

MULTISPECIES APARTHEID: SYSTEMIC METALOGUES AND PRAXIS WITH INDIGENOUS AND NON-INDIGENOUS LEADERS ON MULTISPECIES RELATIONSHIPS AND PROCESS¹

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Abstract

The aim of the paper is to reflect on experiential learning with indigenous knowledge holders in a range of contexts as an antidote to species apartheid and apartheid in the arts and sciences. Balancing individualism and collectivism requires an evolutionary approach through respectful dialogue and changing the way in which we relate to living systems. This has implications for the way we ‘do’ the sciences and the way in which we engage with one another and other species. The paper reflects on relationships with human beings and the many forms of life on which we are co-dependent as hybrid species. It is time to change the way in which we do science. It needs to be more intersubjective in order to test out ideas and to make a difference together.

The forthcoming volume “Affirmative action to address multispecies relationships” is rooted in community contexts where members of our transboundary community of practice work to co-create good will through setting up local hubs that make a difference. The process, medium and the message are linked to and extend Marshall McLuhan’s phrase.

New science needs to engage with those who have lived experience. Instead of doing research *on* we need to do research *with* co-creators to enable ‘conscious evolution’ to use Banathy’s term. This book uses co-authorship through mixed methods using story telling, participatory action research, Zoom to link us across spaces and places and the innovative use of ICT. We build our collaborative writing through a form of metalogue to ensure that we avoid ventriloquy – speaking for others and talking over others. Together we strive to learn from one another across cultures and disciplines to redress *Species Apartheid*.

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Acknowledgements to Alexander Christakis and all who participate in the joint endeavour of co-creating knowledge and the legacy of the many first nations such as Tibet, Amazon, Africa, the Camissa People, the Xhosa, Vhavenda, Ghanain, West Java, Central and Southern Australia Adelaide Dlamini, Olive Veverbrandts, Peter Turner, Debora Bird Rose, Donna Mertens, Mphatheleni Makaulule, Gregory and Nora Bateson, Geoffrey Midgley, Robert Flood, C. West Churchman, JP Van Gigh, Alexander Christakis and Maria Kakoulaki, Jeff Dietrich, Alan Rayner and the work of the ongoing community of practice comprising those who contribute to the Springer Series and the leaders of the Multispecies Hubs and the co-facilitators over the years in particular Alexander Christakis, Ken Bausch, Norma Romm, Patricia Lethole, Riswanda Riswanda, Ida Widianingsih, Lisman Manurung, Adib Shomad, Rudolf Wirawan, Yiannis Laouris and Marcus Hallside

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Our praxis is through performative and re-generative projects with indigenous custodians, academics, students, members of the community and a range of organisations supported by the community of practice. Together we engage in ‘inner work’, ‘outer work’ and ‘future work’ with colleagues in a range of spaces and places. The paper makes a case for extending performative kinship to multiple species using intergenerational, cross cultural learning and multiple methods. *Inner work* is on values and the importance of critical analysis and analytical meditation on the consequences of our thinking and practice. The conversations led by the *Mind and Life Institute* also inspire the notion that the way we think shapes our relationships with others and the environments. Our choices matter quite literally. Thinking shapes matter and our designs shape the world in which we live. *Outer work* is on transformative education and organic food production workshops based on extending the field of engagement through an active community of practice spanning universities and NGOs. We work with Indigenous custodians, organic farmers and trainers linked with Participatory Guarantee System.

Some of the Multispecies Hubs leaders have explained what totemic kinship means and how it helps to remind people that the human, animal and insects are linked. *Future work* includes narrative and *if then scenarios* to re-imagine relationships and to think through ways of bringing new possibilities into being through creativity and courage.

Keywords objectivity, subjectivity, intersubjectivity, metalogue, ways of knowing and apartheid

1. Introduction: Weaving together strands of knowledge and experience

The process, medium and the message are linked to extend Marshall McLuhan’s phrase (McLuhan, and Powers. 1989). New science needs to engage with those who have lived experience. Instead of doing research *on* we need to do research *with* co-creators to enable conscious evolution to use Bela Banathy’s (2000) term².

Rubio Scarano (2024) has a forthcoming book titled ‘Regenerative Dialogues for Sustainable Futures Integrating Science, Arts, Spirituality and Ancestral Knowledge for Planetary Wellbeing’ in which he makes a case for transformation that is

‘inclusive of other forms of interpretation of reality (arts, spirituality, and ancestral knowledge) and non-modern cosmovisions.’

Narratives are the way we humans make sense of the world for better or worse. Through narratives we stress that each one of us is a walking colony of living beings that make our lives possible. The bacteria in our stomachs keep us healthy, just as the bacteria in the soil keep the root system of plants alive. If we destroy the bacteria in our stomachs and the earth we will become unwell. Just as antibiotics destroy the gut bacteria, the pesticides destroy the root biomes on which the food supply of plants and animals (including human beings) depends.

² Gerald Midgely showed the way by listing all the people with whom he worked (Midgely et al 2007). This is very different from acknowledging the informants or naming them in the document. Robert Flood made it possible to publish with Indigenous custodians. Most journals require that each author logs onto the website. In the case of the article with indigenous leaders in Cianjur it required accessing signatures during the rainy season, but with whatsapp and good will we were able to comply with the journal requirements.

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In the spirit of weaving together strands of understandingⁱ this essay makes a case that consciousness is not merely a function of the brain. Chalmers (2016) considers consciousness to be the ‘hard problem’ and that it could (possibly) be attributed to both organic and inorganic life in a form of ‘Panpsychism and Panprotopsychism’ (Chalmers, 2013). The continuity of some form of consciousness and kinship is recognised by Indigenous peoples (see Lethole and Romm, 2021, Lethole et al, 2022, McIntyre-Mills, 2003, McIntyre-Mills, Makaulule et al, 2023) and in nature based religions as well as by an increasing number of systemic, animal and plant researchers (see Ackerman, 2016, Gagliano, et al, 2018, De Waal, 2006,2009, McIntyre-Mills, 2021, Rayner, 2010, environment. The ancient Tibetan physics resonates with the work of Baum as detailed in “Universe in an atom” (Dalai Lama, 2005). Rituals and traditional wisdoms are explored with spiritual custodians from many cultures and religions. This inner work on analytical meditation enables transformation based on the realisations of the consequences of thinking and action for oneself, others and the environment.

Outer work is on transformative education and organic food production workshops based on extending the field of engagement through an active community of practice spanning University of Adelaide, University of South Africa, Universitas Padjadjaran, University of Venda linked with Dzomo La Mupo and Earth Rise. We work with Indigenous custodians, organic farmers and trainers linked with Participatory Guarantee System. Some of the Multispecies Hubs leaders such as Mphathele Makaulule and Patricia Lethole have explained what totemic kinship means and how it helps to remind people that the human, animal and insects are linked. To sum up, our two way learning with indigenous leaders as co-authors uses face to face learning in the community, Zoom video conversations and iterative emails to build a metalogue to explore transformative approaches based on developing an ‘ecology of mind’ (Bateson, 1972) that resonates with the indigenous philosophy of Mupo (living systems), Ubuntu or sharing based on an understanding of our interconnectedness with one another and with nature expressed as totemism (Lethole and Romm, 2021, McIntyre-Mills Makaulule et al, 2022) and stewardship of sacred sites. We weave new stories out of our experiences retaining our right to vote on our ideas. We can learn pragmatically about what works why and how and protect this knowledge by handing it on, in order to create better pathways for the future. So we grandmothers (and older women) who are working together in a community of practice with the younger generation to make a difference. We are also inspired by the Wild Law Institute, International Systems Sciences and the Future World’s Institute and Global Agoras. We need to understand the importance of custodianship and engaging respectfully with others as this is the heart of a new earth democracy (Burdon, 2010, 2011, 2015, Engel et al, 2011, Engel, 2013, Higgins, 2013, Makaulule, 2021).

Future work included narrative and *if then* scenarios to re-imagine relationships and to think through ways of bringing new possibilities into being through creativity and courage. Narratives are the way we humans make sense of the world for better or worse (Harari, 2015, 2016, 2021, 2023a,b). In the narratives included in “Affirmative action to address multispecies relationships” I stress that each one of us is a walking colony of living beings that make our lives possible.

2. Extending performative kinship to multiple species: intergenerational and cross cultural learning

We need to relate to other species and our environment. The bacteria in our stomachs keep us healthy, just as the bacteria in the soil keep the root system of plants alive. If we destroy the bacteria in our stomachs and the earth we will become unwell. Just as antibiotics destroy the gut bacteria, the pesticides destroy the root systems.

The forthcoming volume titled “Affirmative intervention to support Multispecies Relationships” (McIntyre-Mills, 2024) is rooted in community contexts where members of our transboundary community

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of practice work in this space to co-create good will. It builds on the legacy of Deborah Bird Rose and the ideas Donna Haraway forefronted, namely a new form of ethnography and way of thinking that focuses on other species and the environment. Haraway also asked questions about our relationships with technology as design decisions.

Our work is also shaped by Vandana Shiva as a physicist who re-frames our way of seeing relationships to food and agriculture and builds on the legacy of Schumacher about local economies and how people and places matter. This book uses co-authorship through mixed methods using story telling, participatory action research, Zoom to link us across spaces and places and the innovative use of ICT. We build our collaborative writing through a form of metalogue to ensure that we avoid ventriloquy – speaking for others and talking over others. Together we strive to learn from one another across cultures and disciplines redress *Species Apartheid*. Our praxis is through performative and re-generative projects with indigenous custodians, academics, students, members of the community and a range of organisations supported by the community of practice. Together we engage in ‘inner work’, ‘outer work’ and ‘future work’ with colleagues in a range of spaces and places.

Inner work is on values and the importance of critical analysis and analytical meditation on the consequences of our thinking and practice. The conversations led by the Mind and Life institute inform our work and the notion that the way we think shapes our relationships with others and the biomes on which the food supply of plants and animals (including human beings) depends.

My relationships and growth through being mentored by Indigenous elders with whom I worked such as the Xhosa diviner (Iqira), Adelaide Dlamini in Guguletu Cape Town and the Arrente Leader Olive Veverbrandts in Central Australia have been documented.

3. Influence and responsibility through Praxis

A few years ago I was introduced to the notion of warm data by listening to an ISSS plenary lecture by Nora Bateson (2021) which reminded me of the importance of learning in the moment with people drawing on local knowledge. Indigenous first nations understand that *we are* because of others. Metalogue with members of a community of practice is a different way of doing research. Instead of doing objective research on a community we work together as a community of practice (to use Etienne Wenger’s term) quite loosely. We apply co-learning to weave together strands of experience. It is an attempt at de-colonising research and trying to avoid speciesism through learning more about how indigenous people relate to other species. The world is in a bad way as human rights are at a low ebb, but the rights of other species are also in a bad way. Our fate is intertwined. Without other species we would not survive. The Tibetan indigenous ideas that underpin Buddhism stress this point which is discussed in detail in the forthcoming volume “Affirmative action to address multispecies relationships” so it does not need to be detailed or rehearsed here.

3.1. The importance of relationality

Elsewhere (MCINTYRE-MILLS, 2021) the case was made for relational research, simply because testing out ideas requires acknowledging the implications of the relationships across the researcher, those with whom we engage and our shared environment. This is not only because we need to learn humility to expand the boundaries of knowledge through respectful dialogue, it is because we change the context through engagement.

The work of Donaldson and Kymlicka (2011) in Zoopolis stresses the need to be mindful of the animal rights of wild species, liminal species in our shared urban and regional landscapes that are increasingly eroded and the impact this has on other animals. Wild animals, farmed species and domestic species

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need their habitat to ensure a life that is worth living. In ‘Frontiers of Justice’ Martha Nussbaum(2006) stressed the rights of the voiceless to ensure that their capabilities (2011)are protected. Democracy and governance need to be re-framed to ensure we protect the voiceless who do not vote . The voiceless span the young, the frail and all displaced refugees and sentient beings. Dialogue with human beings is about dialogue , but better communication that is mindful of other species (plant, insects, birds and our shared habitat)is also needed. Communication and culture , it can be argued is in fact ‘ a multispecies endeavour’ (McIntyre-Mills, 2021).

As fires destroy the habitat of wild creatures in the Fish Hoek, Kalk Bay and Simons Town area it becomes important to provide the baboons and guinea fowl safe passage. According to the Baboon Watch Website run by a group of volunteers: if a baboon comes into the garden or into one’s house it is important to remain calm, lower one’s height and look down. Keep out of their way and allow them to make their way out if they are helping themselves to fruit. The grimacing and showing teeth behaviour is a way of showing appeasement.

Everyone who loves a cat, dog, horse or bird knows that learning the communication signs and responding to a beloved pet enables shared symbols and communication across species. My husband befriended two wild crows who learned to communicate with him and recognised the sign of his vehicle so they would be waiting to share his lunch in the desert area of Queensland where he worked.

A constructivist approach requires our working in relationship with others and our shared habitat. The way we think shapes our own lives and the lives of others. Our choices matter quite literally. Thinking shapes matter, designs shape the world we live in and are rooted in designs. It is time to change the way in which we do science. It needs to be intersubjective . this is the best way to test out ideas and to make a difference together with those who can draw on centuries of experience in communities that have protected forest habitats which are the lungs of the planet (McIntyre-Mills et al 2023 and Widianingsih et al 2023) .

4. Our future is quantum? Implications for identity, democracy, governance and ethics

This section of the essay will explore the concepts of identity, democracy, governance and ethics.

According to Bohm, 2002 : 221):

“ Ultimately, the entire universe (with all its ‘particles’, including those constituting human beings, their laboratories , observing instruments, etc.) has to be understood as a single undivided whole, in which analysis into separate and independently existent parts has no fundamental status.”

Identity politics has barked up the tree of class, race and rights for some human beings at the expense of the majority in this generation and the next. But we need to identify with the voiceless who are not protected by the social contract including other species and our shared habitat.

For example, I think one of the saddest days for democracy was when the working classes of America were publicly labelled ‘deplorable’ by the Democrat running for office . In America , identity politics and policy – democrat style – did not consider the everyday challenges of cost of living , fear of the future while ordinary Americans faced. The over simplification of political categories is part of the problem . what does left and right mean these days? Left can be rusted on labour or it can mean rusted on republican? Green voters can be right or left , depending on the party policies . The 6th the of January was the anniversary of the day when the White House was besieged. Democracy is based on dialogue, testing out ideas , voting and accepting the outcome. Donald Trump , however argued that the process was unfair and that he had won, despite evidence to the contrary.

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In Australia we categorised progress as a *yes or no vote* on *The Voice* for Indigenous Australians, instead of engaging in more respectful dialogues to understand why people feel the way they do.

In Australia the Bill of Rights, not the Voice to parliament was a preferred option among some of the left. The conservatives thought the voice went too far and the left thought it did not go far enough. So the point I am making is that yes/no votes are inadequate for democracy at a time of increased complexity. Instead we need discursive engagement so that people understand issues and can consider the consequences of decisions in terms of *if then scenarios*. *Yes* and *No* are just the opposite ends of a continuum which can in fact connect if the issues are explored.

Ben Ansell (2023) is a political scientist based at Oxford argues in the Reith Lecture series that we have taken security for granted but that as fragile bodies of matter we seem to be very comfortable with risks and that our risk taking rests on a level of trust. Taking a flight to South Africa during the Covid pandemic before vaccine required wearing artificial barriers. The Qatar flight in 2021 was fairly empty. My trust in my own immune system, the test results claiming that all who boarded the flight were virus-free, my faith in the protective mask and shield plus the competence of the airline pilot were just some of the factors which I considered, along with my decision only to drink some liquid during the flight using a bamboo straw.

Democracies require trust and many today suffer from elected governments that fail to follow rules and represent the citizens, let alone the younger generation and others living within the nation state – but without the vote – because they are refugees or asylum seekers. Human beings are not well represented if they are poor, disabled or voiceless. Other species and our shared environment continued to be neglected and according to Ben Ansell's (2023) Reith lecture on democracy the number of dictatorships is increasing:

“According to the V-Dem Institute, the average level of global democracy today has receded all the way back to its level in 1986. ...For the first time in two decades there are now more closed autocracies in the world than there are liberal democracies. And, increasingly, the liberal part of liberal democracy is under attack....”

Democracy requires on going, respectful engagement, not quick *yes/no* votes on narrow agendas driven by social media that can polarise rather than grow areas of understanding. This for example was the case in the recent referendum on the inclusion of *The Voice* to parliament in Australia. Although a Bill of rights would have been preferable, the no vote sent the wrong message for reconciliation with Aboriginal Australians. Surely democracy should be updated? Representation and accountability in real time must be feasible and the potential of the quantum computer is now not on the distant horizon. In Bangladesh democracy comprising around 170 million people is under threat as the election process on 6th January 2024 was boycotted by the opposition³.

5. Old and new wisdoms: Quantum reality is filled with potential

The good thing about exploring ideas discursively is that many strands can be followed. Our thoughts and actions write the landscape of our lives. We are participants in the universe and this is understood in religious practices that help to focus the mind on engaging positively with others.

Mahayana philosophy, for example is a consequentialist approach. The philosophy rooted in Indigenous Tibetan and Indian wisdom advocates that as human beings we have a particular responsibility for all sentient beings.

³ Chen, H. Sud, V and Suri, M. 2024 Bangladesh Prime Minister Sheikh Hasina secures fourth term in election boycotted by opposition <https://www.cnn.com/2024/01/06/asia/bangladesh-2024-election-opposition-boycott-intl-hnk/index.html> “

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If we believe that ultimate reality is not pre-determined then we can think and act in ways that help to bring about positive outcomes. Karma is potential thought and action, based on cause and effect leading to pragmatic outcomes. A basic tenet of Mahayana Buddhism is that the way we think changes relationships with others. A distinction is made between ultimate reality (emptiness, potential and quantum level) and the everyday or conventional reality we experience. The two are not contradictory, just different levels of understanding.

The logic of physics and the key tenets of Mahayana philosophy have much in common as the ongoing collaboration with the *Mind and Life Institute* indicates. Francisco Varela helped to found this institute which has encouraged dialogue with participants with diverse cultural backgrounds spanning the arts and sciences. When Francisco Varela founded the *Mind and Life Institute* he stressed the mission to be: “embodying the practices under investigation, creating new frames and stories for our hearts and minds.” (Mind and Life website, 2022)⁴.

Richard Davidson who helps to facilitate *The Mind and Life Institute* explains that the more people are able to remain calm and tolerant the better they relate to other people and this “creates a recursive circle which re-inforces a state of wellbeing.”⁵ Mind, Memory and the environment that creates it are enfolded (Bohm, 2002: 75), in other words the environment shapes us and we in turn shape our environment. The points that the theorist David Bohm and HH made when discussing emptiness and potential is that we make (or break) opportunities in the way we relate to one another. Content and process are part of one continuum.

The circularity of mind, body and context is relevant and reminds me that systems are ‘alive’ because of a circular regenerative process of taking in nutrients and releasing toxins (see McIntyre -Mills, 2022:8):

“Re-generative narratives draw on spirituality and First Nations. David Abram explains in his foreword (in Kaza, 2020) on the work of Joanna Macy (2015) ... that the notion of ‘interbeing’ can be understood very simply and directly when we comprehend that the air we breathe in, is the air plants breathe out. We could add to this, that we are what we eat and what we consider constitutes food. By understanding the way *in which living systems relate dynamically* is the first step towards understanding mutual causation and the importance of dialogue in what Bohm (2002) describes as a ‘participatory universe’[He explains this] in conversation with

HH Dalai Lama (2018). By participatory universe he means that our thinking shapes the world in which we live.

If we compartmentalise human beings into body and mind we separate *thinking* from *being*. Anger, anxiety and depression impact our physical health. Our emotions have a direct effect on physical molecules in the body as explained by Candace Pert (1999) in her book “The Molecules of Emotion”. In fact *the way we think* can influence *our physical health*. Just as our thinking effects our physical health, it also effects the health of other species and the natural world, because our thinking shapes who and what we value.”

“ ...[I]n a living system, for example, each part grows in a context of a whole, so that it does not exist independently, nor can it be said that it merely interacts’ with others, without itself being essentially affected in this relationship...physics has become almost totally committed to the notion that the order of the universe is basically mechanistic. The most common form of this notion is that the world is

⁴ <https://www.mindandlife.org/event/2022-mind-life-conversation/2022> Conversation on Interdependence, Ethics, and Social Networks

⁵ Mind, Life and Matter, 2013. Day 1 Drepung Monastery, Mundgod, India January 17–22.

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assumed to be constituted of a set of separately existent, indivisible and unchangeable ‘ elementary particles’, which are the fundamental ‘building blocks’ of the entire universe. Originally these were thought to be atoms, but atoms were eventually divided into electrons, protons and neutrons...and now even smaller particles called ‘quarks’ and ‘partons’ have been postulated...no coherent concept of an independently existent particle is possible...Einstein proposed that the particle concept no longer be taken as primary, and that instead reality be regarded from the very beginning as constituted of fields, obeying laws that are consistent with the requirements of the theory of relativity. A key new idea of this ‘unified field theory’ of Einstein is that the field of equations be non-linear...these localized pulses, consisting of a ... field that could move through space stably as a whole, and that could thus provide a model of the ‘particle’. Such pulses do not end abruptly but spread out to arbitrarily large distances with decreasing intensity. Thus the field structures associated with two pulses will merge and flow together in one unbroken whole...Moreover when two pulses come close together , the original particle-like forms will be so radically altered that there is no longer even a resemblance to a structure consisting of two particles...”(Bohm , 2002:220).

A notion adapted from Einstein is that $E(s) \propto mc^2$ where E (energy – magnetism and electricity) , S (consciousness is expressed as spirituality in the forms of myth, narrative, ritual and other behaviours ,arts and sciences) which shape M (mass or matter) and c (celerity or speed squared).

Michelle Simmons⁶ in her first Boyer lecture, *Atomic Revolution* explains that when Democritus in 460 BC talked of atoms and was ignored for 2000 years ⁷ Interestingly, Bohm(2002:3) also makes the same point. Most people do not think at an atomic level unless it is about weapons, but Simmons would be interested to know that atomic theory was a topic of early Tibetan and Indian scholars long before Democritus . Indian and Tibetan philosophy conceptualised a notion of atoms as HH Dalai Lama explains (2005) in his chapter called ‘emptiness, relativity and quantum physics’ .. It is interesting that when attending a puja celebration of the life of Tsongkhapa (who taught in 1390⁸) reference was made in some of the translated Tibetan prayers to atoms.

At the atomic level matter and light follow quantum rules not linear rules. Electrons can be particles and waves , they do not follow the rule of ‘either or’, the excluded middle. Another characteristic is that electrons relate to one another in space and are ‘entangled’, so that they are not fixed in terms of time and space . This opens new fields in science and manufacturing as well as in artificial intelligence. It makes it possible to mimic atoms .

What will a quantum future look like?

Who will control or protect the cloud where all the data is located? What happens if the algorithms re-program themselves to favour a post human silicon future? What happens if drones swarm?

⁶ <https://www.abc.net.au/listen/programs/boyerlectures/boyer-lectures/102932752>

⁷ “The first person (that we know of) to speculate about the existence of atoms was the Greek philosopher Democritus. In 460BC, he asked a simple question: If you break something in half, and then in half again, how small would the pieces eventually become?

He theorised that at some point you would end up with the smallest part of matter, which he called ‘the atom’. Unfortunately for Democritus, experimental science was not particularly advanced in 460BC and, to make matters worse, Aristotle (who was a much more influential philosopher) didn’t like the theory, so no one paid much attention to the idea for about 2,000 years....”

⁸ https://en.wikipedia.org/wiki/Je_Tsongkhapa

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6. Future challenges

Simmons also suggests in her third lecture that just as the printing press began a revolution in learning and opportunity, so the new form of quantum computing will leap frog 'old style' linear computers into much faster and more flexible manipulation of data. She stressed that although it is almost impossible to speculate on what the future could look like it seems likely that it could enable interventions to rebuild matter at a cellular level to respond to environmental challenges, disease and cellular decay. She suggests it could revolutionise re-generation. But it could also widen the divide between human beings so that some have all the 'advantages' of post human cyborg intelligence and others are 'left behind'. It could be important to retain genetic integrity –flaws and all. This could help species to retain their so-called genomic memory, in order to respond to the environment. To what extent it is used in ways that support the common good or extend the barriers depends on the values we apply to its development. Simmons (2023) mentions in her third lecture on *Imagination and Mindset* mentions the inspirational lecture by the theorist Richard Feynman⁹ about the need (and space) to work at the atomic level. She realised the potential of moving atoms using an adapted technology (despite the doubters) Transistors enable the digital revolution as they transmit the 1 and zeros and she and her team have made a transistor the size of an atom using phosphorous and silicon.

'*Leave the world behind*' is based on a novel by Rumaan Alam and produced by the Obama's. I have also read the novel and found both thought provoking as the notion of cyber insecurity and infrastructure breakdown followed by social implosion in the context of an America where guns are everywhere, where distrust is rampant and local food supply systems are centred on supermarkets. The theme that could have been addressed in the movie version of 'Leaving the World Behind' is the need for re-generation and co-operation, rather than raiding neighbours supplies. Living in the city or the country without food, water and energy will be the core challenge if systems fail.

The commentary on black and white Americans was apt and the message (for me) was that whilst narratives (books and films) are important, they should be used to raise awareness, rather than merely a for escapism from the confronting reality of a digital world where over reliance on algorithms could lead to complete social breakdown.

Hence the warning that we need to foster an awareness of our place in nature (McIntyre-Mills, 2024 forthcoming) which is why in my parable '*Galapagos and the Wisdom growers*' to prompt reflection on the need for critical thinking about the media and about growing local food in local economies in ways support bio-diversity. The parable also tackles the risks of fake news. The central message is that no matter what our differences are – as human animals and other animals— we share many biological needs. By telling a story the listener or reader is prompted to step into another world and to imagine alternative ways of interacting with others. Once they have walked through alternative scenarios in their own mind, it is hoped that they will bring some of the lessons learned into being.

⁹ Simmons said: "Let me tell you something astonishing. Back in 1959, at a time when commercial computers built with transistors were only just beginning to be sold, and Moore's Law was years from being formulated, the Nobel Prize winning American physicist, Richard Feynman, one of science's great visionaries, gave a lecture entitled 'There's Plenty of Room at the Bottom'. The subtitle of this lecture was 'An invitation to enter a new field of physics'."

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7. Conclusion : Evolutionary systemic ethics needs to balance individual and collective needs at the species level

In *Global citizenship and social movements: creating transcultural webs of meaning* (McIntyre-Mills, 2000) and *Systemic ethics and non-anthropocentric stewardship* (2010) I make the case that “the closest we can get to truth is through dialogue”. Ethics is about balancing individual and collective needs and a non anthropocentric approach. It may be necessary to make decisions at a post national , regional or even global level as Joseph Stiglitz suggests in his work on wellbeing. His points together with his co-author Kosenko about freezing assets of dictators , resonates with the argument by Ord (2020) who stresses that ethics is now about thinking at the species level:

“ Ethics is normally viewed from the perspective of the individual: what should *I* do? But sometimes we step back to take in a broader perspective, and think in terms of the obligations borne by societies or countries. And in recent centuries, we have begun to adopt a global perspective, asking how the world ought to respond to a pressing concern..... *The current stage in our history demands an entirely new ethical perspective, one that requires an ability to think in species-level terms.*”

McIntyre-Mills, 2024 : 453-454:

“The contributions made by Ann Florini (2003) on scaling up the Aarhus Convention could be applied more widely. Currently the convention ensures that local people with concerns about the environment have the right to information, the right to be heard locally within the European Union and to take their concerns to the European parliament or European court (if they are not satisfied). ...Florini (2003) stresses that the policy provides a valuable potential platform for extending democratic rights to residents within and beyond a nation state so that social and environmental justice concerns could be addressed at a scaled up post-national regional level. Other potential approaches that could contribute to a new, reframed architecture to protect social and environmental justiceStiglitz and Kosenko(2024)¹⁰ suggest freezing and seizing assets But this could result in anarchy if tit for tat seizure occurs.

McIntyre-Mills, 2024 : 454:

“The late Polly Higgins (2013, a barrister advocated for an Ecocide Law for crimes against the environment, whilst Vandana Shiva (2012a, b, 2019, 2020a, b), a nuclear scientist and ecofeminist, has taken Monsanto to court, leading to her winning the Sydney Peace Prize. The challenge is to create the will to engage. One of the ways forward is to enable people to see the benefits of social, economic, and environmental accounting and accountability by addressing food, energy, and water security in relation to employment creation.

References

- Alam, R. (2020) *Leave the world Behind*. Ecco Press, New York
- Ansell, B. (2023)<https://www.bbc.co.uk/programmes/articles/5sPFPYCx6C999L5bDwrdb/bbc-reith-lectures-2023-our-democratic-future>
- Banathy, B. (1996). *Designing social systems in a changing world*. Plenum.
- Banathy, B. (2000). *Guided evolution of society: A systems view*. Kluwer/Plenum.
- Bateson, G. (1972) *Steps to an Ecology of Mind*. New York: Ballantine.
- Bateson, N. (2021). *Plenary International Systems Sciences*. <https://norabateson.wordpress.com/2017/05/28/warm-data/>

¹⁰ ... our interconnectedness also brings profound costs. We share not only our greatest knowledge and culture, but our greatest risks. With the advent of nuclear weapons, humanity’s ever-increasing power over the world around us finally reached a point where we could destroy ourselves. The typical species survives for around one million years, and humanity is just 200,000 years old, putting us in our adolescence. This seems an especially apt comparison, for like the adolescent, we are seeing rapid developments in our strength, and in our ability to get ourselves in trouble. Whether humanity survives this critical period is ultimately up to us. Because the greatest risks are not from nature, but from our own action, we can pull back from the brink if we choose..”

Multispecies Apartheid

- Donaldson, S., & Kymlicka, W. (2011). *Zoopolis: A political theory of animal rights*. Oxford: Oxford University Press.
- Bird Rose, D. (2008). Love in the time of extinctions. *The Australian Journal of Anthropology*,
- Bird Rose, D. (2011). Flying foxes: Kin, keystone, kontaminant. *Australian Humanities Review*, special issue: Unloved others: death of the disregarded in the time of extinctions. D. Rose, & T. Van Dooren (Eds), *Unloved others death of the disregarded in the time of extinctions*. *Australian Humanities Review*, (50). <https://press-files.anu.edu.au/downloads/press/p111121/pdf/book.pdf>
- Bohm, D., & Dalai Lama, H. H. (2018). *From fragmentation to wholeness: David Bohm & Dalai Lama Life and mind enfolded in everything*. <https://www.youtube.com/watch?v=V2He4oU32sg>.
- Bohm, D. (2002). *Wholeness and the implicate order*. London and New York: Routledge, Routledge Classics.
- Bostrom, N & Ord, T 2006, 'The Reversal Test: Eliminating Status Quo Bias in Applied Ethics', *Ethics*, vol. 116, no. 4, pp. 656–679.
- Burdon P.(2010) Wild Law: The Philosophy of Earth Jurisprudence. *Alternative Law Journal*. 35(2):62-65. doi:[10.1177/1037969X1003500201](https://doi.org/10.1177/1037969X1003500201)
- Burdon, P. (2011) *The Jurisprudence of Thomas Berry Worldviews*, 2011, Vol. 15, No. 2 (2011), pp. 151-167 Published by: Brill Stable URL: <https://www.jstor.org/stable/43809439>
- Burdon, P. (2015) *Earth Jurisprudence Private Property and the Environment*. Oxfordshire: Routledge
- Christakis, A.N. and Bausch, K. (2006). *How People Harness Their Collective Wisdom and Power to Construct the Future in Co-Laboratories of Democracy*. Information Age Publishing, Inc.
- Churchman, C. West. (1971). *The design of inquiring systems: Basic concepts of systems and*
- Churchman, C. West. (1979). *The systems approach and its enemies*. New York: Basic Books.
- Churchman, C. West. (1982). *Thought and wisdom*. Intersystems: California
- Dalai Lama, XIV (Bstan-'dzin-rgya-mtsho. (2005). *The Universe in a single atom: The convergence of science and spirituality*. New York: Harmony.
- Dalai Lama, XIV (Bstan-'dzin-rgya-mtsho. (2005). *The Universe in a single atom: The convergence of science and spirituality*. New York: Harmony.
- Engel, J.R., Mackey, R and Mackey, B (2011) The Earth Charter, Covenants, and Earth Jurisprudence' in Burdon, P. (Ed) An invitation to Wild Law . Wakefield Press.
- Engel, J.R. (2013) Moving forward; New approaches and concluding thoughts in Westra, L and Taylor, P. and Michelot, A. (eds) *Confronting ecological and economic collapse: Ecological integrity for Law, Policy and Human Rights*. London. Routledge.
- Higgins, P. (2012). Ecocide, the 5th crime against peace. <https://www.youtube.com/watch?v=8EuxYzQ65H4> see the link in this lecture to stop ecocide, change the law <https://www.youtube.com/channel/UCCYof880oaM419JO8XUHEA>.
- Dalai Lama, XIV(Bstan-'dzin-rgya-mtsho (2005). *The Universe in a single atom. The convergence of science and spirituality*. Harmony. New York.
- Lethole, P. McIntyre-Mills, J.J., Wirawan, R. and Mphatheleni M. (2022) (AA!!Venda Women and Social Enterprise: Stepwise Process to Regenerative and Sustainable Living McIntyre-Mills, J.J and Corcoran-Nantes, Y. *Transformative Education for Regenerative Development: Pathways to Sustainable Environments*, Singapore, Springer Nature
- Makaulule, M. (2021). Malambwane: *Ecological Mapping Process. Report* . *Earth Life Africa*, Braamfontein. : <https://earthlife.org.za/category/events/>McLuhan, M., and B. R. Powers. 1989. *The global village: Transformations in world life in the 21st century*. Oxford: Oxford University Press
- McIntyre-Mills, J. 2000 *Global citizenship and social movements: creating transcultural webs of meaning for the new millennium*. The Netherlands, Harwood.
- McIntyre-Mills, 2003. *Critical systems praxis: participatory governance for social and environmental justice*. The Contemporary Systems Series. Kluwer/Springer, London.
- McIntyre-Mills, (2004). 'Facilitating critical systemic praxis (CSP) by means of experiential learning and conceptual tools'. *Systems Research and Behavioural Science*, 21, pp. 37-61. (A ranking ABDC Australian Business Deans Council Journal Quality List)
- McIntyre-Mills, (Bausch, K, Christakis, A. and de Vries, D. 2008. 'How can we break the mould: democracy, semiotics and regional governance beyond the nation state'? *Systems Research and Behavioural Science*. Vol. 25, No. 2, 305–22. (A ranking, ABDC Australian Business Deans Council Journal Quality List).
- McIntyre-Mills, (and Christakis, A. (2021)Chapter 14: Social and environmental justice: the legacy of Structured Democratic Dialogue and the potential of Pathways to Wellbeing' . in McIntyre-Mills, J.J. and Corcoran Nantes, Y. *From Polarisation to Multispecies Relationships in the Age of Mass Extinctions* , Springer Nature Singapore.pp.283-308.
- McIntyre-Mills, (. and Veverbrandts, O. 2009. 'Political construction of identity in Central Australia: reconstructing Identity through narratives and genealogy', *Systemic Practice and Action Research* volume 23: 73-85. Q3 Strategy and Management Scimago
- McIntyre-Mills, (2022) Fluid, organic thinking and relationality: implications for education and international relations by McIntyre-Mills, J. J. In McIntyre- Mills, J and Corcoran-Nantes (Eds) *Transformative Education for Re-regenerative*

Multispecies Apartheid

- Development: Pathways to Sustainable Environments* Springer Nature. Singapore. <https://doi.org/10.1007/978-981-19-3258-pp> 31-46
- McIntyre-Mills, (2021) The importance of relationality: a note on co-determinism, multispecies relationships and implications for Covid 19. *Systems Research and Behavioral Science*, 1–15. <https://doi.org/10.1002/sres.2817> Impact factor 1.750
- McIntyre-Mills, J.J (2021) Communication and culture : a multispecies endeavour within a shared habitat Year book for International Systems Sciences, *Systems Research and Behavioural Science* [Volume 38, Issue5](#) Pages 71-684 [Special Issue: Systemic Change towards Sustainable Development: Innovative and Integrative Approaches](#) <https://doi.org/10.1002/sres.2810>
- McIntyre-Mills, (. (2000) *Global citizenship and social movements: creating transcultural webs of meaning for the new millennium*. The Netherlands, Harwood.
- McIntyre-Mills, (2014). *Systemic ethics and non-anthropocentric stewardship*. New York: Springer.
- McIntyre-Mills, ((in press) *Affirmative Intervention to Support Multispecies Relationships* . Springer , Nature
- McIntyre-Mills, Galapagos and the Wisdom Growers in McIntyre-Mills, J.J. *Affirmative Intervention to Support Multispecies Relationships* . Springer , Nature
- McIntyre-Mills, (Makaulule M, Lethole, P., Pitsoane, E., Arko-Achemfuor, A, and Wirawan, R, and Widianingsih, I. (2023) 'Ecocentric living : a way forward towards zero carbon . A conversation about Indigenous law and leadership based on custodianship and
- Midgley, G., Ahuriri-Driscoll, A., Foote, J., Hepi, M., Taimona, H., Rogers-Koroheke, M., Baker, V., Gregor, J., Gregory, W., Lange, M., Veth, J., Winstanley, A. and Wood, D. (2007), Practitioner identity in systemic intervention: reflections on the promotion of environmental health through Māori community development. *Syst. Res.*, 24: 233-247. <https://doi.org/10.1002/sres.827>
- Midgley, G., & Lindhult, E. (2021). A systems perspective on systemic innovation. *Systems Research and Behavioral Science*, 38(5), 635–670. <https://doi.org/10.1002/sres.2819>
- Nussbaum, M. (2006). *Frontiers of justice: Disability, nationality, species membership*. Harvard University Press.
- Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Belknap Press of Harvard University Press
- Ord, T. (2020) Can Humanity Grow Up? <https://www.project-syndicate.org/commentary/ethics-for-existential-risk-requires-intergenerational-perspective-by-toby-ord-2020-10>
- Obama, B. Netflix production Leave the world behind <https://www.nytimes.com/2023/12/07/movies/leave-the-world-behind-review.html>
- Rajagopalan,R, andMidgley, G (2015),Knowing Differently in Systemic Intervention. *Syst. Res.*, 32, 546–561. doi: [10.1002/sres.2352](https://doi.org/10.1002/sres.2352).
- Robertson, G. (2021). *Bad people – And how to be Rid of them*. Random House
- Rayner, A. 2022 combining focus and circumspection : an education in natural inclusion in McIntyre-Mills, J.J., Corcoran Nantes, Y. (2022) *Transformative Education for Re-generative development*, Springer. Singapore 413-440
- Rovelli, C. (2021). Relational Interpretation of Quantum Mechanics and Alexander Bogdanov's Worldview by Carlo Rovelli. <https://stream.syscoi.com/2021/05/05/the-centre-for-systems-studies-two-even-celebrating-the-life-and-contribution-of-alexanderbogdanov-the-annual-mike-jackson-lecture-2-june-with-carlorovelli-and-seminar-on-3-june-both-online/>
- Romm, N., & Lethole, P. (2021). Prospects for sustainable living with focus on interrelatedness, interdependence and mutuality. In McIntyre-Mills, et al. *From polarisation to multispecies relationships: Regeneration of the commons in an era of mass extinctions*. Springer. Cham (pp. 87-114)
- Rubio Scarano, F. (2024) *Regenerative Dialogues for Sustainable Futures Integrating Science, Arts, Spirituality and Ancestral Knowledge for Planetary Wellbeing* Springer Nature. Switzerland.
- Shiva, V. (2012a). *Monocultures of the mind*. Third World Network.
- Shiva, V. (2012b). *Making peace with the earth*. Fernwood Publishing.
- Shiva, V. (2020a). Ecofeminism and the decolonization of women, nature and the future. <https://www.youtube.com/watch?v=hVbbov9Rfjg> Mar 25, 2020 – Uploaded by San Telmo Museoa.
- Shiva, V. (2020b). *Two Paths to the Future of Food and Farming – EcoFarm* Keynote. <https://www.youtube.com/watch?v=9vNPGwqR4TQ>
- Shiva, V. (2020c). Ecofeminism and the decolonization of women, nature and the future. <https://www.youtube.com/watch?v=hVbbov9Rfjg> Mar 25, 2020 – Uploaded by San Telmo Museoa.
- Shiva, V. (2020d). *Two Paths to the Future of Food and Farming – EcoFarm* Keynote. <https://www.youtube.com/watch?v=9vNPGwqR4TQ>
- Simard, S. (2016). *How trees talk to each other*. <https://www.youtube.com/watch?v=Un2yBgIAxYs>
- Simard & Defrenne. (2019). The secret language of trees – Camille Defrenne and Suzanne Simard. <https://www.youtube.com/watch?v=V4m9SefyRjg>
- Simmons, M (2023) Boyer Lectures : 1. Atomic revolution. 19 October 2023, 2. Quantum promise 9 October 2023, 3. Imagination and mindset 5th November 2023, 4. The importance of doubt, 12 November 2023 <https://www.abc.net.au/listen/programs/boyerlectures/boyer-lectures/102960864>
- Stiglitz & Kosenko, A. (2024) 1. Seizing Russia's Frozen Assets Is the Right Move <https://www.project-syndicate.org/columnist/andrew-kosenko>, January 4th accessed 9th Jan

Multispecies Apartheid

- Ulrich, W., & Reynolds, M. (2010). Critical systems heuristics. In M. Reynolds & S. Holwell (Eds.), *Systems approaches to managing change: A practical guide* (pp. 242–292). Springer
- Varela, F. J., Thompson, E., & Rosch, E. (2017). *The embodied mind, revised edition : Cognitive science and human experience*. MIT Press. Accessed 2023-01-10 04:09:53.
- Vidal, C. (2024). What is the noosphere? Planetary superorganism, major evolutionary transition and emergence. *Systems Research and Behavioral Science*, 1–9. <https://doi.org/10.1002/sres.2997>

ⁱ The reflections are inspired by working with a green economy team in forest communities in Java, Indonesia and Venda, Southern Africa and reading Simon Winchester’s systemic reflections on the impact of the volcanic eruption of Krakaoa whilst reflecting on the dynamics of energy and mass(McIntyre-Mills, n.d). <https://nypost.com/2023/10/06/stolen-parrot-reunited-after-telling-french-cops-its-name/>