operator of an immanent, impersonal force. The artist creates blocs of affects and percepts that are sustained in time. Percepts do not refer to an object, but only refer to its material, being the very percept or affect of the material itself: "It is the affect that is metallic, crystalline, stony, and so on; and the sensation is not colored but, as Cezanne said, coloring" (Deleuze and Guattari, 1994, pp. 166–167).

The artist does not represent affections through perceptions but creates and presents affects in relation to percepts or visions. Insofar as affects are non-human becomings of man, and percepts are non-human landscapes of nature, sensation channels matter's expressive qualities via the art encounter. Art as beings of sensation makes visible the intensities and forces of materiality beyond cultural machines of representation and interpretation. Art connects us to the world, enabling us to resonate with the realm of shared materiality, composing the molecular and the cosmic in the artwork understood as a being of sensation. Art encounter is capable of opening up thresholds of intensity unleashing non-human energies and triggering posthuman becomings, and in so doing we experiment with what a body can do. Intensive thresholds activated by the art encounter allow us to hear the roar of cosmic energy. Through affect we encounter an active, self-expressive, intensive matter with which we interact in a relational process in which meaning and affect interweave.

Affects make perceptible the imperceptible non-human forces inhabiting the cosmos. Although affects are incorporeal, they are material, real and present. The event of the becomings is understood not as an act of tranformation of two bodies but of transmission of sensation between them. The thresholds of intensity we access by the art encounter are defined as zones of indetermination where bodies gather in a pre-individual state as larval subjects, preceding the natural differentiation of humans, animals and things (Deleuze, 1994, p. 167). This is precisely the great power of art, the capacity to project a zone of indetermination, an experiment guided by what Deleuze and Guattari refer to as the becoming-minor and an intensive variation. In turning the material into sensation, art is said to inhabit this zone of indiscernibility, the plane of radical immanence where former distinctions between genus, sex, orders and kingdoms are no longer meaningful. Thresholds of intensity mutate into thresholds of neighbourhood among all living entities.

Within the parameters of the art encounter, affect emerges within shared vibrating materiality, acting upon our nervous, muscular, lymphatic, hormonal systems, thus revealing the possibilities of being with the world as opened

to non-human becomings. The realization of the body's capacity to affect and being affected within the art encounter amounts to a process of disorganization of the triangle of perceptions, affections and opinions, replacing it with a bloc of percepts, affects and sensations that are open to a "connection of desires, conjunction of flows, continuum of intensities" (Deleuze and Guattari, 1987, p. 161). Because the sensory becoming is the process by which someone or something becomes-other without ceasing to be what they are, becoming is pure heterogeneity, equipping the virtual event with corporeality, with a universe before us. Because according to Deleuze and Guattari, the only possible definition of art is aesthetic composition; as the work of sensation, art can never be said to be representationalist. This account provides a radically different approach to art history, which is no longer understood in terms of a dichotomy "representative or not" but as a compound of sensations, after the technical plane of composition is being covered up by the aesthetic plane of composition. This is the condition for matter becoming expressive in an event that will determine posthuman becomings as opened to cosmic forces.

If matter is considered to carry singularities and traits of expression, art can reveal new, emerging forms of subjectivity in this process of matter as self-reconfiguration and re-arrengement. Art does not express but creates meaning as new reconfigurations or entanglements of ethics and aesthetics. Art can be approached as the exercise of relational entanglements between bodies that are grounded in their ethical-aesthetical dimension through affects. This is of course not possible according to a conception of the image constrained by mental representation and interpretation that would privilege a linguistic order, but of a philosophy of becoming and metamorphosis that would envision a conceptualization of art in terms of an ethology of creation. This is what underlies Anne Sauvagnargues' account of artmachines distinguished by its ecological spectrum. Informed by Guattarian ecological semiotics and Deleuze's account of the image as real individuation, art is defined as a machine capturing forces and materials, and artistic creation as a procedural development of desiring machines and machinic assemblages. The work of art is not anymore described as a form-subject matter compound, but a modulation of forces and materials, constituting an ecosophical unit.

What defines the ecology of images is the modulation of material, biological and social codes in which regimes of signs connect the linguistic, discursive signifier to an asignificant material including vital, material and technical codes. By tracing a connection between the Guattarian ritornello and the Bergsonian problematic of the image that Deleuze unfolds in his work on cinema, Sauvagnargues emphasizes the generative qualities of the image once liberated

from its representative function as "material doubles of a representation or thought" to situate it "on the surface, as sensation, within an ethology of sensory individuations" (Sauvagnargues, 2016, p. 50). The image is defined as a vital process of differentiation: "it unfolds upon maps of affects in an ecological semiotics and an ethology of territory". That is, instead of defining art as an image that is perceived by a consciousness or having an interpretative function, it becomes "an effect of matter, an image-movement" (Sauvagnargues, 2016, p. 46), displacing the interpretation and the old paradigm of mimesis in favour of experimentation and becomings. And this effect of matter is catalysed in collective modes of subjectivation: "the problem of the image no longer envelops the status of a thought, capable of reflecting on the effects of its use, as was the case in the image of thought, but concerns rather the production of a subjectivity, individuating itself through matter" (Sauvagnargues, 2016, p. 48). This vital-social perspective of the image analysed from a philosophy of becoming, individuation and metamorphosis, is what enables Sauvagnargues to see art as a machine, as a capture of resonating material forces:

> The image is no longer concerned with a specular confrontation in the form of a fantasy (a mental image) or a symbol (structural homology) when it is conceived as individuation, the experimentation of a typewriter that explores new vital and social speeds. As soon as the image becomes capture, proximity, intensive composition between two terms that nevertheless remain different, a circuit opens, a motor-sensory arc through encounters and the composition of relationships between longitude and latitude, and not immediate, instantaneous reflexivity. (Sauvagnargues, 2016, p. 52)

This conceptualisation undermines the spiritual, privileged status of art within aesthetics as a unity or stable identity, as independent from culture. Art is now understood as a technical, political and social semiotic no different from other image-movement. If matter is expressive, art is not even an exclusive activity of humans. Art is being done also by non-human animals according to their physiological conditions, which they shape to their surrounding worlds. Regimes of perceptual and affective signs generate composition of space and time – what Deleuze and Guattari call ritornello – creating territories for expression and interaction in an expanded aesthetics. Matter is deterritorialized and reterritorialized in the creation of an element signalling a delimitation of a territory. This force is then, not spiritual, but material individuation. The artist as a non-formed, non-organized, non-essential impersonal individuation creates images that do not represent any double material imposing a model or

copy but present real production. By becoming animal, earth and machine, the artist deterritorializes the human, sliding across the smooth space of the immanent, non-hierarchical field where bodies are situated in proximity, experiencing encounters.

Following Sauvagnargues, the art encounter is open to an ethics of affects and ethology of bio-social machines, to an ethology of power understood as the capacity to affect and to be affected by. The analogical metaphor is being replaced by an ecological image, a becoming-image, "a new individuation that creates an original haecceity, a constituting image that carves out a zone of new experience" (Sauvagnargues, 2016, p. 52). The image understood as individuation, as a matter-movement, composes transitory, always varying relations of forces. It is in this way the image can be perceived as subjectivating, "shifting from perception-image to action-image by way of affection-image" (Sauvagnargues, 2016, p. 55). Through the ecological art machine we become sensitive to the forces of the cosmos that are captured by artists after being confronted with chaos from which the matter of creation is extracted. The artist pulls out from chaos a set of forces that are modelled in compounds of affects and percepts, intensities that have become expressive. Chaosmosis consists in extracting from the infinite virtualities of chaos, new and always different forms of being in a process of perpetual constitution (Guattari, 1995). This metamorphosis is possible because a composition of time and space (ritornello) have taken place: territorializating and deterritorializing. In the former, sounds, songs, colours and other set of signs unify life in the same immanent plane where species meet. In the latter, chaos manifests itself back again, not as destructive but creative, in the form of molecular creation.

The artist, now understood as a cosmic craftsman, does not represent pre-existing sounds or images but makes audible and visible, asimbolic, asignifying forces and materials beyond meaning and language, underlying every new experience brought about in the art encounter. Artmachine is defined by a vital mechanism of emergence of a world always new in the plane of the real. Its function is to open up, materialize, compose, build a world, a new reality that was always there yet uninhabited. A world in which modes of being, new forms of existence, operate as multiple forms of becoming in perpetual emergence. Artmachines provides blocs of sensation, connecting semiotics with material flows. Its function is not transcendental, neither is an identity or category of being, but it is pure matter function, a vital process of experimentation. Artistic creation can be seen as dissolution, as merging with the vibrating, intensive and expressive matter constituting our bodies, constituting the world. It is

precisely in the affirmation of our powers of composition, experimentation with our modes of existence, unleashing new realities, liberating ourselves from the constraining limits of representation when we meet the deterritorializing power of the machinism operating in art. It is in this sense that the maps of affects as power unfolded by the artmachines and the ethology of bio-social machines infuse art with great power to overflow capitalist mechanisms of subjection.

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Feeling the curve of the earth: deviant democracies and ecological uncertainties

Maja Fowkes, Reuben Fowkes

> By slowing down you feel the pulse of things; you snore, you have all the time in the world; calmly, all of life…We have all the time. We savour…We no longer believe that we know. We have no more need to count…We feel the curve of the Earth…We no longer betray the soil, no longer betray the minnow, we are sisters by water and leaf. (Henri Michaux, "La Ralentie", 1938)

The importance of feeling and not merely knowing the scientific truth of the curvature of the earth was voiced by Belgian poet and artist Henri Michaux in his timely meditation on "slowing down" from 1938. It was indeed at the very moment when human technologies, society and economy started to speed up in a movement later termed the "Great Acceleration" that the poet highlighted the need to reduce the velocity of our interactions with the natural environment. The poem was chosen by the authors of *The Shock of the Anthropocene* to illustrate the insights offered by artists and writers into the predicament of today's human-dominated epoch, as well as to point to the longevity and prehistory of the understanding that humans have become a geological force on Earth with the power to override natural processes (Michaux, 2016, p. 96). "La Ralentie" can also be read for its intimation of the possibility, if humans did manage to slow down and readjust their relation to time and the pulse of the material world, of a more responsible attitude to the animals, plants and soil from which we are ultimately inseparable.

The material basis of the vital connection between humans and the natural environment was investigated in the same period by Russian-Ukrainian scientist Vladimir Vernadsky. Observing that life can only exist on a thin layer in the troposphere that extends across land, fields, forests, waters and oceans where the right biogeochemical conditions pertain, Vernadsky conceived of the biosphere as an envelope encircling the globe from which all living organisms are elementally indivisible. Anticipating ideas of the Anthropocene that were to crystallise more than half a century later, he noted that humans have

for the first time become "a large-scale geological force", with the combination of "mighty technology" and "scientific thought" in the current "anthropogenic era" creating a novel situation in which "mankind has become a totality in the life of the Earth" (Vernadsky, 2014, p. 80). At the same time, latent criticism of the arrogance and indifference to the natural world of technological man could also be read in his cautionary observation that "in reality no living organism exists in a free state on Earth", since they are all "inseparably and continuously connected with their material-energetic environment" (Vernadsky, 2014, p. 80).

In keeping with the obligatory optimism of Soviet science and culture at the time, Vernadsky projected an affirmative outcome to this new situation due to the potential for the development of the human mind. He identified the Noösphere, a term he derived from the Greek words for mind and sphere, as the "stage through which the biosphere is now passing geologically", proposing that "an immense future is open before man in the geological history of the biosphere", if he does not use his "brain and his work for self-destruction" (Vernadsky, 2014, p. 82). Intriguingly he also considers the political implications of the Noösphere, arguing that for first time in the "history of mankind" a balance could be struck between the "interests of the masses" and the "free thought of individuals" that will determine the "course of life" and give substance to "mere ideas of justice" (Vernadsky, 2014, p. 82). Visualised also in a photographic series by Slovak artist Rudolf Sikora as a dematerialised layer of planetary thought (Fowkes, 2016b), Vernadsky's concept of Noösphere pointed both to the technocratic panacea of artificial materials and life-forms and towards the unexplored potential of cosmopolitical solidarities and freedoms.

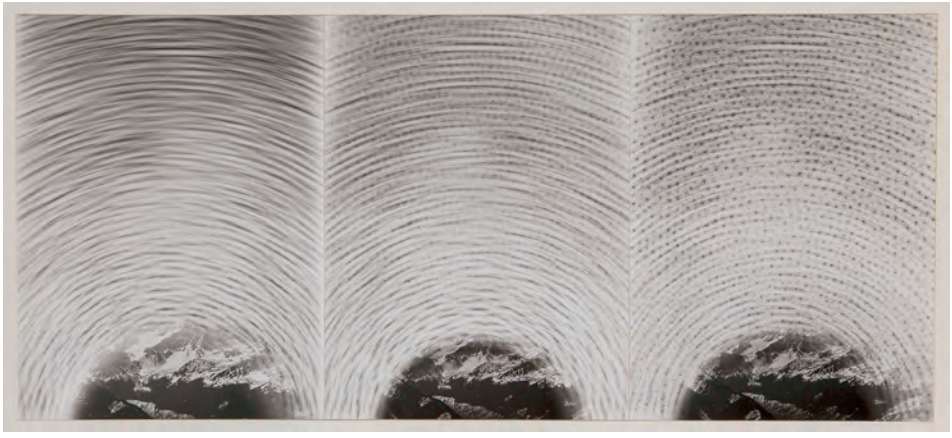

Figure 1. Rudolf Sikora, *Noösphere*, photomontage, 1981.

The allure of the artistic and intellectual culture of the mid-twentieth century derives in part from the similarities felt between the dilemmas of today and of an earlier phase of industrial modernity marked by economic crisis and the rise of authoritarianism. The technological developments of the period sowed the seeds for a period of accelerating environmental impacts reflected in the matching upward curves of the twelve socio-economic and twelve Earth system indicators on the "dashboard display" of the Anthropocene (Bonneuil and Fressoz, 2017, pp. 10–11). For instance, the farming revolution of the 1930s, leading to the adoption in the West and later export to the rest of the world of a model of cultivation based on tractors, chemical fertilisers and pesticides, both created an ultimately untenable dependence on fossil fuels for food production, and hastened the alienation of an increasingly urban population from the natural world. It is perhaps only by revisiting the crime scenes of the onset of petro-capitalism that its corrupting influence on contemporary political and social structures can be diagnosed and then confronted, including in this context the oligarchic deformations of an art world that remains in thrall to the ill-gotten profits of extractivism.

The current resetting of critical terminology in light of the gargantuan implications of the variously contested yet still highly productive notion of the Anthropocene can be seen in the writings of anthropologist Elizabeth Povinelli, who in *Geontologies: a Requiem to Late Liberalism* (2016) provides a significant update to Michael Foucault's theorisation of the mechanisms of power. Her compelling argument is that in a contemporary world in which states are concerned above all with the struggle for control over dwindling natural resources and the management of the geophysical effects of climate change, the concept of biopolitics, centred on regimes of governance with the power of life and death over human bodies, is inadequate. She has proposed instead the term geontopower to describe the "set of discourse, affects, and tactics used in late liberalism to maintain or shape the coming relationship between Life and Nonlife" (Povinelli, 2016, p. 4), since for Povinelli it is not primarily the drama of individual life or death that is at stake today, but the survival or extinction of humans, biological life and the planet itself. She notably takes issue with proponents of the rival concept of the Capitaloscene, whose refrain that it was not humanity as a whole, but a specific form of human society that bears ultimate responsibility for ecological crisis diverts attention away from the underlying antagonism between "humans and other biological, meteorological, and geological forces", as well as Life and Nonlife (Povinelli, 2016, p. 12).

The *anthropos*, with its brief but momentous walk-on role in the deep history of the planet, should, Povinelli insists, be seen as "just one element in a

larger set of not merely animal life but all of Life as opposed to the state of original and radical Nonlife" (Povinelli, 2016, pp. 8–9). The increasing difficulty that theorists have in "demonstrating the superiority of the human to other forms of life", or maintaining the distinction between "all forms of Life and the category of Nonlife", is indicative of the challenges posed by climate change to Western ontologies (Povinelli, 2016, p. 14). The geontology proposed by Povinelli and articulated through the figures of the Desert, Animist and Virus draws on the insights and methodologies of indigenous cosmologies to radically reconfigure the historic divide between Life and Nonlife. In the Anthropocene, she pointedly concludes, "Life is not the miracle – the dynamic opposed to the inert of rocky substance", but a moment in the "unfolding of Nonlife", merely "another internal organ of a planet that will still be here when it is not" (Povinelli, 2016, p. 176). It could be noted here that, writing at the other end of a period of history now framed by the Anthropocene, geobiochemist Vernadsky also problematised the divide between Life and Nonlife by drawing attention to the mass of "former biospheres" that make up a significant proportion of the planetary crust and distinguishing these from volcanic rocks that were never alive. Also relevant to the argument of this paper is the fact that Povinelli never loses sight of geontopower as a manifestation of liberal governance, and it is the implications for the practices of democracy that are considered below.

There have been various attempts to pin down the characteristics of the current political order and actual mode of functioning of nation-states, which while still inhabiting the reified constitutional forms that developed with the rise of the bourgeois public sphere in previous centuries are now driven by a different set of forces and interests. Theorists have identified the cause of the political malaise afflicting democratic institutions in the rise of an oligarchic class straddling business and politics that flourished under the conditions of neoliberal globalisation. The direction of travel was identified by Colin Crouch already in 2004, with his characterisation of the post-democratic society as one in which "behind the spectacle of the electoral game, politics is really shaped in private by interaction between elected governments and elites that overwhelmingly represent business interests" (Crouch, 2004, p. 4). Arguably such narrowly human factors are now eclipsed by reconfigurations in the geopolitical landscape engendered by climate change, resource depletion and species extinction. In that sense, recent deformations of the political arena that have drained the certainty from fixtures of the global order and seen the undermining of the territorial integrity of states, the rule of law in international affairs, respect for human rights and even the principles of multilateral agreements, free trade and private property, can be ultimately traced to the new logic of geontopower.

The evolving relationship between forms of governance and fossil fuels has been examined by Timothy Mitchell, who in *Carbon Democracy* charted the structural implications for politics and society of the shift in the mid-twentieth century from an energy system based on coal to one dependent on oil (Mitchell, 2013). The form of "petroknowledge" that corresponded to the age of oil, he argues, was based on an abstract understanding of the economy as unconstrained by "spatial and material processes that had physical limits", along with the calculated exclusion of nature from politics (Mitchell, 2013, p. 139). Consequently, the rapid increase in the availability of low-cost carbon energy from the mid-twentieth century led to a form of governance based on the "administering of collective life based on the novel principle of unlimited economic growth" (Mitchell, 2013, pp. 9–10). In terms of politics, it is notable that petro-capitalism also brought through its "modes of control" a "weakening of the forms of democratic agency" in relation to the "mass democracy" of the age of coal (Mitchell, 2013, p. 143). Mitchell's cautionary prediction for the post-fossil fuel era is that the world will see an increase in "political uncertainties", with no guarantee that the "dematerialised and de-natured" politics of an oil-based economy will be replaced by a decentralised, democratic culture of renewable power, and not "xenophobic nationalism" (Mitchell, 2013, p. 238).

The correlations between the post-democratic tendencies of the new populism and the vested interests of the extractivist industrial complex should not be ignored, with the conceit that climate change is a hoax the most significant and glaring untruth of a demagogic politics based on the self-serving delusions of "alternative facts" and "fake news" that with the election of President Trump took the world's leading democracy into uncharted territory. Nor is the threat currently posed to the institutions of civil society by constituencies that dispute the liberal consensus upon which representative democracy has been historically based particularly new or unprecedented. It is to mid-twentieth century philosophers such as Hannah Arendt that critics of the debilitating popularism of the present day have turned, with her discussion in a piece for the *New Yorker* in 1967 of the relationship between truth and politics taking on renewed topical relevance. Her comment that "from Plato to Hobbes", no one had ever believed that "organized lying, as we know it today, could be an adequate weapon against truth", designation of the judiciary and academia as "refuges of truth" exposed to all the "dangers arising from social and political power", and insight that the opposite of factual truth is "neither error nor illusion nor opinion", but the "deliberate falsehood", provide an adequate description of the dangers of deviant democracy, but no obvious solution (Arendt, 1967).

Historian Francis Fukuyama, much maligned in the 1990s for the triumphalism of his pronouncement that the fall of communism marked the "end of history" through the conclusive victory of liberal democracy and the free market system as the final form of human government, has recently conceded that nothing had prepared him for the fact that democracy could also go into reverse (Tharoor, 2017).

A similar state of disbelief afflicted art historian Jindřich Chalupecký, who at the onset of hard-line Stalinism in Czechoslovakia in 1948, described the mechanisms by which democracy had been hollowed out from within. In addition to administrative measures to curtail free speech, he drew attention to reversals in the public sphere and a crisis of truthfulness, whereby thanks to the "use of the power of persuasion" and the "skilful exploitation of organisational techniques", those who previously "had not been taken seriously by anyone, suddenly gained positions", while "people with integrity became speechless" (Chalupecký, 2002, p. 30). The destruction of the pluralist consensus of post-war Czechoslovakia was not unrelated to the decision to embark on a programme of breakneck industrialisation based on the unlimited exploitation of humans, other species and the natural environment. Arguably the contradictions between the economic model of neo-liberal globalisation based on fossil fuels with its culture of extractivism and the need to face up to the hard realities of climate change are also a factor in current deviations from democratic norms.

The current geopolitical landscape has been shaped by the rearguard actions of the agents of a geontopower that seeks to maintain control of unstable planetary processes and in opposition to an emerging political ecology that proposes a radically different response to climate change. That a rival "politics of nature" poses a profound threat to the economic and political order of the age of oil is clear if we consider the practical implications of the programme summarised by Bruno Latour as "finally modifying public life so it takes nature into account, finally adapting our system of production to nature's demands, and finally preserving nature from human degradation through a sustainable politics" (Latour, 2014b, p. 2). Recognising the need to rewrite the "rules of the game", Latour insists further that political ecology deals not with "inhuman and ahistorical" nature, but with "associations of beings that take complicated forms – rules, apparatuses, consumers, institutions, mores, cows, calves, pigs, broods" (Latour, 2014b, p. 21). Discussing the drafting of a new, "pluriversal" Constitution, which in light of recent developments in planetary jurisprudence seems a much less speculative project, he proposed the "exchange of properties, human and non-human pairing" as the basis for a "political ecology of collectives consisting of humans and nonhumans" (Latour, 2014b,

pp. 60–1). Indeed, Latour's *Politics of Nature*, the French version of which was first published in 1999, laid the groundwork for the ongoing elaboration of a cosmopolitical debate on the future of the earth encompassing animals as well as humans, plants as well as animals and the non-living materiality of the planet as well as biological life.

The ecological urgency of the cosmopolitical proposition can be detected in Peter Sloterdijk's more recent call for a "new constitutional debate" involving a "network of processes" to "reconstitute the collective of Earth Citizens as a collective subjective in various arrangements" (Sloterdijk, 2015a, pp. 338–9). The political subject anticipated in such cosmopolitical deliberations has been notably expanded to encompass not only the silenced majority of humanity excluded from the post-democratic backroom deals of corrupt elites, but also to take into account "the cohabitation of the citizens of the Earth in human and non-human forms" (Sloterdijk, 2015a, pp. 338–9). In addition to his contribution to the forward-looking discussion of cosmopolitics, a debate that has also been profoundly marked by Isabelle Stengers seven-volume treatise on modern scientific claims to truth (Stengers, 2010, 2011), Sloterdijk also offers insight into the mechanisms of the existing political order. In *Stress and Freedom*, he has observed that nations are kept together through "a constant varyingly intensive flow of stress topics that must ensure the synchronisation of consciousness in order to integrate the respective population into a community of concern and excitation" (Sloterdijk, 2015b, p. 7). Present since the mid-twentieth century in the calculations of television news and sensational diet of popular entertainment, the supply of stress topics into the body politic now flows intravenously and uninterruptedly through the personalised feeds of social media based on the algorithms of Big Data. Sloterdijk's discussion of the conditions under which captive populations might shake off the stress-induced torpor of post-democracy is both cautious and realistic: "Revolutions break out when collectives intuitively recalculate their stress balance at critical moments and reach the conclusion that existence in the attitude of submissive stress avoidance is ultimately more costly than the stress of rebellion" (Sloterdijk, 2015b, p. 25).

The interrelation between the mechanisms of geontopower during what may turn out to have been for better or for worse the late Anthropocene and the crisis of post-democracy at a moment when inherited political structures show themselves inadequate to the task of representing a cosmopolitical community on the level not of the nation-state but of the planet, can also be detected in the manifestations of contemporary art. Such tensions could be identified for example in the case of the national pavilion of Azerbaijan at the Venice Biennial of 2015, the post-democratic tendencies of which could be located in its

skilful attempt to instrumentalise environmental art to give an outward appearance of contemporaneity. The exhibition *Vita Vitale* was housed in the beautiful fifteenth-century Palazzo Garzoni on the Grand Canal, a fittingly grand setting to display the work of twenty-seven international artists that included well-known figures such as Mircea Cantor, Tony Cragg, Julian Opie and Andy Warhol. Deploying a selection of environmental catchphrases, the exhibition concept was devised by a UK-based art consultancy firm offering "bespoke" curatorial solutions also to corporate clients. Appealing to the worthy desire to "grapple with the delicate balance of our planet's ecosystem and the impact of humans on the natural world", the introductory text also expressed the misplaced hope that the exhibition would become "a catalyst, a wake-up call, and a call to action for each and every one of us" (Allen, Culpan, Vanagan, 2015a, p. 11).

Significantly omitted from the impressive line-up of multimedia works and installations exploring "the consequences of plastic pollutants, consumerism, climate change, dwindling resources, deteriorating land and seascapes, rising sea levels, and endangered species" (*Vita Vitale*, 2015), were any artist projects dealing substantively with the role of fossil-fuels in global warming or the ecological damage caused by the oil industry to the natural environment. Also characteristic of the non-transparent approach taken in this exhibition was the preference for highly-aesthetic, object-based works offering a spiritual or transcendental view of nature, and the tendency to reduce ecological art to the use of natural materials. However, despite its progressive ecological theme and outward professionalism, the exhibition tellingly omitted to disclose the country's implication in climate change through the extraction of massive quantities of fossil fuels. In light of the urgency of the Anthropocene in which, to paraphrase Bruno Latour, all sites reveal themselves as sites of crisis (Latour, 2014a), arguably it is incumbent on the consumers of such artistic manifestations to examine the geontological structures upon which the spectacle depends. In the case of the Azerbaijan Pavilion, which is just one example of a widespread phenomenon, this would entail consideration of the relation between the political practices that have kept the Aliyev dynasty in power for decades and the machinations of Western states and their oil companies to maintain control of the country's fossil fuel resources.

Issues of geontopower are also pertinent to the dispute over the Dakota Access Pipeline in the United States, which also illustrates the high stakes and modalities of resistance. Designed to transport crude oil under the Missouri River, the pipeline was rerouted away from white communities in an act of "blatant environmental racism" to just north of the Standing Rock Sioux Reservation (McKibben, 2017). In autumn 2016 a protest movement of Water Protec-

tors led by representatives of two hundred Indian nations and joined by civic and environmental groups succeeded however in blocking the path of the pipeline, with activist and writer Naomi Klein celebrating the "rare" and "contagious" victory that "shows people everywhere that organizing and resistance are not futile" (Klein, 2016). In February 2017 an executive order from President Trump reversed his predecessor's decision and put the government's weight behind the building of the pipeline. What is important to note here, as well as the role of indigenous peoples in leading the global struggle against extractivism, is that the pipeline will, as environmentalist Bill McKibben has observed, have the equivalent carbon footprint of nearly thirty coal-fired power stations, making it significantly less likely that the United States will succeed in reducing its fossil fuel emissions. Such hotspots of conflict between protesters for climate justice and the post-democratic alliance of political elites and extractivist industries are also a testing ground for political and civic rights, with the geontological necessity of maintaining the exploitation of diminishing natural resources translating into measures to criminalise demonstrations and permit the use of overwhelming physical force against those who dare to resist (Harjo, 2017).

There are cases in which contemporary art has shown itself able to provide visibility to such campaigns on the frontline between a cosmopolitics that gives form to the ideal of a coming planetary community that recognises the rights of indigenous peoples, non-humans and the natural world and on the opposing side, the vested interests of petro-capitalism and its co-opted political elites pragmatically manifested through either neo-liberal globalisation or xenophobic nationalism. Exemplary here is Ursula Biemann's *Forest Law* (2014), which drew on research undertaken with anthropologist Paulo Tavares in the Ecuadorian Amazon in an area of oil and mining exploration in order to expose the pressure points of the indigenous struggle against extractivism (Biemann and Tavares, 2014).

Consisting both of physical materials, such as soil samples, maps and archival documents, and a two-channel video that gives centre stage to the voices of indigenous people who are mobilising against the destruction and despoiling of the forest, the work positions itself at the moment when an exploitative paradigm based on the rights of capital and property is displaced by the nascent recognition in the eyes of the law of the intrinsic rights of the earth. The artist described her intention as to delve into "cosmopolitical dimensions" by presenting a landscape that is "populated by all kinds of sentient beings", at a time when, in the age of the Anthropocene, the "usual, short-term, consumptive way of thinking that our economy thrives on is utterly insufficient" (Biemann, 2014, p. 6).

Diagnosing the ecological predicament of the present while facing a future

Figure 2. Ursula Biemann, *Forest Law*, film still, 2014.

without fossil fuels has led artist Tamás Kaszás back to the technological and cultural beginnings of the Great Acceleration. Through drawings and installations, he has sought to recover the artistic means, political outlook and visual language of utopian and leftwing groups of the 1920s and 1930s, highlighting the precarity of a material culture on the brink of transformation to an oil dependent, technological modernity. In *After Oil*, a work made up of a pair of graphic sheets, Kaszás presents two eco-catastrophist scenarios for a post-petroleum future.

On the one entitled "New Slavery", he depicts a labour-intensive dystopia in which humans are forced to take the place of fossil-fuel dependent technologies and are depicted carrying on their backs the relics of carbon civilisation, from plastic containers to filing cabinets and missiles. The more appealing future on the poster "Folk Science" is one in which people make use of hand-crafted tools designed on the principles of traditional practical knowledge that depend on cooperation and social equality, reminiscent of rural life before the oil-based farming revolution of the mid-twentieth century. Parallels could be drawn between the Hungarian artist's interests in the "folk science" of rural communities and the knowledge of indigenous peoples from which planetary cosmopolitics is equally poised to learn (Fowkes and Fowkes, 2016a).

One possible response to the dichotomy between the Twitter campaign that climate change is a "hoax invented by the Chinese" and scientific statements such as that four hundred people were killed in a month by air pollution in Tehran, that sixteen of the seventeen hottest years ever have been recorded since the year 2000, or that extinction rates are already 1,000 times the

Figure 3. Tamás Kaszás, *Sci-Fi Agitprop*, silkscreen print, 2012.

background level, is to assertively dispute the former. It is a matter of fact rather than opinion that the coming decades will as a result of climate change be marked by extreme weather, droughts and a rise in sea levels, with climate migration to higher, cooler, wetter lands and political instability seemingly unavoidable. Most chilling of all, and in line with the bleaker Anthropocene accounts such as that offered by Povinelli, are predictions that entertain an end date for the conditions of biological life on Earth, such as reports that if soil degradation continues, we have only sixty harvests left (Arsenault, 2014).

In an atmosphere in which post-democratic tendencies could take on viral proportions, even the "slow violence" carried out against the dispossessed of the Global South is accelerating and the hard-fought global pact to keep global warming under two degrees is threatened with demolition, a number of vital questions are raised. Namely, how can the human species, individually and collectively, learn to feel once again "the curve of the earth"? Does salvation lie, as mid-century scientist Vernadsky believed, in the cephalisation of the human mind and evolution to the Noösphere? How could the current post-democratic deviation be turned around? Troublingly, Hannah Arendt's 1967 text on truth and politics concluded with the statement: "Conceptually, we may call truth what we cannot change; metaphorically, it is the ground on which we stand and the sky that stretches above us" (Arendt, 1967). However, as the scale of human

transformation of the land under our feet and the atmosphere we breathe becomes palpable, even previously indisputable truths are now turned into uncertainties.

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Cartographing heterogenesis with Guattari and Proust

Jean-Sébastien Laberge

> Félix just said it: revolutionary organization must be that of the war machine and not of the state apparatus, of an analyzer of desire and not an external synthesis.
>
> Deleuze (1973)[1]

If I had to summarize my remarks in one sentence, I would say that according to Guattari, against the impoverishment resulting from the capitalistic homogenesis that is the generalized equivalence fabricated by the Capital, we must engage in heterogenesis, enunciate and make cohabit new sensibilities and values, a task in his view exemplified by Proust and facilitated by the art that opens us to the richness of chaosmosis and which thus risks, nothing sure, to put subjectivity back in motion.

Introduction

The argument sustaining the second *Mutating Ecologies in Contemporary Art* symposium opens by asking how philosophy can face the challenges posed by the environmental, social and mental crisis of the beginning of our millennium. It proposes to give a determining importance to affects, thus allowing us to articulate ethics, politics and aesthetics to identify new ways of understanding, questioning and transforming our relationships. If the argument invites one to be inspired by vital materialism, I personally prefer the term machin-

1 Deleuze and Guattari, 2009, 46. It is relevant to mention that Deleuze asserts the same thing in "Three Group-Related Problems", his preface to Guattari's *Psychoanalysis and Transversality*, and adds that this double distinction is according to Guattari "the theoretical task to be undertaken at the present time" (Deleuze, 2015, 16). In fact, he would continue this work all his life, so that the development of an analyzer to palliate the state apparatus is a determining aspect of Guattari's work. (The interview is also available as "On Capitalism and Desire", in: Deleuze, *Desert Islands*, p. 269, as the preface "Three Group-Related Problems", in: Deleuze, *Desert Islands*, p. 199.)

ism and wish here to mobilize the philosophy of Félix Guattari that responds directly to the issues raised.

Guattari transforms ecology by marking the collective, even cosmic aspect of subjectivity and existence in general. "It is quite wrong to make a distinction between action on the psyche, the socius and the environment" (Guattari, 2000, p. 41). In this regard, the ecological crisis shows that the stakes they imply cannot be confined to the humanity it threatens, but rather concern the planet Earth in all its complexity. The impact of the capitalistic production model of subjectivity makes it henceforth possible to speak of Anthropocene, even better of Capitalocene, so that ecology involves both the whole production of human subjectivity and the very functioning of capitalism. Guattari opens ecology "to a veritable clinical analysis of culture", as Anne Sauvagnargues points out, "an ethics of the Earth able to arrange the ecology of social bodies with that of mental states and environmental apparatuses" (Sauvagnargues, 2011, p. 173). Guattari thus proposes in his *Schizoanalytic Cartographies* an important theoretical apparatus which makes it possible to think the production of subjectivity in his relations with the socius and the earth in order to analyze and cope with the impressive ecological mutations stimulated by the acceleration of techno-scientific developments and of capitalism's expansion. In their joint effects, they disrupt whole areas of the production of individual and collective subjectivities with their impact on memory, perception, communication, etc., which drastically modify our relationships with ourselves, the others and the environment.

This contribution has three objectives. First, to address the challenge posed by the pressure put on the different ecologies by the prodigious mutations of our era. I will present what characterizes the current crisis according to Guattari and how heterogenesis is a response to it. I will then engage in a somewhat detailed presentation of this concept, which will plunge us into Guattari's complex *Schizoanalytic Cartographies* published in 1989. My second objective is precisely to offer a glimpse of this difficult work, as dense as it is abstract, but decisive to understand the practical commitments of its author. For ease of understanding, I will illustrate my point with the help of Guattari's reading of Marcel Proust's *In Search of Lost Time*, a reference to which he not only keeps coming back, but includes, according to him, the prime example of heterogenesis. This detour through Proust will articulate the central concepts of schizoanalysis and emphasize the determining role that affects play. I will then be able to highlight the importance of art in this context and the role that Guattari gives it, which is my third objective.

Homogenesis / Heterogenesis

So why talk about heterogenesis? In the first paragraph that opens *The Three Ecologies*, also published in 1989, Guattari lays down his own diagnosis:

> Alongside these [environmental] upheavals, human modes of life, both individual and collective, are progressively deteriorating. [...] It is the relationship between subjectivity and its exteriority – be it social, animal, vegetable or Cosmic – that is compromised in this way, in a sort of general movement of implosion and regressive infantilization. Alterity tends to lose all its asperity. (Guattari, 2000, p. 27)

Guattari believes that the reduction of "Nature" to a commodity, to a use value, is correlative to the collapse of the value systems orchestrated by the capitalist imperative of the generalized equivalence, the dictatorship of the signifier Capital, which crushes other semiotics. It's a heavy tendency that homogenizes the universes of references, which results in a loss in the ecology of the virtual. It is therefore a question of jointly thinking the impoverishment of environmental, social and mental ecologies, the three ecologies, in his relations with capitalist logic. It is worth remembering that Guattari considers that the primary function of capitalism is now the production of subjectivity. We then respond to this deprivation by attempting to initiate processes of heterogenesis, simply defined for the moment as the enunciation and cohabitation of universes of references, say an axiological pluralism. To understand these processes of homo and heterogenesis in greater detail, and before developing my point with the example of Proust's "Refrains of Lost Time", let me advance some theoretical aspects of the *Schizoanalytic Cartographies*.

Schizoanalytic Cartographies

Following the conceptualization of the machine that he develops in his previous works, Guattari proposes an innovative machinic conception of the unconscious and of what he names the collective assemblage of enunciation. This perspective, as we will see, posits that subjectivity is always collective and that it emerges from fundamentally heterogeneous elements that act as partial enunciators. It is therefore a heterogeneous assemblage, a multiplicity. "A partial subjectivity – pre-personal, polyphonic, collective and machinic" (Guattari, 1995, p. 21). Against the different forms of reductionism that simplify the richness of the unconscious and subjectivity, Guattari offers a cartography that

makes it possible to apprehend these complex processes of enunciation and to enrich them.

For Guattari, in the same way that psychoanalysis, courtly chivalry or Christians invented new forms of subjectivation, his schizoanalytic cartographies aim to fabricate new processes of subjectivation and thus allow the enunciation of new sensibilities and values. Furthermore, against the apathy of the normopath, they aim to allow a reappropriation of the means of production of subjectivity.

To situate my point and introduce Guattari's terminology, I will now present the example of Proust's madeleine "that is now munched by everyone" (Guattari, 2013a, p. 148). In this passage, the Narrator accepts a cup of tea against his habit and when he takes a spoonful in which he has softened a piece of madeleine, he is invaded by a powerful joy which, although it is related to the taste of the cake and the tea, exceeds it infinitely. The smell and the flavour of the mixture carried the vast structure of recollection of Combray, of the madeleine soaked in the tea which his aunt offered him to "the whole of Combray and of its surroundings, taking their proper shapes and growing solid, sprang into being, town and gardens alike, from my cup of tea" (Proust, 1922). It must then be recognized that the food Flow (F) carries olfactory and gustatory signs that give consistency to the existential Territory (T) that is Combray for the Narrator, thus revealing a whole constellation of Universes of references (U) that crystallize in it: "the Square where I was sent before luncheon, the streets along which I used to run errands, the country roads we took when it was fine" (Proust, 1922). It should be noted that the same Flow, the same tea-soaked madeleine, would not have made any Combray appear in someone else since it is simply another collective assemblage of enunciation.

It must also be emphasized that the rupture imposed by this famous spoonful, a rupture that is a-significant in itself, is experienced by the Narrator as a transformation of his disposition, a change in his way of being and his sentiment of being. The rupture marks, according to Guattari, the setting up of a new machine, here that of the memory of Combray. "All memories are machines. All machines are memories" (Guattari, 2013a, p. 71). They are memories since they discern signs in Flows (F) on which they graft actual potentialities (**Φ**) and virtual potentialities (U). What Guattari calls the machinic Phylum (**Φ**) implies a synchronic perspective, since the Combray souvenir's machine would not take consistency if there were not the machines that are the cup of tea and the madeleine, themselves relayed by other machines that make them actual potentialities. But the machinic Phylum (**Φ**) also calls for a diachronic perspective since these actual potentialities imply the whole history of both pottery and pastry, but also that of the tea trade and all its maritime Flows (F) and naval Universes (U).

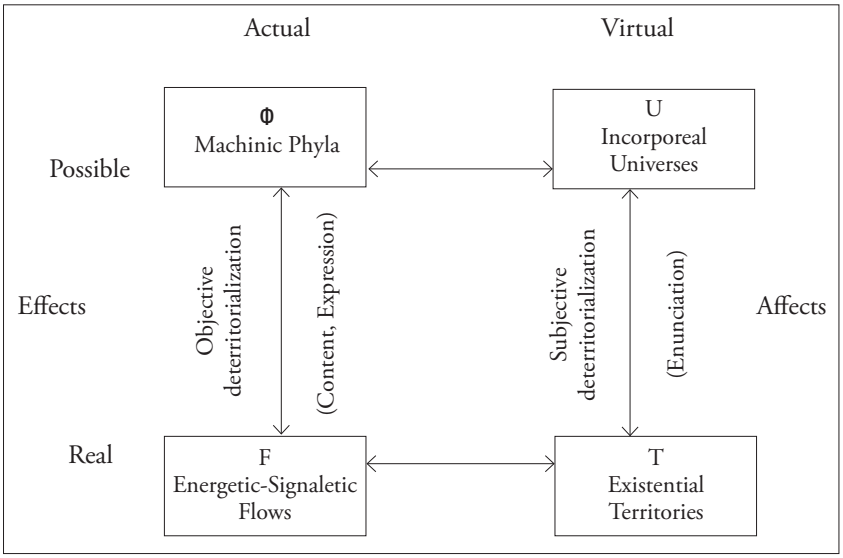

Figure 1. The four domains after Guattari.

As shown by the first figure, Guattari's cartographies of the collective assemblage of enunciation have four domains or functors: the energetic-signaletic Flows (F), the machinic Phyla (**Φ**), the incorporeal Universes of references or enunciations (U) and the existential Territories (T). We move from F to **Φ**, that are actual, by objective deterritorialisation as we go from T to U, that are virtual, by a subjective deterritorialisation. Each domain has is own autonomous economy but presuppose the others. We could say that F is the matter, **Φ** the machines, U "are made up of values, nondiscursive references, and virtual possibility" (Watson, 2009, p. 99); think of Euclidean geometry, baroque music, International Klein Blue or courtly chivalry, that are singular Constellations of Universes (ΣU), and T would be the "grasping", the concrescence of a multiplicity of data in a subjective experience, that is the territorialisation. T is somehow the map itself since to cartography a collective assemblage of enunciation is to map an existential Territory and its production.

Guattari also distinguishes three levels of the unconscious. The primary unconscious is of intrinsic references and implies – from the chaotic given and the complex giving, the chaosmosis – a substantial deterritorialisation and a reterritorialisation in actual discursive systems and virtual non-discursive structure. The secondary unconscious is of extrinsic reference and implies an expressive deterritorialisation that brings plus values of possible and a reterritorialization in an a-signifying semiotic that actualizes the expression, the transistance, and virtualizes the content, the persistance. The tertiary unconscious, that pre-

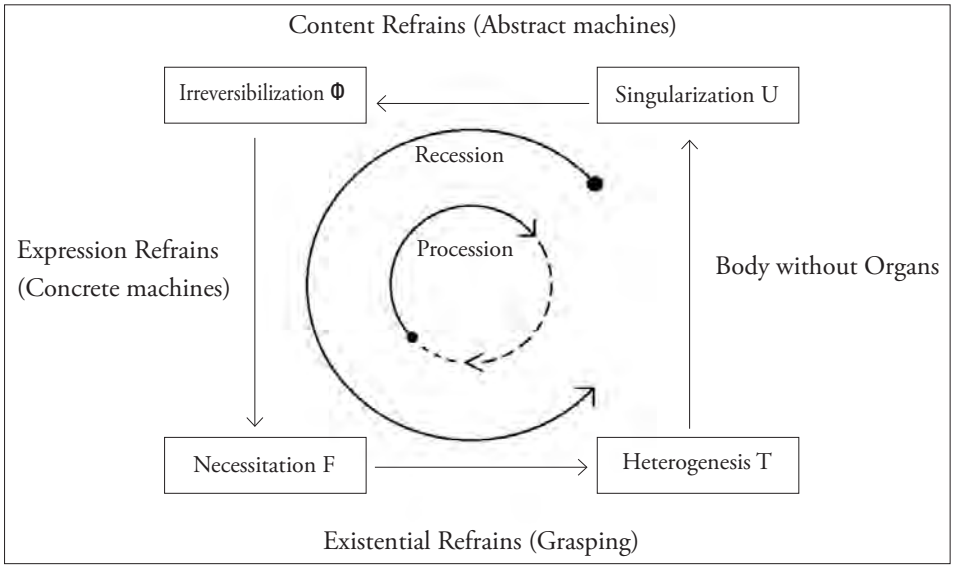

Figure 2. Procession, Recession and Refrains after Guattari.

supposes the first two as the second the first, is of consistency (persistence/transistance) and implies a machinic deterritorialisation and a pragmatic and subjective reterritorialisation that actualize effects and virtualize affects, depending on the consistency of the collective assemblage of enunciation. It is worth noting that to think in terms of consistency, block the brutal opposition of Being and Nothingness and instead imply existential intensities and thresholds.

With the second figure, we note that Guattari calls procession the cycle that starts from F and subsequently goes to **Φ**, U, T and back to F and the anticlockwise movement from U to **Φ**, F and T is called recession. The procession is the diachronic movement of the deterritorialization of the referent and recession is the synchronic movement of the cycle of enunciation. Each movement from a domain to the next implies a counter movement, feedback, therefore every procession goes with a recession, each deterritorialisation with a reterritorialization and all actualization with a virtualisation. Broadly, Guattari talks about a double movement constituted by the chaosmic fold of deterritorialisation and the autopoietic fold of enunciation, with his interface of existential grasping and transmonadism, that is the crystallization of a multiplicity of partial enunciators in a Territory and its singular connections between Universes. The recursive movement is of particular interest for us since Guattari considers that heterogenesis happens through this enunciative cycle.

The subjectivity is machinic then insofar as it's "in take on" the "option materials" of the first and second levels, that's to say that it implies a pre-

personal realm and a process of enunciation. The pathic subjectivity, that is before the subject-object relation, is at the root of all modes of subjectivation. Guattari seeks "to apprehend the pathic, non-discursive, autopoietic character of partial nuclei of enunciation" (Guattari, 1995, p. 72) and considers that art is of great help for such an endeavour. His objective is precisely to offer a cartography that makes it possible to apprehend the complexity of subjectivity. In this perspective, it is not a matter of establishing a Manichean opposition between homogenesis and heterogenesis, but of asserting that they are the poles of a continuum. Central thesis of schizoanalysis: "On the passive side of schizo ontology we thus find a reductive homogenesis, a loss of colour, flavour and timbre in Universes of reference, but on the active side we find an emergent alterification relieved of the mimetic barriers of the self" (Guattari, 1995, p. 84). A side that tends towards closure, immobility and chaotic repetition, and one that tends towards openness, movement and creative complexification. It is the question of the ecology of the virtual, of the flourishing and cohabitation of Universes of references and multiplicities of ways of feeling the world. The "degree of openness" of a collective assemblage of enunciation is what Guattari calls his "coefficient of transversality" (Guattari, 1995, p. 69). An assemblage that has a low coefficient of transversality will engage in more molar interactions and more stratified relations when a high coefficient of transversality brings more molecular interactions and more deterritorialised relations.

I can now mention one of the first aspects that interest Guattari in Proust's novel *In Search of Lost Time*, that is it makes it possible to see both how an assemblage of enunciation can fail to open to alterity as much as it offers, according to Guattari, the paradigmatic example of openness to chaosmosis. He considers that the part Proust devoted to Swann in his magnum opus depict a "generative schizoanalysis (that of weak molar interactions, of stratified objects and relations)", an assemblage that authorizes only the minimum degree of transversality necessary for his survival, and that the part dedicated to the Narrator "constitutes a transformational schizoanalytic revision of this primary nucleus" (Guattari, 2011, p. 236). From Swann's black hole to the Narrator's cosmic becoming.

Proust's Refrains

Guattari first mentions his interest in Proust in the 1960s and refers to it until the end of his life in 1992. But most noteworthy is his text entitled "Refrains of Lost Time", an appendix of more than 100 pages to *The Machinic Unconscious. Essays in Schizoanalysis* (1979), in which he proposes a study of the dif-

ferent assemblage of enunciation of the "little phrase" of Vinteuil as presented in *In Search of Lost Time*. Ten years later, in *Schizoanalytic Cartographies*, Guattari returns to this study and mobilizes it again for key issues.

The refrain is one of Guattari's principal concepts and it's made of "reiterated discursive sequences, closed on themselves, having as their function an extrinsic catalysis of existential affects" (Guattari, 2013a, p. 207). Guattari distinguishes two types of refrain and affect. The expression refrain, as Vinteuil's "little phrase", the madeleine dipped in tea, the plastic compositions around the bell tower of Martinville, is linked to sensible affects, a sentiment of being, and the content refrain, as the ambience in the Verdurin's salon, is linked to problematic affects, an active way of being. Both refrains constitute an existential refrain that leads to an existential Territory. Guattari is quite clear: "In short, affect is not a question of representation and discursivity, but of existence" (Guattari, 1995, p. 93). Guattari also refers to it as the pathic subjectivity, the autopoietic enunciation, giving affects a primary role.

Paul Elliott is right to point out that for Guattari "Proust's novel is a universe of refrains each chiming and resonating with each other" (Elliott, 2012, p. 93). A refrain can be made of anything and implies a movement of (re)territorialisation. It acts as an existential leitmotif "which installs itself like an 'attractor' within a sensible and significational chaos. The different components conserve their heterogeneity, but are nevertheless captured by a refrain which couples them to the existential Territory of the self" (Guattari, 1995, p. 17). A refrain grasps in singular ways partial enunciators that he crystallizes in a Territory.

It's important to note that the expression refrain does not necessarily imply a heterogenesis, the plus values that it brings along can remain unused, as for Swann that fails to use the potentialities of the "little phrase" of Vinteuil. They will remain inoperative at least until the passing of the threshold of consistency of the abstract machine, the other name of the content refrain, which will assemble in a new way the singular modes of subjectivation of the partial enunciators which, in our case, will lead to the transformation of the Narrator. Moreover, Guattari posits that problematic affects are at the root of sensible affects, giving then the primacy to abstract machines over expressive refrains. We could add that an active way of being, an abstract machine, is the relation that articulates an assemblage, a relation that is external to its terms, while the sentiment of being linked to the expressive refrain is said to be internal.

In the opening of his Proust study, Guattari claims that we're still waiting for a highly needed systematic study of "perceptive overlapping" as hyperesthesia and synesthesia. Therefore, Guattari is particularly interested in Proust's descriptions, for instance, of the madeleine and of all the mutations of the per-

ceptive components that it launches. Following Proust, he insists on the necessity of going "to the end of our impression", in our case these created by the "little phrase" of Vinteuil, because this pathic knowledge "does not simply arise from a discursive analysis such as human language can sustain. On the contrary, this is what we will have to address in order to enrich language, to ripen it, and generate a new discursivity in direct contact with what I call the economy of desire" (Guattari, 2011, p. 234). Guattari specifies that going to the end of an impression, maybe we could say of an affect, is what he tends to express by the verb "semiotize" (Guattari, 2011, p. 358, n. 4). According to Guattari, that's exactly what *In Search of Lost Time* is about since Proust, who insisted that the effects of works of art arise from reality and not from the imaginary, focussed on such unclassifiable realities. In this perspective, the key role that the "little phrase" of Vinteuil plays in the novel leads Proust's entire analysis "towards the possession of trans-subjective and trans-objective abstract machinisms, concerning which he will furnish us with a rigorous description" (Guattari, 2011, p. 234). It is finally also here that Guattari's interest in Proust's work lies.

Swann's Black Hole

As we said before, according to Guattari, Swann's collective assemblage of enunciation has a low degree of openness, a situation he describes in many ways: molar interactions, stratified relations, black hole effect, semiotic collapse or homogenesis. In this kind of situation, the expressive deterritorialization turns empty, the proto-machinic figures closing itself to the diversity of its forms, so nothing new happens during the repetition of figures of flow, there is no substantial variation, only formal reiteration. This shorts out the potentialities of the semiotic reterritorialization.

This autistic closure prevents the concatenation of variations of flow in content-expression by the machinic phylum and thus blocks the creation of an existential territory correlative to the fabrication of significations. Thereby, this assemblage is caught in a semiotic collapse that only falls back on the repetition of signification based on nothing, rotating on itself, thus inducing the black hole effect. Only relying on itself, this subjectivity is cut from the outside reality. Guattari calls it the pathological homogenesis. This semiological powerlessness is correlative of an immense concentration of energy, a machinic superpower that will continually evacuate contents to assimilate redundancies emptied of their alterity. It is the erection of a one-dimensional signifier that

totalizes and homogenizes. Thus, this external synthesis is a passive reception where the existence precedes the matters of expression.

It is necessary to understand that the existential "grasping" poses at the same time the world, the alterity and the self. "One abolishes itself in the world, the world begins to be for-itself, 'I am in the world because I am the world', I absorb and dissolve all discursiveness at the same time I affirm this discursiveness" (Guattari, 2013b, pp. 2–3). The constitution of an existential Territory brings such an absolute determinability that it condemns to turn in a circle if there is no opening to the outside. It is Sartre's experience of Nausea. Subjectivity is maintained only by resingularizing, even minimally. Territorialisation must be understood as a 'normal' homogenesis, "which stops itself from going too far and for too long into a chaosmic reduction of schizo type" (Guattari, 1995, p. 83). It is here again a question of degree of openness.

Back to Swann, Proust tells us that as soon as it appears, the potential of the "little phrase" is revealed to him and he discovers "the presence of one of those invisible realities in which he had ceased to believe" (Proust in Guattari, 2011, p. 244) and to which he would like to dedicate his life, therefore threatening his conformism, says Guattari. As Janell Watson mentions, "the strong reaction of Swann to Vinteuil's musical phrase manifests the physicality of perception" (Watson, 2009, p. 81), the reality of its effects. However, Vinteuil's "little phrase" become the swansong of Swann's passion for Odette and, following his mnemonic habit to link visage to painting, he identifies Odette with Botticelli's Zipphorah. The refrain closes itself on this abstract feminine presence thus creating a black hole. The relative reterritorialization of the assemblage on the internal reality of Swann's love will then block the opening to alterity permitted by the "little phrase".

Heterogenesis of the Narrator

As I already mentioned, Guattari considers that Proust's rendering of the Narrator "constitutes a transformational schizoanalytic revision of this primary nucleus" (Guattari, 2011, p. 236). That is to say that at the beginning the Narrator is also stuck in a black hole of love and jealousy. Nevertheless, his assemblage has more transversality, is more open to molecular interactions and deterritorialised relations. The Narrator will succeed where Swann has failed, he will use the potentialities of the refrain to escape the reductive black hole and turn it into an abstract machine of creative complexification. Guattari notes that the Narrator operates in an open economy, his modes of semiotization are

richer so that he is able to produce his own weapons himself, as shown by his success in dismantling his jealousy black hole. "He has no need for faces-icons and stereotyped characters. Whereas everything tended to be ritualized in Swann, everything tends to be semiotized in the Narrator" (Guattari, 2011, p. 299). Thus, the collective assemblage of enunciation of the "little phrase" will undergo complex mutations.

Firstly, according to Proust, Swann don't know much about music and receive the "little phrase" from the outside, compared to the Narrator who has a more developed knowledge and interest in music and his therefore better prepare to approach it from the inside. Furthermore, Swann had barely had access to the potentialities of the "little phrase" since it was kind of already too late when he did finally hear it in the full Sonata. While the Narrator not only knew Vinteuil's Sonata well, he had also attended the septet constituted posthumously. Having the score of the Sonata, it is through the intermediary of the text that he truly gains access to the "little phrase", which he thereafter sees differently. If with Swann the "little phrase" was stuck in a closed universe, with the Narrator it deploys all his richness in "a graphematic semiotization itself oriented in a trans-semiotic intention" (Guattari, 2011, p. 283). The music of Vinteuil had "seemed to synthesize" various sensations, allowing Swann to taste it, but the Narrator manages to apprehend it as music being made and to go to the end of the heterogeneity of his components. "The Narrator devotes himself to distinguishing what the refrain is in the most rigorous way – here, by the reading of the score and the play of possible connections with the works of other composers" (Guattari, 2011, p. 285). Therefore singularizing it while he is drawing new connections, thus engaging a process of heterogenesis that gives back some asperity to alterity. "Bypassing the black hole of passion and becoming graphematic, the refrain releases an extremely effective component of *perceptive reading* and *creative writing*" (Guattari, 2011, p. 286).

This "second chemical state" of the refrain opens the molecular process that leads to a transformation of its object into a multiplicity by "the liberation of a multi-headed refrain playing itself out in time, space, and substances of expression" (Guattari, 2011, p. 292). It is not only the "little phrase" that complexifies itself, it is the collective assemblage of enunciation that undergoes a heterogenesis. The molecular potentialities of the refrain transform the primary nucleus. According to Guattari, we should not be misled by the disappearance of the "little phrase", "it is writing itself that becomes musical. [...] The world itself has become a sort of gigantic organ, and writing a music traversing the sonorous universe from everywhere" (Guattari, 2011, p. 300). The new

assemblage of enunciation has acquired enough consistency, the expression refrain leaves place to the content refrain, the abstract machine and its creative complexification, producing new modes of subjectification and a principle of irreversible necessitation.

According to Guattari and as shown in figure 2, the heterogenesis of T is the last step that follows the recession from the (re)singularization of U, that brings new machinic propositions to **Φ**, that irreversibly marks its territorialisation in F, that brings a necessitation to the heterogenesis of T, that reinvents its connections with U. Considering that this is a synchronic movement of requalification, we could say that the heterogenesis, the "grasping" of a new existential Territory, is also the first of such enunciations. "Like an existential stamp, heterogenesis marks the fractal dating of the regime of de- and re-territorialization of an assemblage of enunciation" (Guattari, 2013a, p. 185). The datation marks the emergence of a machine and a processual mutation; the abstract machine gets its consistency by an a-signifying rupture that dates the (re)singularization. "What matters is the break, the gap, which will make it turn around on itself and which will engender not only a sentiment of being – a sensible Affect – but also an active way of being – a problematic Affect" (Guattari, 2013a, p. 211).

Guattari argues that the a-signifying rupture that initiates the auto-enunciative procedure, "the date of the 'Search' is the instant that the narrator's foot steps onto the wobbly paving stone in the courtyard at Guermantes, allowing passageways between the different expressive components [...] A matter of expression will find itself invaded by a whole worldliness [mondanéité], as if haunted by an enunciating subjectivity" (Guattari, 2013a, p. 185). This experience of an uneven paving stone that triggers in the Narrator an extraordinary succession of evocations is crucial because it manages "to release them at will for the first time, he has passed from the stage of passive observation to that of experimentation. This cobblestone under his foot functions as the pedal of a sort of cosmic organ with which he will finally be able to compose the music to which he aspires" (Guattari, 2013a, pp. 321–322).

The "Time regained" functions as a "reversal" of subjective order and involves the entry of a new type of refrain that bypasses the dominant meanings. "The refrains of lost Time" bring a "straightforward processual mutation" that is, according to Guattari, "the standard reference for all time" (Guattari, 2013a, p. 148). The collective assemblage of enunciation is now stripped from the dominant meanings that "kept it away from expressive interactions. Its existence no longer precedes the matters of expression; it is exactly contemporary with the arrangements that update it" (Guattari, 2011, pp. 329–330). The subjectiv-

ity is back in movement. "We have passed from assemblages of power – totalitarian-totalizing – to assemblages of analysis and creation" (Guattari, 2011, p. 280). From a passive reception that homogenizes to a constant analysis that creates its enunciation. A radical renewal of existence.

We have to distinguish two aspects of heterogenesis. First, as a (re)territorialisation, the homogenesis in this specific case leads to a heterogenesis, the grasping of a new existential Territory. The heterogenesis fabricates novel connections between Universes and Territories, unseen connections between sensations and qualities. From Swann's black hole to the Narrator's cosmic organ. Second, with "The refrains of lost Time" that set the subjectivity back in motion, we have to think of a continual (re)singularization that engages a process of heterogenesis of pre-personal components. Here, it's Proust's description of trans-semiotic abstract machinism that interests Guattari.

> The pathic operators of the Proustian 'Search' clearly indicate to us the recursive paths of temporal passage between 'times' that are distant from one another and between heterogenesized substances (the flavour of the madeleine, the movement between the bells of Martinville, the play between the wasp and the orchid, Vinteuil's little phrase, etc.). We are not dealing here with the simple observation of heterogeneity but with a labour of heterogenesis; each dimension demands to be discernibilized, deployed in all its virtualities. (Guattari, 2013a, p. 185)

We therefore have a multiplicity of Universes that singularize themselves and communicate in complex ways, a heterogenification of Universes of references, that is, a multiplication and singularization of the nuclei of autopoietic consistency that are the existential Territories. Guattari notes that the Narrator experiments as a professional: "He pauses at every semiotic schizz to study the phenomenon in depth" (Guattari, 2011, p. 321). The Narrator goes to the end of his impressions with his new *perceptive reading* and semiotizes with his *creative writing*, thus generating a new discursivity in direct contact with his economy of desire. Thus, the Narrator is continuously complexifying and enriching his subjective experience. Considering that according to Guattari "the only acceptable finality of human activity is the production of a subjectivity that is auto-enriching its relation to the world in a continuous fashion" (Guattari, 1995, p. 21), Proust's Narrator, Marcel, is definitely a remarkable example.

Importance of Art

We can now highlight the importance of art for Guattari and the role it can play. Its importance has to do with the partial enunciators and the way art gives us access to it. Partial enunciators are the operators of the territorial crystallization, they are heterogeneous fragments of a-signifying chains that take on a mutual consistency as they cross a certain threshold. Guattari links them to Schlegel's conception of a work of art: "A fragment like a miniature work of art must be totally detached from the surrounding world and closed on itself like a hedgehog" (Schlegel in Guattari, 2000, p. 55). A monad, a world closed on itself, but that nevertheless contains the whole universe! Again, the importance of a rupture so that the expressive material becomes strictly creative and a world of qualities and sensibilities takes possession of the author to engender a certain mode of aesthetic enunciation. The supreme elegance of Proust's descriptions of the madeleine dipped in tea, of Vinteuil's "little phrase", of Martinville's steeples...

> The artist – and more generally aesthetic perception – detach and deterritorialise a segment of the real in such a way as to make it play the role of a partial enunciator. Art confers a function of sense and alterity to a subset of the perceived world. The consequence of this quasi-animistic speech effect of a work of art is that the subjectivity of the artist and the "consumer" is reshaped. (Guattari, 1995, p. 131)

Two aspects have to be highlighted. First, that aesthetic perception gives access to the pre-personal potentialities, to the pathic subjectivities at the root of all modes of subjectivation. Art makes it possible to approach the virtualities of the real, a hyper-reality that engages the deepest dynamism of things. Second, that such encounters have real effects and that they can bring profound changes. By opening one to new sensibilities and qualities, art can destabilize his subjectivity. The impacts of such an engagement with alterity cannot be foreseen. Will the potentialities fall in a black hole or will a new abstract machine get its consistency?

Therefore, art is of decisive importance for Guattari, not because of an intrinsic value, but as a functional element. As Elliot remarks, art "makes us question the stability of our existence and, perhaps, exposes us for the multilayered beings that we are" (Elliott, 2012, p. 32). Art can open someone to his own heterogeneity and thus transversalise his collective assemblage of enunciation in such a way that art can oppose the sclerosis of homogenesis of the normopath. Nothing certain, but nothing to lose and a lot to gain. Guattari thus considers that "poetry should be prescribed like vitamins. "Careful now. Old as

you are, you'd feel better if you took some poetry..." (Guattari, 2007, p. 67). As a functional element, art, by giving access to the pathic potentialities, does not only engender affects that may bring changes, but also provides the means of creativity so that people can experiment and invent novel relations with the world, others and themselves. "Perhaps artists today constitute the final lines along which primordial existential questions are folded. How are the new fields of the possible going to be fitted out?" (Guattari, 1995, p. 133).

Conclusion

> The greatness of a philosophy is measured by the nature of the events to which its concepts summon us or that it enables us to release in concepts.
>
> Deleuze and Guattari (1991)

Guattari's *Schizoanalytic Cartographies* not only allows us to conceptualize the effects of capitalism on our ways of living and thus the impoverishment of virtual ecology with the continuous loss of Universes of references and existential Territories, but also proposes ways to counter these effects. It gives us tools to identify practices and subjectivies that stubbornly refuse the dominant evidences, which puts oneself at odds with overt interests and gets in the way of dominant values. As exemplified by Proust's refrains and the Narrator's heterogenesis, aesthetic perception can bring a creative aspect that bypasses the customary significations and denotations and redrafts the connections between qualities and sensibilities. Guattari's speculative cartographies have profound ethical, political and aesthetical implications by seeking to give access to the potentialities of the partial enunciators haunting the world to stimulate processes of resingularization towards the enunciation of new sensibilities and values. "Like children, psychotics and the 'archaic', the concrete elucidation of heterogenesis should teach us how to decipher the atmospheric alterities that haunt the affective horizons of the living world and its cosmic becomings again" (Guattari, 2013a, p. 186). Cartographing the heterogenesis is therefore to experiment and analyze the potentialities of any given situation. Needless to say, this metamodelisation is neither an external synthesis nor a totalizing perspective that can predict what must be done. "The goal is not to build a conscious, programmatic perspective, but to develop a perspective of social creativity, of heterogenesis of value systems, which allows us to build something else" (Guatta-

ri, 2014, p. 94). Guattari invites us to transversalize our collective assemblages of enunciation and set them back in motion. Against the narcosis, the generalized bewitchment by the main meanings and denotations, he invites us to believe in the potentialities of this world. He thinks that in this way we might be able to cope with the impressive mutations of our era and create new sensibilities regarding alterity to give it back all the asperity of its cosmic becoming. By proposing an ecology of the virtual and jointly thinking it with the environmental, social and mental ecologies, Guattari shows that there cannot be changes in our relations with the environment, if we do not change our relations to others and ourselves. Against the many reductive approaches that simplify, Guattari's heterogenesis works towards a processual enrichment of subjectivities, a complexification that keeps redrafting its relations.

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Monism, immanence and biohacking. Hacking dualistic violence

Laura Benítez Valero

Monism, immanence, and biohacking. Hacking dualistic violence proposes to develop a research on the potentia of Monism, in the terms of Spinoza, applied to biohacking practices. Some biohacking proposals confront us to evaluate the relations between Science(s), Art(s), (bio)Ethics, (bio)Politics and Society(ies), developing new approaches, methods, and methodologies for research, from the interaction between artistic practices and biology in an academic and non-academic context.

The aim of this proposal is to work in common on the possibilities of connecting with the others, from a posthuman condition perspective, but specifically related to post-anthropocentrism. Biomaterials let us re-think "traditional" dualisms, but some artistic projects give us the chance to re-think dualist structures, giving special attention to matter, giving special attention to the process of materialization. Monism, immanence, and biohacking. Hacking dualistic violence is a proposal to work on the following open questions: How are (bio)technological artifacts embodied, transformed, assimilated and appropriated in biohacking practices? How to introduce Desire into thought, into discourse, into action? Is it possible to decolonize Hegemonic Narratives on Identity, Aesthetic Categories and Art History(ies) hacking biomaterials and artifacts? How to develop action, thought and desires by proliferation, juxtaposition and disjunction and not by subdivision and pyramidal hierarchization? How matters come to constitutive matter in the nature-culture continuum through bio-mediation? Can we consider that a renewed agency could be an extended and distributed agency? A sort of Spinozean-Deleuzian agency, distributed but not suspended? An agency that belongs to the number of others that compound the non-unitarian post-anthropocentric subjectivity?

On Monism

The return to Spinoza's contributions is to seek an alternative to avoid idealmaterialisms. It is an alternative, or maybe an attempt, to create practical knots of existence. It should be said that in the context of this proposal, we refer to Spinoza thought by Deleuze, who displays the unthinking. A possible to deploy. The focus related to the possibility of hacking dualistic violence is on Deleuze's approach to the problem of subjectivity, his perspective of it and his attempt to configure an "anti-subject" based on his own transformations of Spinozist concepts. Spinoza provides a key to conduct their critiques and set models from within a conceptual framework of a radical immanence that opposes all transcendence, and especially the transcendent subject of consciousness. Spinoza's radical immanence is on the basis of Deleuzian becoming, of a Deleuzian proposal of a de-individualizing process. An alternative to models of the (anthropocentric) subject based on identity. In this sense, reason is inhabited by affects, that is to say, rational becoming is a way out of passions, not a path that justifies the abuse and brutality exercised against those non-human others. Thus, understanding is a problem of the body, a problem beyond human body. And why is it so important to get Spinoza back? One could say that what Spinoza calls God is, in fact, Nature, is everything and everyone, but God is the concept in that it gathers the set of all its possibilities.

A distinctive aspect of Spinoza's system is his affirmation that one infinite substance (Nature) is the only substance that exists, which in Philosophy is called monism. We can find Spinoza's argument for monism in his first argument in Part I of the Ethics. In the context of this article, and due to the fact that it is impossible to include a rigorous approach to Spinoza's arguments for monism, let's focus on the arguments for premise Four, whose abbreviation is: E1p11.

In the demonstration of E1p11, Spinoza explicitly provides a number of different proofs for the existence of a substance with infinite attributes. In this argument, Spinoza provides an interesting and different perspective from other modern, even contemporary, philosophers. The main difference is that Spinoza claims that the essence of each substance includes existence:

> When two things have nothing in common, one cannot be the cause of the other (Premise 1, E1p3).
>
> It is impossible for two substances to have the same attribute (or essence) (Premise 2, E1p5).

Two substances with different attributes have nothing in common (Premise 3, E1p6d).

Thus, one substance cannot cause another substance to exist (1, 2, 3, E1p6).

Either substances are caused to exist by other substances, or they exist by their own nature (Premise 4, E1p7d).

Thus, substances must exist by their own nature (4, 5, E1p7).

Spinoza's argument differs from the ontological arguments outlined by Descartes because this argument does not infer the existence of God from the claim that our idea of God involves existence. And probably, one of the most important distinctions: Spinoza does not assume that existence is a perfection. Spinoza's argument, therefore, can avoid some of the more common objections to the ontological proofs defined by Descartes. At this point, it is important to remark upon the significance of Cartesian Philosophy for our (occidental) humanist conception, precisely because Cartesian Mechanism has been one of the pillars to support the moral supremacy of Human(ism).

Opposed to this conception, in Part III of the Ethics, Spinoza argues that each mode "strives to persevere in its being" (E3p6.) Strives/endeavor means conatus.

Put in a short structure, since every mode strives to persevere in its being, so each mode's conatus is the actual essence (E3p7.) That is, what it is to be, for example, a Tree is just to strive in a certain Tree-like way. That it means that every being_thing that exists is striving to (sur)vive [potentia].

Spinoza's contributions are so important for the nature_culture continuum and posthumanism(s) because his philosophical claims are directly related to matter, having a particular proposal, namely, in contemporary terms, we could name as an entangled potentia to persist, to matter(ing). To Spinoza, the essence of every mode is its striving to persist, and precisely on this point, Spinoza proposes that if these modes are the ways of being of the substance that possesses all the attributes, they exist in the attributes of the substance, they are taken in the attributes.

Then, and this is one of the fundamental contributions to posthuman and post-anthropocentric theories, there is no hierarchy in the attributes of substance (Nature). Then, if substance also possesses all the attributes, there is no hierarchy among the attributes, one is not worth more than another. Precisely on this point, resounds Rosi Braidaotti, when she argues against otherness, understood as pejorative difference, or as being-worth-less-than:

> In the political economy of phallologocentrism and of anthropocentric humanism, which predicates the sovereignty of Sameness in a falsely universalistic mode, my sex fell on the side of 'Otherness', understood as pejorative difference, or as being-worth-less-than. The becoming-animal/becoming-world speaks to my feminist self, partly because my gender, historically speaking, never quite made it into full humanity, so my allegiance to that category is at best negotiable and never to be taken for granted. (Braidotti, 2006, 130)

One of the most transgressive contributions is that Spinoza replaces the sequence by the plane of immanence, that is to say, the plane of immanence here as a Deleuzian reworking of Spinoza's notion of substance.

A significant difference in Spinoza as a modern philosopher (one could say in "historical terms" because he appears to be very contemporary) is that his proposals deny the classical/modern claim that God (Nature) has a purpose for the universe. In terms of Spinoza: the universe simply exists because it could not fail to exist.

There was not a predetermined plan, so the universe simply follows from God's (Nature) essence, so there is no pre-determined/planned existence (E1p16, E1p32c1, E1p33).

Precisely because there is no purpose for the universe in Spinoza's contributions, we can find a theoretical connection between Spinoza's ontology and the political perspective on being entangled with all being_things, a political becoming, an ontological immanence that becomes potentia as opposed to dualist and hierarchical ontology. Ontological immanence is an essentially anti-hierarchical, in terms of Deleuze, because all being, étant, exercises as much being, être, as there is in it. Thus all there is to it is an anti-hierarchical thought, an anarchical becoming of beings in being. And here we find the subversive power of Spinoza's monism: all beings are the same, se valent, all being(s)_thing(s) of being, être, are the same in their difference.

Machines, Immanence and Bio-materials

Taking the notion of Abstract Machine developed by Deleuze and Guattari, and keeping in mind that abstract machines act in specific agencements, this conception of abstract machine captures processes without form of substance that can be found in concrete assemblages of Biology, Sociology and Philosophy, in a manner that enables cultural theory at large to move away from linguistic representationalism towards "the realm of engineering diagrams" which are shared by different physical assemblages.

In classical philosophy, we used to have subjects who interact with objects, for example, by perceiving them. For Deleuze and Guattari, being a subject or being an object no longer "matters", that is to say, "no longer matters" in terms of rhizomatic flows. But related to abstract machines, Deleuze and Guattari focus on particular and everyday flows, or one could say daily flows, the flows that are composing our daily life. But in those terms, what could be a Deleuzian/Guattarian machine? Very briefly, an almost banal explanation could be that, in these terms, or related to the topic of this article, we could say that a Deleuzian/Guattarian machine is a machine composed of smaller machines, each of which sits on a flow and interrupts it. In fact, the human body can be understood as an example, in some way, of a Deleuzian/Guattarian machine.

But what is important here, related to Spinoza's monism and how to hack dualistic violence, is that every machine is a part of a system of machines, and between them, they integrate every sort of flow. Therefore there can never be a starting point and an ending point for a process, there is no possible predetermination or pre-determined existence. The flow is simply transformed through the interruption, so it cannot be said to have a principal/final cause, so any attempt to limit the flow, for example, desire (potentia) as something originated with a subject and ended with an object, is a camouflage operation for the actually unlimited flow. There is a tricky operation, because machines make it look like there are, actually, beginnings and endings in the flow, providing us with an illusion of production, consumption, and so on. But if we see past this property of machines, we can understand that we are never molecular or nomadic, or a humanist could say whatever. The point here is that we, all being(s)_thing(s), are only becoming-molecular. So, the potentia of describing the subject as a system of machines that function as interruptions gives us the opportunity to see past this illusionary subjectivity to the fluidity of flows.

On the fluidity of flows, how does matter come to constitutive matter in the nature-culture continuum through bio-mediation? Can we consider that a renewed agency could be an extended and distributed agency? A sort of Spinozean-Deleuzian agency, distributed but not suspended? An agency that belongs to the amount of "others" that compound the non-unitarian post-anthropocentric subjectivity?

Some artistic projects working with bio-materials are pushing (ontological) boundaries, giving special attention to matter, giving special attention to the process of materialization, being enrolled, even if not formally, in the framework of a materialism that comes from Spinoza's monist ontology and Deleuze's contributions to the philosophy of the body.

One of the most interesting applications of biomaterials is the possibility of connecting with others, those non-human others that we stated before are not worthless, not only from inter-action but from intra-action. If we place ourselves in the continuum nature-culture proposed by Donna Haraway and also present in Braidotti as a starting point of the posthuman theory(ies), probably we are placing ourselves in the weird space in between technological and the natural, between human-non-human. Taking, or reworking Spinoza's monism, we can be a connector in between or we can become a constitutive hack, diluting imposed dualistic boundaries. But, after tiptoeing on Spinoza's monism, a critical question arises: how?

At this point, a strategy can be to take the intra-action proposal of Karen Barad as the mutual constitutions of entangled agencies, understanding agency simply as the ability to act; we must emphasize the difference between interaction and intra-action. In this brief structure, inter refers to in the midst of and intra refers to within.

Taking this proposal into account, we could say that when two bodies interact, they each maintain a level of independence, each entity exists before they account to one another, however when bodies intra-act they do it in a constitutive way, materializing through intra-actions, and the ability to act emerges from within the relationship not outside of it. So intra-action gives us the possibility of thinking about the relationship with others, or each other, with materials, non-humans, with discourses, with human and non-human actors, with all being(s)_thing(s). What becomes crucial at this point is that interactions deflect responsibility but in intra-actions responsibility is distributed among the constitutive entities.

Agency is about action, is about reconfiguring, doing and being, and the key point: it does not pre-exist separately, but emerges from the relationship in intra-actions. So from that point, we can understand Ethics as not predetermined but always changing and unfolding. Intra-action helps to think in terms of co-existence, and reveals, or helps to reveal, the artificial boundaries that we forgot we invented. One could say, some of the boundaries that we have sustained in ontological dualism.

As a result, when we think on the possibility of a post-anthropocentric shift in the context of the (possible) posthuman condition, working on the possibility of nomadic subjectivities, the risky part is not the tragic dilution of the Human, defended by humanist philosophers, such as Fukuyama, for instance. As Braidotti remarks, the most serious political problems in post-anthropocentric theory arise from the instrumental alliance of bio-genetic capitalism with individualism, as a residual humanist definition of the subject. Then, working

with biomaterials, taking into account biopolitical, necropolitical and bioethical questions, we have the chance to open new forms of subjectivity not only related to Humans.

When posthuman theory(ies) proposes a post-anthropocentric shift based in Relational Ethics, what is really being proposed is the deconstruction of the human supremacy, creating a new social nexus, and also new forms of social connection with these techno-others. We have to face the challenge of understanding ourselves as a tranversal entity which includes those others, fully immersed in, and immanent to a network of non-human relations. Moving from a Unitarian subjectivity to a nomadic subjectivity.

Xenoestrogens. Open-source Source Estrogen-lab

The purpose of Open Source Estrogen (ongoing project) is to explore the various ways that estrogen performs molecular colonization. Estrogen is one of the most ancient of sex hormones, and a well known hormone, but *What are Xenoestrogens?*

Xenoestrogens are synthetic hormones; they were synthesized by chemical and pharmaceutical industry in the 1930s, and they are the result of human research.

During recent years, some studies have proved that xenoestrogens can rest in the environment for almost 100 years, and this type of synthetic hormones are one of the main causes of estrogen pollution, directly related to plastic pollution, because it has demonstrated that xenoestrogen can be transmitted through plastic containers.

This project, developed by Mary Tsang, in collaboration with Pechblenda and Hackteria, aims to analise how the mutagenic effects of environmental estrogens disrupt species, including humans, and ecosystems. Xenoestrogens interfere with natural estrogens and provoke malfunctioning and diseases in the hormonal systems of living beings. So, faced this hormonal pollution, *What can we do?*

We can respond, so in light of the ongoing molecular colonization of xenoestrogens, the project aims to demonstrate how our collective mutagenesis necessitates civil action through DIY/DIWO practice and proposes three possible approaches, which are:

1) *Synthesis*. Are we able to circumvent governments and institutions to gain hormone access? What are the ethics behind self-administering self-synthesized hormones?

2) *Detection*. What are the ramifications of estrogen de-regulation? How can biosensors play a role in mobilizing citizen surveying of local water sources?
3) *Extraction*. How can citizens remove the hormonal toxicity in the environment that is currently mutagenizing human and non-human bodies? Can xenoestrogens be recycled back into our bodies?[1]

One of the main goals of the Open Source Estrogen project is bringing to the public the information related to estrogen contamination in different areas of water for involving civil society, to ask for institutional political intervention and offer a reflection on estrogenic subversive corporal actions. Artists and researchers involved in this project identify xenoestrogen pollution as a form of violence, even one could say as a form of eco-gender-based violence, a form of slow-violence, a kind of violence that occurs gradually and out of sight:

> Xenoestrogen is an HORMONAL DISRUPTOR, making changes in the fuctionality of endocrine sytem. Using Agamben's approach, one can understand xenoestrogen pollution as a form of biopolitical control, because it affects the hormonal balance of living beings, including humans. Concretely, estrogen pollution can be considered as an expression of slow violence. The project aims to hack the hormones present in our bodies and our present environment, creating a non-institutional portal for hormone access as well as a cultural dialogue for biopolitics. In response to the various ways hormones (such as estrogen) perform a molecular colonization on our bodies and ecosystems, how do we as affected persons effectively respond? Can we use civic action to create DIY/DIWO protocols and recipes for hacking estrogen that are founded in equity and accessibility? From detection to extraction to synthesis, these estrogen recipes function as social resistance, as consciousness-raising, as DIY therapy, as gender-hacking. Institutions and scientific fields produce fictions about how bodies should be gendered and how they should reproduce, perpetuating a standard of normalcy that is exclusionary and touting hormones as the biological determinant of sexual identities. Thus, present hormone therapies both pathologize bodies and at the same time prioritize access over others. However, hormones such as xenoestrogens exist with their own agency. They can be characterized as a form of slow violence because their mutagenizing effects are so gradual and difficult to perceive. On the other hand, endocrine disruption implies a perspective for what writer Heather Davis calls a "queering futurity". If we are living in an all-pervasive, anthropocentric toxicity, then this challenges society's prescribed notions of normalcy, of binary bodies.

1 http://maggic.ooo/Estrofem-Lab-2016.

> The project acknowledges our bodies as permeable, mutable entities that are becoming increasingly alien, and proposes to use "the becoming" as an agent for resistance. DIY/DIWO biohacking can function as a tool for creating new entry points and subjectivities, combating traditional power structures responsible for the production of knowledge, of bodies, and of technoscience. From these xeno-forces arise xeno-solidarities, capable of collectively hacking the systems of hormonal control.[2]

The dualistic violence, binary-system is perpetuated by institutional and corporate actors or agents. In order to disrupt binary constructs, Open Source Estrogen appears as a tactical subversion, where estrogenic compounds and endocrine disruptors that pollute ecosystems are detected, extracted and hacked, opening and demystifying the fear to hormone therapy options existing outside of the institutional structure.

By preparing individuals to detect and extract estrogen and estrogenic compounds, artists are building a familiarity with scientific processes, deconstructing one of the "black boxes" of technological development, allowing amateur exploration and deployment of institutionalised compounds, generating an open access to information. The project acts to critically examine and critique [creativity] a system of institutionalised marginalization-violence. Therefore, the project proposes to subvert the tools, and the unidirectional conception of scientific knowledge, to give access to greater control over who/how one wants to be, as an articulated(ing) agent that is always part of an extended agency [us].

In this toxic environment, we are all mutating, collectively, becoming hybrids and no longer fitting the binary norm. Can we mobilize biohacking and civic action to create new subjectivities on these ongoing anthropocentric toxicities? The matter is, why can we not decide how we want to expose our bodies? Xenoestrogen pollution is covered by power because it is controversially regulated and controls their toxicity. So we go back to a power-related-question: who is allowed to do biotech? Who is allowed to engender toxic environments? Can we hack this toxicity to disrupt sexual identities? To hack gender? This project is a claim for xenosolidarity beyond the anthropocentric toxicity, becoming agents of resistance, creating DIY/DIWO/DIT tools and practices to create new forms of mutating subjectivities. Let's engage in a social mutagenesis!

2 http://maggic.ooo/Open-Source-Estrogen-Interactivos-16.

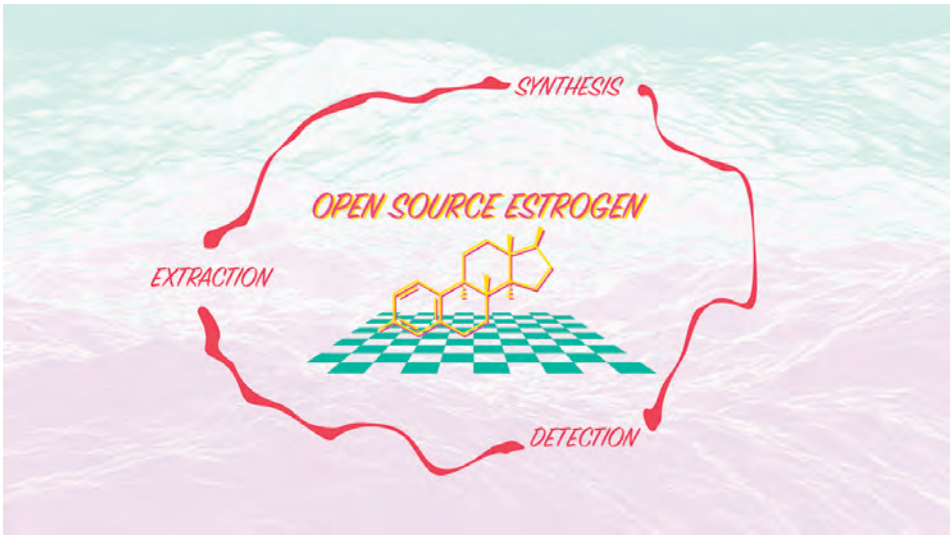

Figure 1. Open Source Estrogen diagram. Mary Tsang.

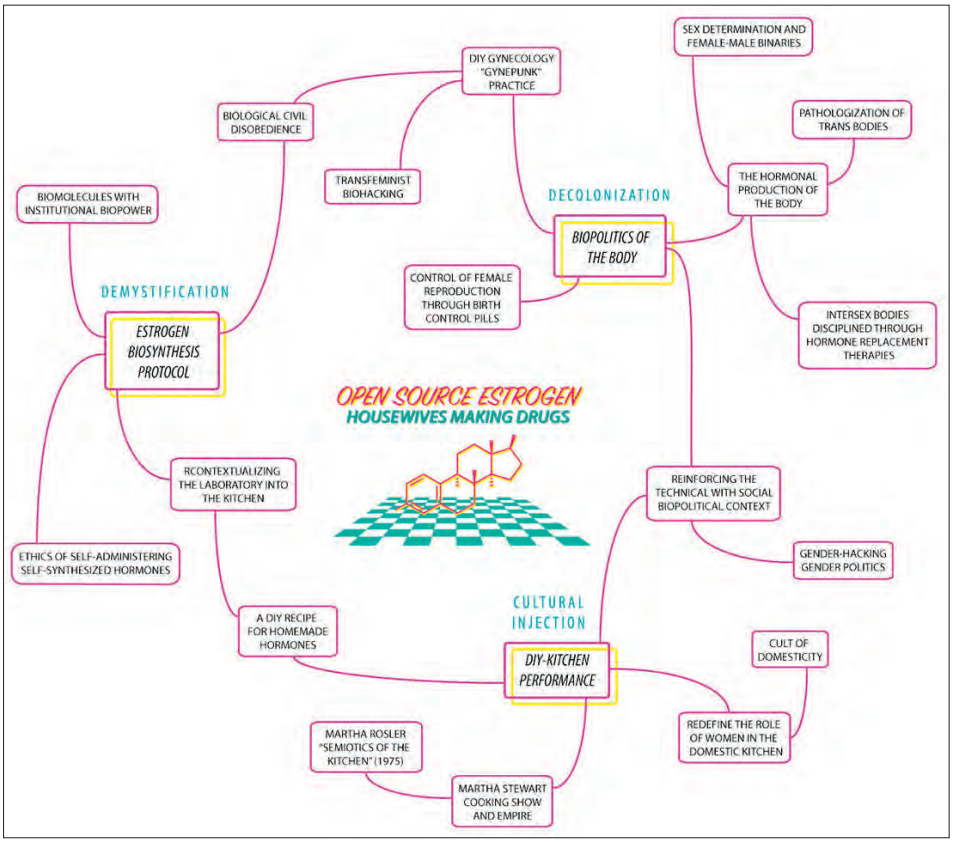

Figure 2. Open Surce Estrogen mind map. Mary Tsang.

Projects such as Open Source Estrogen give the possibility of performing other entities-subjectivities in order to finish not just the ideology of gender but the imposition of a dualistic anthropocentric ontology. Hacking hormones and xenoestrogen we can produce diffracted matter in constant change, thinking on new nomadic subjectivities through the process of mattering, being entangled with every agent. Through this process, we can sketch hybrid identities in order to escape from the assumed dichotomies such as natural-artificial, human-animal (non-human), human-machine, man-woman, organic-artificial, among others. This project is about hacking dualistic violence in order to become(ing) together.

So these practices are generating alternative spaces for critical thinking, taking biotechnology as a contestational weapon(s), to disrupt and create bioresistance communities. These projects challenge us to non-hierarchical-organization. These proposals open the possibility of a conception of a body not ruled by biological hierarchy, a body that is connected with others, a body that we can (re)articulate.

But are we prepared to think on subjectivity as a possibility of becoming-extended-with-in-the-others? Are we willing to accept Being-in-Difference?

Hacking xenoestrogens can be a practice to embody the notion of a posthuman subjectivity referring to a nomadic and relational subject from a monistic ontology, a transversal toxic subject entity fully immersed in and immanent to a network of non-human relations. An autonomous mutagenesis can be conceived as creative becomings. Presenting bio-materials and technology(ies) as generatives nodes to overcome anthropocentrism.

We could be establishing an evocative connection, or metaphorical, if you want, between some biohacking practices such as open estrogens, the collective measurements of estrogenes, and the reference to measurements that Karen Barad states in her question: *What is the Measure of Nothingness?*

> Measurements are agential practices, which are not simply revelatory but performative: they help constitute and are a constitutive part of what is being measured. In other words, measurements are intra-actions (not interactions): the agencies of observation are inseparable from that which is observed. Measurements are world-making: matter and meaning do not preexist, but rather are co-constituted via measurement intra-actions. If the measurement intra-action plays a constitutive role in what is measured, then it matters how something is explored. [...] Measurements are material-discursive practices of mattering. (Barad, 2013)

This Posthuman framework is giving us tools to think on nomadic subjectivity as a cluster of complex and intensive forces. So as long as we are very

much part of Nature (substance) we are, all, entangled by a symbiotic toxic inter-dependence.

To conclude, quoting Rosi Braidotti: "A body is a portion of forces life-bound to the environment that feeds it. All organisms are collective and inter-dependent. Parasites and viruses are hetero-directed: they need other animals" (Braidotti, *The Posthuman*, 2013).

The potentia of ontological monism and some biohacking relies on anti-individualistic nomadic politics and ontological (quantum) monism.

As Karen Barad remarks, maybe it is time to listen carefully and becoming ontological indeterminacy through intra-actions. Understanding ontological indeterminacy as a radical openness and infinity of possibilities, but: how are we exploring the possibility of becoming together? Who is allowed to be part of this becoming?

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The call of Chthulus. Art of affections and everyday politics after the Chthulucene Manifesto from Santa Cruz

Helena Torres

> Hoy todas las palabras están en cuestión: eso es signo de Pachakutik, de un tiempo de cambio.
>
> Silvia Rivera Cusicanqui[1]

This is not a scholarly article, at least not in its intention or background, as I have been detached from university research for more than seven years now. Therefore, the way I walked this road did not cross much with academic discussion, even though I have a strong academic background. Since I have worked around Donna Haraway's writings in a wide variety of fields, from social education to art and creative writing, most of my readings come from Haraway's intertextualities, such as Vinciane Despret, Anna Tsing, Isabelle Stengers and Ursula K. Le Guin, but there is almost nothing in these paragraphs from Brian Massumi, Nigel Thrift or any of the lately writings on the subject, since I have recently known about what academics have called *the affective turn*.

Rather than from academic readings, these words come from a kind of cognition-in-action stemming from workshops at LGTBI gatherings and performances at DIY/DIWO conventions, comics and science fiction novels, transgender music and conversations and shared experiences with my kin. They were incubated in the compost of long time struggles against capitalist ways of living and dying, they are the residue from transfeminist entanglements, or what Paul B. Preciado (2013) has called "the furious diaspora", the ones that "speak another language":

> They say representation. We say experimentation. They say identity. We say multitude. They say human capital. We say multi-species alliance. They say power. We say potential. They say integration. We say do you know that your apparatus of truth production no longer works?

1 "Today all word is in question: this is a sign of Pachakutik, a time of change". (My translation)

Love in The Time of Fakebook

I first took part in this conversation on affects, affections and emotions with *Love in The Time of Fakebook,* an article I had written in 2013 which was in total debt to Haraway's *The Companion Species Manifesto* (2003), published in *Transfeminismos. Fricciones, Epistemes y Flujos* (2013), an anthology of transfeminist writings. The paper started with an apology for talking about something we used to keep as private, in hidden drawers, even in a so called open-source DIWO community; and specially for filling pages of that book with something that did not look like urgent. I said I knew there were very urgent matters that needed our attention, such as violence against all non-white non-heterosexual and therefore "abnormal creatures", uses of technology, climate change, paying the rent, and so on; but we also needed to address a question that was always there, at every meeting, every chat, every protest, that is: "What can we do in our everyday lives to trouble this state of affairs?"Apart from occupying squares, writing papers, being vegans and squatting houses, which is quite a lot, but it is not enough.

To open a space to address that question I called on the figure of the Idiot, borrowed from Stengers who had borrowed it from Deleuze who had borrowed it from Dostoevsky. Stengers tells us that "In the ancient Greek sense, an idiot is someone who does not speak the Greek language and is therefore cut off from the civilized community" (2005, pp. 994–995). And she follows: "But Deleuze's idiot is the one who slows the others down, who resists the consensual way in which the situation is presented and in which emergencies mobilize thought or action. This is not because the presentation would be false or because emergencies are believed to be lies, but because "there is something more important", and we can't "consider ourselves authorized to believe we possess the meaning of what we know".

And what was that matter which I considered important enough to ask my people to slow down at this time of emergencies, when violence against women and all kind of non-heteropatriarchal non-white lives are at constant risk? My main question was how we should love and let ourselves be loved if we started to take transfeminist and queer ontologies seriously. If humans are non-autopoietic entities, if we are companion species, if every species is a multi-species crowd, if "partners do not preexist their relating" but "they are precisely what come out of the inter/intra-relating of fleshly, significant, semiotic-material being" (Haraway, 2008, p. 165), how should we treat what's at the heart of relating, that is, emotions? How should we let our bodies be affected and take responsibility for what/who we affect? What are the consequences of con-

tinuing thinking emotions as opposite to reason/mind? What are the everyday effects of that narrative that tells us to translate every emotion in action because emotions come from an authentic core? What should we do with the telling that has convinced us that confession (be it to a priest or to a psychotherapist) is the best way of healing our already condemned souls, that we have to clean up our dirty minds by classifying and putting our emotions in order?

My worries came from realizing that, after years of a post-porn activism that claimed that revolution was having sexual relationships between friends, not only we did not know how to deal with jealousy and monogamy but we also had problems to say "I love you" without Facebook as an interface. I found it pretty worrying that after a decade of public sex, we still felt ashamed when talking about emotions that did not look cool, so we hid them under political correctness and forgot, as Vinciane Despret puts it, that "Speaking of the necessity for controlling passions is speaking of managing those to whom the sad privilege of these passions is attributed; it is speaking of and stigmatizing those who cannot 'contain themselves' as a danger" (2004, p. 153).

I got a bit desperate when, to make amends with this shameful anthropocenic situation, we spent hours on workshops talking about "violence among lesbians", polyamorous relationships and broken hearts, and we did so from the same point of view we had been taught to since we were babies in order to fit in. I couldn't stop wondering how it was that we were so aware of the serious political matter that articulating bodies to other bodies is, but we didn't take real care of the terms and the emotional effects of these articulations. How is it possible that we use the same technologies of the self as the ones we define as "the bad guys", that is, the male-heterosexual-patriarchal-white people? And why do we use them with nearly the same goals as them, that is, to be "better humans"? What about being *less humans*? What about thinking love, emotions and relationships from a non-binary perspective, taking symbiosis into account? Why don't we change our goals and, if we dare to do so, which technologies should we use? What other tools do we have? What would be the effects of thinking emotions as socially based, full of culture and not easily contained?

In order to activate a conversation on an ethic of love, I shared in that article some ideas from Vinciane Despret (2004). Here I list some of them:

1) Understanding love as a practice of interest, according to its derivation from Latin *inter-esse*, 'to be in between', 'to make a difference', 'to concern', 'to be of importance' (Encyclopedia Britannica). In its etymological sense, it means "a state or condition of being concerned in or having a share in anything".

2) Understanding passion not as some parasitic supplement or some sweet story of love, but as an effort to become interested, to immerse oneself in a multitude of problems, to grow, to care.
3) Focusing on attunement rather than empathy. Attunement is bringing into musical accord; it is a related term to tune, which means modifying a musical instrument so that it produces the correct pitches. On the other hand, empathy is "part of a subject-object relationship in which the subject (the one who feels empathy) is transformed, but this transformation is a very local one, as long as it does not really give its object the chance to be activated as subject, the subject feeling empathy remaining the only subject of the whole thing. While pretending to be inhabited (or locally transformed) by the other, the empathic in fact "squats" in the other. Empathy allows us to talk about what it is to be (like) the other, but does not raise the question "what it is to be 'with' the other". Empathy is more like "filling up one self" than taking into account the attunement" (Despret, 2004b, p. 128).

Thinking the experience of love as a shared experience, as an experience of becoming-with.

At that time I thought I had written an empowering text. But a few years later, in February 2016, I translated the Chthulucene Manifesto and I realized I had missed a fundamental figure from the *Companion Species Manifesto* (2003), the prefix sym: sympoiesis, symbiosis, symbiogenesis. I thought that I had "understood", but I was too focussed on the Anthropocene part of the story, and the idea of dogs as companion species kept distracting me. I did not understand how sympoiesis work in every day life... Aren't we constantly engaging in sympoietic relationships? Is it just a question of perspective? How does a change of perspective make a different narrative? How does a cosmopolitical narrative change the way we act and, therefore, feel and engage with other beings, humans and non-humans? So I read Lynn Margulis, but it was not enough. Reading is never enough, not matter how much. Thoughts need to be put into action and performed collectively to be grasped, reproduced and, eventually, understood.

Then I had to face the problem that I couldn't properly translate the final slogan of the Chthulucene Manifiesto, "Make Kin Not Babies". Some said it should be *familia* (family), as it is a somewhat resignified concept; others said it should be *parentesco* (kindred), which does not refer only to connections by blood but it is very associated with them. So I let it like it was, "Make Kin Not Babies".

Until along came *It's time for Chthulu* and I had a sharpened experience of bodies in the making.

Walking the talk

> El jaqin parlaña (hablar como la gente, "desde abajo"), consiste en escuchar para hablar; saber lo que se habla; y refrendar las palabras con los actos.
>
> Silvia Rivera Cusicanqui[2]

It's time for Chthulu was the name of an art installation with workshops, performances and conferences organized by Emmetrop Association and Quimera Rosa collective as part of the Rencontres Bandits-mages 2016, an annual gathering of artists and students based in the French city of Bourges. The subjects and projects around that year were *TransPlant: Green is the New Red*, a transdisciplinary biohacking art project based on self-experimentation with a plant/human/animal/machine hybridization through the appropriation of photodynamic therapy used in cancer treatment, and *Espècement*, an experiment in regeneration and hybrids. Sorcery, ecofeminism, eco-sexuality, deviant technology, mutations and non-patriarchal mythology were the compost of the event; spreading new narrative was its fundamental goal. And I was lucky enough to be invited to carry out a performative reading of the Chthulucene Manifesto in collaboration with the performer and the curator, Nadège Piton and Quimera Rosa.

The event started with a workshop offered by the performing duo Proyecto Inmiscuir (Dani D'Emilia and Daniel B. Chavez) called *Body detonators from the limits of the skin*, where they work with the concept of radical tenderness, which means being with others both within and outside the realm of performance. The main questions of their work are: How can radical be tender in our alliances, in our ephemeral communities and in our interpersonal relationships? How can rage be tender within political, transfeminist, and decolonial projects of resistance? Their main aim is to develop an art that parts with heteronormative, patriarchal, colonial and otherwise violent impositions on living, loving and making, by the creation of referents for creative quotidian practices that challenge normative ways of being in the world. To do so at their workshop they instigate sensitive exploration of corporeal layers. Each day was structured from the different bodies of each participant, with the goal of ana-

2 "The *jaquin parlaña* (talk like people do, "from below") consists in listening to talk, knowing what one speaks, and backing words up with deeds". Talk on the world (Conversa del mundo) between Silvia Rivera Cusicanqui and Boaventura de Sousa Santos at Hotel Allkamari, Valle de las Ánimas, La Paz, Bolivia, 16 October 2013. Published 12 March 2014 https://www.youtube.com/watch?v=xjgHfSrLnpU.

lyzing and testing the limits of bodies from lived experience and moving towards them. When emotions aroused, they made bodies push their own limits by asking participants to interact with each other, make their emotions a collective feeling and open place for comforting each other; this way, they made healing a collective process.

This kind of work considers emotions not as entities or intact chores but rather as feelings that make us act, and it treats interaction not as relationships between different entities but as ways of becoming-with, collective processes of transition that erase boundaries between body and mind, one and the other, reason and mind, bodies and feelings.

The second week of *It's time for Chthulu* we carried out the performative reading workshop on the Chthulucene Manifesto. And then, I was the idiot – explaining Haraway in French meant real active listening to me, and to fully understand that communication is not always in words.

Every evening we started and finished our sessions by a collective reading of the Manifesto. Those words are still ringing in my ears, dancing in my memories as a non-finished short story of dreadful creatures emerging from the earth in the face of human blindness. In between readings, we activated our bodies with icebreakers, warmups, energizers, deinhibitizers and trust building activities carried out by Nadège Piton and Ce, one of the members of Quimera Rosa. These exercises included the repetition of selected fragments, paragraphs or phrases from the Manifesto that participants had chosen to work with.

To talk about the main ideas of the Manifesto, instead of explaining the genealogy of concepts or the academic discussion around them, I told them all kind of stories that help figure out meanings, symbols and ways of understanding. We started with the brittlestar and its *fingery eyes*, which make it able to see closely from the distance, to know by touching, all its body a diffraction apparatus. I showed them Lynn Randolph's paintings and we conversed about the empowering force and the revolutionary shift of a diffraction perspective. I brought them videos on string figuring as an ancient non-capitalist game to tell and share stories. We talked about Chernobyl, that war with future victims and no enemies, and we read fragments of Nobel Prize Svetlana Alexievich's *Chernobyl Prayer: A Chronicle of the Future* (2016), like the one on the fourth reactor called "Refuge". I brought a picture of Berta Caceres where she is standing looking to her right and pointing to the left with her left arm and a legend that says: "Volveré y seré millones",[3] and we talked about how serious the fight

3 "I'll get back and I'll be millions".

for naming is and how dreadful the consequences of Capitalocene are, serious faces and shadowy voices recognizing our European privileges. I displayed different images of Gaia from very different perspectives: the Apollo missions' ones, the Greek chthonian goddess, the 6000–5500 BC sculpture where she is sitting at a throne flanked by two lionesses. We read a fragment of *The Word for World is Forest,* by Ursula K. Le Guin (1976), the one when Captain Davidson, the macho human Commander full of hate, was attacked by the ones he pejoratively called "creechies" and it turned out that for the first time, the *upward-looking one* (Haraway, 2016) watched neither up nor down but from below and saw the threatening Athsheans' smiles before he was beaten. We talked about the Andean communities of *ayllus* as an ancient form of kin, the queer families depicted by Patricia Piccinini and the adventures run by the girl called Nuna and her artic fox in *Never Alone*,[4] the puzzle-platformer video game based on a traditional Iñupiat story in which gamers have to play in a cooperative way.

Figure 1. Picture by Amar Belmabrouk.

4 http://neveralonegame.com/.

Two of the most recurrent phrases of the Chthulucene Manifesto at the performative exercises were *L'anthropocene serà court*, and *Compost, pas posthumans*; while Gaia and Medusa were the two figures around which most of the workshop was carried out. What had happened to all those discussions around what Latour and Stengers had said and how delightful and difficult was to read Karen Barad? How was it that nobody had any doubts about the power of the name "Chthulu" and the entanglements depicted from the figure of Medusa?

People had embodied the text in the etymological sense of the word, as a *textus*. We had knitted figures and ideas by walking and dancing together, by repeating words as a chosen mantra, by looking at each other straight in the eyes and having bodily contact. Thus, we knitted a telling with words, emotions, bodies and thoughts. We had moved forward the text by listening to stories of living and dying in respectful and distressing ways, by letting our bodies be connectors rather than capsules, by attunement instead of empathy.

Ontological choreographies

> Trans is becoming. Trans is the difference between the universe being frozen and the universe moving forward. Do we still have the ability to imagine alternate futures for ourselves? Or have we all just become apocalyptic?
>
> Elysia Crampton[5]

In *Modest_Witness@Second_Millennium.FemaleMan_Meets_OncoMouse: Feminism and Technoscience* (1997), Haraway explains that the experimental way of life defined public space as the site for men, morality, objectivity, action, reason and, therefore, truth; while women, passion and subjectivity were assigned to the private sphere. We could argue that psychoanalysis and confession, as well as performance art, are in between this public/private distinction. But while the former two follow moral and social conventions in order to find a cure for minds and *souls*, performance art erases the boundaries between public and private by creating its own rules and letting bodies be the matter that knots the

5 Interview at "Heavenly Bodies: How Electronic Music Transgressed Gender And Genre" (2015) https://ww2.kqed.org/arts/2015/12/12/heavenly-bodies-how-electronic-music-transgressed-gender-and-genre-in-2015/.

story, putting morality and objectivity at stake in a provocative way. Gestures, words, verses, naked bodies, flesh, fluids, needles, screams, sometimes unintelligible and very often unpredictable actions tie fragmented narratives that defy the coherence of the organized comprehensible self that confession and psychoanalysis are so devoted to.

Moreover, when performers do not mark a clear separate boundary between audience and stage, audience cannot be just an observer. That is what happened at the end of *It's time for Chthulu*, when Quimera Rosa made a performance to accompany the installation of *TransPlant: Green is the New Red* and Ce tattooed Kina (formerly Yan, the other member of Quimera Rosa, who changed her name as part of the performance) with the gastropod called Elysia using self-obtained non-photosynthetic chlorophyl.[6] Kina says: "I am a dog. Or rather, a bitch. Basically, don't confuse Haraway's *Cyborg Manifesto* with Hollywood's *Terminator Manifesto*. My desire is not to become more human, but less human. It's not really even a desire to become a plant, but to hybridize with the vegetal, to become with".[7]

By making a transition, Kina is making kin. That is the meaning of "kin": becoming with other companion species, ontological choreographies (Cussins, 1996), ongoing experimentation that cannot work out following behavioral models. Kin is about knowing by touching, trying to dance with regard/respect, being available to events, affected by emotions, inhabiting moments of collective joy and taking problems and difficulties as collective issues; it's about diffraction, symbiosis, symbiogenesis, loving and caring for mutual survival.

Dancing together can be difficult, we could bump into bodies we might feel discomfort with, we could feel uneasy, distressed, tired and eager for a sofa. Choreographies are difficult to perform. They need an agreement, an active listening, a shared longing for a world yet-to-be-born, an ethic with coherence at its core.

This ethic is not a behavioral model or a list of good or wrong things to do; it is not for individuals, pure subjects with closed identities. Rather, it is a proposal for responsible articulations, for letting bodies be affected, for caring and attunement. It is the compost of making kin, a cyborg response to the call of Chthulus, a way of creating alternatives to nowadays Apocalyptic narratives that have humans as masters of life and death.

6 Elysia, apart from the name that Ancient Greeks gave to the Paradise where mortals related to the Gods and a fictional location in the Cthulhu mythos, is one of the "solar-powered sea slugs" which uses solar energy through chloroplasts from its algal food, and lives in an endosymbiotic relationship with the marine alga Vaucheria litorea.

7 http://paroledequeer.blogspot.com/2017/03/quimera-rosa_6.html.

Daniel Chavez[8] says: "In performance art I can use my racialized body my way, as a power, as an ancestrality, as collective memory. Moreover, I can become a non-binary gender that is not interested in hegemonic canons of masculinity and femininity. These are some of the things performance offers. I feel that these processes are connected with a body decolonization". Body decolonization is also a way of transition – from the Enlightenment self towards cyborg entities. And, as Ursula K. Le Guin (1971) told us, this is only possible with "a little help from [our] friends".

Time to come together

> Love doesn't just sit there, like a stone, it has to be made, like bread; remade all the time, made new.
>
> Ursula K. Le Guin (1971)

In the Chthulucene Manifesto from Santa Cruz, Donna Haraway delights us with one of her elaborate jokes. She takes the name "Cthulhu" from the terrifying creatures imagined by H.P. Lovecraft and changes the place of an "h", rejecting Lovecraft's misogynous and racist perspective of the chthonic deities of the underworld and proposing an SF narrative to question the name that geologists have given to our present era, the Anthropocene. She is inspired not by Lovecraft but by Pimoa cthulhu, a species of spider in western California, where Haraway lives. Pimoa derives from the language of the Gosiute people in Utah and means "big legs". Haraway says:

> Making a small change in the biologist's taxonomic spelling, from cthulhu to chthulu, with renamed Pimoa chthulu, I propose a name for an elsewhere and elsewhen that was, still is, and might yet be: the Chthulucene. I remember that tentacle comes from the Latin tentaculum, meaning "feeler," and tentare, meaning "to feel" and "to try"; and I know that my leggy spider has many-armed allies. Myriad tentacles will be needed to tell the story of the Chthulucene (2017).

However, Chthonic ones, these "beings of the earth both ancient and up-to-the-minute" (Haraway, 2017), don't need us, they are not calling us for action;

8 https://canalcultura.org/2016/07/01/lo-que-el-cuerpo-nos-ensena-o-lo-que-nosotrxs-le-ensenamos-al-cuerpo-entrevista-a-daniel-chavez/.

their call is a wish for us to listen and make ourselves troubling questions, to take responsibility for the continuity of life on the planet, to stop practicing double death for living, to start to re-invent relationality and establish multispecies alliances.

We have not found our way home yet and we are going through heavy turbulence. Apocalyptic narratives will not help us and super heroes will not save us. We need to unfasten our seat belts and remain in our doubts. It is time to abandon the idea of home as a point of departure and make it a place of arrival, a refuge. Earth is our shared home, humans are not her only inhabitants, becoming-with is the only way of worlding the world with response/ability.

Artists and projects that inspired this article

Proyecto Inmiscuir. https://danidemilia.com/about-proyecto-inmiscuir/.
Transplant: Green is the New Red, by Quimera Rosa. http://quimerarosa.net/transplant/.
Reencontres Bandit-mages. http://www.bandits-mages.com/rencontres2016/en/.
Dissolution of The Sovereign: A Time Slide Into The Future (Or: A Non-Abled Offender's Exercise in Jurisprudence), a visual and performative essay written, performed, edited, and arranged by Elysia Crampton.

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Seed Matter: re-seedling the herbarium

Christine Mackey

The following appraisal of recent works attempts a radical re-notion of the idea of the garden as a living herbarium that relates current investigations of the historical, political and biodynamical ecologies of plant life through the subject of the 'seed'.

The earliest endeavor began in 2010, in Svalbard and came under the title of a three-year project *Seed Matter* (2010–2013). *Seed Matter* was a series of evolving art-works, sited projects, interventions, residencies and exhibitions that culminated in a publication, which took at the core of its research the politics of seeds, and which continues today to inform current practice. The development of this expansive work stemmed from recorded conversations and interviews, photographic reportage, archival research that included a research visit to the Svaldbard Global Seed Vault.

The following text encompasses a narrative structure with key headings that outline the research material, and sites of interest, with a specific focus on the different agencies that emerge in the work through an assemblage of diverse 'materials'.

By deconstructing the utility of the herbaria as a repository of scientific knowledge, the potentiality of the herbaria can become a mutable and radical ecosystem that is performed through various sets of inter-related and 'related' activities and contexts.

Seed banks

In 2010, I secured visiting rights through Professor Roland von Bothmer, who then worked as a public relations officer for NordGen, an international organization responsible for the daily operations of the Seed Vault located on a remote island in the Svaldbard archipelago, halfway between mainland Norway and the North Pole.

I was interested in this particular seed bank not only because of its loca-

tion sited 120 metres (393.7 feet) deep into hard rock but also as to why it was established, and for whom? This prompted a series of questions, which informed the basis of a conversation with Professor Bothmer around issues such as seed security, food production, access and ownership. This conversation was transcribed and printed for the *Seed Matter* publication and also informed other creative explorations of seed banks and seed savers around the world and related works.

Figure 1. Svaldbard Global Seed Vault.

Pavlovsk Experimental Station (1921) VIR

Being in Svaldbard brought my attention to one of the oldest seed stations in the world: the Pavlovsk Experimental Station in Russia, later known as the Vavilov Research Institute where the Russian botanist and geneticist Nikolai Vavilov (b. 1887–1943) worked. He carried out important seed collecting missions in Russia, the United States, Europe, the Middle East, Afghanistan, North Africa and Ethiopia. Vavilov had envisioned a future in which new strains of crops would be cultivated in an effort to end hunger worldwide. Vavilov fell out of favour with Stalin and was falsely accused of working for the American government and was sentenced to prison where he died of starvation.

Repatriation

Subsequently, at a meeting with GIY (a grass roots organization that supports community gardens and food cultivation), I met farmer Kevin Dudley who presented and distributed samples of peas, which interestingly had been, in his words, 'repatriated' back from Russia to Ireland via seed savers in Clare. The name of this pea was the Daniel O'Rourke Pea. I grew, cared for and saved those seeds, which were embedded into the work as primary source material. At this point, I made contact with key staff from the Vavilov Institute, in particular Elena Semenova, a pea curator who furnished new data on the lineage of the Daniel O'Rourke Pea with images of the seeds and growing trials at the research station.

An enduring monument

The accumulation of research material based on the Daniel O'Rourke Pea was assembled for the construction of an alternative knowledge bank in homage to this pea. This work is devised as a three-tier archival or assemblaged viewing system placed on an upside down table with mirrors, glass shelving, controlled temperature unit and lights. The actual sections are built from an existing

Figure 2. Viewing table.

seed propagating unit used in the growing of various seeds throughout the development of this project.

In fact, most of the materials and structures in related art-works had been previously modified from everyday equipment in the seedling and planting process.

This archival viewing table contains a range of material, for example, an illustrated drawing of the Daniel O'Rourke Pea by Charles Darwin, published in his book *The Variations of Animals and Plants under Domestication* (1898), images of the pea from the seed bank in Russia and the Iraqi Gene Bank, archival information that included maps/text/newspaper clippings on the possible migratory roots of the pea from Cork to America to Germany to England to Russia and the various Seed Men that may have been involved in these vast seed travel networks, and an original Seed Catalogue by Thorburn and Co. produced in 1890, which listed amongst other varieties the Daniel O'Rourke Pea.

The cast

In tandem, a specific monument to the pea itself was constructed. A pea specimen was cast in gold and placed under a bell jar atop of a Roman doric col-

Figure 3. The Pot Garden.

umn moulded in concrete. This mock-display points to the vital, if uncelebrated, importance of this humble pea.

The Pot Garden

Running concurrently was the development of a series of twelve framed works titled *The Seed Boards*. The seed boards began as a collection of homegrown seeds, in other words I planted the source material from which the works evolved – materially, conceptually and creatively. This was an important ethical step in the authenticity of this work.

During the second year of growth, each plant produced long stemmed flower heads that were cut, pressed and dried while others over wintered in order to produce seeds for collection at a later stage. These seeds were then collected, dried and presented in seed bags constructed from semi-translucent paper, onto which a drawing of each plant from which the seed was collected was made. The plants that were investigated and grown were heritage seeds sourced from independent seed savers in Ireland (plants included, for example, rye, cabbage, beetroot, borage, Brussels sprouts, rocket, radish).

Throughout this process, I actively met a diverse range of people involved in food production, but I also connected with people through social media and email. This involved carefully orchestrated and recorded conversations around such issues as plant hunting, allotments, and indigenous agricultural practices, seed saving, land-use and plant resources. The use of social media extended the practice geographically but it also opened the project to different fields of knowledge and relationships to the wider world.

These conversations provided both the textual information and the image gathering activities to materially compose each seed board with key related issues. The texts outlined in factual detail the species and the date the seeds were planted, collected and how they were saved. The final part of the text section, under the category notes, explored related issues specific to each plant.

The digital images for each seed board operated on a wider context, for example, alluding to a particular happening locally such as the closing of the co-op shop in the town of Manorhamilton during the recession (2008), or making a connection to the seed collecting missions as then practiced by biologist and seed saver Sanaa Abdul Wahab Al Sheick from the Iraqi Seed Bank (which no longer exists).

Figure 4. Orchard break-in. PIP.

The orchard

In 2008, I had mapped a very old orchard in Sligo Town. Returning to the site in 2012, I discovered that the orchard had been cut down and uprooted. The ground had been levelled and enclosed with a steel fence, and used by the local county council as a storage depot.

In response, I decided to break-in to plant an apple tree in commemoration. This break-in is documented in the video work, *PIP* (planting in progress), which follows my attempt from setting up a ladder to haphazardly climbing over the sharp pointed fence, getting down to the other side and the subsequent digging and planting of an apple tree. The installation of this work consisted of the video camouflaged in a growing tent unit, with the wearable hoodie that I had on, the back of this garment printed with the words PIP, which I wore during the break-in.

Dr J.G. Lamb

This activity led me to research the cultivation and history of Irish apples, where I came across the work of pomologist Dr J.G. Lamb, who completed for his PhD in the 1940s a 'History of the Apple in Ireland'. Here, Lamb had documented and archived the names, images and descriptions of dozens of species of apple trees grown in Irish orchards at the time. He died in 2010, however I visited his home and met and interviewed his son. This research led to the development of three inter-related works under the main title *RECALL*.

This work is a series of 24 prints derived from Lamb's archival material with images of apples with their names and descriptions on display. The actual descriptions were undated in the context of whether these trees can actually be found today and in the location as specified by Lamb. The prints are unframed and printed on cork paper.

Naming

The strangeness and variety of the string of apples' names is given due attention through these two audio recordings played in plastic cloches, which I had used to protect the plants that I was growing for the project. The cloches were adapted as a sound system suspended by yarns of wool. This incantatory effort commits the names to memory: 'Bloody Butcher', 'Lady's Finger', 'Clear Heart', 'The Smeller', 'Blood Of The Boyne', the list sounds like the roll call of honour for the fallen apples.

A parallel undertaking to *Seed Matter* culminated in a new work entitled *Fortifying Beds/The Potting Shed*.

Fortifying Beds

In 2013, I undertook a six-week residency for ArtLink in a defunct military fort based in Dunree, north of Buncrana on the Inishowen Peninsula, on the north coast of Ireland. This coastal defense fortification was built as a Royal Navy position during the Napoleonic Wars and remained under British sovereignty until 1938. The Irish Army manned the guns at the fort until decommissioned following World War II. Today, Fort Dunree is a museum of military artifacts as well as home to ArtLink, the longest established art company in Donegal.

Phase 1: Spontaneous generations

Geomorphological traces of the fort were visible everywhere and in between these fissures were the settlement of pioneer species. Through seasonal walks the identification of these diverse communities were tracked and recorded, and this prompted an in-depth reading of the healing properties or fortifying attributes specific to each plant. This process generated an archive of the terrain and led to a deeper engagement with the site.

Phase 2: From plants to buildings

The time frame of the residency was extended in order to focus on how or by what means a sensitive engagement that had longevity beyond the constraints of the residency could be developed.

I reviewed the material in response to Phase 1. This shifted attention from plants to buildings. One in particular lent itself to the possibility of an outdoor multifunctional space. With approval in place, the building and grounds were re-activated as a living herbarium based on the idea of the *Re*-commoning of a public space. Materials found and up-cycled on-site were shaped by the hands of a community of volunteers who all had a keen personal attachment to the fort.

Figure 5. Potting shed.

Phase 3: Raised beds

The area in front of the shed was also cleared, which had all the formal characteristics for the potential development of a walled garden (the grounds and shed were originally used as a storage depot for machines and fuel). Raised beds were constructed, snuggled near the boundary walls on both sides. These were planted with seeds collected on-site chosen for their specific fortifying healing properties.

From bullets to seeds – The mix

In addition, I put together a 'fortifying seed-bed mix', from which on launch day people were invited to take a packet, and plant the seeds wherever, whichever way they wished – seedling a generative 'here-after' affect, that marked the cyclical spontaneous process of this project.

In conclusion, this project continues to be used and adapted by the local community to develop a range of projects premised on the creative governance of the shed and its relationship to the environment and the ecology of local resources. In this and previous works, I believe my practice has initiated one answer to the question of sustainability within art practice.

On air and imaginaries

Hanna Husberg

YYD: When I grew older the sky was always white or grey. Even in my hometown, people got used to that. One day I just opened the TV, and people said, "Oh, that is not the fog!"

LY: One of my relatives is working in China Science Department of Air. I consulted him three years ago, "How about the wumai? How can we protect ourselves?" He said, "Lydia, it's useless, because the wumai is made up of very tiny things, only 1/20th of a human hair. You need a microscope to see it. So you cannot avoid any wumai inside your room, and also your mouth".

JJ: Wumai was a new word. I don't even know how to write 'mai' the Chinese character. I probably need to use the pinyin computer system to figure out the word.

WEL: It was winter something like four years ago. There was bad weather for one week, two weeks. But we didn't know, we thought it was just fog. Because smog, this word, it didn't exist.

HS: We learned about smog from Dickens' novels in middle school. We were reading all those novels, and got to know the word 'smog'. But we never associated this word with Chinese air.

WEL: Then came this PM 2.5. And it's worse, because we can't see it. We can't see the little things and if it enters our bodies it doesn't go away.

Figure 1. Blue. (2017), 25 mins.

Feng

There are few things more dangerous than wind (feng), the Chinese classic *Huangdi neijing* warns. The 'hundred diseases', it declares, 'arise from the wind'. Wind is movement, it foreshadows change, causes change, exemplifies change, is change. Feng (wind) is the conceptual ancestor of qi (energy, vital breath, pneuma).

The earliest reference to feng is in terms of music. China's earliest poetry bears the name *Guó fēng* (Airs of the States). It was believed that appropriate airs could save a state by influencing the attitudes and the behaviour of its people. Songs are feng (wind) because they alter feelings and behaviour.

In 2002 President Hu Jintao coined the term 'Harmonious Society'. The Chinese concept of harmony comes from music. Under Confucian concepts music creates a balance between individuals, nature and society. It also affirms the importance and the power of the rulers to attain social stability and common prosperity.

Beijing air

XL: I just learned from a taxi driver, now they talk about the smog, too, it's just so unbearable. He said, "Do you remember the sandstorm?" I said yes I do.

I said it's very interesting because after 2007 the sandstorm is gone. The driver said, "Yes that's the reason the smog started". I said, "Why?" "Because they planted trees, however, the trees, the forest stopped the wind, and the wind is very important to blow the smog away." So they planted more trees and more smog stayed.

The air of Beijing made international headlines in 2008 as the city hosted the 29th Olympic Games. Alongside debates about human rights, and its fast urbanisation, Beijing's minute airborne particulates stirred concern among a legion of scientists, athletes and bureaucrats. Most Beijingers, however, remember the weather the year of the Olympics as 'great'. Polluting factories and plants were closed down and as much as 90% of the traffic was removed. Furthermore, the Beijing Weather Modification Office, the world's largest weather control effort, were enlisted by the Chinese Government to ensure no rain would fall on the games.

Beijing's air was never good. Through the long recorded history of China, strong seasonal winds have brought severe long-distance dust storms from regions in the northwest, covering the capital and the coastal areas in a layer of yellow dust. With drought and increased desertification dust storms intensified. From being considered as yearly omens of spring, they were refigured as disaster events that needed state intervention.[1] Dust storms became the target of an intense program of state-led 'ecological construction' of infrastructure, a green wall of trees, with a mission to block the movement of wind and keep the shifting sands in place.

Situated at the northern tip of the North China Plain, Beijing is surrounded by mountains on three sides. Formerly the mountains protected the capital from nomadic invasion, and to some extent from sand storms. The mountains, however, also allow pollution to build up, particularly if there's no wind, or a southerly wind carrying pollution.

The dust storms affected everyone. With the smog, "it's only little by little, when you realise that so many people get cancer, get a lung problem. Certain newspapers or media start to talk about it. Then it became a problem".[2]

1 Zee, Jerry C. (2012). "Exposed to the Wind: Airflow and Environmental Management in Northwest China." Paper presented on the panel Bottlenecking Borders: Situated Reflections on the Anthropological Concept of Flow, at the American Anthropological Association Annual Meeting. San Francisco.

2 Interview with Sheng Qiang (October 20, 2016) .

Wumai

XMF: Before 1990 we were afraid of the great wind, but since 1990 we hope for the wind to come.

'Wumai' had previously been used as a technical term referring to haze in optics, while 'yanwu', the word used to translate the English word 'smog', meaning mist and fog, lacked any connotation of hazardous air pollution. It was in 2004 that wumai, through a slip of the tongue of a weather reporter, was used for the first time to refer to the meteorological condition. Presenting the weather forecast under time pressure the reporter combined 'wu' and 'mai' saying the North China Plain might have 'wumai', rather than predicting fog in Henan and smog in Beijing (Irene Xu, 2017).

Both 'wu' and 'mai' are old Chinese words: wu refers to drops of water forming a cloud close to the land, and mai refers to the sky becoming dark in ancient times, sometimes for up to a month, a phenomena similar to rain, but during which clothes kept dry. The correct Chinese term for smog would be huimai (grey haze), but the term never caught on. The usage of wumai, however, steadily grew, until, together with the notion of PM 2.5, it exploded in January 2013 as Beijing was hit by pollution of unimaginable levels.

Geographies of air

YYD: I think everybody who lives in China is really connected to this city, to Beijing, whether you live in Beijing or not. My hometown's air is also really bad, but not that kind of people will focus on my home city, because Beijing is more big and more popular. People will think, "Wow, bad air in Beijing!" They won't think of other places where the same thing happens.

According to the World Health Organisation's 2012 report, air pollution is estimated to be the world's largest single environmental health risk (World Health Organisation, 2014). It is, however, only recently that the statistics of lung cancer for Chinese men, who since the 1980s can afford to smoke, has risen in comparison with the statistics of Chinese women, who mostly don't smoke, but spend much time cooking. For many Chinese a move from rural China to urban areas has been beneficial in terms of health. There is, however, a growing middle class in China, especially in Beijing, that has a proper education, young children, and a future in the society, for whom air pollution has become a serious concern.

Everything that happens in Beijing is loaded with historical and political significance. Beijing is the political and cultural centre of China, and its air pollution has long been a shame for its leaders. On occasion, strict measures for controlling air pollution in Beijing are carried out, partly enforcing mandatory unwaged holidays, in order to clear up the skies. These occurrences have gotten nicknames, such as APEC blue, G20 blue or Olympic blue, after the events that trigger the air cleansing initiatives. Beijing's pollution levels have also significantly improved. This has to some extent occurred by outsourcing the problem to poorer and less developed regions, or to other countries, where air quality may not be the foremost concern (Liu Qin, 2016). Whereas the air condition in Beijing is widely recognised, the condition of air in other, often as polluted, cities rarely gets any attention. The air quality data published by public Chinese websites hosts only one day's data, and smaller cities and rural areas often lack monitoring stations and regulation.

Dissimilar to gases, such as carbon dioxide, that blend with air for up to hundreds of thousands of years, the durational span of suspended particulate matter in air is relatively brief. If all emissions were to be switched off, they would soon pour down as rain, disappearing in the lapse of a few weeks.

Figure 2. Media Imaginaries. (2017) 12 mins 30.

Suspended particulate matter

AA: In Beijing the air is not air. It's solid, it's a block. Which is true, it's not just a metaphor. This index, it's counting particles in the air. It's solid material, it's not gas. It's not a metaphor. I breathe in some metals, sand, concrete... I mean the air is fine, there's something in the air which is wrong.

PM 2.5 refers to fine particulate matter, smaller than 2.5 microns in diameter or 1/30th of a human hair. Before PM 2.5, PM 10 were measured. The human respiratory organs are made in such a way that particles bigger than 10 microns get stuck in the nose. Our lungs are, however, well equipped for removing coarser PM 10 particles in the air, such as sea salt and mineral dust, whereas the smaller PM 2.5 particles penetrate deep into the lungs and even pass into the bloodstream.

In China, PM 2.5 concentrations in the air were first monitored at the US Embassy in Beijing. In 2008 the embassy began automatically tweeting air quality data every hour. A year later Twitter was blocked, and only those with a VPN service were able to access it. In 2010 the US embassy tweeted 'Crazy bad'. The message was quickly corrected to 'Beyond Index'. The PM 2.5 concentration crossed the 500 upper limit, 20 times exceeding the level considered safe by the World Health Organisation. In 2013, in response to public pressure, Chinese PM 2.5 data was released, and the Chinese Government declared war on pollution. A number of air quality index applications appeared, and a four-color alert system based on the air quality index was launched. In 2016 this alert system was revised. It was decided to double the levels that trigger orange and red alerts.

PM 2.5 measures mass. Measuring only particle mass however disregards other factors, such as size distribution, chemical composition, and interaction between particles. PM 2.5 measurements are indirect representations and profound simplifications of the chemical complexity of the particles. There are no direct links between the measurement and their real environmental and health impacts. Nonetheless, most medical studies are based on PM 2.5 measurements. "From an international perspective, it's not so important that you do it correct, it's more important that we all do the same. If you have high PM 2.5 levels, it's also rather likely that you have a high number of particles. So even if we can't measure the amount of particles, PM 2.5 is an indication of bad air." It is a 'good enough' measurement (Jennifer Gabrys et al, 2016).

Figure 3. Colour code. (2017) 25 mins.

Techno-scientific imaginaries

TGB: The data, the numbers made the air become this new air, the one we talk about a lot. Suddenly it became a problem and we realised that this bad air had in fact existed for a long time in our lives.

AR: I would say it became visible with technology, with the apps. All of a sudden you're being introduced to this mechanism. The apps are measuring this, and telling you it's already been three years that you are exposed to very high standards. You called them white skies, but actually it is pollution.

HS: Sometimes the index stops at 500 PM 2.5, and doesn't nudge. But the levels may still double.

AR: And you see people always checking these apps, and comparing the numbers of the Chinese Government with the numbers of the American Embassy.

GXX: I'm the kind of person who would easily be misguided by this kind of data. I'd become more anxious. But my roommate checks it all the time. She relies more on that than on her subjectivity.

AA: It's called psychological warhead. To make people confused. You have different indexes with different numbers. Then people don't talk about the pollution, they talk about indexes: "Is it 250 or 140?"

HS: It easily becomes a bit technical, but it's quite interesting. It's like watching birds or anything else, you learn from where you live. I keep track of these particles that I cannot see through the measuring device.

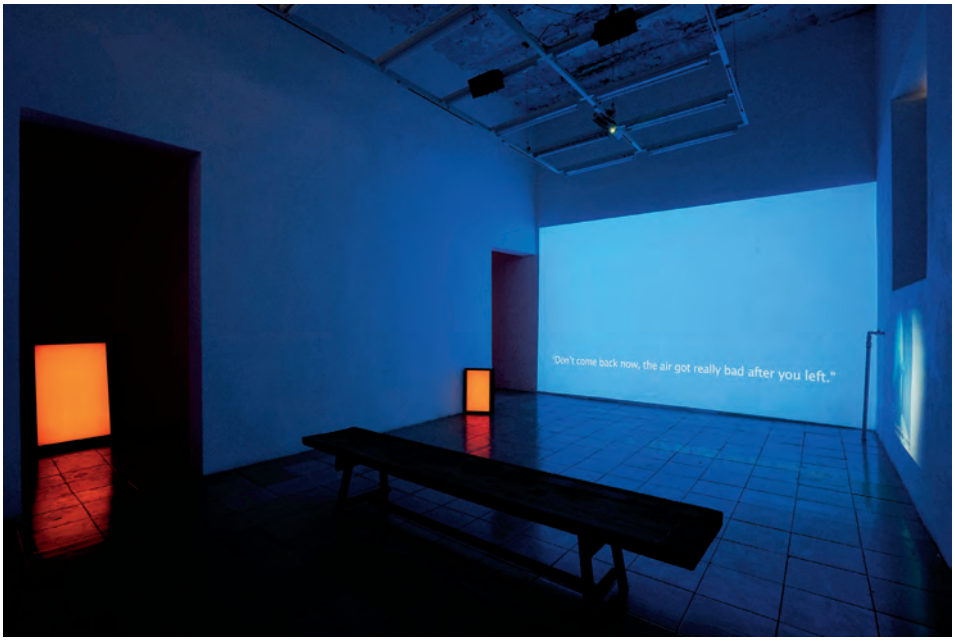

Figure 4. Often people ask how birds are affected by the air, installation view, Institute for Provocation, Beijing, 2017.

The above text builds upon Husberg's three-month artist's residency at the Institute for Provocation, Beijing, in 2016; her installation "Often people ask how birds are affected by the air", developed in 2017, and further interviews and research done collaboratively by Husberg and environmental scientist Agata Marzecova leading up to the lecture performances Imaginaries and the Governance of Air, presented at Architectures, Natures & Data: Politics of Environments conference, Tallinn, 2017, and On air and imaginaries, presented at Large Objects Moving Air, CRiSAP, London College of Communication, University of the Arts London, 2018, and Mutating Ecologies in Contemporary Art, MACBA, Barcelona, 2018.

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Affective landscapes / empathic objects: digital documentary and non-human ecologies

Ila Nicole Sheren

Documentary holds a direct, if troubled relationship to the ecological crisis in which we find ourselves enmeshed. The scientific authority of such films as *An Inconvenient Truth* helped to bring climate change science to a mass audience. The tropes of documentary, including a reliance on omniscient narration and the objective, detached gaze of the camera often do as much harm as good. Docu-series such as the BBC's *Planet Earth*, for example, present a world devoid of humans and fetishize the false proximity to the "natural" afforded by technological advancements. While visually stunning, such films never ask viewers to understand their place within the world, ultimately maintaining a false separation of human and "nature" popularized in a Western Romanticist approach to landscape. This essay discusses two documentaries: *Leviathan*, by Véréna Paravel and Lucien Castaing-Taylor, and the interactive web-based *Bear 71*, by Leanne Allison and Jeremy Mendes. *Leviathan* and *Bear 71* both present a quasi-documentary narrative told from the point of view of non-humans: fish on a commercial fishing boat, and a bear in Banff National Park, Alberta. Each employs non-traditional visual perspectives to place the viewer in the role of the non-human, forging a connection with what were initially props in the human story. In both documentaries, it is through a technologically-enabled exchange of properties between human and non-human, the erasing of a subject-object distinction, that a true political ecology can form. Ultimately, these projects encourage consideration of the economic and ecological roles that these non-humans play, presenting the resulting landscape as a fully entangled one.

Leviathan destabilizes the idea of an omniscient point of view. The film, shot on seemingly indestructible GoPro cameras, veers between roiling underwater footage, fish-eye views, vertiginous aerial perspectives, and, most disturbingly, the cold, unwavering gaze of the stationary lens. Rather than understanding the workings of a commercial fishing trawler as a whole, the viewer receives the information in disjointed parts. Castaing-Taylor and Paravel work

on an aesthetic and sensorial register that intertwines the human with the animal (and, ultimately, the non-human), visualizing how the boundary between human and non-human is porous and subject to the arbitrary demarcations of industrial capital.

The documentary opens, appropriately, with darkness. Perhaps a callback to Steve McQueen's *Western Deep*, another nontraditional non-narrative documentary film – with its six minutes of pitch blackness, this documentary scrupulously avoids all tropes of the genre. There is no omniscient narrator, no arc of which to speak, and no sense that the film imparts objective truths to the viewer. If these were the only deviations from the norm, however, Castaing-Taylor and Paravel would be just part of a long line of filmmakers, including McQueen, Trinh T. Minh-ha, and Phil Collins, who eschew (and even pervert) the mythos of documentary as educational tool. *Leviathan*, however, plays with the spaces between genres, veering into the territory of horror, action, and adventure, all the while undermining the claims of so-called "reality" genre. It is a fishing documentary for an audience raised on *Deadliest Catch* and its ilk, primed to respond to manufactured drama against an extreme, even primal, backdrop.

Leviathan seeks to answer Bruno Latour's call for a true politics of nature, one in which human beings advocate on behalf of the non-human (Latour, 2004). Latour's thought pervades the entire film, beginning to end, with his name appearing discreetly in the final acknowledgements. This helps to transform the film from pure political antagonism to a meditation on the relative values of human and non-human existence. To touch briefly on the point of political antagonism, the film traffics in a kind of visceral repulsion intended to shock the viewer. The camera lingers on closeups of fish, some decapitated, others gasping as they writhe about the deck, eyes bulging. Blood flows in abundance, coating the fishermen, inundating the floor, and washing out to sea in a perverse waterfall of bycatch and entrails. Still-living stingrays are hooked though the eye, their fins hacked off, and their thrashing bodies discarded overboard. Scene after scene presents the kind of mechanized horror that calls to mind descriptions of genocide, ethnic cleansing, and the carnage of war. In this manner, the film presents its violence initially as a one-way street, from human to non-human.

The claustrophobic violence of the film connects it both to the genre of art-as-documentary but, more readily, to the lineage of more mainstream deep-sea horror. From *20,000 Leagues Under the Sea* to *Sphere*, mainstream filmmakers frequently mine the confines of the underwater environment for their maximum claustrophobic effect. I would argue that apart from the Biblical and

Hobbesian allusions (which are beyond the scope of this essay), the choice of title also recalls the 1989 sci-fi horror film *Leviathan*. In it, a crew of deep-sea miners stumble upon a sunken Russian ship named for the titular monster. Needless to say, the miners find evidence that something had gone horribly wrong with the previous occupants. The monster in this film is not something from the depths, but a mutagenic substance that transforms its hosts into hybrid human-sea creatures. The horror of the human–non-human hybrid in the 1989 *Leviathan* is not so far removed from the way the cameras treat the subjects of the 2012 film. The glazed-over eye of a fisherman recalls the empty stare of a dismembered fish, and the closeup of human skin appears eerily inhuman in texture.

By mounting cameras directly on the men, Castaing-Taylor and Paravel also effectively erased any remaining line between human and non-human. In an interview, Paravel explained the ideas behind the point-of-view cameras, "because we attached those cameras to the fisherman themselves the result is an embodiment of this very cephalic point of view... your spatial and temporal orientation disappears and this is how you feel on a fishing vessel" (Cook, 2012). The sense of an embodied experience is heightened, then, because of the fragmented composition – one that conveys less information, but more sensation. Even the term *composition* becomes problematic, however, carrying with it a sense of intentionality. Donna Haraway, in an analysis of use of animal-mounted cameras in *National Geographic*'s 2004 series *Crittercam* noted that "the visual structuring of the TV episodes emphasizes bodies, things, parts, substances, sensory experience, timing, emotions – everything that is the thick stuff of *Crittercam*'s lifeworld" (Haraway, 2008, pp. 254–255). The marine animals featured on that show do not choose what to film, after all, their movements are guided by instinct and necessity rather than some higher aesthetic order. Although *Leviathan*'s cameras are mounted on humans, Haraway's words ring true. The jumble of parts – fish heads, steel cables, human skin – constitutes a world of things, from the perspective of things, humans included. The documentary is an ethnographic experiment, one that, according to Paravel, is the "constant search to capture the experience of being there" (Cook, 2012). That experience need not be human, and the film is structured in such a way that it becomes impossible to tell.

Leanne Allison and Jeremy Mendes' interactive documentary *Bear 71* questions whether or not there can ever be parity between humans and non-humans. The viewer takes on the disembodied eye of the surveillance apparatus, even as she roams the park as one digital denizen among many. These two modes of vision and experience operate in tandem, destabilizing the tradition-

Figure 1. Verena Paravel and Lucien Castaing-Taylor, *Leviathan*, 2012 (Film still). Reprinted with permission of the artists.

al human–non-human hierarchy. The documentary is taken almost entirely from the surveillance cameras placed throughout the so-called "wilderness", edited together to provide a general narrative of one bear's life, untimely death by train, and the aftermath. The choice to use this found footage is to illustrate both the degree of control exercised throughout the landscape and to disabuse the viewer of any sense of remoteness. The network of cameras and sensory equipment is vast, for Banff comprises over 2,500 square miles (almost 6500 sq. km).

Alberta's Banff National Park appears in promotional images as a pristine wilderness complete with ice-blue glacial lakes and picturesque mountain ranges. No signs of human presence mar the landscape, and the cloud-topped peaks give a sense of enormous scale. A classic confrontation is set up between the human viewer and this sublime, almost painfully beautiful setting. *Bear 71*'s premise rests on a disjuncture between the idea of the untouched landscape and the reality of a circumscribed, surveilled park packaged for human consumption. A national park, after all, is a *park*, established for the purposes of preservation, education, and entertainment.

After the introduction, which sets up the conceit of the security footage, the map rolls out, presenting the interactive environment. After entering this portion of the film, the viewer finds him- or herself in a schematic landscape, with symbols representing the changing terrain and simple color differentials indicating the presence of lakes, grass, and rock. A train periodically runs through the park, both a mild auditory disturbance and a foreshadowing of events to come.

The cloud-tipped peaks lose their sublime beauty, reduced to a series of dashes. Is this landscape less real than that of the photograph? After all, mimetic digital representation, however faithful, is mediated through pixels and lines of code.

The viewer navigates this digital landscape while the documentary plays in the background; he or she may toggle between video feeds of the film, as well as security camera footage showing the other inhabitants of Banff. One is free to find Bear 71 or to wander off to explore the rest of the park as her story continues. Upon discovering a deer, wolf, or other clickable creature, one can see a kind of fact sheet, as well as a clip of the individual animal on security footage. A navigation zone appears in the upper right corner, alerting the viewer at all times to the position of Bear 71.

It is not enough to reveal the unbalance of the landscape, however; the work of the film is to expose the extent of human intervention. In doing so, Allison and Mendes ask us to renegotiate our relationship with the environment and embed ourselves within it. Recall that for Bruno Latour, it is the exchange of properties between the human and non-human that composes the collective. Latour's collective finds a foothold in *Bear 71*, emphasized in the layout of the map. The viewer, assigned a random number, becomes one "human" among many other actors. Bear 71, and her cubs, along with various numbered lynxes, wolves, grizzlies, and deer, inhabit Banff National Park as mobile icons within a schematic landscape. The viewer enters into this environment as one denizen of the park among many, labeled in the same manner. When the site was launched, enabling of one's camera would generate a small video link alongside the identifying icon, transporting each viewer into the matrix of the documentary.

The camera, so immediate and intimate in the context of *Leviathan*'s fishing trawler, is with *Bear 71* an omniscient, unflinching eye. In both films, death abounds, and the precarity of life, both human and non-human, is on full view. The GoPro cameras in Castaing-Taylor and Paravel's documentary create a leveling effect, placing the viewer on the same plane as the human, animal, and machinic elements of the system, and aptly conflating them. With its dual modes of seeing, *Bear 71* also challenges an established hierarchy of vision. Although viewer-participants are plugged into the security apparatus, they are also enmeshed within the digital landscape, temporarily made to function within its constraints and made into an object of surveillance. If posthuman discourse is increasingly caught between gesturing towards a future to come and the contemporary social frameworks that act as limiting factors, then it could be through dismantling anthropocentric tropes of vision that we arrive at a Latourian collective.

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Anthropocene, Capitalocene, Chthulucene, artistic responses to Fukushima

Pablo DeSoto

In the space-time of environmental devastation announced by the Anthropocene, nuclear catastrophe is one of the troubles with fuzzy boundaries that challenges our capacity for comprehension. We know from Günther Anders that it operates in the supraliminary sphere, so large that it cannot be seen or imagined, which causes cognitive paralysis. Ulrich Beck teaches us that it produces an anthropological shock, the transformation of consciousness arising from the experience of insecurity in the face of an invisible threat. Svetlana Alexievich shows us that is characterized by vagueness and uncertainty, which produces a state of war without enemies. And we know from Olga Kuchinskaya that it generates a politics of invisibility regarding public knowledge of its consequences for health.

As in the case of Chernobyl, the Fukushima Daiichi disaster is a maximal 7 on the AEIA scale of accidents. It was unprecedented in that several reactors went into meltdown, and in that it occurred 200 kilometers from the most populous metropolitan area on the planet. Dangerous gamma, alpha and beta emitters, having escaped from high resistance concrete and steel walls, began to blend intimately with the biosphere. Artists have responded to this mutant ecology from the very first moments. Through photography, guerrilla art, dance, video and narrative fiction, these artistic responses to the nuclear crisis faced a twofold invisibility, with both ionizing radiation and institutional invisibility – the claim by the authorities that the problem is "under control".

If you were walking in the streets of Tokyo immediately after the catastrophe you would be able to find mysterious stickers of a girl in a raincoat with the words "I hate ☢ rain" and the radioactive symbol underneath (Figure 1). They were created by 281_antinuke, an ordinary citizen turned into an anonymous artist in the aftermath of the disaster.

For photographers to document something invisible it is a challenge they have responded to in very imaginative ways. Florian Ruiz overlapped different pictures taken with a pinhole camera from different angles in a forest in Fuk-

Figure 1. The Radiation is Under Control. Internet meme.

ushima to recreate a strange vibration, evoking a sense of radiation. His images include the level of micro sieverts per hour at the time that each picture was taken. Ayesta and Bression used plastic membranes in an attempt to represent what was contaminated and what was not.

Other artists like Misato Yugi used animation to represent the invisible radionucleidos as *red dots*. Yukihiro Shoda created a speculative short fiction film, *Blind*, imagining a parallel-universe version of Tokyo, which also suffered a nuclear crisis but was less lucky than its real world counterpart. Even Takeshi Murakami made his first movie inspired by Fukushima, *Jellyfish Eyes*, where a group of evil scientific teenagers attempt to reconstitute the myth of the safety of nuclear energy.

Among the different artistic responses to the nuclear disaster, the mysterious army of a hundred illuminated human figures that appeared in a forest on the outskirts of a German city is iconic for the conversation this chapter aims to engage. Dressed in white overalls stamped with the radioactive symbol, the installation was like a strange procession of lost-souls fleeing in the middle of the night (Figure 2). Entitled *Under Nuclear Threat,* the artwork was created by Luz Interrupts, an anonymous light art group.

Responding to an event that occurred thousands of miles away, *Under Nuclear Threat* made evident how an accident in a single industrial plant has the dramatic ability to turn a regional toponym such as Fukushima into a word of

Figure 2. *Under Nuclear Threat*. Luz interruptus.

planetary significance and scope. The social and environmental catastrophe of Fukushima, as with Chernobyl before, became both a material evidence and a living metaphor of our nuclear modernity – turning promises and dreams into failures and nightmares.

By placing disoriented human figures and dystopian nature at the center of the piece, the artwork challenges us to think of our species as both the cause and the victim of its own activities on Earth, a provocation that has the capacity to evoke one of the most relevant scientific and cultural concepts of our days: the Anthropocene.

Under Nuclear Threat, like the idea of the Anthropocene, challenges us to radically rethink not only what nature and we humans could become in a dystopian tomorrow, but what we already are today. Because in Fukushima, nature is no longer what it was. Nature has become the Zone, where time and space have been altered by human action, and at the same time our naked sensorial systems have not evolved enough to perceive these alterations.

The case study of Fukushima adds to the discussion of the Anthropocene a problem that is at the same time global and situated, a geo-story and a Gaia-story in Isabelle Stengers's catastrophic times. It is a concrete question, not a theoretical or abstract one, which must be answered here and now – a here and now defined by the loss of credibility of the great myths of development; and where,

as the philosopher Michel Marder points out, "radioactivity is probably the most potent figure of the metaphysics of our time".

Taking as a theoretical framework the interdisciplinary discussion of the Anthropocene, and critical counter-formulations such as Jason Moore's Capitalocene and Donna Haraway's Chthulucene, this chapter explores how some artists have responded to Fukushima. Recalibrating our sensorial systems and subjectivity to adjust to the contradiction and volatility of industrial civilization, it investigates the ability of art to address the complexity of the Fukushima nuclear crisis as both a physical and mental landscape, a material and imagined reality.

Drawing on political ecology, feminist and Marxist thought, the theoretical framework of the Capitalocene points out the importance of addressing capital accumulation and the power of governments, corporations and individuals, and not just the human species as an undifferentiated whole, as the main force behind the current environmental devastation on Earth.

Arguing that the Anthropocene and the Capitalocene are big stories but not big enough, Haraway invites us to engage in SF (scientific fact, science fiction, speculative fabulation, speculative feminism) as a way to visualize a more livable future for humans and other creatures. As a sneaky alternative to both the Age of Humans and the Age of Capital, the Chthulucene is a critique to hegemonic technoscience and a call to action beyond human exceptionalism.

With its different metaphorical repertoires, Anthropocene/Capitalocene/Chthulucene are ways of seeing, feeling and thinking that express different visions of the world. Using them as analytical tools, we can construct an experimental narrative about the Fukushima nuclear catastrophe, bringing together stories, theories and artworks into a significant type of disruptive conversation.

Thinking about Fukushima and the Anthropocene take us directly into the materiality of the Exclusion Zone. If Dipesh Chakrabarty started his influential paper "The Climate of History: Four Theses" by referencing Alan Weisman's bestseller *The World Without Us*, the landscapes around Fukushima Daiichi are not images of a speculative future where nature has overcome our human civilization, but of the very present, a paradoxical postcard of an Anthropocene without Anthropos. It's the perfect backdrop for a film like *The Last Man on Earth*, but of course neither production companies nor actors will use it as a set because it's too dangerous to stay there. Those places are evidence of Anna Tsing's characterization of the Anthropocene as "loss of refugia". It is a double death, as in the words of Donna Haraway, one that is biological in the sense of the organism, but also the death of the refuge, the place where different species can regenerate and flourish.

Several artworks exemplify this assertion. *A Body in Fukushima,* by dancer/choreographer Eiko Otake and photographer William Johnston, depicts the desolation of the evacuated areas through the expressiveness of butoh. *Retrace Our Steps,* by Ayesta and Bression, portrays former inhabitants of the abandoned villages back in their former houses and work places, as if nothing had happened. *Don't Follow the Wind* is a biennial with 12 pieces installed in the Fukushima Exclusion Zone, organized by Japanese art group Chim↑Pom. Because of high radiation levels, visiting the exhibition is forbidden until sufficient years, decades or centuries for the area to be declared safe.

To see Fukushima through the lense of the Capitalocene helps us to focus on the power of corporations and the perspective of labour, generally made invisible by the dominant discourse of the Anthropocene. In one of 281_antinuke's stickers, the TEPCO (Tokyo Electric Power Company) logo is presented as the "third bomb", "one that will never die". It illustrates the rise of megacorporations as global historical subjects, with agency, at least according to the artivist, as atomic weapons of mass destruction.

As a radical form of artivism, some artists have taken the risk of enrolling as subcontracted workers at the site of Fukushima Daiichi. In the summer of

Figure 3. *Finger Pointing Worker*. Kota Takeuchi.

2011, a worker pointed directly to the surveillance cameras of the plant in a gesture of accusation (Figure 3). Later on the subject was revealed to be Toka Takeuchi. Similarly, one of the members Chim↑Pom camouflaged as a worker showed a red card to the company, as in a soccer game. This kind of gonzo art was not new. Already in the late seventies, journalists and manga artists, such as Kunio Horie and Shigeru Mizuki, were hired as subcontracted workers and were able to infiltrate the nuclear power plant. They later published a comic book entitled *Into the Darkness of Fukushima Nuclear Power Plant*.

To think about Fukushima in the narrative of the Chthulucene takes us straight to the simulated model of radioactive cesium contamination of the Pacific, shaped like the ocean-sized Godzilla in Laurie Greasley's illustration. Scientific fact and science fiction tend to come together in Fukushima. The claim that the myths of the past were not defeated by industrial modernity is literal. The first victim of the accident was the myth of the safety of nuclear energyx, rewritten after Chernobyl as the myth that only communist reactors explode. In the Pacific Rim of Fire, the chthonic forces of the tsunami and earthquake collided with the nuclear power plant. In the light of this, the Chthulucene does not appear as an eccentric eco-feminist theory based on science fiction but as a narrative that helps us construct a mythology for our present.

Beyond human exceptionalism, where humans are not the only actors, the Chthulucene sensibility drags us towards the intersection of art, biology and activism. Masimichi Kagaya is an artist using the technology of the autoradiograph to visualize radioactive contamination in animals inside the Exclusion Zone. Shimpei Takeda used the same technique to make autoradiographs of radioactive soil near public buildings as a way to produce material evidence of contamination. His artwork *Trace* has a strange beauty, almost like a nebula of stars. If particles from that soil get into your body, those radionucleides will shine with the power of stars inside your organs, breaking your DNA chains and mutating your cells, potentially causing cancer.

However it is denominated, our epoch is marked by serious discontinuities. As in Fukushima, what comes next will not be as it was, and it looks like we are going to need hard work from both the sciences and the arts just to comprehend it.

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How to experience time anew

Anna-Maria Hällgren

In an episode of the podcast *This American Life*, a story about a man living in the village Otsuchi, Japan, enfolds. Grieving his cousin who recently had passed away, he decided to install a telephone booth with a rotary dial phone, disconnected, in his garden. For him, it was a way to 'speak' with his deceased cousin. One year later, in 2011, the earthquake that shook the northeastern parts of Japan unleashed a tsunami that hit the coast and left a tremendous amount of people dead or missing. The word of the wind phone, as it came to be known, spread. Thousands of people began to visit the garden in order to make, indeed, long distance calls to their lost ones (*This American Life*, 2016).

This story is, in a sense, about transgressing time and space. However, it also touches upon the practice of *renewing empiricism*, referring to Bruno Latour.

Latour has been criticized for promoting a kind of relativism which leaves us in a world where there are no facts, no truths, not even a reality. But this has, of course, never been the case (Latour, 1999). Speaking of the future of critical theory, Latour argues that the point with critical theory was never to detach us from reality, from empirical facts (Latour, 2004). The world is obviously out there, it is not made up. But the ways in which we make sense of it, the ways in which *we make it work* – that one is on us.

When Latour speaks of *matters of concern* rather than *matters of fact*, he does so not to make a difference between what is "really" true or real, and the things that are not, but to emphasize our responsibility when dealing with empirical facts. They may exist on their own, but the way in which they work depends on us. It is quite a responsibility, in particular today, when the environmental degradation calls for our attention and action.

Within contemporary art today several artists highlight this degradation in very explicit ways. In other words, a lot has happened since Bill McKibben stated in 2005 that even though "we know about [climate change], we don't *know* about it. It hasn't registered in our gut; it isn't part of our culture. Where are the books? The poems? The plays? The goddamn operas?" (McKibben, 2005). Let us, for instance, recall the collaboration between Olafur Eliasson and geol-

ogist Minik Rosing, which resulted in *Ice Watch* in 2014. In the piece 112 tons of ice were taken from a fjord outside Nuuk, Greenland, and placed in Copenhagen's City Hall Square. The ice blocks were displayed in such a way that they resembled a clock, seemingly to state the obvious: the rapid environmental change is, indeed, very rapid. And it will have consequences. In the meantime, the audience were tenderly touching the ice; resting on it; licking it, and hence, causing it to melt even faster.[1] There are also, however, artists who might not address the climate degradation per se, but who may offer us something – in this context – just as important. That is: new encounters with time and temporality.

Living in the Anthropocene, if that is what we do, we must acknowledge the many ways in which "we are embedded [...] in the processes of the earth" (Head, 2015). Now, in this context an anthropocentric notion of time fails us. If we choose to recognize human dependency on, and agency within, geological processes; if we de-center ourselves and recognize the agency of non-human matter as well, then we also need a somewhat more flexible understanding of time and temporality. The modern, progress-oriented linear notion of time might have been a requirement for the industrialization of Europe; it might have been a requirement for capitalism. But if, as Daniel Rosenberg and Anthony Grafton argue, time makes sense to us through historically situated conceptualizations and mediated experiences, and if our concepts of time change when societies change – then we might have to rethink our habitual notions of time (Rosenberg and Grafton, 2010).

Several artists today offer us possibilities to do precisely that. They experiment with anthropocentric notions of time, often through new encounters with well known visual technologies, such as the photographic technique or the video recorder. They make it obvious that time and temporality ought to be considered a *matter of concern* rather than a *matter of fact* by renewing empiricism in regards to how time and temporality could be put into play. Let me give you three examples of how this might work.

In Daniel Crooks' piece *Static No 12 (seek stillness in movement)*, for example, the artist has captured an elderly man practicing tai chi in the outskirts of Shanghai. Crooks has used slow-motion footage, which makes the elderly man's movements look even dreamier as it enable us to grasp motion beyond human sensorium: how the cloth slowly folds; how the muscles in the man's face slowly extend. Soon, however, a glitch is introduced. A wave of motion runs through

1 Since the installation in Copenhagen, *Ice Watch* has also been displayed in Place du Panthéon in Paris, during the UN Climate Conference COP21.

the man's face and ripples it, while the left side of his body starts to stretch. Subsequently parts of his body duplicate, bend and widen (Paton, 2014).[2] Due to the glitch, "the past" never becomes static. It keeps on changing, informing as well as transforming the present movements, until the categories we are so very well aware of – the past, the present, the future – intermingle.

Photographer Michael Wesley is known for his indeed long exposure times – sometimes hours, sometimes years. In his series of open shutter photographs taken at railway stations in European cities in the 1990s, he placed his camera on different platforms, where a train was about to depart. At the moment of departure the lens opened and remained open until the train had reached its final destination. Wesley did not, of course, succeed in capturing the train, but the timescape in its absence: eerie platforms in a dreamy light; vague contours of waiting travellers hard to grasp (Koepnick, 2014). In contrast to photographs with regular, considerably shorter exposure times, it is not possible to organize the motif within a grand temporal narrative. Whereas a photograph exposing a single slice of time often automatically refers to a specific past, present, and future, in the case of Weasleys photographs, this cannot be done. Even though we are actually being offered several temporal layers, it is not possible to distinguish one from the other. A new story about time unfolds, which refers to long-term historical structures rather than shorter events, graspable on a human scale.

In artist duo IC-98's animated video installation *A view from the other side* (2011) the viewer is positioned in front of a colonnade in Turku, Finland. The portico has served several purposes during the years. These changes, and others too, have been captured in an animation accompanied by a gloomy soundscape. However, although we know exactly where we are and we can see that something is changing, the temporal coordinates are harder to grasp. The animation is more than one hour, but it captures decades. We can see the colonnade slowly changing shape whilst doors open; a small table suddenly appears; the trees lose their leaves, and the sky gets darker and lighter again. The view is constantly changing, but while this is the case it is harder to actually see the changes. All of a sudden we can see the table, as if it had always been there, and all of a sudden it is gone, as if it were never there in the first place. The changes always seem to just have happened, without us realizing exactly when they happened. They are hard to grasp most likely because they happen simultane-

2 Apart from discussing the piece as such, Justin Paton has also explained the technical details, such as locating a thin sliver of time in the footage while letting other slivers of time accumulate and create a stretched space.

ously in an order we are not accustomed to. The transformation spans over centuries, days and seconds at the same time, while the viewer stands on the other side of the river watching ceaseless, multiple temporal rhythms. Watching *A view from the other side* we know exactly where we are, on the other side of the river, facing the colonnade in Turku. But *when* are we? It is hard to say.

These three artworks are instances of what I would like to refer to as experiments with anthropocentric notions of time. Neither of these artists takes the human notion of time for granted; none of them emphasize it on behalf of any other(s). These experiments are crucial, since living in the Anthropocene urges us to take action. We are creating the future in this very moment and can never get rid of the past, as Daniel Crooks' glitched piece suggests. Furthermore, these experiments are crucial, since living in the Anthropocene urges us to understand ourselves as part of geological time, of deep time. This concept reveals processes, geologically as well as evolutionarily, usually beyond human perception. But how do we grasp such a concept? By transforming the temporal significance of a photographic moment – it might be something other than the "blink of an eye" – the open shutter photography by Michael Weasley refers to long-term historical structures rather than shorter events. Lastly, these experiments are crucial since living in the Anthropocene also urges us to rethink the idea of progress, closely tied to the linear notion of time. Maybe through works such as IC98's animations, through which changes do occur, but not in the order we are used to.

What several of these ongoing experiments with anthropocentric notions of time, of which I have only mentioned a few, have in common is that their encounter with established technologies of vision takes an unconventional route. Using traditional technologies of vision in new, unexpected ways thus enables us to see and perceive *time* differently.

Let us yet again recall the man in Japan who installed a phone booth in his garden in order to "speak" with his deceased cousin. One year later the magnitude 9.0 earthquake – strong enough to make the earth rotate faster, thus shortening the length of the day – unleashed the tsunami that initiated the Fukushima Daiichi nuclear disaster. For some of those who lost their loved ones, stepping inside the phone booth in Otsuchi became an answer. This was how they put reality into play. While the story about the wind phone touches upon the act of renewing empiricism – albeit in a poetic way – it also suggests that we might not have to connect the rotary dial phone. It might work anyway. It might not be a matter of fact. But it's a matter of concern.

Finally. We all know what time is, until someone asks us. These new encounters with time and temporality ask us precisely that question. And it is

about time to rethink how we make sense of time, how we allow it to work and for what purposes. Within contemporary art today, several artists are offering us possibilities to do this: to *rethink* and, maybe, *redo*.

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Anecdotes of a life and aphorisms of thought

Mitra Azar

> L'art n'est pas une notion mais un mouvement. L'important n'est pas ce qu'il est mais ce qu'il fait.
>
> G. Deleuze, "Qu'est-ce que l'acte de creation?"(1987)

I

While studying philosophy and cinema, I came to realize how my need for expression was not fully satisfied by a rigorous philosophical approach, but that it needed something closer to where concepts had originally arisen from, something able to reduce the gap between thoughts and actions. Deleuze's Nietzschean-rooted reflection on how "the anecdotes of a life [become] the aphorisms of thought" (Deleuze, 1962), suggested me the possibility of approaching that gap, while his way of looking at artists and filmmakers as philosophers did the rest.

Thus, I became a nomadic video-squatter and ARThropologist, haunted by images and by their relational-performative-philosophical fabric. The idea of border as a becoming-amorphous entity and the political role of art and digital technologies within the frame of an aesthetic of crisis and of mass events have been the framework of my practice-based research. As a result, for almost ten years, I've been living as a nomad and I've been building an archive of site-specific works in some of the most controversial areas of the planet, in the context of socio-political, cultural and ecological struggles, mainly through the lens of visual anthropology, art, and media philosophy.

II

Here, I would like to unfold some of the theoretical knots around which gravitates this artistic research by talking about a project shot in Beirut, Lebanon, a country where I've been moving back and forth since 2011. The place is called

Raouche, which is the name of the famous two pigeon rocks standing in the middle of the sea right in front of Avenue General De Gaulle, which composes with Avenue de Paris a pleasant seaside promenade encompassing the coastline and Raouche itself, and where fancy cafes and restaurants stand at the base of high, glassed buildings. At some point, from the four meters wide sidewalk of the promenade, an alley goes down to the seashore cracking a hole in the fabric of the newly installed fence. In one of the shacks that back then were squatting on the costal surface going down from the street to the pigeon rocks, I found a place to sleep the first night I arrived in Lebanon from Syria, at the end of 2011. Once getting closer to the water, the informal architecture of shacks emerged with the community of locals inhabiting them. Even though it wasn't late when I arrived, the people living there seemed to follow a natural biorhythm, preparing to lay down at sunset and eventually waking up at sunrise – which looks like an odd habit in the midst of the shines and lights of Avenue General De Gaulle, few hundred meters up. This area is called the Dalieh of Raouche – which means the flower of Raouche.

Figure 1. Mitra Azar, Grund 36S 7281293751959. *Boats* (2013). Courtesy of the artist.

III

Now the shacks are gone with a lot of the people who inhabited them, and in their place huge white blocks of concrete have started to cover the small rock valley going towards the sea. Rem Koolhaas has been asked to draw up a plan for this area. In Dalieh, Lebanese people and tourists have been accessing for a long time one of the last non-privatized seasides of the city. Access to the sea is considered a right of Lebanese people by the Constitution, where it is stated that "the beach is an alienable public domain" (1925). Time passes, though, and eventually laws have changed to the point that all around Dalieh and Raouche, resorts and luxury facilities have been built taking away beaches and public space from ordinary Lebanese people – who normally can't afford the high fees to access these facilities. Dalieh is a unique space also because it stores geological formations dating back 300 million years, and was inhabited since the Paleolithic age, as the rest of the golden Paleolithic Mousterian and Levallois industry seems to prove. Persian or arguably Phoenician jars have been found there too, along with Ottoman ruins.

From that first night Dalieh became my favorite place in town, with its jumble of fishermen, street sellers, boat drivers – some locals, many Palestinian and Syrian refugees. A community whose existence was symbiotic to the existence of Dalieh as one of the last public spots on the seaside of Beirut. A space (and a community) which is now almost totally destroyed, for the government sold Dalieh to three real estate companies (all of them connected to ex Prime Minister Rafic Hariri), which asked Rem Koolhas to design the next resort facility.

IV

Dalieh seemed from the beginning a very interesting place for many reasons: the presence of a not really clear border between the space of the city and the one defined by the valley going down from the streets to the pigeon rocks, the public value of the area, the ecological struggle connected to its geological and biological value. Dalieh seemed a place of conflict unfolding some of the most interesting challenges offered by the Lebanese version of neo-liberal capitalism, while showing at the same time an extremely interesting artistic potential. Dalieh was a place I was able to access because of the nomadic life-form my artistic practice has been sprouting from – faithful to the conviction that the origin of any creative practice is always relational, performative, non-studio-based, and therefore designed to resist the white box formalization of the

revolutionary Duchampian gesture of bringing 'non-art' into the realm of art. In this sense, ARThropology is the neologism I use to radicate my artistic practice within a non-artistic one, and refers to a sort of un-orthodox anthropological mapping of a given situation in which the more rigorous methods of visual anthropology and the more creative methods of artistic research are freely intertwined and adapted.

I've started engaging with Dalieh and its people since 2011, and I've been able to witness all the transformations that have happened since then. It's also here that I shot the picture that has given the name to the artistic practice I was already engaging with and which is still going on these days, giving shape to the *Scars&Borders* archive.

Figure 2. Mitra Azar, Grund 36S 7281293751959. *Scars&Borders* (2013). Courtesy of the artist.

V

In the case of Dalieh, and in many other cases of the *Scars&Borders* archive, the practice of shooting is always at the edges of legality, because it is exercised over a space that seems to be better not to look at. The symbolic idea at the base of the *Scars&Borders* archive has been that of identifying such a space

within the buffering zones between two confining countries, where technically speaking there's no jurisdiction of one country's law over another. Exercising a sort of 'right to look' (Mirzoeff, 2011) has been one of the focuses of my artistic practice. At the same time, it has inevitably forced it into a grey area where the capability of finding ways to give visibility despite the legal restrictions – and despite the nomadic nature at the base of this practice, which implies rapid mobility and autonomy from any superior structure – is as important artistically as the results it aims at producing. That's why I refer to my practice with the wording 'video-squatting' – borrowing the expression from a guerrilla film movement coeval to the 1977 Italian autonomous revolutionary movement, named 'video-teppisti'.

Last year, I decided to explore Dalieh from an aerial perspective, and to shoot some drone footage without being granted any permission from the Beirut municipality. I wanted to shoot from the sky some of the elements that were relevant in relation to the ongoing conflict defining Dalieh and that I've been shooting from the ground in the past. I wanted especially to counteract a series of photographic shots I took few years back by holding the camera against the ground facing up and framing the same concrete structures that started to appear soon after the area got fenced. These shots were part of formal research visually addressing the paradox expressed by Socrates' dialogue about the Thracian servant laughing at Thales, the philosopher, who happened to fall in a well while watching the sky, absorbed in his thinking. The tale is a parable about the meaning of being a philosopher, and here serves to me the purpose of introducing the idea of 'performative philosophy', an expression which refers to a philosophy based on the practice of 'concept mining', the real-time inductive methodology of the performative philosopher, a relational ground-up (un)methodology inspired by philosophers that at some point decided to engage consistently with their bodies – from Democrito staring at the sun and getting blind trying to understand the nature of atoms, to the Cynic masturbating in the middle of markets and squares, to Wittgenstein writing in the trenches, to Socrates drinking hemlock to death. These pictures evoke both the hypothetical gaze of Thales in the well as much as the inductive work required by the performative philosopher not to fall in it.

VI

In its disembodied nature – coupling well with the seemingly 3D nature of the concrete structures nowadays occupying a big part of Dalieh – the drone shoot-

Figure 3. Mitra Azar, Grund 36S 7281293751959. *Accropodes* (2013). Courtesy of the artist.

ing breaks with the raw nature of the images I've taken when I was living with the local community in the shacks. Nevertheless, it allows a gaze able to grasp the undergoing transformation of the space in its relation with the city and the natural landscape it is part of. The philosopher Jacques Ranciére uses the expression 'redistribution of the sensible' (2004) to refer to the attempt of any political-aesthetic endeavor to unlock certain aesthetic regimes, enable certain visibilities and disable others. After years of ground exploration, the illegal drone shooting realized in Dalieh seems to give to the conflict happening there its broader spatial context. Adopting a Deleuzian terminology, the 'smooth space' of the sea and the coasts and the pigeon rocks as a space defined more for its haptic and affective features contrasts with the 'striate', partitioned and organized space of the city and with its attempt to colonize it – as the national flag over the fierce pigeon rocks and the ongoing occupation of Dalieh by the accropodes suggest, also showing how these type of spaces are always connected through a more or less conflictual relationship. Extremely slowly, the camera discloses the Beirut skyline, a hallucinated representation of what Dalieh will look like in a few years, starting from these very first 3D-like accropodes. Moreover, the long drone shot pulling off from the coastline to the accropodes to the pigeon rocks to the city skyline seems to open the conflict to its broader temporal dimension, combining with one camera movement the dif-

ferent temporalities coexisting in and around Dalieh; the deep geological time of the coastline; the sea and the horizon; the contingent future-oriented time of the accropodes placed by the Minister of Public Work, and the city work-related temporality of Avenue General De Gaulle. The history of Dalieh proves how the State as the promoter of 'striate' space operates through the partition of the 'smooth' space and through the capture of the movement of the forces that keep the space smooth – in this case the community which inhabited Dalieh and kept it public. There's a dark 'futuribility' in these combinations of planes: Raouche becoming the accropodes, the accropodes becoming the city, Dalieh absorbed and normalized.

VII

Nevertheless, Dalieh is not yet fully compromised, and its present condition reminds sonically of a phenomenon J.-F. Lyotard (1985) called 'conurbation', referring to the impossibility of tuning a radio to a precise channel: "c'est ni la ville, ni la campagne, ni le désert. L'opposition d'un centre et d'une périphérie disparait, et même d'un dedans (la cité des hommes) et d'un dehors (la nature). [...] C'est plutôt une nébuleuse, où les matériaux (édifices, voiries) sont des états métastables d'une énergie" (Lyotard, *Les Immateriaux*, 1985). Such a condition is an opportunity for the creation of spaces of resistance where a po-

Figure 4. Mitra Azar, Grund 36S 7281293751959. Still from video (2013). Courtesy of the artist.

litically oriented form of nomadism can act as an instrument of denunciation and a tool for community building. The processes of redistribution of the sensible which are affecting Dalieh are not simple and involve a certain amount of friction, locating politics and aesthetics as forms of conflictual subjectivation. The nomadism underlying this visual form of performative philosophy and expressing itself through the practice of concept mining and ARThropology shares the necessity of transforming a form of life into a politically oriented creative endeavor.

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Cloud ecologies: weather, pollution, time and data

Fiona Curran

In a speech to Congress on May 25, 1961 that asked for a commitment to billions of dollars of funding, United Sates president John Fitzgerald Kennedy famously stated: "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth". In the same speech of this oft-quoted first pledge however, there were a number of further requests for funding to also support: the development of the *Rover* nuclear rocket to provide the means of further space exploration beyond the moon "to the very end of the solar system itself"; to develop and "accelerate the use of space satellites for world-wide communications"; to "give us at the earliest possible time a satellite system for world-wide weather observation".

During the Cold War period this technological expansion out into space coincided with the nuclear arms race and the need to understand the effects of nuclear testing on the environment in order to prepare for the very real possibility of a post-nuclear landscape on Earth. The earthbound, underwater and atmospheric nuclear tests conducted throughout the late 1940s until the signing of the first Limited Test Ban Treaty in 1963 ushered in a new commitment to research in the earth sciences which led to a vision of the globe as an integrated political, technological and environmental space. Geophysical mapping of the oceans, the earth and the atmosphere tracked the polluting effects of radiation and the dispersal of fallout leading to the discovery of radiocarbon dating, awareness of the importance of carbon dioxide uptake by the oceans and the discovery of a high level of fossil fuels circulating in the earth's atmosphere (DeLoughrey, 2014). This period of Cold War nuclear militarism and space exploration therefore extended the US technological hegemony out into the global biosphere through visible demonstrations of techno-military expansionism at the same time as it began to codify the same biosphere as a pressing environmental concern. This led to the emergence of what Joseph Masco refers to as "the research questions that would ultimately inform a theory of climate change" (Masco, 2010, p. 15).

Figure 1. Craigie Horsfield, *Above the road east toward Taibique, El Hierro, 15 minutes, February 2002* (2008). Digital Jacquard Tapestry, 259 × 262 cm.

In the twenty-first century president Kennedy's two objectives to advance weather observation and global communications via satellite technologies have begun to coalesce as global communications and data production shift into the realm of informatic weather systems and "cloud" computing resulting in an electronic form of meteorology. This paper focuses on the semiotic and material instability of the cloud as it slips between references to the weather, pollution, time and data collection. Two digitally woven tapestries depicting moving clouds produced by the British artist Craigie Horsfield in 2008 will frame the discussion.

Above the road east toward Taibique, El Hierro, 15 minutes, February 2002 (2008) and *Above the road east toward Taibique, El Hierro, 16 minutes 25 seconds,*

February 2002 (2008), present a pair of still images taken from one of the artist's films and woven as large-scale tapestries. The tapestries offer a seductive image of clouds caught in movement complete with the strange visual blur that comes from a film still. By translating these 'stills' into a woven surface Horsfield manages to recapture the sense of time and duration that belongs not only to the image but also to the object itself, the cloud. The artist has frequently referred to his interest in 'slow time', a term he has adapted from the historian Fernand Braudel's notion of 'slow history', where the longer *durée* of geographical and social time is mapped in tandem with the shorter-term fluctuations of 'individual' time. Within Horsfield's broader practice incorporating the use of film and photography the focus is more commonly on social relations mapped through the artist's long-term engagement with specific communities of people. However, in these cloud images he can be seen to address questions of geographical and planetary time.

In these two images of clouds taken from different moments of the same film that the artist shot on the island of El Hierro in the Canary Islands in 2002, there has been a delay in their translation from the film into a different material surface in 2008. At the moment that the clouds were caught on film they were already in the process of disappearing, their forms in constant fluctuation and movement in response to the climatic conditions of the day. El Hierro is the smallest and most western of the Canary Islands and sits at what was once perceived to be the 'edge of the world' between Europe, Africa and the Americas. Prior to the 1884 shift of the prime meridian line to Greenwich in London it was the southern tip of El Hierro that marked the zero line of longitude on the map known as the 'ferro' meridian, the point from which the European explorers reached out into the unknown and navigated their ships on to the 'new' world. Like the drifting clouds and water-laden air moving over its ground, therefore, the island was subject to a shift in its geopolitical significance on the world stage.

The original film piece these images derive from, *El Hierro Conversation,* was the outcome of a project that Horsfield worked on between 2001 and 2004. The piece focused on the relation between people and place in order to map the island's present time. It involved a series of filmed and oral interviews with the islanders over several years. The final film juxtaposes these collective oral histories with images of the volcanic landscape of the island and its relationship to weather and water. The landscape views that are interspersed within the moving narratives are treated as still photographic images and often depict little more than mist or cloud whose vaporous forms resist being fixed in either language or in image.

With Horsfield's commitment to slow processes of production and presentation and through the transition from film to photograph to tapestry, we witness a rematerializing of the atmospheric image of the original clouds. They are now woven, becoming a mesh of interconnecting threads that merge foreground with background and surface image with material support. This representation of the image of the cloud hints at an alternative form of signification in which a politics of the atmosphere might start to move into the picture. In this view, instead of the clarity of a satellite gaze there's an acknowledgment that the view is always partial, obscured and subject to what we might call meteorological blind spots. Philosopher Peter Sloterdijk informs us that:

> No circumstance characterizes the cartographical act of the Modern Age – and eo ipso its way of thinking – more profoundly than the fact that no globe we have ever seen shows the earth's atmosphere. Two-dimensional maps likewise provide views of airless territories. All older models of the earth neglect the atmospheric element as naturally as if there were a permanent agreement that only the solid merits depiction. (Sloterdijk, 2014, p. 31)

As rocket and satellite technologies developed in tandem during the 1960s and President Kennedy's call to send a man to the moon was realized, new images emerged of the planet taken from the perspective of space. The critic Robin Kelsey (2011) has written about the presence of the clouds in the early NASA images of the earth captured by the Apollo astronauts, arguing that their swirling presence introduced a new cartographic perspective that was no longer reducible to the notion of the grid traditionally used on maps and globes depicting the planet. Often treated as aerial photographs due to their sense of looking down at earth from above, Kelsey points out that these images do not subscribe to aerial maps because of the presence of the clouds that obscure the view of the earth and the oceans, rendering it incomplete and flipping it back to a more familiar view from the ground looking up at the sky. At this point in the early twenty-first century when information clouds now circle our planet "like a second atmosphere" (Sloterdijk, 2014, p. 139) we would do well to hold these two perspectives of the earth from below and above in view at the same time.

The clouds drift. From the old world frontiers of El Hierro to the new world frontiers of outer space, to the emergence of the planetary technosphere, reaching out into "open" space is shown to be a powerful imaginary that seeks to obscure the material conditions and "slow violence" (Nixon, 2011) involved in the endeavor. As Sloterdijk cautions: "[Globalization] has been saturated in the systemic sense since the carriers of this reaching out into open space were

forced to acknowledge that all initiatives are subject to the principle of reciprocity, and most offensives are connected back to the source after a certain processing time" (Sloterdijk, 2014, p. 11). This 'processing time' is now being coded in more explicitly geological and planetary terms as a consequence of theories of the Anthropocene. The atmosphere, we discover, has a memory.

The cloud drifts. It migrates from a vaporous weather condition and symbol of industrial and nuclear pollution to signify the moveable feast of global electronic storage space. In this transition it appears to dematerialize the technosphere, ridding it of its material histories and untethering it from any connection with the ground. However, the whole explosion of extraplanetary and new communications technologies during the late twentieth and early twenty-first centuries has been supported by a vast terrestrial material infrastructure that continues to have profound implications for spatial politics across and surrounding the globe. Behind the informatic clouds accessed at the touch of a screen lie a world of material traces, social and environmental consequences and slow violence. From networks of cables to server farms, orbiting satellites, rare earth mineral mining, factory assembly lines and mountains of toxic e-waste. The cloud's ecology mutates in the twenty-first century becoming natural *and* artificial, located *and* dispersed, material *and* immaterial.

From this point looking back, the legacy of space travel and improved global communications networks heralded by President Kennedy in 1961 not only contributes to an uneven picture of development on the ground but also to a vast sea of space junk that now orbits the planet, and a newly developing industry to 'clean' it up. In documenting the relentless pursuit of globalization in the West as a post-war norm, Sloterdijk describes its outcomes as those of:

> A dynamized and comfort-animated artificial continent in the ocean of poverty... Any self-pampering endosphere built on stabilized luxury and chronic overabundance is an artificial construct that challenges probability. Its continued existence assumes a durable and, at first, more or less ignorable outside – not least the earth's atmosphere, which is used by almost all actors as a global disposal site. (Sloterdijk, 2014, p. 196)

Not only is the earth's atmosphere catastrophically polluted but also, increasingly, its exosphere. Fears are growing that the presence of so much junk in space has the potential to seriously disrupt global communications and digital infrastructures on the ground in the same way that adverse weather conditions can affect communications through blocking signals and knocking out power lines. This all seems an ironic contrast to the optimism of the 1960s and

the aim to send satellites into space in order to *improve* global communication and weather observation. Military-industrial and technological capital demonstrate their geographical reach as they stretch into old and new domains beneath and beyond the earth, from networks of underground bunkers to orbiting satellites and space junk. We can now be seen to dwell in what Sloterdijk refers to as an "absolutely artificial environment" (Sloterdijk, 2004, p. 237). He proposes a social and spatialised atmospheric ontology of being-*in*-the-World where inhabitation is, necessarily, *co*habitation. Humans and non-humans are *condemned* to live together in interdependent atmospheric surrounds where any notion of an exterior or independent outside has now disappeared.

Craigie Horsfield's woven cloud tapestries capture a stilled atmospheric moment from the island of El Hierro of drifting clouds leaving the edge of what was once the 'known' world. In their rematerialization as woven images the tapestries speak of these entangled histories of the human and the technological, of reaching out towards new frontiers. The clouds come to signify a mutating ecology that now exists along a natural-technological continuum from drifting water vapour to nuclear fallout, to the relentless hum and heat of the server farm. The radical shift in temporal and material scales that is brought about by the Anthropocene can be seen to gesture towards a new atmospheric politics as the human, the technological, and the geological become more explicitly entangled and the distinctions between the natural and the artificial and the interior and exterior are blurred.

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Embodying sustainability: insights and reflections from empirical experience[1]

Maria Heras López

Context and motivation

In face of the challenges posed by the Anthropocene, participatory sustainability science emerges as a transdisciplinary strategic scientific approach linking multiple sources of knowledge with action in specific contexts to foster transitions towards sustainability (Jäger, 2011).

The strategic and normative dimensions of sustainability science entail epistemological challenges related to participation and inclusivity in research processes that expect to be socially relevant. As Kates et al. (2001) remark, combining different ways of knowing and learning is a necessary strategy to allow different social actors to work together and cope with uncertainty and limited information. These processes should recognize the 'wide range of outlooks regarding what makes knowledge usable within both science and society' (Kates et al., 2001, p. 641). Processes of social learning leading to the transformation of social-ecological interactions emerge, thus, as a crucial requirement to navigate transitions towards sustainability (Kates et al., 2001; Blackstock et al., 2007; Jäger, 2011). Such learning processes include, among others, the recognition, articulation and negotiation of the diverse identities, perspectives, values and interests that configure both sustainability problems and pathways towards more sustainable futures. In this regard, sustainability needs to be understood as a performative concept: it becomes alive in specific performance, as a dynamic and evolving system property emerging from specific social-ecological practices (Robinson, 2008; O'Shea, 2012).

1 This presentation is based on my PhD thesis research (available at: http://www.tesisenred.net/handle/10803/329007) and the artistic project resulting in the theatrical piece 'The Bond You Hold'. Therefore, I would like to acknowledge the contribution of the artists and researchers Magdi Beky Winnerstam (Långsjö Teater) and Diego Galafassi (FASAD and Stockhom Resilience Centre), as well as my PhD director Joan David Tàbara (ICTA-UAB).

Through this presentation, I would like to share some insights and reflections related to the potential role of arts-based practices within these transformation processes, as forms of action research and empathic dialogue. I will focus on theatrical performance, by comparing two very different experiences in terms of process, level of participation and aesthetical features. So, *why is this relevant? Why should we care about the potential role of the arts in socio-ecological transformations and sustainability research?*

In recent years, we have witnessed the emergence of diverse arts-science hybrid experiences, contributing to the creation of 'blurred genres' in academia which seek to co-produce accessible and meaningful research for diverse audiences beyond academic peers (Cahnmann-Taylor and Siegesmund, 2008; Leavy, 2009; Barone and Eisner, 2012). Indeed, the arts play an essential role in transforming human consciousness by refining the senses – the primary resource through which the qualitative environment is experienced, and enlarging the imagination – the key to reinventing and projecting ourselves in the future (Eisner, 2002). If we understand sustainability as a broad process of social learning, then the role of the arts is worth exploring. Indeed, if we want sustainability to be operative and not just a catchy slogan (also co-opted by neoliberal discourse), filling the concept with meaning becomes a necessary step. And this requires processes of social learning through which it can be (re)negotiated and (re)approached through specific and tangible contexts of action. In terms of research, the transformative and learning implications of sustainability pose methodological challenges related to: i) the generation of actionable knowledge (*what is relevant in which context?*); ii) the incorporation of knowledge from outside academia (*who is a knowledge actor?*); and iii) the integration of different values and political interests (*what is our purpose?*) (Miller et al., 2013; Wiek et al., 2012). This requires a shift in our research questions to also include normative and strategic questions beyond analytical descriptions of unsustainability problems. What problem perceptions exist, do they conflict, can they be reconciled? What values and preferences are underlying divergent visions of future? What kinds of transition pathways are socially desirable or undesirable?

There is, consequently, an innovation opportunity in the development and implementation of methodological approaches within sustainability science that can bring different kinds of actors, sensibilities and forms of knowledge together. It's in this space in which I locate my research. I speak from the perspective of an environmental researcher trying to incorporate artistic and aesthetical features in her research to make it not only more inclusive and participatory, but also more meaningful.

Experience

In my work I explore the development and potential of *performative methods* in sustainability science, understood as participatory forms of research aimed at integrating and combining elements from the performing arts into research in a flexible and context-specific manner within larger social and political processes, to support individual, community and institutional reflexivity and transformation (Heras and Tàbara, 2014). This work has been mostly based in Applied Drama or Theatre, that is, the use of drama techniques outside conventional theatre spaces to engage diverse audiences with political, educative and community goals (Nicholson, 2005).

Conservation theatre

The first experience I would like to introduce is that of Conservation Theatre in México.[2] I arrived to the community of Cherán (Michoacán, Mexico) invited by *Espacio de Cultural Ambiental* (ECA), a local NGO that had previously worked there and was in conversation with the Common Resources Council, the community organism in charge of forest management. The council was concerned about young people's involvement in community issues and wanted to hear their voice and involve them more. We proposed then a participatory theatre process to explore young people's perceptions, desires and visions of the future for the community.

The performative process included a first theatrical workshop developed in coordination with a story-telling workshop. It consisted of ten consecutive sessions engaging 25 participants, through which I combined theatrical techniques with different inputs (e.g. researchers' guiding questions, participants' personal experiences) to generate an explorative space about the participants' condition as young people, their role within the community, their bond with the forest, and their perceived challenges related to community forest management and the future of their forests. The workshop resulted in the production of an interactive theatre play performed for the community during one of the most important local festivals. This way, the theatre play brought the voice of the youth about forest management into community dialogue and public discussion.

2 For a complete overview of the process see Heras and Tàbara, 2015. I would like to thank and acknowledge the crucial role and generosity of ECA, the Common Resources Council and Cherán's Community Council in the development of this case study.

The Bond You Hold

The Bond You Hold is the result of an arts-science experience developed within the framework of the EU-funded project Impressions (impressions-project.eu/). Impressions explores high-end climate scenarios (futures where we trespass the 2ºC warming threshold) in order to advance understanding of the implications of high-end climate change and to help decision-makers apply such knowledge within integrated adaptation and mitigation strategies. To do so, they organise participatory workshops bringing together climate experts and local policy-makers and stakeholders to envision different futures and strategies. We – an ephemeral collective formed by a physical theatre performer (Magdi Winnerstam), a resilience researcher and film-maker (Diego Galafassi) and myself – were invited to contribute to one of these workshops through a performance to support the collective exploration. We engaged in a research process with the performer, integrating cutting-edge climate change knowledge from the Impressions project with body movement, visual images and sound. As a result, we created *The Bond You Hold*, a multi-sensorial physical theatre performance overlaid with pattern projections and music embodying the dynamic relation between climate and humans, in a world beyond 2ºC warming.[3] The performance was played during the first participatory workshop, engaging participants in a discussion afterwards. In so doing, we intended to bring fresh air to the discussion (which was highly technical and rational) by inviting other ways of thinking and acting in relation to climate change, more related to the emotional and affective responses that thinking about dystopic futures creates.

Reflection: potential and tensions

The two experiences are very different in terms of creative process (e.g. led by community members/led by artists) and degree of participation (e.g. participants creating the theatrical piece/participants reacting to the theatrical piece). However, in both of them the theatrical space provided an explorative medium through which participants could frame and explore in a different way the topic/s approached. So, *how was this framing different?*

In both cases, aesthetical experience, as an inherent quality of art-based practices, became the keystone of the proposal, through the creation of learn-

3 The trailer of the performance can be seen at: https://vimeo.com/142046379.

Figure 1. A moment of the performance *The Bond You Hold*. Picture taken by Diego Galafassi.

ing opportunities through the aesthetic, which facilitated intuitive, relational and emotional learning experiences. This was done at least through the following mechanisms. First, by creating *liminal spaces of embodied exploration*. Dramatic action created an ephemeral space in between reality (not real yet not fictional) based on embodiment, on performing and reacting, which provided new insights fostering an experiential and emotional contact with the other, with difference. In this sense, perspectives were embodied and not just verbally expressed, overcoming dichotomies (the others/us, the good/the bad) and recognising diversity within the group.

Second, by *embedding complexity*, through the inclusion of diverse layers of understanding and meaning, integrating a constellation of knowledges and sen-

sibilities that nurtured narratives about the present and the future in which cognitive and affective dimensions were present. In the case of Cherán, the theatre play was created from participants' personal experiences, inputs from the Common Resources Council (bringing the institutional context) and storytelling (bringing the cosmovision of the community). In the case of *The Bond You Hold* (from now on, The Bond) such integration took place by knitting scientific cross-cutting knowledge, embodied processing and audio-visual interpretation (movement, music and film). Third, the integration of different kinds of knowledge and layers of understanding (e.g. cognitive/factual, experiential, affective) unveiled emotional and visceral aspects of socioecological transformations, allowing participants' discussion to go beyond formal conventions and *facilitating empathic dialogues* based on respectful listening and mutual understanding.

However, the experiences showed as well different challenges or tensions that require attention and further thinking. A first tension related to the degrees of participation and knowledge integration involved in each kind of experience and the benefits and trade-offs they imply. In the case of Cherán (in which the young participants created the play themselves) community participation was higher but knowledge integration took place mostly from the per-

Figure 2. A moment of embodied exploration during the workshop in Cherán. Picture taken by Arnim Scheidel.

spective of community members. In contrast, in The Bond, the process was driven by artists and researchers, but they integrated more diverse sources of knowledge, such as expert-based information, interviews of citizens or audiovisual materials. We also experienced a tension between aesthetical experience and research requirements, that is, between the intrinsic and instrumental values of the arts-based experience. In this regard, the aesthetical features of the experience were affected by the need to process and frame it into a scientific format, which implied a (sometimes excessive) rationalization of the experience in the debriefing or in the definition of outcomes. Finally, we experienced a tension highlighted by Eisner (2008) between metaphoric novelty and literal utility. In this regard, performance-based experiences as the ones shared should be able not only to generate a fresh conversation or dialogue, but also to connect to broader articulation and learning processes, so that this dialogue is sustained and translated into action.

Conclusion: research implications

In light of the reflections above, *what can be the research implications of these conceptual and methodological contributions for sustainability science? What lines of future research and action do they open?* I would like to summarise the insights and learning from these experiences by highlighting the following research implications:

- **Moving from 'knowledge integration' to the integration of 'knowledge actors':** As an epistemological approach, Arts-based research practices emphasise the need to transcend the exclusive and limited boundaries that sometimes constrain science and research activities and to rethink the assumptions and worldviews that guide the construction of valid knowledge and practice and who takes part in these.
- **Acknowledging new roles for researchers:** We need to facilitate reflexivity and learning about the new roles that emerge as we transgress discipline boundaries and expand methodological frontiers, so we can create critical communities. This also implies the creation of long-term interactions and alliances between academia and artists, and between science and the Arts to favor these new kinds of action research experiences.
- **Re-thinking research and knowledge validity:** These new roles and understandings do not only expand the competences required for doing research, but also affect notions of 'good science', challenging research epis-

temologies and assumptions, by bringing new modes of thinking and criteria for judging research quality.

All in all, these transdisciplinary practices and associated modes of thinking about research can bring new understandings and insights about our performative capacity in the face of the Anthropocene and the socioecological challenges we are facing. The show must go on!

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Oryza Collection. Hybrid fields of knowledge between art and agriculture

Chiara Sgaramella

Oryza Collection is the result of a nine-month residency programme entitled *Atlante Energetico (Energy Atlas)*, supported by Fondazione Spinola Banna in collaboration with Galleria Civica d'Arte Moderna e Contemporanea (Turin), two institutions operating in the Piedmont region, Italy. This ongoing art project revolves around rice, the staple food for more than half the world's population. Over the past decades this crop has been the object of speculation and research in the field of intensive agriculture and GMO industry and is considered to be vulnerable to climate change.

Starting from research about the history of rice cultivation in Europe, I designed a travelling device in which multiple sources of investigation coming from different areas of knowledge were collected. In fact, the artwork, made out of recycled materials, contains a series of maps, books, drawings, sound recordings and other documents illustrating the influence of rice on the geography, culture and ecology of different territories characterized by the presence of this crop. This experiential archive was constructed in collaboration with Spanish and Italian rice producers, scientists and organizations involved in implementing more sustainable production methods. Exhibited both in the Valencian region (Spain) and in Piedmont (Italy), two rice-producing areas, this work intends to encourage the circulation of situated and yet nomadic knowledge in order to ignite a conversation about the complex tensions between the satisfaction of human material needs and the preservation of living natural ecosystems.

Introduction

> As artists, we have an odd advantage. Unimpeded, we dance across the disciplines and practice seeing with the eyes of a stranger.
> Newton Harrison

As part of my doctoral dissertation, *Oryza Collection* lies at the intersection of theory and practice-based research, exploring the role of collaborative strategies in contemporary art related to ecology. Recent art forms centred on environmental discourses have a distinct transversal approach and often propose the combination of different languages and media in order to generate a critical reflection on the relationship between human societies and their environment. In this context, a significant number of artists and collectives are experimenting with cooperative methodologies that have been in place since the 1960s. These practices stem from manifold levels of collaboration[1] that involve scientists, communities, audiences and institutions. *Oryza Collection* attempts to explore this field of creative enquiry, connecting ecological concerns to collaborative practices spanning across different disciplines.

This art project is the result of a nine-month residency programme entitled *Atlante Energetico* (*Energy Atlas*), supported by Fondazione Spinola Banna in partnership with Galleria Civica d'Arte Moderna e Contemporanea (Turin), two cultural institutions operating in the Piedmont region, Italy. The programme, directed by artist and tutor Elena Mazzi, involved five artists selected through a public call[2] and was structured in a series of workshops held between October 2016 and June 2017. Adopting a context-specific point of view, the residency focused on rice as the common working topic, since this cereal is a traditional crop in Piedmont. The socio-ecological relevance of rice (*Oryza sativa*), which constitutes the staple food for more than half the world's population, makes it an interesting subject of study. Over the past decades this crop has been at the centre of neo-liberal speculation and research in the field of intensive agriculture and GMO industry (Gan, 2015). Besides, it is considered to be

1 For an in-depth analysis of the multiple dimensions of collaboration in contemporary art see *Impossible Glossary* (Hablarenarte, 2018).

2 The artists selected to take part in the programme were Paola Paquaretta, Nadia Pugliese, Fabio Roncato, Silvia Rossi and myself. The residency activities are documented in a publication entitled *Atlante Energetico* (Mazzi, Cristov-Bakargiev et al., 2017) that includes texts and images by the tutors, scientists and artists involved in the project.

vulnerable to unmitigated climate change, especially due to higher temperatures and alteration of precipitation patterns (FAO, 2016). The present essay contains a narrative account of the creative process that led to the creation of *Oryza Collection*, a discussion of the theoretical contributions that have influenced my intentionality and work method, and finally a description of the further developments of this ongoing project.

Embracing complexity

Some of the most compelling practices related to ecology in the contemporary art scene not only aim to give visibility to environmental concerns but also contribute to devise new cross-disciplinary methodologies to creatively engage with socio-ecological processes. Considering the complexity of issues such as climate change or ecosystem degradation, the sole perspective of Western science appears to be insufficient to address these multifaceted and interrelated matters. In that respect, French philosopher and sociologist Edgar Morin emphasises the need for a paradigmatic shift based on what he defines as "generalised complexity" (Morin, 2007, p. 10), implying an integrative effort in our patterns of thinking and knowing to move beyond the reductionist approach and disciplinary fragmentation of modern science. This vision connects with the strategies eco-artists have been experimenting with since the late 1960s. Helen Mayer and Newton Harrison can be considered pioneers in the use of this complexity-based approach, which they later described as "post-disciplinary" (Ingram Allen, 2008, p. 31). Moreover, the quantitative focus conventionally employed in classical science conflicts with the urge to include "a plurality of legitimate perspectives and values" (Funtowicz and Ravetz, 1994, pp. 198–199) in the knowledge production and problem-solving processes linked to environmental questions. This is particularly true in the case of global phenomena that simultaneously affect communities living in different geographical and cultural contexts. In that regard, sociologist Boaventura de Sousa Santos questions the supposed universality of Western-based techno-science and proposes replacing it with an "ecology of knowledges" (de Sousa Santos, 2007, p. 67). Conceived as the intersection of the heterogeneous value systems and knowledge frameworks that exist beyond the scientific realm, this counter-epistemology could represent, in the author's opinion, the basis for pluralistic forms of thinking and new social models to emerge in response to "the monoculture of capitalist productivity" (de Sousa Santos, 2006, p. 27).

Drawing on these open notions of knowledge and research, the residency programme *Atlante Energetico* merged fieldwork and studio practice with public talks held by scientists working at the Turin-based Interdisciplinary Research Institute on Sustainability (IRIS). For example, Vincenzo Guarnieri, a biochemistry and biotechnology PhD with a specialization in science didactics, performed a lecture to narrate the development of agriculture from the Neolithic Revolution until the twenty-first century. By focusing on the co-evolution of human communities and farming techniques, he critically examined the risks and opportunities linked to the use of technologies in agriculture. Similarly, Alice Benessia, physicist, photographer as well as expert in epistemology of sustainability, explored the subtle relationship between knowing and making through a multimedia lecture-performance. Beginning with the creation of the atomic bomb and closing with the latest technologies in the field of ICT and synthetic biology, she reflected on the governance of techno-science and its ethical implications. Among the guest speakers invited at Spinola Banna Foundation there were also practicing artists integrating environmental issues in their research. Signe Johannesen, founder of the Swedish creative hub Art Lab Gnesta, described her recent work on wetlands, while Italian artist Leone Contini illustrated his anthropological praxis investigating the notions of bio and social diversity through the food culture of immigrant communities. These valuable inputs coming from different perspectives provided a deeper understanding of the multiple dimensions associated with rice and encouraged me to keep a broad outlook on the object of study.

My limited knowledge about rice motivated my decision to conduct more research on the origins of this cereal. In this phase I immersed myself in a situation of "learning to learn". As anthropologist Tim Ingold explains, this kind of learning implies "shaking off, instead of applying the preconceptions that might otherwise give premature shape to our observations. It converts every certainty into a question, whose answer is to be found by attending what lies before us in the world" (Ingold, 2013, p. 173). Maintaining an open attitude toward the realities I came across during my research, I started studying the history of rice cultivation in Europe and the complex influence this crop has on the geography, the culture, the economy, the social structures and other aspects of the territories in which it is grown. I discovered a startling world of intricate connections among apparently unrelated subjects. In fact, rice requires a strict planning of farming tasks, the construction of irrigation canals and a meticulous management of water resources, often attained through systems of social cooperation. In the course of my enquiry, I also detected tensions among local and global matters, between human material needs and ecosystem bal-

ance. This historical research led me back to Valencia (Spain), where I currently live and work. It was here that the Arabs first grew rice successfully in Europe.[3] The introduction of this crop, originally domesticated in what is now China, produced the transformation of the Albufera shallow coastal lagoon. With the affirmation of the Enlightenment ideals in the eighteenth century and the application of scientific and rational principles to agriculture, the wetlands were gradually transformed into rice paddy fields by reclaiming land that had previously lain underwater (Hamilton, 2018, p. 13). This was achieved through the creation of a system of canals and enclosures (in Valencian, *tancats*) that were filled with soil coming from the mainland and brought to the lake by boat. A salty marsh in origin, the Albufera slowly became a freshwater lake by losing its connection to the Mediterranean Sea. This alteration had a considerable impact on wildlife interrupting the flux of fish migration. Chronicles of the time recount the numerous protests from local fishermen, who denounced their reduced access to the lake and its resources. This process – known in Valencian as *aterrament* – intensified between the second half the nineteenth century and the first decades of the twentieth century (Palop Guillem, 2015, p. 15) and, as a consequence of this change in land use, the lagoon lost more than two thirds of its original surface mostly in favour of new rice paddies.

Starting from the 1930s the *aterraments* gradually disappeared. However, the industrialization of farming practices and the growing use of herbicides and fertilizers for the cultivation of rice together with the anthropic pressure of the city of Valencia brought the lake to the verge of ecological collapse. In 1986, in order to protect it from further degradation, the Albufera was declared natural park and later included in the RAMSAR convention for the protection of wetlands. With the help of Fundació Assut, a cultural organization whose mission is to protect eco-cultural landscapes in the Valencian region, I was able to analyse the complex history of the lake through a wide range of documents (books, journals, photos, maps, etc.). Interestingly, the land reclamation process was also portrayed in popular culture through the well-known novel *Cañas y barro* by Vicente Blasco Ibañez and other literary works. In order to explore the present situation of rice in this region, I interviewed Miguel Minguet, owner of the rice farm Sivaris, which in 2017 produced the first organic harvest in the Albufera natural park. Visiting the fields and talking to Miguel's collabo-

3 The exact date of the introduction of rice cultivation in the Iberian Peninsula is not known. However, 'Arib ibn Sa'd, secretary to Caliph Al-Hakham II (tenth century AD), describes the sowing, manuring and irrigation techniques related to this cereal on the river banks of today's Spain (Imamuddin, 1981, p. 86), confirming that rice farming was already an established practice at the time.

rators, I learnt about the difficulties of implementing ecological strategies in a highly anthropised environment, where neighbouring farmers are still using conventional intensive farming methods.

Back in Italy for the residency spring workshop, I decided to extend my research on the landscape transformations associated with the culture of rice by studying the effects this crop had on the geography of the Piedmont region. I carried out fieldwork at Cascina Oschiena, a rice farm near the city of Vercelli, run by Alice Cerutti, a young rice producer who is applying a sustainable approach to agriculture. Besides introducing organic farming techniques, Alice also started a reforestation programme in cooperation with the University of Eastern Piedmont, planting hundreds of trees from different autochthonous species. In fact, one of the main consequences of rice production in Northern Italy was the loss of forest surface, especially after the construction of the Cavour irrigation canal in 1866, and the mechanization of farming processes in the second half of the twentieth century (Bracco, 2002). Trees were perceived as obstacles to the completion of farming operations and were cut or confined to marginal areas, causing a serious reduction in biodiversity. The choice to re-naturalise the irrigation canals and field margins at Cascina Oschiena, is an effective measure to keep these biodiversity corridors alive and for plants, insects, fish and amphibians to thrive in symbiosis with small mammals and birds (Garino, 2014, pp. 20–22). While learning about the complexity of the rice paddy ecosystem, I also met a group of volunteer ornithologists who work in close collaboration with Cascina Oschiena to protect the numerous bird species that migrate to this area of Piedmont every year. Their efforts were mainly centred on the critical situation of the black-tailed godwit (*Limosa Limosa*), whose population has dropped dramatically in the area due, among other factors, to the alteration of its nesting habitat. In that respect, the ornithologists' conservation actions focused on the protection of these birds in the delicate phase of reproduction. Asking Alice to leave some rice chambers uncultivated, they provided an ideal nesting environment for the black-tailed godwit couples, increasing the survival rates of chicks. Another important task was the monitoring of species throughout the year together with the recording and publication of data on their population status and migratory patterns.

After this intense research phase, I started looking for an imaginative way to materialise my reflections on rice and its multiple dimensions through art. After contemplating different possibilities, I decided to design a travelling device that could contain the sources of investigation I had dived into during my enquiry. Conceived as a portable and evolving repository, the artwork contains maps, books, drawings, sound recordings and other documents coming from

different areas of expertise, which illuminate the influence of rice on the geography, culture and ecology of the two regions I explored. The sculpture was crafted with recycled materials in collaboration with Cadascú collective. Drawing inspiration from Marcel Duchamp's *Boîte en valise*, it is constituted by easy-to-assemble components, all of which can be enclosed in a wooden box and easily transported.

The piece combines the shape of a vitrine – typically used to store or display art objects in museums or libraries – with more organic forms related to animal imagery and inspired by the hand-carts employed in the rural world. The choice of the project title, *Oryza Collection*, responds to the intention of reimagining the notion of botanical collection through the creation of a non-classificatory and diverse experiential archive. In my mind, the sculpture would work both as an assemblage of context-based knowledges and as a processual tool to disseminate them. To that end, I chose to exhibit the piece in non-institutional contexts, giving priority to the settings where the work was born, in order to share the learning process I had experienced throughout the residency with a wider audience. In May 2017, *Oryza Collection* was displayed at Ecomaclet farmers' market within an initiative organised in cooperation with the Valencian platform for food sovereignty. In June of the same year, the piece travelled to Italy, the Cascina Oschiena, for the festival dedicated to the Madonna del Tabalino, considered the protector of the harvests. At both these in-

Figure 1. Chiara Sgaramella, *Oryza Collection* (2017). Photo: courtesy of Clara Luz Calvo.

Figure 2. Chiara Sgaramella, *Oryza Collection* (2017), detail. Photo: courtesy of Clara Luz Calvo.

formal venues, the work functioned as a pretext to start a dialogue on rice and its connections to the place and to listen to others' memories, interpretations and personal experiences on the subject. In addition, *Oryza Collection* was exhibited in a more conventional art setting, at Fondazione Spinola Banna for the final show of *Atlante Energetico*. Consistently with its flexibility, the project is susceptible to expanding in different directions and exploring new locations. In September 2018, in fact, it will be hosted at Spazio Gerra (Reggio Emilia, Italy) after a research stay centred on the Po river delta and its relation to rice culture.

Conclusion

Oryza Collection is an ongoing work in which multiple learning and collaborative processes converge. The project intends to encourage the circulation of local and yet common knowledge in order to ignite a conversation about the complex tensions between the satisfaction of human material needs and the preservation of natural ecosystems. In other words, it is an attempt to elucidate how agricultural systems and their inhabitants (both human and non-human) exist and function as multifaceted socio-ecological aggregations, some of which are more sustainable than others. By raising questions about the human

alteration of natural balances to maximize agricultural production, the piece can be viewed as an exercise in what artist David Haley defines as "ecopraxis", a form of critical learning (Haley, 2011, p. 191) directed at constructing a more nuanced ecological cognition and new meaningful interactions with the environment. Considering art as a fertile ground for the hybridisation of different knowledge systems, both academic and non-academic, official and informal, this work attempts to explore heterodox ways of co-creating and sharing knowledge, adopting non-bureaucratized research and dissemination methodologies (Bishop, 2011, p. 201) and transcending disciplinary boundaries.

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Figure 3. Chiara Sgaramella, *Oryza Collection* (2017) exhibited at Cascina Oschiena (Vercelli, Italy). Photo: courtesy of Nadia Pugliese.

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influencing the socio-economic as well as the territorial realities of these locations. Husberg often collaborates across disciplines, and is a participant of the research platform 'Frontiers in Retreat', HIAP, Helsinki, and the art & science network program 'HYBRID MATTERs'. She has established long term collaborations with environmental scientist Agata Marzecova and with art historian and poet Sri Chatterjee. Bringing theory, criticism and scientific research together with art and poetics these collaborations have resulted in outcomes such as lecture performances, poem installations, digital essays as well as analytical papers.

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Mitra Azar. Mitra's research aims at building a virtuous circuit between an aesthetic and political philosophy, a nomadic lifestyle, and creative practice. The idea of border as fluid, flexible, amorphous entity and the political role of especially cinematic and post-cinematic art and digital technologies in the frame of an aesthetic of crisis and of mass event have been the focus of his practice based research. For almost ten years Mitra has been building an archive of site-specific works in some of the most controversial areas of the planet – usually at the very border between confining countries – or in the context of socio-political, cultural and ecological struggles, mainly through the lens of visual anthropology, visual art, and media philosophy. It is especially during the field work done in the Middle East at the time of the so-called 'Arab Spring' – where protesters combined the use of mobile phone POV images with social media – that the core ideas of Mitra's theoretical research started to take shape. Within this framework, Mitra aims at understanding the political and aesthetic implications related to new technologies of vision such as mobile phones, Google technologies of vision, virtual reality devices, and systems for machine vision. In order to do so, it analysis the contemporary use of the cinematic technique referred to as 'subjective camera' POV (Point of View), and explores the various ways in which new technologies of vision adopt this type of interface across multiple online-offline platforms and spaces, turning it into one of the most contested political-aesthetic battlefields of our times. How the 'engineering' of the eye associated with new technologies of vision produces new subjectivities that operate within new regimes of visibility? http://pure.au.dk/portal/en/persons/id(57b134a2-6398-4484-9dcf-7cf9eceea0b0).html

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What role might art exert in light of the challenges posed by climate change, resource depletion, and the diverse political and cultural crises our societies face in the twenty-first century? The hypothesis guiding this book is born of Félix Guattari's claim that in confronting the multi-faceted problems of our global political economy we need to develop a more complex analysis of nature, culture and technology, shifting from catastrophic, end-of-the world narratives to productive, generative, trans-species alliances for the sake of the sustainability of life on the planet. Because capitalism is no longer understood merely as a mode of production but as a system of semiotization, homogenization, and of transmission of forms of power over goods, labour and individuals, only the emergence of other relational subjective formations would be able to counteract the fixation of desire towards capital and its diverse crystallizations of power. New social practices, new aesthetic practices and new practices of the self in relation to the other are summoned to undertake an ethical-political reinvention of life. As Guattari argues, it is about reappropiating universes of value and paving the way for the emergence of processes of singularization involving a mutating subjectivity, a mutating socius, and a mutating environment. This book is engaged in thinking about the conjunction of the ecological turn in contemporary art and the attention given to matter in recent humanist scholarship as a way of exploring how new configurations of the world suggest new ways of being and acting in that world. Contributors investigate the means by which art can act as an existential catalysist, providing ways of changing our modes of relation beyond traditional modes of representation and, in doing so, instituting transformation.

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