Re/placing Native Science: Indigenous Voices in Contemporary Constructions of Nature

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Received 20 September 2006; Revised 10 January 2007; Accepted 31 January 2007

Abstract
Since the earliest days of the European Enlightenment, Western people have sought to remove themselves from nature and the 'savage' non-European masses. This distancing has relied upon various intellectual techniques and theories. The social construction of nature precipitated by Enlightenment thinking separated culture from nature, culture being defined as civilised European society. This separation has served to displace the Native voice within the colonial construction of Nature. This separation has also served as one thread in the long modern 'disenchantment' of Westerners and nature, a 'disenchantment' described so adeptly by Adorno and Horkheimer (1973). Unfortunately though, this displacement is not only a historical event. The absence of modern Native voices within discussions of nature perpetuates the colonial displacement which blossomed following the Enlightenment. In his book entitled, *Native Science*, Gregory Cajete describes Native science as 'a lived and creative relationship with the natural world ... [an] intimate and creative participation [which] heightens awareness of the subtle qualities of a place' (2000, 20). Perhaps place offers a 'common ground' between Western and Indigenous thought; a 'common ground' upon which to re/write the meta-narrative of Enlightenment thought. This paper will seek to aid in the re/placement of modern Native voices within constructions of nature and seek to begin healing the disenchantment caused through the rupture between culture and nature in Western science.

KEY WORDS *Indigenous science; social constructions of nature; culture-nature divide; place; Gregory Cajete*

Introduction

Just as David Turnbull starts his book, *Masons, Tricksters and Cartographers*, we want to start this paper with the assertion 'that there is not just one universal form of knowledge (Western science), but a variety of knowledges' (Turnbull, 2000, 1). Much has been written in the last few decades on how various knowledge systems are situated, constructed, applied and made mobile. Much of this work has been concerned with critiquing the presumed dominance and admitted power of the construct labelled Western science. The work of authors such as Latour (1987; 1993; 2004), Collins (1982; 1998), Shapin (1994; 1996), Star (1995), Hacking (1983), and Rouse (1987; 1996; 2002) among others has shown that 'the kind of knowledge system we call Western science depends on a variety of social, technical and literary devices and strategies – assemblages which move and engage local

doi: 10.1111/j.1745-5871.2007.00442.x

knowledge' (Turnbull, 2000, 20). The study of the sociology of scientific knowledge has exposed the 'local' nature of Western science, revealing that it is not actually significantly different in its foundations from any other knowledge system. Returning to Turnbull; 'knowledge systems may differ in their epistemologies, methodologies, logics, cognitive structures or in their socio-economic contexts, but one characteristic that they all share is their localness' (2000, 19).

Modernity's impression of itself as the expression of 'universal truth' has led to a science and philosophy, particularly since the earliest days of the European Enlightenment, which seeks to remove 'man' from nature and the 'savage' non-European masses from civilised Europe (Henderson, 2000). Certainly following Descartes, the act of thinking has served as the criterion of existence and the status of humans as thinking beings, the ultimate proof of their separation from the rest of creation (Descartes *et al*., 1967). This separation has served as one thread in the long modern 'disenchantment' between Western civilisation and nature, a disenchantment described so adeptly in the work of Horkheimer and Adorno (1973).

This separation has also served to displace the Indigenous voice within both Western science and its socially constructed 'nature'. We do not want to spend too much time on this topic but do want to investigate, if only briefly, how Western science went about creating 'nature' and placing Indigenous peoples (read savages) within nature. So much of European knowledge about nature was created and ordered in the period of colonial exploration beginning in the late eighteenth century and continuing through the nineteenth century. While it is important not to homogenise colonial ways of seeing, because different travellers with different purposes had different perspectives and priorities, travel writing, explorers' accounts and missionary journals all affirm the values of the metropole. The works of Gregory, Thomas, Castree and Braun, among others, have described how colonial exploration served to aid in the European ordering of nature (Gregory, 1994; Thomas, 1994; Willems-Braun, 1997; Braun and Castree, 1998; Castree and Braun, 2001; Braun, 2002; Thomas, 2004). This process of enframing endowed the European viewing subject, constructed as a disembodied and distanced observer, with the exclusive privilege and the extraordinary power to discover the real order of the world. There are several strands of thought which lie behind this process. Let us briefly enumerate some of them.

Colonial constructions of nature

According to Mary Louise Pratt (1992) in *Imperial Eyes*, the Linnaean system of classification launched a European knowledge building enterprise of unprecedented scale and appeal. As Linnaeus' taxonomy took hold, his disciples fanned out across the globe. The information obtained was written into books, the dead specimens were mounted for natural history collections and exhibitions and the live ones were planted in botanical gardens or displayed in zoological parks. Travel writing would never be the same again. From the late 18th century on natural history played a part in any kind of expedition, scientific or not. Pratt (1992) identifies the cataloguing of 'nature' as a narrative of 'anti-conquest', in which the writer naturalises the bourgeois European's own global presence and authority. Underlying all of this was the idea that natural history was actively engaged in portraying something that was already there (Nature's Plan), that such narratives were faithful to that being represented, and that they allowed readers (and the writers) to apprehend an appearance of order that emanates from nature itself, rather from the ordering of appearances in representational practices.

This systematising of 'nature', Pratt (1992) suggests, is a European project of a new kind, a new form of what she calls 'planetary consciousness'. Pratt describes the process by which Nature was possessed and transformed: 'One by one the planet's life forms were drawn out of the tangled threads of their life surroundings and re-woven into European-based patterns of global unity and order' (1992, 31). She goes on to observe that, '[t]he (lettered, male, European) eye that held the system could familiarise ("naturalise") new sites/sights immediately upon contact, by incorporating them into the language of the system' (Pratt, 1992, 31). Further, the system had the potential, according to Pratt, to subsume culture and history into Nature; '[n]atural history extracted specimens not only from their organic or ecological relations with each other, but also their places in other peoples' economies, histories, social and symbolic system' (1992, 31). According to Pratt, there is no place for Indigenous knowledge in such an approach for, as Foucault (1980) has observed, non-Western science became 'subjugated knowledges' in this process.

The activity of describing geography and identifying floral and faunal structures is an asocial narrative in which the human presence (European and Indigenous) is absolutely marginal. People are included in the accounts but

they inhabit a separate textual homeland where they are the objects of formal ethnographic description. Frequently this involved locating and containing a Native presence at specific sites, detaching them from the landscape which was then encountered and described as devoid of human occupation. In other words, the complex social-ecological world traversed by the travellers was divided into neat unambiguous categories: primitive culture and pristine nature.

By the late eighteenth century, when the first Europeans began describing the landscapes of Australasia, we would argue that enframing and objectification had become the dominant Western mode of seeing the world. The rest of the world was incorporated into the Western grid of knowledge through a process which placed plants, animals and peoples into an objective taxonomy and grid of knowledge, separating and displacing them from their landscapes. Indigenous conceptualisations of nature were displaced in order to re/place them within the new taxonomy. At the same time though, Indigenous cultures were not erased from the taxonomy of nature, but fixed within village sites, tied to a traditional and ahistorical culture and rendered invisible from existing relations between themselves and their immediate surroundings, including the complex cultural, political and economic institutions that organised these relations (see Fabian, 1983).

Returning to the European explorers and travellers, we know that they were, in nearly every case, guided and assisted by Indigenous peoples throughout their explorations of new territories. In addition, we must assume and we occasionally have evidence that these Indigenous guides did impart their knowledge concerning the specific plants and animals encountered, along with information concerning how these specimens fitted within their cultural, political and economic institutions. If this knowledge was shared and encountered, why does it, and those who shared it, remain hidden, or as *ghostly presences* (Pratt, 1992) in the accounts of these explorers? Johannes Fabian (1983) describes this objectification as a temporal displacement. Europeans believed that they could not occupy the same space as Indigenous populations at the same time. Frequently this meant the removal of Indigenous populations to reserves or to permanent village sites. The other approach which Fabian (1983) describes is the removal of Indigenous peoples from the same time as Europeans; to be removed in distance from Europe meant to be removed in time from Europe.

This temporal displacement produced an epistemological divergence between Western and Indigenous knowledge systems and the latter's holistic ways of thinking disappeared from the former, along with explanations that were limited to natural sources of information. Houston Wood (1999), in comparing Western and Hawaiian knowledge systems, has described Hawaiian thought as polyrhetorical, emphasizing multiple, shifting and context-specific meanings with overlapping and elastic realities. Western thought, according to Wood, tends towards the monorhetoric which privileges objective, ideally mathematical, analytical-reductionist, linear, value-free, gender and culture-free, apolitical and a-geographical observations and explanations (see also Haraway, 1991; Merchant, 1994, 2003; Barnes *et al*., 1996; Roberts, 1996; Roberts and Wills, 1998; Stewart-Harawira, 2005).

Re/Placing the ghostly presences

Unfortunately the Indigenous voice, even for academics writing about non-European constructions or nature, remains frequently disenfranchised from our modern-day discussions. This displacement, we would argue, serves to perpetuate the disenchantment that Horkheimer and Adorno (1973) have identified. This separation of culture and civilised Western 'man' from Nature continues in geographic thought; the colonial underpinnings of this discourse only recently beginning to be called into question. As Edward Casey observes in his discussion of place in *The Fate of Place* (1997), the transformation in Enlightenment thinking and the separation of nature, culture and the divine have caused a disappearance, or at least a dormancy, of place in Western thinking, particularly in the face of the site-specific models of space stemming from the early modern era.

Over the last twenty years or so, a number of scholars have become concerned about healing the nature-culture divide. An extensive examination of the breadth of this work is beyond the scope of this paper, but perhaps a brief review of the role geography has played will be helpful. As Sarah Whatmore (2002, 2) has pointed out, perhaps because geographers have inhabited this nature-culture divide more self-consciously than other disciplines, these (re)turns to the question of nature have a particular resonance. Much of geography has long been concerned with the interface between the natural and social worlds but, in practice, the separateness of these worlds has been intensified by the disciplinary division

of labour between human and physical geography, each of which tends to pay more attention to the divergent research cultures of the social and natural sciences respectively than to each other. Whatmore (2002) also comments that there is a sense that the life has been sucked out of the worlds that geography has come to inhabit, especially that part of them which seeks to become a spatial science, or to be involved in some more critical spatial theorising. An observation by the anthropologist, Tim Ingold, puts this in perspective: 'Something ... must be wrong somewhere, if the only way to understand our own creative involvement in the world is by first taking ourselves out of it' (Ingold, 1995, 58).

As a consequence, in geography and a number of allied disciplines concerned with nature-society relationships, there have been a number of attempts to overcome the nature-society divide. In the first place, Donna Haraway's writings have brought ecofeminist concerns to the sociology of scientific knowledge, concluding that 'nature' is a multidimensional tangle of the politic, economic, technical, mythic and organic which 'collapse into each other in a knot of extraordinary density' (1994, 63). A further stream of influential social theory has emerged from developing ideas about 'social nature', where radical geographies of political economy have become increasingly reconciled to the need to regard nature as an essential third theoretical arena in addition to those of society and space (Fitzsimmons, 1989). The initial argument that nature cannot be (re)produced outside of social relations was quickly tempered by the equally significant argument that nature is not reducible to such social relations (Whatmore and Boucher, 1993). Later, Castree (2000) concluded that a social nature which ignored the power of nature, underplayed the material powers and capacities of natural entities. David Harvey has also added a plea that the artificial break between society and nature must be rendered porous and eventually eroded (Harvey, 1996).

Among geographers and other social scientists concerned with nature-society relations, the most influential new development has been the emergence of Actor Network Theory (ANT). ANT uses two significant metaphors, that of Haraway's (1991) 'cyborgs' (partnerships between human and non-human actors in the mutual construction of artefactual nature), and Latour's (1993) notion of 'hybrids' (mixtures of nature and culture). As ANT has developed it has championed non-human agency while at the same time rejecting the non-human/human distinction and, through employing metaphors of hybridity and network, scholars working within this framework have sought to dismantle the binary logic which poses nature and society as opposites. The bulk of those pursuing Actor Network Theory have emphasised the relational agency of artefacts and technology, rather than that of organic non-humans, and most scholarship has been set within standard paradigms of Euro-American academic research.

Carolyn Merchant (1995) in her chapter, 'Reinventing Eden: Western culture as a recovery narrative,' further explores the disenchantment which Western Enlightenment thinking has wrought on our relationship with nature. She sees Enlightenment history as a meta-narrative through which we are educated and live our lives as participants in the plots it tells. She goes on to observe that '[w]e internalise narrative as ideology. Ideology is a story told by people in power. Once we identify ideology as a story – powerful and compelling, but still only a story – we realise that by rewriting the story, we can begin to challenge the structures of power' (Merchant, 1995, 157).

Merchant begins rewriting the story we tell about nature and culture by quoting a Penobscot legend concerning the origins of corn in their community. Merchant observes that this story describes a partnership between the human community and the Corn Maiden who brought an end to famine in the community. The partnership ethic that Merchant describes surrounding this Penobscot legend envisions 'a relationship between a human community and a nonhuman community in a particular place, a place that recognises its connection to the larger world through economic and ecological exchanges' (1995, 158). Borrowing from the Penobscot story Merchant observes that '[a]s in the corn mother origin story, women and the earth, along with men, would be active agents' (1995, 159). Unfortunately, the Native Americans who inform her brilliant work remain as they have in past centuries, as ghostly presences which inform the work of European and Euro-American writing without taking a solid form. The Penobscot story is told about a people removed in time and space from the modern author and audience, informing us about a different nature narrative, but still removed and displaced.

Overcoming the Enlightenment meta-narrative which has served to separate humans from non-human nature will require the telling of a

dramatically different story in Western thought. Merchant observes that '[i]f such a story can be rewritten or experienced, it would be the product of many new voices and would have a complex plot and a different ending' (1995, 158–9). Modern Indigenous authors have the ability to relate the foundational stories of their communities' knowledge systems to modern audiences, providing new voices to the healing of this disjunction between nature and culture in place. There are many Indigenous authors whose work can assist in the rewriting of the meta-narrative of the Enlightenment through sharing their 'many new voices'. Unfortunately though, as Stewart-Harawira observes, 'outside of Indigenous scholarship itself, within academic circles little serious attention has been paid to examining the possibilities inherent in Indigenous ontologies' (2005, 34).

Makere Stewart-Harawira, in her recent book, *The New Imperial Order: Indigenous Responses to Globalization* observes, 'that despite having been devalued, marginalised, disenfranchised and frequently submerged throughout the history of Western imperialism, traditional indigenous knowledge forms have a profound contribution to make towards an alternative ontology for a just global order' (2005, 32). The work of many different Indigenous scholars has provided an alternative discourse for countering the 'disenchantment' of Enlightenment thinking. Among those who have started this work, N. Scott Momaday's short article on 'Native American Attitudes to the Environment' (1976) has been used by some authors, including geographers, to further this rewriting proposed by Merchant and Stewart-Harawira, particularly through his conceptualisation of a reciprocal appropriation relationship in which Native Americans invest themselves physically, emotionally and spiritually into the landscape and receive back from that landscape all that they need to survive, physically, emotionally and spiritually (Rundstrom and Deur, 1999). Momaday, like the Māori biologist, Mere Roberts, describes a connection with nature and the environment which repudiates the modern 'disenchantment' between culture and nature. It describes a connection which remains firmly rooted in place. Roberts' work (Figure 1) (Roberts, 1996; Roberts and Wills, 1998; Roberts *et al*., 2004) discusses the separation and disconnection of Western thought acknowledging that, while Western and Indigenous science have many similarities such as empirical observation and the maintenance of extensive data sets, undoubtedly the areas of greatest distinction between Indigenous knowledge and Western science are most clearly evident in the areas of cause and effect, and function. Removing the spiritual world from scientific inquiry interrupts the moral universe envisioned by many Indigenous knowledge systems and described by Vine Deloria Jr. as a system 'in which all knowledge and experience was drawn together in order to establish the 'proper moral and ethical road' or direction for human beings' (Deloria, 1999, 47).

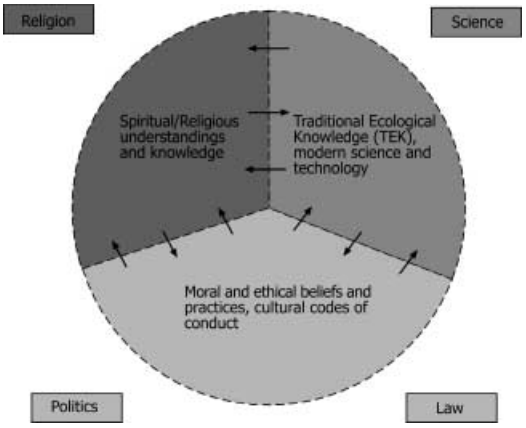

Figure 1 Western compartmentalism versus Indigenous holism. (Adapted from the work of Mere Roberts.)

With the maintained connection between the spiritual, moral, scientific and natural worlds, Indigenous knowledge systems have continued to unabashedly discuss the metaphysical. For Native Americans, 'metaphysics was the realization that the world, and all its possible experiences, constituted a social reality, a fabric of life in which everything had the possibility of intimate knowing relationships, because, ultimately, everything was related' (Deloria and Wildcat, 2001, 2). For Māori this inter-relationship is described through complex genealogies which build 'connections between places, people, animals, plants, stars and gods back to the beginning of creation' (Waitangi Tribunal, 2004, 2), envisioning nature as a complex family tree. This relational connection between Indigenous knowledge and metaphysics has also been noted by Leroy Little Bear (2000) in his comparative work on Western Science and Indigenous knowledge systems. Little Bear (Figure 2) recognises that the reductionist thinking exemplified by Newtonian physics has given way in the twentieth century to the development of quantum mechanics and a conceptualisation of a world

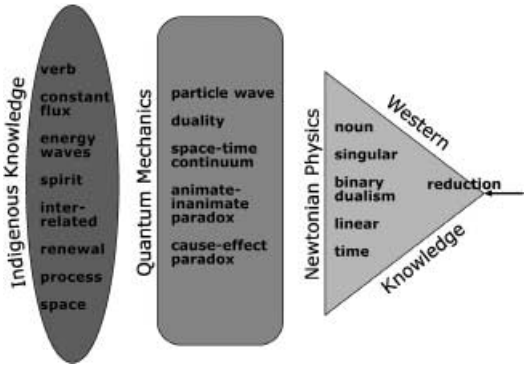

Figure 2 Knowledge systems. (Based on the work of Leroy Little Bear.)

and universe much closer to the inter-connected, metaphysical understandings of Indigenous knowledge systems.

There are of course many other Indigenous authors whose work could be referenced and who are actively engaging in discussions of culture, nature and place. We have chosen though to focus on the work of Gregory Cajete (1994; 1999a; 1999b; 2000) from Santa Clara Pueblo, a scientist, artist and director of Native American Studies at the University of New Mexico, since we believe that Cajete offers us an extensive body of work on Native perspectives toward nature and its relationship to culture and place upon which we may draw for the 'rewriting' that Merchant has proposed. Cajete's work continually recognises and incorporates the natural world in all aspects of Native science. To quote Cajete, 'Native science acts to mediate between the human community and the larger natural community upon which humans depend for life and meaning. This intimate and creative participation heightens awareness of the subtle qualities of place' (2000, 20). From Cajete's perspective, this connection with nature and place serves as a foundation for Native cultures: '[t]he storied and living homeland of Native cultures provides a holistic foundational context for Native life and participation with the universe and illustrates the primacy of space and place in Native cosmology' (2000, 20). Cajete observes that, 'Indigenous peoples projected the archetypes that they perceived in themselves into the entities, phenomena, and places that were a part of the natural environment they encountered ... They experienced nature as a part of themselves and themselves as a part of nature' (2000, 186). This embodied relationship, described by Cajete, is one in which the act of dwelling creates meaning for Indigenous communities and through which these communities invest meaning into the landscape. As Keith Basso (1996) has observed among the Western Apache, this investment of meaning endows the landscape with a place-based wisdom.

Cajete offers an important warning in his work against relegating Indigenous knowledge to an ahistorical and displaced position. He observes that, 'the story of Native relationships to the natural world is more than can be told in one story and more than a footnote to environmentalism. Rather, it is a story of complex human relationships in complex interaction with nature' (Cajete, 2000, 82). Despite the well-meaning intentions of Merchant, her work has done exactly what Cajete warns against; reduced Indigenous relationships with the natural world down to the single Penobscot story of the Corn Maiden, ignoring the complexity of Indigenous relationships with nature and reducing Indigenous environmental science to a footnote.

While obvious conflicts are apparent it is also apparent that Cajete's work, along with that of the other Indigenous authors cited, points toward a common desire with Merchant to re/write the destructive dichotomising narrative of Western Enlightenment thought. Recognising the deleterious effects on 'nature' brought about by the hegemonic Western discourse separating the biophysical, human and supernatural worlds, a common ground can be seen between Western and Indigenous authors. Their writing demonstrates what Arturo Escobar has called 'a mode of place-based consciousness, a place-specific (even if not place-bound or place-determined) way of endowing the world with meaning' (2001, 153). These subaltern narratives of nature, based in place, have the ability to influence and shape a new anti-colonial/anti-imperial ontology.

Reflections

> To speak about activating local places, cultures, natures, and knowledge against the imperializing tendencies of space, capitalism and modernity is not a *deus ex machina* operation, but a way to move beyond the chronic realism fostered by established modes of analysis.
>
> Arturo Escobar (2001, 164)

The work of Cajete, and those other Indigenous authors cited above, offer us valuable contributions not only toward re/writing the Enlightenment meta-narratives separating society from nature, creating an environmental declension but

also, by including and recognising their voices, we have the opportunity to re/write the colonial/neocolonial displacement of the Indigenous voice. It is essential for scholarship by and about Indigenous populations within geography that we succeeded in decolonising this construction of nature which fixes Indigenous peoples both spatially and temporally. In the process we have the opportunity also to begin healing the dichotomies inherent within the meta-narrative which has created this displacement.

As with all decolonisation projects, the primary beneficiaries are not only the subjects of ongoing internal colonisation and neo-colonialism but also those constrained by the meta-narratives of colonialism who play out the role of coloniser. Rewriting the narrative dividing culture from nature, which also operates to erase the unique character of places in favour of a spatial uniformity, allows us also to rethink our positionality in relation to other colonial projects. The rewriting of meta-narratives proposed here is by its nature an activist endeavour. This activism requires our attention to the ways in which these meta-narratives create and perpetuate divisions in our thinking and how the projects set in motion by these compelling stories produce an infinite loop of displacement and environmental degradation.

More significant though than the re/placement of the Indigenous voice and decolonisation of our discourse surrounding nature is the realisation that, by working together, Indigenous and Western academics both have important understandings to add to our common cause. In our effort to view nature in new (and perhaps old) ways, to bring humanity back to nature it is perhaps, as Casey contends, that this reunification may be assisted through our re/placement of place within Western thought. As Casey observes, '(i)s it not time to *face place* – to confront it, take off its veil and see its full face?' (1997, 286). Casey's work tracing the 'fate of place' through Western scientific thought tells the intricate story of the transformation of Western thought from a platial toward a spatial ideology. No matter how compelling this ideological story may have become within Western thought, Casey has assisted us in seeing it as just a story; one which we are capable of rewriting.

Perhaps place offers a 'common ground' between Western and Indigenous thought; a 'common ground' upon which to re/write the meta-narrative of Enlightenment thought which Horkheimer and Adorno describe as 'the disenchantment of the world; the dissolution of myths and the substitution of knowledge for fancy' (1973, 1), and which Cajete describes as 'an essentially dysfunctional cosmology' (2000, 53). Escobar describes placelessness as the essential feature of this modern disenchantment (2001). Several anthropologists, philosophers and geographers, Escobar among them, have adopted a phenomenological approach to place in an effort to further explore their rethinking of Modernist constructions of nature (Ingold, 1993; Escobar, 1998; Ingold, 2000; Escobar, 2001; Escobar, Rocheleau, and Kothari, 2002). Perhaps best described by Jones and Cloke, this approach 'offers a way to deal with the "richness" of place, where the ecological and the cultural, the human and non-human, the local and the global, and the real and the imaginary all become bound together in particular formations in particular places' (2002, 9). A few anthropologists have also begun to realise the importance of emplacing Indigenous knowledge within their research, expressed by Indigenous teachers and researchers, in order to understand the rich interplay which exists in particular places (Scott, 1996; Rose, 2005). A part of this phenomenological understanding of place is the embodied presence of humans; dwelling, which Heidegger reminds us also means 'to cherish and protect, to preserve and care for' the landscape (1993, 349). This embodied dwelling creates a 'movement of incorporation' (Ingold, 1993, 157), an incorporation of the landscape within one's being much like that described by Momaday's reciprocal appropriation.

In a similar vein, Cajete describes this embodied dwelling within Native science as 'a lived and creative relationship with the natural world ... [an] intimate and creative participation [which] heightens awareness of the subtle qualities of a place' (2000, 20). Merchant's partnership ethic which 'would bring humans and nonhuman nature into a dynamically balanced, more nearly equal relationship' (1995, 158), portrays a relationship compellingly similar to that described by Cajete. Perhaps this reunification of culture and nature is possible within an ethic which heightens our awareness of the 'subtle qualities of a place' and one which recognises 'many new voices', including Indigenous voices, in its production.

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