

Mcphie, Jamie (2018) A walk in the park: Considering practice for outdoor environmental education through an immanent take on the material turn. In: Ringrose, J., Warfield, K. and Zarabadi, S., (eds.) *Feminist Posthumanisms, New Materialisms and Education*. Routledge, London, pp. 148-168.

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**A walk in the park: Considering practice for outdoor environmental education through
an immanent take on the material turn**

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This paper considers practice for environmental education from the perspective of the material turn by taking the reader along on an outdoor learning session in a park. We present a fictional walk where we encounter plants, trees, wasp-orchids, stones, walking sticks, plastic bags, people, weather and kites: each of which has a story to tell that demonstrates ontological immanence and the material process of being alive. These stories help suggest some practical ways in which environmental education can be re-oriented from an essentialist paradigm to one of becoming, tackling prevailing conceptions of the human mind as disembodied from the world.

Keywords *Environmental Education, Outdoor Learning, The Material Turn, Educational Practice, Ontological Immanence*

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Introduction to the outdoor learning session

In this essay/lesson, we will articulate some practical applications of an approach to environmental education that embraces an ontological turn in contemporary Western philosophy. Ivakhiv (2014) summarises this turn as an “‘ontopolitical’ milieu of contemporary social, cultural, and environmental theory, critical realism, agential realism, nonrepresentation theory, enactive and embodied cognitivism, post-phenomenology, multispecies ethnography, integral ecology, and various forms of ‘new materialism’, ‘geophilosophy,’ and ‘cosmopolitics’.” (p. 1). These approaches, related to each other by their attention to non-dualist, new materialist and immanent conceptions of reality, are discussed in the literature as salient to broad realms of investigation including science, politics and education (Barad, 2007; Coole & Frost, 2010; St Pierre, 2004).

More concisely, *the material turn* has been highlighted as being of particular significance to environmental education as a ready paradigm that decolonialises, dehierarchalises and deterritorialises essentialist conceptions of the human relationship to the environment (Clarke & Mcphie, 2014, 2015). These properties are of particular importance in overcoming the limitations of sustainability education practice that straightforwardly seeks to tackle the *crisis of perception of disconnection from nature*. Identifying that the prevailing modernist malaise of *disconnection* is a mere presumption - resultant of underlying metaphysical assumptions - leads to a questioning of environmental education’s *(re)connect to nature* practices. Mannion, Fenwick & Lynch (2013) for instance, note how the popular focus on place-responsive education for socioecological justice education can be aligned with emerging posthuman debates that attend to the sociomaterial nature of reality. Noel Gough has sought to bring this understanding to environmental and outdoor education theory and research, stating that:

posthuman/place relations are not about individual subjects autonomously forming and developing relations with the world but, rather, about realizing that these relations always already exist, and might be as much influenced by the behaviour of other materials in places we inhabit as they are by our intentional or unintentional actions. (Gough, 2015, p. 160)

Previously we have sought to demonstrate how a move from a metaphysics of transcendence, to a metaphysics of immanence in environmental education practice can help overcome the limitations of, and possible damage resultant from, pointillist (i.e. emphasising subjects and

objects which are then *connected*) theory and practice, suggesting the need for a praxis of participation and performativity that moves beyond these essentialist notions (Clarke & Mcphie, 2014).

Here we seek to continue the critique of pointillist environmental education approaches by arguing that phenomena such as plants, trees, stones, clouds, rainbows, humans, plastic bags and smart phones are not *objects* or *subjects* that interact, relate or even *connect* with each other but are rather transient, enactive *physical processes* continuously taking place and always *becoming* as *intra* agencies; better described as *haecceities* (a things thisness) rather than *quiddities* (a things whatness). Perceptions of these entities as *objects* is resultant of an anthropocentric, perceptual and temporal discrepancy that has arisen from concepts that have been passed along ecological lines of (predominantly) Western culture (such as binary bias, essentialism, Platonic idealist/logocentric discourse, transcendentalism, Cartesian duality and Newtonian science). The material turn's philosophy of intra-relational process materialism counters these ontologies and offers a new direction for thought, one that is partly exemplified through both historical and current (even *new*) animistic practices. This potential paradigm shift also has implications for pragmatic changes to existing pedagogies to support a relatively empathetic and sustainable present/future for the planet. Ultimately, we are concerned with helping learners, and ourselves, to continue to wonder at the becoming of the world.

In this paper we take the reader on a walk in a local park with some of our students to help explore the process-relational world *becoming* in contrast to more prevalent and dominant conceptions of the human relationship to the environment. Like any good lesson we shall learn *with* (rather than *about*) the world as we go.

Background reading to the lesson: Process-relational thought

Adrian Ivakhiv (2013) suggests that process-relational thought focuses on “the dynamism by which things are perpetually moving forward, interacting, and creating new conditions in the world” and on the “world-making creativity of things: on how things become rather than what they are, on emergence rather than structure” (p. 43). He goes on to state that this process-relational reality “is constituted, at its core, not by objects, permanent structures, material substances, cognitive representations, or Platonic ideas or essences, but by relational encounters or events” (Ivakhiv, 2013, p. 43). This ontology has been adopted by new materialist authors such as, Coole & Frost (2010), Bennett (2010), Barad (2007) and

Connolly (2011) who have taken various process-relational approaches and have reflected on the subtleties, differences and broader implications of this *material turn*.

However, this ontology is not new. The pre-Socratic philosopher Heraclitus (535-475 BCE) purported that a person cannot put their foot in the same river twice (Poster, 1996) and the Buddhist philosopher Nagarjuna's (150-250 CE) 'middle way' demonstrated interconnectedness within his "central concept of the 'emptiness (sunyata) of all things (dharma),' which pointed to the incessantly changing and so never fixed nature of all phenomena" as well as a "lack of autonomous existence (nihsvabhava)." (Berger, 2003, para. 1).

A not too dissimilar ontology is also understood and enacted in many animist traditions around the world, such as First Nation cultures in the America's, Maori culture, Aboriginal Australian culture and eco-paganism (Harvey, 2006). Similar to much animistic thought and practice, continental philosophers Deleuze & Guattari (2004) advise us "to regard the animal as a going on: not as a living thing of a certain kind but as the manifestation of a process of becoming, of continuous creation, or simply of *being alive*" (in Ingold, 2011, p. 174). For example, they suggest *wolfing* as an alternative to wolf. This perspective supports a philosophy of immanence and bares a strong resemblance to non-romanticised/spiritualised¹ animistic practices throughout the world both past and present. Ingold (2011) states, "We ourselves might speak of having seen an owl, or several owls but the Koyukon name does not really refer to the owl as an object, but to what we might call the activity of 'owling'" (p. 170).

In the west we are accustomed to thinking of animals as 'living things', as though life were an interior property of a class of objects deemed 'animate' and that causes them to act in particular ways. In Koyukon ontology, by contrast, each animal is the instantiation of a particular way of being alive – a concentration of potential and a locus of growth in that entire field of relations that is life itself (Ingold 2000a: 95–98). The names of animals, then, do not refer to classes of objects, for in the Koyukon world there are no objects as such to classify. They refer, rather, to ways of living. (Ingold, 2011, p. 170)

Paraphrasing the archetypal psychologist James Hillman, Harding (2006) suggests that "any phenomenon has the capacity to come alive and to deeply inform us through our interaction with it, as long as we are free of an overly objectifying attitude" (p. 27). This is not the same as the common colonialist misconception of animism as a "projection of human feelings onto inanimate matter." (Harding, 2006, p. 27). Advocated by philosophers such as Spinoza,

Leibniz and Whitehead, one view of animism has been described by Harding (2006) as recognising “that the material world around us has always been a dimension of sensation and feelings-albeit sensations that may be very different from our own-and that each entity must be treated with respect for its own kind of experience.” (p. 28). However, a ‘new animism’ may also be described as “learning how to be a good person in respectful relationships with other persons...only some of whom are human.” (Harvey, 2006, p. xi). The recent publication of Graham Harvey’s (ed.) *The Handbook of Contemporary Animism* (2013), reflects a (re)newed scholarly interest in animist ontologies. Harvey is joined by such renowned company as Bird-David, Descola, Abram, Ingold and Plumwood, to name just a few (forty-one authors tackle the forty chapters of the book), in advocating an increased engagement with animism in order to (re)imagine a more animated human relationship with a world becoming.

This animistic worldview runs counter to the majority of current unsustainable conceptual processes and practices that stem from the Western mind/worldview (Ingold, 2011), a mechanised mode of thinking that has a long history incorporating various landmarks of change. In his book, *The Participatory Mind* (1994), Henryk Skolimowski described four stages of Western thought; Mechanos (after the Enlightenment), Theos (after the Roman invasions), Logos (post-Socratic thought) and Mythos (Pre-Socratic thought). These stages all denote important changes in conception, perception and behaviour. We would also include the agricultural revolution as a fundamental change in Western thought due to changes in social and environmental equity as well as a more static understanding of the world compared to the mobile nomadic view (Mcphie, 2014a). Of particular interest to us is the change from animistic Celtic perceptions and practices to Roman and Roman Christian ones. The Greeks and Romans had become urban cultures (further developing the alphabetised written language we use in the modern Western world) whereas the Celts comprised of predominantly pastoral cultures. As the Celts had an oral tradition, the Romans translated and interpreted many Celtic conceptions, a practice called *interpretatio romana* (Green, 1997), in a static, essentialised and transcendent manner.

In her book ‘Exploring the World of the Druids’, archaeologist Miranda Green (1997) emphasises that the Celtic spirit/god ‘Taranis’ name indicates not that he was the god of thunder: he *was* thunder; Sequana was the River Seine at its spring source; Sulis was the hot spring at Bath, not simply its guardian or possessor’ (p. 24). This suggests that whilst the animistic Celtic belief system was still very much of the land, the Roman introduction of a monotheistic Christian belief in a transcendent God began to cultivate a belief, in the West, of separation and

division (although it could be argued that this belief of separation had already begun with the agricultural revolution). (McPhie, 2015, p. 228)

Through this attempt at translation, meaning was changed or lost. We emphasise Green's (1997) point again, Taranis was not the god of thunder, he *was* thunder. This nuanced understanding is the difference between two wildly conflicting worldviews and has significant ramifications for the modern globalised world. It is the difference between an immanent worldview and a transcendent worldview; a world of presenting and unfolding perception-and-life, and a world of dead things and human representation. It is the difference between a *flat* ecological perspective (see de Vega, n. d.) and both a shallow ecological *and* deep ecological perspective. It is the difference between understanding ourselves as *of* the world, as opposed to *in* or *on* the world.

Process-relational thought/process metaphysics has also partly matured from a variety of similar ontologies that have emerged from/through a number of Western and Eastern philosophers. It has arisen and progressed at different moments throughout history² and is written/recorded in the philosophies of Heraclitus, Nagarjuna, Zhuang Zhu, Spinoza, Leibniz, Schelling, Bergson, Peirce, James, Dewey, Whitehead, Hartshorne, Simondon, Bateson, Deleuze, Guattari, Rescher, Weber, Faber, Connolly, Stengers, Massumi, Latour and in certain respects Hegel, Marx, Nietzsche, and Heidegger (list taken from Ivakhiv, 2013, pp. 42-43).

In addition, General Systems theories (developed as systems biology by von Bertalanffy in 1928) played an increasingly important role in process-relational thought from the 1970's onwards from Lovelock's *Gaia* (Lovelock, 1972; Lovelock & Margulis, 1974) to Maturana and Varela's *autopoiesis* (1972), thus informing Capra's *Web of Life* (1996), Abram's *The Spell of the Sensuous* (1996) and Harding's *Animate Earth* (2006). Gregory Bateson's *Steps to an Ecology of Mind* (1972) is an obvious link between systems thinking, process-relational thought and theories of extended cognition as he has been influential in all of these areas of study.

From the initial feelers tentatively extended within externalist philosophy in the nineteen-eighties, a number of new theoretical frameworks have arisen such as, *extended cognition* (Clark, 1997, 2001, 2008; Wheeler, 2005; Rowlands, 2009, 2010; Menary, 2006, 2010; and Manzotti, 2006), *embodied cognition* (Shapiro, 2010; Chemero, 2009; Rowlands, 1999; Anderson, 2003; Chiel & Beer, 1997; Lakoff & Johnson, 1980; Johnson, 1987) and *enactive cognition* (Varela, Thompson & Rosch, 1991; Maturana & Varela, 1980; Thompson

& Stapelton, 2009; Thompson, 2007; Stewart, Gappene & di Paolo (eds.), 2010; Noë, 2009; & di Paolo, 2009) (list taken from Malafouris, 2013, pp. 57-58). Clark & Chalmers' (1998) *The Extended Mind* (where cognition is conceived as a *transcranial* process) and Varela, Thompson & Rosch's (1991) *The Embodied Mind* (where *the body* is seen as a lived, experiential structure as well as the context of cognitive mechanisms) seem to have had significant and lasting impacts on theories of mind.

Such is the potential of emerging theories (and science) of mind that a recent edition of *New Scientist* featured an article (Spinney, 2014) discussing the possibilities that extended theories of mind bring to the *hard problem* of consciousness – *where is the mind?* Indeed, this novel topological conception of the mind is now spilling into other areas of study, including anthropology (Hutchins, 2010; Ingold, 2011), archaeology (Tilley, 1994; Wylie, 2002) and mental health and wellbeing (Fuchs, Sattel & Henningsen, 2010; Mcphie, 2013, 2014a, 2014c), even encouraging Mcphie (2013, 2014c) to suggest that if *mental health is a transcranial process* then more haecceitically apt questions to ask would perhaps be *where* or *when* is mental health as opposed to what, why or how questions often found in normative mental health research.

The opposition to Cartesian duality is a prominent feature of these various approaches to process-relational paradigms. Gilbert Ryle coined the phrase, *Ghost in the Machine* in his book *The Concept of Mind* (1949) to describe the absurdity of Rene Descartes mind-body dualism. Ryle (1949) suggests that it is a *category mistake* to subject the mind to the same logical categorisation as either idealist arguments (reducing physical reality to the same ontological status as mental reality) or materialist arguments (reducing mental reality to the same ontological status as physical reality) (Roger, 2008). However, a new materialist comprehension of the world would differ from either of these descriptions as in many cases it takes an *intra* over an *inter* understanding of reality.

Barad (2003) coined the term 'intra-action' to replace 'inter-action' in order to highlight that agencies do not precede encounters, but rather that agency emerges from the relationships between components [...] Barad (2003, p.817) also points out that, '[a]gential intraactions are specific causal material enactments that may or may not involve humans'. (Poole, 2014, p. 6)

If we are *of* the world, as opposed to *in* or *on* it, then we may place both mind and material in the same arena yet at the same time realise that mind is *haecceitically* different and that it is useful in its existence to aid discussions that try to clarify a more nuanced grasp of reality.

Rather than attempting to break down meanings into categories, essentialising and atomising through taxonomies, rules and regulations, we may think in terms of stories that use metaphor and analogy to explore different understandings of the world.

So, instead of performing an extended literature review on this emerging world view (see Clarke & Mcphie, 2014 for an initial exploration of process-relational philosophy in outdoor environmental education for sustainability) we shall attempt to explain this alternative ontological paradigm through a pragmatic approach that focuses on a single outdoor learning session of encounters in a park. Each encounter has a story to tell about our embodied material intra-relation with/of the world. The first part of this session is a ghost story. You (the facilitator) may wish to build a campfire for this part of the session, or begin in a cave (it is a ghost story after all!).

THE OUTDOOR LEARNING SESSION

9am. Ghost in the Machine

Good morning everyone. Before we begin, we want you to imagine a ghost rattling around in your brain. In your Pineal gland to be precise. It has no material quality to it, no physical substance and so is similar to a ghost. Descartes knew dogs had pineal glands also but did not believe they had this extra quality of mind to them that humans had and so thought them soulless as he did every other creature (justifying vivisection amongst the *enlightened* scientists). This perception is still very evident in the modern Western world. For example, ‘does anyone here believe in ghosts?’ A few students raise their hands. ‘What about ghost blades of grass?’ One student replies, ‘of course not, they’re just plants’. This student believes humans are special and have souls that after death would transcend the human body (or brain if you believe it resides there as Descartes did). Many *scientists* have a similar anthropocentric, Cartesian understanding of the world although many may not admit that they believe in ghosts, although we know some that do!

It may be argued that we should do away with the concept of the mind altogether (in the same manner Morton (2007) calls for the abandonment of *Nature* in his *dark ecology*) as it is problematic in terms of binary bias and a transcendent conception of the world. However, by keeping the term and putting it under ~~erasure~~ (*sous rature*), a method that Derrida borrowed from Heidegger to denote certain concepts as inadequate, yet necessary, or changing its literary definition/existence to exemplify immanence rather than transcendence,

it could promote a deeper understanding of the immanent *physical* nature of the ~~mind~~ as opposed to the Cartesian non-physical, Westernised spiritual ~~mind~~ of transcendence.

This transcendent thinking has led to certain ecological conceptions, prompting one student to say we need to be *reconnected* to ~~Nature~~ if we are to overcome the current environmental crisis. Indeed, some recent academic conferences are now dedicated to this concept, such as “Nature Connections...an interdisciplinary conference to examine routes to nature connectedness” (Nature Connections, 2015). Elsewhere we argue that a literal disconnection is impossible as we are of the same materials, forces and energies of the Earth (Clarke & Mcphie, 2014). Therefore, a re-connection is also impossible. However, there may be a *conceptual* (mis)understanding that influences our perception and behaviour so we come to *believe* there is a disconnection. If this is so, the perception and belief that we are not (or no longer) part of our environments may have unintended behavioural outcomes that influence and further encourage Cartesian thinking that in turn may add to destructive climatic and mass extinction events as well as encouraging social inequities (such as discrimination and intolerance). Bai (2009) demonstrates this understanding in her call for a re-animation of the universe through environmental education, arguing, as we do above, that Cartesian-dualism and logocentric Platonism be, at the least, complemented by other forms of knowledge. On the part of positivists/reductionists/essentialists/realists, etc., this has obvious ramifications due to believing we may change our environments without it affecting *us* too much, leading to environmental degradation. On the part of constructivists/idealists/humanists/deep ecologists, etc., the belief that we may be, or are, *disconnected* still encourages a Cartesian dualism and therefore propagates a perception that humans *can* be separate (possibly leading to further destructive or unsustainable behaviours). These perceptions and beliefs have filtered through Western society, influencing schooling, healthcare, politics, finance, etc. This outdoor learning session/story is just one practical example of how we may deterritorialise this unhealthy (if we accept that a mass extinction would be *unhealthy*) situation.

David Abram (2011) asks,

What if thought is not born in the human skull, but is a creativity proper to the body as a whole, arising spontaneously from the slippage between the organism and the folding terrain that it wanders? What if the curious curve of thought is engendered by the difficult eros and tension between our flesh and the flesh of the earth? (p. 4).

Let us now take a walk around the park to see if we can explore this alternative paradigm that Abram is hinting at.

9.30am. The Secret Life of Plants

So, we're walking along with our students when we come across a *Rhododendron Ponticum*. One student, a middle-class Westerner, perceives it as beautiful. This view, possibly an aesthetic conception culturally constructed and passed on from the Romantic period, is a way of *seeing* that John Urry (1990) would term, a *Romantic Gaze*. But when asked if the *Rhododendron* thinks *itself* beautiful, the student replies, 'you're joking aren't you? Plants can't think!'

Michael Marder (2013) complains, "If animals have suffered marginalisation throughout the history of Western thought, then non-human, non-animal living beings, such as plants, have populated the margin of the margin, the zone of absolute obscurity undetectable on the radars of our conceptualities" (p. 2). Yet Marder (2013, p. 152) believes that vegetal life has a "non-conscious intentionality" that "amounts to an essentialism-free way of thinking that is fluid, receptive, dispersed, non-oppositional, non-representational, immanent, and material-practical..."; in other words, they think!

Now let us look at the *Rhododendron* from the point of view of classical science which has influenced ecology (evident in most Western education systems³, including environmental education). The teacher might say it is a genus of flora in the *kingdom* of plants, separate but also a *part* of its surrounding environment. This derives from the Linnaeus tree of knowledge and taxonomy – that we made up! Let us deconstruct it for a moment: ~~Kingdom~~ (gender inequality), ~~subkingdom~~ (reductionist), ~~super~~division (hierarchical), ~~division~~ (Cartesian binary bias), and so on... In fact, the term *ecological* is itself problematic due to its Greek etymology of *logos*; ways of thinking that privilege *reasoned* Western hierarchical thought over any other.

However, the explanation we give the student could hint at the existence of the plant's ~~mind~~ as described by Li, Clark & Winchester (2010, pp. 407-408):

The way the plant knows about the environment is through its interaction with the environment it lives in. Hence the plant's knowledge of its world depends on the environment it lives in and the actions the plant is capable of (Reid, 1995). The plant neither determines its world, nor is determined by it, but co-emerges with the world. It is important to note that there is no dichotomy (i.e. the plant and the

environment) because any system and its context are inseparable (Fenwick, 2000).

The ecologist may perceive the Rhododendron as a threat to the ecosystem if it is intruding as an unwanted alien invader originating from a place where it evolved over a longer period, where it had time to *fit in* with its environment in a more sustainable manner. One student asks, ‘but this idea could also be used as an argument that sees Europeans as *pests* couldn’t it?’ We agree! Due to the fairly rapid colonisation period of the Americas and Australasia, for example, the ecosystems/environments that suffered (including processes from the biosphere, troposphere, hydrosphere and lithosphere) could not adapt fast enough to compete and so became obsolete or *less* than they once were (in number or in health). First Nation people are good examples of human processes who have been (are being) *weeded* or *sprayed* by the European monoculture gardeners and whose ancestors are still suffering from the hierarchical hegemonic power relations that unsustainable gardeners have over *their* biotic and abiotic communities.

For example, many First Nation people were treated as unwanted pests when the Europeans needed a picturesque or sublime view when they *fenced off* Yellowstone Park to create America’s first national park in 1872. The area was preserved ‘for the benefit and enjoyment of the people’ (inscribed on the Roosevelt Arch at the North entrance to the park as part of the *organic act* legislation), yet the indigenous populations who were either from this region or were forced to pass through this area (for example, the Shoshone Sheep Eaters and the Nez Perce) did not seem to *fit* into the Romantic ideal of the Eurocentric concept of *wilderness* and so were *removed*. Although they were seen as *man*, they were not seen as *human*, at least not humans of the same equality or civility as humans of European descent (see Callicott, 2000 for an in-depth discussion of wilderness as an androcentric, colonial, racist and genocidal concept). These wildernesses are still heavily contested as is the Western post-colonial perception of *indigenous* people around the world and the social and environmental inequalities this perception (re-)enforces (for an in-depth discussion of green postcolonialism, see Huggan and Tiffin, 2007).

‘But hark, what’s that I hear’ asks Dave, ‘the beautiful trill of a songbird? The flutter of beating wings?’

9.45am. Birds and Columns

'Look students, there's a lapwing over there'. And by naming it so, we've just sucked the life out of it! Some call it a peewit due to its call. But that's not all a lapwing *is*, a sound. Just as the Celts personified their environments, even old English (Anglo-Saxon) names for animals seem to support an immanent understanding of the world that advocates bringing the world to life. For example, the animated Old English verbal name for the modern English static noun lapwing is *hlēapewince*, meaning to dance or leap (hlēapan) and wink (wincian) (Clark-Hall, 2011). Now we breathe life back into it.

For the Koyukon of Alaska,

The spotted sandpiper's name is 'flutters around the shore', the osprey's is 'stares into the water', the boreal owl's is 'perches in the lower part of spruce trees', and the savanna sparrow's is 'sits on a stalk of grass. (Ingold, 2011, p. 169)

These relational verbs seem to encourage a sort of sympathy and respect of/for things from animals to buildings.

When we see the bird moving, we feel its motion; with the column, we see it standing still but also feel its motion and activity. The bird lives in an aesthetic relation with the air, as the column lives-with its adjacent partners; a difference only occurs at the point where aesthetics becomes a profession: the making of beautiful things. In short, aesthetics is something that existed long before humans did, exchanged between objects, but we use it to make those objects. When we see-feel a bird in flight, the aesthetics originates in the intensification of an extensive motion, but when we design a column, to make it aesthetic we must draw it in the realm of correspondence, and therefore as a product of motion. (Spuybroek, 2011, p. 183)

So, the act of architecture is a relational performance between emerging events. I think we'll come back to this point later in the day...you never know, we might even see some architects!

Let us continue our walk because some students seem to be getting distracted by a faint buzzing sound nearby.

10am. Wasps and Orchids

Now we come across a wasp on an orchid; the wasp, an organism of fauna, of the order Hymenoptera; the orchid, an organism of flora. The students conceive the wasp and orchid to be separate entities. But continuing along the same vein of disruption, the wasp and the

orchid together may be seen as a *multiplicity* or an *assemblage*. In Deleuze & Guattari's (2004) famous description, the wasp becomes part of the orchid's reproductive apparatus (a mobile sexual appendage) and the orchid becomes the sexual organ of the wasp (or an orgasm). The orchid does not try to attract other orchids, it flirts with the wasp! As Dema (2007, para. 5) notes, "this forms the wasp-orchid assemblage which operates via inorganic, rather than organic, life". Our students watch the wasp-orchids for a while until one mentions how amazing it is to see organisms *in* their environments. Another student says 'where is the environment, or the organism, if the two constitute each other? Are there two?' Varela, Thompson & Rosch (1991) offer some insight here when they say, "organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself" (p. 217).

As a group we start walking towards a nearby group of trees, wondering about our assumptions of orgasms, organisms and environments.

10.30am. Trees

Jamie asks the students what they think a tree is. They give him funny looks! Trees are collectively perceived in various ways from copse to jungle, each having differing meanings and associations. They are a symbol of environmentalism (tree huggers) and health (green therapies). But most of the lessons about trees are as objects of varying species (as in the books *I-Spy Trees* and *I-Spy Nature*). Why not try Tim Ingold's (2008) example instead:

Where does the tree end and the rest of the world begin? ... Is the bark, for example, part of the tree? If I break off a piece in my hand and observe it closely, I will doubtless find that it is inhabited by a great many tiny creatures that have burrowed beneath it and made their homes there. Are they part of the tree? ... If we consider, too, that the character of this particular tree lies just as much in the way it responds to the currents of wind, in the swaying of its branches and the rustling of its leaves, then we might wonder whether the tree can be anything other than a tree-in-the-air. These considerations lead me to conclude that the tree is not an object at all, but a certain gathering together of the threads of life. That is what I mean by a thing. (p. 4).

Or even this account by Spuybroek (2011):

The tree feels the wind, and as the tree feels, it takes on form, and as the tree takes on form, we start to feel it too – not physical wind but rage – and then we take on form by adjusting our position or posture. If I were to map out such

relations in a diagram, with dots indicating forms and arrows indicating forces and feelings, we would not even be able to see the difference between animate and inanimate things ... sympathy only appears when the dualism disappears, at the point where things become feelings and feelings things. (pp. 182-183).

Even if we dismiss all anthropocentric subjectivity (as a tree is perceived differently to each person, at every age, in every class, from each culture, throughout history), a tree is still not *a tree* for a dog! It is an *affordance*. For example, it may be a message board to display its *Tag* (an extended self?). What is a tree to a jellyfish, bacteria or cell (are we not bacteria and cell too)? A tree as we understand it is simply an anthropocentric account, one that has changed and is still changing historically, geographically and culturally over time.

And then there is the anthropocentric account of taxonomical knowledge, often depicted and symbolised as a tree; separating, essentialising, reducing, hierarchicalising, homogenising. This overuse of the tree led Deleuze & Guattari (1987, p. 15) to consider the world in a different way:

We're tired of trees. We should stop believing in trees, roots, and radicals. They've made us suffer too much. All of arborescent culture is founded on them, from biology to linguistics. Nothing is beautiful or loving or political aside from underground stems and aerial roots, adventitious growths and rhizomes.

Deleuze & Guattari's (1987) critique of the Western tree metaphor has been influential across diverse educational disciplines in recent years (Cousin, 2005; Johnson, 2014; Semetsky & Mansy, 2013; Masny, 2013). Whereas the majority of this work looks to disrupt stagnant and neo-liberal practices in research and the management of education, we look to use Deleuze & Guattari as a means to help students disrupt their own assumptions about trees, and other organisms they perceive to be *in* environments. To do this we must be careful how we word our ~~ecological~~ explanations and assumptions to our students. We must look for ways to move our discourse with students beyond tree metaphors and we must be mindful of our anthropocentricity. For example, pollution is one thing for humans but is another thing entirely for some forms of bacteria who thrive on it (such as Desulfitobacteria).

Research, such as *the human microbiome project* (Turnbaugh et al., 2007) suggests that humans are supraorganisms being ninety percent microbes. Are we simply a carrying vessel for them or is this just another example of sub-systems (bacteria) within larger systems, very similar to how Gregory Bateson describes ~~minds~~, as there is always "a larger Mind of which the individual mind is only a subsystem" (Bateson, 2000, p. 467)? Of course

if we keep working our way up the ~~systems~~, we get to the ~~minds~~ of forests (Kohn, 2013) and eventually what James Lovelock describes as Gaia, an interplay of the Earth's biosphere, lithosphere, hydrosphere and troposphere. But there is no need to stop at our atmosphere. The Universe, simply put, is a very large ~~Mind~~ of which humans are just a process.

Beneath the tree the students gaze about, considering where they end and the tree begins. 'There are certainly plenty of humans *in* this park...' notes one of the students.

11am. Humans

Merleau-Ponty (1964) suggested that humans were *of* the world rather than *in* or *on* it! We are made *of* the materials, forces and energies of the Earth, not a separate entity that dwells *on* or *in* it, implying a certain literal disconnection. Harris (2008) notes that there is an assumption that the mind-brain-body remains somehow detached or isolated from the wider environment, but as we learned from Varela, Thompson & Rosch (1991) earlier, the organism is not *in* the environment and so the mind is not *in* the head. For instance Manzotti & Pepperell (2013, p. 3) claim that nearly 30 years of intensive study have failed to discover any "mental content or phenomenal experience" inside the human head and that continued claims that the brain is where the mind is located amount to a conceptual bias in the scientific community.

'So, to reference a Pixies song', says one confused looking student, 'where *is* my ~~mind~~?'

Break time (please can everyone search around for this student's ~~mind~~?)

11.15am. Where is my ~~mind~~?

Bateson concurred with Merleau-Ponty that mind is immanent in the world. Andy Clark follows Bateson in concluding that what we normally accept as *mental processes* extend beyond the *skin bag* into the local environment (Clark, 1997). "In other words, the mind does not inhabit the body; rather, the body inhabits the mind" (Malafouris, 2013, p. 60). Writing in agreement, Preston (2003) develops this discussion further by claiming that *we think with place*, and this has a fundamental impact on our being-in-the-world.

Yet a similar type of thinking/worldview already exists within animist cultures. As Ingold states:

For the Ojibwa, knowledge is grounded in experience, understood as a coupling of the movement of one's awareness to the movement of aspects of the world. Experience, in this sense, does not mediate between mind and nature, since these are not separated in the first place (Ingold, 2000, p. 11).

Therefore, the ~~ecosystem~~ that is the human is also a process of the ~~ecosystems~~ we generally think of as our external environments. This has great implications for the manner in which we conceive of education for, as Spuybroek (2011, p. 182) notes, “we are not recipients but participants”. There is great potential, then, in exploring animistic ways of seeing in environmental education (Clarke, 2014; Clarke & Mcphie, 2014, 2015).

11.30am. Haecceity

Perceiving humans as quiddities (a things *whatness*) rather than haecceities (a things *thisness*) alters our perception of (and behaviour of) the world, influencing us to think of ourselves as separate from the processes of materiality that we are ultimately of (not a *part* of). The idea of an essential form and substance that makes us *what* we are – humans – partly stems from Platonic idealism. This has important ramifications for how we perceive and treat each other, as well as the world that we are of. For example, the idea that we have a static, unchangeable identity (an essential *me* to me), which has come from this essentialist mode of thinking (and links to binary bias), could have racist, sexist (Mcphie, 2014a) and speciesist implications. Arguments that education for sustainability must include social and economic aspects, as well as environmental, can be answered in part, by understanding that a move to immanence is required for not only our conceptions of the environment, but also of our social and economic ~~systems~~. The Cartesian notion of human supremacy works across what dominant thinking would perceive as separate entities – the environmental, the social, the economic - leading to social and ecological inequity such as vivisection and class politics justifying the oppression of some humans over others, humans over animals, animals over plants, plants over rocks, etc.

So, there seems to be much disentangling to be done regarding distinctions between life and non-life, or species. Yet Spuybroek (2011), examining the aesthetic ideas of John Ruskin, suggests that:

we do not need to disentangle anything; on the contrary, the earth veil is all about entangling ... Life is not something stored in biological creatures; hybrids or bastards can be more alive than the purified versions, naturally, because they are imperfect, wild and radically picturesque. (p. 331).

However, if we thought of ourselves instead as haecceities (as championed by Deleuze & Guattari, 2004) or as Ingold (2011) explains, *Knots*, where we focused on a positive characteristic of an individual that caused them to be *this* individual and no other, we may begin to realise the complex intra-connected nature of humans as *of* the environment, as opposed to focusing on commonalities of certain things which automatically induces a binary perception, thereby separating groups of things and individual things from the environments they are ultimately of. In turn, this fragmentation leads to destructive environmental behaviour as we've argued elsewhere (Clarke & Mcphie, 2014; Mcphie, 2014a).

...the organism is that which life sets against itself in order to limit itself, and there is a life all the more intense, all the more powerful for being inorganic. (Deleuze & Guattari, 1987, p. 503)

Dema (2007) directs us to the implications of Deleuze & Guattari's conception of *inorganic* life: "It is not so much that organisms are not alive, but that life can be articulated in all things." (para. 1). It is a reimagining of life that is variable in intensity, rather than a property that is either *exclusively* present or absent (Dema, 2007).

As a haecceity, we can no longer *measure* ourselves as if objects of the same genetic species. So instead of describing *what* a human is (as a quiddity), an explanation for the students in the park may instead go something like this:

The organism is no longer the paradigmatic unit of life, nor is the cell, the genetic code, the population, the species, or the ecosystem. The authors of *A Thousand Plateaus* are proposing an ontological theory in which everything is inorganically alive, everything is assembled. When a person walks into a room, when a new fabric touches a finger, when a star wobbles, when a molecule falls apart, when a mayor feels threatened, when a recipe approaches a critical threshold: in all cases the laws of assembling are operating and are universally applied. If we want to know more about how inorganic life works, the next step is to learn more about the mechanisms of assembling. (Dema, 2007, para. 20)

So, in this paradigm we no longer have to think of ourselves as organisms. Perhaps we could be assemblages, haecceities or multiplicities (Deleuze & Guattari, 2004); meshworks or knots (Ingold, 2011); cat's cradles (Haraway, 1994); or even Mr. Messys (Mcphie, 2014a). If this is

so, the hierarchical tree of taxonomy begins to shake. For example, human intention and design is highly regarded in the world of flora and fauna. Hierarchically, we are at the top of the tree (and even trees are above stones!)! We marvel at our invention and artistry. Just look at Gaudi's fantastical cathedral or the skyscrapers of modern civilisation with their air conditioning...a human invention come about through sheer intentional intellectual cognitive brilliance! Really? We wonder if something that is usually considered as insignificant compared to humans in the world of cognitive functioning could also produce something similar? What about something really small...that we don't have to speculate on...as they already exist...incredibly small architects?

12pm. Termites

'Oh look class...there's a termite...or more accurately, a colony of termites. And what's that they've built? Wow! They also build fantastical Gaudiesque Cathedrals and skyscrapers. They also have aesthetic artistic design and air conditioning too? Hmmmm, we'll have to go back to the drawing board on this one for now!'

So, if we suggest that flora and fauna are not objects but processes, what about things that we usually perceive as static objects (at least things that are not able to move of their own accord...such as stones)?

12.30pm. Stones

'But surely,' one student asks, 'stones are just stones...aren't they?' Ingold (2010) tells us:

A rolling stone, the proverb says, gathers no moss, yet in the very process of gathering moss, the stone that is wedged in place becomes a thing, while on the other hand the stone that rolls – like a pebble washed by a running river – becomes a thing in its very rolling. Just as the tree, responding in its movements to the currents of wind, is a tree-in-the-air, so the stone, rolling in the river current, is a stone-in-the-water. (p. 5)

'Okay' shrugs a student, 'so a stone isn't just an object separate from everything else, I get that. But it's still not conscious like a human, I mean it doesn't have *agency* does it?' Rautio (2013) suggests stones have (intra-)agency: stones do things to us and with us:

They have us pick them up, feel them, close them in our fist (if particularly smooth and rounded) or hold them between our thumb and forefinger (if small and edgy). They condition our walking ... we exist as a consequence of stones: the event of carrying stones makes us in the moment ... we become stone-carrying with carrying stones. (p. 11)

Some stones have even been discovered to walk, slide or sail! A number of stones at Racetrack Playa, Death Valley, California have been documented (Reid et al., 1995) as *sailing* across the desert floor, leaving trails like snails behind them, criss-crossing in varying directions depending on their destination. Rather like plants creeping around when played back on video at high speed, rocks also begin to become more overtly animated and slither around. The illusion of time deceives us all.

We suggest that instead of introducing stones to students as inert geological objects made of Porous Limestone or Igneous Granite, you might try starting the students off by conversing with the stone through more creative means. We have found that a reading of *Conversation with a Stone* (1997 [1962]), by Wislawa Szymborska gets students talking about stones in very different ways. It begins, ‘I knock at the stone's front door...’ and continues to question the nature of Western perception, the impossibility of *knowing*.

A student calls out from the back of the group, ‘What about larger stones then? What about mountains?’

1pm. Mountains

Once again we may see them as static, immovable objects in our relatively short life spans. However, if we were to fix a video recorder in place to view the mountains over a few million years and then play it back on a very fast speed, we would see that they flow and ebb just the same as a river or ocean waves. In the 1800’s John Ruskin began to see the world in this way, in two contrasting, yet still romanticised empathies; the *feeling* of impressionism (as in Turner’s sublime landscapes) and the semi-scientific intricacies of *detail* (as in the Pre-Raphaelites depictions of the environment). From his nuanced grasp of *a sympathy of things* (Spuybroek, 2011) and whilst living at Brantwood (with a view of the Old Man of Coniston, a mountain in the Lake District in England), Ruskin consequently saw the beginnings of human influences over the climate. He “foresaw climate change in The Storm-Cloud of the Nineteenth Century – both as a physical threat, in industrial pollution, and a metaphysical one, as a ‘plague cloud made of dead men’s’ souls’.” (Hoare, 2014, para. 9).

‘Look up students; can you see the blue sky in contrast with the plague clouds brewing in the distance?’

2pm. Kites, Plastic bags and Weather

‘So, now we have discussed the biosphere and lithosphere (if you want to reduce and separate them in that way), what about the troposphere or hydrosphere?’ Jamie asks the students. Merleau-Ponty may provide an answer.

As I contemplate the blue of the sky ... I abandon myself to it and plunge into this mystery, it 'thinks itself within me,' I am the sky itself as it is drawn together and unified, and as it begins to exist for itself; my consciousness is saturated with this limitless blue. (Merleau-Ponty, 1962, p. 249)

Tim Ingold (2010) suggests kite flying as a way to *know* our weather world: “A kite-in-the-air behaves very much like a living being. It seems to possess an agency of its own” (pp. 132-133).

We advise getting your students to make their own kites and then fly them whilst *feeling* the pull and push of the intra-relational processes of the wind-kite-human as they flow through the string *into* your body.

the weather is not so much what we perceive, as what we perceive in. We see in sunlight whose shades and colours reveal more about the composition and textures of the ground surface than about the shapes of objects, we hear these textures in the rain from the sounds of drops falling on diverse materials, and we touch and smell in the keen wind that – piercing the body – opens it up and sharpens its haptic and olfactory responses. Indeed a strong wind can so overwhelm the senses as virtually to drown out the perception of contact with the ground. (Ingold, 2011, p. 131)

The film *American Beauty* (Mendes, 1999) has a short section demonstrating exquisitely the flow of materialism that is usually reserved for the anthropocentric concept of *life*. A plastic bag is animated in loops of *aliveness*, captured on video. But it is not merely the wind that *causes* the bag to move in a linear cause-and-effect sequence essentialised under a Newtonian *law*. Rather, a play has co-emerged with the distributed agential intra-actions of vital materiality (a combination of Barad’s (2007) *intra-actions* and Bennett’s (2010) *vital materiality*). For many, this aliveness is obvious in a murmuration of starlings, for example, yet agential qualities of inertly conceived matter are rarely discussed in a serious manner in

the more accepted halls of academe. Coole & Frost (2010) ask, “How could we ignore the power of matter and the ways it materializes in our ordinary experiences or fail to acknowledge the primacy of matter in our theories?” (p. 1).

However, a challenge to the anthropocentric conception of agency is not new. *It narratives*, developed out of animal fables and oriental tales (Lamb, n. d.), were in circulation in the 18th and 19th centuries. *The Golden Spy* (1709) by Charles Gildon, *Adventures of a Shilling* (1710) by Joseph Addison, *The Adventures of a Guinea* (1760) by Charles Johnstone, *Adventures of a Hackney Coach* (1783) anonymously written and *The Adventures of a Three Guinea Watch* (1893) by Talbot Baines Reed, are examples of stories about material circulation (rather than production) that transformed objects into subjects (Green, 2013; Lamb, n. d.). Although not particularly engaging in more nuanced discussions of agential distribution, the stories certainly *attempt* to steer away from anthropocentrism (although they are still from an anthropocentric perspective of a non-human perspective). Arjun Appadurai’s (1986) *The Social Life of Things* was a more recent attempt at socialising materiality that sparked a (re)newed interest in “challenging the deeply entrenched anthropocentric idea of agency” (Malafouris, 2013, p. 122) and has culminated in Coole & Frost’s (eds.) *New Materialisms* (2010), a collection of posthumanist discussions about matter exhibiting agency and aliveness.

Litter, waste, smart phones and other human produce are just as alive, becoming and ~~natural~~ as the more traditional and romantic conceptions of ~~nature~~ that our examples in this paper have lent towards. Although also ~~natural~~, themes of homogenisation, hierarchy, staticization and pointillism as unsustainable concepts and practices may be more rewarding than one-dimensional discussions supporting ~~re-connections to nature~~. The demolition of the nature/culture binary may appear troublesome to environmentalists, especially when post-structuralism appears to attack the sacred borders of nature reserves or national parks (Mcphie, 2014b). However, the cost of retaining a distinct - and ultimately false - ~~nature~~ may be much higher, as we have explored in previous work (Clarke & Mcphie, 2014).

As the kites and plastic bags dance of the air, one student spots a rainbow; ‘Who’s going to find the pot of gold at the end?’

3pm. Rainbows

Western intellectuals have been criticised by post-colonial theorists for depreciating non-Western forms of knowing, by re-formulating or reducing them to folklore or myth (Said,

1978; Sharp, 2008; Spivak, 1988). Richard Dawkins does this (a lot) in his book, *The Magic of Reality* (2011). After recounting the non-scientific stories such as Vikings seeing rainbows as bridges to Asgard, Dawkins states that they are *merely* myth and, therefore, not factual - whereas the Western scientific perspective derived from Newton is the *only* true model (pp. 140-155).

But in our facilitation to undergraduate students, we have often used this next illustration of the rainbow as an example of process externalism as it exemplifies a paradigmatic shift in thinking that often has dramatic consequences for the students.

Manzotti (2011, para. 8) begins...

Consider a physical phenomenon like the rainbow ... a rainbow is a process that requires a further physical system in order to take place. Where is the rainbow? Where is the experience of the rainbow? Is there a rainbow without an observer? Is there a rainbow-observer without a rainbow in the cloud? ... it is impossible, from a physical perspective, to disentangle the rainbow from its observer ... Processes are necessarily private and yet physical. Secondly, the rainbow is something that takes place. It is not a static entity. The rainbow takes place and it is extended in time and in space.

So the rainbow is far from an objective or subjective phenomena. However, it could be said to be intersubjective-interobjective or possibly even *intra-relational* (Mcphie, 2015).

Plato said, “we must carve nature at its joints” (Phaedrus 265d-266a, in Hutchins, 2010, p. 705) but where are its joints? If we try to cut phenomena into illusory *parts*, what monsters may emerge? To categorise, cut, split, border, separate, partition, disconnect, connect, territorialise, hierarchicalise, homogenise, etc. would seem to place us where we are today, the sixth mass extinction. Gregory Bateson (1972) said that a blind man walking with a stick perceives through his arm, his hand, his stick, and the ground before him (*tap, tap, tap*) – to break these points apart is to place the human at the centre of a world much more than human.

If what you are trying to explain is a given piece of behavior, such as the locomotion of the blind man, then for this purpose, you will need the street, the stick, the man, the street, the stick, and so on, round and round. (Bateson, 1972, p. 459)

4pm. Session Review

Prevailing educational approaches based on objectivist understandings of the world are problematic on two obvious levels. Firstly they are simplistic in the way they describe the nature of the world: attempting to define without questioning inherent assumptions and biases – education of this type is indoctrination. This in itself would not be overly problematic if it were not that the perpetuation of this way of seeing is ultimately damaging and oppressing. It is our contention that our modes of conceptualising the essence of our relationships to our sociomaterial world have a direct influence on, or are co-emergent with, our modes of acting and behaving – our modes of valuing, decision-making and moving. If we ontologically understand the world to be essential, transcendent, objective and eternal in its form (or the various forms we are used to considering it; nature, forest, mind, tuna, culture) – then our modes of valuing, decision making and moving can in no way conceive the end of these forms, either through morphogenesis, or the more pressing extinction event we are perpetuating. More than this, in a world of eternal transcendent forms, we have no vested interest beyond the instrumental.

Environmental Education is limited if it relies on moralistic calls to care for ‘the’ environment - as if it were an object we can reach out and touch. This is why scholars call time and again for a *reconnection*, so that caring might spring from an almost spiritual union *between* people and nature. However, a paradox emerges here, as the term reconnection implies separation - or distinct entities – the existence of which remain in our metaphysical conceptualisation of the world even when we might think we are *reconnecting*, and thus will always leak through into our choices and behaviour, resultantly justifying oppressions. We propose a dissolving of *connection = care* ideas in environmental education, instead (re)placing both moralistic and connection narratives with a narrative of a relationally underpinned metaphysics of immanence.

As Li, Clark & Winchester (2010) state a more open, creative, process-oriented mode of education:

offers a dynamic new vision for examining learning and performance, and enables us to see this field in a new light. It claims that our mind, body, and the world are inseparable. Learning is through the learners’ acts and is acted upon by the world and understanding is embedded in doing. (p. 413).

The outdoor learning session we describe above is not a carefully planned pedagogical endeavour, rather it is a description of the wanderings of ourselves and past students as we have considered new materialist, poststructuralist and relevant philosophical and artistic

accomplishments as we have engaged with our environments. But this experimentation in teaching and learning is a critical one, as it is through these exploratory practices that dominant, oppressive narratives of the nature of the human-environment condition can begin to be overcome.

In the film, *An Ecology Of Mind* (Bateson, 2011), Nora Bateson, recollecting Krishnamurti's words, said, "You might think you're thinking your own thoughts. You're not. You're thinking your culture's thoughts." However, the body is not merely a passive surface onto which societal meaning is inscribed (Thrift, 1997). Our cultures thoughts *are* our own thoughts, which in turn *are* our environments thoughts for they cannot be disentangled. *They become.*

Class dismissed. Have a nice day.

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NOTES

¹ We understand a transcendent Westernised spirituality to differ from a more contemporary animistic physicalist spirituality of immanence which is partly how our session would take shape. This difference that we are advocating is the immanent material aliveness of things as opposed to a transcendent non-material spirit/soul.

² This build-up and generation of ideas acts rather like the notion of a ‘palimpsest’, a layering of rhizomatic conceptions that overwrite previous philosophies/landscapes/cultures and yet the ancestral remains may still be traced, although only faintly as a shadow or apparition to be historically romanticised.

³ ~~System~~ appears under erasure as the common conception of a system is a group of interdependent components or parts. Whilst a philosophy of immanence supports the notion of self⁴-sustaining processes, this process would not be constructed of independently existing ‘parts’.

⁴ ~~Self~~ is under erasure as the notion of a self-contained being is problematised in a philosophy of immanence.

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Note: An earlier version of this paper was presented at the conference, *Under Western Skies 3: Intersections of Environments, Technologies and Communities* at Mount Royal University, Calgary, Canada (September 9-12, 2014).

The final version of this article is published as: Mcphie, J. and Clarke, D. A. G. (2015). A walk in the park: Considering practice for outdoor environmental education through an immanent take on the material turn. *Journal of Environmental Education*, 46(4), 230-250, DOI:10.1080/00958964.2015.1069250