

How can works of art challenge individualism and human exceptionalism to reconfigure ecological relations with the earth?

This essay will examine human relations with the earth that license its exploitation and degradation. This will be done via the analysis of artistic practices which challenge certain anthropocentric ideologies which predominantly determine these human-earth relations. The first is individualism; the conception that organisms are bounded, self-contained individuals, separate and distinct from others (Bubandt et al, 2017, p.M4; Gilbert, 2017, M74). The second is human exceptionalism; the anthropocentric conceit that Homo sapiens are somehow separate from all other species (Haraway, 2008, p.11).

Human industrial activity causes environmental ruination in numerous ways: intensive agricultural processes, fossil fuel intensive industries, chemical leaching, poor waste disposal, oil spills, nuclear waste, urban expansion, infrastructural development, extractive practices such as mining and fracking and mass deforestation for the grazing of livestock and expansion of crop fields, to name only a few (Demos, 2016, p.9-10). Modern industrial processes are bound up in certain dominant narratives such as capitalist accelerationist ideas of progress and the western ontological divide between nature and culture (Plumwood, 1993, p.2; Tsing, 2015, p.19; Merchant, 1990, p.xxii). Human activities which cause climate change and ecological destruction, are arguably licensed by individualism and human exceptionalism, which posit the self-contained human as separate from, and subsequently superior to, an othered nature (Tsing, 2015, p.vii; Kastner, 2012, p.14; Demos, 2016, p.9).

Investigation will begin with the analysis of modern agricultural processes that stem from colonial plantation systems and reflect human constructed hierarchies of life. This will explore how ideas of genetic purity and ecological simplification have infiltrated the technoscientific management of entangled environments, leading to the poisoning and erosion of natural worlds. This essay will argue against socio-cultural conceptions of purity and simplification in favour of complexity, contamination and collaboration. Following this, is an appraisal of certain scientific interpretations of evolution that have arguably stemmed from situated cultural and economic histories. These theories will be critically analysed against recent biological evidence which calls into question the understanding of organisms as self-contained units. In addition, this discussion acknowledges the limitations of western sciences which exclude other forms of knowledge such as those held by indigenous peoples and other species. However, due to the scope of the essay, this can only remain an acknowledgment, rather than a detailed case-study. It is important to note, this essay does not champion a single alternative storyline, as multiple modes of thinking and practice are required for sustaining life on a damaged planet (Haraway, 1985, p.125).

Artistic practices provide a means of critically examining cultural narratives surrounding ecological destruction, and can aid in increasing a sense of both social and political urgency toward environmental action (Demos, 2016, p.8). Contemporary art practices supersede disciplinary boundaries, inherited from the enlightenment era and nineteenth century (Reichle, 2009, p.118), which obscure new modes of thinking that are necessary in addressing current ecological crises (Haraway, 2016, p.7). Therefore, the methodology of this essay adopts a multidisciplinary approach, delving into both eco-feminist artistic practices as well as biological theory in order to critically analyse fixed ideas of what constitutes 'human'. This approach pays

homage to Donna Haraway's art-science-worldings, a form of environmental activism which enlists multiple participants across categories, disciplines and species (Haraway, 2016, p.24,67). Contemporary art is not bound by either subject, form or category, so allows for diverse approaches to both scientific discourses and ecological issues.

The artist discussed in part one, *Monocultures of Thought*, is Faith Wilding, who examines the transformation of Paraguayan environments, from the entangled rainforests of her childhood memories to the mechanised productionist state of today. Anna Tsing's work on the 'simplified ecologies' of the plantation system and 'contamination', will provide a framework in which to interpret Wilding's artwork and examine the ideological and material dangers of the 'monocrop'. The second part of the essay, *Making-with Worlds*, contrasts the singularity of the monocrop against the complexity of soil-ecology to challenge human exceptionalism. Donna Haraway's work on sympoiesis, which draws in turn on the revolutionary work of biologist Lynn Margulis, will provide a framework for looking at soil as a "self-making" system, rife with multi-species collaborations and intra-dependencies. The second artist discussed is Claire Pentecost who has an artistic practice invested in soil, quite literally, as she creates a monetary system based on it, which raises questions around value. Soil is productive in thinking about human-earth relations as it is a planetary surface which retains memories of past and contemporary traumas inflicted by 'Man' (Gray and Sheikh, 2018, p.169). Soil will lead enquiry into microbial worlds, which decompose and compost ideas of the 'human' to redeposit it as a multi-species assemblage within a dynamic network of other multi-species assemblages.

The scale of human-induced ecological damage is so vast that the term 'Anthropocene' has been used since the early 1980s to describe a new epoch in which human action has altered

the earth on a geological and planetary scale (Haraway, 2015, p.44; Chakrabarty, 2009, p.207). 'Although some interpreters see the name as implying the triumph of humans, the opposite seems more accurate: without planning or intention, humans have made a mess of our planet' (Tsing, 2015, p.19). The Anthropocene arguably links contemporary time to the deep past by highlighting the destructive toll modernity has had upon the planet and the toll it will have on any future (Triscott, 2017, p.377). When exactly the Anthropocene began is a matter of dispute, some thinkers place it at the advent of agriculture, others at the industrial revolution, the age of empire, or the development of technosciences. Here a distinction needs to be made between 'human' and 'anthropos' or 'Man'. Culpability for the ecological crises does not fall on all humans equally and moreover, the effects of human induced climate change are not experienced equally (Triscott, 2017, p.378). Additionally, due to the classification of the Anthropocene as a geological epoch, with the prefix 'Anthropos-', the term implies environmental degradation is resultant from innate characteristics of humans as a *species* and fails to acknowledge specific situated politics and cultural factors (Tsing, 2015, p.19; Haraway, 2016, p.49; Triscott, 2017, p.378).

Environmental exploitation and colonialism are the building blocks of capitalist expansion, 'be this in its historical form or the contemporary realities of settler-colonialism, neo-colonial extractive capitalism (ie, corporate colonialism) and practices of so-called development' (Gray and Sheikh, 2018, p.164). As the Anthropocene is bound up in the emergence of modern capitalism, other names have been suggested as more accurate terminology, such as Donna Haraway's (2015), 'Plantationocene', Jason Moore's (2016), 'Capitalocene', Françoise Vergès' (2017), 'racial Capitalocene' and Nicholas Mirzoeff's (2016), 'white-supremacy-scene' (Gray and Sheikh, 2018, p.166,168). Astrida Neimanis (2015), discusses the complexities of representing

the entwined histories of both plant and human colonisation, but also describes the need for these violences to be recognised as 'part of the 'master model' of domination' (Neimanis, 2015, p.143). It is this 'master model' which is challenged in this essay, through questioning and undermining outdated hierarchies which sanction the destruction and exploitation of all other modes of existence

Within contemporary art, the term 'Anthropocene' is being used with increasing frequency (Triscott, 2017, p.377). Curator of Art Catalyst Nicola Triscott (2017) reasons, that due the problematic implications of the term, it can be easily misappropriated, and instead suggests 'planetary commons' as a less anthropocentric alternative (Triscott, 2017, p.375). Artworks and exhibitions which casually utilise the term Anthropocene may fail to acknowledge, or retain critical distance from, narratives which expound human domination over nature or perhaps exalt technoscientific fixes (Triscott, 2017, p,377-378). Moreover, the aesthetics of the Anthropocene often include romanticised portrayals of remote landscapes, which arguably distances the immediacy of climate change effects and also fails to acknowledge the inherent embeddedness of people, politics and industry in these processes (Triscott, 2017, p.380). Therefore, this essay will instead discuss artists who look to the tangled web of ecologies to explore the consequences of human industrial activity on the planet.

Part I - Monocultures of Thought

Individualism is the conception of distinct and separate individuals, both human and nonhuman¹ (Bubandt et al, 2017, p.M6), a legacy of the Enlightenment era which remains a dominant ontology in western society to this day. Individualism gave rise to alienation, the removal of beings from their life worlds and their transformation into resources and assets for economic profit (Tsing, 2015, p.5). In 'Earth Stalked by Man' (2016), Anna Tsing describes how plantations, agents of capitalism, are 'machines of replication, ecologies devoted to the production of the same'. The simplification of entangled environments by way of alienation, is how individualism facilitated a type of industry scalable for rapid capitalist expansion on a global scale (Tsing, 2015, p.19; Bubandt et al, 2017, p.M6).

In 'The Death of Nature, Women, Ecology, and the Scientific Revolution' (1990), Carolyn Merchant describes how the development of modern sciences resulted in a historic shift from viewing the earth as lively and dynamic, to mechanised, merely a site for resource extraction (Merchant, 1990, p.xxii-xxiii). Mechanisation influenced Enlightenment thinkers such as René Descartes, whose principles of dualism further separated human and nonhuman life, a binary which can be evidenced as far back as Greek philosophy (Demos, 2016, p.14; Merchant, 1990, p.3; Margulis, 2001, p.71). Dualism renders that which is othered as passive or inferior and subsequently, justifies acts of oppression and colonisation (Plumwood, 1993, p.2). The invention of colonial science and classification systems, including the advent of botany and

¹The term 'non-human' has been criticised as anthropocentric, Susan Leigh Star describes it as implying some sort of 'lack' (Kirksey et al, 2014, p.3).

classical anthropology, scientifically legitimised the position of 'Man' (the white, heterosexual, cisgendered, christian male) at the top of long-standing hierarchies of life (Gray and Sheikh, 2018, p.165; Demos, 2016, p.14; Tsing, 2016, p.3).

The first artwork discussed is by eco/cyber-feminist Faith Wilding (b.1943), who was a key figure in United States second-wave feminism in the 1970s. She was co-founder of the Feminist Art Program as well as participant and curator of the 1972 exhibition *Womanhouse* in Los Angeles. Wilding was raised on a commune in Paraguay and spent her childhood in the biodiverse realm of tropical forests, these early experiences have informed her artistic practice ever since. In 1961, Wilding moved to the United States to attend university and only returned to Paraguay forty years later on acquisition of funding from Art Matters (Western Exhibitions, 2017).

Paraguay: Republica de la Soya, is a recent body of work Wilding produced in response to the desiccated landscapes of Paraguay, a country which has experienced one of the highest rates of deforestation in the world (Baumann et al, 2017, p.1179). 'Breaking soil, felling trees, displacing and killing indigenous peoples who rely on the forest: such types of violence, directed against land and people, were an instrument through which colonialism spread to the depths of the Amazon' (Meszaros Martin, 2018, p.236). Such violence remains, as present day cooperate imperialism continues to destroy ancient forests to make way for farmland, most of which is devoted to growing GMO soy which is exported to the US and Europe to feed livestock (Baumann et al, 2017, p.1180). In 1982, Wilding produced a body of work called *Natural Parables*, responding to her upbringing in natural surroundings and the female body (Western Exhibitions, 2017). These works were re-exhibited in 2017 (for the first time since 1985), by Western Exhibitions, alongside *Paraguay: Republica de la Soya*, in a two-part exhibition called *Un-Natural Parables*. The following analysis of Wilding's artwork is informed by discussions with

the artist during a masterclass workshop at South London Gallery and a talk given by the artist at Goldsmiths University in 2018.



Figure 1: Faith Wilding, (2016), *Organize!*, [watercolour, prismacolour, collage on paper], *Western Exhibitions, Chicago, Illinois*.

Figure one is an example of artwork from the series *Paraguay: República de la Soya*, titled *Organize!* (2016), which was exhibited in *Un-Natural Parables*. The title *Organize!* could be read

as modernity's dictate to order eco-systems into plantation form, the uniformity of the rows suggestive of the rigid oppression of capitalist agriculture on the natural world. Moreover, the composition of aligned collage strips, in tandem with imagery of crop rows, could refer to monoculture. Monocropping, is the agricultural technique of planting genetically identical crops in rows and not rotating them on a yearly basis. Monocultural practices also extend to the selective-breeding and treatment of livestock in animal agriculture. Åsa Sonjusedotter in 'The Order of Potatoes' (2018), describes how the advent of modern agriculture involved 'a new order in the farm fields... according to principles of linearity and purity' to '[benefit] both commercial and political ideological interest' (Sonjusedotter, 2018, p.131). This demonstrates that the plantation system and monocultural practices, are not only designed to maximise yield and profit, but are also premised on ideological conceptions of purity. Under normal entangled conditions, environmental factors and interacting populations of organisms regulate ecosystems. However, monoculture is premised on the concentration of the same, and therefore throws off natural checks and regulating interactions (Bateson, 1972, p.86-87). The simplification of entangled ecologies leaves the monocrop highly susceptible to disease and population explosions of 'pests', leading to the use of herbicides, fungicides, insecticides or antibiotics (Bubandt et al, 2017, p.M4). These toxic chemicals eradicate complex biological systems to favour the one specific type of life-form being cultivated for profit (Tsing, 2016, p.21). The concentration of sameness, or lack of balance and diversity, results in toxicity². The irony is that humans are not immune to their treatment of natural worlds, as food crops absorb pesticides which then accumulate in human bodies (Carson, 1962, p.6). Wilding's work suggests that attempts to organise or 'purify' nature, actually result in contamination. The neat

² This includes circumstances in which 'pests' develop resistance to pesticides, which renders these chemicals ineffective and often leads to the manufacture of more new toxins.

strips of *Organize!* contain murky green and blue splodges of paint which could infer the damage and stainage of landscapes via chemical pollutants.

Wilding employs the idea of organisation in an additional manner, as the collaged photographs depict organised protests by Paraguayans against corporate deforestation, outsourcing and the dislocation of peoples for GMO soy crops. However, the words written on the work read 'GMO soy accumulates carcinogenic formaldehydes' (figure 1). This is an example of 'structural violence (more often than not racialised) that limits access to resources and underlies a disproportionate exposure to toxicity on the part of certain, 'sacrificable' populations' (Gray and Sheikh, 2018, p.164). This version of agricultural management has been described as "the corporate control of life" by Vandana Shiva (2011), and involves the same imbalances of power and inequality which colonialism, modernism and currently neo-liberalism enact through the domination of both nature and peoples (Demos, 2016, p.15; Gray and Sheikh, 2018, p.164). Therefore, the biohazard sign, in conjunction with images of protesting locals, becomes a poignant reminder that humans are not separable from natural environments and that both suffer together.

Another feature of *Organize!*, is a snake which completely encircles the collage, its head eating its tail, in a symbol called an ouroboros. The ouroboros originates from ancient Egypt, but reappears in many different cultures, so has many different meanings, such as the cyclical nature of life, creation out of destruction and life out of death (Bekhrad, 2017). This could indicate a hopeful message within *Organize!*, perhaps referring to the activism of local people in Paraguay. The species of snake Wilding depicts could belong to one of two families; the poisonous coral snake, belonging to group of epilad snakes in the genus *Micrurus* (Smith,

2006), or the milk snake, a non-poisonous Kingsnake of the genus *Lampropeltis* (Smith, 2006). The milk snake has evolved to mimic the patterning of the poisonous coral snake, perhaps to deter predators, but is in itself harmless. Although similar, it is possible to distinguish between the two snakes, if red and yellow bands are touching, it is likely to be a poisonous coral snake.

There are actually two snakes depicted in *Organize!*, one is small on the bottom left hand corner and the second larger snake circulates the border. The smaller snake is an accurate representation of a milk snake and so non-poisonous, whereas the larger seems to be a hybrid or fabricated abstraction by the artist. However, the large abstracted snake does have red and yellow bands touching, which suggests it is a coral snake and therefore poisonous to humans. The milk snake depicted in this painting has no yellow markings, but is surrounded by a yellow ring of colour (refer again to figure 1). As such, the smaller, correctly marked milk snake, could be seen to have absorbed its poisonous yellow surroundings and transformed into the yellow-banded poisonous coral snake. As coral snakes can pose a threat to human life, this could be a pertinent metaphor about survival in the 'Plantationocene'.

Hannah Meszaros Martin (2018), discusses how visual documentation of 'earthly memory', could be used as evidence of environmental exploitation within legal and juridical systems (Meszaros Martin, 2018, p.232). Meszaros Martin uses Paulo Tavares' term 'earthly memory' in reference to the various ways in which acts of environmental violence are remembered in the material fibres of living and non-living bodies, the effects of which appear both immediately and also over time (Meszaros Martin, 2018, p.252). In this essay's reading of Wilding's artwork, the abstracted snake, which has been poisoned by its toxic environments, enacts earthly memory. The hybridity of the snake undermines inherited taxonomic categories and in doing so,

circumnavigates systems which look to classify and order nature. The poisoned snake subverts the ouroboros and is transformed into a symbol, like the biohazard sign, of the dangers in forcing order and organisation onto unruly and entangled worlds.

In 'The Mushroom at the End of the World' (2015), Tsing defines contamination as 'transformation through encounter', in order to emphasise the relationality of different entities (Tsing, 2015, p.28). This form of contamination acknowledges that every object and being is already the product of contaminated histories before it encounters further contaminants. Tsing describes how operating under the illusion of the autonomous, self-contained and self-interested individual, allows contamination to be ignored and subsequently, renders planned acts of environmental destruction morally permissible (Tsing, 2015, p.28). So arguably, contamination becomes pollution when materials, beings and their environments are considered separable and relationality is dismissed. Wilding's artwork demonstrates that separation and purity are not an option, and that attempts to order ecologies in line with these ideologies, has toxic consequences for all life-forms. As a species, humans must acknowledge this and subsequently adopt more diverse, organic and less intrusive practices that work *with* rather than against natural worlds, so as not to unbalance and therefore toxify ecological relations.

Part II - Making-with Worlds

Human exceptionalism is 'the culturally normal fantasy... that humanity alone is not a spatial and temporal web of interspecies dependencies' (Haraway, 2008, p.11). The belief that human life is different and somehow separate from all other beings is deeply rooted in western philosophy and religious theology, and survives as a ubiquitous pretence of western contemporary society. In Genesis 1:25-26, God makes man in his own image and gives humanity dominion over all other life on earth. This positioned humans at the centre of the christian cosmos, separate from and superior to the 'beasts'. Even Charles Darwin's theory of evolution has been interpreted teleologically, with the human species posited as the pinnacle of billions of years of evolution (Monod, 1970, p.84). Meszaros Martin (2018), describes the term 'ecocide' as 'the decimation of life-worlds and inter-species relations...it is the denial of an-all-encompassing existence, in the future and present tenses'. Here, the 'denial of an-all-encompassing existence' can be seen as a synonym for the fantasy of human exceptionalism. Therefore, human exceptionalism is dangerous because it licenses ecocide.

In contemporary mainstream culture, science is widely heralded as dealing with empirical fact and rational truth, and is often deployed as an authoritative tool via the use of 'expert' opinion. However, science is always historically and culturally situated, and therefore vulnerable to bias and sociopolitical circumstance. In the twentieth-century, neo-Darwinists fused Darwin's theories of evolution with Mendel's principles of genetics in a movement which came to be known as the 'Modern Synthesis', which included works such as 'The Selfish Gene' (1976) by Richard Dawkins (Haraway, 2016, p.62). This set up certain societal ideas as a biological fact; that

innately organisms were self-interested individuals, determined more by their genes than their environment and whose greatest concern is their own personal survival (*Symbiotic Earth*, 2018). However, John Feldman's 2018 documentary film 'Symbiotic Planet: How Lynn Margulis Rocked the Boat and Started a Scientific Revolution', notes that Darwin lived in the context of early industrial capitalism amid anti-communist propaganda, which some argue perpetrated the narrative of competitive survival which was championed and exacerbated by neo-Darwinists (*Symbiotic Earth*, 2018; McFall-Ngai, 2017, p.M52). Therefore, the mantra 'survival of the fittest' has been suggested as a capitalist competition-based interpretation of the natural world (*Symbiotic Earth*, 2018, Haraway, 2016, p.49,62). Some may argue that criticisms of neo-Darwinism are also politically situated, residing in anti-capitalist left-wing politics and what some describe as the 'radical' environmentalism which informs this essay. What is clear, however, is that science can easily become a tool to either verify or discredit social constructs or political agendas.

Symbiosis is the living together of different organisms in close proximity over a period time, and was first coined in 1873 by botanist Anton de Bary (Margulis, 2001, p.41). However, it was microbiologist Lynn Margulis (1938-2011), who first drew attention to the importance and omnipresence of symbiosis in life processes (Margulis, 2001, p.7,46; *Symbiotic Earth*, 2018; Bubandt et al, 2017, p.M6). Margulis' work on endosymbiosis in eukaryotic cell formation is widely known and taught in school textbooks (Margulis, 2001, p.9,12; McFall-Ngai, 2017, p.M52). However, her theories concerning symbiogenesis, the process by which symbiosis generates new types of cells, tissues and organs, is less well known (Margulis, 2001, p.41). Margulis argued symbiogenesis is what gives rise to whole new organisms and species and therefore was, and continues to be, the key driver of evolutionary change (Margulis, 2001,

p.8,11,12,46; McFall-Ngai, 2017, p.M60; Haraway, 2016, p.60). Significantly, these processes occur predominantly at a microbial level and Margulis considered bacteria the most diverse and significant life-form on earth (Margulis, 2001, p.8,71; McFall-Ngai, 2017, p.M59). At the time, however, Margulis was ridiculed by the scientific community and although her theories on evolution have yet to filter into public consciousness, they are widely acknowledged in the natural sciences (Margulis, 2001, p.9; Bubandt et al, 2017, p.M8). Since the Modern Synthesis, evolutionary development has widely been understood as occurring through random gene mutation, and until Margulis, 'symbiosis was seen as a rare exception in a world dominated by unmitigated competition' (McFall-Ngai, 2017, p.M60). Moreover, Margulis' work decentralises the nucleus, as evidence suggests genes actually play a minor role in cellular function and evolutionary development, which disrupts ideas of genetic determinism or purity (Haraway, 2016, p.60; *Symbiotic Earth*, 2018; Margulis, 2001, p.10; McFall-Ngai, 2017, p.M52).

In the twenty-first century, the symbiotic view of life came to be known as the 'Extended Evolutionary Synthesis' or 'Postmodern Synthesis', in which thinkers such as Gilbert, Sapp, and Tauber (2012), have argued 'we have never been individuals'. Evidence suggests, that depending on the specific 'human' body, there are either a greater than or equal to number of cells containing the genetic material of bacteria, viruses, fungi, protists and monerans than there are human cells (McFall-Ngai p.M52; Fusch, 2016, p.1; Haraway, 2008, p.4; Gilbert, 2017, p.M75; National Institutes of Health, 2012). Arguably, this is where the term 'human' starts to become limiting, as it is hard to define what can and cannot be classified within that category. To define any being as a single self-contained individual becomes difficult because anatomically, organisms are never alone but rather a complex symbiotic assemblage. (Haraway, 2016, p.60; Gilbert, 2017, p.M73,M75). This is otherwise known as a *holobiont*, 'an organism

plus its persistent communities of symbionts', *symbionts* meaning organisms engaged in symbiosis (Gilbert, 2017, p.M73). In 'Staying with the Trouble' (2015), Donna Haraway advocates the importance of *symposies*, a "making-with" system rather than autopoiesis, a "self-making" system; 'symposies is a word proper to complex, dynamic, responsive, situated, historical systems...it is a word for worlding-with, in company' (Haraway, 2015, p.58). Symposies is important because it recognises the embedded relationality of all things whether inanimate or sentient and acknowledges that systems do not make themselves but are the product of collaboration and symbiosis (Bubandt et al, 2017, p.M5).

Symbiosis renders human exceptionalism and individualism mute as a 'human' is in fact a walking, talking multi-species ecosystem. However, 'category crossing beings were abhorrent to Enlightenment ways of ordering the world; sometimes they were classified as things of the devil, the antithesis of godly purity' (Bubandt et.al, 2017, M6-7). There is a long history of cultural thinking which rejects contamination and symbiosis and survives to this day, entrenched in contemporary thought. Furthermore, because some bacteria are pathogenic, many anti-microbial products are marketed in ways which fuel anxieties and contribute to societal perceptions of bacteria as a disease causing 'enemy' in need of sterilisation (Margulis, 2001, p.68, 70; Haraway, 2016, p.64). As such, for many people, symbiosis and the idea of co-living with microbial worlds, is a difficult concept to 'live-with'.

Western scientific discourses, dominant or periphery, are only singular stories in themselves, but are quickly taken as universal truths. Any singular narrative needs to be approached critically and not marketed as an absolute or singular truth, in order to avoid excluding other forms of knowledge (Gray and Sheikh, 2018, p.165). Numerous other cultures outside western

individualism operate with a collective sense of community or sensitivity to their natural surroundings. Arguably, 'humans' must learn to listen broadly in order to avoid the marginalisation of indigenous peoples who live closely with their environments and have developed an extensive knowledge of it over generations (Gray and Sheikh, 2018, p.168; Bubandt et.al, 2017, p.M8). Multiple stories and worldviews need telling in order to live appropriately and effectively in an entangled world.

Haraway uses the term 'contact zones' in thinking about encounters between species (Haraway, 2008, p.4,216). The term was originally coined by Mary Louise Pratt (1991), to describe encounters between different cultures, usually under circumstances of unequal power distribution (Pratt, 1991, p.33). The term has been elaborated since to describe the meeting of different bodies of knowledge, which rather than being exploitative, could involve learning through encounter and processes of exchange (Haraway, 2008, p.4,216). Similarly, Tsing (2015), proposes that contamination produces diversity and forms of knowledge which are more than the sum of their parts (Tsing, 2015, p.27-9). As such, soil could provide a fertile arena for research as it is inherently multidisciplinary in thought and practice, linking environmental scientists, mineralogists, archeologists, geologists, conservationists, geographers, gardeners, farmers, ecologists, cultural theorists and artists. As a planetary surface, soil facilitates multiple sites of contact and so provides an opportunity for the cross-contamination of different modes of knowledge. Thinking with soil allows for the telling of multiple stories; from more-than-human worlds, across disciplines and also across cultural ways of thinking and world-making.

Soil-Erg

All progress in capitalistic agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil - Karl Marx, 1887, p.330.

Soil is a substance which sustains life, envelops death and nurtures growth. It provides food, nutrients and a home for all land dwelling beings, yet, is often overlooked and under appreciated. Soils are being exploited faster than they can naturally be replenished; monoculture, artificial fertilisers, pesticides, herbicides, chemical leaching, over-cultivation and intensive agriculture is reducing soil fertility and increasing soil erosion on a planetary scale (Gray and Sheikh, 2018, p.163). In part, this exploitation stems from what Kristina Lyons (2016), describes as 'systemic forgetting', an unequal valuation of different modes of existence and types of work. Similarly, in 'Encountering Bio-Infrastructure' (2014), Maria Puig de la Bellacasa, draws on the work of Susan Leigh Star, to describe soil as the 'home to all residues and dismissed infrastructure of all biomes'. Here, infrastructure is understood as modes of unseen work which facilitate and give significance to visible work (Puig de la Bellacasa, 2014, p.33) and 'residue' as that which evades classification and is therefore overlooked or excluded (Puig de la Bellacasa, 2014, p.29). This again speaks to the complexities of operating within hierarchies which sideline groups of humans and non-humans as residual, and therefore invisible and exploitable. Puig de la Bellacasa goes on to describe how decomposers, the bacteria, fungi and critters which produce soil, are overlooked and remain unacknowledged labourers (Puig de la Bellacasa, 2014, p.27). This overlooking or 'absence' as Puig de la Bellacasa describes it, stems from soil being viewed historically as a backdrop and inert substrate.

The interpretation of soil as dead matter is losing ground as there is a growing recognition across disciplines that it exists more as a process, an active living web of organisms with material agency (Puig de la Bellacasa, 2014, p.27). The development of technologies which first allowed biologists to study microscopic organisms revealed teeming populations of bacteria in soil and ecological studies began to explain soil as a living web of organisms. Moreover, the publication of Rachel Carson's 'Silent Spring' in 1962, did much to change societal perceptions and the treatment of soil. Since, there has been a rise in environmental movements, yet many of these have been criticised as anthropocentric (Gray and Sheikh, 2018, p.168). In contrast, deep ecology movements advocate that organisms should be valued for their own sake, and not viewed as only existing for human usage (Naess, 1992, p.90). Jane Bennet in her 2010 landmark work 'Vibrant Matter: A Political Ecology of Things', posits materials as having their own agency and flow, and describes how 'the image of dead or thoroughly instrumentalized matter feeds human hubris and our earth destroying fantasies of conquest and consumption' (Bennet, 2010, p.ix). Bennet is considered a leading scholar within new materialism, a branch of theory which emerged in the 1990s, that examines matter in order to critically analyse modernist dualisms and to question hierarchies, such as the positioning of the humans above other life-forms (Sanzo, 2018). This helped transform views on environments and materials which were historically considered inert, such as soil.

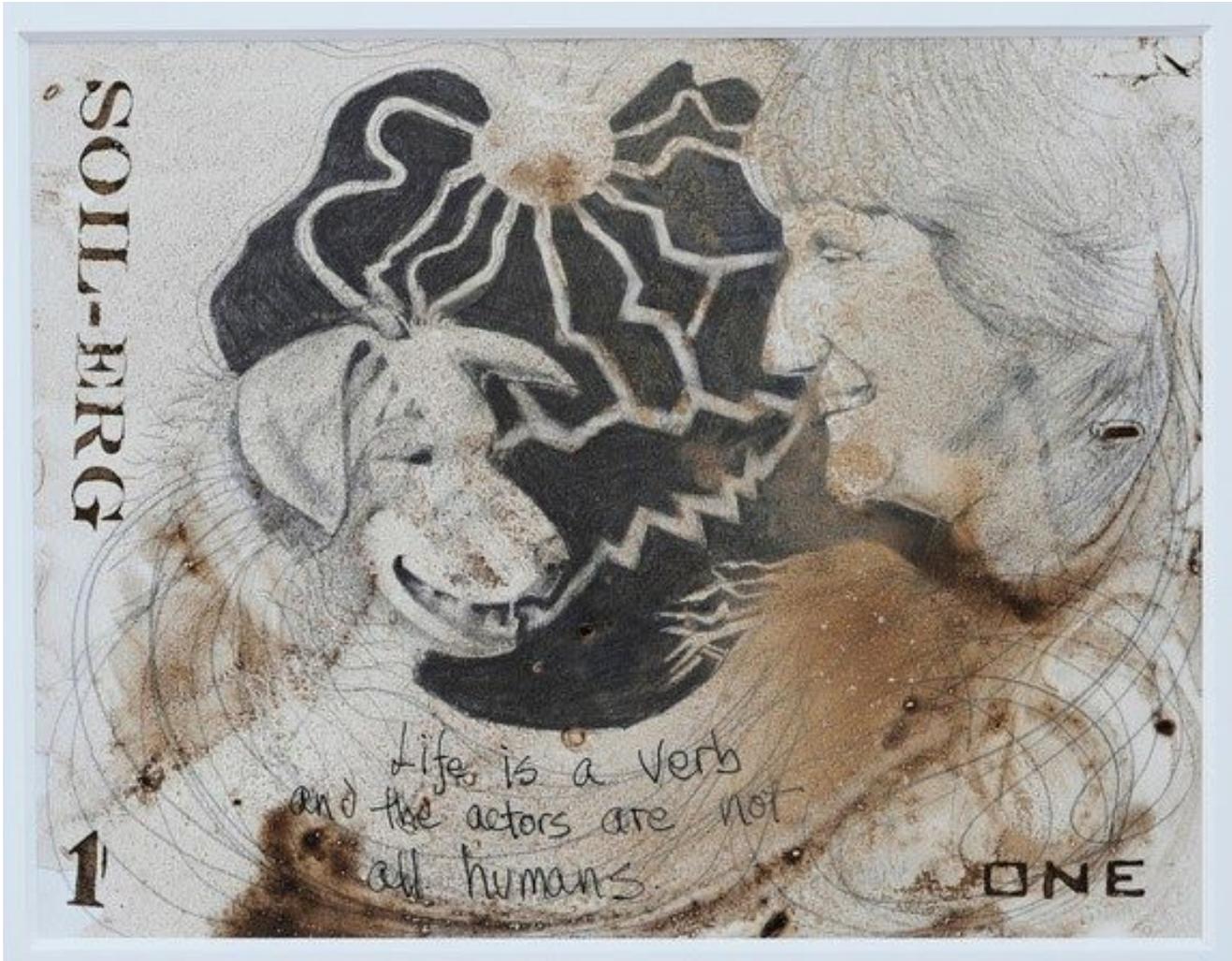


Figure 2: Claire Pentecost, (2012), *Soil-Erg*, [paper, pencil, soil], dOCUMENTA(13), Kassel, Germany.

'What happens when human exceptionalism and bounded individualism, those old saws of Western philosophy and political economics, become unthinkable in the best sciences, whether natural or social? Seriously unthinkable: not available to think with.' - Donna Haraway, 2016, p.30.

Claire Pentecost exhibited a series of works for dOCUMENTA(13) called *Soil-Erg* (2012) (see figures 2-4). In a concept similar to the gold standard, *Soil-Erg* proposes an economy based on soil. The exhibition featured several different elements based on traditional or historic forms of money. 'Erg' derives from the ancient Greek ἔργον, érgon, meaning 'work' but is also a unit of measurement for energy (Feller et al, 2015, p.555). This link to energy could refer to soil's liveliness or to its life giving capacities, on the other hand, 'Erg' may also refer to the work of more-than-human worlds in soil production. In 2012, dOCUMENTA(13) released a series of short books to accompany the exhibition, titled '100 Notes-100 thoughts', to which Claire Pentecost contributed a volume called 'Notes from the Underground', which discusses soil, microbial worlds and significantly, the work of Lynn Margulis (Pentecost, 2012. p.8).

Soil-Erg contained a range of artworks which physically involved soil; there were soil ingots made from composted food waste (figure 3), a cabinet with a bed of live worms actively producing soil and money-like notes which had been buried. Pentecost designed forty-three of these oversized paper notes, two of which can be seen in figures 2 and 4. Each note depicts either a bacteria, critter, soil-scientist, theorist or activist who are either directly involved in soil production or have contributed to knowledge and awareness of soil. The *Soil-Erg* note in figure 2 shows Donna Haraway and her canine companion (one of two dogs who have influenced much of her writing), Pentecost has quoted Haraway on this note, 'life is a verb and the actors aren't just human'. When considering that the artworks are constituted by soil, Pentecost's choice of quote and depiction of Haraway become significant, as the artworks could arguably be seen as a *multispecies collaboration* between the artist and trillions of microorganisms and decomposers. This introduces a question of authorship and serves to point out that not only would the artwork not exist without these invisible ecologies, but neither would we. In addition,

when taking account of Margulis' symbiosis and Haraway's sympoesis, the idea of multispecies collaboration can be extended even further, to question the concept of artistic creativity or at least the process of making of art. If, as new biological evidence suggests, organisms are truly never alone, and a 'human' can no longer be considered a singular individual, but a holobiont, then surely all acts of making art, regardless of whether or not art is involved, become *multispecies collaborations*.



Figure 3: Claire Pentecost, (2012), *Soil-Erg*, [compost, wood, goldleaf, glass], dOCUMENTA(13), Kassel, Germany.

Staying alive- for every species- requires liveable collaborations.

Collaboration means working across difference, which leads to contamination.

Without collaborations, we all die. - Anna Tsing, 2015, p.28.

Artistic practices which engage with soil are important because they increase public awareness of soil depletion and also emphasise the significance of multispecies collaborations. However, care should be taken not to portray anthropocentric accounts of beings in more-than-human worlds. The value of soil ought not to be equated to the benefits it brings humans-as-individuals as this places humanity at the centre of the narrative and does not encourage caring for soil for its own sake. However, in demonstrating the incredible complexities and intricacies of soil ecology, Pentecost promotes valuing this tangled cosmos for its own sake and not solely because it benefits humans. Moreover, *Soil-Erg* involves alternative modes of practice which are less anthropocentric and polluting, such as composting and the use of potato starch to make biodegradable ingot moulds. Pentecost describes how 'good soil is the result of a sustained practice, a practice that is social as much as biological' (Pentecost, 2012, p.278). This emphasises how caring for the planet involves social practices and cooperation across species to preserve what little biodiversity remains. An important step is public and political acknowledgment that humans are not separate from other species and their environments. In this sense, *Soil-Erg* can be seen both as a sympoetic system for "making-with", and also a purposeful incitement for others to 'make-with', by way of sustainable practices and multispecies collaborations.

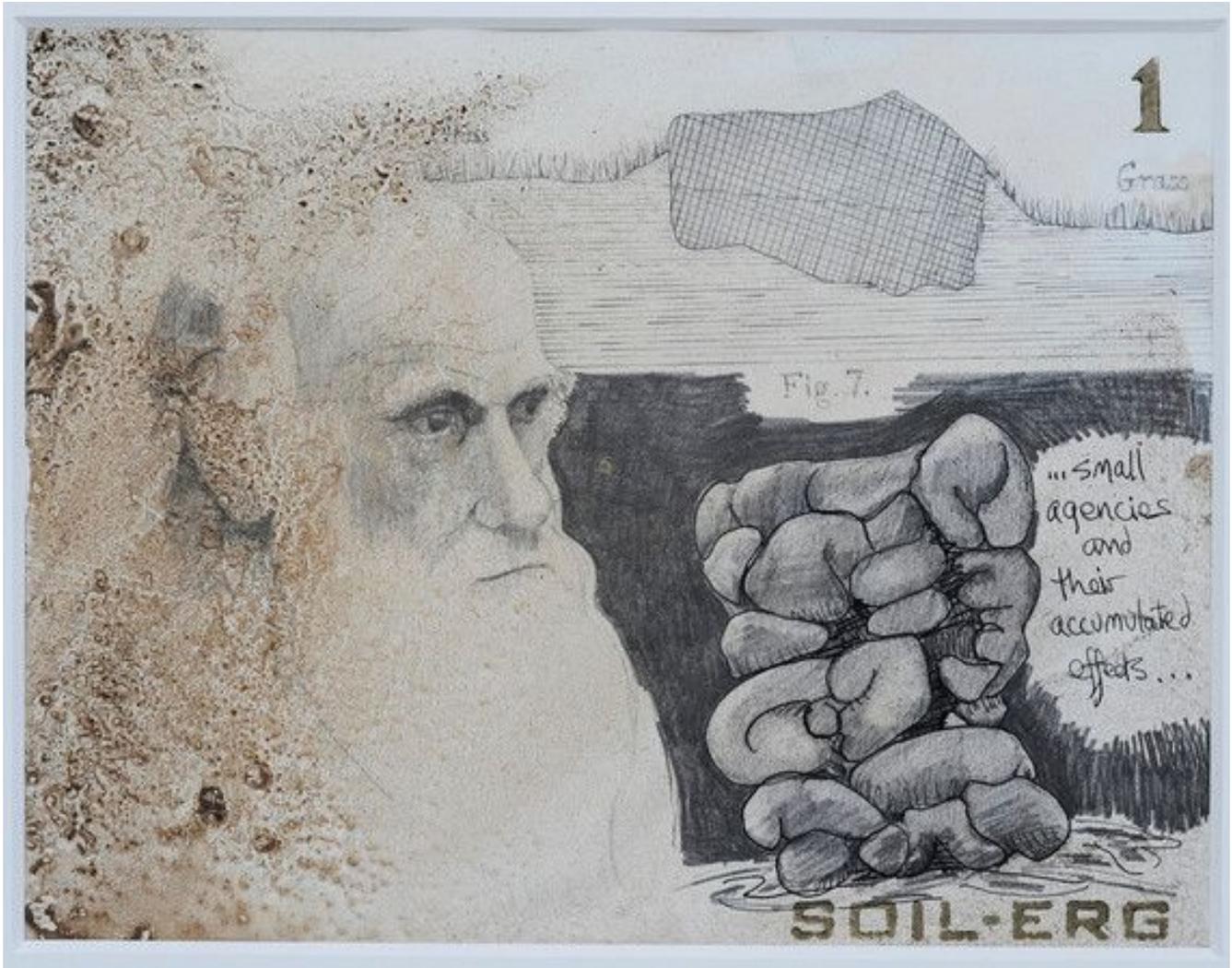


Figure 4: Claire Pentecost, (2012), *Soil-Erg*, [paper, pencil, soil], dOCUMENTA(13), Kassel, Germany.

Figure 4 shows a *Soil-Erg* note which includes a portrait of Charles Darwin alongside a quote of his, 'small agencies and their accumulated effects', which arguably acknowledges the planetary significance non-humans. The activity of earthworms have a huge impact on soil ecosystems, which Pentecost acknowledges with the composting bed of live worms and another *Soil-Erg* note which depicts an earthworm. Earthworms mix soil and transport nutrients downward, also their burrows aerate soil which supplies oxygen to other organisms and plants (Garden Organic, 2019). Consequently, earthworms have been referred to as 'soil managers' in some soil

sciences. However, Puig de la Bellacasa (2014), cautions against the application of capitalist terminology to more-than-human worlds, as it introduces hierarchies and again values these beings based on what they can do for humans (Puig de la Bellacasa, 2014, p.35). Pentecost, in quoting Darwin (figure 4), undermines neo-Darwinist accounts of nature through emphasising the import of small beings in their ecological niches, which stands in contradistinction to the narratives and imagery evoked by the mantra 'survival of the fittest'. Small changes across various modes of practice can accumulate in diverse new world-making endeavours rather than singular modes of practice and thought. 'Like artists and activists, with their small intelligent improvisation and their political acupuncture points, (earthworms) are perhaps a healthy reminder that the small can transform history when it embeds itself deeply in the materiality of the world' (Neal, 2015, p.210; Jordan, 2013). Earthworm, artist, activist, scientist and all other players need to collaborate together in order to reconfigure ecological relations with the earth. In recognising other life-forms as valuable, human and non-human dualisms are destabilised, which encourages the cultivation of increasingly ethical cultural perceptions, political agendas and legal rights for other-than-human worlds.

Conclusion

Operating within the parameters of the individual, endorses hierarchies of life which sanction exploitation and colonial violence. Individualism is based on principles of dualism and separation and therefore gave rise to alienation and monoculture. The art of Faith Wilding, interpreted through Anna Tsing's analyses of the colonial plantation system, demonstrates that monocropping, the organization of environments based on principles of purity, can unbalance ecological relations. The work *Organize!* by Faith Wilding, interpreted in conjunction with Tsing's work on 'contamination', transformation through encounter, suggests that conceptions of 'purity' or self-containment are myths and not material reality. Therefore, agricultural practices such as monoculture and fumigation are forms of violence which get overlooked because the immediate victims are not human, and the effects on humans are muted through distance and time (Meszaros Martin, 2018, p.241). However, Wilding's snakes enact earthly memory, so demonstrate that such violences are not inconsequential, but that trauma is materially preserved. Therefore, Wilding's work challenges individualism by demonstrating the material dangers incurred when the interconnectedness and interdependence of ecological systems are ignored.

Evolutionary theories premised on discrete unit-based encounters, perpetuate narratives of the competitive self-interested individual within a capitalist context. However, the principle of symbiosis, the cooperative living of organisms, proposes other modes of existence and relations. Claire Pentecost's *Soil-Erg* draws on the work of Lynn Margulis and Donna Haraway, and so can be understood as a sym-poetic system, a world for making-with other worlds. In devising a fictive monetary system based on soil, Pentecost recognises the valuable labour of

more-than-human worlds in the production of biocapital and in acknowledging this labour, positions her art as a multispecies collaboration, with decomposers as the co-producers of her work. Moreover, the understanding of organisms as symbiotic assemblages, or holobionts, troubles the category of 'human' and subsequently, the authorship of all artwork. This challenges individualism as it suggests that all actions and all beings are part of sympoetic processes. In emphasising the significance of soil workers and their accumulated effects, Pentecost discredits human exceptionalism by demonstrating that humanity is not separate from the actions of other species. Pentecost's work not only raises awareness of planetary soil depletion but in giving these multispecies collaborations visual form, she both metaphorically and literally aids the 'passing into visibility' of soil (Puig de la Bellacasa, 2014, p.27).

This essay proposes that art which acknowledges the relationality of all things, be they organisms, materials or environments, fosters consideration and a sense of responsibility toward planetary health. Art which explores entangled ecologies and multi-species collaborations, undermines the view of an othered nature as a resource which is there to be exploited rather than cared for and valued. Artworks which demonstrate that humanity is in no way 'separate' from other species but in fact *constituted by them*, actively increases the regard given to other-than-'human' beings. In this way, Wilding and Pentecost are part of a sympoetic system that contributes both to what Puig de la Bellacasa calls 'increasing visibility' and to what Haraway calls 're-worlding'. Within the regime of the Anthropocene, it is important to practice listening broadly and nurturing cross-disciplinary relations, because surviving alone is a myth, survival always involves others and is required for improving planetary health (Tsing, 2015, p.29). This does not mean operating under competitive and conflict based notions of the

individual but instead acknowledging symbiosis and participating in practices of multi-species collaborative survival. This means rather than dominating or working against natural worlds, it is important to encourage practices that 'make-with' as this could contribute, at least partially, to planetary recuperation. Sympoetic practices, such as composting, exemplify the inherent value of "making-with", as the careful fostering of multispecies collaborations helps replenish soil. When considered in this way, soil, unlike the monocrop, is thoroughly decentralised both materially and ontologically, and does much for the decentralisation of the individual and the human. Sympoetic worldings, multispecies collaboration and the decentralisation of the human subject, are all essential in developing more liveable conditions on earth for all species. Art practices which voice multiple stories and world-views, across cultures and species, contribute to processes of re-worlding which can challenge humanity's position on a damaged planet and subsequently reconfigure ecological relations with earth.