

Does Gaia experience trauma?

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Abstract

The relationship between traumas to the human psyche and Gaian traumas is explored. Historical and current conceptualisations of the planet as a sentient living organism are reviewed. It is argued that there is a connection between human psychological trauma (PT) and disturbances in the systemic homeostasis of Gaia, here called *Earth Systems Stress Trauma (ESST)*. Evidence is presented that ecologically-related traumas affecting both humans and the planet are not only current but have ancient historical roots, part of our ancestral memories held in our collective unconscious. Our planet is resilient and will survive the current climate crisis though in a form hostile to human life if no remedial action is taken. A transformation in human attitudes to the Earth is central to planetary recovery, a change that sees her as a living organism rather than as a mechanical object to be used. Ecopsychotherapy bridges the traumatic dissociation between people and planet, healing to both. Indigenous spiritual understandings of the Earth as Mother, both healer and in need of care, are presented, a spiritual ecology that complements western science in restoring Gaia to health.

Keywords: Gaia, Life, Sentience, Psychological trauma, Planetary Trauma, Ecopsychology, Resilience, Recovery.

Introduction

I am watching an archive video of servicemen from World War 1 suffering from shell shock (British Pathé 2012). A soldier tries to get up from a chair. His legs are rigid and shaking. His arms flail. He sways and trips, to be caught by a fellow soldier. Another man's eyelids are so retracted that the whites of his eyes show around their irises. A third cannot stop shaking his head. Another's face trembles uncontrollably. I turn to accounts of trench warfare to understand the origins of their plight. I find a description by the psychiatrist, W.H.R. Rivers (1918), of a soldier buried by a shell explosion. Later, he 'had gone out to seek a fellow officer and had found his body blown into pieces, with head and limbs lying separated from the trunk.' He was 'haunted at night by the vision of his dead and mutilated friend' (Rivers 1918, p. 174).

These traumatised soldiers fought in scenes of devastation as is made clear in Paul Nash's painting 'The Menin Road' which shows a battlefield stripped of life¹. Two Tommies hurry through a landscape of shell craters, mud, blasted trees and skeletal bushes. In the background are flooded trenches, dark clouds and searchlights. Here, then, the traumatic human cost of war is accompanied by ecological trauma (Hupy 2008).

What is the relationship between these two forms of wounding? As a physician concerned with healing the human body and as a counsellor and Somatic Experiencing practitioner concerned with healing trauma through bodily experience, I wondered whether these approaches could be relevant to our battered planet. Humans experience psychological trauma (PT); can the Earth also experience an analogous injury? This article explores trauma from the point of view of our planet; it argues that she is alive, sentient and that she does experience a form of trauma. Recognition of this changes our perception of the Earth from that of an object to be used to one of relationship, within which lies the seeds of recovery.

In 1979, James Lovelock proposed a startling scientific hypothesis, 'that the entire range of living matter on Earth... could be regarded as constituting a single living entity capable of manipulating the Earth's atmosphere to suit its overall needs and endowed with faculties and powers far beyond those of its constituent parts' (Lovelock 2016, p. 9). The novelist William Golding suggested naming this creature Gaia after the Greek Earth goddess. At first controversial, his theory has since gained acceptance by western science in the form of the mechanistic Earth Systems Science (Lovelock 2016, pp. vii-ix). 'Ecopsychology' was coined by Theodore Roszak in 1992, although its conceptual origins in Euro-American terms go back to 1963 (Schroll no date). Thus, as Roszak (1995) put it, Psyche met Gaia. The Oneida / Seminole psychologist Leslie Gray (1995, p. 173), however, considers that ecopsychology has more ancient roots in 'perennial shamanism.' Ecopsychologists have focused on the healing effects of Nature on the traumatised and, conversely, human traumatic reactions to the destruction and pollution of our natural environment (Roszak, Gomes and Kanner 1995). More recently, however, human and planetary trauma have been spoken of as if they are kin (Woolbright 2011).

'Ecological trauma' is taken to have a dual meaning referring simultaneously to ecological destruction and to concomitant human and other-than-human traumatic reactions. 'Psychological trauma' (PT) is used here to describe the whole spectrum of traumas varying, as Robert Scaer (2005, p. 2) describes, in their diverse symptom complexes and intensity. It is used in preference to 'post-traumatic stress disorder' (PTSD), a psychiatric diagnosis whose scope is restricted to shock trauma in the form of 'exposure to actual or threatened death, serious injury, or sexual violence' (American Psychiatric Association 2013, p. 271), thus excluding traumatic reactions

¹Exhibited in the Imperial War Museum, London.

to ecological devastations. This article explores the history and prehistory of human and planetary trauma. While it is important to avoid anachronistic interpretations of our ancestors' behaviour, I hold to Lyndal Roper's (1994, p. 228) view: '... historical interpretation... nearly always depends at base on the assumption of a measure of resemblance: how else can we make sense of historical actors?' For Kwame Anthony Appiah (2016), "'western culture" is a modern invention,' referring loosely to 'people of the North Atlantic and some of their kin around the world.' Christianity, empire and colonialism, and what Fritjof Capra (1983, pp. 37-62) calls 'The Newtonian World-Machine' as its dominant scientific paradigm, are part of this. 'Western' is used here in these contexts.

Is Gaia alive?

'The state of life...,' Lovelock (2016, p. 144) writes, 'has so far resisted all attempts at formal definition.' Scientifically, he turns for evidence that Gaia is alive to her state of entropy, this being a statistical measure of the disorder of a closed system (Collins English Dictionary 1986, p. 510). Its reduction, inversely implying an increasingly ordered state, is manifested by the 'abundant flow of energy,' in the 'highly improbable atmosphere' we breathe, 'manipulated on a day-to-day basis from the surface,' by life itself. Yet he also acknowledges that: 'Our recognition of living things, both animals and vegetable, is instant and automatic...' (Lovelock 2016, pp. 2-6). This intuitive view is supported by Stephan Harding, an academic zoologist and ecologist. For Indigenous cultures, he writes, 'nature is truly alive, and every entity within it is endowed with agency, intelligence and wisdom; qualities which in the West, when they are recognised at all, have commonly been referred to as "soul"' (Harding 2009, p. 26). While many scientists oppose this animist belief, western culture has a long history of proponents of such a view. In the fifth century BC, Plato (2008, p. 19) wrote in *Timaeus*: '... this world of ours was made in truth by god as a living being, endowed thanks to his providence with soul and intelligence.' For him, the Earth is inhabited by a *psyche kosmou*, a world soul. The planet is purposive, a teleological perspective at odds with current biological science which explains life's variety as evolutionary, caused by natural selection. Although Christianity is usually thought to regard animism as a false belief, a counter-current has made its presence felt historically: during Christianity's first centuries the Greek Fathers likened the Holy Spirit to the Platonic *anima mundi* and the Renaissance priest scholars, Marsilio Ficino and Giordano Bruno, held that the world was ensouled (Gregory and Tonelli 2003, pp. 843-845). David Abram (1988) describes how the phenomenologist, Maurice Merleau-Ponty, understands perception as a two-way process. For him, we are not disembodied observers of an objective world. Rather, when we perceive the world, she perceives us. What we experience is shared.

Many scientists oppose such views. Thus the 'English biologist John Maynard Smith

called Gaia “an evil religion” (Lovelock 2015, p. 77). Richard Dawkins (1983, pp. 234-237) has also attacked the Gaia hypothesis. Natural selection would imply ‘a set of rival Gaias,’ he writes. As to our planet: ‘A network of relationships there may be, but it is made up of small, self-interested components.’ That Nature might be cooperative as well as competitive is unacceptable. Scientific opposition to Gaian theory’s animistic overtones has a long history. In 1871 the English anthropologist, Edward Tylor (pp. 385, 412), wrote: ‘Animism characterizes tribes very low on the scale of humanity,’ describing such peoples as ‘primitive animists.’ The historian of science, Cornelius Borck (2012, paras 3, 5, 11), comments on Tylor’s analysis: ‘Demarcating a premodern and allegedly primitive worldview, animism was the name for a distancing and exoticizing view from a “superior” European perspective.’ This labelling of animism as ‘irrational, superstitious and nonobjective,’ he avers is ‘a problematic and objectionable strategy,’ to which: ‘On the surface, modern sciences... still appear to subscribe....’

How did this split occur? René Descartes (1596-1650) is a pivotal figure. In 1641 he wrote: ‘... I consider man’s body as being a machine...’ (Descartes 1968, p. 163). He held a like view of Nature: ‘I have described this earth, and indeed this whole visible world, as a machine’ (1983, p. 276). His mind, the seat of his soul, was different: ‘... it is certain that I, that is to say my mind, by which I am what I am, is entirely and truly distinct from my body, and may exist without it’ (1968, p. 156). This objectification allowed him to vivisect conscious animals (1897-1910a). He held they were soulless and so could not feel pain (1897-1910b, p. 85), their struggles being reflex mechanical reactions. This dualistic dissociated view took hold in science; the natural world, far from being a living system, became a mechanical object to be experimented on and used at will. Lynn White Jr. (1967) traces this dualism further back to Christian authorities’ literal interpretation of God’s command in Genesis to: ‘Be fruitful and multiply, fill the earth and conquer it’ (*The Jerusalem Bible*, Genesis 1:28). ‘By destroying pagan animism, Christianity made it possible to exploit nature in a mood of indifference to the feelings of natural objects’ (White 1967, p. 1205).

How has Gaia theory become so popular outside the world of mechanistic science? An important factor is the willingness to accept the validity of personal experiences of the Earth as a living organism, as in this visionary description by a physician, Richard Bucke (1905, p. 8), in 1872:

All at once... he found himself wrapped around as it were by a flame-coloured cloud... he knew that the light was in himself. Directly afterwards came upon him a sense of exultation, of immense joyousness... an intellectual illumination quite impossible to describe... he saw and knew that the Cosmos is not dead matter but a living Presence...

There is also increasing recognition of western racist and colonialist attitudes to Indigenous beliefs, whether historical or present-day (Borck 2012). Rather than being ‘primitive superstitions,’ they are expressions of related experiences, as in the near-death vision of Black Elk, ‘a holy man of the Oglala Sioux,’ when he was nine years old in 1872 (the same year as Bucke’s vision): ‘... I saw six old men sitting in a row... they looked older than men could ever be - old like hills, like stars... I knew these were not old men but the Powers of the World...’ He continues later: ‘Now I knew the sixth Grandfather was about to speak, he who was the Spirit of the Earth’ (Neihardt 1988, pp. 25, 30).

This reappraisal has been aided by the profound effect the first photographs of Earthrise over the moon in 1968 have had on our culture (Overbye 2018). The biologist, Lewis Thomas (1974, p. 145), who memorably compares the Earth’s living envelope to a cell membrane, comments: ‘Viewed from the distance of the moon, the astonishing thing about the earth, catching the breath, is that it is alive.’ The astronaut, Edgar Mitchell (2008, p. 74), experienced ‘a startling recognition that the nature of the universe was not as I have been taught.’ Cosmic bodies were not separate distinct independent objects. Rather, he felt ‘a sense of interconnectedness with the celestial bodies surrounding our spacecraft.’ Here, Dawkins’s (1983, p. 237) view that life on Earth is ‘made up of small, self-interested components’ seems insufficient. They see the planet as a living coordinated system, an experiential intuition of systems theory whereby parts of a system cooperate to maintain homeostasis (von Bertalanffy, 1950) - the human body being our most immediate example. Perhaps they were experiencing the life energy described by diverse Indigenous peoples around the world: in traditional Chinese medicine, *qi*; for the South African San Bushmen, *n!om*; in Hawaii, *mana* (Eisenberg 1995; Connor 2008, pp. 241-244; Harden 1999, p. 43).

This is experience as evidence, experience as not only intellectual but corporeal, sensual, emotional, instinctual, intuitive, relational and spiritual, incorporating Eugene Gendlin’s (2003, pp. 32-40) whole body ‘felt sense.’ Confining science to a Cartesian intellectual conceptualisation excludes a large part of human existence. While it rightly looks for evidence - from the Latin *e* and *videre*, to see out (Chambers Dictionary of Etymology 1988, p. 349) - it may exclude what could be called ‘invidence’, inner sight or insight. Mechanistic science is a dominant paradigm in western society, seeing itself as the arbiter of valid knowledge. Once we step outside this preconception, we see that, immensely useful as it is, its approach is but one of many epistemologies and that its fellow ways of conceptualising the world make a robust case for conceiving Gaia as a living organism (Colorado 1988). Isaac Newton (1687, fol. 3v) concurred: “Thus this Earth resembles a great animall,’ he writes, ‘or rather inanimate vegetable, draws in aethereall breath for its dayly refreshment & vitall ferment & transpires again with gross exhalations....’

Is Gaia sentient?

For diverse Indigenous peoples around the world our planet is not only alive but sentient. Thus, in Alaska: ‘Traditional Koyukon people live in a world that watches, in a forest of eyes... The surroundings are aware, sensate, personified. They feel. They can be offended’ (Nelson 1986, p. 14). For Aboriginal Australians, when a Dreamtime Ancestor such as Kangaroo Dreaming Man has completed his wanderings across the surface of the Earth, singing and shaping the land, he goes “‘back in,’” transforming himself into some part of the landscape or metamorphosing into ‘the plant or animal species from which he takes his name’ (Abram 1997, pp. 164-165). Westerners may experience this, too. The American ecologist, Aldo Leopold (1968, pp. 130, 132), describes what happened when he shot a wolf:

We reached the old wolf in time to watch a fierce green fire dying in her eyes... there was something new for me in those eyes - something known only to her and the mountain... I thought that because fewer wolves meant more deer, that no wolves would mean hunters’ paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.

We need, he argues, to learn ‘to think like a mountain.’

Such experiences of sentience differ from what we commonly understand as human consciousness. To explore this further, we need to consider a fundamental question: what is sentience? Even single-celled organisms show attraction and repulsion behaviour, a primitive form of awareness. A recent study has shown that slime moulds, which have no nervous system, exhibit learning and memory when confronted with a noxious chemical (Boisseau, Vogel and Dussutour 2016). Lovelock recognises that such survival behaviour requires ‘some form of intelligence’ and is willing to grant that Gaia’s homeostatic cybernetic systems show ‘she is without doubt intelligent in this limited sense at the least’ (Lovelock 2016, p. 138).

Sentience is commonly understood in the West as subjective consciousness of external or internal states - sensations, feelings, perceptions, thoughts, emotions. Does Gaia’s ‘form of intelligence’ equate to this sophisticated human awareness? While Lovelock does not appear to think so, Indigenous peoples such as the Koyukon people just described hold a different view. Their felt experience of the Earth is that she is not only sentient but possessed of an other-than-human wisdom. Thus we see two ways of understanding sentience. Firstly there is the objective, western, scientific, quantitative view - Lovelock’s view of the Earth as intelligent in only a limited sense suggests a kind of intelligence quotient. Secondly there is the Indigenous way of knowing - experiential, earthy, wise, natural, imaginative, soulful, sourced in a sentient Earth.

This can be investigated further through Carl Jung's concept of the collective unconscious, which he described in 1936 as 'collective, universal and impersonal,' 'identical in all individuals,' inherited and composed of archetypes (Jung 1968, paras. 88-90, pp. 42-43). Although he was writing about the human condition, in 1925 he had proposed the concept of a "'geology" of a personality,' using a diagram of three mountains emerging from the sea. The summits were individuals, the flanks families, and progressively deeper strata were clans, nations, groups of connected nations, primate ancestors, animal ancestors 'and finally the central fire, with which... we are still in connection,' this rising like volcanic magma up to the mountain summits (Jung 1990, pp. 133-134). Note that the etymology of 'geo-' in 'geology' comes from the Greek *gê*, meaning earth (Chambers Dictionary of Etymology 1988, p. 428), from which Gaia derives.

In 1951 he elaborated this connection between psyche and Earth further:

The deeper "layers" of the psyche lose their individual uniqueness as they retreat farther and farther into darkness. "Lower down," that is to say as they approach the autonomous functional systems, they become increasingly collective until they are universalized and extinguished in the body's materiality, i.e., in chemical substances. The body's carbon is simply carbon. Hence, "at bottom" the psyche is simply "world." In this sense... in the symbol, the *world itself* is speaking (Jung 1968, para. 291, p. 173).

It is telling that in his famous description of his descent into the unconscious Jung experiences himself as falling into the Underworld, the womb of the archetypal Earth. On 12 December 1913:

I resolved upon the decisive step. I was sitting at my desk once more, thinking over my fears. Then I let myself drop. Suddenly it was as though the ground literally gave way beneath my feet, and I plunged down into dark depths. I could not fend off a feeling of panic. But then, abruptly, at not too great a depth, I landed on my feet... Before me was the entrance to a dark cave... (Jung 1983, pp.199-203).

Jung implies not only that the collective unconscious is our ancient archetypal inheritance but also that we are part of a world sentience both in the now and as a collective memory.

He is not alone in this view; writers from many disciplines concur. Since the literature on the relationship between sentience and matter is extensive, I am restricting examples to those areas relevant to this article: the views of other analysts; climate science; Jung's investigations of the physics of consciousness; and the spiritual dimension. The depth psychologist Stephen Aizenstat (1995, pp. 95-96) takes the implications described above of Jung's conceptualisation of the collective unconscious and develops them further. He postulates a 'world unconscious,' which is 'a deeper and wider dimension of the psyche than that of the personal or the

collective unconscious.’ For him, ‘all creatures and things of the world are understood as interrelated and interconnected... all the phenomena of the world possess intrinsic unconscious characteristics — subjective inner natures.’ These are experienced as ‘dream images in the human psyche’ which act ‘on behalf of themselves.’ We are part of a ‘field of psychic relationships, one among many.’

As a climate scientist, Lovelock (2016, p. 139), taking an anthropocentric view, asks: “‘To what extent is our collective intelligence also a part of Gaia? Do we as a species constitute a Gaian nervous system and a brain which can consciously anticipate environmental changes?’” Invoking quantum theory physics, Galli-Carminati, Lehotkay, Martin and Carminati (2013, p. 459) see ‘consciousness as a field permeating space and time’ — thereby including the world. They draw on Jung’s collaborative investigation with the physicist Wolfgang Pauli into the links between synchronicity and quantum physics. As Atmanspacher and Primas (1996, p. 122) indicate, ‘Pauli and Jung agreed that matter and psyche should be understood as complementary aspects of the same reality which is governed by common ordering principles, the archetypes.’ In spiritual terms, the Tibetan Buddhist, Sogyal Rinpoche (1992, p. 47), comments: ‘Do not make the mistake of imagining that the nature of mind is exclusive to our mind only. It is in fact the nature of everything.’ Such ideas suggest that the thoughts, feelings, sensations and images arising from our unconscious - along with those related to our psychological traumas - are not solely human but rooted in and connected to the Earth we live on and her multifarious inhabitants.

There is a further, more anthropomorphic, way of understanding this sentence. Lorna Byrne (2010, pp. 251-252), a white Catholic Irishwoman, describes a visionary experience of the spirit of Mother Earth:

The earth opened up and I could see into its core. In the centre, curled in on itself a little like an unborn baby, was Mother Earth. She was absolutely beautiful, long and sleek and very smooth with emerald colours of blue and green running into each other in veins of gold... Moving ever so gently, she stretched out her sail-like arms to parts of the planet that needed healing.

This resonates with Indigenous conceptions of Mother Earth: Luther Standing Eagle (2006, pp. 192-193), an Oglala Lakota Chief, wrote in 1933: ‘Wherever the Lakota went, he was with Mother Earth. No matter where he roamed by day or slept by night, he was safe with her.’ Here, just as humans are ensouled, the Earth is inspirited, Plato’s *psyche kosmou*. This is the otherworld of spirits, gods, God, souls, saints and angels conceived not as archetypal energies but as real beings making their presence felt in visionary appearances. While academics in the sciences and humanities in a sceptical Western world commonly dismiss such visions as imaginary or hallucinations, many religious traditions and Indigenous peoples world-wide see them as true encounters.

What do psychological thinkers make of these opposed understandings? Although Freud recognised the power of the unconscious and its images, he was an atheist who saw religion as a defence against neurosis (Freud 2001, p. 142): ‘... all the ties that bind people to mystico-religious or philosophico-religious sects and communities are expressions of crooked cures of all kinds of neuroses.’ Jung (1976, p. 274) takes a different view: ‘I don’t *believe* [in a personal God], but I do *know* of a power of a very personal nature and an irresistible influence. I call it “God.”’ He also had numerous encounters with ghostly figures (Richter 2016, pp. 57-70). He insists (Jung 1983, p. 207) on the autonomous nature of archetypal images: ‘... there are things in the psyche which I do not produce, but which produce themselves and have their own life.’ Jung painted the images that rose from his unconscious in his *Red Book*. In a striking archetypal depiction recalling his geological metaphor of the personality he portrays a world serpent rising from the volcanic depths of the Earth surrounded by fiery lava. From its mouth issues a world tree (Jung 2009, plate 54 and p. 284). Here we may recollect Black Elk’s remarkable vision which included the Spirit of the Earth (Neihardt 1988, pp. 30, 43): ‘I saw that he was very old, but more as men are old. His hair was long and white, his face was all in wrinkles and his eyes were deep and dim.’ Later, as he stood ‘on the highest mountain of them all,’ looking at ‘the whole hoop of the world,’ he saw, echoing Jung’s vision, that ‘in the centre grew one mighty flowering tree to shelter all the children of one mother and one father.’

Each of these three visions - of Byrne, Jung and Black Elk - involves images of living creatures representing the Earth. While, then, Jung interpreted his experiences in psychological terms, he treads a line close to religious and Indigenous visionaries for whom these are real meetings.

Does, however, the idea that the world is ensouled imply sentience? The psychotherapist, Thomas Moore (1992, p. 268), thinks so:

The soul exists beyond our personal circumstances and conceptions. The Renaissance magus understood that our soul, the mystery we glimpse when we look deeply into ourselves, is part of a larger soul, the soul of the world, *anima mundi*. This world soul affects each individual thing, whether natural or man-made.

He extends this to traumatic reactions (1992, p. 272): ‘If things have soul, then they can also suffer and become neurotic: such is the nature of soul.’

Whether we understand soul in orthodox Christian terms as the innermost aspect of a person, created in the image of God (Genesis 1:26), that survives bodily death, or whether, with therapists such as James Hillman (1992) and Thomas Moore (1992)

we see 'soul' as a process rather than an entity, as depth, imagination, meaning, wisdom, soulfulness, its very nature entails sentience, awareness of self and other. The Jungian analyst, Donald Kalsched (2013, p. 10), emphasising this 'knowing' by placing soul in its relational milieu, speaks of 'a vital animating core of our embodied selves - a certain essential *something* that links us (through love) to the divine, to each other and to the exquisite beauties of the the natural and cultural world. We know soul when we experience it.' Whether, then, we conceive of the Earth as sentient in her own right, or that her sentience is rooted in human and other-than-human consciousnesses, there are multiple traditions affirming this reality.

Does Gaia experience trauma?

If we accept that Gaia is alive and sentient, then it follows she may be vulnerable to the planetary equivalent of our human PT. How can we understand this? Freud (2001, p. 29) writes: 'We describe as "traumatic" any excitations from outside which are powerful enough to break through the protective shield.' Human traumas - war injuries, child abuse, grief - are only too familiar to us, but it is only in recent decades that planetary traumas -deforestation, atmospheric pollution, overfishing - have come to our attention.

Humans react to threat in several ways - fight, flight, freeze or fold (collapse), as Peter Levine (2010, p. 48) has delineated. When these are thwarted trauma supervenes. Traumatic symptoms and behaviours are, however, purposeful, being attempts, though incomplete, to resolve the unhealed memory of past injury. Levine (2010, p. 349) explains: 'Trauma represents a profound compression of "survival" energy that has not been able to complete its course of action.' Similarly, planetary traumas encoded as 'symptoms' and 'behaviours' such as melting ice caps, rising temperatures and devastating hurricanes are not only signs of planetary destruction but also purposeful attempts to restore the injured Earth's homeostatic balance. We humans see these effects as disastrous; for the planet they are ultimately restorative.

Human trauma is not only in the mind but also *systemic*, in the body's functioning. The body is not necessarily physically damaged but rather the interactions between the elements of the body-mind are out of kilter, its homeostasis disrupted. Simply witnessing a horrifying event may precipitate a cascade of fear, nightmares, dissociation and flashbacks experienced both in consciousness and the body's physiology, an ongoing disturbance in the body's systemic organisation as it attempts to heal itself. Furthermore, as Babette Rothschild (2000, p. 29) asserts in *The Body Remembers*, memories of traumatic events are held both as explicit mental memories and in the body as implicit memories - emotional and procedural² - "as a col-

2 Procedural memories 'are the impulses, movements, and internal body sensations that guide us through the *how to* of our various actions, skills, attractions and repulsions' (Levine 2015, p. 24).

lage of sensations, emotions and behaviours” (Levine 2015, p. 21). Our planet likewise responds to injuries it senses to its systemic balance. Droughts, rising sea levels, forest fires and iceberg calving are its procedural ‘body memories’. Scientifically, this could be called *Earth Systems Stress Trauma* (ESST) to align with the discipline of Earth Systems Science. From a soul perspective we might speak of Gaian wounding.

Human traumatic responses have been widely described. Thus Daniel, an Afghanistan war veteran, experienced several traumas during active service. His PT manifested as rage - “I get moments of sheer anger and I don’t want the children seeing that...” - and flight - “At one point I was living in the woods, I had to completely isolate myself. I felt safer in the woods on my own than I did in a house” (Standley 2020). Many animal species experience analogous behavioural reactions (Levine 2010, pp. 39-72). What, however, might be the planetary equivalents of human fight, flight, freeze and fold behaviours, in response to systemic disturbances in what Lovelock (2016, p. ix) calls Earth’s geophysiology?

Perhaps the closest resemblance between human and Earth trauma is in collapse. An example is the Dust Bowl created on the American Great Plains, during droughts in the 1930s, due to farming practices destructive to the prairie ecosystem (McLeman, Dupre, Ford, Ford, Gajewski and Marchildon 2014). This was also a form of biological stasis, equivalent to our freeze response. The effect on humans was disastrous. In 1938, a physician reported not only physical illnesses such as cough, breathlessness and pulmonary fibrosis from dust storms, but also symptoms of mental irritability and at times severe depression which approached mass hysteria (Blue 1938). This PT was compounded by the mass migration and starvation described in John Steinbeck’s (2000) novel *The Grapes of Wrath*. Human and planetary traumas were here intertwined.

What, though, of the ‘fight’ response? Lovelock (2021) highlights a corresponding defensive planetary reaction:

But my fellow human beings must learn to live in partnership with the Earth, otherwise the rest of creation will, as part of Gaia, unconsciously move the Earth to a new state in which humans may no longer be welcome. The virus, Covid-19, may well have been one negative feedback. Gaia will try harder next time with something even nastier.

Lovelock’s interpretation encompasses both scientific orthodoxy and the heterodox intimation that Gaia may be responding deliberately and sentiently to protect herself from threat. In the same vein, if metaphorically, he titled one of his books, *The Revenge of Gaia: Why the Earth is Fighting Back* (2007), and his ally, the biologist Lynn Margulis, has likewise called Gaia ‘a tough bitch’ (Lovelock 2015, p. 76). In

numerous Indigenous cultures and in religions, myth and poetry the natural world and its gods exhibit feelings familiar to humans such as anger and destructiveness. To many modern Hawaiians, Pele, their volcano goddess, is a living presence, 'unpredictable, impulsive, given to sudden rages and violence' (Kane 1996, p. 7). King Lear identifies his emotions with the elements: 'Blow, winds, and crack your cheeks! rage! blow! You cataracts and hurricanoes, spout...' (Shakespeare 1905, 3.2: 1-2).

Our own present-day experiences suggest these may be more than metaphors, as the following personal encounter during meditation indicates: I noticed feelings of sadness, loneliness and fear (a flight response). Wondering where they came from, I turned my awareness inwards and became conscious of looking into a vast dark profundity. I noticed huge slow-moving immensely powerful currents of feeling. Images of the depths of the oceans, of the aeonic movements of tectonic plates and of the magma chambers below volcanoes appeared. I sensed an immense patient awareness, the source of the sorrow. Gradually I realised this was greater than me; it seemed to me planet-wide. Gaia was indeed sentient and she was suffering.

There is an important caveat here: the risk of anthropomorphising planetary reactions to trauma, of seeing, for example, Gaia as a vengeful humanoid deity bent on destroying hubristic *homo sapiens*. Human traumatic reactions such as dissociation and flashbacks are clearly not the same as planetary traumatic responses such as floods and forest fires. However, let us return to Sogyal Rinpoche's (1992, p. 47) assertion that mind is the nature of everything: 'In Tibetan we call it *Rigpa*, a primordial, pure, pristine awareness that is at once intelligent, cognizant, radiant and always awake.' This boundary-less Mind encompasses and is far beyond our human comprehension. We and our planet are aspects of this vastness, related yet individual in our responses. Visions such as those of Byrne and Jung are in this sense not so much anthropomorphic as bridges between our reality and that of the Earth of which we are part. They exist in the 'mundus imaginalis', the imaginal realm 'where invisible realities become visible and corporeal things are spiritualized,' as Henry Corbin described in his studies of Sufi spirituality (Linden no date, p. 3).

Historically, PT has been conceptualised as uniquely human. What is emerging is the profound ancient interrelationship between the Earth's systemic traumas and that of its human and other-than-human inhabitants. Rebecca Copeland (2019), for example, highlights the traumatic effects on human communities in the Ancient Near East of an episode of ecological collapse: soil salinisation and crop failure in the Jordan valley (the desolate plains surrounding Sodom and Gomorrah) and Mesopotamia due to intensive farming practices. This must surely have applied to prehistoric catastrophes. The Younger Dryas event, 12,800 to 11,600 years ago, caused an abrupt cooling in Northern Europe and North America of 4 to 8°C (Jack-

son 2018). Evidence suggests this was due to a meteor impact in Greenland, leading to a human population decline in North America and contributing to megafauna extinction (Anderson, Goodyear, Kennett and West 2011; Voosen 2018). For humans this was a traumatic story of widespread fires following the meteor impact, freezing temperatures, loss of plant and animal food species, starvation and death.

Ecologically-related trauma is a recent conceptual addition to the myriad forms of psychological injury. It may also be useful to understand it as part of the human condition, with us for as long as we have existed as a species, held, as Jung implies, in our ancestral memory. How might this occur? The philosopher Ervin Laszlo posits a psi-field or Akashic field, 'a subquantum field, which holds a holographic record of all the events that have happened in the phenomenal world,' including ancestral memories (Grof 2006; Laszlo 2004, p. 25). Rupert Sheldrake postulates that all structures, 'animals, plants, cells, proteins, crystals, brains and minds' are organised by morphic fields, blueprints analogous to gravitational or electromagnetic fields, which 'help to explain habits, memories, instincts, telepathy.' He hypothesises that morphic systems transfer information to other similar systems through morphic resonance 'across space and time from past to present,' and that this inherent collective memory corresponds in humans to Jung's collective unconscious (Sheldrake 2020). He suggests that '... a sort of "pooled" memory could be inherited from countless individuals in the past' (Sheldrake 1982, p. 47). A third possibility is the intergenerational epigenetic transmission of traumatic memories, such as has occurred in the children of Holocaust survivors (Yehuda and Lehrner 2018).

These collective traumatic memories of natural catastrophes may have been so intense and widespread as to become archetypal patterns in the collective unconscious, what Edwin Edinger (2002) calls in a biblical context the archetype of the Apocalypse. Present day anxieties about climate change may activate this unconscious psychic system triggering a deeper atavistic layer of fear. Current concerns about climate change leading to rising sea levels resonate with multiple traditional flood narratives world-wide. Geological evidence suggests these have a factual basis relating to ice cap melting at the end of the Ice Age causing catastrophic flooding (Montgomery 2012, pp. 201-224). A dramatic example is the gigantic floods 15,300 to 12,700 years ago due to sudden failures of glaciers damming the ice age Lake Missoula in Montana. The barren scarred eastern Washington scablands bear witness today to this ancient cataclysm. 'Early missionaries reported that the Yakama and Spokane Indians had oral traditions of a great flood that describe locations where survivors sought refuge' (Montgomery 2012, pp. 211-212). That they still recalled events over twelve thousand years old speaks for the traumatic effects of these disasters. We are the inheritors of such painful memories, resonating with our current concerns about planetary injuries.

Recovery

What can Gaia teach us about recovery from trauma, given our current climate and species extinction crisis? Firstly, resilience. The Earth has survived global heating before. Fifty-five million years ago, during the Palaeocene-Eocene Thermal Maximum, the Earth 'was about 6 to 8 degrees Celsius hotter than now. The north polar regions were tropical, and the fossils of crocodiles have been found in what was then the Arctic Ocean' (Lovelock 2015, p. 110). She has also recovered from several previous mass extinctions; the last, 66 million years ago, due to the Yucatán peninsula meteorite impact, killed off about 76% of fossilisable species (New York University 2019). That she will survive our present crisis, then, seems certain, though it may be in a form hostile to humans if no remedial action is taken. Steffen et al. (2018) warn of a possible 'Hothouse Earth' lasting 'tens to hundreds of thousands of years,' with 'conditions that would be inhospitable to current human societies and to many other contemporary species.'

Locally, our planet shows a continuing remarkable ability to recover. The Chernobyl reactor explosion and radiation leak in 1986 was a major ecological and human disaster. 'Pripyat in the Ukraine is a place unlike anywhere else I have been. It is a place of utter despair,' writes David Attenborough (2020, p. 3) as he describes walking through its abandoned ruined streets. But there is another side to this story: '... a forest has taken over the deserted city. Shrubs have broken up the concrete and ivy pulled apart the bricks... The football field... is now covered by a thicket of young trees. The wild has reclaimed its territory.' Camera traps record 'thriving populations of foxes, elk, deer, wild boar, bison, brown bear and raccoon dogs,' as well as Przewalski's horse and wolves (Attenborough 2020, pp. 218-220). A natural healing process is underway.

Humans share this ability to recover from traumas, sometimes called post-traumatic growth. Richard Tedeschi and Lawrence Calhoun (1996) see this as a psychological construct measurable by inventory, but Levine (2008, p. 10) takes a wider view: 'I believe not only that trauma is curable, but that the healing process can be a catalyst for profound awakening - a portal opening to emotional and genuine spiritual transformation.' Important to this recuperation is immersion in the natural world, whether through therapy or personal choice. Why is this so effective? Galli-Carminati, Lehotkay, Martin and Carminati (2013, p. 451), discussing the benefits of animal-assisted therapy in mental illness, suggest that there is 'a rewinding of the patient's unconscious to very primitive phases of development. The patient reconnects with a temporally very ancient, and yet present, sane portion of his unconscious.' We reboot, returning to the source that gave us life.

Our survival depends on cooperating with and assisting Gaian recovery. We already know what to do. It has been ably spelled out by many scientists (see Harding 2009, pp. 250-274, and Attenborough 2020, pp. 123-211 for examples) and environmental groups such as the Worldwide Fund for Nature. As Attenborough (2020, p. 121) argues: 'We must *rewild* the world!' The rewilding of Knepp Farm in West Sussex by Charlie Burrell and Isabella Tree is an example of successful collaboration between Nature and human intervention. They introduced free-grazing deer, ponies, cattle and pigs, mimicking the wild herbivores roaming prehistoric Britain. Biodiversity on the farm burgeoned dramatically with the return of rare species such as turtle doves, nightingales and purple emperor butterflies (Tree 2018).

The success of such efforts depends on our view of, and hence attitude to, the natural world. If we see our planet as alive, sentient and vulnerable to trauma, then our connection to her changes from the dissociation of I-It to the living empathic inter-relationship of I-Thou, to use Martin Buber's (1958) formulation. He had a recurring dream he called the dream of the double cry which speaks to this. It always took place in a primitive world, perhaps in 'a gigantic forest.' A lion-cub might be tearing at his arm. 'I stand there and cry out,' he writes. His cry would be 'sometimes joyous, sometimes fearful, sometimes even filled with both pain and with triumph.' Then, 'far away, another cry moves towards me, another which is the same... sung by another voice. Yet it is not the same cry... but rather its true rejoinder.' It seemed to Buber his cry was a series of questions to which the reply was a response (Buber 1961, pp. 17-19). One way of understanding this archetypal dream is as a message bringing to our awareness our true relationship with the natural world.

Jean Giono's fable, *The Man Who Planted Trees* (1989), speaks to how this might look materially. The narrator, walking in the barren Provençal Alps, meets Elzéard Bouffier, a shepherd who has been planting acorns for years; thousands have taken root. Over many years the storyteller revisits this wasteland and observes the growth of a forest covering the mountains, of water returning to dry streams and of people coming back to formerly abandoned villages.

Everything was changed. Even the air. Instead of the harsh dry winds that used to attack me, a gentle breeze was blowing, laden with scents. A sound like water came from the mountains: it was the wind in the forest. Most amazing of all, I heard the actual sound of water falling into a pool (Giono 1989, p. 34).

In an interview Giono explained his interrelationship with Nature. He spoke of feeling pity for 'a living river cut off by dams' or for 'the helpless, suffering beast killed by cruel humankind' and of extending 'compassion to the forest before it is felled by woodcutters' (Giono 1989, p. 48).

What are the consequences of accepting that the Earth's *psyche kosmou* is vulnerable to systemic traumas, disruptions to its homeostasis? Humans turn to psychotherapists for healing of their traumas. How could this apply to our planet? There are two complementary approaches: the first is physical measures such as reforestation which restore planetary degradation, analogous to a mechanistic medical model. The second is initiatives to address ESST, the planet's systemic stress. Can there be such a thing as a therapy for Gaia? Ecopsychotherapists use their clients' reconnection with Nature as a way of healing human traumas. If we follow Merleau-Ponty's assertion that at the same time as we perceive the world, she perceives us (Abram 1988), then perhaps she too is being reciprocally healed along with the traumatised client. An estrangement between the Gaian world - in Indigenous American culture Mother Earth - and a human being is being bridged, healed (Kimmerer 2020, pp. 107-117). While such a double therapeutic responsibility does not appear to have evolved conceptually among ecopsychotherapists, it is familiar to many Indigenous peoples, for whom caring for and healing the Earth is central to their cultures (Lake-Thom 1997, pp. 174-177). As Felipe Viveros (2014, pp. 9, 13, 31) shows in his study of the Colombian Kogi people, the practical nature of their 'traditional ecological knowledge' is embedded in their spiritual understanding of the world and of the importance of communicating ceremonially with *Aluna*, the 'mind in nature,' to discover how to keep our climate in balance: a 'sacred ecology' lacking in the western world.

Intrinsic to psychotherapy is listening, paying heed with all our senses to what clients are communicating to us in words, through their body - their facial expressions, micro-movements, actions, skin colour or tremors - or through the therapeutic interactive field, and what this tells us about their soul self (Stein 1995). We can listen objectively in western scientific terms to the Earth's voice speaking through rising temperatures, thinning ice caps and changing weather patterns, but we need also to listen compassionately, interactively, to her *psyche kosmou*, to the planet as a unitary living organism under stress, yet possessed of a natural wisdom from which we can learn. In doing so, we are in a sense listening to ourselves, for we come from the Earth and are an expression of her. As the psychologist, Sarah Conn (1995, p. 171), puts it: 'The Earth hurts; it needs healing; it is speaking through us.' With this comes ethical responsibility. We can no longer treat Gaia as an object to be used. Our healthy continuance as a species depends on our readiness to awaken to a different way of being. Are we willing, in Black Elk's words, to walk upon the Earth in a sacred manner? (Neihardt 1988, p. 4). Can we, as the virologist Jonas Salk (1992) put it, be 'good ancestors'?

Conclusion

Gaia does indeed experience trauma. She may be conceived as a unitary living sentient organism, of which we are a part. Just as an analogy may be drawn between planetary and human physical trauma, so may the Earth experience a systemic trauma, a disruption to its geophysiological homeostasis, which is analogous to human PT. Our planet is resilient, having come through previous catastrophic mass extinctions and climate change. While she will survive this present ecological crisis, it may be in a form hostile to human existence if no remedial action is taken. Our continuing existence depends on cooperating with her in rewilding the world. In addition to such essential physical measures, we need to attend to traumas to the Earth's *psyche kosmou*, a wider understanding of the role of ecopsychotherapy. In the words of Jeannette Armstrong (1995, p. 324) of the Okanagan nation: 'We are keepers of the Earth because we are Earth. We are old Earth'.

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