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ABSTRACT

As suggested by current work being done in narrative inquiry, modern environmental educators participate in numerous stories by which they construct and reconstruct their personal and professional worlds. Modernist discourses have cultivated stories of the earth in which the earth is depicted as an object of instrumental value, a machine, rather than as kin, mother, or text as suggested by pre-modern societies. Deconstructing the modern metaphors of nature cultivated by modern science and industrialism is the first step toward reconstructing a relationship with the earth. Environmental educators can learn much from the narrative strategies of pre-modern cultures like Australian Aborigines and Native Americans about the assimilation of language to the world. Further, the western way of experiencing time (a linear and material construction) is only one among many constructions of reality; this conceptual system is being challenged increasingly. Thus, another step in reconstructing a relationship with the earth includes deconstructing common western assumptions concerning the material reality of time. The narratives of pre-modern mythologies and post-modern physics accept the fact that the creation of meaning in the world is a human and communal responsibility. Educators should vigorously participate in the creative reconstruction of a language that places human kinship with nature in the foreground. The discourse which may presently provide the most generative site for such a reconstruction is that of post-modern science fiction. (Thirty-three references are attached.)  
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## Environmental education: the story so far

Our starting point for exploring a number of the cultural dimensions of environmental education is provided by Alisdair MacIntyre (1984: 216) who writes:

I can only answer the question 'What am I to do?' if I can answer the prior question 'Of what story or stories do I find myself a part?'... Mythology, in its original sense, is at the heart of things.

In this paper we will review some of the stories in which modern environmental educators participate and suggest some ways in which we (environmental educators, curriculum scholars and other researchers in education) might address the question of 'What am I to do?' Our suggestions are informed by our sympathies for that which is not modern — including premodern mythologies and a number of postmodernisms, especially poststructural criticism.

Our explorations and suggestions are also informed by our practical interests in *narrative inquiry*,<sup>1</sup> a method for which Connelly and Clandinin (1990: 2) provide a concise rationale:

humans are storytelling organisms who, individually and socially, lead storied lives. The study of narrative, therefore, is the study of the ways humans experience the world. This general notion translates into the view that education [and educational research] is the construction and reconstruction of personal and social stories; teachers and learners are storytellers and characters in their own and other's stories.

In other words, educational knowledge is construed discursively and most of what we (collectively and individually) claim to 'know' in or about education comes from telling each other stories of educational experience. Narrative inquiry is thus concerned, in part, with analysis and criticism of the texts (oral and inscribed) in which these stories are embedded and the myths and metaphors they employ.

As constructed so far, the story of environmental education privileges a modernist scientific discourse which lays claim to having access to the way things 'really' are. For example, the need for education concerning the greenhouse effect is usually justified by reference to empirical-analytic research on trends in the atmospheric composition of greenhouse gases, on causal explanations for these trends, and extrapolative predictions of their environmental and social effects. Much education about the greenhouse effect is based on the assumption that understanding environmental circumstances 'objectively' is important in encouraging people to respond appropriately to greenhouse issues.

Modernist discourses appear to have had at least two quite contradictory environmental effects. On the one hand, the narrative strategies of modern science have been used to raise people's awareness concerning the nature and extent of various environmental problems. On

<sup>1</sup> Parts of this paper report work-in-progress on one aspect of Deakin University's Narrative Inquiry in Teacher Education (NITE) project. The project as a whole is concerned with the conceptual and methodological refinement of narrative inquiry as a form of critical educational research (see Gough *et al* 1991). We are doing this by undertaking specific studies which use narrative inquiry in the resolution of particular problems of our practice as teacher educators. The study on which this paper draws began with poststructural analyses of environmental education discourses-practices (Gough 1991a) and is presently concerned with exploring the implications of these analyses for action (see also Gough 1991b, Gough forthcoming a).

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the other hand, these problems may themselves have resulted from modern industrialised societies' cultivation of stories in which the earth (or 'nature') is construed and exploited as an object of instrumental value. For example, the metaphorical language of texts dealing with such subject matters as environmental management and resources conservation constructs an image of the earth as a silo of resources, an archive of our heritage, a laboratory in which to make discoveries, a gymnasium in which to exercise, a site for recreation, and so on. Much environmental education is concerned with protecting the earth's instrumental value through promoting the recycling of resources, reversing arable land degradation and so on, often by reference to the instrumentalist slogan of 'conservation for sustainable [economic] development'. This language deserves the critical attention of *all* educators because it not only constructs an instrumental relationship between humans and the earth but also generates myths about how a person becomes 'cultivated' and the power arrangements which allow some people to assume cultural leadership and become, as it were, 'cultivators'. As Fry and Willis (1989: 230-1) write:

The cultivator, as artist or critic, like the scientist, has so often regarded nature as low, as threat, as transcended origin and therefore in need of conquest and domination. The cultivated subject is seen to be the mind grown above nature and in command of it, totally separate from the baseness of body.

This discourse has self-evidently failed. Humanity has damaged its own ecosystem, its collective and interdependent body, through the alienation of self from a nature that is external, other. An ecology of survival extols neither a rationalist command of nature nor a romantic return to it — nature never went away — but a major reassessment of social and economic actions according to their effects on wellbeing within the biological and social ecology. If humanity is to survive, we must recognise that there is no 'outside' from which to speak or act; we must gain a new normative matrix for the conception and production of the world. Survival is the one universal value that transcends the proclamation of difference.

Such a 'proclamation of difference' is a relatively recent invention. Prior to the modern era, humans sustained their senses of interdependence and relatedness with the earth through metaphors of kinship. For example, it is a recurring theme in Australian Aborigines' stories that 'earth just like mother and father and brother of you' (Neidjie 1990). Similarly, native American aesthetics and spirituality are centred on honoring propriety in one's relationships, not only with human kin but also with 'the supernaturals, spirit people, animal people of all varieties, the thunders, snows, rains, rivers, lakes, hills, mountains, fire, water, rock, and plants [which] are perceived to be members of one's community' (Allen 1990: 10-11). In Western agricultural societies this sense of kinship was reduced to a patriarchal concept of 'Mother Nature' — an all-giving, ever-providing presence in the background (Plumwood 1990). In the Christian Middle Ages, nature was constructed metaphorically as a text in which to read God's purposes. As Shakespeare put it (*As You Like It*, II, 1: 12), there were 'books in the running brooks, sermons in stones' and meditation on nature was recognised as an act of devotion. But in the language of modern science nature is no longer constructed metaphorically as kin, mother or text but, rather, as a machine.

As Carolyn Merchant (1980) reports, Francis Bacon called nature a 'bride', a 'mistress', and a 'common harlot' — people whom men treat very differently from a 'mother' — and other men of The Royal Society rendered nature lifeless: nature was 'a great pregnant automaton' to Robert Boyle and a 'world machine' to Isaac Newton. Sue Curry Jansen (1990: 237) suggests that one effect of these new metaphors for nature was to 'denude the mystique of mother earth in order to open up her orifices to exploitation by commerce'. This renaming of nature supplanted a humanistic natural philosophy with the mechanistic worldview of detached scientific reasoning and ultimately paved the way for the development of capitalism.

The modern scientific origins of environmental study and environmental education are still manifested in such analytic tools as systems models. The metaphors tend now to be cybernetic rather than mechanical, but the essential characteristics of modernist discourses are retained (see Gough 1991c). Narrowly instrumental responses to environmental 'problems' also reduce education to being a mere palliative for environmental ills. The educational problems posed by humans fouling their own nests with greenhouse gases may justify the kinds of environmental education that are the social equivalents of personal toilet training but they do not in themselves provide a rationale for educational practices which transcend technical interests. Indeed, the willingness with which many environmental educators have (to use a particularly appropriate



term) *capitalised* on community fears illustrates the extent to which civil virtues can be corrupted by the kinds of rationality that support the current social and economic order.

### Assimilating body and narrative to place

Deconstructing 'the mind grown above nature' cultivated by modern science and industrialism is but a first step toward reconstructing our relationships with the earth. We must also develop strategies for interrupting dominant discourses and inserting alternative meanings into them, so that we can pursue the questions raised by poststructural analysis into the reconstruction of narratives of environmental education.

It is not only environmental educators who have a part to play in such a reconstruction. For example, modern educational psychology has cultivated 'the mind grown above nature' by reinforcing individualism and by grounding individuals' 'storied lives' in what Jim Cheney (1989: 126) calls 'a linear, essentialised narrative self'. Recent feminist thought suggests an alternative direction to explore. Many feminists emphasise the *relational* nature of identity and are skeptical about 'the assumption of a singular, fixed, and essential self'; interrelationships with others are elaborated 'through spatial relations and historical knowledges', the significance of which 'lies in [their] contextualisation... and the consequent avoidance of any purely psychological explanation' (Martin and Mohanty 1986: 196). A psychology of education which binds *self* with *place* imagines the narrative construction of human lives as being located in a moral space defined by relationships, including our relationships with the earth. As Tom Jay (1986: 112) writes, '*Psychology without ecology is lonely and vice versa*'.

Environmental educators can learn much from the narrative strategies of premodern (or 'not modern') cultures like those of Australian Aborigines and Native Americans. Their languages, myths and rituals articulate culturally and ecologically *located* conceptions of self and a sense of the processes which bind their communities together and to the land. In sharp contrast to the totalising discourses of modern science, their stories assimilate language to the world, rather than vice versa. Their mythologies — such as their moral stories of ancestral beings — are closely tied to place and, therefore, are not exportable in the same way that, say, Christianity and Islam can be exported and used to colonise the mindscapes and landscape of other people. In Jay's (1986: 101) words, such contextualised language

bridges subject and object worlds, inner and outer. Language is the path, the game trail, the river, the reverie between them... revealing and nourishing their interdependence. Each word *bears* and *locates* our meetings with the world.

In researching his essay, Jay (1986: 116) found a delightful example of the *dislocation* of meaning in our own language. He reports:

I discovered that the 'flash' in our phrase 'flash of inspiration' is etymologically grounded not in lightning but in the flash-splash of a fish. Ideas do not flash like lightning but rise like trout to caddis flies. Deep in our speech is the notion that fish are prescient witnesses to the cosmos.

As an example of language which 'bridges subject and object worlds' Jay (1986: 112) refers to the place of the salmon in the lives of Northwest Coast Native Americans, the ways in which salmon 'are literal *embodiments* of the wisdom of the *locale*', incorporating a moral understanding of self, community, earth and the interrelationships among them:

to the original peoples of the Pacific Northwest, salmon were not merely food. To them, salmon were people who lived in houses far away under the sea. Each year they undertook to visit the human people because the Indian peoples always treated them as honored guests. When the salmon people traveled, they donned their salmon disguises and these they left behind perhaps in the way we leave flowers or food when visiting friends. To the Indians the salmon were a resource in the deep sense, great generous beings whose gifts gave life... The Indians understood that salmon's gift involved them in an ethical system that resounded in every corner of their locale. The aboriginal landscape was a democracy of spirits where everyone listened, careful not to offend the *resource* they were a working part of.

Such an understanding of salmon recalls Aldo Leopold's (1970: 262) maxim that 'a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise'. The salmon stories perform an integrative function which guides development of the myth. The moral imperatives that accompany the narrative

construction of salmon as a 'gift' are more likely to preserve the integrity of this particular biotic community than comparable Western stories using concepts like 'carrying capacity' and 'sustainable yield'.

Among Australian Aborigines, many narratives are even more literally 'embodiments' of the locale in that they are signified in body paintings and dance. Joanna Mendelsohn (1989: 118) reports that when women of the Alyawarre and Anmatyerre communities came to argue a land rights case to the courts, they used *aweyeye*, 'clan symbols that tell, as words cannot, how the people are part of the land. They painted their bodies with designs that told their personal stories and danced and sang to explain their Dreaming'. Through *aweyeye* these people depict

the lush wild oranges and honey, the magic of sacred grass, the rituals of gathering food and the campfire intimacy of head lice. The country that visiting Europeans still see as empty desert is shown as a place brimming with life, with food for all who care to look for it.

### Assimilating body and narrative to time

Our lives are embedded in a complex and subtle network of both spatial and temporal relationships. Stories are inherently temporal (Connelly and Clandinin 1991: 121) and the study of time is thus significant for understanding narratives and for exploring ways of assimilating language to the world. Erikson (1950: 345) suggests that different cultures embody different mythological space-time frameworks: 'every person and every group has a limited inventory of historically determined spatial-temporal concepts, which determine the world-image, the evil and ideal prototypes, and the unconscious life plan'. Thus, another step in reconstructing our relationship with the earth may be to deconstruct common Western assumptions concerning the material reality of time. But it is difficult to discuss alternative ways of conceptualising such notions as *sequence*, *causality* and *succession* without confronting this inflexible dogma (see Highwater 1981: 92).

The Western way of experiencing time is only one among many constructions of reality — in Highwater's (1981: 95) words, a 'linear construction of temporal experience' which, together with language and mathematics, 'constitutes the essence of the active Western mode of consciousness'. Both postmodern physics and a number of non-Western cosmologies challenge this conceptual system.

Numerous metaphors testify to the materiality of Western understandings of time, including military metaphors (time marches on), escape metaphors (time is getting away from me), loss metaphors (I'm running out of time) and possession metaphors (I haven't got time). In each case, time is a 'thing' which either lies behind us or ahead of us and is 'made implacably material by our language-bound confusion of time as a spatially and physically constructed phenomenon' (Highwater 1981: 96). From a Western objectivist orientation, in which objects have properties and stand in various relationships independent of human understanding (Johnson 1987), and in which causality reigns supreme, 'transactions involving matter and energy are strictly bound by the one-way flow of time' (Talbot 1986). Without this organizing structure of language and experience, notions of 'progress' as a cumulative process would be untenable.

Most Native American languages have no tenses to express a lineal notion of time and some, like the Hopi language, lack names for such arbitrary divisions of time as seconds, minutes and hours. They speak, rather, of a perennial reality of the *now*. Studies of the semantics of non-Western languages demonstrate that the conceptual systems underlying them are fundamentally different from, even incommensurable with, Western notions of time and space (Johnson 1987). As Zen master D.T. Suzuki says (in Peterson 1986: 186):

In the spiritual world there are no time dimensions such as the past, present and future; for they have contracted themselves into a single moment of the present where life quivers in its true sense... The past and the future are both rolled up in the present moment of illumination, and the present moment is not something standing still with all its contents, for it ceaselessly moves on.

Suzuki here refers to the notion of *being* which, in Buddhist traditions, is an immediate, phenomenological, bodily-felt experience. A collective shift toward this mode of *being-in-the-world*, or present-centeredness, would constitute what Berman (1989) sees as a genuine somatic revolution, a heresy which might have the power to interrupt the modernist discourse of 'the mind grown above nature'. With the awareness of the mind as being part of one's

body, fully embedded in nature, one can experience oneself, as Abrams (1985: 100) writes, 'as a magic, self-sensing form' and one begins 'to experience a corresponding shift in the physical environment. Birds, trees, even rivers and stones begin to stand forth as living, communicative presences'. Such a tangible resonance challenges the psychic distance we have established between ourselves and nature, drawing us beneath the substructure of subject and object into the primordial dimension of integration and wholeness that Merleau-Ponty (see Levin 1985) referred to as 'Flesh', a pre-ontological attunement to *being-as-a-whole* that is woven into the fabric of embodiment.

Pre-modern spiritually-oriented cultures are not alone in their rejection of a linear and material construction of time. In the transactional interpretation of quantum physics, waves of probability originate in the past, present or future and interfere with each other, creating matter and energy (Wolf 1981: 254). Within this framework, all possible paths emerge in all possible directions between causative events and their effects and, as Wolf (1991: 145) writes, what we call 'reality' emerges from the act of observation:

Consciousness itself acts in the universe by creating paths... objects in the universe do not follow single paths, but move as waves until the objects are observed... between two events there are many paths, many connections... by restricting one's awareness to a single path as the most important, the other paths appear to vanish, even though they are still present.

Chosen 'paths', writes Wolf, become habitual, part of the unconscious body/mind, and we begin to behave in self-consistent loops. Events take on a certain meaningful coherence and appear as natural or given, rather than self-chosen and observer-constructed. These chosen 'least-action pathways' appear to bring order and sense to the world, and come to seem necessary for survival (even when they are irrelevant or counterproductive). Modernism, especially the discourse of modern science, has become such a least-action pathway, a habitual mode of perceiving and dealing with the world. But, as already noted, the discourse of modern science has failed to provide a normative matrix for long-term survival. So the question becomes one of how to interrupt the established least-action pathways that threaten survival.

In many primal cultures, the shaman serves to 'interrupt' normal pathways and break the law of habitual observation by deliberately choosing non-ordinary reality (Wolf 1991: 147). In this way, the shamanic practitioner alters the normal perceptual process, provoking psychological growth, awareness and/or physical healing. To effect this, the shaman enters the 'mythic' or imaginal realm of non-objective reality, which Wolf sees as corresponding with the quantum realm of unobserved, and therefore unmanifest, possibilities. The reconstruction of our relationship with the earth may require such a deliberate transgression of habitual least-action pathways. It invites alternative connections of symbol and reality, a shamanic journey on pathways that allow the mythic dimension of experience — imagination, dream, fantasy, empathy, synchronicity and the subterranean flows of feeling and desire — to inform our narratives. It is to acknowledge the prominent ways (see Johnson 1987) in which meaning is tied to bodily experience, and to understand, as Levin (1985: 47) suggests, that feeling integrates what objective thought would divide. And it is to ask, as Nietzsche did, how far is the truth susceptible of embodiment? In the words attributed to H.L. Mencken, 'we are here and it is now. Further than that all human knowledge is moonshine'.

### What are we to do?

The narratives of premodern mythologies and postmodern physics do something that the narratives of modern science fail to do, namely, they accept that the creation of meaning in the world is a human and communal responsibility. As Helen Watson (1989: 6) writes, among the Yolngu people of Australia's North-east Arnhemland,

the cosmos is acknowledged as one whose meanings have been created and have a history embedded in the lives and social actions of 'Ancestral Beings' in the 'Dreamtime'. This meaning and history is sometimes referred to as 'song'. The explanation that Ancestral Beings created meaning in this world in their actions of social living is a necessary and inevitable component of every aspect of ordinary Yolngu life. Yolngu people continue to sing the world into existence as an everyday activity.

The inspiration of premodern stories, when coupled with the critical perspectives of poststructural thought, may help us to pay more attention to questions of how meaning is



created and to see such questions as related to our daily lives. The majority of people in modern Western societies have abrogated their responsibility for 'singing the world into existence'. Instead, they accept uncritically the world that Bacon, Descartes, Newton and others 'sang' into existence — a world that presents itself as a machine of structures and systems, a world that is constructed as a story that obeys the rules of the positivist metanarrative of knowledge.

At least part of the answer to the question, 'What are we to do?', is to participate in the creative reconstruction of a language which foregrounds our kinship with nature. We need myths and metaphors that 'sing' the earth into existence *in the conditions of urban and late industrial lifestyles*. Clues to such constructions can be found in the symbolic languages of some premodern societies but we cannot, and should not, attempt to appropriate the metanarratives of another culture to replace our own — we do not live in the worlds that Coyote, Raven, Crocodile and Rainbow Snake made. Rather, we now live in a world in which our involvement with nature is intractably — and perhaps irreversibly — mediated by mechanical, biochemical and cybernetic technologies and the cosmologies insinuated by postmodern physics. Chaos theory may be a postmodern equivalent of the Coyote myth. Coyote's capriciousness is one way of apprehending the limits of determinacy — the orderly disorders of nonlinear dynamics and dissipative structures are another.

Thus, though this conclusion might at first seem to be paradoxical, the discourse which presently may provide the most generative site for reconstructing our relationship with the earth is that of postmodern SF — the ambiguous acronym which signifies science fiction, speculative fiction, science fabulation etc. — a literature which gives imaginative form to the human dilemmas and cultural contestations that arise from our transactions with postmodern technologies and cosmologies. We suggest that the postmodern analogs to stories of Coyote's tricks and the Salmon people's gifts may be found, not in the literature of the academy but, rather, in such popular media as the cyberpunk stories of William Gibson and Bruce Sterling, the feminist SF of Octavia Butler and Ursula Le Guin (and many others), and the graphic novels of Alan Moore and Grant Morrison. But that, quite literally, is another story (see Gough 1991b, forthcoming b).

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