



PALGRAVE STUDIES IN
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Pedagogical Encounters in the Post-Anthropocene, Volume 1

Childhood, Environment,
Indigeneity

jan jagodzinski

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Palgrave Studies in Educational Futures

Series Editor

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The series Educational Futures would be a call on all aspects of education, not only specific subject specialists, but policy makers, religious education leaders, curriculum theorists, and those involved in shaping the educational imagination through its foundations and both psychoanalytical and psychological investments with youth to address this extraordinary precarity and anxiety that is continually rising as things do not get better but worsen. A global de-territorialization is taking place, and new voices and visions need to be seen and heard. The series would address the following questions and concerns. The three key signifiers of the book series title address this state of risk and emergency:

1. **The Anthropocene:** The ‘human world,’ the world-for-us is drifting toward a global situation where human extinction is not out of the question due to economic industrialization and overdevelopment, as well as the exponential growth of global population. How to we address this ecologically and educationally to still make a difference?
2. **Ecology:** What might be ways of re-thinking our relationships with the non-human forms of existence and in-human forms of artificial intelligence that have emerged? Are there possibilities to rework the ecological imagination educationally from its over-romanticized view of Nature, as many have argued: Nature and culture are no longer tenable separate signifiers. Can teachers and professors address the ideas that surround differentiated subjectivity where agency is no long attributed to the ‘human’ alone?
3. **Aesthetic Imaginaries:** What are the creative responses that can fabulate aesthetic imaginaries that are viable in specific contexts where the emergent ideas, which are able to gather heterogeneous elements together to present projects that address the two former descriptors: the Anthropocene and the every changing modulating ecologies. Can educators drawn on these aesthetic imaginaries to offer exploratory hope for what is a changing globe that is in constant crisis?

The series Educational Futures: Anthropocene, Ecology, and Aesthetic Imaginaries attempts to secure manuscripts that are aware of the precarity that reverberates throughout all life, and attempts to explore and experiment to develop an educational imagination which, at the very least, makes conscious what is a dire situation.

jan jagodzinski

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*I dedicate this book to
Bernd
whose humour and scholarship I admire*

PREFACE

I have been teaching in a university setting since 1980. Before that, I had hung up my shingle to sell art after a successful BFA and a somewhat failed start at an MVA. It didn't take long to figure out I wasn't going to make a living through my art. I found education or education found me. One never knows how these decisions truly come about. Often it seems accidental. I taught visual art in elementary, junior high, and high school. It came to a point where this was no longer satisfying enough, although the students were fun and challenging. They made me angry; they gave me great joy; and at times, they made me cry from the stories they told. I thought, "that's enough" and entered graduate school. I taught at university until 2021. The COVID pandemic set in and online teaching of visual art education—well—it was less than satisfying. Students knew it as well and had to go through two years of screen misery that delighted instructional technicians, and at the same time overwhelmed them with work. The Academy bestows its titles. Mine was Professor of Visual Art and Media Education. The 'media' part of the title came later as it became so apparent that screen culture needed to be taken seriously. After 41 years of university teaching, I became, something called Professor Emeritus, the fancy word for 'retirement,' whatever that means these days.

Looking back, I feel I was always a faux artist and a faux pedagogue. To this day, I do not have a strong grasp as to what 'art' is or what media 'is.' I have lived through extraordinary changes over those 40 years in each of those fields. I finally recognized that each field has its own dynamic—everything changes, and one tries to understand why. The same goes for education and pedagogy. To this day, I don't have an assured answer as to

what a teacher ‘is’ and what education ‘is’ about. Sure, I have ideas, but I know that the field will change as technology changes, as politics change, as ... as ... as. Well, you know what I mean. There is an impossible gap between the written curricula and how those curricula are acted out in school and university settings by teachers and professors engaged in pressing questions. There are only questions. The best ‘teachers’ only ask questions and share what and why they have come to the point they expo(u)se. Sometimes they are reprimanded for it, sometimes fired and let go; other times, they simply leave ‘the profession,’ as it is too unbearable to teach nonsense to their students with beliefs that they are told to. Teaching is an exchange of rhetoric, conviction, compelling stories, belief in one’s mission, empathy for students, and knowing full well that there is no ultimate answer, only the journey with students who enable ways to face the passions and celebrate the joys of uncontrollable life.

These two volumes as ‘pedagogical encounters’ were written in the past number of years when there was more time as an emeritus. There is some overlap between them. Some themes are elaborated in the second volume that are introduced in the first. While I address pedagogy, the meaning of the term is rather nebulous, as there is no specific definition given. It shows itself where it may in these works. These encounters are written under the cover of, what some may find irritating, the signifier: post-Anthropocene. The ‘post’ is a nasty prefix, but I keep it as the event of the Anthropocene has been recognized, although there is enough critique as to its misnomer. As I wrote this preface, COP28 was taking place in Dubai. As I listened now and again and read the latest discussions, it is a reminder that nothing will happen unless there is an attempt to convince planetary leaders that ecological thinking, under the color green for symbolic purposes, will happen unless the industry finds a profit in it. The incentive for profit is what drives its machinery. No bullshit about each citizen doing his or her part is going to be compelling enough to see that message spread because of the goodness of citizen hearts to become planetary citizens. If electric cars are profitable and the advertisement industry works to convince the buyer that the purchase will ‘save the planet,’ there is some likelihood that there may be change and that providing profit will continue. If you can harness and reform capitalism—with jobs, jobs, jobs, and maintain economic growth, well then, maybe. The rich will become richer, and the poor will become poorer. There is no need to hide my cynicism. We see this globally already. The COP28 key agreement is an economic ‘slush’ fund provided by rich polluting-energy devouring countries to help those

countries that are in need. What is more likely to change the post-Anthropocene era is a significant war that surpasses Putin's Russian invasion of Ukraine and the Israeli genocidal aggression against Palestinians. The continued rise of fascism stroke the growing fear of climate migrants and refugees 'banging' on the walls that are being resurrected on the borders. The belief in a technological 'fix' will grow stronger as the projected 3C degree of climate warming at the end of the twenty-first century is reached where liveable land is reduced to the point where there is the historical repeat as to why wars were fought over land to feed the populace. Of course, you say. It doesn't have to be this way. The future is open; the projections can change. We can invent fusion energy in the next ten years and change the planet's energy distribution toward a post-capitalist world. All will change. Sure.

The labor of these two volumes has been to encounter a number of broad areas that shape the forces of the post-Anthropocene, where education and pedagogy are treated at times explicitly as to what is being done but most of the time obliquely as a desire what can or might be done. The explicit and implicit way of looking at education and pedagogy is uneven throughout these two works. The first volume looks at three broad areas: educationally rethinking the child and youth, environmental education, and the question of Indigeneity. These three areas are explored via the spate of new materialist philosophies that have been introduced to face the problematic of human anthropogenic influences on the planetary system. The reader will find constant reference to this proliferation of philosophies that have emerged that question, in their own way, a 'materialistic and affective' turn. From the 'new (feminist) materialism,' speculative and processes philosophies of various kinds, object-orientated ontology, and non-philosophy, to the difficult questions that quantum theory has introduced when it comes to a fundamental understanding of reality. Throughout the two volumes, it will be clear that my own preferences have been a turn to the literature that builds on the philosophical writings of Deleuze and Guattari.

The second volume continues to encounter the 'post' of the Anthropocene through an in-depth attempt to engage in the vast territory of technology that preoccupies both education and cosmotechnology. The discussion is far ranging, covering important proposals made by Bernard Stiegler's neganthropocene thesis and the question of what might be a pharmacological approach to technology. This broad theme segues into neurology and an in-depth examination of issues that bring quantum

theory into the discussion. I end volume two with my own projection on technology, which I call *Lassen* technologies (as opposed to *Macht*) and *pedagogical forcework* that riffs on the tensions that Deleuze's philosophy of difference has initiated in relation to the Earth's indifference to our existence as we, as a species, continue to pollute the environment with the energy of 'distinct creatures,' which, following our own extinction, will be followed by yet other species. There are no sure answers, and the map I chart is *not* the territory.

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Praise for *Pedagogical Encounters in the Post-Anthropocene, Volume 1*

“This is one of the most original books within contemporary posthuman pedagogical thought, both beyond and up to date with our current ecological crisis. Through its conceptual courage and innovations, Jan Jagodzinski, in an exciting way, moves educational thinking into new terrain, tackling the difficulties of our age of environmental and societal disaster head on. In this two-volume book, Jagodzinski has created a new classic for the future, gathering his thoughts from a lifelong engagement with art, education, political ecology, capitalism, media and the (post) Anthropocene into a baffling masterpiece. If you want to engage seriously with finding new ways out of the miserable ecological and societal situation we face today within pedagogy, as elsewhere, this is doubtless a book for you.”

—Michael Paulsen, Associate Professor and Head of CUHRE – *Center for Understanding Human Relationships with the Environment, University of Southern Denmark*

“The scope of this work is extensive in its attempt to ‘turn away’ from education as it exists within its institutionalised formats that are driven largely by the values of capitalist economies and to argue for education and approaches to pedagogy that try to recognise and work with the complex issues confronting people today in what are called post-Anthropocene times...times in which new values are required, new subjectivities, new assemblages of practice that try to appreciate (though this may be impossible) and work with local and global problematics towards, we might say, a convivial future.

The striking feature across all of this work is its depth and range of scholarship as well as its extensive reference to and critical discussion of numerous problematics covering a number of surfaces including education, pedagogy, numerous philosophical fields, social and cultural studies, anthropology, local and global politics, ethics. It is a text, which in Deleuze and Guattari’s terminology, is attempting to ‘become with a world’ and in doing so registers the enormous and unending problematics of such becoming without pretending to offer solutions, rather it faces our difficulties with concern in the Quaker sense of this term (as employed by Whitehead).

I know of no other text in the domain of educational or pedagogic work (though the scope is much wider than this) that is tackling our current difficulties head on. The critical discussion of theoretical work in the many fields that are covered is comprehensive and may be somewhat daunting to some, but this feeling

only then emphasises the complexities that the work is attempting to engage with in a serious manner.”

—Dennis Atkinson, Professor Emeritus, *Goldsmiths University of London, UK*

“Jagodzinski’s two volume work presents encounters with a number of areas that address the topology of the post-Anthropocene: childhood, environment, Indigeneity, technology, neurology and his own attempt that projects a possible future path for education to confront the phase change of the Earth. While no solutions are offered, the right problems are put into focus through an in-depth and comprehensive discussion concerning this problematic as undertaken by numerous philosophical fields. Calling predominately on the theoretical tool kit of Deleuze and Guattari, the recognition of creative destruction cannot be dismissed. Education, he suggests, needs to address the disruptive potential of the planet’s physical change that offers no redemptive anthropomorphization. An important book in these dark times.”

—Bernd Herzogenrath, *Institute for English & American Studies, Goethe Universität, Frankfurt am Main, Germany*

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CHAPTER 1

Ruminations on the Pedagogical Posthuman Landscape

All education is inhuman because it does not happen without constraint and terror to shape humanity. (Lyotard, 1991, *Inhuman*, p. 4)

If there is a post-Anthropocene worth living in, those who will live in it will need different stories, with no entity at the center of the stage. (Stengers “*Matters of Cosmopolitics*,” 2013, p. 178)

‘POST’

What is a ‘post-Anthropocene’? What are the pedagogical encounters that face it? The ‘event’ of the Anthropocene has already taken place, exemplified in its ramifications by the coronavirus pandemic. Just when it happened, its origins will always be in dispute. An ‘event,’ as a disruption of the linear chronological flow of time, only takes place when there is a realization that it has indeed happened. As Deleuze (1990) writes, an event takes place either too early or too late but never during. The Anthropocene event has made plain the realization that the phase change of the Earth has brought about a fundamental understanding that posthuman agency consists of human and nonhuman networks that inform the emergence of our ‘species becoming.’ A further realization has been materialized: As a species, we are both impotent and powerful in regard to the cosmic forces of the Earth. The post-Anthropocene is divided by a fundamental

anthropocentric view where ‘we’ can ‘save’ the Earth and ‘ourselves’ through technological, scientific means by working with the forces of Nature, and one where a new relationality toward the nonhuman-other must materialize to cope with the indifference that this phase change presents to human existence and its potential extinction. The post-Anthropocene also emerges against the backdrop of the dismantling of the neoliberal world order and its geopolitics as the United States’ global influence has waned after the Trump presidency. The repercussions of populism, the rise of fascism, the proliferation of wars and extreme migration, and the failings of the United Nations make it that much more unlikely that there can be a concerted global effort to redirect the current trajectory of the planet.

The Anthropocene is a contested event in every way, even to a point where it is meant to be ‘hacked’ (Mae et al., 2021). As a contested epoch, it can also be thought of as toppling the grip Western thought has had on the Global North via modernist concepts infused with Christian religious zeal, colonial expansion, and the rise of sciences that have made extraordinary technological advances in all sectors of society, at the same time inadvertently toxifying and geoengineering the Earth to the detriment of the life-supporting biosphere. In many respects, the hierarchy of the Great Chain of Being, as the micro- and macro-ontology that pervaded the West in the past six hundred years, has begun to topple by the efforts of its very lowest rungs, all of which have increased their agency as understood within the Anthropocene’s contested narrative. Minerals, animals, children, women, Indigenous, and scattered diasporas (via decolonialization), in that order of increasing agency, and its various possible degrees of ‘queering’ throughout, have begun to ‘flatten’ its pyramidal shape into so-called flat ontologies. The concept of a ‘hidden God’ in the eighteenth and nineteenth centuries made possible a ‘naturalist theology’ to flourish as forwarded by Deist scientists. This led to a new secularization of the spirit, manifested most prominently and forcefully as an *animist* fascination with industrial goods, goods that seemed to emanate lures of attraction on their own accord by beckoning shoppers to gaze and purchase them as they laid, seemingly dormant, in showcases behind wall-high window fronts of *grands magasins* in major European metropolitan centers at the turn of the twentieth century (Papapetros, 2012). What was disparaging called the fetishization of commodity goods by many of Marxist persuasion has now been dispersed and almost normalized as a ‘new animism’ through forces of affect with its accompanying de-anthropocentrized discourse. Every object, it seems, has a lure as to its expression. Lacanians would call

this allure *object a* part of the unknown Real. In either/or terms, this is either a fetishization of the ‘world picture’ or its re-enchantment? In the former case, this amounts to the geoaesthetics of the designed environment (Andersson, 2021), while in the latter, it becomes a revival of the sensuous (Abram, 1996). There is even a theological position by Ilia Delio (2020) that straddles the dichotomy by desiring that future artificial intelligence (AI) be orientated by a new religious sensibility. Her call for “a new religion of the earth” is based on a renewed spirituality and a ‘second Axial age.’ As head of the Center for Christogenesis, this ends up being a renewed cosmology as first projected by Teilhard de Chardin’s Omega Point. In stark contrast, Bronislaw Szerszynski (2017) presents his own secular yet mythologized version of a Second Axial Age by developing theory-fictions that call on the evolutionary work of Henri Bergson and Gilles Deleuze. To overcome the limitation of the first Axial Age that ended with ‘universal’ world religions, Szerszynski attempts to project the “infinite within itself” (45), a way of exploring the concepts of deep time, postmortem existence, material self-organization, internal relations between things, singularities, irreversible shifts, and so on. These are themes that run deep in the post-Anthropocene problematic. The unity of finitude is shattered by ‘boundless difference’ after Deleuze. The Anthropocene image in global terms presents an ever-changing incomprehensible *hyperobject* that seems contained and controlled through daily weather reports, satellite images, news casts of constant war and weather catastrophes, and broadcast 24/7 to a global public, a minority of which has turned to right-wing autocrats, fascists, conspiracy theories, and magic thinking to ground their belief to appease their fears and anxieties.

A range of pedagogical and political responses to this ‘awakening’ are brought up throughout this first volume. In brief, posthuman education in the post-Anthropocene is the *problem* that stretches out across the two volumes in various forms. A ‘problematic’ as defined within a Deleuze|Guattrian inquiry, as James Williams (2021) so remarkably shows, worries the -isms that compete with one another in their *solving* abilities; that is, *actualizing* the ‘problem,’ which does not go away but waits for another iteration. Much like the turn of the twentieth century with its plethora of -isms, the twenty-first century has generated its own lot of -isms, which has often been called the ‘ontological turn’ (Holbraad & Pedersen, 2017). For Deleuze, all -isms are ‘real,’ but only in *degree*; that is, relative to perspectives and problems they address. The extraordinary *problem* is the dissipation of what ‘anchored’ the subject of Western philosophy:

judgment based on ‘objective criteria’ of science and reason (facts, data, evidence) that empowered an elite, ending with a ‘supreme court’ in democratic republics that pass judgment based on a country’s constitution, a democratic structure that is now eroding as conspiracy theories, corruption, ‘untruth,’ fascist right-wing populism arise within the context of possible extinction, whether this will be by nuclear war, climate change, or renewed panepidemics. The global ‘structure of feeling’ is bathed in resentment, precarity, and outright polarization, a splitting of differences. Alain Badiou (2017) calls it ‘democratic fascism,’ a rule by a minority.

Would it be odd to think then that the anthropogenic labor of our species (*Homo sapiens*) has always modified the Earth, and the Earth has always modified our species through the ontogenesis of tool use? “We have never been posthuman.” It has only been a question of the degree to which modifying the Earth has been possible: the range spans from stone axes to the nuclear bomb. Speculations as to just ‘how’ the structure of the brain is modified through various cosmo-technologies, in what is a relatively short period of our species existence in relation to Earth time, remain intriguing. The brilliant ground-breaking work of the paleontologist André Leroi-Gourhan (1993) and then Julian Jaynes’ (1990) bicameral-mind hypothesis surrounding writing technologies raise questions as to how current digitalized screen culture affects ‘digital natives.’ Not well, if we are to believe Jonathan Haidt’s (2022) contemporary Tower of Babel narrative. Preliminary *physical* evidence shows that processing screen information (Small and Vorgan, 2009) impacts neuroconnections ‘otherwise’ than print and certainly oral cultures, raising questions for educators when it comes to approaches to learning (Carr, 2010), given that reading and writing are not innate to the brain as is speech. They have to be learned (Wolf, 2007). It has been to the credit of Bernard Stiegler (2019) to develop the idea of technics as exosomatic ‘tertiary memory,’ and to sound alarm bells over the madness of ‘technological proletarianization’ of the human mind, and his search for a ‘pharmacological solution’ that ended all but too soon for him in an untimely death. A closer examination of his Neganthropocene theory is developed in the second volume.

The youth are suffering as they face a bleak future. The most active organizations: Fridays for Future, Extinction Rebellion, No More Oil, and The Last Generation attempt a wakeup call to COP delegates; the latest meeting (#27) in 2022, Egypt (at the time of this writing) also ended in disappointment. The social withdrawal of youth in virtually every industrialized country, perhaps most dramatically highlighted by the Japanese

Hikikomori, speaks to the oversaturation of gaming and glut of entertainment that keeps sucking up affective vitality to keep the media machines fed. In China, the fascistic use of facial recognition cameras to ensure ‘happiness’ in the workplace is ubiquitous. In Beijing’s Canon headquarters, workers are mandated to smile into a camera to check their ‘emotional quotient.’ Many Chinese firms use surveillance technologies to track the efficiency of their workforce, making sure they remain focused on their screen tasks. Twelve-hour shifts (9–9), six days a week are the order of the day. These are the new forms of controlled enslavement. The rise of autism spectrum disorders (ASD) and attention deficit hyperactivity disorder (ADHD), both of which continue to be labeled ‘disorders’ despite the best efforts of Rights’ activists, should give pause as to what ‘might’ be happening at environmental epigenetic levels. These issues are further explored in the second volume. Is it any wonder why we now have educators talking of measuring and teaching ‘emotional intelligence’? The rise of addiction and substance abuse related to the malaise of ‘unhappiness’ related to poverty and unemployment, as well as the general trend toward authoritarian and fascist regimes globally accompanied by a glut of conspiracy theories, cannot be outright dismissed as somehow not being quasi-related phenomena to this general uneasiness of the ‘world order.’ Such correlations would (of course) be beyond any easy algorithmic formulas, but this is not to say ‘algorithmic governmentality’ is not up to its job! Big data enables all kinds of correlational presuppositions to be exploited for political ends to advance legislative agendas. I take an in-depth look at these issues surrounding what some have called the Algoscene in the second volume. The global ‘structure-of-feeling’ is blanketed by the color of carbon, figuratively, literally, and ironically, as it is the primary element of all known life on Earth.

The recognition of the Anthropocene as an event comes about when our species (its scientists at least) recognize the magnitude of the Earth’s planetary changes, succinctly identified by nine such boundaries by The Stockholm Resilience Centre: stratospheric ozone depletion; biodiversity loss and extinctions; chemical pollution and the release of novel entities; climate change; ocean acidification; freshwater consumption and the global hydrological cycle; land system change; nitrogen and phosphorus flows to the biosphere and oceans; and atmospheric aerosol loading. These are coupled with nine ‘tipping points’: Amazon rainforest, Arctic Sea ice, Atlantic circulation, boreal forests, coral reefs, Greenland ice sheet, permafrost, West Antarctic ice sheet, and part of East Antarctica. These

thresholds will be crossed due to planetary climate change that profoundly disrupts planetary cycles and directly affects and effects the survival of the human species.

As a clarifying note, although the term ‘species’ is used throughout these two volumes, which seems to be the usual state of affairs, it is not accurate. One objection would be the charge of ‘speciesism,’ a sense of exceptionalism, which I certainly do not wish to convey (see Marchesini, 2015, 2016a, 2016b). The second issue, one that receives virtually no discussion in anthropology, raises questions about our species-*becoming* across the expanse of deep history. Given there is only one homo sapient species, how is it that changes physiologically and psychically as technologies modify the bio-ontological condition are not given fundamental recognition? Wading into this question becomes extraordinarily difficult as it raises fundamental questions of historical shifts in epigenetic conditions as technologies and species-becoming change. Put bluntly: what ethnological comparisons remain legitimate between the *Homo sapiens* of the Paleolithic, whose ‘organological’ (to use Stiegler’s lexicon) material existence is profoundly different than contemporary civilization? In what way are they the *same* species if evolutionary-becoming does not stop?

SWIMMING WITH FISH

A ‘higher’ anthropomorphism that flattens anthropocentrism would place our species in the same post-Anthropocene predicament of the sixth extinction. The analogy of fish swimming in water as it heats up slowly, depriving them of oxygen to the point that they float belly up dead is not that far-fetched. We need only substitute the element of water for air, equally invisible, its breathability hampered only in those far-off polluted places or visibly statured by smoke from mega-forest fires that the media brings into our homes; otherwise, the steady rise of carbon dioxide index is noted as ‘just’ a number, and all but ignored by the majority of any given population: besides, what can be done given the enormity of the scale? It is one thing to change car tires *once* every six to ten years, but what happens to these numbers on a yearly basis? For the United States, there are 290 million discarded tires alone. The eco-artist Chris Jordan has brought the sublimity of such numbers home in such a starkly simple way. Any fool can grasp the magnitude of a ‘throwaway society’ viewing his “Running the Numbers I and II” online exhibitions.

Some fish, realizing just what is happening, become hysterical and dart around the fish tank as if nothing can be done, their anxiety levels are not controllable and need supplements to sleep; others can't be bothered as they cannot perceive any changes to their well-being: they have found great spots to live in this tank; after all, it's all the 'natural' turn of events, simply a question of adjusting to the rising water temperature, or move into more comfortable 'hiding' places as this happens. However, others—let's call them, in Bruno Latour's (2017) schema of things, 'Earthbound Peoples'—those that become aware try to figure out just what can be done to keep the water temperature from continuing to rise, and stop it from being polluted as the build-up of shit is not only smelling, but becoming alarmingly visible in the 'gyre locations' of the tank. Perhaps there is a way to filtrate the water and make it cleaner: geoengineer the tank by seeding this plastic shit with synthetically created bacteria to eat it all up? Would that help? Some ask: "Do we have any control over what's happening anyway?"

Isabelle Stengers (2015) called the Earth's phase change the 'intrusion' of the living planet Gaia, who presents, in the last instance, an unknowable player who cannot be fully controlled. The 'fishocentric' population does not recognize the importance of the plants that are growing in the water, helping to stabilize and oxygenate the tank, or yet other creatures who live in the tank with them: the shellfish, Plecos, and sea anemone who are eating the harmful buildup of algae and bacteria. Some fish begin to ask: "Can we restructure the environment of our fish tank?" "Can we clean it up so we can breathe a little longer, perhaps by artificially filtrating the water?" Can we 'school' the new fish born in the tank to keep it 'clean'? The 'tank' is ours to save, they say! Then, there are those, let's call them trans-fish, who try to 'gulp' the air outside the tank, making experimental leaps to 'test' the air—that rarified substance just outside the tank where they just might experience 'weightlessness,' and then try to escape by jumping out. Sure, many may die on the floor, enacting a kind of desperate suicide, but then—just maybe—a few begin to 'crawl' or 'wiggle' over to some sort of modified climate, discovering a 'new planet' so to speak, with enough moisture that enables them to keep going and survive—like cave fish who are able to 'walk' on their pectoral fins. They shed their fish scales and become a new postspecies, maybe they will eventually colonize Mars? *Ad Astra* be damned.

There is no shortage of imaginary fictions here, some more laughable than others, with puns and analogies that can be equally compelling or

ridiculous, such as schemes to change ‘weather’ patterns or modifying the pH of oceans to deacidify them and so on. There is the tank itself to consider: its ‘deep historical time’ and the memory of the changes it has undergone. Analogies begin to fail. More representational misdirection. However, it is a microcosm of the projected thinking that is happening in the ‘postfuture’ of the post-Anthropocene. The remarkable physicist Michio Kaku believes that a Planetary I consciousness, where all energy is harnessed and in human control (or, should that be inhuman control?) is achievable—if we don’t blow ourselves up or go extinct first! Such a comforting thought. Less of a joke, of course, life and death—the biopolitics of the COVID-19 pandemic and its necropolitics as globally displayed—pervades the planetary post-Anthropocene’s ‘fish tank,’ which seems to have a never-ending proliferation of names to figure out just what it is we are ‘in.’ Franciszek Chwałczyk (2020) maps out no less than ninety-one of these! Each one bears a history as to who ‘owns’ the narrative, ranging from the usual ‘good Anthropocene’ of the right-wing capitalists that Trump supported to the indigenous response of calling out colonialization as the underlying cause of the ecocrisis. Donna Haraway’s (2016) *Chthulucene* and Jason Moore (2015) *Capitalocene* have received widespread attention. Chwałczyk mentioned them as well, but strangely missing, or perhaps not considered as one of the appellations is Deleuze and Guattari’s (1987) *mechanosphere*. Hunter Dukes (2016) notes that Deleuze|Guattari’s concept presents a ‘reverse transcription’ of the usual emphasis on the anthropogenic labor that is modifying planetary cycles. Rather, how these changes also modify our species is a much more difficult question, as toxicity and epigenetic changes are subtle and invisible as plastic from waste invades our bodies. We are becoming plastic as subtle changes are occurring ecologically, as a thousand and one microbial species of invertebrates, fungi, bacteria, and viruses have colonized themselves on nonbiodegradable micro- and nano-plastics (Zettler et al., 2019). The variants of plastic debris seem endless: *plastiglomerate*, *pyroplastics*, *plasticrust*, *anthropoquinas*, *plastitar*, *plastistone*, *plasti quartzsandstone*, *plasticrock complex*, *plasticconcrete*, *plastimetal*, and *plasticessiles* (Shruti et al., 2023). This ‘plastic sphere’ is not heartfelt news, as the oceans are slowly being poisoned and its coral reefs are dying. However, changes at the macro and micro level are constantly occurring without our knowledge, some vividly documented by Menno Schilthuisen’s (2018) *Darwin Comes to Town*. The fish tank is always changing in imperceptible ways.

Deleuze|Guattari play a prominent role in this book. Flipping agency around is precisely what Deleuze does when it comes to signs, for signs are nothing more than ‘disturbances’ from the outside that call on a pivotal behavior change that decenters the habituation of the world. Earth’s intrusion is one immense ‘sign’ knocking on the door, requiring a much more disturbing understanding of learning and creativity emerging from this perspective. Deleuze and Guattari’s (1987) geological philosophy calls on earthly nonhuman forces to problematize this inter–intra relationship, outlining three major strata that govern the world: physicochemical, organic, and anthropomorphic strata. The first is connected to the organization of matter (the physical processes happening in the fish tank, including the quantum levels), the second with life (all the other creatures in the tank), and the third with the ‘human’ (the fish). Destratifications that take place among them would be likened to the *particle-sign* ‘cracks’ happening in/on/around the tank itself. The appearance of cracks come from the future anterior, as do all forms of creation that seem to appear from *nowhere*—to wake us up to the *now here*, the spacetime of the ‘knocking.’ Such events are not ‘thought’—they happen. The cracks become wider. The future is an “infinite Now ... not an instant but a becoming” (1994, p. 112). The present is both what is and “what [is] already ... ceasing to be” (ibid.). As Henri Bergson put it, the past becomes a “memory of the present, a virtual double of the present moment” (Bogue, 2008, p. 3). The future is now! It is “the becoming-revolutionary of our present and to come as the goal of our becoming” (Bogue, 2011, p. 77). These complexities of space-time, as sophistically explored by Deleuze through his cinema books, and with Guattari, through the various machinations of ‘becoming,’ inform pedagogy in a postfuture Anthropocene of the twenty-first century with extraordinary challenges, a number of directions as ‘lines of flight’ are presented in this book, especially in relation to digital smart technologies as more fully explored in the second volume.

Any further fish-tank analogies abruptly stop in their failure to grasp the complexities of the creative processes among these three dynamic systems that are performatively in play, raising questions about the fundamental idea of *oikos* (the fish tank), which always brings up dwelling and territory. As Aidan Tynan (2022) argues, all nature-culture entanglements end up in *aporias* of ecological thought: dualism, while dissolved on one level, becomes reinscribed on another methodological or strategic level. He asks: “What to do about ‘anecological life,’ life lived on the edges and limits of habitats and territories”? That is, life that is constantly displaced

through migrations. *Oikos*, thought only as dwelling, is caught by the aporia of movement, which leads to issues of hospitality that always bring risk and violence into the relationship. Fortunately, sedentist biases are put aside with Deleuze|Guattari as movement in the flows of assemblages and nomadism is recognized. Radically put, the mechanosphere is the domain of inorganic (sometimes termed anorganic or nonorganic) life, with the assemblage (*agencement*) being the basic unit of anorganic life's creative unfoldings and infoldings, the movement undulations of forces (as particles), intensities (quanta), and the more graspable electromagnetic spectrum of wave phenomena where such 'strange' descriptors as pink, red and brown noise emerge.

These superpositions remain only speculative. Anorganic life has no stable or predefined form. The difficulties of material-energy exchanges. Einstein's most fundamental equation ($E = MC^2$) is at the heart of the current crisis in quantum physics, which finds itself fundamentally at odds with general relativity. (These difficulties too are examined most fully in volume two; also, jagodzinski, 2024). There can be no extinction of 'life' understood in its extreme form, given the post-Anthropocene, which is to say, the Earth's phase change, redistributes the ecological conditions for the arrival of new species and the extinction of others, including our own. However, there is a point where complete annihilation is immanent. The planet itself will be engulfed by the sun (go extinct), which is currently estimated to be 7.59 billion years. However, the projected calculations constantly change. Lyotard's (1991) meditation on the 'heat death' of the sun, which is an abundant source of energy for all of life, presents the thought of a rather disturbing trajectory. The continued complexification of energy as continually harnessed by technosciences leads to a limit. Currently, the sun provides a constant high-energy influx on the Earth, enabling what astrobiologists call a 'Goldilocks zone' or a habitable zone that supports liquid water and life. As the sun's energy fades, a point will be reached where there is no choice but to leave. This also means leave the 'body.' The progenitors of our species will be AI or a hybrid there off. We have always been, if we accept Stiegler's (2018) *organontology*, a manifestation (of one sort or another) of an organic|inorganic combinatory creature pervaded by technics ('organized inorganic matter') that is progressively moving toward the transhuman. What direction will the 'becoming' of species Homo take remains in balance: toward extinction as global conditions become increasingly toxic and human life unbearable or toward transhumanism with its technological extremes of mind-body

modifications. These seem to be opposing extremes. Recognizing that technology modifies *Dasein*'s being-in-the-world subverts Heidegger's *being* to *becoming*, a distinction that the confusing Heideggerian claim of "transcending beings toward their being" seems to harbor (Lemmens, 2022, pp. 1308–1309). The arrogance of philosophy articulating what that transcendence precisely 'is,' as an ontology, is precisely what François Laruelle rails against with his development of non-philosophy. It is not so much the conflation, confusion, or separation of transcendence with metaphysics that is the issue; rather, it is the tension between physics and metaphysics that presents the problematic of 'becoming' for *Homo sapiens*. Species 'becoming' is always already facing the limitations of Heidegger's Enframing [*Gestell*], which *posits* control. Perhaps the unification of quantum theory (QT) with general relativity will open up a new physics enabling a new trajectory to escape gravity. Gravity challenges the claim that the second law of thermodynamics is an inexorable, omnipotent force in nature. Gravity is nonentropic (Kobakhidze, 2010, 2011; Gao, 2010), and this causes many cosmological problems. Via stellar nucleosynthesis, gravity is a predominant source of available energy. Therefore, perhaps it is precisely the tensions over gravity, which sets the limit, plummeting 'us' back down to Earth as bounded creatures with a body, raising fundamental questions about the 'end of the world' as we know it, popularized by Timothy Morton (2013) and taken to task by Vincent Blok (2017)? Such a position seems to *think* that our own species extinction is all but an impossibility (Lewis, 2017). "You're on Earth. There's no cure for that" (Samuel Beckett, *Endgame*).

PLANETARY PAIDEIA

What sort of *planetary paideia* can be imagined given such complexities swirling in the post-Anthropocene? When Deleuze and Guattari write, "We are not *in* the world, we *become with* the world" (1994, p. 169), pedagogy is presented with the dilemma: how do we "become *with* the world?" The postmodern landscape laid out in the twentieth century, with its centrality of deconstruction (Derrida), poststructuralism (Foucault, and structuralism bridged by Lacan), discursivity ('linguistic turn,' especially by cultural studies), and the ground-breaking achievements in the information sciences (cybernetics and its constant variations and modifications, five iterations to date), and biological sciences (digitalization and DNA genomic research) have morphed since the 1990s into the twenty-first century with the first quarter century developing 'new cracks' of

creation and destruction under an all-encompassing rubric of posthumanism where the convergent clustering of NBIC technologies (nano-bio-info-cogito) are the order of contemporary science.

Posthuman and posthumanism have become the established signifiers that supplanted what was often called a ‘post-postmodernism,’ a time of melancholic recovery from the broad questioning of the collapse of the grand narratives of the twentieth century. The leading edges of pedagogical philosophies moved with the changes from the twentieth to the twenty-first century: in the West, ‘reconceptualizing the curriculum’ by forwarding ‘difference’ as ‘diversity’ was worked into capitalist forms of social democracy. Individual interests were catered to via media commodification through a ‘new spirit of capitalism’ that went under the post-Fordist rubric and now touted as the fourth industrial revolution (4IR). Unevenly throughout the globe, nevertheless rhetorically, the ideals of rights and equalities of ‘citizenship,’ when it came to the growing string of intersected signifiers—race, ethnicity, sex, gender, ageism, disabilities—have led to the malaise of right-left political bifurcations. The extremes on both ends fighting for the vote of a ‘missing’ middle of the ‘middle classes,’ rhetorically spoken as ‘the people.’

Critical theory, with its roots in Enlightened Kantian view of the subject, held its ground by generating a neo-Kantian open-system that was to continuously make room for newly emergent forms of difference that demand recognition (indigeneity and LBTQ + are the most recent insistent movements), which led to a sustained identity politics often referred to as ‘strategic essentialism’ or ‘strategic representationalism.’ Any rhetoric of a changed subjectivity that decenters the ‘glue’ of identity holds no sway here given that language, culture, and religious rituals bind community values. The mono-naturalist view of nature has been expanded by the recognition of animist (or analogical) ontological pluriverses of indigenous societies that have been channelled to a new awareness by a select number of anthropologists who insist on their recognition and socio-political and socio-cosmological consequences to intrusive change, especially by capitalist forces as has become so evident throughout the Ameridian universe, most notably in Brazil’s rainforests (Viveiros de Castro, 2009; De La Cadena, 2010; Descola, 2013; Główniczewski, 2021). An attempt to push back a colonial education, especially in science and cultural education, has taken root in several counties where First Nations people are actively engaged. An overview of what some of these inroads have appeared throughout Section 2 of this first volume, which explores ‘Becoming Indigenous.’