

Meditations on meditations on *Meditations*:
Encountering Environmental Education and its relationship with René Descartes

by

CHRISTOPHER SHORT

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Royal Roads University
Victoria, British Columbia, Canada

Supervisor: DR. HILARY LEIGHTON

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COMMITTEE APPROVAL

The members of Christopher Short's Thesis Committee certify that they have read the thesis titled *Meditations on meditations on Meditations: Encountering Environmental Education and its relationship with René Descartes* and recommend that it be accepted as fulfilling the thesis requirements for the Degree of Master of Arts in Environmental Education and Communication:

DR. HILARY LEIGHTON [signature on file]

DR. ANN DALE [signature on file]

Final approval and acceptance of this thesis is contingent upon submission of the final copy of the thesis to Royal Roads University. The thesis supervisor confirms to have read this thesis and recommends that it be accepted as fulfilling the thesis requirements:

DR. HILARY LEIGHTON [signature on file]

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Abstract

Within my first year of grad school, I discovered that the discourses within and surrounding Environmental Education frequently arrive at a common antagonist. Across popular and academic works alike, the ideas of seventeenth century thinker René Descartes are often framed as responsible for or contributing to the separation of human beings from ourselves and the rest of Being. Descartes is said to be partially or wholly responsible for a spectrum of calamities that have befallen our species and the interconnected systems to which we belong. Though this idea forms an axiomatic premise to numerous scholarly works, none of this, nor so much of what may be found hinged upon it, felt quite right to me. My extracurricular inquiry into the basis of this narrative shattered what I understood to be a load-bearing conceptual structure within the discipline. Year-two of my grad school experience was this thesis and my attempt to make sense of all of the above. Toward that aim, and grounded in an autophenomenological and hermeneutic framework, this research focusses on context: my own environmental and educational background, the relationship I discovered between Environmental Education and Descartes, and a deeper exploration of the time of this philosopher, as well as his work and its legacy. A diversity of ideas, historical and linguistic evidence, and personal experience is brought together to form a response to the popular narrative about Descartes and to tackle the messy and conflicted relationship I found myself forming with both this character and this discipline.

Keywords: René Descartes, Cartesian Dualism, clockwork universe, mechanistic thinking, Environmental Education, Environmental discourses

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Introduction

I entered the Master of Arts in Environmental Education and Communication (MAEEC) program at Royal Roads University because of how perfectly I felt the content meshed with my own beliefs, interests, and background. Within the program I quickly ran into discussions of René Descartes. Recurring collisions had me seeking further information about who this person was and his influence. This set of inquiries led only to more confusion and conflict in me – eventually causing me to question not only my motivations and assumptions but also some more closely held beliefs. It was an experience both disorienting and discomfoting at times and one that left me feeling unmoored. My exploration of this seventeenth century French Catholic philosopher led me to want to reject nearly everything I thought I knew about him. Even many of the ideas most famously attributed to the man, and as a result much of what I read and believed were his influences and rationale, appeared off – and increasingly so the further I looked. Given how deeply embedded and even foundational Cartesian philosophy is to so much popular and academic work, this disillusion felt less like a forgettable bump along my scholarly path and more like an earthquake with accompanying tsunami. As a result, along with attempting to explain my understanding of who Descartes was and what his influence has been, this thesis also explores what is it like to be gripped by epistemic doubt in grad school.

A more conventional discourse analysis directed at Descartes-related themes within Environmental Education would be appropriate and consequential, and yet this thesis seeks to do more than explain my interpretation of our course readings and Descartes' writings. Descartes is a central theme and what this research orients around but is not the entire picture. Firstly, on its own such a topic may be better suited to a Philosophy or History of Science thesis. Secondly, in

the context of Environmental Education generally and MAEEC specifically, a more conventional and detached approach seems inappropriate to the task. Within our course material and many related works, disenchantment with Enlightenment-inspired methods and methodologies are nearly synonymous with denunciations of Cartesian philosophy and so much of that which it is said to have inspired. Thirdly, attempting to describe and understand one student's experience first-hand takes what would be a much narrower and limited work and potentially transforms it into something of far broader value to myself while also making it more relatable and potentially beneficial for students, educators, and others.

Methodology and Method

This research aims to explore my encounter with René Descartes and the discourses surrounding this philosopher and his work within Environmental Education, along with my personal experience of this and its repercussions. To do so, qualitative methodologies were employed. This work was primarily inspired by the scholarship of Max van Manen (2016) and the hermeneutic phenomenological approaches and their justifications explored in his *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. Van Manen explains that, "Phenomenology describes how one orients to lived experience, hermeneutics describes how one interprets the 'texts' of life..." (p. 4). More daringly, this author suggests:

In doing research we question the world's very secrets and intimacies which are constitutive of the world, and which bring the world as world into being for us and in us. Then research is a caring act: we want to know that which is most essential to being. To care is to serve and to share our being with the one we love. We desire to truly know our loved one's very nature. And if our love is strong enough, we not only will learn much about life, we also will come face to face with its mystery. (p. 6)

Though possibly provocative, I intend this work to be just such a caring act toward history, this discipline, and myself. Another impetus for this research and its method came from Case and O'Connor's (2015) assessment that investigations into information seeking rarely explore the impact of receiving or applying that information or the effect this has on the recipient. Though isolated to just one individual, this thesis investigates just that.

As made clear by Edmund Husserl, principal founder of phenomenology, despite knowledge beginning with experience, all experience does not produce knowledge and mere description is not enough; instead, essential to scholarship and broader understanding is the interpretive element (Smith, 2013). As a result, the desire to share and let experiences speak for themselves is paired with the personal and scholarly need to delve deeper and explicate. To do so, this research embeds reflection and interpretation as essential practice alongside descriptive and investigative elements. Because it focusses on my personal experience, this research is grounded in autophenomenology. Gorichanaz (2017) highlights decades of research beginning in the 1980s arguing for the validity and necessity of such "automethodologies" and the single-case, self-study, and narrative research that enhances or even side-steps more traditional positivist approaches (see Bates, 2004; Bromley; 1986, Bruner, 1986; Lassonde & Galman, 2009; McAdams, 2001). Critically, as explained by Chang (2008), these methods do not merely accept but highlight personal preconceptions and in doing so allow one to explore both a culture and one's place within it, something this work is ultimately concerned with. These human-centered research strategies are argued by many to be more descriptive and inductive and not merely valid but valuable modes of inquiry (see Michels, 2010; Polkinghorne, 2012).

To complement the self-reporting of the autophenomenological approach, this research employs a hermeneutic model. The term hermeneutic derives from the name of the Greek

messenger to the gods, Hermes, and originally described a method for teasing out God's intended meanings from scripture. In time, hermeneutics evolved into the study of diverse texts and eventually flowered into a deeply resonant approach to research (Packer, 1985). Although the hermeneutic method lacks rigid formal structure, it tends to involve identifying and challenging assumptions by framing and reframing interpretations in light of differing contextual information, and in so doing can perform as a diagnostic tool for testing validity (Patton & Jackson, 1991). Not only do I believe it is impossible to discuss Descartes' thinking without bringing up God and interpretations of scripture and other texts, but this research also aims to describe and interpret others' assessment of Descartes' writings as well as my own and then consider these in light of further research and reflection. Just as Brown (1976) suggests:

Knowledge of others (and hence of ourselves), is not gained either through introspection or by some direct metaphysical communication with the mind of the other person. On the contrary, it is achieved through the interpretive study of the expressions of that other mind, expressions which can be found in the 'social-historical world', the world of art, religion, law and politics, of language and gesture, of the shared community of experience in its living (and hence historical) aspect" (p. 213).

In a similar vein, Wilhelm Dilthey (1833-1911), the German hermeneutic philosopher, had a gestaltist perspective on this form of interpretation which this research strongly considers. Dilthey proposed that to comprehend a text, or any other human act, it must be placed in historical context; and, further, that the life history of the interpreter and, really, of all humankind should to be accounted for (Kampis, 1999). The shared world, prior worldviews, and the language and thinking of the interpreter as well as that of the one being interpreted, suggested Dilthey, are all key to understanding and also the very process he called the "hermeneutic circle"

(“Wilhelm Dilthey,” 2019). These elements are all essential to this thesis, helping give it both justification and form.

The design of this research takes inspiration from the hermeneutic circle, in which layers of differing context converge to form a consilience of meaning and interpretation. Formatted into four overlapping reflections, this work begins with personal context and life experience and then approaches the present through three subsequent descriptions and reflections, including a final meta-reflection incorporating all the above. To do this, I draw upon course readings and assignments, personal notes and journal entries, along with my own research into the pertinent themes that emerged from my inquiries.

The selected autobiography that begins this research provides some personal environment and education background to situate this research in layers of time, place, and relation. In addition, this first section helps to partially expose how and what I think as well as providing some insight into why. As well as the deeper clarity all of this brings to what follows, offering this background acknowledges those demands for greater context and connection found within the place-based learning, wholeness, complexity, and systems thinking research so common throughout our MAEEC coursework. This highly personal context also accepts the common recommendation to ‘write what you know’ as well as regular prompts from our professors to journal and reflect throughout our time in the program. In so doing, this work also forms a response to the famous Socratic legacy of Athens, found in Plato’s *Apology*, that a life unexamined is not worth living, while attempting to commit to that ancient Delphic aphorism *temet nosce* (know thyself). Just as educator and curriculum theorist William Pinar (1988) reminds us in his work *Whole, Bright, Deep with Understanding: Issues in Qualitative Research*

and Autobiographical Method, such inward looking “is not narcissism it is a precondition and a concomitant condition to the understanding of others” (p. 150).

Having oriented around my personal background, this research turns to the relationship I discovered between Environmental Education and René Descartes. In large part I draw upon course readings and assignments along with notes and journal entries from my first year at Royal Roads University. This includes a review of the course readings that discussed René Descartes as well as sharing how I experienced these. In addition to disclosing my own experience, and possibly that of others, this work reveals the volume and variety of material that makes use of Descartes’ ideas as well as the common assessments of the man, his philosophy, and the legacy of both, along with the present discourse as I found it.

The section that follows shows how my own understanding of this seventeenth century philosopher evolved by describing the journey I went on inquiring into the writings, life, and times of this person. I compare the recurrent, and thus presumably important, ideas and themes highlighted by scholars in the previous section with what I learned about these on my own. I also retrace relevant tangents I went on trying to better understand this character, his thinking, and those ideas commonly associated with him. Etymology, literature, history, as well as a translation of Descartes own work all conspire to form a surprising contrast to what I previously understood.

The final section is a return of sorts. Having examined in detail a set of critical relationships, along with some of the background upon which they rest, helps place Environmental Education, René Descartes, and myself in relation to one another. Here, I assess my learning and re-examine the relationship I found between Descartes and the Environmental Education discourse as well as my own evolving relationship to both. Having revealed new and

essential context, those networks of inherited and co-created relations, this fourth stage of reflection is undertaken with the potential to unlock new layers of understanding as well as creating space for reorientation and reconnection.

Environment and Education

“If we ever reach the point where we think we thoroughly understand who we are and where we came from, we will have failed” – Carl Sagan, responsible for the worst and greatest family photo in history (Sagan, 2006, p. 221).

“We’re beings-toward-death: we’re featherless, two-legged, linguistically-conscious creatures born between urine and feces whose bodies will one day be the culinary delight of terrestrial worms” – Cornell West, a blues-loving Southern Baptist (Taylor, 2008).

Formative Experience

I was born in Vancouver and raised in a house in a neighbouring suburb that backed onto a small forest where I spent much of my free time. With a preference for time alone in the woods with my imagination, somehow my parents made the perfect choice in naming me after A. A. Milne’s protagonist, Christopher Robin. This setting, along with Stanley Park, the Vancouver Aquarium, and its surrounding forests and intertidal zone, all hugged by snowy mountains and foggy sea, feel very much like home and feature strongly in my memories of childhood. And, whether overturning slimy rocks on the shore, crumbly logs in the woods, or peering into a tidepool or drop of pond scum, I was aware from early on of being immersed in a teeming world composed of and overflowing with little worlds –all of which seemed to contain within

themselves still more hidden worlds. My childhood diet of books¹ and of television and film² seemed only to confirm that I lived in a world of wondrous places brim-full with conversant creatures all swimming in a panoply of ineffable mysteries. The science and nature programming of the CBC and BBC, along with the stacks of National Geographics piled in our basement, only further enculturated me to these ideas. Moreover, all the local heroes, people like Emily Carr, Bill Reid, and David Suzuki, seemed to form a similar cast characters to those I was nourished on in the fiction and non-fiction I consumed; and, critically, all of whom in their own way connected with, celebrated, and worked to educate others about this place. Additional perspective and sense of place came from our annual family vacations. Both of my parents being teachers meant that the whole family, the five of us, all had summers off. We would pack a tent trailer and drive it around to see as many of the cities, villages, and provincial, state, and national parks of this continent as we could in the six weeks we had. A solid decade of this meant we experienced quite a lot of the contrast and beauty this part of the world has to offer.³

¹ *Where the Wild Things Are* (about a boy dressed as a wolf who is liberated by his imagination, and overcomes his anger, after his bedroom transforms into a jungle and he sails to a fantastical island where he goes on a romp with a band of terrible beasts) (Sendak, 1963); *A Salmon for Simon* (the story of a someone who worked all summer to catch a fish but when one is dropped in his lap, instead of eating her, he empathizes with the fish and labours all day to return her to the sea) (Waterton, 1972); *Alice in Wonderland* (the fantastical subterranean adventures of a girl who finds herself lost among an ecology of nonsensical people and other anthropomorphized beings) (Carroll, 1865); *Charlotte's Web* (a story about innocence, change, and death that follows the tribulations of a spider, a pig, and a girl named Fern who is able to understand them) (White, 1952).

² *Fred Penner's Place* (a show about someone who engages with frogs, insects, birds, and beavers as he sings and dances across beaches, over creeks, into the woods, then through a magical log and into an enchanted world full friends of familiar and alien species) (Roberts & Oswald, 1985-1997); *Fraggle Rock* (about an entire ecosystem of unseen creatures all going about their dramatic and mundane lives within the cavernous walls of one man's house) (Henson, 1983-1987); *The Dark Crystal* (an epic story of cosmic tumult that takes place on a brilliant planet teeming with friendly and ferocious creatures all brought into harmony by the moral courage and personal sacrifice of a tiny forest creature and his more capable and tenacious female friend) (Henson & Oz, 1982); and *Star Wars* (a space opera set in a galaxy populated by innumerable exotic human, alien, and robot races, most notably a mysterious caste of warrior priests who employ combinations of non-attachment, meditation, dialogue, telekinesis, precognition, and/or laser swords to combat gangsterism and imperialism and restore balance to the universe) (Lucas, 1977).

³ My parents explained this tradition as a concerted effort to expose us to as much as they possibly could and contribute to making us more cosmopolitan; but they also liked to note that it was cheaper and easier than keeping three kids entertained at home for two whole months.

Formal Education

Reflecting the local diversity, those collisions of countless worlds macro and micro, the elementary and high schools I attended brought together students and staff from radically different circumstances – almost maximally so it seems, given what I’ve observed in other parts of the province, the country, and the world. Looking back, that diversity is what I treasure most; though at the time it nearly went unnoticed because, of course, it was all I knew.

On the academic front, from kindergarten through grade twelve, the experience was largely one of disorientation and discomfort. Doubtless these feelings contributed to my under-performance and report cards full of C and C- accompanied by commentary noting my lack of engagement. It seemed combinations of still and silent reading accompanied by hours of clerical work was not an ideal fit for me. Eventually, a high school leadership program helped make school meaningful and bearable by connecting me to other places and students of other age groups through regular off-campus projects and community engagement. At age sixteen, I began volunteering at an inner-city elementary school and near-by community centre supporting (and being supported by) kids in their seasonal, out-of-school day-camps. These were engaged, community-oriented projects that situated socialization and learning in the world and with others, often by way of food and play. All of this made a lot of sense and caused me to seriously reflect on my own education for the first time. Despite a growing suspicion and reluctance toward school I did somehow manage to graduate on time. And that’s when life began to happen.

The School of Life

Within months of my graduating high school my mother died. One day she felt unwell enough to stay home from work and by that night she knew something was not right and we were driving her to the hospital where, in just a matter of hours, she had died due to “complications

from the flu.” Aside from being my mother and the first person I knew to have died, she was by far my strongest connection and ally and the person I most related to. She was, like many mothers, also the star around whom our family orbited. And, just like the sun blinking out without warning, I found myself not merely in the dark but also having many of my assumptions and expectations about life and what the world is like abruptly overturned.⁴ At eighteen, love and death were things I’m certain I would have insisted I had some comprehension of, or at the very least was prepared for in some small way, surely; yet the psychological and physiological impact of contending with the real thing strongly suggested the absence of any such preparation.

After the experience with my mother I’d pledged never to go to a hospital again. And, as life is wont to do, such a vigorous assertion was almost immediately tested. Just weeks after my mother’s funeral and while reorienting to this strange new life, I found myself again piling into the car with my family and driving to the hospital. This time it was my father, whom my sister discovered early that morning suffering all the symptoms of a stroke. I remember little from this time and, occurring in the ‘90s and prior to ubiquitous digitization, I have almost no record of it.⁵ As a result, I can’t say much other than to note that I felt at the time like I was a well-functioning human who understood these two experiences, was dealing with the repercussions and, by way of my thoughtful and gallant stoicism, remained effectively unchanged. In hindsight, it was a real education in just how ignorant one can be of their own experience.

My father recovered after a month or so in hospital; or, rather, his likeness recovered: half

⁴ This says nothing of the sudden and deep distrust I developed for the state of modern medicine or how objectively terrible the culture seemed to be about communicating and dealing with any aspect of death (or, more commonly, just failing to address it entirely.)

⁵ This seems like something that would be indelible but just to write these few preceding sentences I had to email my sister and check in about the timeline.

of his prefrontal cortex was no-longer operative and he sported a new personality. In recovery, during a year of what I called, “brain damage class,” he met the woman who would eventually become my stepmother. It was a wild and previously unfathomable year. Naturally, and though I was already of the mindset, the experience impressed upon me further the triviality of so much of what preoccupies us and the value of those things which are so easily taken for granted. I also came away with a related sense that what had previously felt so firm and immutable was almost impossibly diaphanous and fleeting. What I understood to be as near to bedrock as possible (such as one’s personality and memory, that natured and nurtured ‘who’ or ‘I’ we consider ourselves to be) appeared more like a dancing mist than a granite slab with evermore pronounced and elaborate etchings.

Later that year, I had the opportunity to move to a new city with my girlfriend and our mutual friend. The change of scenery was irresistible. After settling into this new setting, I eventually found work in a kitchen.⁶ Though the hours, conditions, and wages were as poor as possible while still being (mostly) legal, the work gave me an excellent crash course in labour and class issues, aside from those I acquired through osmosis by belonging to a long line of teachers, electricians, and other union members. This circumstance meant I was able and motivated to take full advantage of the self-induced, industry-wide, high staff turnover rates. Feeling no loyalty and knowing I could return to my job or get a new one at any number of other restaurants, I was empowered to live frugally and leave my job whenever possible, often for months at a time to discover alien corners of the big, big world. My then-partner was studying

⁶ Working with food in any fashion most definitely had none of the cachet it has at present. Cooking was about as sexy as working a toll booth or cleaning horse stalls, and the pay was commensurate. For me cooking was not a choice but something I ended up doing because my work experience was invalidated, as I was told, by legislation requiring community centres to hire only current students for their day-camps and after-school programs.

anthropology and these adventures typically coordinated with her desire to visit places and peoples she'd been learning about, to have some language immersion, and eventually do field work. We bounced through Asia and Southeast Asia regularly and eventually moved to Australia where she attended grad school and I found jobs in more kitchens, all while making extended return trips to remote parts of the Indonesian archipelago. I was fascinated with all of these places and persons (human and otherwise) and they too seemed fascinated with me. From bacterial infections that stumped Western medicine to several unpleasant run-ins with people who, in the aftermath of September 11th and the resultant invasions of Iraq and Afghanistan, couldn't possibly resist making their feelings about geopolitics known to such an uncommon bird as this "American terrorist." Though incidents like these didn't feel like such at the time, in hindsight they seemed nearly inevitable consequences of travelling in rural areas less heavily traversed by foreigners. Of course, all these experiences were good life lessons and became fun stories to tell, too.

Throughout all these adventures, the plan was always that when my partner was done with school, we would change roles: she would work while I went back to school, though I was never certain what that would look like. However, our relationship wouldn't last and, as is often the case with change, that eye-opening gave me new focus. Now with some life experience as well as some positive, if vicarious, exposure to school, I knew what I wanted to do and was inspired to give post-secondary a try.

Re-education

After a decade away from school and from Vancouver, I returned to both and started college as a twenty-eight-year-old with the goal of becoming a teacher. Though I had a terrible time in school academically, I was always hungry both for learning and sharing what I'd learned

as well.⁷ Previously, I disregarded education as a career path at least as much because I had a bad time there myself as it seemed everyone I knew was a teacher. I also considered education the family business since not only were my parents teachers but my sister became one as well. However, along with some wonderful times in day-camps, I was stirred by voices of education reformers such as Ken Robinson, Alfie Kohn, and David Solway. It was nearly an out-of-body experience to hear Sir Ken echoing, and to wild applause, the kinds of things my friends and I said as teenagers:

I believe our only hope for the future is to adopt a new conception of human ecology, one in which we start to reconstitute our conception of the richness of human capacity. Our education system has mined our minds in the way that we strip-mine the earth for a particular commodity. And for the future, it won't serve us. We have to rethink the fundamental principles on which we're educating our children. (Robinson, 2006)

I felt myself to be one of those people Robinson so well described in his now-fabled talks: someone who was not merely educated out of their creativity, as many seem to be, but also not personally served by a pedagogy so rigidly and narrowly time-oriented and focussed on so few skills in fiercely isolated subjects. In this way, I imagined myself a perfect recruit for the (r)evolution being called for in the world of education. But to start I first had to touch up on all the skills for school I failed to pick up as a child.

With this plan and slowly acquiring some school-tools, after several semesters of introductory courses, I was doing well and having fun. Among many learnings, I found that I

⁷ Even as a cook I tended to be pretty quiet except when there was a reason bring up the wild morphology and colouration found among common nudibranchs or to draw someone's attention to the Cirque du Soleil-esque mating behaviour of leopard slugs. "The world is amazing!" I would insist.

needed to throw out everything I knew about studying and learning, ignore what others did (like notetaking and memorization) and instead do what worked for me (listening intently and processing what I was learning.) A real boon was that by aiming for Elementary Education I needed to take a full spectrum of subjects. This diversity suited me well as I had little interest in being stuck in all history or math courses for years on end and wanted to be taking all the advantage I possibly could of as many different programs and instructors as were available. On the side, I helped incorporate and volunteer for a non-profit program teaching kids about urban sustainability, food, and nutrition. I also found a spectrum of employment at this time: from day-camps and local festivals to web development and graphic design, and I went tree planting in Northern B.C., too.⁸

After earning an associate degree at college, I went on to pursue a four-year degree. To start, I was accepted into an experiment called the Undergraduate Semester in Dialogue. It was an unconventional program initiated by a divergent-thinking, community-oriented bee biologist employing a transdisciplinary and experiential approach while, naturally, accepting students from all disciplines. When I participated, the semester was about exploring all aspects of the local food system to help inform an urban sustainability project. Rather than focussing on reading theory or studying journal articles, we travelled all over the region and spoke with city councillors, organic farmers, grocery wholesalers, and community activists while working on related personal, group, and whole-class projects. It was an amazing introduction to university and a real example of

⁸ Most of this work I just dropped into by chance and was taken in for need of bodies. The digital work was different, though. Aside from having always been around computers and taught myself to read and write HTML in the early days of the internet I'd also been messing with photo and graphic software for fun for more than a decade. Both skills started out as play but proved to be highly employable; that is, before the emergence of Web 2.0 and tools that automated away much of the above for most people's purposes.

what school could be. From there, I took up a degree in the highly interdisciplinary School of Communication where I took courses ranging from acoustics and linguistics, to advertising and propaganda, cultural policy and more.⁹ After completing my undergraduate degree, I then applied to another school for Education – neither of which seemed likely, nevermind certain, just six years earlier.

From the start of my post-secondary experience to taking up a degree in Education, a lot was going on besides school and work, but mostly more death. In fact, there was a time in which it felt like all I was doing was attending funerals. My four grandparents and my step-mother's step-mother, who'd become family, all died of cancer or old age; my step-brother, who outlived and outperformed people's wildest and narrowest expectations for someone with cerebral palsy, eventually ran up against the limits of technology and science; and, too, my step-mother (who had, to everyone's rejoice, very much "survived cancer" through rational joint application of the miraculous healing arts of chemo, surgery, nutrition, meditation, prayer, crystals, and walks on the beach) eventually transitioned from her status as cancer survivor. In addition, though still alive, in the course of his ongoing stroke-related blood tests my father was himself diagnosed with a chronic cancer. If there was an upside to all of this loss, it was that my father and I became much closer as a result. Prior, he and I shared little in common and spent the better part of thirty years failing to understand or even hear one another, all of which caused considerable friction between us, so there was a real chasm to cross and "closer" was not hard at all.

A Schooling in Education

⁹ As expected from a school born on the West Coast in the '60s, our Maoist, Palestinian, and Feminist instructors mostly assigned essays on readings by all of the Freudian-, Marxist-, and Hegelian-inspired thinkers of the Frankfurt School, or those inspired by them, with a smattering of Chomsky, Foucault, and Gramsci.

Accepted into Teacher Education, I found there a program reimagined only a year earlier. The whole school, department, and all our classes were infused with the language of education reform. Everyone continually cited renowned change-makers and encouraged the kind of mould-breaking demanded by the impending (r)evolution. The weeks and months that followed, however, confirmed the growing suspicion among many of us would-be teachers that the program and those school districts we'd become embedded in were not slow or reluctant but instead hostile to change. Even the theory and best-practices we were forced to learn during our studies were rejected out in the wild. We read paper after paper, and wrote paper after paper ourselves, about diverse learners, multiple literacies, multi-modal learning, alternative assessment methods, and experiential education – all reciting how crucial it is to uncover prior knowledge, provide scaffolding, exploit the eclectic capacities of students, and engage with the living world if we want to see real learning occur. And we did all this, of course, while spending entire semesters confined to rows of desks, under the electric buzz of incandescent lights and the death-rattle of air conditioning vents, within the suffocating white walls of this institution. Those of us not on Facebook spent season after season staring out the window, watching eagles circling above the towering cedar, hemlock, and fir of the peak temperate rainforest just beyond as we were lectured to about the power of outdoor education and place-based learning. To me, the whole experience was mind-blowing. In fact, it felt so outlandish that some of us speculated, or hoped, that it was all an elaborate ruse to see who was paying attention and would have the integrity, humanity, or instinct for self-preservation to balk.

My cohort and I followed these courses with time in elementary classrooms on our formal practicum. There, I was horrified to discover that little if anything had changed in the school setting since I'd attended decades earlier. Within the region's "most tech savvy district," I

found kids receiving less exposure to and guidance around computers than I did at the same age in a similar neighbourhood back in the 1980s. Here too, our school had no projector, television, or any other digital tools for us practicum teachers to use, tools we all wanted and considered more essential than textbooks or desks – tools I happened to know were ubiquitous in the classrooms of rural Saskatchewan. Discoveries like this were paired with requirements that we use antiquated textbooks and lead culturally inappropriate social studies lessons and art projects during what was, no less, The Year of Truth and Reconciliation. Later we held Remembrance Day activities and events designed to maximize forgetting or just ensure no learning ever happened in the first place. My favourite experience was a requisite Emily Carr unit. The art unit proceeded with neither discussion of the woman, her works, or why we care about either, nor did it involve students in any painting; instead, kids took a one-off stab at copying a chosen Carr image with pastels (without teaching them how to use pastels, of course) and onto a giant sheet of orange construction paper. I struggled to understand how any of what we were doing fit with the basic teaching ethics we were required to demonstrate an understanding of before arriving on practicum, never mind any of the research or best-practices we had studied and composed papers on. Again, just as in my childhood school experience so many years ago, as in our Education courses, I didn't know what I was doing here, what I was being asked to do, or why. The experience I was having felt not like cognitive dissonance so much as emotional and intellectual disintegration.

In dialogue about these run-ins with reality, the cohort and I were assured that those best-practices, and even the most tepid innovations, were not what parents, school districts, or veteran teachers (all of those we needed to engage with, support and be supported by, and eventually impress) wanted or were even prepared to temporarily endure. With this, I was convinced that

not only had the education (r)evolution not arrived and was not anywhere on the horizon, but that continuing down this path would do little more than set me up for an endless series of personal, interpersonal, and institutional conflicts. So, I walked away; but not before writing my final paper on what I saw as a remedy to all of this: transdisciplinary curricular integration and Indigenization.

Reflections on Education

Themes of education, integration, family, place, and history were recurring throughout my time in Teacher Education and eventually converged in my major paper. My pre-practicum and *in vivo* practicum notes observed that the kids I was spending time with seemed isolated and isolating in their thinking and actions. Reflecting on this further, I reasoned that this made a whole lot of sense. In the style of an ethnographer, I attempted to immerse myself in and interpret the schooling I witnessed. Approaching it as an outsider, taking nothing at or about school as self-evident or unquestionable, immediately opened the whole activity and its participants to inquiry and my seeing it all in what felt like a clearer light. Though nothing novel or truly hidden was uncovered, coming at things this way, as exploration and discovery with an imperative to describe the experience, both confirmed and disrupted beliefs I had about our school system and the society we collectively cultivate through education.

I wrote about how just the setting and structure of school felt impossibly fragmented, and by design, all while we teachers like to suggest schools are the integrative nexus of every community. I questioned the land schools occupy and the arrangement of fields, play structures, and buildings, as well as who may attend, under what circumstances, and what time of day and year the school and its services are available. And I suggested that all of this makes things feel less open and holistic than presented. I wrote about how not only are people of different ages

segregated into classes but they are persuaded that this is a meaningful and essential distinction.¹⁰ As if that wasn't enough, I noticed how once in their assigned "division" we establish the separation and private property of the desk and its contents.¹¹ Along with that, I noticed how even the teacher is segmented away and placed at his very own and very different desk, apparently to accentuate the already perfectly blatant difference. I noted that we demand further disconnect by ensuring a student to teacher ratio of 25 or even 35 to one. Most critically, I pointed out (perhaps only to myself) how all of this is just the terribly fragmented setting we establish: the substrate of subtle and unofficial education out of which is cultivated all overt and official forms. And I speculated that we could surely imagine something different.

I was then drawn to the disintegration of subjects and lessons, how even a lesson itself (segregated from all others into one subject and fragmented off again into its own isolated part) is commonly composed or offered to focus on a single "prescribed learning outcome" (pretending, of course, that reading, writing, speaking, listening, or numeracy could ever be made so discrete.) And then I noted how these lessons were delivered in impressively rigid forty-five-minute segments, as if someone determined this was optimal for learning and had passed a law. From this insider/outsider vantage, I wondered how students (myself included, both historically and at the time of writing) could possibly resist all this subtle and overt oversimplification and atomization. I really wanted to emphasize that, more than any other skill, these easy and seemingly essential separations and impressive uber-simplifications amount to the

¹⁰ Within a school we like to formally call these classrooms "divisions," and prefer to identify them by a number; and then those classes that combine different groups, like grades three and four, into one classroom we like to refer to as a "split class". So, even when we take what are obvious combinations and similarities and then highlight arbitrary difference and enforce separation. These are strange phenomena even for someone brought up with them.

¹¹ The desk in this way almost perfectly mirrors so many of our closets or garages: overflowing with "needed" personal items that, whether taken out daily or just once annually (as in a protractor or calculator, automobile, or golf clubs), still manage to spend almost their entire existence not being used.

critical education we deliver; how, in just this way, both passively and actively students are (en)trained to partition everything into as many little parts as they possibly can.¹² Students are led to believe this impossible and paralyzing fragmentation and alienation is how people and the world actually work. From my perspective it appeared that teachers, parents, communities, and provincial governments co-authored policy demanding students endure wave after wave of physical and conceptual disintegration and then, most cruelly and bizarrely, require these same kids to spontaneously transmute all this foundational learning into its antithesis: the ability to make connections, collaborate, and think from others' perspectives. Though I didn't think anyone specific was to blame for any of the above, I felt certain that all of us were responsible and that doing things differently was likely easier and less painful than staying the course. Most weirdly, I felt like we were all in agreement, in principle. Afterall, we, a group of 300 aspiring teachers and the entire Education faculty, were oriented to the program on our introductory afternoon by watching the very Ken Robinson TED Talk that drove me to enlist. So, I could not imagine being entirely alone in my assessment, but I also came across no practitioners making these or similar noises in practice.

Recess

Post Education, I left town once more. I moved out to Ontario and took up a job at a bookstore for a few years. I did so while volunteering as a tutor and mentor for high school kids

¹² There are many examples of oversimplification, but a key one at the time was how the new elementary curriculum being proposed had as a key science concept "the five senses." Of course, there can't be only five senses. If we define senses as anything like "the physiological capacities informing our perception" then there are many more common experiences not captured in this curious little list. And, certainly, just about every five-year-old to have ever lived was aware of their sense of balance, experienced a pain, and knew when they had to use the washroom. So how do these primary sense experiences not make the list? And then isn't their omission tantamount to insisting there are only four colours or that the base-ten number system tops out at 993? This is how it seemed to me.

at an amazing community health centre, one that saw education, mentorship, and much more as integrated aspects of their holistic wellness mandate. As with other moving around I did previously, living and travelling around the Great Lakes improved my understanding of Canada and Canadians as well as highlighting for me once again how at home I am on the mild, moist coast and in the mossy forests that cling to it. From Ontario I made my way west to Alberta. I made a connection while catching their folk festival the previous summer with a dear friend and offered to help a neat gaggle of rabblers trying to start a worker-owned co-operative bakery. Aside from the hugely informative exercise of attempting to start not only a functional co-op but also a business, more major life events unfolded while stationed on the prairies.

I was summoned home to Vancouver just after arriving in Calgary. My father went to the hospital after having a fall and they wanted him to stick around to monitor some things they felt were out of whack. By the time I arrived, the rest of my family was there as well. After a series of traumas and crazy interventions (some hospital-gifted pneumonia, collapsing a lung, uncontrollable bleeding, as well as dying momentarily and being brought back but with a bad heart arrhythmia) with all his family present, he signed a do-not-resuscitate order. It seemed that in just a few days we went from “everything’s fine” to “I’m going to be in hospital for a week” to “I may be here a while” to “I guess this is it.” He requested to be moved to the hospice where my stepmother and her stepmother both had been. For me, the time between arriving home and his eventual death was somehow more grueling and intimate than I could have anticipated. By the end, it was a twisted mixture of terrible disaster and tremendous relief. And, despite all my unwilling expertise around death, the events that transpired over those two weeks overturned many of my feelings about death and dying. In proper contrarian fashion, I came to feel hospice care was an unfathomable cruelty and cancer the best possible way to go. (But these are essays of

their own). As it turned out, spooning with one's father on his deathbed can take one places one cannot imagine.

Returning to Alberta, I spent much of my time wondering what I was up to and why I'd ever left British Columbia. At the same time, my father's death had me in more of a *carpe diem* frame of mind than usual and, prompted by a friend, I started corresponding with someone online. Despite months of conversation and both of us enjoying travel, with her in equatorial Africa and me in the Canadian prairies, it seemed unlikely we would meet in person. Of course, convincing myself of that meant that our meeting up occurred swiftly. Over Christmas, we both happened to be in California and so we just needed to visit. We ended up on a week-long adventure through some of the weirdest parts of California (the Salton Sea, Slab City, and the Anza-Borrego Desert), photographing all the birds, lichens, and mountains of crystallised fish skeletons we could find. It was a great first date. And in just a few months, I was applying for a tourist visa and getting all the exotic vaccinations needed to have a second date in East Africa. Three months in Uganda, Tanzania, and Zanzibar yielded a whole spectrum of new experiences I did not think I would ever have: from getting to meet many of the wildest bird species on the planet to spending time with a family of gorillas in the impenetrable mountain forests along the border between Uganda and the Democratic Republic of Congo, and so much more. I also got to experience malaria, engage with some of the endemic police corruption, and escaped a kidnapping attempt by jumping from the back of a motorcycle. It was another full experience, one that had me just as much amazed and in love with the world as missing home.

Back to School

As soon as I returned to Canada, I made plans to head back to the Pacific. Having entertained more schooling for some time and tossed around many different options, I began

searching for a good fit. I eventually found what felt like a perfect fit: the Master of Arts in Environmental Education and Communication at Royal Roads University. Not only did the program description read as though it was written with me in mind, but Victoria also seemed like the perfect place to do such a degree and the timing felt ideal, too. Before I knew it, I had applied to the program and was accepted. At the same time, Emily from Uganda was transitioning to a remote position at work and we were making plans for her to join me in Canada. Once more I was suddenly living another new life and was again head-down in required and recommended readings.

An Introduction to Descartes

“It’s hard to know whether to laugh or to cry at the human predicament” – Pema

Chödrön, one who knows the wisdom of no escape (Chödrön, 2007, n.p.).

“The reader must, moreover, beware of raising objections to any of my statements, because it is very probable that he may understand my words to mean the exact opposite to what I intended to say...” – Maimonides, guide to the perplexed (Maimonides, 1881, p. 21).

René Descartes first came to my full attention in the pre-residency readings of my first semester at Royal Roads. This French mathematician and philosopher’s name appeared all over David Orr’s 2004, *Earth in Mind: On Education, Environment, and the Human Prospect*. Orr, described as a giant in the field, seemed to despise Descartes. In an early chapter titled, *The Problem of Education*, Orr established that:

Cartesian philosophy was full of potential ecological mischief, a potential that has become reality. Descartes’s philosophy separated man from nature, stripped all intrinsic value from nature, and then proceeded to divide mind and body. Descartes was, at heart,

an engineer, and his legacy to the environment of our time is the cold passion to remake the world as if we were merely remodeling a machine. Feelings and intuition were tossed out, as were those fuzzy, qualitative parts of reality, such as aesthetic appreciation, loyalty, friendship, sentiment, empathy, and charity. Descartes's assumptions were neither as simple nor as inconsequential as they might have appeared in his lifetime (1596-1650). (p. 31)

To add to this picture, Orr suggested that our species is growing less intelligent and, though partially blaming all of science for this ruination, the only name he put forward was Descartes'. He wrote:

I am tempted to round up all of the usual members of the rogue's gallery from Descartes ('I think therefore I am'), through all of the peddlers of instrumental rationality, artificial intelligence, and unfettered curiosity, all of whom are eminently blameworthy. (p. 51)

Within a chapter entitled, *Love It or Lose It: The Coming Biophilia Revolution*, Orr clarified the procedural downfall of our civilization. A subsection therein labelled, *The Origins and Consequences of Biophobia*, concludes with the author's contention that modernization involved a dramatic departure from our historic perspective and, further, that the transformation is so complete that those of us alive at present are nearly incapable of considering anything different (2004, p. 132-133). To make this transition, Orr insists, we had to conceptually devitalize the entire natural world and specifically "...to distance ourselves from animals who were transformed by Cartesian alchemy into mere machines" (p. 133). And as a remedy to all this catastrophe, Orr recommends we form a new covenant with non-human animals, emphasizing that we must first "...discard the idea obtained from René Descartes that animals are only machines, incapable of feeling pain and to be used any way we see fit" (p. 149).

Following Orr, two more introductory readings offered convergent perspectives. In *Environmental Education and the Issue of Nature* Michael Bonnett (2007) reasoned that our present environmental crisis threatens both our spiritual and physical survival. To make sense of how we arrived at this predicament, he highlighted the social milieu and our evolved cultural attitude toward nature. Bonnett described a culture “whose underlying motives included the subordination and exploitation of nature” (p. 717). For this proclivity Bonnett credited the anthropocentrism of the Enlightenment which, he suggested, developed directly from the thinking of people like René Descartes, that seventeenth century luminary who, along with others, promoted the mastery of nature as the primary aim of science (p. 717). After establishing this context, Bonnett extrapolated the educational implications of a Cartesian outlook such as this. The trouble of teaching from this framing, Bonnett suggested, is that the very being of nature – as “a fluid world of open, many-faceted things in constant, and often mysterious, interplay – simply becomes invisible to an encounter preoccupied with intellectual (and material) possession achieved through the deployment of increasingly highly systematized and ossifying conceptual schemes” (p. 717).

Next on our reading list was Ann Dale’s (2001) *At the Edge: Sustainable Development in the 21st Century*. There, I found Dale also tackled the Cartesian legacy of the West. In a chapter titled, *Paradigms, Myths, and Metaphors*, Dale framed dualism as a central feature of the dominant worldview, while highlighting how an orientation of this sort may over-simplify, creating oppressive categorizations and false dichotomies. Noting earlier dualistic frameworks that influenced the culture (from Christianity to Zoroastrianism), the author also explained that the modern dualism we are enculturated in is typically attributed to René Descartes, who insisted on a critical distinction between mind and matter. “Descartes,” she explained, “led us to venerate

dualism as the highest God” (2001, p. 16). She then offered a summary of the common sentiment surrounding his philosophy and its application, describing that:

[f]or Descartes, the material universe was a machine and nothing but a machine. ‘Matter’ had no purpose, life, or spirituality. Nature worked according to mechanical laws, and everything in the material world could be explained in terms of the arrangement and movement of its parts. Since Descartes, this mechanical picture of nature has been a central plank within the paradigm of science, at least until recently, when some have started to question it (Funtowicz and Ravetz 1993; Hill 1993; Holling 1989/90; Jantsch 1980; and Merchant 1980). (p. 16)

Connecting still more sources and consequences, Dale added the perspective that the Cartesian reduction of nature to a machine was “...the separation of the heart from the mind (Head 1992),” and that, “[t]his separation has led to the decoupling of human society from its environment – a process of disembeddedness that has contributed to the destruction of nature (Rogers 1994)” (p. 17).

I interpreted Dale, Bennett, and Orr as offering a unanimous and damning appraisal of Cartesian thinking and to some degree the “I” responsible for this thinking as well. Their own and the broader consensus seemed to converge on the man having a novel and tremendously impactful philosophy that is now understood as deeply flawed and antiquated, having led astray not just our own culture but also the wider world it influences. I read that a kind of zero sum, human-first perspective was precipitated or at least assisted by Descartes; moreover, that this paradigm eventually overtook and catapulted much of our species away from all the beauty, succor, and interconnectedness we once saw in and felt with the rest of nature.

Discussing Descartes

Primed with these ideas, my cohort and I began our first week of our brief, three-week in-person residency with Descartes-related conversations of all sorts. In fact, as I recall, most classes, meetings, and get-togethers during our first week of residency involved some discussion of Descartes' ideas and their impact. Together, we riled against Cartesian Dualism (simplified as the conceptual bifurcation of mind or spirit from body or matter) and challenged Descartes' clockwork metaphor (comparison of the material world and its constituents to purposeless, spiritless, non-sacred machines) and all the materialist and rationalist associations accompanying this. We linked how these constructions – inclusive of the Enlightenment thought later inspired by them as well as the modern science that evolved from there – have largely unspun and fragmented the intricate web of interconnection we know existence to be, resulting in much of the calamity experienced today and anticipated for tomorrow.¹³ Descartes seemed more and more like a real-life supervillain. And, therefore, condemnation of this character, who we all seemed to agree was ultimately responsible, felt nearly unavoidable.

By week two of our residency, I interpreted this constellation of critiques as undergirding a significant portion of the discipline as well as broader environmental discourses. I felt this way not because any of our instructors or interlocutors were particularly enthralled with Descartes; instead, he seemed integral to the shared perspective and lexicon. Encouraged to journal throughout our residency, one of my first entries was to articulate what I interpreted as the common premise, or a nested set of premises, at the heart of our dialogues and the literature we were exposed to. I wrote:

¹³ This is how I experienced these conversations. I am not sure how emphatic or encompassing these condemnations were intended to be. This may be contested but I believe most of us said and wrote all of these ideas back to our instructors in a variety of forms and fora. The impact of this and dialogues like it may be an interesting subject for further discussion and research.

- Western civilization is both unique and uniquely problematic
- Science holds much responsibility for what is most problematic within the culture
- Much of what's wrong with science may be traced to the writings of René Descartes
- Catastrophic within Descartes' work is his philosophy, predominantly his dualism and clockwork metaphor

Doubtless, scholars and fellow students would question the veracity or quibble over the wording of each of the above points. That said, this did seem a reasonably accurate assessment when I wrote it and, though I don't know who came into the program already holding these ideas, most of us were repeating them back over the course of our group activities and assignments.

Mentioning nearly any concern at all, from melting permafrost to pipeline expansion, triggered a race to see who could first connect that idea to Cartesian Dualism. Then, along with our now-synchronized eye-rolling at our disgust with Cartesian thinking, we would compete to pin the most agreeably egregious tail to René Descartes, that ass. Simple and fun, this Descartes-bashing also clearly demonstrated our learning. And, as it turned out, all of this was just our initiation.

Descartes Discourses

Retrospectively, these earliest readings and discussions were an excellent preface to what would follow. The same sentiments from our introductory readings and discussions – from a kind of civilization-wide metaphysical disorder to what might be construed as a suicidal separational psychopathy, all formulated and prescribed by some dead guy named René – reappeared throughout our first year. I would say Descartes was the most consistent thread in all our readings. However, to merely suggest that this thinker came up a lot fails to capture the

experience; and looking only at any one course or from the perspective of one instructor the volume would probably seem mild. As a result, heretical as it feels to quantify these references to Descartes (a fellow critiqued in these very readings for initiating an overly analytical and mathematical framework), some numbers may be useful. For an overview, references to Descartes came up in the required and suggested readings in three of five Environmental Education and Communication courses.¹⁴ We came across dozens of books and articles therein highlighting the reach and supremacy of Cartesian philosophy, as well as its failings. Within these 32 texts were more than 200 individual mentions of the names “Descartes” or “Cartesian” alone; with still further references to ideas commonly attributed to, synonymous with, or said to have been directly inspired by this Frenchman.¹⁵ A sampling of these interpretations of Descartes follows.

Among this Cartesian compendium within our course material, Capra and Luisi’s (2019), *The Systems View of Life: A Unifying Vision* offered an abundance of Descartes references. The book attempts to illuminate the origins of modern systems perspectives, the implications for this thinking, and then speculates on portents for the future. In its overview and synthesis, the text covers a sweeping range of themes from mathematics to panpsychism. Doing so, the names “Descartes” and “Cartesian” alone appear no less than 133 times on just 50 pages, most of these

¹⁴ For a complete list of these texts see Appendix. It is also worth noting that Descartes came up in a fourth class, our research methods course, though the course was not environment oriented and the reading was not required. Still, there I found Descartes mentioned when researching phenomenology, where I read that it “was seen as a movement away from the Cartesian Dualism of reality being something ‘out there’ or completely separate from the individual (Jones, 1975; Koch, 1995)” (Laverty, 2003, p. 23).

¹⁵ Although absent his name, the following is exemplar of a strongly implied reference to Descartes, his philosophy, and that inspired by it found within the literature:

The detached observer, relying on dualistic logic and the power of reason, aims to explain the functioning of each part in order to get an understanding of the whole. This mechanistic approach took its guiding metaphors from how a clock-maker or mechanic takes apart a watch or a machine, in order to understand or ‘fix’ their workings. This is clearly a useful method for machines, but life is more complex than a machine. (Wahl, 2016, p. 87)

in the first quarter of their book. Again, the uniqueness and perniciousness of Descartes' philosophy is corroborated as well as its deep saturation into the culture. A summary of their unified systems view as well as their sense of René Descartes' legacy comes when they explain that what is so radical about the perspective they advance is the work it does overcoming the Cartesian thinking so long plaguing Western civilization (Capra & Luisi, 2019).

Further readings focused on Descartes' role in transforming the culture by engendering a mechanistic paradigm. In *Linkingthinking: New Perspective on Thinking and Learning for Sustainability*, Sterling (2005) spelled out how:

The idea of the 'root metaphor' is critical. A metaphor answers the question, 'What is the world like?' For over 300 years, the answer has been 'Like a machine'. Since the days of Descartes and Newton, and the beginnings of the whole scientific revolution that changed Western thought, the world has been seen fundamentally in terms of mechanism. (p. 23)

The author suggested Descartes gave us, or at least popularized, the clockwork metaphor to conceptualize all components of the cosmos. "René Descartes, the French philosopher," Sterling wrote, "favoured the metaphor of a clock, and this was the basis of 'mechanism' in the 18th century whereby everything in the universe was seen as produced by mechanical forces" (p. 23). In a later reading, *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*, David Abram (2017) shared this understanding but also highlighted that from Descartes' segregation of mind from the material world we got not simply mechanistic thinking but as a direct consequence the Western assumption of a single and wholly determinable objective reality. Abram suggested that:

...it was only after the publication of Descartes's *Meditations*, in 1641, that material reality came to be commonly spoken of as a strictly mechanical realm, as a determinate

structure whose laws of operation could be discerned only via mathematical analysis. (p. 32)

Philippe Descola seemed to agree with all of the above while exploring other consequences to thinking of this sort. Within his chapter, *Constructing Natures: Symbolic Ecology and Social Practice*, from the 2003 collection, *Nature and Society: Anthropological Perspectives*, the author tackled the worldview of Western civilization and what he saw as its appetite for world destruction. Descola explained:

As for predatory naturalism, it is less a value than an old European practice, born in the Middle Ages when large tracts of forest were cleared for cultivation; a practice which acquired its legitimacy with Cartesian philosophy, and its full expression with the mechanisation of the world..." (p. 93)

Mauro Grün (2005) was similarly convinced of our collective impairment and insisted that, "...although Descartes' legacy has undergone important modifications, we are still, at the deepest level of our thought process, Cartesian thinkers" (p. 157). The key element of this Cartesian thinking we find ourselves shackled to is autonomy, the author argued. This autonomy, he said, prevents our comprehension of the complexity of both our environment and the current ecological crisis. To conclude, Grün highlighted what he felt was a central conflict within an environmental education. The entire project, he argued, faces complex contradictions including being seen as the 'spiritual side of the curriculum' and aiming to provide a holistic education while being simultaneously infused in the antithesis of both: a Cartesian-inspired curriculum (Grün, 2005). Other authors, such as Stephan Harding (2016) in his, *Animate Earth: Science, Intuition and Gaia*, touched on counter-spiritual aspects as well. Noting Descartes' contribution to the legacy of science and its persistent attempt at undermining religion, Harding related how:

[Science's] earliest practitioners and proponents, amongst them Bacon, Descartes and Galileo, were convinced that a new basis for certainty must be founded on reason rather than on simple faith in established dogmas and what were seen as the superstitious beliefs of the common people. (p. 31-32)

Though the above read simply as historical fact, a later reference offered something a little more theoretical and pointedly critical of Descartes. Harding explained to his readers that:

In science, Descartes' fundamental division between living human subjects and dead external objects has seen to it that personifying (and the loving that accompanies it) are considered nothing more than mere projection and 'fantasy'. But today we can now realize that it was Descartes who was projecting, and that his fundamental division of mind from matter was itself a great fantasy – a chimera that we need only dissolve in order to find our true home in the great psyche of the world. (p. 44)

Damning as the above read, it appeared to fit cleanly into the consensus found among our readings. In a final example of this, Robin Wall Kimmerer (2013) was just as frank as Harding in her, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Among her prose, Kimmerer shared her perspective that “[g]ardens are simultaneously a material and a spiritual undertaking...” (p. 123) and that such a radical idea is difficult for scientists, “so fully brainwashed by Cartesian Dualism, to grasp” (p. 123).

Other authors were keen to note further consequences of the multi-faceted disengagement with reality brought on by Cartesian thought. Andy Fisher took the Cartesian disconnect and linked it to the worst of the field of psychology and to the evils of capitalism as well. Against what he referred to as psychology's methodological individualism, Fisher (2013) called on people to embrace more relational approaches (such as Buddhism, feminist psychology, and

Indigenous methods) that may help overcome not just the paradigm within modern psychology but the “ecodestructiveness of the capitalist system, which uses a Cartesian machine model of reality in isolating and extracting individual parts from the interrelational whole of nature to give them monetary value” (p. 169).

In her chapter *Imagining Earth*, within the collection *Spiritual Ecology: The Cry of the Earth* (Vaughan-Lee, 2013), Geneen Marie Haugen concurred with our other readings while giving this seventeenth century thinker some additional, or at least more specific, responsibility for the entire modern scientific and industrial enterprise – which she said is born out of the acceptance of Descartes ideas. “How else [than with Cartesian Dualism],” Haugen concluded, “would we bear vivisection, mountaintop removal, rivers poisoned with effluents?” (2013, p. 160). Just like Haugen above and Orr in our introductory readings, Arne Naess (1998/2008) elaborated on the impact of Cartesian philosophy on our relations with our non-human kin, emphasizing that it is no coincidence “Descartes is also the main proponent of the view that animals are insensitive machines and nature has value only as a resource for human beings” (p. 201). A similar sentiment came from Oakley (2011) who offered the world a more holistic conception of animals and our relationship to them as a way of “...pushing back against unsatisfying frameworks of thinking inherited from previous eras, such as Descartes’ (1637) reductionist philosophy of animal bodies as machine-like mechanisms that can neither think nor feel pain” (p. 9).

A synthesis of these assessments, highlighting the meteoric impact of this Late Medieval thinker, came from celebrated anthropologist and National Geographic explorer Wade Davis. In his *Wayfinders: Why Ancient Wisdom Matters in the Modern World*, Davis (2010) insisted that it was with Descartes where we went wrong and that his thinking hit like the spiritual and

philosophical equivalent of the doomsday rock that helped to end the dinosaurs and snuff out so much life on the planet. “The universe, declared René Descartes in the seventeenth century, was composed only of ‘mind and mechanism,’” and, Davis insisted, “[w]ith a single phrase, all sentient creatures aside from human beings were devitalized, as was the earth itself” (p. 120).

A Discourse Analysis

Some of the explanation for what is framed as Descartes’ fame and infamy is undoubtedly that his ideas arrived at the time and place they did: in Europe at the beginning of what would eventually be known as the Scientific Revolution. His thoughts (from our place in the cosmos to human nature, consciousness, and perception) may then be seen as obvious predecessors to so much scholarship that followed. It is true that discussing almost anything of concern to Environmental Education can easily find its way into subject areas Descartes was keenly focussed upon. Whether delving into *outdoor education*, *climate change*, *overconsumption*, *Gaia hypothesis*, or *cosmopsychism*, themes from psychology, moral philosophy, or the natural sciences may employ ideas or terminology associated with, or otherwise presented in pointed opposition to, those found coming from this person – considered by some “the father of modern philosophy” (“René Descartes”, 2019). In fact, whole domains of thought are now associated with Descartes, and some are even synonymous with his name. Concepts such as *rationalism* and *empiricism*, *determinism* and *materialism*, *physicalism* and *atomism*, *anthropocentrism* and *subjectivism* are all said to be inspired by the man (see, Husserl, 2013/1960; Merchant, 1980; “René Descartes”, 2019). And, just as Capra and Luisi (2019) explain of their own work, the terms *Cartesian*, *mechanistic*, and *reductionist* are often employed interchangeably (p. 35). Further, and most significant, is that nearly everyone arguing for what needs changing within the culture makes some attempt, as you would expect, to diagnose how

we arrived at what are now deemed problematic orientations and assumptions. And if one starts from the premise that an over-emphasis on rationalism, materialism, or dualism is at the heart of what's wrong with the dominant modern worldview then any critique will find it difficult to avoid a certain Late Medieval thinker.

In the dozens of works referencing Cartesian philosophy throughout our program, I read the same consensus as I found in our pre-residency readings. These suggested to me that: A) Descartes initiated and peddled dangerous falsehoods; B) that these falsehoods have helped bewilder either our entire species, one culture, or any individual subscribing, in part or in whole, to this discredited dogma; and C) this bewilderment has resulted in clear and egregious personal, societal, and/or ecological harm. I read this seemingly ubiquitous and reinforced framing as foundational. I also read little or no equivocation in these texts and found it difficult to imagine more striking or encompassing condemnations than what these books and articles present. There appeared little room, from my standpoint, to interpret these readings as anything but objective descriptions of Descartes' philosophy, human history, Western civilization, science, and modernity – all of which culminates, as I read it, in comprehensive denunciations of all of the above. I interpret either the volume of references to the man and his work or the substance of these inferences alone as indicating the significance these authors give to René Descartes; together this quantity and its essence suggest to me that this man should be read as one of the most cataclysmic forces the universe has ever known. If I were a teacher and I gave my students only the readings from our courses and then asked them on a test, “Who was René Descartes and what was his legacy?”, an acceptable response would be in the realm of, “The root cause of the thinking responsible for the ruination of Western civilization and much of the non-human world.” An answer deviating much from this would seem a strange misreading of these texts.

A Reintroduction

“Life without playing music is inconceivable for me... I live my daydreams in music. I see my life in terms of music... I get most joy in life out of music” – Albert Einstein, violinist (Foster, 2005, p. 1).

“Science is the belief in the ignorance of experts” – Richard Feynman, conga drum enthusiast (Feynman, 2005, p. 187).

I felt skeptical about the narrative I was hearing starting in our first residency. Not only did I have certain doubts but such a diversity of scholars all arriving at the same set of conclusions felt too clean and simple to be real. My admittedly over-active sense of skepticism was doubly triggered because I knew virtually nothing of this René Descartes guy. Of course, we all discover new actors and aspects of history all the time, however I was reading this fellow as steering more of culture and history than even epoch-spanning global institutions all while being credited, I would argue, with delivering more misery than all of history’s tyrants combined. So, I had to learn more.

Encyclopedic Summaries

From the comfort of my Royal Roads dorm, I started my reintroduction to Descartes by reading the first two sites that arose from an Internet search of his name: his *Wikipedia* page and his entry in the *Stanford Encyclopedia of Philosophy*. These were sure to give me a taste of the man and his ideas. Both sources were tantalizing and immediately left me with many more questions. I interpreted the most basic details of the man’s life and common quotations from him as corrosive to the interpretations we read throughout so much recent scholarship.¹⁶

¹⁶ This experience is partially responsible for the selected autobiography that begins this thesis.

Descartes' personal context was what first struck me. He was born into a Roman Catholic family in the Kingdom of France, on the edge of the Holy Roman Empire during the height of the Church's power and influence, nearly two centuries prior to the French Revolution. Further, I read that he attended a Jesuit school in his formative years. This made me assume that, like a mussel or barnacle accreting calcium from the sea to build its shell, Descartes' worldview and philosophy was formulated out of those mainstream Pope-approved postulates he was fully immersed in. Too, being infused with and firmly nestled in the *Ancien Régime* (with its mutualistic symbiosis between church and monarch, tightly held and strongly wielded powers of censorship and control, all simultaneous with a religious fervor precipitated by an outpouring of devotional texts) didn't seem like the time or place one formed, never mind published, any overtly anti-spiritual works or even anything inspiring such.¹⁷ In my world today, where information comes easy and dissent in many forms is often celebrated, sacrosanct are ideas of social determinism and the overwhelming influence of institutional power. Any argument that Descartes was under little or no such influence, therefore, and in the Late Medieval Kingdom of France, of all places, felt preposterous. If he was a more ardent agnostic or atheist, how free was he to express such views in this context – even in written correspondence or private conversation with others? And even if he was anti-religious to his core, I imagined that at the very least he still held something approximating a Christian worldview: professing basic Christian ethics as well as

¹⁷ Descartes published his life's work in the immediate aftermath of the Galileo affair, in which this pious Roman Catholic was condemned by the Inquisition for heretical depravity. His crimes included observing the moons of Jupiter, the phases of Venus, features of the Moon, and sunspots that – though directly contradicting Aristotle and Ptolemy – anyone with a telescope was also free to make. And, while the prohibition of observations and works like that of Galileo's were eventually lifted, it is worth noting that even in the twenty-first century the position of the Catholic Church on this matter remains uncertain. Pope Benedict XVI, for example, throughout his life and in his official capacity with the Church continually explained that science improperly interferes with religion and that Galileo's persecution was "rational and just" (Fisher, 2008).

holding ideas such as the common Catholic notion of a soul, just as so many self-styled non-believers I know do today. In this light, I then wondered how his work became synonymous with sapping the world of all its soul and sacredness? That certainly couldn't have been his intention, could it?¹⁸ As a result, I felt I needed to look deeper into all of this.

What came next really piqued my interest and touched directly on Descartes' faith. I found that he claimed to have had a series of strange dreams, visitations from a divine spirit, that revealed to him a unifying vision of all creation and forming the fundamentals of what would be a new philosophy. On the night of November 10th, 1619, while in the town of Neuburg an der Donau in central Bavaria, Descartes retreated from the cold to the warmth of his room where he slipped into three life-altering dreams. These visions, he said, imparted to him that all true wisdom and fundamental truths were interconnected, that systematic pursuit by way of reason could reveal them, and that this would be the central focus of his life. It is written that upon leaving his room he had synthesized all this and formulated his analytical geometry as well as a method for tackling philosophy by way of a mathematical method ("René Descartes," 2019). To mark the experience, within months of these visions Descartes was on a pilgrimage to the Basilica della Santa Casa in Loreto, Italy; the temple enshrining the house in which it is believed the Virgin Mary lived and, in Descartes' time, a statue of the Black Madonna with Infant Jesus. All of this seemed very much like the experience and behaviour of someone fully enwrapped in his faith. And, regardless of whatever else he wrote, with these dreams as inspiration for everything that came after (and no suggestion he ever walked back the claim), I wondered how

¹⁸ As I recalled, even the modern arch-Atheists, those as far removed from the influence of religion as any in Western civilization have ever been, people like Richard Dawkins or Sam Harris, advocate learning about religion as well as celebrating the sacred and numinous (see Geggel, 2017; PBS, 2007).

he could be so readily interpreted as inspiring doubt toward Catholic teachings. This seemed like a man totally open to the mystical, not disavowing it or directed at eliminating all sacredness from the universe. For me at least, and at this early stage of inquiry, none of those negative notions I came across in course readings and what was said to be his beliefs or the foundation of his philosophy seemed to be congruent with his life experience or actions.

Another excerpt suggested the impression I had of Descartes was further off still. Quoted was an autobiographical note from his philosophical treatise *Discourse on Method* (1637), where he wrote:

I entirely abandoned the study of letters. Resolving to seek no knowledge other than that of which could be found in myself or else in the great book of the world, I spent the rest of my youth traveling, visiting courts and armies, mixing with people of diverse temperaments and ranks, gathering various experiences, testing myself in the situations which fortune offered me, and at all times reflecting upon whatever came my way to derive some profit from it. (“René Descartes,” 2019)

From where I was sitting this read like a reasonable take-away from my MAEEC residency.

“Learning from the great book of the world” felt more like a tattoo you might get after graduating, or perhaps the subtitle to one of our instructors’ dissertations, than the self-reported orientation of someone responsible for disregarding and devitalizing the entire oozing, humming, thumping cosmos. Here we had someone highlighting the subjective, valuing experiential learning, seeking diverse viewpoints, and noting the power of reflection, too. To me, this stated disposition made Descartes seem not like a perfect antagonist to Environmental Education but like a firm proponent. This quote was followed by another – another that seemed to contradict not just what I believed Descartes to think but also how. Provided in a subsection on his

philosophical work labelled “Dualism” was a selection from his *Meditations* (1641) that read in part:

Nature also teaches me, by the sensations of pain, hunger, thirst and so on, that I am not merely present in my body as a pilot in his ship, but that I am very closely joined and, as it were, intermingled with it, so that I and the body form a unit. (“René Descartes,” 2019)

To me, body and mind being so “closely joined” as to “form a unit” felt to be nearly the opposite of the catastrophic, atom-splitting bifurcation described in our readings. The assertion here, a unification informed by nature, paired with the knowledge that this was motivated by divine visions, gave the whole notion of Cartesian Dualism a very different feel, whatever its historical impact. It all seemed like something we might expect from Rachel Carson, Carolyn Merchant, Robin Wall Kimmerer, or any number of our other favourite environmental thinkers.¹⁹ I was only more curious when I read (just a short scroll down the page to a section titled “Philosophical work” and under the subsection “Natural science”) that Descartes created what could be read as a formal systems theory that analogized his entire philosophy to a tree, one which placed metaphysics as its foundation. As Descartes explained in a written correspondence with his translator:

Thus, all Philosophy is like a tree, of which Metaphysics is the root, Physics the trunk, and all the other sciences the branches that grow out of this trunk, which are reduced to three principals, namely, Medicine, Mechanics, and Ethics. By the science of Morals, I

¹⁹ Two other feelings that arose at this time are worth noting. Here I learned that the full title of Descartes *Meditations* is in fact *Meditations on First Philosophy, in which the existence of God and the immortality of the soul are demonstrated*. Though commonly done, I would argue that paraphrasing like this is inappropriate. Doing so within a text that argues Descartes killed the sacred feels to me like an attempt to mislead. For one example, David Abram (2017) referred this work as being directly responsible for driving out the sacred and causing people to see the cosmos as mere machine; however, as above, the situation seems much messier and more interesting than that. Simply including Descartes’ full title demands explanation and makes the assertion far more difficult to forward.

understand the highest and most perfect which, presupposing an entire knowledge of the other sciences, is the last degree of wisdom. (“René Descartes,” 2019, n.p.)

Grounded in faith, Descartes imagined the universe as an inherently integrated system – or that’s how I read him.²⁰ Where I was confused before, I now felt lost.

Caping off my *Wikipedia* search was a link to a page on Descartes’ “Provisional Morals” within his *Discourse on the Method* (1637) that promised insight if not into his own thinking at least into the thinking he pressed his readers to take up. In “Part III: Morals and Maxims of Conducting the Method” he spelled out three critical principles for inquiry by radical doubt:

1. The first was to obey the laws and customs of my country, adhering firmly to the faith in which, by the grace of God, I had been educated from my childhood and regulating my conduct in every other matter according to the most moderate opinions, and the farthest removed from extremes, which should happen to be adopted in practice with general consent of the most judicious of those among whom I might be living.
2. Be as firm and resolute in my actions as I was able.
3. Endeavor always to conquer myself rather than fortune, and change my desires rather than the order of the world, and in general, accustom myself to the persuasion that, except our own thoughts, there is nothing absolutely in our power; so that when we have done our best in things external to us, our ill-success cannot possibly be failure on our part. (“Discourse on the Method,” 2019, n.p.)

²⁰ I knew of other trees of knowledge and wisdom as well as trees of life and of immortality, and that these were nearly ubiquitous archetypes around the planet, from India to Iran to Iceland, and across time as well. I wondered if an image of his tree of all wisdom composed part of his divine visions or if the analogy came to him later.

Alone these three rules of conduct were surprising; in concert with all that came before on this initial search, I was left flabbergasted. Translations of Descartes' own words felt hostile to essentially all those readings that invoked his work and its repercussions. Where was all this "ecological mischief" David Orr had written of? If it was there at all, it seemed likely to be marinating in a potent pool of ecological wisdom and insight, or so it looked to me after just a small sampling of Cartesian quotes. Orr noted this philosopher's "cold passion to remake the world" when the man's aim and written commandment for others to follow was, as above, "to conquer myself rather than fortune, and change my desires rather than the order of the world." How did these two conflicting ideas coexist? Descartes seemed to forward the most conservative platform possible in his writing: insisting upon adherence to custom, faith, law, and above all moderation. How then was he deemed such a radical revolutionary? Anything of the sort seems, to my reading, to fly in the face of his offerings to the world. I could not have felt more lost or agitated as a result of all this. We had this man's ideas in writing and we've had nearly four centuries to make sense of them and track their repercussions. How then could there be so much easy and abundant contradiction floating around? I wondered if there were deeply contrary takes like this around the thinking of Newton or Darwin, say? Was there a school of thought out there arguing that Marie Curie did not discover radium and polonium and was not the first woman to win a Nobel Prize, the first person to win a Nobel twice, and the only one to accept awards in two different fields? That's what this was starting to feel like. What motivated this, I wondered? Descartes' writings were not sacred texts, held by some as containing everything worth caring about and whose interpretation was being fought over by rival factions with competing worldviews. Or was that exactly what was happening?

Sitting with all of this, I noted in my school journal that the discourse surrounding Descartes could be framed in religious terms. A parallel to stories from the *Old Testament* seemed rather easy to make. I saw chapter three of Genesis all over this. We had a “tree of knowledge” and we also had an obvious analog to biblical Adam. I read Descartes framed as having eaten from the tree and causing the entire species to transition from organic Edenic innocence, in balance with the all-sacred Wholeness, to wholesale fragmentation and debasement. It also seemed clear that many contemporary voices were calling for the expulsion of all forms of Cartesianism, and just about anything that could be said to have been inspired by it, to prevent miscreant forces (just like Adam and Eve) from eating from the “tree of life” and thereby gaining immortality (or any other such threats to divine order posed by advances in science and technology, from genetic engineering to artificial intelligence and beyond.) There were other linkages, too. In Genesis, the one responsible for Adam’s lawbreaking was the snake, who in Jewish myth is often associated with divination and fortune-telling (Smith, 2015). Of course, Descartes’ method is framed as the toolkit (or in some readings the proto-scientific method that would evolve into the more powerful system we have today) used for making accurate predictions. Though perhaps reaching and potentially offensive, this analogy of mine did not seem totally ridiculous. I felt like what was being presented in environment-related discourses was a modern revision of the Christian creation story, something like *The Fall 2.0*.

Given these findings, all the questions I had, the absurd conspiracy theory I was now nursing, and my difficulty understanding any of the above, it came as no surprise when I moved on from *Wikipedia* to the *Stanford Encyclopedia of Philosophy* and discovered there the following recommendation at the conclusion to their introduction on this philosopher: “Those new to the study of Descartes should engage his own works in some detail prior to developing a

view of his legacy” (Hatfield, 2014). It was true and, if nothing else, reading Descartes myself felt unavoidable.

What Next?

I was sure I would not be able to organize all of this, never mind make sense of it, over the span of just one weekend; certainly not during our short, on-campus residency. Any real hope of understanding began to feel like a terribly daunting task, one that I didn’t feel suited to. Though I like a puzzle as much as the next person and enjoy playing with ideas, I had no background in any of what seemed like pertinent themes: theology, philosophy, or psychology. Also, I already found modern texts difficult; older ones like Shakespeare or even Dickens were excruciating and I was not sure I wanted to go too far down such a road. Still, this felt important and I had so many ugly loose ends I wanted to sort out. If nothing else, given how on-topic it was, I could possibly turn this, what felt like scholarly work, into part of a thesis. Could I do that, I wondered? Should I? If I was going to make this my thesis topic, did I want to brand myself a species of dunderheaded troglodyte who would go and read the life’s work of this dead philosopher – someone receiving a posthumous scholastic crucifixion for committing what were said to be blatant crimes against the numinous and the beautiful – and then, in effect, defend that guy, as it seemed I was already doing? What kind of idiot does that? And why would a non-philosopher like myself undertake such a thing? And why would I burn all the fuel the task would require when there were so many other projects that would be frictionless and something others could be enthusiastic about? Why wouldn’t I do a project about children and the environment or about the restorative superpowers of fungi? No-one, possibly even me, would be enthusiastic about an Environmental Education thesis pontificating on possible interpretations of archaic philosophy. Still, I needed to read on.

How to Read René?

Given all the conflicting information, I wanted to read and interpret this philosopher myself. The language of the source material was the first clear and substantial barrier, however. I was convinced that his writing in Latin and Old French was problem enough for me; but then, of course, he also did so nearly four centuries ago. Were I fluent in his mother tongue, the landscape of ideas had shifted, or rather erupted, so dramatically between his time and my own that it seemed easier to contemplate the little we could reasonably have in common. Even this felt difficult for me. For fun, I considered what Descartes and I could talk about if we were to meet in person. I was certain that even if we shared a language we would still be bogged down just attempting to build what would likely be a tremendously shaky conceptual framework from which to begin.²¹ I think about this kind of thing all the time and it's still challenging to feel I've wrapped my head around how very different the world and our thinking on most subjects are today from that of any other time.

In one of our earliest readings in grad school was a quote from Raymond Williams that read, "We need new words because we need new relationships" (Pezzulo & Cox, 2017, p. 51).

²¹ I was trained my whole childhood to be quick to notice and exclaim how similar we all are. In adulthood I've hung onto this but have grown quick to insist on our staggering differences as well. The example I like to use is how on my first trip to Indonesia someone asked where I was from. She didn't know Canada and so I was excited to pull out the map in the back of my journal. My acquaintance was certain this combination of satellite images of each continent was terrifically wrong. Having grown up in Sumatra she knew the island was only surrounded by smaller islands and so, for example, Malaysia couldn't be on a peninsula connected to mainland Southeast Asia. She also knew 6,000 kilometers across was too big for any country (mostly because that was bigger than Indonesia and so such a proposition was ridiculous on its face). And, as any fool knew, these images were taken by an American satellite presented to exaggerate the area of North America. We tried negotiating a common understanding, each of us making our case, but in the end she just laughed at my clever though fruitless attempt to brainwash her with my outlandish Western propaganda and was delighted, too, by my naiveté and what could only be a clear example of the abject poverty of Canadian education and media systems. Descartes and I would share none of the common language or understanding I shared with this person.

As someone with a degree in Communication and studying Environmental Communication, I couldn't agree with this sentiment more. I don't feel I can overstate the power of words and ideas or their derivations and transformations. One of the places David Abram (2017), Robin Wall Kimmerer (2017) and I see eye-to-eye is in the assessment that words are powerful, world-altering magic. As per Williams' quote above, I don't see the difference in number of words or shifting meanings within language over time, or between different languages (Descartes' Latin and my English, say), as akin to simply having greater or fewer inert lexical LEGO blocks for building phrases out of. Instead, each word carries with it hidden powers to alter perception, experience, and relations. And yet, while words are powerful tools that may shift perspective and understanding, over enough time these lone word differences, and certainly many of them compounding, may fundamentally transform the world. They may be so transformative that they result in entirely different ways of seeing and understanding – in a manner not unlike evolving new sense receptors. At some point, and often pretty quickly, what happens is that our suite of perceptual and meaning-making tools begins to resolve entirely different realities, despite being aimed in the same direction. As I see it, this language change is more profound than the transition from the naked eye to using the simplest telescope or microscope, which alone caused a tremendous revolution in our understanding and worldview. That's because the view of the objects these tools are trained on merely yield more detail of something recognizable. The shift in symbols and associations that come with an evolution in language eventually becomes so great that it is more like transitioning from the naked eye to a scanning electron microscope or a gamma-ray telescope (in which new and unforeseen worlds emerge, requiring both technological assistance just to process and then expert interpretation of what results).

To me, this seems obvious and makes the simplest task of merely transcribing language, word for word, appear difficult. I recall a quote within James Gleick's fantastic, *The Information: A History, a Theory, a Flood*. His prologue opens with a quote from "the father of information theory", Claude Shannon (1916-2001), that reads, "The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have meaning" (Gleick, 2011, p. 3).²² Far more challenging than simple transcription is the need to navigate the additional conceptual, semiotic, and semantic inventions and revolutions that have occurred across time. This project of multiplying the lexical distance between different tongues by the semantic leaps separating author and reader is, I think, more confounding that we tend to believe. As a matter of fact, what I see as an abyssal chasm of language and perspective is most often overlooked entirely, as though it does not even exist.²³ I recognise this gap in mutual understanding less like a border, demarcating a shift or break in culture (in which critical differences may be present but are overcome with a little effort), and more as a cleavage so vast as to be more closely akin to the experiential barrier between species, wherein connection is possible but truly knowing another's mind and world is at best unlikely.²⁴ It may seem absurd at first glance, but I believe the

²² Doubtless, future generations will marvel at the staggering and persistent volume of lost meaning and intent, the constant mistaking of sincerity for sarcasm or vice versa, and just the numbing confusion humans trade in daily via text of all manner – and that they do so all while insisting they themselves are perfectly clear in their encoding and are also skillfully decoding the correspondences of their family, friends, and colleagues (see, e.g., Kruger, et al., 2005; Riordan & Trichtinger, 2017).

²³ We might think this work is the common task of any editor or translator; however, in our course readings and in the two encyclopedia entries I perused, this seventeenth century philosopher (whose native language was Old French and whose second language was Latin) is frequently quoted verbatim, in modern English, and without any context or qualifications. This strikes me as impossible and yet it is endemic.

²⁴ I hope we can all easily relate to a skink basking in the sun, an echidna scratching her back, or a cassowary having a yawn. As different as we are, I imagine most of us feel like we know what our friends are feeling; but to me it seems like the height of hubris to demand there is no possibility of a vast terrain of difference between my own yawn and that of a bird.

biological similarities between people blind us to almost everything in the world of meaning and lull us into a mistaken sense of commonality and mutual understanding when, in fact, so little correspondence exists that legitimate comprehension is doubtful. To my thinking, even if we share the same root language, a human alive just a few centuries or millennia ago could not have stared up at the stars and shared virtually any of the thoughts I have when I look up at them, nor could I ponder almost any of their thoughts.²⁵

To get back to Descartes, without having read the man, I know that he and I share little common ground for understanding. From the most discrete objects or experiences to large, encompassing, worldview-orienting concepts, the entire information landscape and nearly every idea I have at my disposal is either substantively different or entirely alien from his. On the volume and rate of new information arriving in the world, there's a quote from an acclaimed professor of history that reads, "A weekday edition of *The New York Times* contains more information than the average person was likely to come across in a lifetime in seventeenth-century." This offers some perspective, but what's amazing about the observation is that it was published by a Dr. Theodore Roszak (the same person who coined the term "Ecopsychology") in his book titled, *The Cult of Information*, back in 1986 – prior to the Internet and when the newspaper was considered a staggeringly prolific source of new information (p. 11).²⁶ Inspired

²⁵ If I see light passing from Heaven through ten thousand pin pricks in a celestial veil just beyond reach and you imagine a septillion throbbing balls of nuclear plasma, the smallest of which are a million times the size of the earth, I don't think we are merely seeing something different or having different thoughts. (*Different* are: a cappuccino and a cortado, a turtle and a tortoise, Vishnu and Shiva). Instead, I would argue that our experiences are not in meaningful correspondence.

²⁶ Notice that, even if Dr. Roszak's assessment was wildly off at the time of publication, the contrast between the landscape of ideas in Descartes' time and that of our own is at least as stark if not immeasurably more so than it was in the '80s. Also interesting is that Roszak's book is full of talk about Descartes and the last chapter is titled "Descartes's Angel: Reflections on the True Art of Thinking," and discusses how our minds cannot be reduced to simple data processing.

by this idea, John C. Maxwell (2002) estimated that “more new information has been produced in the last thirty years than in the previous 5,000” (p. i). And around this same time, a report from the University of California at Berkley explained “the amount of new information stored on paper, film, magnetic, and optical media has about doubled in the last three years” (School of Information Management and Systems, 2003, n.p.). That said, in the nearly two decades since these statements were made the production and distribution of information and the rate of change in ideas has accelerated such that attempting to quantify this (never mind understand it) has become an almost worthless endeavour. According to recent research, for example, global annual internet traffic will have exceeded three zettabytes in 2021 (Cisco, 2017). I like big numbers and still cannot conceptualize this myself. It’s a volume of journal articles, news reports, stock market transactions, phone calls, emails, photos, videos and more – none of which were concepts when Descartes was alive – so difficult to imagine that one may wish to frame it as something like *a 108,000-year-long film communicated via online networks annually*, but I feel is better framed as merely *incomprehensible*. And, of course, this is just to speak of the volume of information: the easiest bit to grapple with.

With regard to René, and still without any discussion of what he wrote, I encounter serious hurdles just making sense of how we talk about the man. And the problem here is the new information and ideas that have arrived as well as the semantic shift accompanying all of this. For instance, authors are forever referring to Descartes as a “scientist” and suggesting he was engaged in “science”. I believe these modern concepts, along with effectively all of the web of meaning and association they carry, certainly any I have, contain no tangible connection to Descartes – nor his predecessors, contemporaries, or many of those who immediately followed him. So, when Capra and Luisi (2019) write, just as others do, that Descartes was a brilliant

“mathematician and scientist” whose work “resulted from the progress of science”, derived from his belief in “scientific knowledge” and that “in his mind science was synonymous with mathematics”, I have no idea what they are talking about (p. 22).

Sources agree the term *science* has its origin in the classical Latin *scientia* meaning knowledge, a knowing, also expertness, from the root *sciens* meaning intelligent or skilled (Barber, 2004; Barnhart, 1995; Harper, n.d.-b; Oxford English Dictionary, 2019a). Around the twelfth century and from the Old French, the word arrived in English with the spelling we know, *science*, but with meanings ranging from knowledge derived from reflection, experience, or study to secular knowledge or knowledge granted by God (Oxford English Dictionary, 2019a). This made me think that during this time and with such a definition, divine visions would have placed Descartes in the category of someone engaged in science. By the late-fourteenth century and in Middle English the term had the same spelling but took on ideas such as book-learning, skillfulness or cleverness, as well as craftiness (Harper, n.d.-b; Oxford English Dictionary, 2019a). It is also suggested that the term became consistently associated with “a socially embedded activity: people seeking, systematising and sharing knowledge” (Butler-Adam, 2015, n.p.). Would clergymen, teachers, and printmakers all be doing science, then? Seems so. Starting in the fifteenth century the word came to be synonymous with experiential knowledge as well as relating to “a skill, handicraft, or trade” (Oxford English Dictionary, 2019a). So, in this time a shipwright, candlemaker, or seamstress would be engaged in science, it seems. The word being associated with studies exclusive of the arts is said to have been attested to first only a generation after Descartes’ time, in the 1670s (Harper, n.d.-b.; Oxford English Dictionary, 2019a). Though still commonly referred to as “philosophy”, the more modern and restricted sense of the term science, that of relating to a body of methodical propositions and observations, came into being

only in the eighteenth century (Harper, n.d.-b; Oxford English Dictionary, 2019a). And, relatedly, it wasn't until June 24, 1833, at the third meeting of the British Association for the Advancement of Science, that the word "scientist" was first uttered. In response to a complaint suggesting people stop using the term "natural philosopher" (argued to be both too general and too lofty a label), the English polymath, poet, essayist, and Anglican priest, Reverend Doctor William Whewell (1794-1866), formed a lexical chimera fusing the ancient Latin *scientia* with *artist* (Snyder, 2012).²⁷ Ideas such as "scientific revolution", "scientific method", and "scientific notation" also come to us from the nineteenth century as well (Oxford English Dictionary, 2019a). Given this etymology, labeling Descartes a "scientist" or claiming he practiced "science" feels outlandish (though only to me, it seems). Even if this philosopher and mathematician used the term himself in his own writing any honest translation would not merely transcribe the word from Latin to English but replace the word, maybe with something like "scholarship" or "learning". That this doesn't always happen is all the more shocking when I consider how sensitive and precise most of us attempt to be about labelling people today – how critical we consider it that titles not be merely accurate and also earned but that a person self-identifies with a title before we apply it to them. In this light, labelling Descartes or anyone around his time or prior a scientist feels perfectly unjustified.²⁸ Further still, this suggests to me that the label is

²⁷ Interestingly, the word "scientist" was nearly rejected because it too closely approximated "economist" and "atheist", both of which were deemed objectionable. This helps make my point, given that these three words are closely related if not nearly synonymous in many circles today, as seen in our readings. To shed further light on the thinking of the time, I also discovered that a magazine article from 1840 made sense of the novel term by reference to the Italian Renaissance. There the author likened da Vinci to a scientist, on the grounds that he was one who sought the truth, while Correggio by contrast was an artist because he asserted it (NPR, 2010). Again, I would argue that this sentiment too has reversed. I think of us as framing scientists as the ones asserting what is true and artists seeking it. And then I would note that this reversal has happened in less than two hundred years.

²⁸ I read this trend as something akin to referring to the Caribbean pirates of the sixteenth century as "Nazis" or fifteenth century Incans as "Maoists". One may have a reason for doing this but, except in very limited cases, I feel more is lost than can possibly be gained. I haven't yet explored how the History of Science field negotiates the

more than a journalistic convenience, a simple shortcut, but may be something of a political tool, an umbrella term applied to an unsavory cohort and meant to render them wholly “other”. As alluded to by David Orr (2004), he and many others are “tempted to round up all of the usual members of the rogue’s gallery” (p. 51). Curiously, this is something done while these same authors discuss holistic and unifying visions, the evils of othering, and the need to embrace nuance and complexity while seeking deeper connection with and understanding of the teeming, sympoietic messiness that is Being.

All this said, if there were no such problems with how we discussed Descartes (or at least with my understanding of this) there would still be far more pressing issues surrounding his ideas. As implied earlier, whomever and wherever you are at the moment you are reading these words of mine, I would argue you are unlikely to find much in your surroundings, on your person, or even arising in your consciousness that is significantly alike anything in Descartes’ world. Remembering that he died in 1650, even if you ignore any of the obvious things (anything that includes plastics or uses electricity, for example) and just seek out staples of conversation and modern life, what you are likely to find would be alien even to many of your most recent ancestors, even if you shared with them a culture and language. What seem like relatively primitive tools in 2021, for example, such as the paperclip, razor blade, barbed wire, or wrench are all brand new inventions (all arriving more recently than the term “scientist”). Everything from the match and the bicycle to dynamite and the guillotine; from the mason jar and thermometer to the piano and sewing machine; from tape to tampons and so much more would not even be figments of anyone’s imagination until centuries after Descartes – this so-called

labels science and scientist, yet, however it is done, that sense-making doesn’t appear to have percolated into broader scholarly practice or common usage.

“modern” philosopher. Even virtually all the measurement, precision, ordering, and standardization that pervades our world and thinking were entirely absent from the mind of this genius mathematician from Europe. Ideas such as standardized measures (like the kilogram or meter, Fahrenheit or Celsius, or even standard time or simply the ability to keep time to the second) all had yet to arrive when Descartes was alive. All of these ideas and objects can appear trivial, but any one of them has transformative repercussions. For example, dying long before Daniel Fahrenheit (1686-1736) and Anders Celsius (1701-1744) meant that Descartes had no tool or measure for accurately assessing temperature. Now consider the importance we give today to the difference between two otherwise imperceptible measures, say 38°C and 41°C. This change in body temperature in the year 2021 may be the difference between having no real concern at all and dropping everything to rush one’s child or grandparent to the hospital. For Descartes, whose daughter Francine died at age five of scarlet fever – a death said to have transformed his life and set him on the path to his ultimate quest for universal answers to life’s biggest questions – he alone having a thermometer in this one instance may have altered not just these lives but the course of history. Or consider the global significance of an infinitesimal shift in ocean or atmospheric temperature of just a half a degree over the span of my entire life: the finding of the Fourth Assessment Report of the United Nations International Panel on Climate Change (see IPCC Working Group I, 2007). One or two degrees of this sort is casually spoken of in the present as potentially being the difference between the continuation of our own and countless other species and a tipping point that may result in our collective extinction. That said,

no part of this reality, this ecological dis-ease alone, nevermind the tools or measures for its diagnosis or its proposed remedies, would make any sense to Descartes.²⁹

This discussion is not about crude inventions and their applications. Relatedly, and in just the same way as above, our concepts surrounding cause and effect, natural and supernatural, wellness and illness have all changed and undergone a tremendous shift as well. In Descartes' time a wide range of theories of disease were popular in Europe, for example. Two prominent concepts were related to "humours" and "miasma". The first arrived from ancient Greece and Rome and insisted that illness resulted from imbalance between the four bodily fluids of blood, black and yellow bile, and phlegm – a belief which justified activities such as bloodletting. The second, miasma, considered exposure to the foul air from murky marshes, the mouths of beasts, or emanating from decaying matter as disrupting the body's vital and otherwise harmonious functions (Karamanou et al., 2012; Moore, 2007). The belief about disease that sways my own perspective and actions in this time of global pandemic is germ theory. It's an idea that wasn't taken up by public health officials and medical professionals until decades after John Snow (1813-1858) had made sense of the London cholera epidemic of 1855. Even thirty years after the epidemic and all of Snow's labours, even in London, miasma theory remained popular over the seemingly absurd proposition that illness could arise by way of direct fecal-to-oral transmission from a sick person (Johnson, 2006).³⁰ But when it eventually came, Snow's revelation was a true

²⁹ Even the concept of extinction itself was viewed as a violation of God's complete and perfect order and was not even accepted as a coherent philosophical notion until many generations after Descartes (Rowland, 2009). Though integral to Charles Darwin's work, the reality of extinction was still being fought about as late as the nineteenth century when the idea was taken up not as a catastrophic ending but an autogenic feature of nature's beautiful cycle (Sepkoski, 2016). Ideas such as mass extinction are newer still and were not firmly accepted prior to the seminal work on marine fossils by Raup and Sepkoski at the end of the twentieth century (Raup & Sepkoski, 1982).

³⁰ Miasma remains the accepted thinking almost everywhere I have travelled. When I acquired a paralyzing gut infection on one of my last trips to Indonesia, for example, my Papuan friend walked me through how to cure the illness and avoid future troubles. He explained that the "bad wind" had snuck in through the soles of my feet,

revolution. However, there are still more obvious examples than the movement and impact of invisible pathogens.

Even the popular understanding of animal migration is brand new to the West and its accepted forms a radical deviation from prior thinking on the topic. For instance, in the Western world alone, since ancient times popular theories for what happens to birds in Winter have included ideas that, because they are not observed to nest locally, they metamorphose into or from other organisms such as mice or barnacles (see “Barnacle goose myth”, 2021).³¹ Other explanations included that birds hibernate or transfer to the bottom of lakes, ponds, or the sea, as an amphibian or turtle might.³² Using careful calculations based on observations from ornithology, astronomy, and physics, as well as readings from Scripture, near the start of the eighteenth century a Harvard professor proposed that birds do not make for the Carolinas or Florida, Central or South America when temperatures are too cold for them in Massachusetts but instead leave the Earth and fly a 400,000-mile roundtrip to the moon (Harrison, 1954). And it

because I was not acquainted with where and how to walk, and that only a special kind of leg massage could milk the offending brume from by being. My experience of East Africa has been similar, where – even in urban settings and among the youth – a complex mixture of miasma, magic, “the evil eye”, and God’s wrath are causes of illness (explicitly not sewage, spoiled pork, mosquitoes, or a lifetime of ingesting coal smoke and diesel exhaust). The veracity of such beliefs is implied by the regular spending of people’s hard-earned resources on removing curses, warding off daemons, and countering other spiritual attacks.

³¹ There’s a marvelous account by Giraldus Camrensis (1146-1223) from his expedition to Ireland, regarding the nature of a goose (*Branta "anas" leucopsis*) said to emerge each year fully formed from barnacles:

There are likewise here many birds called barnacles, which nature produces in a wonderful manner, out of her ordinary course. They resemble the marsh-geese, but are smaller. Being at first in gummy excrescences from pine-beams floating on the waters, and then enclosed in shells to secure their free growth, they hang by their beaks, like seaweeds attached to the timber. Being in process of time well covered with feathers, they either fall into the water or take their flight in the free air, their nourishment and growth being supplied while they are bred in this very unaccountable and curious manner, from the juices of the wood in the seawater... (Wright, 1862, p. 36.)

³² In 1555, Swedish archbishop Olaus Magnus (1490-1557) added to the accounts of his travels, titled *Historiae de gentibus septentrionalibus* (A Description of the Northern Peoples), that swallows did not migrate or overwinter in nests or hollows but instead in the unfrozen muds found deep under water. Of these swallows, Magnus is said to have claimed:

They gathered over lakes and rivers, before plunging headlong into the depths and allowing themselves to sink to the bottom. There they remained, immersed in mud, until the coming of the spring. (Lee, 2000, n.p.)

wasn't until 1822 and the arrival of a very special stork in a field in Germany (the now famous *pfeilstorch* or "arrow stork" who was found with an African spear running through its neck) that it became more widely accepted that birds were more likely to fly just 1,000 miles south than transmute into other species or traverse open space (Macdonald, 2015).

Even Descartes' faith, Catholicism, commonly defined by its steadfast tradition, has shifted momentously and would be nearly unrecognizable to him today. Around Descartes' time, for instance, the Church considered charging interest on a loan to be a grotesque and immoral violation against God but the existence of limbo and practices of capital punishment and slavery were seen to be fully commensurate with the life and teachings of Jesus (see, Curran, 2003; Moehlman, 1934; Vatican International Theological Commission, 2007). So, in a very real sense apples have become oranges, or perhaps kumquats.

Navigating all of the above language matters, of course, is the work of a skilled translator and, though reluctant, I would have to find and rely upon such a person. In the meantime, given that I didn't have a good translation of his life's work at my disposal, it seemed I could start to think through some pertinent ideas on my own and with some help from *Google Scholar*. I started by narrowing my searching to those main concepts environmental educators and other adjacent scholars regularly brought up in reference to René Descartes: most notably his dualism and his clockwork metaphor.

It's About Time

At the outset, I was particularly fixated on the clock symbol. Our readings suggested to me this philosopher's innovation was to establish that the human body, animals, plants, and the rest of the corporeal world are all clock-like: mere matter that could be examined, taken apart, put back together, and ultimately explained by the interaction and movement of its components.

And further still, that this hypothesis inspired the mechanism and reductionism of later centuries which in turn resulted or assisted in the corruption of the human spirit and the world (Capra & Luisi, 2019; Davis, 2010; Oakley, 2011; Orr, 2004; Sterling et al., 2005).

Even without reading Descartes, I could not imagine how any Late Medieval notion of a clock, or the constellation of sentiments surrounding it, could be anything like my own. The concept I had of a clock was a throw-away bit of extruded plastic paired with cheap electronics and a smattering of toxic metals and chemistry; an easily broken, battery-powered, sweatshop-produced contraption found in a towering heap within a giant cardboard box, between the potato peelers and lightbulbs, on sale at Ikea for \$1.99. And time (that valuable thing a cheap clock delivers) was, in my experience, nearly everywhere, embedded in nearly everything, and often in more reliable, accurate, and easily accessed forms than coming from a contraption called a clock. As a result, it felt to me that clocks (not even a good source of time in the 21st century) were so cheap and obsolete that they maintained little meaning, value, or purpose above being nostalgic wall ornaments. I imagined that none of this could possibly have been so in Descartes' time. Therefore, though true, stating that Cartesian philosophy compared all corporeal creation to a clock or clockwork seemed misleading. So then, what ideas could his metaphor have contained in his own time? I knew a little about old clocks. All the old clocks I had ever heard about were treasured. The really old ones were very large, housed in medieval European churches, and were even more culturally and materially valuable – and not so merely for their age. In my journal, I also noted Big Ben, that newer clock tower that was effectively the symbol of London, the seat of a multi-century globe-spanning empire. This thinking had my skepticism revving once again.

Over the span of several weeks, I began diving into the origins of Descartes' mechanical clocks. There I discovered some fascinating context. In a work titled *Understanding the Middle*

Ages: The Transformation of Ideas and Attitudes in the Medieval World, Kleinschmidt (2000) offered an entire chapter on the origins of clocks in Europe and the changing experience of time during this period. The author notes that Catholic mass demanded specific hours of worship which led monks and nuns to employ and improve upon water clocks, sand dials, and other time measurement devices for this purpose (p. 24).

This was a surprising and critical historical fact. Learning of this caused me to question whether or not the popular idea of the modern obsession with measurement and cold systematization was entirely bunk. What are commonly said to be the repressive and corrupting forces of clock-time, resulting in the ordering and quantification of the world – framed as defilements of nature in Bonnett (2007), Merchant (1990), Orr (2004), Plotkin (2003), and many others – was born not of the Scientific Revolution but came centuries earlier and was compelled by the ultra-faith of monastics within the religious sanctuary of the monastery. This blew my mind.

The author then wrote about how these simpler devices paved the way for Europe's first mechanical clocks. Catholic monks, like Richard of Wallingford (1292-1336), were the original clockmakers and their works resided in churches where they served primarily religious purposes (Kleinschmidt, 2000, p. 26). It seemed this had to be a reasonable approximation of the foundation for any idea of clockwork with which Descartes wrote: a devotional tool for the ascetic class within the halls of the Catholic Church. Already, just one chapter of one book in, and this clock story was looking messy and interesting.

Wiglesworth (2006) added to this picture in his *Science and Technology in Medieval European Life*. Chapter eight, *The Passage of Time: Calendars and clocks*, explains how the mechanization of time in the form of mechanical clocks (“horologium” or “cloche”, in the native

Latin) led to them moving out of the church and becoming desirable status symbols held in private by royalty. From there mechanical clocks moved on to become projects of prestige bringing fame to whole cities and entire regions. Not only were these costly projects, equivalent to many millions of dollars today, but they were also nothing like their modern abstract counterparts. At this time, clocks still maintained all their spiritual symbolism but in addition, they projected all of that loudly to the world, both visually and acoustically. These early mechanical clocks commonly contained elements like a border of scenes or figures from the bible, a mobile procession of saints, and/or displays reminding the public of church teachings as well as pertinent astrological data (Wiglesworth, 2006).

Clear connections between clocks and the rest of the natural world only grew during this period, too. To start, for centuries these time-keeping devices were not so accurate as to warrant a minute hand, never mind a second hand, and easily lost track of time over a relatively short period. As such, not only were they initially fabricated and calibrated by reference to the sun but they regularly needed to be recalibrated as they fell out of sync. So, there was no clock, clock-maker, or clock-owner not in constant engagement with the celestial. As well, many of these clocks were astronomical in nature and charted the movements of the sun, moon, planets, and stars as well as their phases. A synthesis of these realms, physical and metaphysical, was the common rooster automaton (a symbol of Christ's passion) found atop many clocks and which could often be heard calling at dawn by way of an automated bellows.³³ A prime specimen from this time is the famous Prague Astronomical Clock (*Prague Orloj*). Construction on the project

³³ For additional examples and their descriptions see: "Gdańsk Astronomical Clock," 2019; "Horloge astronomique de Chartres," 2019; "Lund Astronomical Clock," 2019; Olomouc Astronomical Clock," 2020; "Rostock Astronomical Clock," 2020; "Strasbourg Astronomical Clock," 2020; "Wells Cathedral Clock," 2019.

began in 1410 and, though it has been expanded and refurbished over the centuries, this four-storey masterpiece still dazzles crowds today.³⁴ As well as giving the date and four different readings of time (Babylonian, Old Bohemian, Central European, and Star time), it contains: an astrolabe depicting the state of the known universe with its constellations of stars and planets; an elaborate ring charting the movement of the sun and moon, as well as moon phases, and the relation of both to the signs of the Zodiac; a fully ornate annual calendar laid with gold and inscribed with the names of 365 saints to mark the day and feast of each one; all of which are topped by a celestial parade of the Twelve Apostles who march passed on the hour and are themselves watched over by a golden rooster (McFadden, 2019; “Prague Astronomical Clock,” 2019; Theodossiou, E. et al., 2009).

Dohrn-van Rossum (1996), in his *History of the Hour: Clocks and Modern Temporal Orders*, provided still more provocative detail about clocks from this era with an entire chapter titled, *From Prestige Object to Urban Accessory: The Diffusion of Public Clocks in the Fourteenth and Fifteenth Centuries*. Here, the author shares how the building of a clock was of necessity a communal affair. These creations, he explains, often transformed into competitions between cities and territorial lords, in cooperation with and receiving funding from ecclesiastical institutions and kings, all of which resulted in them becoming still more beautiful and elaborate. As well as being prestige-enhancing projects, commonly developed for the beautification and honour of the city, these clocks were also described as being for not just the utility of the citizenry but also their ease and comfort. Though often taking pride of place in a tower at the

³⁴ Any image search for this grand clock will yield pictures of a sea of onlookers just as likely as intimate wedding portraits of couples posing with this magnificent construction. I think this speaks to the clock’s lasting impression and value – not as a wretched symbol of our waywardness but of what nature and life can inspire.

center of town or on the highest wall of a city's church, these works became more than a point of pride for its citizens or a tool for keeping time but functioned as a barometer for civic wellbeing. For instance, it is said that Charles V (1500-1558), Holy Roman Emperor and famous clock collector, made visit to a town's clock his first point of inspection as the clearest sign of a competent and well-functioning administration (p. 154-157). Importantly, by the late 16th century, when Descartes was born – in addition to all the religious, prestigious, ostentatious, and civic functions – clocks had only grown more socially significant and useful as astrologers, astronomers, and seafarers alike pushed clockmakers for evermore miniaturization and precision (Álvarez, 2015). That said, these examples still arrived before the common ownership of clocks or the invention of pocket or wrist watches as we know them today; so, it was in this context I considered the ideas and impressions behind René Descartes' metaphor must sit.

Reading all this convinced me Descartes was referencing something understood to be almost immeasurable in value and complexity, inspiring the awe of kings, and all while being intertwined with and expressive of community, faith, and nature. Construction of a clock required: the funds of a pope, emperor, or entire population; the skills of a coordinated team of astrologers and/or astronomers, mathematicians, engineers, architects, craftspeople, and other labourers, all of whom worked with the widest variety of materials. And, even with such orchestration, it may have taken an entire team years or even decades to complete such an impressive conflagration of ideas and expressions. When completed, these were enchanted marvels, works of public art, sculpture, storytelling, and magic brought together into a seemingly impossible multimodal simulacra of inherently entangled physical and metaphysical universes. These were artificial living things, uber-symphonies composed of interactions between collections of much smaller and often hidden mini symphonies; all of which could not help but

cause observers to contemplate nature and the divine, life and death, heaven and hell. So, was it this clock to which Descartes was comparing an algae or mold, sea sponge or worm? What else could he or his contemporaries have had in mind? By comparison, for mere clocks it seemed to me these entities were more relevant and impressive in their time than projects like the Large Hadron Collider or International Space Station are in our own. I, for one, would never label these things miraculous, think of them as anything more than expensive lab equipment, and would happily sacrifice either or both to save any one of our oldest clocks.

The Origin of a Metaphor

All of this had me considering how seminal René Descartes metaphor could have been, given that clocks were so prominent and important for centuries before his time. Regardless of the intended meaning of his metaphor, was he the first or most popular, or even just the loudest or most prolific, person to analogize humans, the rest of life, or the material world with machinery? This was very much the impression our course readings left me with. Answering this could give me a better sense for whether or not he was the source of this idea or anything like it and, thus, how responsible he might be for gifting this concept to the world.

The earliest example of a clockwork universe I spotted in the literary wilds was implied in an introduction to astronomy by John of Sacrobosco (c.1195-c.1256), titled *De Sphaera Mundi* (*On the Sphere of the Cosmos*) published in 1230. Described as the most successful book of astronomy of its time, with manuscripts reproduced and used in universities for centuries, the text discusses the *machina mundi* (machine of the universe) and spells out further how “[t]he machine of the universe is divided into two, the ethereal and the elementary region” (Grant, 1974, p. 443). This was a shocking find as it approximated, in just a few words, two of the most

common ideas attributed to Descartes: reference to the cosmos as a machine while also suggesting creation was a duality comprised of material and immaterial.

From there, I discovered a spiritual guide written in 1339 by the German mystic, Dominican friar, and Catholic saint, Henry Suso (1295-1366). Its title, *Horologium Sapientiae*, translated variously to *Clock of Wisdom* or otherwise as *Wisdom's Watch Upon the Hours*, sets out in twenty-four chapters “the framing metaphor of the clock, not as a measure of duration, but in terms of the exaltation of the human spirit and body” (Bradbury & Collette, 2009, p. 360). Suso also notices throughout the work how both spirit and body, like a clock, require keen supervision and regulation to maintain proper function. This work of Latin, with its Middle English and Old French translations, is said to have been widely read through the fourteenth and fifteenth centuries and is considered a Medieval bestseller, as “one of the three most popular devotional treatises in Western Europe” (p. 361).³⁵

Next in line was the famous work by poet and Medieval chronicler Jean Froissart (1337-1405). Titled, *L'Orloge Amoureux (The Clock of Love)* and written in 1368, the poem compares both Froissart's love and his beloved to the latest and most astonishing technology on the scene: the clock escapement mechanism. Froissart likens the lover's heart to the body of a clock, desire to the clock's main wheel, and the regulating wheel he calls temperance (Bradbury & Collette, 2009).

³⁵ In his prologue, amazingly, Suso also explains the work came to him as a vision from God in the form of a clock. He writes:

So the mercy of the Savior deigned to reveal this present little book in a vision, when it was shown as a most beautiful clock, decorated with the loveliest roses and a variety of ‘well-sounding cymbals,’ which produce a sweet and heavenly sound, and summon the hearts of all men up above. (Suso, 1994, p. 54)

Bishop Nicole Oresme (c.1325-1382) wrote his *Le Livre du Ciel et du Monde* (*Book of the Heavens and Earth*) around 1377. In it he describes the world as an horloge, “a regular clockwork that was neither fast nor slow, never stopped, and worked in summer and winter” (Frank, 2011, p. 85). In turn, Philippe de Mézières (1327-1405) used a clock metaphor in his 1389, *Songe du Vieil Pelerin* (*The Old Pilgrim’s Dream*). Advisor to five kings, two emperors, and two popes, de Mézières establishes the clock as his central metaphor and teaching tool; key to which, he asserts, are the clock’s properties of restraint, predictable movement, and reliable flows of energy (Bradbury & Collette, 2009).

Writing in Middle English around this period was Geoffrey Chaucer (1343-1400), who also spent time inviting his audience to think about and connect to clocks (Bradbury & Collette 2009). In addition, within his *Parlement of Foules*, Chaucer describes his character Chauntecleer, a rooster (with a possible religious connotation), as keeping time in “equal hours, hours of the clock, hours as measured in right ascension, equinoctial measure” (cited in Bradbury & Collette, 2009, p. 367).

And in the final year of that century, famous across Europe as a female writer and a kind of proto-feminist, and all while under the patronage of dukes and kings, Christine de Pizan (1364-1430) composed *Epistre d'Othea* (*Othea’s Letter*). Comparing humans to clocks, de Pizan wrote:

Temperance was also called goddess, and because of this our human body is composed of diverse things and must be tempered: according to reason, it can be symbolized as a clock, which has several wheels and weights, and always the clock is worth nothing if not regulated; similarly our human body does not work if temperance does not regulate it. (Bradbury & Collette, 2009, p. 362)

All of this clock-talk made it look like material, personal, and inner emotional worlds were commonly and popularly described as being clock-like – and not less than three hundred years prior to Descartes and across at least three languages (Latin, French, and English). Also, essential to this analysis, it was clear that these framings typically entered the culture by way of authoritative religious and artistic voices in devotional and poetic form. Today such characters would be considered the very antithesis of the cold rationalists and materialists who are said to have given us clockwork metaphors and a mechanistic worldview.

I then wondered about the thinking of Descartes' more immediate predecessors and contemporaries. I soon discovered that in the seventeenth century this tradition of clock-likening was still being kept up and by some much more widely known authors. William Shakespeare (1564-1616) wrote his comedy *Love's Labour's Lost* around the time of Descartes' birth. In it his character Lord Biron declares, at the end of Act III Scene I, "I seek a wife! A woman, that is like a German clock..." Around this same time, Shakespeare also writes in *King Richard II*, in Act V Scene V:

I wasted time, and now doth time waste me;
For now hath time made me his numbering clock:
My thoughts are minutes; and with sighs they jar
Their watches on unto mine eyes, the outward watch,
Whereto my finger, like a dial's point,
Is pointing still, in cleansing them from tears.
Now sir, the sound that tells what hour it is
Are clamorous groans, which strike upon my heart,
Which is the bell: so sighs and tears and groans

Show minutes, times, and hours: but my time
Runs posting on in Bolingbroke's proud joy,
While I stand fooling here, playing the clock for him.

Lines comparing people with clocks are also to be found among the works of the renowned English poet John Donne (1572-1631). A selection from his 1611, *An Anatomy of the World: A Funeral Elegy* reads:

But must we say she's dead? may't not be said,
That like a sundered clock is piecemeal laid,
Not to be lost, but by the maker's hand,
Repolished, without error then to stand.

Most strikingly, I discovered that in 1605 (when Descartes was just eleven-years-old), Johannes Kepler (1571–1630) penned a letter to a colleague explaining his preoccupation with investigating physical causes and, moreover, his pressing aim to “show that the machine of the universe is not similar to a divine animated being, but similar to a clock” (Shapin, 1996, p. 33).³⁶ With that last example, I was satisfied that no one could reasonably argue (or at least I could not be made to argue) that it was Descartes who first placed in the popular imagination the idea that the cosmos or any of its constituents were like a clock.

A Cartesian Collection

It was at this time, after the above discoveries, that I picked up my first book about the man and his work. I found an edited collection of writings from Descartes scholar Roger Ariew,

³⁶ Kepler: better known as a scientist, for his laws of planetary motion, and being a figure in the Scientific Revolution; less known for being a royal astrologer and arguing his theological convictions for the coherence between scripture and a newly formulated heliocentrism (Danielson, 2000; Popova, 2019).

titled *René Descartes: Philosophical Essays and Correspondence*. Though brief, its introduction offered additional context and a taste of the life and times of this thinker. This intro and a first skim through the text made it difficult to understate how disliked Descartes and his writings seemed to be during his lifetime and beyond. This was problematic. I was anticipating that his overwhelming popularity or the widespread celebration of his ideas would make sense of the common interpretation I found in our readings. That is not what I learned. Descartes, it felt to me, mostly received vigorous pushback on his ideas from first publication to death – and, of course, as evidenced by our readings, the sentiment has not improved with time. In response to his first and arguably most influential publication, *Discourse on Method*, issued in 1637, even his own father considered him foolish (Ariew, 2000). Already disappointed René hadn't taken up a career in law, his father Joachim judged him doubly ridiculous for having his silly ideas “bound in calf-leather” (Adam, 1910, p. 433).

Further, though only ninety pages long, René's *Meditations on First Philosophy*, from 1641, is accompanied by nearly four hundred additional pages of defence to the vehement objections of friends, fellow philosophers, logicians, theologians, and other men of letters. Thomas Hobbes (1588-1679), most notably, rejected every one of Descartes' ideas presented in *Meditations* (Ariew, 2000). Just two years after publication (and the same year Isaac Newton [1643-1727] was born), the University of Utrecht prohibited any teaching of Descartes' work; an action the school's rector, Gysberus Voetius (1589-1676), defended on pragmatic, pedagogical, and doctrinal grounds but seemed motivated by unwavering institutional commitment to the infallibility of every word of ancient Aristotelian philosophy (Verbeek, 1992). Serious formal condemnations like this kept coming throughout the rest of the seventeenth century. Following Utrecht's lead, the University of Leyden banned Cartesian philosophy in 1648. And in 1662,

twelve years after his death, Descartes' ideas were being censored at the University of Louvain. The following year, for what they perceived as his deviating from the consecrated teachings of Aristotle and Aquinas, censors in Rome added Descartes' works to their *Index Librorum Prohibitorum* (*Index of Prohibited Books*), which essentially removed his writing from public life across the Kingdom of France, throughout the Holy Roman Empire, and anywhere the Church held sway (Ariew, 2000). And apparently further denunciation of Descartes was required when, in 1671, the king along with the faculty of the University of Paris formally committed to rejecting any ideas connected to this philosopher. Twenty years later, in 1691, they went further by requiring all professors in Paris to sign a royal declaration that they had not come under the influence of Cartesian doubt (Ariew, 2014).

I remain unclear about why all of this censorship was required. Though there were a few self-styled Cartesians across Europe at this time, not only was their existence isolated and fleeting but many appear to have subscribed to a misreading of Descartes – the kinds of thinking he warned against and rejected outright in his publications and letters, such as unbridled doubt which could result in the rejection of tradition and authority (Ariew, 2000). To my mind, rather than expunging him, teaching Descartes would seem the surest antidote to all this. Perhaps even more important though, almost everything Descartes-related looks as if it was quickly overshadowed and then rendered obsolete with the revolutionary and rapidly ascendant view of the cosmos birthed by Isaac Newton's 1687 publication, *Philosophiæ Naturalis Principia Mathematica* (*Mathematical Principles of Natural Philosophy*) (see Danielson, 2000).

All the above context made me highly suspicious of the entire array of ideas attributed to Descartes and, resultantly, those ideas premised upon them. My provisional conclusion on the whole clockwork discourse was that the semantic leaps taken between Descartes' time and my

own made the metaphor messy and confusing if not entirely backward. And, whatever he wrote and intended, I could not imagine his words being a truly transcendent transformation from Sacrobosco's (1230) *machina mundi*, cited earlier, or any of its many successors. It all seemed less probable still, given the popular and institutional dislike of Descartes' ideas – ones which were so quickly and thoroughly cast asunder.

Mechanistic Machinations

Relating to clockwork, all along the common reference to clocks and machines as being synonymous left me perplexed. What came to mind when I thought of a machine was not a clock; instead, an easier and better fit were any number of twentieth century symbols of the Industrial Revolution: something noisy and composed of wheels, rollers, belts, bearings, springs, actuators, and the like and probably found on a farm or in a mill or factory and, as the century rolled along, eventually in an office. That said, I also knew how we used the phrase “simple machine” to refer to objects that do the most basic work, such as inclined planes and screws. Still, if someone asked me to name a machine I would not imagine door stop, pulley, or bolt to be among anticipated or acceptable responses. Because I was so resistant, for whatever reason, to slotting “clock” under the category of “machine”, I thought to look up the origins of the term. Within the *Oxford English Dictionary*, I found a splendid array of unexpected meanings and connotations. There I discovered the term arrived in English in the mid-sixteenth century by way of Old French from the much older classical Latin word “*machina*.” Both the ancient term and its newer form were understood as, “a material or immaterial structure, *esp.* the fabric of the world or of the universe...” along with being “a structure regarded as functioning as an independent body, without mechanical involvement” (Oxford English Dictionary, 2019b).

I did not know what to make of this. As noted earlier, like others, Sterling (2005) suggested that “[s]ince the days of Descartes and Newton, and the beginnings of the whole scientific revolution . . . the world has been seen fundamentally in terms of mechanism” (p. 23). To me this etymology strongly suggested the idea that a clock, say, was deemed a machine for being semi-autonomous and cosmos-like.³⁷ With this dictionary reference I really began to feel we had the whole story backward in some strange way. Since the Roman Empire and across much of the Mediterranean region, “machine” was understood to be something like what I mean when I say “space-time,” or “the patterns and connections that produce the world,” or “the underlying make-up of reality.” Descartes or anyone else then who suggests the world is a machine is seen in this light as profound in their thinking as noting that a girl resembles her mother or that fish taste of the sea.

Continuing on with this term, in addition to the original senses, and along with meaning “a scheme or plot” (what we would now differentiate as a “machination”), by Descartes’ time the word also described a “structure used for transportation or conveyance,” “a ship or other vessel” (Oxford English Dictionary, 2019b). This too was shocking. Helpfully, I discovered a description of machines from Descartes himself. In his publication *The World* (written between 1629 and 1633 but only published in its entirety in 1677, long after his death), he writes in chapter 18, “We see clocks, artificial fountains, mills, and other similar machines, which although they are made only by men, are not without the power of moving themselves in many different ways” (as cited

³⁷ Too, this made the earlier phrase from John of Sacrobosco, *machina mundi*, feel mistranslated. In light of this etymology, “machine of the cosmos” reads like a straight translation of the words but not a conveyance of the intended meaning. Written in 1230, the author must have meant his reader to imagine “the fabric [the relations of the material and immaterial elements] of the universe” or perhaps the “hidden genius of the cosmos” and not “the simple, inert, clock-like cogs and wheels” that “machine” connotes for me today.

in Ariew, 2000, p. 42). This confirmed a more relaxed and encompassing definition than my own; nevertheless, a sailboat, horse-drawn buggy, windmill, or fountain remained far from being either machines or clock-like to my mind. Again, we seemed to have a perception and translation discrepancy that remained unresolved, if not entirely unnoticed.

In this light, it was also suddenly relevant to return to the most famous line the philosopher used to describe his idea about the relationship between mind and matter. Descartes suggested that, even though it is material and machine-like, the body's unique synthesis with the soul makes the relationship entirely unlike that between a sailor and their ship. This reference makes much more sense, to me at least, if a sailing vessel is considered by the author and his audience to be a "machine." It also suggested to me that the idea he is attempting to get across is not that the material world or bodies are tantamount to purposeless and inert cogs and lacking any connection with the sacred (as I interpreted within the course material); instead, it seemed he feels all existence is both God-made and functioning as a whole integrated system without any need for constant outside effort or attention (like the grandest of all clocks), just as intended by his omnipotent Creator (the greatest of all clockmakers). I felt this interpretation was also corroborated by Descartes' three visions of comprehensive cosmic unification. If that was so, again I had arrived at a highly conflicting perspective and set of connotations – all of which begged for further exploration of Descartes' mind-body dualism.

Before I could do so, however, I was keen to further probe the ideas above. I searched for more information on early mechanical thinking. Again, I wanted to know what other people of Descartes' era understood clockwork and this mechanical philosophy to be. Eventually, I discovered Marie Boas and her 1952 work on this very theme, titled *The Establishment of the Mechanical Philosophy*. In a discussion of the worldview of Sir Robert Boyle (1627-1691),

Anglo-Irish inventor and natural philosopher, Boas explained that he “readily accepted Descartes’ notion of the physical world as an integrated whole”, and that “[a] body is not to be considered barely in itself, but as it is placed in, and is a portion of the universe” (Boas, 1952, p. 486). This again seemed to match with what I took as Descartes’ unified vision. The author then described Boyle’s comparison of the world to a machine but explained that this was not a disparaging analogy in the least. She cited him as saying ‘it more sets off the wisdom of God in the fabric of the universe...’ (p. 486). Boas also explained how Boyle borrowed Descartes’ comparison of the body to a machine and that he regarded the comparison to be flattering, that this ‘curious engine’ was “wonderful and admirable” (p. 486). All of this seemed to assert a set of ideas that were once again in conflict with those on the same themes found in our course readings.

Immethodical Doubt

Aside from eliciting more consternation in me, these findings turned me off further reading for some weeks. I felt like I was deeply mistaken. It seemed I had to be misinterpreting our course readings or otherwise the works of Descartes. Maybe it was both. If so, were these innocent misreadings or was I just being contrarian and difficult? Was I repeating my experience in Teacher Education? How was it that at the outset of this program, I was questioning what felt like central claims of the field, a field I had voluntarily entered? Was this some kind of self-sabotage? I could not easily answer any of these questions. If I was sincere and onto something, surely no one was going to take any of this well. And I couldn’t see how discussing any of it would be simple or present as anything but an episode of gaslighting in which I was sowing doubt for sport while also pitting myself against what seemed like the entire discipline. Yet, I also felt as though, if my reading was sensible, I was being seeded with doubt in a similar

manner – which seemed rather strange. As I sat with these thoughts, our largest source of Descartes references arrived in my lap: Capra and Luisi's text on systems thinking. I flipped it open to browse the content for the coming course and found a preface that noted "Cartesian mechanism", an intro mentioning Descartes a dozen times, an entire section on him alone, and page after page of references to his thinking in the book's index. I took that as a kind of cosmic provocation, a taunt that came at just the right moment. Obviously, I was going to keep digging into this, and precisely because it was difficult and messy and I felt so conflicted about it. I reasoned that I found it all very interesting, was becoming somewhat obsessed with this topic, and, of course, I didn't have to share my thinking with anyone. So, with that I took up the project once again.

The Surreal Corporeal

Upon returning to these readings I started where I left off, with Descartes' (1677) *The World*. I was once again struck by chapter 18. I previously overlooked so much that would once more disrupt my prior reading and thinking about Descartes. Discussing the functions of machines such as human or animal bodies, René explains that not only do they digest food, respire, walk, and sleep, but they also see, hear, taste, smell, and feel along with having ideas, imagination, and memory. He also attributed to the body-machine the "appetites and passions", which I read as inclusive of hunger, thirst, sexual desire, as well as emotions (as cited in Ariew, 2000, p. 43). None of these processes are undertaken by what he calls the "rational soul" but reside within and are orchestrated by the clockwork machinery of the body through their simple organization and interaction. The above perspective on bodies and souls corresponds to the thinking of the time and has little to do with modern interpretations that have only evolved very recently and rest upon new assumptions and understandings arriving from recent biology,

psychology, and philosophy of mind.³⁸ Descartes defends and elaborates on this idea in a written dialogue with a friend, on October 3, 1637. Of a critic, he states:

...he supposes me to think that brutes see exactly as we do, that is, in being aware of and knowing that they see; this is believed to have been the opinion of Epicurus and is even now the common opinion of almost everyone. However ... I expressly showed that brutes do not see as we do when we are aware that we are seeing. Rather, they see as we do when our mind is diverted... (p. 84)

This finding, or at least my own interpretation of it, blew me away. In Descartes' world (though perhaps only according to me) there seemed to be no contradiction in talking about sentient machines! This felt like a violation of many of our readings, like that from Oakley (2011) which discussed "pushing back against unsatisfying frameworks of thinking inherited from previous eras, such as Descartes' (1637) reductionist philosophy of animal bodies as machine-like mechanisms that can neither think nor feel pain" (p. 9). An unsatisfying framework likening non-human animals to senseless machines is not what I was getting from this philosopher. Elsewhere, as in part five of his *Discourse on Method* from 1637, he recapitulates, likening the body to an automaton – one containing all the properties we think of within a human except for the rational mind and its will. And once again he makes clear that, though he describes a machine, he means

³⁸ Descartes arrives at very different definitions, capacities, and effects for bodies, minds, and their constituents than we understand today. And, like most of us, his beliefs and language appear to have shifted somewhat over his lifetime, too. In addition, he conflates ideas I consider distinct and is also careful to draw distinctions between things I consider identical (or just non-existent.) For example, throughout his work Descartes talks about different species of souls (contending with more ancient notions of vegetative, animal, and rational ones); he considers the "rational soul" and "the mind" synonymous though "states of the mind" appear unrelated in a sense I still do not comprehend; he is careful to isolate things like "having a pain" (there being a toothache, say) and "feeling a pain" (being aware of said toothache), and many more ideas across complex, overlapping realms of experience. All of this makes things exceptionally hard to follow for someone who finds much of his work to be wild contortions of language and thinking. Not only did it seem I would need much more time to make sense of all this, but I think one must be a true philosopher to really comprehend much of it; for example, what it means to have a toothache you cannot feel. (Isn't that just a tooth?)

a truly miraculous thing handcrafted by God Himself which, as such, is “incomparably better ordered and has within itself movements far more wondrous than any of those that can be invented by men” (as cited in Ariew, 2000, p. 71). Of these miracles, mere clockwork, human or animal, he does not write that they are more wonderful than any that have been invented in Europe to date; instead, what I read there is effectively the opposite: they [mosquitoes, leaches, scallops, sea stars, and all other creatures] are “incomparably better [and] ... far more wonderful than any of those that can be invented by men [even those seemingly miraculous astronomical clocks].” None of this or my interpretation of it seemed to jive with representations and quotations from our readings. The only thing Descartes appeared to deny animals was the one thing he also denies the human body: what he called the rational soul (able to reason and, thus, morally responsible to God). Vital here is what this would mean: that his was not a proposition that could be disconfirmed by typical counterevidence. Descartes was not making a falsifiable, empirical claim (he was not engaged in science); instead, his idea was based primarily on faith, by way of an approved reading of sacred text, and formed logically out of those faith-based truth claims. My interpretation of all of this then seemed hugely problematic. It meant that to refute Descartes would not require one to demonstrate that, say, the giant pacific octopus is sensitive or clever or enjoys a sophisticated emotional life (by making observations of their behaviour, taking fMRI scans of their nervous systems, or learning to speak cephalopod and then questioning them); instead, one would have to demonstrate that members of the species have their ability to uphold and defend Catholic teachings judged by Descartes’ Creator in the afterlife. Once again, I arrived at what I felt could not be a more contrary reading. So then, what of the other elephant in the room: Descartes’ mind-body dualism?

Cartesian Dualism

Some authors we read in the course of the program asserted very general ideas about Cartesian Dualism. Bai and Scutt (2009), for instance, noted that “[t]he current ecological crisis arises from our dualistic consciousness which separates mind from body and self from world” (p. 92). Similarly, Wahl (2016) suggested that, “To move on from the dominance of the ‘narrative of separation’ and into a ‘narrative of interbeing’ we have to heal the ‘Cartesian split’...” (p. 103). Others, such as Plotkin (2008), were more specific, remarking that, “Ever since Descartes, it has been increasingly common to speak of the soul as something that is ‘in’ us, like a ghost, a spirit, or an ether” (p. 36). I was in multipronged disagreement with these from the outset.

Regarding dualities generally, the first and most obvious consideration was that, just as Dale (2001) noted in chapter two of her, *At the Edge: Sustainable Development in the 21st Century*, two-sided thinking and even entire culture-wide epistemological or cosmological dualistic frameworks were everywhere. In addition to those Dale notes, I was reminded that the storm-god *Marduk* created the universe by doing battle with *Tiamat* (‘the glistening one’, Goddess of the Sea, and symbol of primordial chaos); and how, defeating her, he divided her divine flesh in two, forming distinct planes of existence: Earth and the heavens (Lambert, 2013, p. 454). That was from ancient Babylon and the cosmology contained in the *Enûma Eliš*, composed around 3,500 years before Descartes. From Indian philosophy I found *Samkhya* (Enumeration or Calculation), which was also dual in nature, strongly rational, and sounded an awful lot like Descartes. Possibly arriving around 1,900 years before Cartesian thought, the Samkhya school taught that there are a set of proofs for gaining knowledge and that the universe is comprised of two independent realities: one of *prakṛti* (matter) and the other *puruṣa* (consciousness), the unification of which is *jiva* (living being) (“Samkhya,” 2019). This set of

ideas are the essence of Descartes' philosophy and, to me, on their own strongly call into question how novel (Cartesian), Western, or modern this thinking is.

Also coming from Indian tradition is the *Dvaita Vedanta* (Dualism Conclusion). From the thirteenth century, these teachings espouse a reading of the Hindu Vedas in which God is separated into their own distinct reality from individual souls along with other key divisions such as those between matter and God, matter and individual souls, individual souls and one another, and between distinct forms of matter ("Dvaita Vedanta," 2019). I also recalled that Chinese philosophy has its own powerful and encompassing dualistic framework of *yin* and *yang* (dark-bright or negative-positive), foundational to Confucianism and Taoism as well as forming the organizing principle for traditional Chinese medicine (Fang, 2012).

To my surprise, I discovered that Aztec culture is said to contain a plurality of dualities as well. Though strong debate exists around certain interpretations, some translate the deity *Ometecuhtli* (Two-Lord or Lord of the Duality) as living with his female counterpart *Omecihuatl* (Two-Lady or Lady of the Duality) in *Omeyocan* (The Place of Duality or Double Heaven), the thirteenth and highest heaven (Meehan, n.d.). Less controversial appears to be the fact that the Aztec celebrated song and poetry that made keen use of double-meaning, dual terms, and couplets, especially for articulating complex or abstract ideas. The expression commonly translated into English as "poetry", for example, is *in xochitl in cuicatl* (the flower, the song) (Tomlinson, 1995).

Closer to home, I also considered the moieties of the Pacific Northwest: those cultures who organized everything from customs and land to their history around a critical distinction between two clans, as in the Eagle and Raven among the Haida. Within Haida culture, too, exists other durable pairings and contrasts such as the belief that a person is in possession of two souls,

that an animal may be two-sided and capable of appearing in human form, or even how paintings and carvings are often done in red and black and that these representations commonly emphasize strong bilateral symmetry (Pitek, 2018).

Not only did I consider Descartes to be making a holistic assessment with his dualism, highlighting a whole series of connections rather than enforcing an elemental division, but the above examples felt to be similar forms of two-sided thinking. That these and many other dualities and dualisms arose independently in many forms across time and space made it challenging to consider any such framing as particularly aberrant. To the contrary, I felt a lens such as this must be closer to the norm and seldom more than a mimicry, description, or explanation of patterns found within and all around us.

On that note, in my own thinking on this theme, as someone enamoured with biology and less impressed with our species than others seem, I wanted to deemphasize humans. I could not help but think about the countless organisms who appear to organize themselves around seemingly strict dualistic rhythms and frameworks such as light/dark, day/night, food/not food, alive/dead, high tide/low tide, rainy season/dry season, female/male, kin/foe, and so on. It seemed to me these dualities were so elementary that they were spelled out in the very bodies of members of a species. This could be *nyctinasty* in plants, the opening and closing of a flower's petals or the leaves of many legumes; or it could be the wildly exaggerated sexual dimorphism found in many animal species, such as the peacock or the triplewart seadevil. In this way, dualisms such as these, fundamental and unavoidable, felt like they had been baked into large swathes of the spectrum of life on this planet for uncountable eternities. The idea, then, that some naked primates conceptualized other dualistic frameworks (though less fundamental and only very recently) and that just one of the newest of these is super-interesting and ultra-problematic

did not feel terribly compelling. Worse still, in this light, much of the critique of Descartes felt far too narrow in scope – too focused on the modern, too firmly Eurocentric, and too anthropocentric – all while framed as essential antidotes to these errors.

Tackling what Descartes actually wrote on the subject did not help. The most common quote from Descartes on the distinction between minds and bodies, as above, refers to them as definitionally distinct yet unified – but in more than a mere symbiotic relationship. In the earlier *Wikipedia* reference, Descartes is quoted as saying of bodies and minds that they are “intermingled” and so “closely joined” that they “form a unit” (“René Descartes”, 2019). The book I was reading had a slightly different translation. There it says of bodies and minds they are “most tightly joined and, so to speak, commingled” such that “I and the body constitute one single thing” (cited in Ariew, 2000, p. 136). Elsewhere Descartes clarifies this point. He explains, “I am not that concatenation of members we call the human body. Neither am I some subtle air infused into these members, nor a wind, nor a fire, nor a vapour, nor a breath, nor anything I devise myself” (cited in Ariew, 2000, p. 109). Due to continued confusion about his meaning and intention, René later explains his focus and phrasing by sharing his observation that:

Many more people make the mistake of thinking that the soul is not really distinct from the body than make the mistake of admitting their distinction and denying their substantial union, and in order to refute those who believe souls to be mortal it is more important to teach the distinctness of parts in a human being than to teach their union. (cited in Cottingham et al., 1997, p. 209)

From all of this, I interpreted several critical points, all with key distinctions from the narrative I found in Environmental discourses. Most notably was the rejection of Plotkin’s

determination that Descartes understood souls or minds to be “something that is ‘in’ us, like a ghost” (2008, p. 36). That would make sense to me if Descartes hadn’t given us the example of the captain in his ship which, as he says, the soul-body relationship is not anything like. Further, and tied to this, I find no substantial separation between soul/mind and body/matter in Descartes’ writing. And I read his idea as no more challenging, for a contemporary reader at least, than thinking about what we know from modern chemistry. Take something like water, for example. Hydrogen (soul/mind) and oxygen (body) can come together to form a unique element with its own properties: water (human). What was more, I could not see how this was radically different from any more modern thinkers, such as Carl Jung (1875-1961) who insisted that:

Since psyche and matter are contained in one and the same world, and moreover are in continuous contact with one another and ultimately rest on irrepresentable, transcendental factors, it is not only possible but fairly probable, even, that psyche and matter are two different aspects of the same thing. (Jung, 1969, p. 161)

To my reading, this statement is perfectly Cartesian sentiment. More provocatively still, even with Descartes’ definitional distinction between these elements, I was not compelled (as the entire rest of the world seemed to be) to find a profound dualism established in his publications. To my reading, this philosopher proposed an indivisible tripartite relationship, a kind of synchronicity between the immaterial and finite (soul or mind) and the material and finite (body or matter) – all of which is composed and held together by the requisite infinite and immaterial (God). This third element cannot be missed or excised from Descartes’ equation. To me, the divine is the key element of his whole philosophy and potent throughout his writing. In fact, nearly every page he wrote, sometimes every paragraph and occasionally every sentence within a work, mentions God and makes clear reference to humans, the living world, and matter as being

gifted by His incomprehensible and all-pervasive genius. This philosopher seems to clearly assert that his God is an active participant in the ongoing unfolding of the universe and that the Creator “continues to conserve it in the same fashion in which he has created it” (cited in Ariew, 2000, p. 37). This idea and his whole [trial]ism struck me as being far closer to a pedestrian seventeenth century biblical reading than the most novel and brutal amputation ever committed. And, for all my reading, I wasn’t sure then how contemporary pan- or cosmopsychism, for example, were so very different from Descartes’ view. Did he not assert that the universe is a fundamentally unified thing within which an uber-consciousness or mind-like aspect is key and instantiates all other consciousnesses? As far as I was concerned there was so little contrast between what was framed as archaic and brutal (Descartes and the Cartesian) and that which is said to be exciting and holistic (panpsychism) that I was inclined to consider these effectively indistinguishable.³⁹

Into the ‘I’

Having had my ideas about these more important Cartesian ideas (clockwork, mechanism, and dualism) as well as the assumptions I had about who he was and what he was up to shattered, I wanted to better understand the idea for which Descartes was best known. Just as many others do, our readings such as those from Orr (2004) and Tuck et al. (2004) labelled him as the person who said *cogito ergo sum* (I think, therefore I am). And, once again, when I went

³⁹ Though my lack of understanding possibly impedes my differentiating these ideas, confusion about the nature of life or consciousness, and just the persistent trouble even defining these terms, seems as certain as a thing can be. So, when and where one personally wishes to draw a line demarcating bounds, or even rejecting the idea of boundaries altogether, seems equally like wild speculation and a denial of so much that conspires to confound these and related issues. From where I sit, it seems more reasonable to admit our ignorance than take a strong stance on any of the above. (Carl Zimmer, a favourite author of mine, published a new book at the beginning of this year titled *Life’s Edge: The Search for What It Means to be Alive* on just this theme. This will be the next book I tuck into when all this grad schooling is out of the way.)

looking I found little that made sense. Descartes wrote nothing I would be comfortable summarizing with the above clean and elegant triumvirate of Latin. In his *Meditations on First Philosophy* (1641), Descartes asked what, if anything, could be truly certain? This certainty he was after needed to be supremely so because he sought an unshakably solid foundation from which to launch the deepest possible inquiry into the nature of reality. Deliberating on this, he resolved that he would not be able to rely upon his thinking for the certainty he required. This was because, as he spells out, if a supernaturally powerful trickster attempted to deceive him there was nothing stopping this devious daemon from faking the whole of the world just as easily as it could manipulate all his feeble human senses. After all, he reasoned, his thinking and senses already failed him without such an antagonist. His “external senses”, such as vision and hearing, were easily confused by every-day illusions; similarly, he knew his “internal senses”, such as pain, were naturally corrupted in different ways, just as happens when an amputee experiences phantom limb syndrome, for example (cited in Ariew, 2000, p. 134). Though he could be so easily and routinely bewildered in these ways and others, what could not be questioned, Descartes reasoned, would be the metacognitive: the act of thinking about his thinking. Critical here is that, as Descartes spells out for his readers, by “thinking” he does not mean “ideas arising in consciousness” but instead something like “deliberation”: a narrow set of judgements that make use of his God-given reason, such as doubting or affirming, that would make him morally responsible to his Creator (Ariew, 2000).⁴⁰ Therefore, if a false notion or sensory experience were delivered by a cunning deceiver, he argued, this forgery itself would be inauthentic, yes,

⁴⁰ And it seems that this deliberative “thinking”, bound up with morality and faith, is what he refuses sloths and sea cucumbers when he says that he denies non-human animals “thought, not life or sense” (as cited in Ariew, 2000, p. 297).

but the scrutiny he applied to it would be beyond question. In this way, the rational mind (gifted to all humans by God) interrogating experience, authentic or forged, forms the only truly robust foundation from which to begin a serious inquiry. This felt to me like little more than Descartes' logico-deductive reasoning applied to his Catholic upbringing. And then, to my reading, Descartes doesn't say anything like "I am *only* an entity that thinks" or "I'm *absolutely certain* I am *only* a thinking being"; instead, he offers something like, "The most robust knowledge possible is the belief that I am someone capable making judgments (and this capacity makes me responsible to God)." Given all of the above, a summary missing out these key elements (particularly a faith that has embedded in it personal and divine judgement) seemed unfair to Descartes and modern readers as it would almost inevitably result in confusion. What struck me then, as it does now, is just how much we love to make this kind of unforced error – and do so commonly.⁴¹

Empiricism and Positivism

The above interpretation of Descartes' writing did more for me than disrupt the straightforward idea about his philosophical starting place. In our course readings and discussions, it was said of Descartes that he was one of the figures who inspired the empiricism and positivism of the Enlightenment and Scientific Revolution. Typical of these assessments were those of authors Descola and Palsson (2003), who wrote about orientalism and the paternalistic paradigm being "the intellectual heirs of the Renaissance, the Enlightenment, and early positivist science (developed by, among others, Descartes and Francis Bacon), all of which

⁴¹ I am reminded of Darwin's thinking on evolution by natural selection being frequently summarised to "survival of the fittest." Though presented as an accurate paraphrase and intended to inform, the line can only confuse. Not only did the phrase not come from Darwin himself but survival is only one aspect of selection and far too much rests upon a definition of "fitness" that is not in common usage and is opaque to any reader without essential context.

instituted a series of decisive dualisms” (p. 76). And yet, the discussions on Cartesian thinking included above suggest the foundation of his epistemology was determinately anti-empiricist. Any system of thinking that suggests knowledge derives only or primarily from sensory experience, as I understand of empiricism, feels like it runs counter to Cartesian thinking. In this way, I could not see how Descartes’ ideas could inspire empiricism except, perhaps, by its total rejection.

Troublingly, I felt the same way about positivism. Within the positivist approach “introspective and intuitive knowledge is rejected, as are metaphysics and theology because metaphysical and theological claims cannot be verified by sense experience” (“Positivism,” 2019). If this is one’s definition of positivism then, as I see it, René Descartes was a manifestly virulent anti-positivist. Why? Because metaphysics, theology, intuitive knowledge, and introspection comprise effectively the entire substance and system of Cartesian thought. To remove just one of these features from Descartes’ personal worldview or his proposed philosophy, nevermind all of them, and you could not possibly be left with anything that he himself would recognize. And then it seems worth asking on what basis such a philosophy could be said to be Cartesian? On my reading, this would be akin to removing the Trinity, the divinity of Jesus, the transubstantiation, and the immortality of human souls from Catholicism; or eliminating the earth, ecosystems, interconnectedness, and climate change within Environmental Education.

To make this clear, in a letter to his colleague Mersenne, titled *On the Eternal Truths*, Descartes wrote:

Now there is no one law [of nature, established by God] in particular that we cannot comprehend if our mind leads us to consider it, and they are *inborn in our minds*, as a

King would establish his laws in the hearts of his subjects, if he had power enough to do so. (cited in Ariew, 2000, p. 28)

I would argue that in this one sentence introspection, intuitive knowledge, metaphysics, and theology may be seen as infused into the foundation of Descartes' thinking; but, he continues:

On the other hand, we cannot comprehend the greatness of God, even though we know it. But the very fact that we judge him to be incomprehensible makes us esteem him further, as a King has more majesty when he is less familiarly known to his subjects, provided, however, that they do not for all that consider themselves to be without a King, and that they know him well enough to have no doubt of it ... [for] the existence of God is the first and the most eternal of all truths there can be, and the only one from which all others flow (cited in Ariew, 2000, p. 28-29).

As a result of these revelations of mine, referring to Descartes as an empiricist or positivist, or suggesting he inspired either, struck me as absurd. It felt akin to claiming that commitment to a Jainist interpretation of the principle of *ahimsā* (non-violence) is what motivates the industrial-scale factory farming of pigs, or that abundant and indiscriminate casual sex is the best route to maintaining one's virginity. All of this just stopped making any sense to me.

Inconclusion

The sum of all these mini solo inquiries left me feeling quite mad, like a hatter. Again, I didn't feel I was experiencing cognitive dissonance. It felt more like I had ingested an entheogen and then found myself in an inexplicable universe in which physics and language were no longer operative. A universe of my own, hidden behind my own eyelids, that, try as I might, I was unable to press into language for others. "Descartes wasn't a Cartesian", "the arch-positivist was anti-positivist", or "mechanism is inspired by and modeled after faith and nature", all felt closer

to glossolalia than coherent collections of words. It was an experience that left me saying nothing at all or otherwise wanting to force others (like my poor friends and family) to go on this weird, potentially arduous, or maybe even upsetting, trip with me. And I didn't even want that for their edification but really just for myself, to be able to say, "See, I'm not crazy, this is a real thing!" Somehow, it seemed, I had wound myself back to the kind of upside-down world I was very uncomfortable with and thought I left behind in Teacher Education. Why was I so determined to get back there? I did not know. What I did know was this was a place I did not want to be; and so, to get through my degree and not repeat my Education experience, I closed my books and just stopped looking.

A Meta-Reflection

"The whole language of writing for me is finding out what you don't want to know" –

James Baldwin, man who can tell you how long the train's been gone (Elgrably, 1984, n.p.).

"Nature might well be thought of as the original Rorschach test" – Jan E. Dizard,
someone interested in denial and radical misanthropy (Pezzullo & Cox, 2017, p. 51).

How Do I Feel About Descartes?

Only in retrospect did I realize that by reading his work I began to strongly relate to René Descartes. This was a strange realization. If only from the standpoint of our language barrier, I had convinced myself I could not hope to understand the guy, and certainly not without learning Latin. His religious education and worldview seemed at least as significant a barrier. Still, personal details drew me in and convinced me I knew something about this man. To start, the deaths of his mother, daughter, and sister; his relationship with his father; his being turned off school and book learning; his travels and self-imposed exile all felt relatable. Then, I found him

agonizing over the definition of words, trying to understand where our thinking gets confused and us into trouble, and also struggling to get something deeply right. And, though it seemed he was mostly content to be alone in his own world of ideas, he also had this need to share and to feel understood which frequently got him into trouble; and, there, it seemed to pain him a great deal that he could be misconstrued and would be forced to continually defend himself. Though his writings were difficult to get through – particularly his tangential thoughts that seemed to be missing or abusing punctuation and run-on for half a page or more – taking a stroll through his ideas made his writings feel less like a window into a distant and alien past and more like a mirror.

With the above research for perspective, I now feel Descartes' life and aims made him less of an Einstein or Darwin, the scientific coterie he is commonly lumped into, and far closer to a figure like Joan d'Arc (c.1412-1431). Just like Joan, René was a Medieval French Catholic compelled by three divine visions. Though René died prematurely in exile and was suspected of atheism due to his prescribed skepticism (a charge he vehemently denied), unlike Joan, René was not burned at the stake for heresy. That said, he did not become a national hero and was never canonized a saint, either. Also unlike 'The Maid of Orléans,' heroine of France, René's supernatural sightings did not lead him into battle or provide a morale boost for his nation's armies; but, they did transform him into a kind of spiritual warrior. As I read him, he was something akin to a Catholic Brahmin, foregoing conventional employment and a normal life while committing himself to study, teaching, and defending his faith. Or perhaps he was more like someone of this sort found in Tibetan Buddhism: a creative soul and a treasure revealer oriented toward combatting the universal enemy of *avidya* (self-ignorance).

Having read a translation of his life's works and letters, I believe Descartes used his religious and scholastic footing to undertake his own personal, metaphysico-philosophical, seventeenth century version of the Manhattan Project (that secretive World War II program to develop the first atomic bomb, the results of which continue to have profound and far-reaching repercussions). As silly as that may come across, the philosopher is explicit about his intent to compose a rational, sacred text-inspired device so powerful, so convincing and irrefutable, as to rid the world of any serious non-believers and establish Catholic spiritual supremacy for the rest of time.⁴² Though he failed in this aim, I don't know how else one could interpret his published works without denying his words and attributing to him ulterior motives.

Descartes' overall philosophy lands on me less like a dreadful misinterpretation of the truth of the nature of reality than an intelligent articulation of the network of representations and relations he was enmeshed in. The essence of Descartes' philosophy appears to rest upon a standard Abrahamic vision of God and Creation, to which he adds unconscious innate knowledge and then tacks on the primacy of subjective experience.⁴³ I understand this philosopher and

⁴² Descartes spelled this out in his most visible writings. He begins *Meditations on First Philosophy* (1641):
...[A]lthough it suffices for us believers to believe by faith that the human soul does not die with the body, and that God exists, certainly no unbelievers seem capable of being persuaded of any religion or even of almost any moral virtue, until these two are first proven to them by natural reason. ...I judge that there is no greater task to perform in philosophy than assiduously to seek out, once and for all, the best of all these arguments and to lay them out so precisely and plainly that henceforth all will take them to be true demonstrations. (cited in Ariew, 2000, p. 97-98)

⁴³ Two considerations arise with this point. Firstly, I have read modern researchers and authors as wanting to chastise the philosopher for forwarding this subjectivity. Doing so they label it too constricted, egocentric, and anthropilic: a clear rejection of more holistic thinking and the more-than-human world. At the very same time, these folks seek to deemphasize the empirical and quantifiable for being insufficiently well-rounded while offering modes more qualitative and subjective in their stead. I don't know how these ideas harmonize. Secondly, regarding innate knowledge, Descartes did not subscribe to the *tabula rasa* conception of consciousness that had been popular with Aristotle and Aquinas and was later championed by Locke, Hume, and Freud ("Tabula Rasa," 2020; Duschinsky, 2012). Today, this thinking of his is considered modern – a rejection of the wayward empiricist and romanticist assertions of prior centuries which led us to countless errors and horrors – and is of the sort held by sophisticated mainstream public intellectuals such as Noam Chomsky and Steven Pinker (Smith, 1999; Pinker, 2003).

mathematician to be of the view that we don't perceive reality so much as participate in the improvised co-creation of an impossibly elaborate interpretive dance with all the rest of Being – one participants can gain deeper insight into with introspection and the careful application of the best of our collective intelligence. Yes, he felt we have all we need within us to make sense of the world, mostly a rational mind, but he also knew we are deeply flawed and, most essential, he didn't keep all of this to himself but shared it all and vigorously sought critical feedback. To me, this feels a more accurate summary of his thinking and behaviour than typically found. As a result, though often presented as Descartes' antithesis, as found in Environmental Education readings, I believe René's works and actions (obsessed with the sacred, the moral, and the bigger picture) are congruent with Goethe's (1749-1832) thinking. Descartes could also be said to be in sync with related ideas articulated within the current milieu by cognitive psychologists and others such as Donald Hoffman (1955-), as found in his, *The Case Against Reality: Why Evolution Hid the Truth from Your Eyes*. Not unlike Descartes, Hoffman (2019) argues that we do not directly perceive reality how it truly is; but, through a meticulous application of reason, we may be able to dig deeper and tease out more of this deeper truth, one that is not within the narrow envelope of perception and intuition gifted to us by nature and experience.

From my current vantage point, I see Descartes' clockwork thinking as approximating the common core of human and other animal activities rather than a radically transgressive departure. Not only did the mechanical and mathematical thinking Descartes is notorious for precede him by centuries, or perhaps millennia, and arrived in Europe from sources in Asian and Arab worlds but so did the automata that inspired the clockwork of Europe's Middle Ages (deSolla Price, 1964; Truitt, 2015). Further, these were largely celebrations of life, myth, magic and/or the sacred that used nature as their template. Mechanical clocks, like the mechanical

thinking that preceded them, were nothing like avant-garde abstractions but instead coherent reflections of the world of relations their co-creators witnessed and interpreted. As Truitt (2015) argues of early clocks and automata, these devices and the ideas that impel them “pose enduring questions about the limits of knowledge and creation; about the relationship between people and technology; and about identity, subjectivity, and the definition of life” (p. 153).

I find Descartes’ other philosophizing on this same spectrum. What he definitely did not do was concoct an alternate universe or some kind of utopia to aim for; instead, he tried to paint the clearest, most accurate and ultimately useful picture of the world, really a map, that anyone had ever seen. Though it may be offensive to some, I read this as a seventeenth century Catholic rationalist’s version of an Aboriginal Australian’s *songline* or *dreaming track* (see Glynn-McDonald, 2021). I would summarise much of Descartes’ work and motivation to something like the following: *this life will kill you, regardless; but, given what we know about who and where we are, if you follow this track I’ve discovered laid down here by the Creator, you can orient yourself and traverse this formidable and shifting terrain to sources of real nourishment and, with luck, maybe even return home with something valuable to share.* And his mind-body dualism (*sic*) does not appear much different in this sense. Descartes was describing the world as he felt it must be, given his environment and education, and provoked us (Cornell West’s Heideggerian *beings-toward-death*) to really grapple with the material and temporal implications.

Was this seventeenth century philosopher wrong about many things? Of course he was, and in all the ways all of us are, especially given enough time and distance. He acknowledged as much himself in his earliest publications:

...[I]t could be that I am mistaken, and what I take for gold and diamonds is perhaps nothing but copper and glass. I know how much we are prone to err in what affects us, and also how much the judgements made by our friends should be distrusted when these judgements are in our favor. But I will be very happy to show in this discourse what paths I have followed and to represent my life in it as if in a picture, so that everyone may judge it for himself; and that, learning from the common response the opinions one will have of it, this may be a new means of teaching myself, which I shall add to those that I am accustomed to using. (cited in Ariew, 2000, p. 47)

Tragically, I believe we are at least as wrong about Descartes as he appeared to be about physics, biology, or psychology. And, so as to not leave anything too neat and tidy, I would ask in light of the above if everything leveled against Descartes and his philosophy could be directed at anyone or even everyone else? What about the person who produced the earliest and simplest of handprint cave paintings or built the first fire? What about those responsible for the grandest of pyramids across the globe? Could all these be interpreted as clear anthropocentric expressions in explicit defiance of nature? Could one draw lines between languages, ideologies, and cultures to formulate an argument that these events and the worldviews that gave rise to and evolved from them are the precursors to species extinction, strip mining, GMOs, and global climate change? It would be simple. It would also be just as narrow and I cannot see the value in it. Absolving Descartes in this way, I am not inclined to find others to fill his place, to push the blame deeper into history or to another continent. I see as much sense in calling out one person, generation, or culture as I do in emphasizing human endeavours over the activities of other species or to point to mother's Earth or Nature. Though doing so might fill some need, I am not sure it gets us anywhere. I think I understand the arguments commonly brought into discussions of this sort

(about how certain species or peoples are different in what are said to be numerous or critical ways) but, though I am probably wrong, I find these to be unsatisfyingly simple and fragmented and, ultimately, failing to deal with the reality in which many of us seem to agree we find ourselves: a wildly precarious and fleeting existence with new and formidable challenges of all sorts, and at all scales, arriving faster than they can be attended to.

How Do I Feel About the Relationship Between Descartes and Environmental Discourses?

In a work arguing for the rejection of Descartes' thinking and, to my reading, all that might be said to have been inspired by it, Robbins (2005) wrote, "This paper argues that the Cartesian-Newtonian pathway is pathological because it has as its premise humanity's alienation from the natural world, which sets up a host of consequences that terminate in nihilism" (p. 113). In a similar tone, Orr (2004) insists that Descartes, with his cold mechanico-mathematical mind, threw out loyalty, friendship, sentiment, empathy, and charity. These things and many others like them form the foundation of key arguments found within the Environmental Education discipline. We can't ask Descartes for a rebuttal, but we do have his worldview expressed in his own words and preserved in ink. There he shares such sentiments as:

Though each of us is a person distinct from others, whose interests are accordingly in some way different from those of the rest of the world, we ought still to think that none of us could subsist alone and that each one of us is really one of the many parts of the universe, and more particularly a part of the earth, the state, the society and the family to which we belong by our domicile, our oath of allegiance and our birth. And the interest of the whole, of which each of us is a part, must always be preferred to those of our particular person... (cited in Marshall, 1998, p. 139)

These words don't leave me feeling René wanted us to be alienated from the world or to discard feelings of loyalty and empathy. And there are many more lines of this sort that could be cited, making all of this is very clouded and confusing to me, still.

Though it is true that I am deeply puzzled, it could be worse: I may be misconstruing what I interpret as the consensus about Descartes within our readings. Worse still, I may be ignoring or just blind to my own bias and egregious cherry-picking of both Descartes and our readings and the general discourse. Or, perhaps, the authors and translators I've been reading have themselves horribly misinterpreted Descartes. Maybe, for whatever reason, the problem lies with the consensus around Cartesian thought within those course readings and, seemingly, in broader environmental discourses and those adjacent. Or maybe some curious combination of all of the above and more has conspired to paint what I see as a deeply conflicted picture. The simplest and most palatable scenario is the first, and this was the one I was becoming comfortable with. Two books made me feel that, if nothing else, at least I am not alone in my confusion.

I arrived at the first text when conducting readings at the outset of my thesis preparations. Trying to make sense of my own and other's take on Cartesian Dualism, I discovered a pair of authors with a similar reading of Descartes to my own. Despite coming at the topic from different backgrounds, taking a different approach, and highlighting different points, we arrive at a similar place – largely by looking at the meaning of words and the shift in consensus thinking over time. In their book titled, *Descartes' Dualism*, philosophers Baker and Morris (2002) resolutely conclude that Descartes, of all people, could not have been a Cartesian Dualist. This was a shock to read. It was the feeling I was trying hard to suppress. And yet the authors argue convincingly, to me at least, that the modern evaluation of Descartes' work is catastrophically

eschew and insist that “there is no solid *textual* foundation whatever for ascribing *any* single element of Cartesian Dualism to Descartes” (p. 23). Their sense is that this confusion has arrived primarily by way of modern people accidentally smuggling modern words, concepts, and assumptions into Descartes’ thinking or otherwise demanding that he missed out on something essential, something that did not exist in his time and could not have been within his awareness. All of this adds a tremendous amount of additional weight a substance to my own research as well as new avenues to consider.

The second text arrived in my email inbox. In my scholastic frustrations, I reached out to a fellow student from another cohort in our program. Over the course of several months, we corresponded about some of these ideas and that I felt I was struggling. These communications were a big help. After not having chatted for about a month, this email landed like a letter slipped under the door in the dark of night and without so much as a knock. It read only: “1) Anthony Gottlieb *The Dream of Enlightenment* p. 22; 2) Richard Rorty *Philosophy and the Mirror of Nature* p. 64; All the Best!” Rorty’s work was interesting but the Gottlieb reference struck me so hard that I had to sit down. Within his discussion of the rise of modern philosophy, this British author and historian of ideas ends his opening chapter on Descartes with an observation that could suffice as an introduction to this thesis. Gottlieb (2016) writes:

The pervasive myth that Descartes stressed a ‘profound separation’ between ‘our intellect and the physical world’ has been fancifully employed by environmental campaigners – including a former American vice-president, Al Gore, and the heir to the British throne, Prince Charles – to blame Descartes for the doctrine that ‘we are separated from the earth, entitled to view it as nothing more than an inanimate collection of resources that

we can exploit how we like.’ This rather oversimplifies the long history of man’s relationship with the rest of nature. (p. 22)

Two months later, I’m still sitting with all of this but feel less like I’m on my own or wildly out-to-lunch.

How Do I Feel About My Relationship With Environmental Discourses?

My thesis supervisor, Dr. Hilary Leighton, prompted me to find a place in the world to connect with while writing my thesis. That I did. On one of my last visits to that spot I was trying to sort out how I would finish my thesis. I had a few ideas and posed myself some obvious questions but it all felt a little half-hearted and a touch fake. I had definitely cracked open the window to my world and thinking but, despite all the revealing, had not really let any light in. I stood within the small parliament of trees I had been getting to know better since the Fall. This was the site of a heronry: what in the Spring and Summer becomes the cacophonous and pungent home to dozens, perhaps hundreds, of giant pterodactyl-like beasts who spend their days swooping and soaring and crashing into these treetops. I wondered what it was about this seemingly unremarkable collection of trees in the middle of a city park of all places that drew families of herons here in the first place and then back every year. I felt I should have an answer but came up with nothing very convincing. Even more, I wondered what brought me to this spot in the wet and dead of Winter and where I knew there would be no nests for months. I didn’t really have a good answer to that, either, but standing in that soggy absence of herons brought up more questions. For instance, why had I written a thesis about Descartes? The question made me laugh out loud. I hadn’t really asked myself that before. I had no “why”. I had an answer for “what”, of course; it was the kind of response plagued with -isms and -ologies you give when a serious professional asks you what you’re writing your thesis on; and I also had something cuter

and less opaque to suit any other inquirer. When I asked myself “why”, without thinking, I immediately told myself that I was writing about Descartes because I had been curious about him, related themes were relevant to the program, and I'd done a bunch of research already – and so it seemed an obvious undertaking. It was a perfectly accurate and satisfying answer. “Okay, now try just half a shade braver,” I imagined Dr. Leighton responding, just as she had prompted myself and the rest of my cohort so many times before. It was true, a deeper “why” was there but it was messier and I hadn't formally acknowledged it.

I now believe I wrote about Descartes because I was sure nobody really cares about him. Talking about this seventeenth century philosopher was essentially the least controversial subject I could think of. Though he does form the premise for many arguments within Environmental discourses, and there was some threat of ruffling feathers, I was sure people were not at all committed to this particular fellow. Not only was I unlikely to change minds with what would, as a master's thesis, (easily go unread or otherwise be disregarded as a bit of solipsistic sophistry) but it seemed folks could simply formulate their argument another way or just find a different target were they convinced of my arguments regarding Descartes but still committed to similar argumentation. As such, this thesis was the safe way out, the path of least resistance, while still allowing me to say some of the things I was feeling. This thesis was an imitation in this way: not exactly false but not the goods either; in the spirit and style of openness and intellectual courage but only in a manner sufficient to conceal the real cowardice of the thing.

Though encouraged in every way by all of our professors to wrestle with our ideas and our feelings, and also to express ourselves, I don't think I did much of that. I did feel free to share all manner of ideas; and those, like this thesis, felt like straightforward observations as opposed to abstract or out-of-the-box in any sense. They were, after all, submitted in the form of

public comments, reading responses, assignments, and papers for the purpose of grading and not as acts of theatrical rebellion intended to be provocative and difficult to swallow. In fact, I don't think I expressed any ideas that I myself felt were contrarian or controversial. It is true that I am certainly more disagreeable and a bit of an absurdist at times, but I am also the product of a pair of teachers from Vancouver, Canada. Yes, someone east of the Rockies or south of the border might consider me a 'Hippie' – probably because I would rather walk or cycle than own a car, don't think a pipeline is a solution to anything, and would rather pristine forests and coastlines than piles of money – but I interpret these and other traits as moderate and, if anything, common and conservative. “Don't fix it if it ain't broke,” “Leave it better than you found it,” and “Save for a rainy day (which in Vancouver is a whole lot of saving)” are all things you are likely to hear me say. My most extreme opinions are around freedom of expression: that I think freedom of expression should be as near to absolute as possible, and probably more so than any of us are truly comfortable with. I think this way because I believe that this is the primary right upon which all others are made possible and because it feels nonsensical to hope to sustain the protection of minority voices on nothing more than the wisdom and good will of the majority. This, to me, once again, comes across as an old and deeply conservative perspective (reflected in the U.N. Declaration of Human Rights and U.S. Constitution) rather than a weapon wielded by a renegade. This also highlights that I am disinclined to be silent myself or wish that of others; and yet I found it hard to be open about ideas that felt so thoroughly dissenting.

The truth is that I feel similarly about many of the ideas and themes that arose in our courses as to how I feel about these discussions of Descartes: much of the time I didn't know what people were talking about or how they saw and understood what they were describing. As such, attempting to tackle any of these topics as a thesis seemed to dig deeper and promise to be

far more challenging of people's stated beliefs, including my own. And so, I mostly kept my distance. Still, I tried at times. While also strongly reflecting this thesis, three examples of these attempts illuminate what seem to be fundamental disagreements I have with much of the current discourse.

Our first reading in our first year was from chapter twenty of David Orr's (2004) *Earth in Mind*. There the author wrote about human's innate biophilia and what he sees as our growing biophobia and necrophilia. I was so turned off by his perspective, I wrote in our reading reflection that I had a visceral reaction, hated everything I read, and stopped reading only halfway through. That was my honest immediate reaction. I went back and read the piece and then submitted my interpretation of his essay:

When they aren't gushing about the innate beauty and harmony of a wholly make-believe and unbelievable 'Nature' they're pitching a version of the 'noble savage.' While arguing for a holistic biophilic worldview they appear, perhaps only to me, to be enforcing a permanent division between humans and the world. They talk about the antithesis of biophilia being necrophilia; pretending, somehow, that the one isn't, most fundamentally, the other.

I was so annoyed I wrote a poem to Orr and submitted a version of it as part of my reflection.

The poem read:

What is the sweet soil but a stack of decomposing corpses (and poop, which is only more spent corpses!) What is a stately coral and the reef it belongs to but a house made of skeletons (among a suburb of skeleton houses!) And what is an elegant wasp nest but the flesh torn from a tree.

And what is that majestic mountain but the ninety-million-year-old graveyard of an uncountable number of an unimaginable variety of marine organisms (all thrust undignified, into the sky!)

I mean, what am I!? Right! Little more than the reconstitution of that which I've killed (or had killed for me!) And every part of all of that is, as Carl Sagan said, *stardust* (aka DEAD STARS!) So, dear Orr, this "life" and this "nature" of yours, I fear and suggest, is little more than death (*ALL THE WAY DOWN!*)

This did not feel like an expression of my uniquely astringent obliquities but, surely, what everyone knows or can easily see. I did not know the author, my instructor, or any of my fellow students yet – or even the intended purpose of the reading, our written response, or what we might be doing with it later – and I was fully prepared to defend all the ideas expressed. It did not come to that and our excellent instructor responded with encouragement.

As we moved through more readings, I only continued to disagree. I assumed these scholars and myself were on the same page on so many fronts, and at the outset felt they just had to be my people, my tribe, the folks I could walk with in shared understanding and commitment (or at least direction), or as close to that as I was likely to find. And yet I found it challenging to wed very many of the views presented with my own. Halfway through our courses we picked up Capra and Luisi's (2019) *The Systems View of Life*. The opening line of their introduction starts with the simple statement that, "Questions about the origin, nature, and meaning of life are as old as humanity itself" (p. 1). This is stated as fact. It probably strikes most, if not all, of their readers more like a clear and banal description; yet, I could not bring myself to move beyond the period enclosing the thought without asking, "Really, is that true?" This asserted conspicuousness just screams like a cattle prod in my backside. I am not so certain about my own mind much of the

time, never mind that of my closest friends or living kin with whom I disagree all the time. Why then would I presume to know the minds of my most distant ancestors and insist upon similar experiences and views? Where they exist at all, such ideas and questions felt open to extraordinary interpretative deviations in the present alone and then, very obviously, disappear entirely when looking back far enough. As expressed earlier in this thesis, I consider specific words and ideas to be technologies or tools, and so this comment of theirs struck me as little different than claiming airplanes or the internet, writing or numbers are human universals.

I didn't know how to drill down on this topic except to look into the meanings and derivations of the relevant terms. I assumed that "meaning" arose very recently on the timeline that I understood Capra and Luisi to be working with: "as old as humanity" (or, most generously, 250,000 years, though millions may be the appropriate scale) (see Harvati et al., 2019; Richter et al., 2017). As such, this read to me as the same scale of error as that of the Harvard professor who thought it more likely songbirds overwinter on the moon than in the south – an intuition so off that to think of the error on the scale of mere orders of magnitude is deficient. I reasoned that, of the few things all humans across time definitely share one would be the experience of sitting under a blue sky; and yet, I knew that the concept "blue" is both culturally specific and also one of our most recent innovations (see Abumrad & Krulwich, 2012; Deutscher, 2010; Roberson et al., 2006). So, for just one example, though looking up at this very same sky, the Himba, those peoples of northern Namibia and southern Angola with no distinct concept of blue (just like the Homer and the Ancient Greeks), were never before and are not now acknowledging never mind contemplating its blueness. My own intuition could not resolve why, then, Capra and Luisi's "meaning" (something far more abstract and concealed) would be more universal or innate than the "blue" of the sky. Yes, there are texts from around the world and thousands of years old that

consider why we must die or how to live well (from the *Epic of Gilgamesh* to the *The Bhagavad Gita* and on); but, again, as far as I was concerned the oldest of these are brand spanking new, arriving only in the most recent sliver of our human existence, and none contained culturally or temporally transcendent concepts about the human condition. Were there reason to believe associated ideas were far more general than I imagined – as much as 10 or even 20 times older than what is found etched in extinct languages on fragments of clay tablets – they would still arise within the most recent verse in the song of our species (see e.g., Henley, 2020; Sterelny, 2011). That said, I was not granting any of this and was willing to bet that these concepts, like so much of our vocabulary, were new even within the English language – itself not even 2,000-years-old.

With these thoughts, it was no surprise at all when I found a curious history when I went looking. To start, for something said to be ubiquitous across time and space, simultaneously elemental and most profound as well, “the meaning of life” did not appear anywhere I looked. The earliest usage of the phrase I was able to find in English came from 1834. I found it spelled out first by Thomas Carlyle (1795-1881), arriving in chapter nine of his novel, *Sartor Resartus*. There he writes, “Our life is compassed round with necessity, yet is the meaning of life itself no other than freedom, than voluntary force...” (cited in Phillipps, 1869. p. 58). I also found that Hochschild (2017) before me searched the phrase in French (“le sens de la vie”), German (“der Sinn des Lebens”), Danish (“meningen med livet”), and Russian (“смысл жизни”) and found similar results, with no such idea arising before the nineteenth century. In an essay about this, the professor of philosophy almost laughingly states:

As we’re used to hearing, the question of the meaning of life is a timeless philosophical concern. Rooted deep in the human heart, it has been explored by great philosophers

including Plato and Aristotle, Augustine and Aquinas, Pascal and Rousseau, Kant and Marx. It is so fundamental a question it has occupied intelligent minds from outside of formal philosophical circles by pastors and men of letters, by essayists like Montagne and Emerson, by poets like Virgil and Dante, Milton and Shakespeare. Indeed, one could hardly count as an educated person without having surveyed history's rich variety of answers to the question of "the meaning of life." Just to ask the question is to participate in a fundamental human quest. That's the common account, anyway, so familiar as to be trite. It is also entirely false. Every single claim of it, false. (Hochschild, 2017)

And I found other philosophy scholarship in agreement that this question is a modern one, not older than 250 years (Landau, 1997; Metz, 2018).

So, it seemed Western civilization has only recently started using this phrase. Digging further, I wondered about the individual words themselves. I imagined that if one had the term "meaning" it wouldn't be too long before you'd slap it next to "life" in a poem or conversation. Another etymology search proved wildly interesting. "Meaning" appears to have arrived in our language as "that which is intended to be expressed" only in the fourteenth century (around the time of the first mechanical clocks) but did not take on the sense of "significance or import" until the late seventeenth century (only after Descartes) (Harper, n.d.-a; Oxford English Dictionary, 2019c). Interestingly, it also took another two centuries to evolve the adjective "meaningful" from the noun "meaning", and not until the twentieth century did "meaningfulness" emerge (Merriam-Webster, n.d.; O'Brien, n.d.) All of this slow evolution and newness was surprising and drove home how presumptuous and taken for granted my language is and thus the very contents of my own mind. During this inquiry I also discovered the existence of "Meaning of Life" study within Philosophy. Poking around in the literature I found that even in the present,

where these words and this phrase are commonplace, there appears an inherent struggle at the heart of it all. Philosophers today remain conflicted about what they study: whether “meaning of life” does or should focus on significance (life’s inherent value), purpose (life’s direction and aims), or coherence (one’s life making sense) and how to understand and harmonize this knotty and thorny trichotomy (Martela & Steger, 2016).

Yes, my research and assessment of this topic could have been misguided in all sorts of ways, and I may have just missed the point altogether, but what it demonstrated for me was that – though Capra, Luisi, and I have similar access to information as well as backgrounds as alike as possible – we did not appear to have anything approximating a similar perspective or common language regarding what they consider to be the most basic of human experiences. (Again, though absolutely defiant and contrary, I did not feel I was acting the rebel but instead stumbling upon what anyone would find if they went looking.) And, I wondered, on what basis then would we as a species agree on anything far more obscure or contentious than what they claim is truly axiomatic?

Lastly, in a final assignment before taking up this thesis, I attempted to express something related once again. It was a long and meandering exploration of my frustration with the meaning of words, with representation, and what I felt to be very confusing recurrent attacks on science, modernity, and Western civilization. I felt there were plenty of critiques to make in this area, and some far more damning, but these felt uncommonly shaky. I believed I understood where these arguments were coming from but, though referring to myself and my world, our readings did not seem to correspond with almost anything I knew or believed; and so, I simply did not follow. In composing the essay, though strongly disagreeing, I thought I was merely attempting to describe the world as it appears rather than offering a radical reversal of self-

transforming kaleidoscopic contortions. Still, in doing so I felt like I was writing an op-ed for *Dabiq* (the official publication of ISIL). It seemed like I was opposing all that was just and good and sacred in people's eyes – and that it would be read as me offering an alternative justice that involved stonings, beheadings, and worse. I kept at it because, once again, I was sure I was only offering the most popular of mainstream assumptions, something you might hear on CBC over a season of *The Nature of Things*.⁴⁴ In direct opposition to a selection of favoured environmental voices, I observed that:

[T]he old story I grew up with was that my greatest-great-grandmother was African; and not just me, but every person I know and every person I've seen and every person there has ever been belongs to one big human family with her as our common ancestor. And I was told that we know this because of a deep animism in which the living earth and the living rocks and the living bones speak together with one consilient voice to tell us so. Deeper still, and more recent, this story has been enhanced by another ancestor tale. And it is not one found locked away in a dusty library or being whispered in the halls of a monastery or buried in some ancient tomb; instead, it's the most intensely personal story: one that we all carry around in our own hair and flesh and blood. And, most beautifully, our elders tell us it comes in the form of a paired, four-letter-based helical poem not less than three billion lines long. (And that every one of the countless copies of this epic poem, that you hold in the hearts of every one of the tiniest bits of you, is written in a sacred alphabet composed by the stars in the night sky in the time beyond time.) Further,

⁴⁴ Hosted by world-renowned environmentalist David Suzuki, *The Nature of Things* is now 60-years-old and the longest-running science series, as well as one of the most successful programs (science-based or otherwise), in television history (see Delisle, 2020).

to read this epic poem is to learn not just that we're one big human family but that all life we know of has just such a familial relationship: that much of what I want to call "me" is identical to that of things as seemingly different as a humpback whale and a daffodil.

I felt like the above was a vulgar rejection of thousands of pages of publications forming and informing the basis of Environmental Education; but I also could not pick out where I was misrepresenting the culture or the abundant evidence. I argued further still that this story was not a good one or even merely the greatest ever told but was likely the greatest story that could be told – the most beautiful, unifying, and uplifting story of life possible. And yet I felt I had read again and again that exactly everything and everywhere and everytime beyond this collection of ideas, their progenitors, and anything associated was something far less barren and rigid, less dumbing and stultifying, immensely more holistic and nourishing, embracing and astonishing – unimaginably so, really. And, the suggestion appears to be, I might be able to see all of this were I not so obviously manipulated by and willing to radiate all of Descartes and friends. It was true that whatever that was I could not see it. And I remain just so blind and confused today.

Conclusion

Meditation is to be aware of what is going on – in our bodies, in our feelings, in our minds, and in the world... Life is both dreadful and wonderful. To practice meditation is to be in touch with both aspects. Please do not think we have to be solemn to meditate. In fact, to meditate well, we have to smile a lot. Thích Nhất Hạnh, spiritual leader, interbeing, and one who knows that without mud there is no lotus (Macy & Brown, 2019, p. 269).

I sent all of the above in its earliest draft form to my oldest friend in the world. He knows, if anyone does, where I come from and what motivates me. About a month later he

responded. He was very generous and said that the work read as sincere; but, ultimately, he was bewildered by the whole thing. He could not understand what stuck so fully in my craw about Descartes and this treatment of him. While he assured me that he followed my reasoning, he insisted that he came up dry trying to imagine why all of this so clearly bothered me and, perhaps more, why I couldn't just let it go. He reported that when he arrived toward the end of the final section, where it talks about "the meaning of life," that he laughed out loud and thought, "Chris just gets stuck on things!" Then he proposed that I may wish to better evaluate my relationship to Western civilization, science, and modernity, particularly the excesses of capitalism and the social injustices entwined therein. Well, I sat with that for about a week.⁴⁵ It all seems clear to me and clearly spelled out in this work. I don't think I can't file it any sharper or polish it any clearer, though it seems I must try.

While prone to confusion and often blind to my own motivations, I believe I try to remain committed to not making things worse. Not making things worse seems like a fraught and challenging journey at best and only infinitely more difficult when we insist upon forgetting (and label that "remembrance") or try to convince one another there are ducks on the moon. It does strike me as wonderfully odd that I regularly come across disparagements of almost any notion of "truth." Using the term seems to necessitate pre-emptive caveats and apologies. What I never hear any conflict about is lying or being lied to, misleading, intentionally or otherwise, or being misled ourselves, or just trying to avoid the worse outcomes of common confusion. Most of us, I feel, are heavily emotionally, psychologically, and biologically invested in having our personal

⁴⁵ I am so glad I did not write about how much I hate recycling or that I believe going organic or vegan or transitioning to entomophagy would have the opposite impact to what most hope and claim. Some things are probably best left unsaid.

sense of the world correspond pretty tightly to it. So it seems we are reasonably committed to getting our sense of things right, or at least not terribly wrong. Similarly, I cannot find people opposed to asking questions (“Where do ducks go when it gets cold out?”), evaluating answers (“Hey, turtles survive below the ice in the muck at the bottom of lakes, why not ducks?”), or attempting to persuade others of one or another answer (“Well, has anyone ever seen a duck under the ice?”). This is what the majority of the humans in my world spend the majority of their time doing, whether for work, casually on social media, in their private life, or all of the above. And, yet its just as easy to find someone ridiculing “reason” or “logic” as it is “truth.” Yet pursuing truth (a sufficiently close connection between how I think the world is and how the world actually is), to me, seems less like closing one’s self off to minority views or other ways of knowing than a meaningful acknowledgement and appreciation of them. As suggested by my friend, much of this thesis rubs uncomfortably against and even pulls away from what appears to be a strong consensus. (Or, I would love to hear a case for the reverse.)

Discussion of Descartes’ philosophy seems trivial. It certainly struck me that way at first. And yet – because of how it connects with and mirrors so very much – it now feels to me to be nearly all that matters.⁴⁶ We celebrate the life of environmentalist John Muir (1838-1914), who reminds us that “[w]hen we try to pick out anything by itself we find that it is bound fast ... to everything in the universe” (Cronon, 1997, p. 245). Doing so, we somehow miss that this is a respectable paraphrase of the insight gifted by an angel in a dream to a certain “rationalist,” who

⁴⁶ Further research I would love to pursue, if you don’t beat me to it, would include:

- Where and when popular disgust toward Descartes emerged within Environmental Education discourses?
- Why and how faith, God, angels, revelation, dreams, and nature appear to have been so cleanly (as if by a skilled surgeon) removed from the story of Descartes and his philosophy in certain contexts?
- Why Descartes, a Catholic pursuing truth by doubt, makes no reference to the parable of the Apostle Thomas; “the doubter” who is, as a direct result of his dogged skepticism, the only person ever gifted with touching the resurrected incorporeal body of Christ, Logos, Light of the World, Son of God?

published the same some two centuries earlier and used it as the basis for his entire philosophy, a perspective and approach said to have inspired modern science. And we tell ourselves that it is in defiance of Descartes and those he inspired that we employ phenomenology and phrases like “my truth” or “lived experience”. We do this knowing, even if nothing else, that so much of Descartes’ life’s work was prefaced on the observation that the most reliable certainty there can be, and therefore the basis for all knowledge, is one’s own consciousness.

As this research showed, invocations of this person’s name appear inescapable within Environmental Education literature. This alone suggests the relevance of this topic within just this field. This research, however, was not concerned with an obscure collection of vague anecdotes or tangential endnotes from unknown sources; instead, what is presented here are a set of ideas leading scholars (people I admire and respect within a field I believe to be critical) who frame these as axiomatic and use them to form the foundation of essays, chapters, entire books, and the bulk of a discipline and movement. And, though I am one of them in any real sense (I have read the work, speak the language, am invested, and already on-board), I find so much of it so challenging and bewildering. However, I don’t believe my confusion comes from being so perfectly indoctrinated by science and scientism and as a result cannot hope to grasp anything different. (However, this could be the clearest symptom of the illness.) That feels like a terrible misreading of my upbringing and of the culture and of human history. I would be fine with all of this, and these ideas would just stack almost imperceptibly among the tremendous mountain of things I don’t understand and that I believe are wildly disjointed; except that this field and so much of this work arrives at a time and place where we are attempting to have a global conversation and build a global consensus around what are said to be the most important questions with which humanity has ever contended. As unsolicited and regressive as it seemingly

presents, my sense is that we are determined to work from a common premise that feels as limiting as the perfectly serviceable and well-intended “five senses” or “miasma”. And, though feeling as I do, I am trying not to rush for the exit as I have done in the past. Taking inspiration from my herons (not in their raucous housebuilding, mating, or child rearing, but in their nourishment-seeking), I am trying to better embrace and find the wisdom in patience and stillness and, for a change, stick around and have these messy conversations.

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Appendix

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