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What Actually is the 'Hard Problem' of Consciousness? Native Quantum Cosmovisions as Response to Our Polycrisis

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Abstract

One of the challenges our current polycrisis presents is to comprehend the role of our understanding of consciousness in the genesis of this host of intertwined crises. Instead of focusing on the so-called hard problem of how experience and subjectivity arise from matter, the suggestion is that the actual hard problem is how our minds and bodies lost their sensual, nurturing embeddedness in the relational web of life. The history of modernity/coloniality with its central focus on progress is identified as the rupture of paradigms of relationality. The examples of the interface theory of perception (Hoffman) and the participatory approach to spiritual phenomena (Ferrer), in conjunction with quantum theoretical approaches, help us to validate and appreciate the pluriversality of cosmovisions and their evolutionary fitness payoffs. The polycrisis indicates that the fitness payoffs of the cosmovision of modernity/coloniality appear to be diminishing. At present apparent convergences of central assumptions of Indigenous cosmovisions with advanced research and theories emerging from modernity/coloniality enable us to develop native quantum cosmovisions, emergent relational frameworks that may facilitate moving beyond the current polycrisis and appreciating pluriversal assertions of visionary sovereignty, the right of humans to creatively embody their relational presence in place.

Keywords: Consciousness; Cosmovisions; Polycrisis; Pluriversal; Hoffman

Conundrum

What is consciousness, asks consciousness.

Consciousness is a conundrum, and just like the latter word, consciousness is a word of comparatively recent origin, as are most of the questions the Western mind has about consciousness. The mock-Latin and seemingly humorous origins of the word 'conundrum' mirror the tease that questions about consciousness seem to lead to: Matter? Mind? Soul? Spirit? Attention? Awareness? Presence? Subjective experience?

Rovelli, somewhat dismissively, states: "To ask what consciousness is, after having unraveled the neural process, is like asking what a storm is after having understood its physics: it is a question that makes no sense. To add a "possessor" of sensations is like adding Jove to the phenomenon of the thunderstorm" (Rovelli [1], p. 185). Where does that leave subjective experience? Intentionality? Will? Can the "I" truly not be saved? And is it really a question that makes no sense? Is the seemingly irreconcilable split between mind and matter inevitable in our understanding of consciousness?

When entering the conundrum of consciousness it is, of course, to be precise, my consciousness inquiring about consciousness as I embark on a labyrinthine journey not just in my mind, but also, as embodied being, with my senses, with my heart, and with the help of the world around me—animals, trees, people, books, videos. A quest with

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mind and matter in all its manifestations. The conundrum of consciousness, then, is mindmattering, as it were, consciousness manifesting as and through matter and mind. "'Minds' are themselves material phenomena that emerge through specific intra-actions" (Barad [2], p. 361). Or, more pointedly: "'Mind' is a specific material confirmation of the world, not necessarily coincident with a brain" (Barad [2], p. 379). Bateson [3], ever so prescient in the thought figures of his ecology of mind, of the unity of mind and nature, had opened the doors to understanding mental processes from a different perspective, claiming that "all errors in epistemology are insanity".1

The tease of consciousness, the befuddlement it evokes, is on us, or so the conundrum signals in its tricksterish appearance, if we are foolish—or courageous—enough to ask questions about its nature. In its Latin origins 'consciousness' means 'to know with', shared or joint knowledge. Given its 17th century origins, the term surely referred to knowledge shared among humans, rather than knowing with humans and other-than-humans. Knowledge humans are privy to. Knowledge that is coincident with being human.

During my meandering inquiries in attempts to outline a comprehensive theory of consciousness, I realized that asking about consciousness means, in a way, thinking, sensing, and doing everything everywhere all at once, or so it seems: The material and the psycho-spiritual and the in-between imaginal realms; inner, subjective world and outer, objective world; the conscious and the unconscious; the feminine and the masculine and everything in-between; creating, being created, and co-creating; nature and culture; earth and stars; body and spirit and soul; consciousness as it seemingly appears in humans, animals, plants, and possibly elsewhere. Such inquiry then, as it manifests in me as human inquirer, means consciousness as knowing with all that is around and inside of myself, truly an intra-active, relational node of awareness. Now I am present to this ever moving complexity, now not.

All this means that engaging with consciousness in its most extensive sense means attending to everything everywhere all at once. It means entering and being a story that cascades over rocks, finds stillness in a lake, enters oceans. It means following the amazing images that our dreams can bring. It means holding the gaze of a lizard on a rock in front of me and sensing the current created by a raven flying just above my head. It means engaging with its modern concretions in urban environments and advanced technologies. And developing clear definitions and arguments in a compelling narrative in the process of conscire, joint knowing in the play of interactional relations.

Some researchers and theorists avoid using the term consciousness, they may speak of mind or awareness or they use some other term trying to escape the conundrum and its history. Understandably so, given the fraught history of the term in Western traditions which so far has failed to develop an agreed upon understanding of consciousness. Instead, we have phenomenological, mysterianist, reductionist, functionalist, conscious realist, and others theories; a menu of monist and dualist theories; we have idealist and materialistic theories; and variations, like dual-aspect monism and substance dualism; and then there is panpsychism and cosmopsychism (for a helpful overview see e.g., Goff [4]; Kelly & Marshall, [5]; Kripal [6]). Kastrup [7] asserts with his book title that "materialism is baloney"; (Rovelli [1], p. 186) sees the "hiatus between physical phenomena and mental phenomena" diminishing, both being "natural phenomena generated by complex structures of interactions"; and Planck [8] states: "I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness." These catchwords and quotes circumscribe the Western territory of understanding consciousness, a territory where disagreement prevails on a matter that matters greatly.

Avoiding the term consciousness is ultimately hocus-pocus, an incantatory denial in service of one set of assumptions or another. Refusing the term and its complexities empowers it to invade us through the backdoor of the unconscious, impacting our understanding and definitions of reality. Whatever term we use, we are challenged to understand and enact our presence as a human nodal point in the web of life, whether we think it should go by the name of consciousness or not.

This prolegomenon is the outline of a story and argument about consciousness in all its multidimensionality, it is a response to our polycrisis with its self-destructive trajectory. It is a short story, a sketch, wearing the mask of philosophy and psychology. I have called it 'native quantum cosmovision', the confluence of Indigenous thinking and practices with the most advanced Western thinking found in quantum theories. It attends to the multiplicity of who we are and who I am in the multiple worlds I am a part of, inner worlds and outer worlds, imagined worlds and sensed worlds. Its foundational intent is to open vistas in service of responding to our current crises and as such it is an assertion of visionary sovereignty and the plurality of consciousness we humans may endeavor in.

1 Bateson's inscription in my copy of *Mind and Nature – A Necessary Unity* [1].

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Polycrisis

Here is an evocative metaphor of our current crises: The movie Everything Everywhere All at Once [9] confronts the viewer with a relentless multiplicity of selves jumping around in the multiverse. Its overwhelming qualities can be seen as allegory for our polycrisis. The underlying plot involves an immigrant being audited by the IRS, marriage problems, an overbearing father, and a daughter struggling with depression. Overlaid is an absurd comedy of selves in parallel universes that can be utilized. Selves are diverging into other selves, one consciousness diverges into another. The fighting across the multiverse finally resolves itself in the practice of more kindness, a Buddhist twist of sorts. Relationships are healed and even taxes are refiled successfully. The relentless pace of the movie, moving from crisis moment to crisis moment, seems a reflection of the relentless developmental speed and unraveling of things that have been taken for granted by many. In the movie we have the IRS crisis, a marriage crisis, mother-daughter crisis, father-daughter crisis, intergenerational trauma, and flexible boundaries of self—all in a relentless, chaotic swirl of events and genres. These crises in the movie are interrelated, just as the crises of the present historical moment are interrelated—we are in a polycrisis. Seemingly separate events emerge from an interconnected, underlying story.

When we have the courage to open our eyes wide and look at the world around us, when we follow the news, and acknowledge the current scientific findings, then we inevitably have to conclude that we live in a time of multiple crises. We may note large and small symptoms. Maybe we have noticed a particular animal or plant species disappearing where we live. Or that animal species from other climate zones suddenly appear where they didn't used live. Maybe we feel that extreme weather events—droughts, hurricanes, rain storms, wildfires—seem to increase in number or have become more intense and erratic. These are changes we can notice fairly easily when we look at the world as alert observer, but there are others that are less obvious. These are hidden patterns not so easily discerned, such as global heating or the melting of polar ice caps, i.e., climate change. We now have abundant scientific documentation for global warming and ecological collapse in our "complex adaptive system, composed of interconnected bi- and geophysical components" [10]. In addition to climate change, there are eight biophysical processes identified by scientific observers: ocean acidification, stratospheric ozone depletion, global freshwater use, biodiversity loss, interference with the nitrogen and phosphorus cycles, changes in land use, chemical pollution, and atmospheric aerosol loading. Significant change in any of these dimensions could be unbearable for a number of species. Six of these nine planetary boundaries have already been transgressed, challenging the biosphere's capacity to regulate climate. Is this a lost cause? Fortunately, to date planet earth continues to be regulated by cooling and dampening effects. Will there be sufficient time to heed the warning issued by numerous scientists?

More than half a century ago, Bateson has challenged us to look at the darkly generative, destructive powers of the underlying story: "The whole of our thinking about what we are and what other people are has got to be restructured. This is not funny, and I do not know how long we have to do it" [11]. How long will we have to restructure our understanding of consciousness so that the co-creation of our world is a matter of ethical knowing and being?

'Polycrisis', a term introduced in 1993 by Morin and Kern [12], is the term many scientists, philosophers, social critics, and other academicians have begun to use to describe the current state of the world. We are in a crisis that consists not merely of a variety of individual crises, but it arises from a singular deep root system that manifests in multiple crises (the Greek 'poly'). There is an underlying story that connects the different crises. While each crisis can and should also be understood and researched individually, the central thrust of the term is that there is an underlying identifiable cause that manifests in the appearance of a variety of symptoms. We need to understand and research both, the deep roots of the polycrisis as well as its individual manifestations. While individual symptoms have received increasing attention, its root system has been insufficiently in focus. Each symptom signals disruptions of the web of life and as such it is the entire web of life that is of concern. This essay focuses on our understanding and practice of consciousness as root cause of our present day suffering, its imbalances, dysfunctionalities, dissociations, and lack of attention to basic needs of our socio-cultural and ecological worlds all over the planet. The current polycrisis in its deepest roots is a crisis of consciousness manifesting in the type of questions we ask and that we do not ask; in the futures we imagine; in the ways we focus our perception. How do we tell the story of consciousness? How does this impact our crises?

It is important to hold the frightening depth and jarring, overwhelming multitude of crises in our awareness, difficult and disturbing as that can be. In our polycrisis we are challenged from all directions: environmental degradation with global heating and rising sea levels; accelerating, unconstrained technological developments from AI to genetic modification; the psychological demands of increasing hours in isolation in front of screens; the economic shifts the world over toward increasing levels of inequality with rising poverty and negative effects on education, health, longevity, and more. And we can add to this list: capitalist greed and exploitation, antibiotic-resistant bacteria, persistent racism, atomic weapons, global deforestation, pesticides, pollution,

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the mass extinction of ecosystem-maintaining species—and the list goes on.

Consciousness is involved in all these matters everywhere and all at once: how do we perceive and frame these crises, which questions do we ask, how do we imagine solutions? So, the current polycrisis is also a crisis of consciousness. How we define consciousness and embody consciousness in our lives matters tremendously. Consciousness is implicated in all the different aspects of our polycrisis: It is not just that freedom of expression, increasingly impeded by corporate profit interests, needs to be addressed. It is not just what we define as relevant research. It is not just that profit and gross domestic product (GDP) as central measure of a society's wellbeing needs to be addressed. It is not just that the development of AI and human genetic modification needs to be addressed. It is not just that use of social media among children needs to be addressed. It is not just that the destruction of Indigenous cultures and languages needs to be addressed. It is not just that gender discrimination, with an increasing number of femicides as one of its most disturbing symptoms, needs to be addressed. It is not just that we need to attend to our conversations in the public sphere, but also to what is excluded from these conversations, the blinders arising from our unconscious that distort what is said and what remains unsaid. It is not just that we need to heal our sense-lessness, our sensual dis/connections with the world around us, our lack of sensitivity amidst our other-than-human relations and the vanishing of so many of them.

If you imagine our multiple crises as governed by an intricate set of dials that control its various parameters, each dial connected to an individual crisis, each dial a crisis dimension that needs to be turned, then their resolution demands of us that multiple dials be turned simultaneously for resolution. Turning just one dial won't do the job, the groundbreaking work by Dȍrner and colleagues has shown this [13]. Conscious purpose, without corrective right hemispheric processes, is prone to disaster. So, everything everywhere all at once? This technocratic metaphor of a set of dials, of course, reflects our hubris, the assumption that we can be in control through linear rationality. Until we realize that imagining a set of separate dials that we can turn one way or the other is part of the problem, the polycrisis has a slim chance of ending. In the current technocratic model, espoused by Elon Musk and like-minded innovators, we fail to perceive and appreciate the web of life and its organic, complex relational process. We focus on the individual dials and thus miss the destructive undercurrent, the central story from which our present crises arise. Once we shift to an understanding of the various crises as governed by an underlying narrative and practice of individualism that cuts and twists the web of life. Once we understand these symptoms as emanations of a polycrisis, a set of interconnected crises, a particular understanding of consciousness, then we may empower ourselves through qualitatively different stories in the natural and human sciences, in popular culture and (science) fiction, to rebalance what is out of kilter.

Many mythic stories capture this moment of intense crisis. Old Norse mythology evokes the dramatic moment of ragnarökur, an anxious end of a time cycle in which even the gods and goddesses are uncertain about whether a new cycle will begin. It is an inbetween moment when one world has come to an end and another world has yet to appear, dramatically described in Völuspá:

Sól tér sortna, sígr fold í mar, The sun turns black, the earth sinks below the sea,

hverfa af himni heiðar stiörnor; no bright star now shines from the heavens;

geisar eimi við aldrnara, flames leap the length of the World Tree

leikr hár hiti við himin siálfan. fire strikes against the very sky.
(Neckel [14] & Terry [15])

Hrafnagaldr Óðins also offers a vivid description of the particular moment right before renewal, before earth begins to live again:

Dofna þá dáþir, Then wanes the power.

detta hendr, Hands grow numb.

svífr of svimi A swoon assails

sverþ áss hvíta; the white sword-Áse;

rennir örvit Unconsciousness reigns

rygiar glyggvi, on the midnight breath;

sefa sveiflom Thought fails

sókn giörvallri. (14) in tired beings. (23)

(*Hrafnagaldr Óðins*) (Titchenell [16], 267/8)

During Ragnarök we have fimbulvetur, the great winter, the world is set on fire by Surtr, the fire giant, the earth sinks into the ocean because of the violent movements of the Miðgarzormr, the world snake; the sun darkens and is eaten by Fenrir, the wolf; the earth shakes, the bridge Bilröst collapses, and the World Tree Yggdrasill trembles—yet does not fall. Hrafnagaldr Óðins describes how the new earth Jórunn (the previous

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world Iðunn reborn) sits at the root of the tree, not yet awakened at this momentous time. There is a new sun, dóttir sólar, the daughter of the sun. Importantly, the tree, the axis mundi, does not fall during Ragnarök.

The Fenrir wolf that hails the beginning of ragnarökur may be the embodiment of our addiction to progress and technology—and its failures. Given our time of increasing uncertainty and unpredictability, the Old Norse description of the appearance of a frightening gap in the transition between time cycles seems to capture our moment in history, its level of distress and the desperate search for certainties as we try to continue and maintain the story that has emerged since the Renaissance, the story of modernity and our trust in progress. Similar stories can be found in numerous Indigenous traditions.

This sense of the end of an age can also be found in contemporary literature. Krasznahorkai [17] gives a very dark description of what might be our present moment: "This age wants to forget it has gambled away everything on its own, without outside help, and that it can't blame alien powers, or fate, or some remote baleful influence; we did this ourselves: we have made away with gods and with ideals. We want to forget, for we cannot even muster the dignity to accept our bitter defeat: for infernal smoke and infernal alcohol have gnawed away whatever character we had, in fact smoke and cheap spirits are all that remains for the erstwhile metaphysical traveler's yearning for angelic realms". This is another vision of the end of an age, the description of a cul-de-sac in which we have abandoned our agency and surrendered our capacities to shift into a different story that might make the dead-end-street disappear. In this presentday version there is no promise of renewal, instead an emphasis on forgetting and denial.

Shifting Into a Different Story

The individual crisis symptoms described above are individual manifestations of our polycrisis. It is important to acknowledge that addressing one or the other symptom will likely make some positive difference. No doubt about that. Every intervention in any dimension has potential benefits. Individual suffering will be ameliorated when societies become more equitable, poverty may decrease, stress may be reduced, and well-being may increase [18,19]. Or when freedom is practiced in more profound ways than exercising the choice to click 'like' or not, when democracy and human rights are strengthened. Or protecting a species, such as cougar, monarch butterfly, or condor or protecting rivers and forests, all this will make a difference in their respective ecologies. When, for example, members of the Samish Indian Nation, in collaboration with seven other Indigenous communities, regenerate traditional clam gardens based on Indigenous science knowledge, then this makes a difference to the revival of ecosystems and Native food sovereignty [20]. There are now many similar examples based in western science or braiding Indigenous expertise and western science. All these are, of course, significant steps in the right direction, with the term 'braiding' suggesting the remembrance and assertion of relational Indigenous practices as they catalyze Western knowledge (rather than dismiss the accomplishments of the Western sciences).

However, addressing each crisis individually fails to address their common underlying cause that stems from a distortion or pathology of the ways in which we know that create what we call reality (epistemology), that define the nature of being (ontology), and a particular moral and ethical system. Failure to address the common cause means that the polycrisis will continue to manifest in different forms in different dimensions. In a sense, it has created a repetition compulsion of failures. Traditionally epistemology, ontology, and ethics are seen as disciplines that are quite distinct. However, increasingly scholars have come to the conclusion that they are actually inextricably woven together in practice, unconscious as their interconnections so often are. Changes in epistemology and related methodologies can be beneficial, but that alone will not resolve the polycrisis, the pathologies in the web of life, we are suffering presently. Our approach needs to be ethico-episto-ontological. "The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse … what we need is something like an ethico-onto-epistemolgy … since each intra-action matters, since the possibilities for what the world may become call out in the pause that precedes each breath before a moment comes into being and the world is remade again, because the becoming of the world is a deeply ethical matter" (Barad [2], p. 185). It is about being knowing [21], as it were, our presence in the co-creation of the world, our mental and somatic and material engagement in the web of life.

Circumambulating the Problem

Consciousness has been broken down into a host of topics and problems, at times categorized into 'easy problems' and 'the hard problem'. The 'hard problem' can be paraphrased as 'how does squooshy grey matter create our extraordinary minds, capable of language and memory, of intention and imagination, of sense-perception and self-reflection?' Or more succinctly: "the problem of subjective experience" [22]. This problem has yet to find a widely agreed upon answer among philosophers, psychologists, and other scholars and researchers. No one has a persuasive answer. We do not know. It is an open question with different proposed solutions, all emerging from the constraints of the frameworks mentioned

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above (materialism, panpsychism, dual-aspect monism, etc.). They have all been critiqued for one limitation or misconception or other. The role of subjectivity, the role of qualities, has been a conundrum for the empirical-analytical approaches ever since Galileo in 1623 excluded them from scientific inquiry during the earliest stages of modernity at the end of the Renaissance. Goff [4] argues that it was Galileo who created the problem of consciousness. (It is important to note that methods, such as phenomenology, which address meaning, values, and subjective experience, have persisted as minority approach in the midst of prevailing scientific currents.)

The 'easy problems' can be addressed by broadly accepted scientific methods that are part of the paradigm of materialistic metaphysics [23]. They include research topics like: identifying neural correlates of psychological process with the help of fMRI scans; sleep and wakefulness, attention, voluntary control, intelligence, etc. All these are among the problems considered 'easy'.

The question raised here is whether the hard problem that takes center stage in innumerable books on consciousness should actually be considered the central problem of consciousness. What is noteworthy about easy problems and the hard problem is that they are focused on the individual; they are part of the western individualistic paradigm that is central to current mainstream psychology and other disciplines. And, as I will argue, this individualistic paradigm invested in a materialistic metaphysics is the lynchpin of our interconnected crises which suggests that we need to leave the predominant individualistic framework behind.

The present polycrisis demands of us that we understand consciousness not merely through separate answers to singular problems, but by way of a relational or systemic framework. Confronted with a web of interconnected problems, will understanding how squooshy grey matter gives rise to subjective experience help resolve the polycrisis? How it would do so is not immediately obvious. Our failure to find a persuasive answer to the hard problem can actually be seen as a symptom of the paradigmatic insufficiencies in our approach to consciousness.

We are presently confronted with a web of interconnected problems that, upon deeper analysis, demonstrate that we are indeed profoundly embedded in a richly and beautifully interwoven matrix—our web of life. Focusing on just one aspect of consciousness will not do, as the emergent understanding of our polycrisis starkly hints. Each and every crisis point is part of the web of life. The polycrisis is a crisis in the web of life. The hard problem, as described by Chalmers, surely is a problem. What seems more urgent now is to revise our framework for understanding the role of consciousness in our polycrisis. That we can't just turn one dial or another for the resolution of the polycrisis evidences that the understanding of relationality is critical.

In that sense the hard problem of consciousness is not how squooshy grey matter creates minds, but how our minds and bodies have lost their sensual, nurturing embeddedness in the relational web of life, how to use our cognitive and emotional capacities to respond to the polycrisis, how to overcome normative dissociation, our psychological disconnection from relationality, how to use our imagination to understand our embeddedness in the web of life. Escobar, Osterweil, and Sharma ([24], p. 8) have explored 'relationality' as "an intimacy with our relations that is as immediate as our own limbs". They argue against the "foreclosure of a future offered by dualism and determinism", the individualistic road of progress offered by the paradigm of materialistic metaphysics; instead they emphasize openness and possibility. How come the majority of humans these days live their lives in dissociative consciousness, insulated from intimacy with the world around us?

In the story that I am telling, in the argument that I am making here, I regard our understanding of consciousness as the pivot for attending to our polycrisis. It urges us to transform the individualistic paradigm of normative dissociation and to re/enter a paradigm of relationality. The prevailing understanding of consciousness in the West is arguably at the center of how we first slid, and then careened into our present malaise. We are deeply mired in our polycrisis, i.e., we suffer from severe disruptions of the web of life, and our understanding, our framing of what consciousness is, is at the center of this pathology, the personal and social suffering that has become ever more pervasive and is in our face every day. How can we increase our tremendous cognitive capacities for systemic or relational thinking for the benefit of all relations?

Cosmovision and Consciousness

Hoffman [25], based on his cognitive research, has argued for an interface theory of perception and the monistic approach of 'conscious realism' for understanding consciousness. In an interview Hofmann summarized his approach: "The idea is that reality is a vast social network of interacting consciousness. Each conscious agent has experience and can make freewill actions. So it's a very vast social network … Trying to see and understand it all is too much. In big data, we use graphical interfaces that hide all of the chatter and instead give summaries. Evolution did that for us. Spacetime and physical objects are just our visualization tools that help us to interact within this vast social network without even seeing it" (Hoffman [26]). The shift is from a

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concern with consciousness providing an accurate picture of reality (to what extent does my image of reality accurately portray or measure reality?) to fitness payoffs (how well does my image of reality help my survival fitness?). Evolution "has endowed us with an interface, consisting of objects in spacetime" (Hoffman [26], p. 179). The interface limits our insights into reality, in all probability external reality doesn't look like anything what appears on our interface. Hoffman's conscious realism regards consciousness as fundamental reality.

Hoffman's interface theory of perception opens the door to a multiverse of cosmovisions, a participatory multiverse. Similarly in transpersonal psychology where Ferrer's [27,28] participatory approach offers a significant alternative to perennialism as a universalist approach: instead of notions of an abstract absolute unity, now "we can appreciate spiritual pluralism as an extension of life's diversification" (Hoffman [26], p. 11; italics in original).

Hoffman's work leads to an important implication: Our interface has developed through fitness payoffs. Clearly evolution has provided dramatically culturally diverse interfaces—from Inuit cultures to the Warlpiri of the Australian continent [29].2 Each of these different interfaces provide survivable solutions. Historically the most dramatic shift occurred with the rise of modernity/coloniality [30] and the assertion of universality in science and perennialism in the fields of religion and spirituality. Until the impact of colonial violence and the erasure of Indigenous civilizations the world over, the fitness payoffs of each cultural worldview or cosmovision were sufficient for long-term survival. The interface of modernity, arising after the Renaissance, claimed universality and became to be seen as natural (due to spectacular successes in science and technology). Progress thinking and capitalist values became central to its cosmovision. Alternate cosmovisions were now dismissed as primitive and obsolete. Civilization became opposed to the uncivilized knowledge of Indigenous peoples. The interface arising from the European traditions became the measure of truth and reality not because Indigenous cosmovisions failed to have fitness payoffs—they had them for centuries and millennia and to this day—but because of colonial violence. It was not a dearth of fitness payoffs that made peoples disappear, but a long history of misperception, racism, and violence.

The history of colonialism has inflicted trauma the world over, leading to the disappearance of cultures, languages, and species. In the metropolitan centers of the Enlightenment shifts from an older, Indigenous, to a modern cosmovision may carry a hidden trauma, self/inflicted by the severance from the nurturing web of life; instead of the self being a relational node of awareness in an ongoing process of being knowing, it now became an entity, a thing that looks into reality instead of being part of reality. This was an incredibly powerful move leading to a tremendous increase in knowledge and technology, but at the same time, it was a move with suicidal tendencies as awareness of relationality exits. With it comes the demand to create universal knowledge and truth as embedded local knowledge is dismissed. The cosmovision of modernity asserts itself as normal and universal, just as whiteness and maleness have been normative anchors in its world, just as territorial colonialism was acceptable as part of the march of progress (and continues to be acceptable in its contemporary, more surreptitious forms of colonialism). Cognitive injustice [31,32], arising from universalist claims, became a central coordinate as local knowledge systems are dismissed. Universal truth in its original conception is contrary to the most advanced theories in Western sciences that have been available for 100 years, namely quantum theories, which assert that all visions are partial; that everything is always in process, including our sense of self; that we are part of a weave we cannot step outside of; that we are profoundly entangled, internally in the weave of sensing, reflecting, imagining, and dreaming, and externally with nature and culture.

Cosmovisions are stories, realms, ethico-onto-epistemological worldviews that reflect particular practices of consciousness and psycho-spiritual embodiment of what it means to be a person. They enable and represent a pluriversal world [33], in contrast to universalist thinking that commonly lacks the space for alternate historical processes that are survivable because of their fitness payoffs. We actually live in a pluriversal world with dramatically different interfaces or realities co-created.

In each cosmovision our sense of self (our personality or identity) is different, its boundaries may be expansive or porous, relational or strongly boundaried. How the outside world gets inside of us differs depending on how we embody our self-boundaries. Our embodiment differs and our relationship to the human senses differs. Parts of this sense of self can be spoken, they are conscious, while others remain habitually unspoken and unconscious or they may even be unspeakable, hidden behind a fence of taboos or inaccessible to awareness. The boundaries of conscious and unconscious vary from cosmovision to cosmovision. Our sense of self is a manifestation of a specific cosmovision and it is, conversely, part of creating a particular cosmovision. We live in a participatory multiverse of co-created cosmovisions [28].

2 Asian traditions are not included in this discussion for the sake of brevity.

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Centrally, this is a mutual process: What shows up on our inner screen as our sense of self is a reflection of our cosmovision, just as the cosmovision we name, experience, sense, and embody is a manifestation of our sense of self as we engage with the world.

Cosmovisions are constrained by the parameters of our human biology with two eyes, two legs, opposable thumbs, etc. as well as the parameters of the material world around us—mountains, rivers, stars, galaxies, technologies as well as the cosmovisions other-than-human beings carry: the worlds of frogs, crows, salmon, macaws, forests, mushrooms. Within the constraints of each particular embodiment, cosmovisions are the result of an intimate mutual process in a particular ecology and at a specific moment in time.

Our understanding of consciousness is the pivot for understanding, sensing, narrating, and creating worlds. Without consciousness I would not have written this essay and you could not read it. Consciousness is central all around. It creates visions of life, visions of our engagement with life, visions of our and other worlds, visions of our cosmos—cosmovisions, as it were. Cosmovisions are not merely mental constructions, but embodied ways of co-creating the world in a particular place or ecology.

We can now redefine the present polycrisis at a moment in history when the fitness payoffs of the cosmovision of modernity/coloniality are significantly decreasing, as identifiable by the metrics of individual crises. So we can think of our polycrisis as manifestation of a mistaken story in which we are the actors. We are in a story where we are trying to edit chapters to adjust the plot and to add a character here and there while other characters are quietly disappearing. Progress, as it were. But maybe we need to jump into a different story with a different plot, into a different cosmovision, as it were. We need to change the story about our crises to shift our consciousness into a gear that has the potential to address everything everywhere all at once, engaging with a different story as part of our shift in consciousness. It is the remembrance and awareness of ourselves as nodes in the web of life.

Cosmovisions have changed over the centuries and the millennia in their different locales. The cosmovision of Ancient Egypt, the cosmovision of the Australian Aboriginal Warlpiri, the cosmovision of Western modernity—some carry similar qualities, some are dramatically different from each other; some have changed dramatically across time, others less so. Each have their own ways of knowing (epistemology), their own understanding of being in this world (ontology), and their own ethical systems. Some have lasted for centuries and continue to be able to adjust their cosmovision for greater fitness payoffs. Others have disappeared because they were unable to respond to the demands of survival

Each cosmovision is a story of consciousness, of presence in place, of presence in the web of life. Each also carries ethical imperatives. And each facilitates a particular relationship to the unconscious. We humans live in cosmovisions, we embody cosmovisions, and we co-create cosmovisions, we are actors in the stories and plots of cosmovisions. Each cosmovision is a concourse, a coming together of individual beingknowings. It is a melding of individual consciousness into something that is more or less cohesive. And these days the modern cosmovision, the world of coloniality/modernity, seems to cohere less and less as crisis after crisis disrupts any integration.

Toward Native Quantum Cosmovisions

We can now distinguish two groups of cosmovisions: 1) Cosmovisions that look at the world from a dissociative distance with the intent to achieve objectivity and 2) cosmovisions which see all its participants—humans and other-than-humans—as nodes in the web of life.

The cosmovision of modernity/coloniality, generally speaking, is trying to understand and explore individualistic human consciousness as consciousness entirely residing inside well-boundaried individuals; this the West has done at least since the beginning of the Enlightenment and the rise of industrialization. In this story humans are in charge of the world and feel an apparently addictive obligation to civilizational progress; they claim to be able to stand outside of reality, able to mirror what appears to them as reality with a particular sense of objectivity. Individuals practice normative dissociation, i.e., engage in self processes that are masterful and strongly boundaried from each other [34]. This is the story of Western modernity, its concern with progress and its consciousness.

Alternatively, we can see consciousness—Indigenous cosmovisions—as a node in the web of life reaching through each individual in a relational process. In this story humans have the pressures and obligations to balance themselves for the sake of the well-being of all relations—humans, other-than-humans, and ecological worlds. Here humans cannot step outside of the story and notions of objectivity, while still quite possible, are defined differently [2]. This is an alternate story that Indigenous peoples the world over have practiced for millennia, stories they are continuing to practice through their cosmovisions to this day, commonly in highly biodiverse ecologies [24,35].

These two qualities of cosmovisions, the Western story and the Indigenous stories, have been separate and at war

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with each other, with the history of colonialism as its most destructive manifestation. But now we are at a fortunate moment in history when we can envision a convergence of the most advanced Western sciences with Indigenous knowledge systems or Indigenous science. The strict boundaries of humans have come into question through research in the biological sciences evidencing a host of intra-actions where bodily self and the self of other beings are not separate. Microbiome research [36] has shown that our seemingly firm somatic boundaries are actually porous in numerous ways. Analogously, psychological research in dream telepathy, replicated numerous times, has created solid evidence that are self- boundaries can be breached while dreaming—a person may intentionally enter another person's dream [37,38]. Numerous other examples can be found in medical and psychological research.

Our challenge in response to the polycrisis is: How can we think about consciousness without going down some irrational and twisted path leading us into delusions of grandeur or a universe of narcissistic fantasies? Or more pointedly, following Viveiros de Castro [39], how can we permanently decolonize our thinking? Native quantum cosmovisions offer a paradigmatic answer that brings the most advanced Eurocentered cosmovisions in dialogue with Indigenous knowledge or science.

Quantum theories have been around for over one hundred years and they offer a Western cosmovision that is empirically grounded and dramatically different from the received or standard view of science which assumes that we can distance ourselves from reality and become its mirror, and that this reality works predictably like clockwork by following a set of laws. Polkinghorne describes this "chilling mechanistic claim" as the "assertion that a being, equipped with unlimited calculating power and given complete knowledge of the dispositions of all particles at some instant of time could use Newton's equations to predict the future, and to retrodict with equal certainty the past, of the whole universe". This is the Newtonian cosmovision of classical physics, fraught with the metaphysical assumptions of materialism [23].

Quantum theories assert a very different world that now subsumes Newton's insights: "There is no "outside" to the totality of things. The external point of view is a point of view that does not exist. Every description of the world is from inside it. The externally observed world does not exist; what exists are only internal perspectives on the world which are partial and reflect one another. The world is this reciprocal reflection of perspectives … physics is always a first-person description of reality, from one perspective" (Rovelli [1], pp. 182-183). Barad talks about mindmattering stories: "Knowing is a direct material engagement, a practice of intra-acting with the world as part of the world in its dynamic configuration, its ongoing articulation. The entangled practices of knowing and being are material practices. The world is not merely an idea that exists in the human mind. To the contrary, "mind" is a specific material configuration of the world, not necessarily coincident with a brain" (Barad [2], p. 379). This material engagement (mindmattering), or what I have called beingknowing, results in what appears on our self interface. Depending on cosmovision, the result can be dramatically different.

Quantum theories supersede materialistic metaphysical worldviews that are focused on reducing knowledge to the physical level, which they regard as the only legitimate place to discover truths. However, that we find universal truths ultimately only at this level is a metaphysical assumption, as Wendt [23] has pointed out.

What presently is most interesting and exciting is that a number of central assumptions of quantum cosmovisions seem congruent with assumptions we see in the diversity of Indigenous cosmovisions [35,40,41]. They each use their own languages, for sure, yet there is a qualitative coherence between the two which brings past and present Indigenous cosmovisions into a profound conversation with the most advanced Western cosmovisions, an incipient convergence. Native quantum cosmovisions, as it were.

Indigenous science is the twin of quantum field theory. As described by Native scientists [42,43-45], scientists always are part of the research process as they engage with the alive intelligence of nature; space and time are collapsed as past and present interweave; Indigenous science focuses on relationships with the goal of balance, i.e., normalcy. These notions of research, human beings, and nature are entirely compatible with quantum field theory. The twinship of Indigenous science and quantum theories is apparent when looking at the structure of Indigenous languages and the record of Indigenous storied inquiries and ceremonial proceedings. Barad, using quantum field theory, describes a sense of time that is multilayered in its richness and thickness; this is a description of time akin to Indigenous understandings. She blasts open the prevailing understanding of linear time as notions of solidity and identity are deconstructed: "every finite being is always already threaded through with an infinite alterity diffracted through being and time. In/determinacy is an un/doing of identity that unsettles the very foundations of non/being" (Barad [46], p. 401; italics in original). The emergence of identity, of phenomena, now is understood as a radically different process that disrupts established lines of causality and linearity, that disturbs the established stories of history and scientific knowledge. The flatness or one-dimensionality of linear, empty time expands into thick layers of time, mutual

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causalities, and entanglements.

The cosmovisions of the Amerindian peoples of Amazonia exemplify a stark contrast to the cosmovisions of modernity/coloniality. They have survived quite successfully, their tribal cosmovisions had evolutionary fitness benefits; their interface, as it were, allowed them to survive and thrive in their ecologies until colonial disruptions. Yet, their understanding of subjectivity and what it means to be human is radically different from Eurocentered understandings. When we assume that "the original common condition of both humans and animals is not animality, but rather humanity" (Barad [46], p. 205), then we live in a qualitatively different cosmovision. Animals are humans with culture? It is not just that we humans are persons but that animals are persons? The assumptions of Amazonian cosmovisions are provocative for the modern Western mind: "(1) The original condition of both humans and animals is not animality, but rather humanity; (2) Many animal species … have a spiritual component which qualifies them as "people"; furthermore, these beings see themselves as humans in appearance and in culture, while seeing humans as animal or as spirits; … (5) Lastly, the notion of animality as a unified domain, globally opposed to that of humanity, seems to be absent from Amerindian cosmologies … animals and other ostensibly nonhuman beings are people" (Viveiros de Castro [47], p. 229-230).

These reversals point to cosmovisions in which the position of human beings is entirely different, in which the perspectives different participants hold in the web of life create different ways of beingknowing and a different presence in the web of life. Nature and culture are in a different relationship, it is not that culture has distanced itself from nature, but that nature has distanced itself from culture. This is a cosmovision rife with transformations and exchange processes. "Myth speaks of a state of being where bodies and names, souls and affects, the I and the Other interpenetrate, submerged in the same immanent presubjective and preobjective milieu" (Viveiros de Castro [48], p. 205). Here we have the person defined as porous and persons may osmotically exchange with other beings. The strongly boundaried, masterful individualistic self is absent.

Quantum theories suggest that everything happens in relation, everything is a process, the properties of anything become manifest only when objects interact. Provocatively then: How does the cosmovision of an anteater manifest in its interactions with ants, humans, and other beings? How does the world manifest to anteaters? If we live in a quantum world, then they inevitably would also live in a quantum world, or so we have to assume. The famous question "what is it like to be a bat?" aims at the cosmovision of bats (Nagel [48]). How do humans figure in the cosmovisions of bats, the realities of bats emerging from their entanglements with the web of life? This perspectival shift to include the cosmovisions of octopi, forests, macaws, worms, etc. into our explorations embeds human consciousness in worlds in which other beings are taken as relevant and even equal. It destroys anthropocentrism and embeds the diversity of selves in complex representational and meaning making processes.

Visionary Sovereignty as Guide

Since the beginning of the historical enlightenment Western sciences have been preoccupied with universal truths—whatever science finds, ideally should hold no matter time and place. Psychoneurologically speaking, engagement with reality creation has shifted to left hemispheric processes [49]. Quantum cosmovisions and Indigenous cosmovisions, by contrast, hold the doors open to a pluriversal understanding of the web of life—we live in multiple evolving cosmovisions, each with their own ethico-onto-epistemological assumptions, each more or less successful on its own terms, each engaged in profound processes of reality co-creation. This represents a shift toward a re-balancing of right and left hemispheric processes in which the right hemisphere creates integration and meaning while the left hemispheric processes serve as emissaries to provide important detail for the right hemispheric processes.

Reason is the centerpiece of modern Western science, yet it has devolved into a particular understanding of rationality that has desiccated into a one-dimensional, technocratic endeavor [50], meaning: it is in denial about other relevant qualities, such as our imagination or our somatic sensing, a host of processes that significantly impact our cognitions and undergird our sense of self [51]. As a result the configuration of the modern self has changed dramatically in our digitized world: "Big Data is a highly efficient psychopolitical instrument that makes it possible to achieve comprehensive knowledge of the dynamics of social communication. This knowledge is knowledge for the sake of domination and control (Herrschaftswissen) … Digital psychopolitics transforms the negativity of freely made decisions into the positivity of factual states (Sachverhalte). Indeed, persons are being positivized into things, which can be quantified, measured and steered … Big Data has announced the end of the person who posses free will" (Han [52], pp. 11-13). "As the entrepreneur of its own self, the neoliberal subject has no capacity for relationships with others that might be free of purpose. Nor do entrepreneurs know what purpose-free friendships would even look like. Originally, being free meant being among friends" (Han [52], p. 2). Now being free seems to be reduced to the choice to click on 'like' or not. The prevalence of AI has exacerbated the precariousness of the contemporary self, easily superseding Horkheimer

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and Adorno's dark visions of totalitarian capitalism in their Dialectic of Enlightenment [53], making them seem optimistic [54]. Habermas, a persistent advocate for the importance of public spheres and the use of reason, offers in his final book [55] an antidote to the insights of Han and the dark trajectory outlined by Horkheimer and Adorno, yet his remedies seem weak in the face of the relentless growth of AI that does nothing to change the paradigm.

Harari ([56], p. 11) asks the important and obvious question: "If we Sapiens are so wise, why are we so self destructive?" Or we could ask more pointedly: why are we so suicidal? This sketch of a theory of relational consciousness offers an answer to our polycrisis with its tremendous political implications. We need to shift from a story of normative dissociation, a suicidal epistemology of insanity, as Bateson's dictum goes. Attending to the complex processes of our embodiment, bringing together quantum theoretical thinking and Indigenous knowledge practices enlivens not just rationality, but our imagination, our contentment, our dreaming. The public sphere in any cosmovision is enriched as a result, facilitating pragmatic notions of native cosmovisions where we see a participatory concourse, a coming together of reasoned thought, sensing and somatic experience, of dreaming, and alterations in awareness in rituals, an embeddedness in the local ecologies. This represents a shift in story that has the capacity to address our polycrisis.

At the core of this ethico-episto-ontological engagement with consciousness is the assertion of visionary sovereignty as entitlement for each and every human. This entitlement offers opportunities for enacting relational consciousness processes rather than pursuing those grounded in normative dissociation. Each cosmovision is an expression of visionary sovereignty. We humans have the capacity to imagine ourselves, to creatively story ourselves, in nurturing conversations, in relationality, within the ecology we are a part of. An identical ecology may lead to different cosmovisions as human imagination, dreaming, and reason create different stories. The right to visionary sovereignty, the right to creative embodiment in the place where we live, is fundamental. The pluriversality of our cosmovisions is the gift of our imaginative awareness as a node in the web of life. The acknowledgment of present native cosmovisions, the remembrance of cosmovisions deleted or forgotten as a result of colonial violence, together with what quantum theories have to offer, create the hope of transforming our polycrisis and entering qualitatively different stories and practices of consciousness. The recovery of consciousness processes of relationality is at the center of the challenge to overcome the cosmovision of modernity/coloniality, i.e., it is the challenge to catalyze the convergence of Indigenous knowledge practices and quantum theories at this urgent moment.

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