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The role of ritual in Southern African hunter-gatherer environmental adaptation

A cultural neurophenomenological approach

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Abstract: Twentieth-century Southern African San hunter-gatherer communities are often depicted as a people who are environmentally fluid, adapting to climatic variability through mobility so as to ensure their survival. However, based on environmental psychology and phenomenology of place we also know that all humans possess the propensity to have a deep embodied attachment to place, and that change in place can cause a range of emotions between mild nostalgia to severe psychological and social crisis. Research has also demonstrated the centrality of ritual practices such as the trance dance in San culture and cosmology. This article aims to explore the phenomenological role rituals played in ensuring adaptability in the face of change, as well as providing the fundamental need for existential and psychological emplacement. Using literature from both environmental adaptation and ritual in San communities, as well as cultural neurophenomenology and embodiment as theoretical frameworks, the article will discuss how San rituals mediated people/place relationships as a means of coping with highly variable environments and change.

Keywords: ritual, adaptation, change, place, San

Introduction

> emotional trauma due to change in place is; 'symbolic of a deep desire to find the balance between anomie and rootedness in the flux of change' (Brislin 2012:9)

There is a considerable amount of archaeological and anthropological literature demonstrating a time when human communities have had a close relationship to their environments (Ingold 2000). Of particular interest are studies of Southern African hunter-gatherers commonly referred to as the Bushmen or San. This article will be drawing on literature of the Ju|'hoan of Southern Africa

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and research relating to their environmental adaptation, which has been called the 'flexible model'.

In a particularly rational way, these communities adapted to an 'unpredictable environment' through a variety of social and spatial responses in a kind of harmonious flow (Guenther 1999; Yellen 1977; Lee 1972; Barnard 1992). In particular, it is argued that the Ju|'hoan dealt with environmental variability by being able to gain access to other territories that may still have resources, access being gained by fostering social cohesion with the custodians of that territory. The need to access resources would also give rise to mobility, which in some cases would result in going beyond one's own bounds.

In the following article, it will be argued that San rituals, particularly the trance, played an important role in facilitating this spatial flexibility as a response to a mutable environment, and that although various scholars have mentioned spatial flexibility, this has not always been explicitly linked to the psychological and spiritual mutability evident in trance. Through the framework of cultural neurophenomenology, the article will argue that rituals mediate the relationship between people and places, and that these rituals – which are later also referred to as embodied practices – have evolved as a strategy to mitigate inflexible/disadvantageous/maladaptive spatial practices, while at the same time allowing people to maintain a sense of psychological security when confronted by a contingent, uncertain world.

The article starts with a discussion on ritual as a people/place mediator and demonstrates the way rituals facilitate 'being in the world'. What follows is a discussion on San spatial adaptation demonstrating the various environmental responses adopted to mitigate collapse. This is then followed by a discussion in which the article puts forward an argument that demonstrates the manner in which rituals facilitate environmental adaptation in San communities.

Rituals as people/place mediator: a cultural neurophenomenological approach

Rituals as mediator

Rituals are part of the psychological process of mediation, transformation and transition. In many if not all cultures, rituals are particularly useful to facilitate a transition from one paradigm to another, such as teenage initiation rites, marriages or assimilation of an individual into new positions of power. According to anthropologist Victor Turner, rituals are sometimes performed

in response to a moment in the climatic cycle, or the ushering in of activities such as planting and harvesting, or moving from summer territories to winter ones. Furthermore, rituals could be what Turner refers to as contingent rituals which are a response to a life crisis such as birth, puberty, marriage and death, demarcating the transition from one phase of life to another (Turner 1973:110). Generally, rituals mediate between the human and a variety of social, psychological and environmental circumstances and changes. The stage in between transition, particularly in life crisis rituals, that often leads to some kind of psychological collapse is referred to by Turner (1969) as liminality, the in-between phase where one is neither in the previous situation or paradigm, nor has one reached the next reality.

Amongst the first to define a model of ritual rites is Arnold Van Gennep. In his model, Van Gennep argues that rituals are characterised by a process of transition. This process, which he called 'the rites of passage', is divided into three parts, namely *separation rites*, *transition rites* and *incorporation rites* (Van Gennep 2019:57). The initiate, as part of being brought into a new social situation, is separated from their normal world, perhaps snatched from their mother by men and taken away. They are then transferred to a location away from their usual surroundings where they undergo an ordeal or test, which usually involves pain, being beaten or mutilation of some sort. Eventually the initiate is re-incorporated into the society, participating in a ceremonial meal, but this time with a new position or identity (Van Gennep 2019:75). Van Gennep states that the process involves a 'state of physical and mental weakening' and suggests that this is to make the initiate 'lose all recollection of his childhood existence… where the novice is considered dead, he is resurrected and taught how to live, but differently than in childhood' (ibid). Van Gennep's idea of rites of passage has its roots in spatiality. He derives the principle from territorial rites of access which are performed at a threshold or liminal space. He goes on to explain:

> The territory occupied by a semicivilized tribe is usually defined only by natural features, but its inhabitants and their neighbors know quite well within what territorial limits their rights and prerogatives extend. The natural boundary might be a sacred rock, tree, river, or lake which cannot be crossed or passed without the risk of supernatural sanctions… The same system of zones is to be found among the semicivilized, although here boundaries are less precise because the claimed territories are few in number and sparsely settled… Whoever passes from one to the other finds himself physically and magico-religiously in a special situation for a certain length of time: he wavers between two worlds. It is this situation which I have designated a transition… to demonstrate that this symbolic and spatial area

> of transition may be found in more or less pronounced form in all the ceremonies which accompany the passage from one social and magico-religious position to another. (ibid:75)

As will be discussed later in this article, this notion of crossing different worlds through a liminal space or thresholds is central to the argument posed here. Van Gennep presents the grounding on which one can build the idea of a ritually mediated world where spatial and psychological transition are in fact one and the same, therefore, crossing a physical boundary is also crossing a psychological boundary.

In the tradition of phenomenology, ritual, particularly ritual healing, is perceived as operating within the premise that the body is the ground of the self or embodiment. Using much of the philosophy of Merleau-Ponty (2008[1945]), anthropologist Thomas Csordas argues that rituals are not merely reducible to neuronal discharge, but are powerful strategies of ones orientation in the world:

> This discourse embodies a cultural rhetoric capable of performing three essential persuasive tasks: to create a *predisposition* to be healed, to create the experience of spiritual *empowerment,* and to create the concrete perception of personal *transformation.* It is shown that this threefold process activates and controls healing processes endogenous to the supplicant in healing, and either redirects the supplicant's attention toward new aspects of his actions and experiences, or alters the manner in which he attends to accustomed aspects of those actions and experiences. The result is the creation of both a new phenomenological world, and new self-meaning for the supplicant as a whole and holy person. (Csordas 1983:333)

Building on work such as that of Csordas is the emergence of cultural neurophenomenology, a study of ritual grounded in the tradition of phenomenology (supporting the non-reducibility of ritual experience), cultural anthropology and neuroscience (Dornan 2004). Ritual and even religious practices are perceived as the restructuring and reconstitution of the self, they facilitate the reconfiguration of the self in such a way that the individual is either assimilated with a phenomenon in the world (Dornan 2004; d'Aquili & Newberg 1998). Evidence from MRI scans demonstrate that during religious experiences there is a definite shift in brain activity. For example, the part of the brain that distinguishes between self and other often goes quiet, 'leading to the very real perception of becoming one with the universe' (Dornan 2004:28).

Neuroscientist Walter Freeman, drawing on Thomist philosophy and psychology, argues that through an ongoing reciprocal engagement with our world, people develop selves, what he calls 'intentional structures'. Unlike

notions of the person/world relationship that postulate a linear model, Freeman argues that the brain/body does not merely passively engage the world but assesses the environment through the framework of one's conditioning and their particular genetic makeup. The brain puts out a hypothesis which is then either assimilated or discarded depending on how useful the returning information is. New forms of 'goals that precede actions' and 'new categories that precede perception' are made possible by a creative process that through chaotic dynamics has the capacity to generate novel patterns (Freeman 1998:58). This also has the capacity to destroy pre-existing information. This process goes on until the individual establishes a kind of corroboration with useful tools in a set of infinite options in an infinite world (Freeman 1998:58):

> Assimilation is not adaptation by passive information processing, nor is it an accumulation of representations by resonances. It is the shaping of the self to bring it into optimal interaction with the desired aspects of the world. The goal of an action is a state of competence that Maurice Merleau-Ponty (1945) called 'maximum grip'. Assimilation is the beginning for all knowledge. Thus, the manner of acquisition of knowledge is by thrusting the body into the world, from which our word 'intention' has come from the Latin 'intendere' 'stretching forth'.
>
> When the process finally succeeds, the changes bring about assimilation not by the incorporation of the forms or the information offered by the world but, instead, by a creative reshaping of the brain as well as the body that facilitates continuing interactions of the self with its world, insofar as that world is accessible to the brain and body. Learning to dance, to play the violin, or to play tennis (Dreyfus 1979) requires changes in the body as extensive as those in the synapses of the brain. (Freeman 1998:57).

The brain/body is the ground of an ongoing process of conditioning and reconditioning, which requires a kind of subtle psychological death and rebirth in order to establish useful forms of maximum grip of one's particular lifeworld, and the skilful coping that is required to perceive and inhabit a world. These ideas are of course not unlike those posed by phenomenologists and anthropologists Merleau-Ponty (2008[1945]), Ingold (2000), Dreyfus & Wrathall (2006) and Pallasmaa (2009). One dwells in the world through embodied engagement, where the body/brain is the ground of being or the self. What Freeman is explicating here is the manner in which the body/brain is in an ongoing dialogical process which ultimately brings rise to a unique individual self, what he calls an intentional structure.

A consequence of this, however, is what Freeman terms 'epistemological solipsism'. From the womb and by virtue of our individual genetic makeup,

we are confronted by a unique process of conditioning, which produces a self unlike any other (Freeman 1995:14). Our individual brain necessarily has to develop in this way to deal with the complexities of the world, but this poses the problem of a deep isolation. While epistemological solipsism serves us in one way, knowledge is fundamentally social and acts to serve people in their collective actions in the world. People are thus required to bridge this solipsistic gulf (ibid). The processes to mediate this gulf are known as ritual. Freeman argues that they are evident in the socialisation and transformation processes of adult humans, commonly known as 'brain washing' (Freeman 1998:8). The physiological practice of rituals is identical to the painful process of childbirth and subsequent bonding between mother and child. According to Freeman, the neuropeptide oxytocin is released, and through it a process of unlearning is mobilised, allowing in the case of childbirth for the mother to be ready for a new paradigm: 'It appears to act by dissolving pre-existing learning by loosening the synaptic connections in which prior knowledge is held' (Freeman 1998:8). He argues that sensory isolation and stress overload leads to a psychological crisis, what Ivan Pavlov referred to as 'transmarginal inhibition', and subsequent states of malleability and openness to new learning (ibid):

> This condition has also been characterized as an 'altered state' and as a *trance* [emphasis mine]. The transformation goes beyond acceptance of what cannot be changed, and it is not a loss of recollection of the past. It constitutes a wholesale change in beliefs and attitudes by which a new person emerges with new social commitments […] Sargant (1957) documented the striking similarities between these techniques and those used to arouse the fervor of dancers in preliterate tribes […] The features characterizing the process were the presence of strong emotional arousal, such as by fear of devils or of pain, severe physical exercise, such as by prolonged dancing, sensory overload as by continual loud singing, chanting, and stomping in time to loud drums and horns, and lack of sleep by all-night revelry. (ibid)

It is this process, namely ritual, that Freeman argues is the way people deal with the gulf between selves that arises from the necessary epistemological solipsism of the intentional structure. In addition, this process facilitates learning and un-learning, and the reconstitution of the boundaries of the self. The brain/body, the entire self is thus calibrated in response to exogenous and most likely endogenous perturbations, like the sudden social demand of being a mother. The boundaries of the self are reconstituted through trauma or chaos, and assimilation into an unfolding lifeworld is possible. Regarding empathy, others have explained it through the postulation of mirror neurons which, through perceiving other bodies, are activated and allow for the sensing of the

other. Indeed, there are a number of complementary theories related to the emergence of other-seeing (Dreyfus & Wrathall 2006:333)

Supporting these interpretations of ritual and its relationship to dissolution of boundaries of the self is the work of neuroscientists d'Aquili and Newberg (1998). According to d'Aquili and Newberg, our higher cortical functions which have facilitated the rise of the self have been advantageous in giving us the ability to think abstractly and produced autonoetic consciousness as a strategy for survival. These same functions however become a curse because they equally allow humans to be deeply aware of their mortality and the condition of their existence in a world of contingency and unpredictability (d'Aquili & Newberg 1998:192).

The authors assert that rituals play two key roles, firstly they allow people to make sense of the forces in their world and exert some form of control over their contingent environments. Second is self-transcendence and that through ritual people find mechanisms of dissolving the individual self and gain a sense of self in union with the other or the world. These two roles of ritual are often associated with altered states of consciousness and mystical phenomenon. Similar to what was discussed above, d'Aquili and Newberg demonstrate that it is through various practices that act on the brain, either trance-like ritual practices or meditation, that one reaches this state (d'Aquili & Newberg 1998:195). It is understandable why it may be important for the first role of ritual to appeal to people, the sense of engaging and controlling the powers and forces of our world which may lead to actual material control. However, it is not entirely obvious why a feeling of a phenomenological state of unity serves a function for people. D'Aquili and Newberg believe that these two aspects of ritual converge in the sense that, through ritual and transcendence, the self surrenders to a state of 'unitary being', which leads to feelings of wholeness and union with the universe, thus making the individual feel a sense of ultimate control of their environment because they, the ritual participants, are the universe, 'in other words, control of the universe from the perspective of the individual self is lost, but control is obtained on a more fundamental level' (d'Aquili & Newberg 1998:198).

When aligning Freeman's model with that of d'Aquili and Newberg, it is clear that rituals play a mediating role between people and a contingent world. What becomes evident here is that rituals function as a mechanism of re-configuring the subjectively experienced boundaries of identity. To put it differently, rituals mediate between the self and the other, the latter being an individual, a community (Victor Turner communitas), an ideology or the whole world. That

is, rituals are embodied practices that re-condition or re-organise psychological schemas, and in this way facilitate 'being in the world'.

Rituals and place

To further elaborate on our understanding of the role of ritual in the mediation of people and their world, we turn to the phenomenological notion of place. In architecture theory, places, unlike geographic locations, have meaning particularly to embodied beings, such as our selves. Philosophers of architecture and geography argue that places have physical structures, are historical, cultural and social, and have a particular spirit (Norberg-Schulz 1979; Casey 2001). Those who followed in this trend made much use of philosophy, more specifically phenomenology as a way of refocusing on the subjectivity of people and the way in which meaning and experience of places arise and are cultivated. This was in part influenced by philosophers such as Martin Heidegger who reframed the ontological relationship between the human and her environment. Heidegger's *Dasein* was an ontological being that was infused and fundamentally embedded in her environment as opposed to having a dualistic ontological position or objective distance (Heidegger 1996). Essentially, in the tradition of phenomenology, Heidegger was trying to argue for a subjective understanding of our relationship to the world, in which people have intentionality and care.

Places are not like space, the homogenous measurable void of the enlightenment, also referred to as Cartesian space; rather, place is a domain of life that reaches out to the embodied human in a specific way. According to Edward Casey, the self through the Cartesian model is separate from the environment because the self is separate from the body. However, in the phenomenology of place the person is emplaced by the person's embodiment, thus having a direct embeddedness (Casey 2001:684). Place is constitutive of our sense of self, and, in turn, selves constitute places, both being essential to the existence of the other, 'there is no self without place and no place without self' (ibid). Places and selves are intimately connected through practical engagement. In the Heiddegerian sense, places are *ready-to-hand* (Heidegger 1996), our practical engagement and work aid us in grasping and perceiving that particular domain through our particular bodies (Casey 2001:684).

In the objective ontology of space, the self is unable to have the intimacy of emplacement and ultimately lacks the capacity to inhabit the place, leading to a real experience of estrangement (ibid). An important aspect of emplacement is *habitus*, the connection linking self and place. This is the in-between, mediation

and unfolding drawing together of self and place. In explicating the placial and temporal role of *habitus*, Edward Casey states the following:

> Thus the very idea of habitus leads us to merge what Kant wanted us to keep strictly apart: history and geography. This is all the more the case if the schemes operative within habitude are placial as well as temporal. And they must be if habitus is truly to mediate between place (primarily but not exclusively spatial) and self (primarily but not only temporal) […] Were it not so, were habitus exclusively one or the other, this subject [geographical subject] would be schizoid within and alienated without, unable to complete the cycle that place and self continually reconstitute thanks to the habitudinal basis they so deeply share. (ibid:684)

Furthermore, and in support of the core argument for this article, he goes on to assert:

> What then is the vehicle of the lived and lively thirdspace – the mediatrix between place and self – that is neither simply material nor sheer mental in character, a domain that we find in both actively and passively, both through habitation and habitude? The enactive vehicle of *being-in- place* is the *body*. (ibid:687)

It is through our embodied selves that we are connected to the various domains in our world, through ongoing engagement: not in a static way, but through negotiation and reciprocity. In an outward motion the place is shaped by the body, while inwardly the place shapes the body/brain (ibid). This is congruent with previous discussions regarding the process of chaotic dynamics and the manner in which the body engages its environment through learning and unlearning. In the cultural neurophenomenological sense, the engagement of the body/brain in place is the process by which the self is constituted. Thus, it is more appropriate to speak of the body/brain/environment, a situated cognition (Nunez & Freeman 1999:xi; Velmans 2012). Architect and philosopher Juhani Pallasmaa puts it differently:

> human consciousness is an embodied consciousness; the world is structured around a sensory and corporeal centre. 'I am my body',… 'I am what is around me'… 'I am the space, where I am'… 'I am my world'. (Pallasmaa 2009:13)

Therefore it is clear that the body mediates between a person and an environment, and that change in an environment, either through moving from place to place or due to the temporal nature of our world, is mediated through the body. The body acts as the threshold between our various domains of work, action and engagement. From the perspective of Freeman's model, this would mean that the self through the medium of the body adjusts and re-calibrates

as it moves between domains, and that this is done primarily through the discharge of chemicals that can administer chaotic dynamics, dissolution or the mini death. Furthermore, through ongoing engagement with a place, one may argue that the place is physically grafted onto the body: the place is mapped onto the muscles and neuronal structure of the body. This is how we develop an attachment and love of place.

> To have roots to place is to have a secure point from which to look out on the world, a firm grasp of one's own position in the order of things, and a significant spiritual and psychological attachment to somewhere in particular. (Relph 1976:38)

In the quote above, Edward Relph, like Edward Casey, is following the tradition of humanistic geographers who in the mid-twentieth century began exploring the subjective experiences people have of places. This was a reaction to the legacy of the previous centuries of place being seen through the framework of Cartesian dualism, Enlightenment rationalism and subsequent objectification, abstraction and demeaning of place, what he refers to as 'placelessness' (Relph 1976; Crysler et al 2013). Following this line of thought is another proponent of phenomenological love of place, namely Yi-Fu Tuan (1974) who introduced the notion of topophilia, which he defines as the 'bond between people and place or setting' (Yi-Fu Tuan 1974:4). This bond can be seen as the extension of one's identity into the place, a kind of self-identification to place. In some contexts, it is through prolonged inhabitation that we are likely to develop an affiliation to a place: one sees one's self in the place, and perhaps all of us begin to define ourselves in relation to a particular place (Lewicka 2011). Proshnsky et al (1983) argue that the emergence of self- identity with place occurs through embeddedness and grows out of direct experience with the environment, and that this ongoing embeddedness is transformed by cognitive processes which in themselves are the values, norms and attitudes that shape the daily existence of the person (Proshnsky et al 1983:62).

A concept closely related to place, particularly for humanistic geographers, philosophers of place and architectural theoreticians, is the notion of home. Home is a 'symbol of continuity and order, rootedness, self-identity, attachment, privacy, comfort, security and refuge' (Lewicka 2011:211). In modern societies, home has primarily been associated with a dwelling, although it is possible for people to feel at home at various scales, for instance feeling at home in a neighbourhood, a city or a country (ibid:212). Home gives us a sense of being located and a feeling of insidedness, as opposed to feeling estranged in the world.

A sense of being estranged has also been of interest to scholars of place, particularly in relation to the ontological significance of being home. Architect

and theoretician Thomas Barrie argues that 'the condition of homelessness, and the desire for homecoming, for founding and inhabiting a home, define, in part, the human condition' (Barrie et al 2016:95). Barrie is referring to an existential state of homelessness which he argues is reflected in various cultural and intellectual ideas, such as the exile of people from the garden of Eden in Judeo-Christian tradition, or Plato's Allegory of the Cave (ibid). This existential estrangement is attributed to the pre-existing and indifferent world that has an underlying mutability, a world of flux and change (ibid:97). One of the solutions to this estrangement is architecture both in its manifestation as physical dwelling as well as a facilitator of ritual. Barrie argues that 'the tasking of architecture to replicate or reveal the world and situate our place within it can be understood as a quest for making a home in an inherently unstable world' (ibid:99).

Elsewhere Barrie explains that religion and architecture play a similar role in that they mediate the psychological and existential gulf between humans and the world:

> Religion has traditionally articulated questions regarding the meaning and significance of human existence and mollified feelings of isolation and alienation. It has been intrinsic to the archetypal human endeavor of establishing a 'place' in the world. Architecture has incorporated similar agendas – providing shelter, a meaningful place that embodies symbolic content, and a setting for communal rituals. (Barrie 2010:4)

Ritual is therefore similar if not identical to architecture in that it is a mediator between worlds. Indeed, the premise of Barrie's whole argument is that sacred buildings, which are a combination of architecture and ritual, are mediators between people and the gods (Barrie 2010). Architecture as well as ritual are thresholds that provide a portal between worlds. This is seen earlier by Van Gennep's model of rites of passage being reflective of spatial mediators in the landscape, liminal zones between two worlds.

In fact thresholds are a well understood concept in architecture. Both in practice and in theory, architects are quite familiar with the role of thresholds in their most elaborate forms, to the most simple of doorways. In some cultures spaces are gendered or defined by some other social identity, and entering some of these spaces requires particular rites. Secret rites of passage, primarily in non-western or pre-colonial cultures, are doorways into the feminine world which in some cultures is forbidden for men (Nooter 1993), while the domain of men is their place of engagement and is forbidden for women who have not undergone the appropriate rites.

In other cultures, entering a door from the outside domain to the inside domain requires taking off shoes or kissing a scripture hanging at the doorway (Norberg-Schulz 1979). To enter a new zone may require some kind of mediating ritual both modest or sacred. One could argue that even in modern spaces with their potentially homogenising character of 'space', people adjust themselves depending on the domain they are entering, be it the domain of work, the domain of home, the domain of the kitchen or the domain of the bedroom. These domains, as we have previously discussed, are 'ready-to-hand' (Heidegger 1996), and in whatever subtle manner, people are required to recalibrate. We recalibrate in a number of ways, such as by changing our physical posture, by changing our clothes, by kissing a statue or applying water on our bodies using a cruciform gesture (Norberg-Schulz 1979). In this way we apply mini deaths in our transitioning from one domain to another, we readjust so that we may appropriately inhabit a given domain. Thus, whether moving through place or found in a place that is itself moving due to temporality and mutability, the psyche must adjust to its new conditions, and through our bodies mediate temporal and placial change in our world (Casey 2001).

Change to place: when worlds fall apart

The need for an existential sense of place and home is a response to mutability. Our capricious universe possesses an existential threat, to which we respond by developing various methods of control. As a result, some people may want to exercise control and a sense of security through continuity and evading change. This is understandably so, because change, particularly sudden change without any form of mediation, can cause extreme pain. Change in place in particular can occur due to natural forces, or political powers and conflicts. Uprootedness is for many of us a traumatic experience, it can induce feelings of grief, painful loss, an ongoing sense of being unsettled, as well as psychological, somatic and social distress. It results in the active effort to adapt to the new situation burdened by feelings of hopelessness which may result in anger, as well as tendencies to idealise the lost place; '[a]t their most extreme, these reactions of grief are intense, deeply felt, and, at times, overwhelming' (Wilson 1966:359).

Arguably, these deep emotions of pain can be attributed to an unmediated involuntary dissolution of a self which in all respects has assimilated into a particular world. If one follows Freeman's model, 'external' change demands a corresponding calibration of the self, which in usual circumstances is a kind of 'small' death facilitated by chaotic dynamics. However, the kind of chaos that is induced by large instances of change would lead to serious psychological

distress, as described above. In the neurophenomenological model, all change demands internal change, but in unmediated cataclysmic events like world wars and extreme climatic disasters, the self is not ushered into new forms of assimilation and can be rendered lost.

These sentiments are reminiscent of the numerous phenomenological writings that express the pain that comes with loss of place or change in place (Relph 1976; Yi- Fu Tuan 1974). Many phenomenologists, particularly from the early twentieth century, built much of their theories in the context of both the world wars, which might explain the deep desires for place and their unprecedented expressions of estrangement from the world.

On the other hand, inflexible forms of place attachment become at once an impediment to those who have to move, particularly when the move is necessary. In instances where governments have allocated new housing to slum dwellers, or are relocating people from less arable land to more suitable land, attachment can act as a maladaptation. According to Fried (2000) people remain addicted to the sense of continuity and attachments. He goes on to argue that spatial identities that are important and useful at some stage become dysfunctional and harmful at another, in some cases leading to bloodshed and violence (Fried 2000:193). It is thus not uncommon for people to want to remain in places even though in any 'rational' assessment the place serves no positive impact for the potentially displaced, because in fact they see themselves in the place; they are inextricably united. There are cases in which environmental factors, particularly change in climate, became a push factor that required people to move, and, due to their attachment to a particular place, such communities resisted moving. Granted that many of these examples are of communities that are largely sedentary, it still gives us an indication of the way people may find it difficult to respond to change (Adams 2016).

Therefore we can see that place attachment can be a hindrance when people are unable to adapt to the demands of a changing environment, what Casey refers to as 'schizoid within and alienated without' (Casey 2001). Simultaneously, as demonstrated above, people need a sense of psychological security and existential continuity. Our need for being settled, having a sense of continuity and stability, is at once challenged by existing in a world that is variable. This means that those living in environments that are characterised by severe mutability would be challenged with establishing a sense of anomie. As will be argued in this article, mediated place/people relationships are a vital way for people to undergo change safely when crossing into an unfolding world. Unlike inflexible forms of attachment that can cause maladaptation, a mediated sense of place allows for people to be part of the ongoing unfolding change in a

place, where 'control of the universe from the perspective of the individual self is lost, but control is obtained on a more fundamental level'(d'Aquili & Newberg 1998:198).

When understood through the model of cultural neurophenomenology discussed earlier (Freeman 1998:57), one may argue that through continued engagement with a place, communities are emplaced in a particular psychological niche or world. Through chaotic dynamics – 'mini deaths' – the person engages the ongoing subtle variants in a place and assimilates to establish the self/place or self/world schema. In cases where severe change is encountered, a person has to abandon her prior intentional structure to reframe the self in response to the new changes. An unmediated and substantial novel perturbation would thus threaten a community's sense of existential security; their world literally falls apart.

San spatial adaptation in Southern Africa

Anthropologists and archaeologists have written extensively about hunter-gatherer mobility and its relationship to environmental adaptation (Kelly 1992). This is no less the case for Southern African hunter gatherers, and the debate has largely been around the degree and nature of movement patterns in relation to social and environmental factors (Barnard 1992; Cashdan 1983). It is commonly agreed upon that a variety of movement strategies allowed San bands to cope with 'unpredictable environments' (Guenther 1999:26; Yellen 1977:270) and unevenly distributed resources, especially in relation to the availability of water. Different San groups responded to their specific environments in specific ways. Earlier interpretations of San environmental adaptation argued that movement was related to procuring resources.

Yellen and Harpending (1972:252) assert that through 'extreme fluidity and movement', the Ju|'hoan have a highly efficient method of adapting to seasonal and yearly variations of resources. According to these interpretations, being able to move and adapt to changing environmental conditions was imperative for survival. This movement meant that people would have to abandon previous camps and look for resources elsewhere. In the case of the Ju|'hoan, this would mean leaving a camp near a dried-up water source in search of a better one, perhaps in someone else's territory (Yellen & Harpending, 1972; Lee 1972). Linked to these forms of adaptations are very specific social conditions, and egalitarianism in particular . One such case is the argument posed by both Lee (1972) and Yellen (1977) referring to the area needed for hunter-gatherer subsistence.

> a hunter-gatherer group may be able to satisfy subsistence requirements within 100 km^2 for 4 years out of 5 but it will still go out of *the business* unless it has access to a much larger area during the fifth year. And in order to ride out environmental fluctuation over the course of 50, 100, or 200 years, the area to which the group must maintain access must be even larger, probably on the order of 10 times the area it covers in a single good year. Maintaining access to such a large area is really a question of maintaining cordial working relations with one's neighbours occupying the space. So the environmental problem has a social solution… Indeed, it would be difficult to visualize how a patrilocal territorial organization could function in the Bushman case. I would predict that such a society could survive only to the extent to which its members could slough off their patrilocality and territoriality and approximate the flexible model. (Lee 1972:140)

What is being argued here is that when resources are depleted in one group's territory, having access to another group's territory becomes fundamental. According to Marshall and Ritchie (1984), a Ju|'hoan man was asked to represent three *n!ore* (loose territories). The man drew three waterholes, which would be loosely tied to a family, with lines depicting the paths of hunting and foraging movements. The paths overlapped and were radial from the central point of the waterhole. Again this implies that territorial boundaries were loose, and therefore people would have the ability to gain access to resources by stepping beyond their own bounds. Another form of adaptation was social reorganisation, a strategy where bands restructure through agglomeration and fission linked to seasonal availability of resources, particularly water. The primary family structure would typically stay the same, however separation could occur over extended periods of time. Reuniting with relatives would happen seasonally depending on resources, while on the other hand, being forced to agglomerate may lead to tensions (Barnard 1992:227; Kelly 1992:47).

This paints a picture of a group of people who are remarkably adaptable and able to easily deal with change and flux. In fact, the words commonly used to describe San and other hunter-gatherer social structures and beliefs are fluidity and flexibility. Barnard (1992:236) claims that 'if there is a hallmark of Bushman social structure, it is flexibility'. Similarly, Kelly (1992:47) states that 'forager social units, in fact, can have an extremely fluid composition', while Lee (1972:140) argues that 'members could slough off their patrilocality and territoriality and approximate the flexible model'. Yellen and Harpending (1972:252) state that 'the extreme fluidity and movement of !Kung population provides a very efficient mechanism for adjusting'.

It is clear from the literature that movement and the resulting social reorganisation was a key adaptive strategy for the San and other

hunter-gatherer communities. However, as we have discussed above, environmental psychology literature demonstrates that some people opt not to move in spite of the risks of remaining in a place, and that this refusal to move is partly due to the psychological need for continuity and the infusing of the self and place. Therefore how was it that the San were capable of moving so easily in order to cope with change and not fall victim to maladaptive inflexibility as a way of establishing control? The implication is that the San did not face the same challenges people generally face regarding the need for environmental stability, which according to the discussions above is the root cause of estrangement. However, Lee (1972) writes the following, demonstrating how a young San woman shows a sentimental connection to her home:

> Nevertheless, the ties to the n!ore are certainly based on sentiment as well as economic expediency; this emotional content is expressed in the following quotation from a young woman member of a group now living at ***/ai/ai:*** [You see us here today but] you know we are not /ai/ai people. Our true n!ore is East at /dwia and every day at this time of year [November] we all scan the eastern horizon for any sign of cloud or rain. We say, to each other, 'Has it hit the n!ore?' 'Look, did that miss the n!ore?' And we think of the rich fields of berries spreading as far as the eye can see and the mongongo nuts densely littered on the ground. We think of the meat that will soon be hanging thick from every branch. No, we are not of /ailai; /dwia is our earth. We just came here to drink the milk. (Lee 1972:142)

This gives us a sense that Southern African hunter-gatherers were indeed emotionally connected to place. This is of course a well-known proposition, and many scholars have written about the way San communities have had a long-term intimate relationship with their environments (Dieckmann in Bolling & Bubenzer 2009; Katz et al 1997; Deacon 1988; 1997). For instance Dieckmann describes the way the Hai||om San are involved in very intimate knowledge of the Etosha National Park which had once been their home (Bolling & Bubenzer 2009). They know aspects of the place that most Western and modern visitors would be blind to. Using Ingold's dwelling perspective (Ingold 2000), which is itself derived from Heidegger's 1971 essay 'Building, dwelling and thinking' (Heidegger 1971), Dieckmann demonstrates the way the Hai||om men connect with the landscape through their knowledge of the place, social and ancestral ties, stories and memory. The landscape is an extension of the self; it is not an inert objective entity, but is filled with relationality and vitality. It is seen not as separate from the human domain but is part of it (Bolling & Bubenzer 2009:375). Interestingly, particularly for the purposes of this article, Dieckmann

asserts that 'far from being a virgin nonchanging environment, environmental change is of importance and the idea of "natural equilibrium and stability" [is] a mere fiction' (ibid). The landscape was seen and perceived temporally, and the Hai||om guides appreciated the manner in which it changed over time, which was a fundamental aspect of their perception (ibid:376). One could anticipate that these forms of place/ people relationships would also be applicable in other cases of the Ju|'hoan, at least those that made up part of Lee's mid-twentieth-century investigation.

Through theories of place and Freeman's model described above, we could argue that Diekmann is describing an ongoing process of engaging the world through the lens of previous conditioning. Through being thrust into the place, the Hai||om continually probe their world to test hypotheses based on seeing the world through the bias of their conditioning. This is of course not uncommon, and in fact Diekmann's main argument is that the way the Hai||om saw the park was different from the way visitors or 'spectators' saw the park. This unique view is a result of the person's ongoing process of assimilation, 'maximum grip' of a ready-to-hand life world.

The literature gives a clear sense that, through generational habitation, people developed an intimate relationship to place and viewed the landscape as their dwelling. Simultaneously, and especially in the case of the Ju|'hoan, (Lee 1972) cites the manner in which they sometimes faced extreme forms of variability, often unpredictable rain patterns and availability of water, which in turn required people to move in the landscape. On the one hand, the literature is clear about the intimate bond between people and place, while on the other hand, we see that the place is the source of ongoing mutability and contingency. How was it that the San were to be deeply connected to their home, while the environment displayed great degrees of change? If all people indeed require a sense of stability in order to feel at home, how was it that the San seem to have adopted mobility as a key strategy, which in other contexts would be the cause of deep feelings of estrangement. Within their very familiar territories, the San encountered an unpredictable environment beyond seasonal predictability and would sometimes go beyond their territorial bounds for access to resources (Lee 1972).

To assume that such communities would not have the same need for psychological stability outlined previously by philosophers of place would be to negate their humanity. Kelly (1992) argues that some communities choose to be mobile, that moving from place to place can be a culturally determined and preferred way of life (Kelly 1992:48). How indeed could the San, particularly those like the Ju|'hoan, move in response to mutable environments as an adaptive strategy,

which in some cases meant fission, and resist inflexibility that comes out of the very real and deep need for psychological continuity.

Discussion: San rituals as people/place mediators

David Lewis-Williams is perhaps the most noteworthy scholar to have studied Bushman San ritual and cosmology. His main thesis focuses on the relationship between Bushman rituals and rock art. According to Lewis-Williams (2004), it should come as no surprise that San art is primarily concerned with the ritual trance dance. This, he argues, is due to the centrality of the trance in San spiritual, social and cosmological life (Lewis-Williams 2004:82). Part of Lewis-Williams's argument is that the images seen in Bushman rock paintings are a direct result of the experiences that the shaman has during trance. Part of what is experienced during trance are the visual incongruences and conflated images in which ritual participants transform into animals, often represented in the rock paintings as therianthropes; those experiencing the trance feel as if they have merged with an animal (Lewis-Williams 2004:32). Elsewhere, Lewis-Williams describes the general physiology and psychological experience of the ritual:

> Consciousness can be launched on the intensified trajectory by a number of conditions that include ingestion of psychotropic substances, sensory deprivation, pain, fasting, meditation, audio and rhythmic driving (such as dancing, chanting, and drumming), fatigue… The rhythmic movements, the sounds of their rattles, the women's clapping and the intensity of their concentration combine to alter the shamans' state of consciousness. The Kalahari San do not use hallucinogens, though they may have done so in the past. They begin to move along the intensified trajectory… and eventually fall into 'unconsciousness. (Lewis-Williams 2004:38, 89)

This description is nearly identical to the ones given by Walter Freeman above (Freeman 1998:8; Freeman 2003:16). If we agree with Freeman's assertions, then it must follow that the trance dance of the San must induce the same neuronal processes of dissolution of past behaviour and constitute new boundaries of relation. What is implied in the case of the San is that the bonding is not only with one's kin, but is extended to members of other animal species, as in the bonding of the shaman and the eland. At the same time, using Freeman's model, trance should not only induce bonding, but also restructure relational schemas represented in the brain as the loosening of synaptic connections for opportunities of new learning.

Low (2015) gives a compelling account of San ritual, which he grounds in neurophysiological theories of the body/brain, as in the present article. Low asserts that prior to the work of Bradford Keeney (2004), studies of San ritual trance focused minimally on the actual medical healing that the dance is purported to administer, stating that the focus had primarily been on the social role of the dance (Low 2015:32). Low's analysis of the San trance dance is arguably through the framework of cultural neurophenomenology, although he does not use this term, and he draws from phenomenology and embodiment, neuroscience and anthropology. In a detailed exposition of how Ju|'hoan medicine men administer healing by physically engaging their own bodies and that of others, Low ultimately demonstrates a process of reconditioning the body. Comparing San healing with osteopathic healing practices, he highlights the way embodied and embedded bodily conditioning is recalibrated through a series of actions of the body (Low 2015:52). This process may lead to what Low calls a half death, a 'paradoxical moment when all movement seems to cease but the body is undertaking its most radical remapping' (ibid). Low explains that:

> If mental representations are indeed so tightly associated with proprioception and motor movement, it seems entirely possible that shaking stimulates the key associated emotion, fear, and sets off neurological responses linked to pain, fear and survival in hunter-gatherer contexts… Just as smells take people to certain feelings and thoughts, and osteopaths take patients into memories of trauma by moving a patient's body, shaking initiates feelings of stress and stress responses in a San dancer. Neurologically stress responses are associated with the brain's limbic system that consists of the hypothalamus, amygdala, hippocampus and limbic cortex. The limbic system is associated with functions that are of particular relevance to hunter-gatherer life and ones that are equally supersensitised in the dance. The limbic system concerns levels of arousal, self-preservation and the fight or flight reflex, heightened sensation, particularly including smell and control of dopamine. (ibid)

This outline of the role of trance in activating various neurotransmitters is an important insight, and in concert with Freeman's model, which hypothesises that the neurotransmitter oxytocin and other neurotransmitters are capable of inducing the process of reconditioning. What is striking about Low's argument is that through trance, and more specifically shaking, the entire body/brain undergoes recalibration, which is congruent with the idea of chaotic dynamics as the medium through which the intentional structure is recalibrated. Low inserts his interpretation of the dance into the context of the hunt, which for the purposes of this article is an appropriate correlate (ibid). As previously discussed, it is through ongoing 'mini deaths' or dissolving of

previous conditioning that the embodied self is assimilated into an unfolding world, which in a contingent context like a hunt is a crucial capacity. Through an ongoing process of dissolving past conditioning, and being able to apprehend what is immediate, the hunter is in this moment, like in the dance, united in body with the animal and arguably the hunting ground.

In his interpretation of San religion and society, Mathias Guenther argues that the underlying ontological premise of San religion is incongruence and schematic conflation. Guenther argues that through the practice of trance, as well as the mythological figure of the trickster, San society is defined by fluidity. According to Guenther, the trickster in Bushman culture and mythology embodies ambiguity, similar to the way the trance dancer embodies such qualities in the context of the ritual. Guenther argues that both the trickster and the trance dancer are ontologically ambiguous, often collapsing dichotomous boundaries such as natural and supernatural, humanity and divinity, human and animal. The two figures are fluid and constantly prepared to change and transform, and in the case of the trance dancer, transcend through altered states of consciousness (Guenther 1999:26).

Guenther argues that this fluidity is what leverages the San's capacity to be adaptable and resilient (Guenther 1999:23). In fact, central to Guenther's argument is that the ontological fluidity we encounter in San myth, art and social culture is geared towards dealing with contingent environments:

> A basic reason is the mobile economic and social life, the 'nomadic style' […] which causes people to move hither and yon or to and fro – as they exploit unevenly distributed plant resources and large migratory game, or follow the seasons round […] The social reasons for spatial mobility are the pull of visiting kin or trading partners and the push of social tensions within the camp […] Such movements, by individuals or family groupings, from band to band and over adjoining territories, is possible because of the openness of social groups […] It is a rule that makes ecological sense, given the unevenness and unpredictability in the distribution of resources over space and time, and the consequent need for a flexible territorial model. (Guenther 1999:26)

However, Guenther does not explicitly equate the ritually induced ontology of fluidity to environmental fluidity, but instead sees them as 'a reflection of one another' (Guenther 1999:5). Richard Katz on the other hand makes a closer link between change and healing ritual. He asserts that '[h]ealing systems are among those parts of a culture most sensitive to change. Dealing as they do with points of crisis, confusion, and opportunity – transitions which are the essence of culture change – healing systems often function as the barometers of, as well as the responses to, such change' (Katz (1982:345). Another crucial account that

links ritual and a mutable environment is found in Sullivan and Low (2014). In their interpretation of the water snake – a figure that persists in ancient and modern KhoeSan beliefs and myths – Sullivan and Low put forward that the snake displays a resonance with the 'mysteriously unpredictable and simultaneously generative and destructive ground of life's nature' (2014:365). The snake is not only reflected in the rock art but is part of the mutability and fluidity of the environment as well as in transformation experienced in the trance dance (ibid). Interestingly, I have observed similar beliefs in my own upbringing coming from Kuruman in the Northern Cape of South Africa, a community that has historically been in close contact if not interrelated with Khoe communities (Maingard 1933). Here, the water snake was associated with whirlwinds and waterholes, and made up what in hindsight was part of an animistic worldview. The snake, which was in fact the animated landscape, was engaged through various practices of petition and ritual.

I propose that what Guenther and Sullivan and Low call 'confounding' and 'ontological' fluidity could be what Freeman and others have demonstrated to be the re-articulation of boundaries and through chaotic dynamics, the ongoing reconstitution of the intentional structure. In these frameworks, the constant representation of image conflation, such as therianthropes and other schematic conflations evident in San culture, are in actual fact a revelation of the way humans, through their brains, deal with contingent environments.

In Freeman's model discussed above, rituals are performed as mechanisms of inducing dissolution and opportunities for new learning. I am putting forward the possibility that the San ritual of trance amongst its other functions, is a socio-biologically determined environmental adaptation strategy that allows for fast reconstruction of psychological schemas represented as synaptic conditioning in response to change, change here being the overall contingent nature of the world we live in, as in Turner's 'contingent' rituals and d'Aquili and Newberg's 'unpredictable world' as the primary condition of life on earth (1998:192). One could say that through embodied practices, which in some San communities were practised regularly (Guenther 1999:192), processes that reconditioned the brain happened often. To put it differently, one could argue that what is implicit in rituals as tools of dissolution or mediators of psychological identities is their capacity to continuously condition and re-condition the brain.

I wish to emphasise this by way of reverting back to the example of the young woman expressing her sentimental ties to the n!ore. Through the framework of cultural neurophenomenology of place, the young woman evoked at least six different domains reminiscent of the San cosmos (Lewis-Williams 2004): the sky/rain; the waterhole implied in the rain; the fields of berries; the mongongo

groves; the camp where the meat is hung; and the hunting grounds where the meat was hunted. These various domains are places with their own unique sense and spirit. They show up in a particular way for the various people in the community. Implied in her words referred to earlier is the emphasis on the foraging domain of berries and mongongo nuts, which unlike the hunting ground would most likely be a domain more familiar to the young woman. There is the domain of water, the waterhole or other places of water; the domain of the camp, which in itself is not homogenous having areas where the meat is hung: one can imagine the smell and the excitement of this domain. There is also a sense of temporality; the movement of the rain clouds, 'has it hit the n!ore?'; the landscape is alive. In fact, the rain cloud, being the first aspect that the woman describes, contextualises all of the other domains. It vitalises the other domains because it is the rain that makes the possibility of the berries, the nuts and meat to be accessible for the people.

One can also sense the lines of movement between these domains, between the camp and the hunting ground, and the camp and the waterhole. Without rain, the hunting ground is not the same: it may have different game, or no game at all. Without rain, there may not be any meat hanging off the branches, and the trees will be bare. Without rain, the berries may not be available. In the phenomenological sense, the body is then in a different place: the dry waterhole is not the waterhole with water attracting animals and perhaps other people.

In the movement that people may be accustomed to, in the regular seasonality, there may be places that are anticipated destinations on the journey. However, without rain, the path that is usually taken may lead to places that no longer resonate the way they did in the last season. The place has changed; the environment is different; the sounds are different; the animals are different. This change would only be more stark in seasons where the water is so scarce and the land is so parched that it becomes unrecognisable to anyone too young to remember the last drought.

Therefore, the relationship between the body and the place would need to be mediated, through mini deaths, subtle and unrecognised, it would be necessary to mediate between domains, between the camp and the hunt, between the waterhole and the mongongo groves. In situations where there are more changes in the world, which is often the case in a marginal and unpredictable environment, where the once intimate knowledge of place infused in the body through small instances of death and recalibration is now obsolete, a more dramatic re-assimilation is needed. This is practised often, perhaps four times a month (Katz 1982), perhaps daily. The ongoing temporal and platial changes in the world are thus mediated by the dance.

Furthermore, given the potential for the feeling of oneness induced by practices such as the trance, as espoused by d'Aquili and Newberg, it may be that moving without falling prey to inflexible spatial practices may be possible because one is not a victim of contingency, but, through ritual, is rather part of it. In other words, what seems to be evident here is that the spatial and temporal change experienced in the world requires an equal amount of internal ongoing psychological change in order for one to respond appropriately, adapt and build resilience. Home, then, is not a specific and particular feature of the landscape, as in our contemporary sedentary proclivities, and all the anxieties that accompany the fragility of our places, but home becomes the current place which one inhabits through abandoning past self-identification schemas and inhabiting the current condition.

It is not uncommon for the healing dance to resolve tensions and problems in Ju|'hoan communities (Katz 1982), tensions that arise as they would do in any intimate social relation between people. In the same way, I am putting forward that in a society where the environment and its agency are seen as being alive and mutable (Sullivan & Low 2014), and where a relationship between people and that environment is needed, trance does not only chase away unwanted spirits and facilitate relief from a number of psychological and physical ailments, the dance becomes a mediator of the potential gulf between humans and their other relative, namely their environment. Mobility and moving across the landscape in this way is an extension of the relational healing dance; as the landscape moves, the people, psychologically move.

This model is proposing that the trance dance, as presented in the ethnography, may be described by its practitioners as one thing, but similar to the relationship between dots and zig zags in rock paintings and entoptic phenomena (Blundell 1998:8), the practitioners of the dance may not have the full capacity to explain other reasons for its ongoing practice. Further research in the ethnographic records for patterns of a sense of existential 'being in the world' for the San are required, but thus far based on evidence from cultural neuropsychology and other disciplines, it seems clear that societies such as the San 'dwelled' in the world, and that ritual and not physical architecture was what mediated this dwelling.

Conclusion

The aim of this article has been to explore what I have identified as a disparity in the literature of San culture pertaining to their capacity to move from place to place due to various social and environmental factors, and evidence of human

place attachment and its potential to be maladaptive. I have attempted to demonstrate that rituals may have been more than just mediators of specific life events, or healing practices, and that perhaps they are the means through which people can inhabit the world in its state of constant flux. Furthermore, if indeed the trance dance facilitated inhabitation and environmental flow, one must not presume all San at all times may have successfully achieved this, similarly to the way one sees evidence of selfishness as opposed to a stereotype of perpetual generosity amongst them (Katz 1982). What I am putting forward is a possible mechanism for coping with the potential traumas of ongoing change, uprootedness, as well as disconnections arising from fission.

Today we know that communities like the San have indeed suffered perturbations that were too large and too sudden to allow for the adequate pace of transition and reconstitution. There are a number of publications that demonstrate the manner in which the San have suffered severe change due to colonisation and the modernisation of all aspects of human life (Katz et al 1997; Odendaal & Werner 2020). This, I believe, is an example of the kind of change that has the capacity to break an entire world, which is ultimately what has happened to the San and many of us who have suffered through colonisation. This is especially damaging when the very instruments a community use to mediate change are themselves destroyed through various forms of cultural genocide. Even today, the San continue to struggle to rebuild their world, albeit a new one radically different from that which they inhabited previously. What is encouraging and profound is that these communities continue to practice some of their cultural traditions, including the trance dance. Katz et al (1997) have engaged this new and unfolding situation the San find themselves in, particularly the Ju/'hoans. Their investigation tries to understand the role of the trance in facilitating the transition the Ju/'hoans need to undergo in order to once again find their place in the world. This is to me a significant testament to the enduring and deeply human need for mediating change, which is arguably something the whole world needs now more than ever.

The arguments posed above are implicitly grounded in an ontology of non-dualism and a post-Cartesian framework. Through the current work done by neurophenomenology, new insights into perception and our relationship to the world are emerging. It is through these insights that I present some of my arguments above, and it is through these insights that our contemporary dualistic worldview is brought into the fore. One could speculate that our contemporary ecological crisis is in part a reflection of the persistence of these old essentialist philosophical outlooks that have infused themselves in popular thought. If we believe that reality is not constructed, and that

perception is objective, it suggests to me that our society does not possess the same creative and adaptive capacities our ancestors may have possessed prior to the destruction suffered under colonialism. We are, of course, in a world controlled by large institutions, and social adaptation and change require much more complex socio-political efforts. However, with a better understanding of the way the brain formulates new schemas and dissolves outmoded ways of thinking, we can gain a better understanding of how to change.

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