

connecting with ecological futures

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Open any newspaper or magazine on any day of the week in the year 2001 and you will find stories that discuss some aspect of global environmental crisis. It might be global warming, and the politics of greenhouse gas emissions. It might salinity, or blue green algae, water rights and catchment flows. It might be endangered species and biodiversity. It might be famine, warfare, guns for timber, and diseases that are resistant to antibiotics; it might be floods, frogs, butterflies and rainforests.

The concept of crisis alerts us to the existence of major changes which are running out of control. Most scholars assert that the driving forces in out of control processes are primarily social and cultural, although environmental processes have their own internal dynamics that can turn into runaway systems. Major ecological change, much of it in crisis, is situated across the nature/culture divide. Our academic division between arts and sciences compounds the problems of that divide, inhibiting the work we need to be doing to address crisis.

It would be nice if this were the full extent of the problem, but it is not. In the twentieth century a radical break occurred within the west's understanding of the world. The repercussions of that break are very much with us, and we are in the uneasy position of living with several conflicting worldviews, none of which fully meshes with, and gives guidance for how to live in, the world as we are now learning to understand it.

As the Melbourne philosopher Freya Mathews discusses in her profound book *The Ecological Self* (1991), Einstein's theories of relativity knocked Newtonian physics out of position, thereby destabilising the intellectual infrastructure of the Enlightenment worldview. Newton's physics implied, and became, a cosmology and a world view. It

posited atoms – isolated and bounded singularities – as the irreducible elements of the cosmos. Each was separate and distinct, and logically independent (1991: 8). The Newtonian theory of matter was mechanistic, and depended on some form of mind outside of matter not only to observe and analyse, but also to provide the impetus to motion. This theory and its correlates were worked into a theory of society by philosophers such as Thomas Hobbes who posited the individual as the metaphoric atom of society (Mathews 1991: 25, 39).

The social and cultural implications of atomism constitute pillars of Enlightenment thinking: the transcendence of reason (mind over matter, culture over nature), the disembedded (and disembodied) subject, and faith in the existence of a site of objectivity which exists beyond historical and cultural contingency (Benhabib 1992: 4). These points are connected: the disengagement of mind from matter enables the concept of a disembodied subject, and a disembodied subject is required to occupy an imaginary site of total externality. Within the disembodied imaginary of a site where mind could roam freely and objectively, rationality was held to be the main tool of the mind. Rationality was equated with the mind of God or cosmos, and offered the promise of complete understanding. These key points underlie our contemporary social thinking: our scholars have aimed for universal theories, and our major theories of economy and democracy are built on atomism. How we understand and achieve justice, and even how we imagine and allow for compassion are embedded in atomism. It is thus extremely difficult to think about major changes in our basic understandings without also imagining some sort of descent into chaos.

On the other hand, the incredibly powerful forms of technological mastery that we have developed with rational science constitute today the very causes for concern about crisis. An objectivity which requires the erasure of self and purports to calculate the incalculable (Marglin 1996: 241) can only produce fragmented knowledge, some of which is extremely useful. The effects of such knowledge, when linked to the confidence and technological seductions of high modernity, and to the political and economic power of global capitalism, are devastating, as a number of excellent new studies in 'development' show (J. Scott 1998, Apffel-Marglin & Marglin 1996). As Hans Jonas wrote in 1984: 'the danger of disaster attending the ... ideal of power over nature through scientific technology arises not so much from any

shortcomings of its performance as from the magnitude of success' (quoted in Bauman 1993: 221).

Scientists and mathematicians are now rethinking all the basic principles of matter, mind, life and cosmos. Theoretical physics tells us that the universe is wholly time-space. Further, each and every region of time-space is holistically in connection, so linear causality does not apply. Quantum physics has revealed deep uncertainties: that matter is fundamentally indeterminate. Matter consists in knots or sticky bits of time-space. No longer are we atomistic singularities; we are regions, we are in connection, we are in motion, we are both cause and effect (Mathews 1991).

The new cosmology now being produced by theoretical physics has its counterpart in earth sciences, where it is probably more pertinent to our daily lives. In discussing these issues, I draw primarily on the work of Gregory Bateson who, in his enormously influential career went back and forth across the divide of arts and sciences, but who started his academic life in my discipline of anthropology. The new ecology starts with this fundamental assertion: that the unit of survival is not the individual or the species, but is the organism-and-its-environment. It follows from this that an organism that deteriorates its environment commits suicide (Bateson 1973: 436; Harries-Jones 1995: 66). The further implication is that being is inherently, inescapably, and necessarily relational. An ontology of connectivity entails mutual causality: organism and environment modify each other. Relations between organism and environment are recursive, meaning that 'events continually enter into, become entangled with, and then re-enter the universe they describe' (Harries-Jones 1995: 3).

Amongst ecologists, whose training is principally in the fields of science, the shifts in thinking are revolutionary: from concepts of climax and equilibrium to concepts of pervasive disequilibrium; from concepts of objectivity to concepts of intersubjectivity; from visions of deterministic prediction to an awareness of fundamental uncertainties such that predictions must be probabilistic (Ciancio & Nocentini ref). Inherent in this shift is a decentering of the scientist. Once scientists could imagine that proper methods were capable of bringing the universe into the mind of humanity. Some theoretical physicists still hold this to be the case, but most ecologists have become more humble. Frank Egler is reported to have said that 'ecosystems may not only be

more complex than we think, they may be more complex than we *can* think' (quoted in Dietrich 1992; 110). This view represents a fundamental shift: from the proposition that incomplete knowledge is an obstacle to be overcome, to the proposition that incomplete knowledge is a condition of any participant in a living system.

The shift in ecology has its parallels in social sciences and the humanities. Critical social theory, especially under the stimulus of feminist theory, entails shifts from universal to situated, monoglossia to heteroglossia, centred hierarchies to decentred networks. The parallels are important for showing that across the arts/science divide there exists a common ground of radical change leading in similar directions. I will pursue the social science and humanities contributions to ecological issues by discussing some of the work that seeks directly to bridge the culture/nature divide. I see two main trends. One, exemplified in the work of Caroline Merchant (especially her classic *The Death of Nature* [1980]), turns critical analysis towards the historical conditions that gave rise to the epistemological foundations of contemporary crisis. Merchant brings ecology to the humanities, and introduces 'an ecologically informed method of historical inquiry which links changing imagery and language to material change' (Eckersley 1998: 185). Another trend seeks social and cultural forms that will further society's transition into an enlarged sociality that is based on connectivity and that includes humans, animals, and environments (life support systems).

The humanities and social sciences are increasingly dedicating a portion of their scholarly agenda to the environment. Linked with disciplines, this enlarged agenda gives us environmental economics, environmental politics, environmental anthropology, environmental philosophy, and environmental history, to name a few. Each of these sub-disciplines is making significant contributions to the full arena of how we understand environments, how we understand society, history, democracy, and the future; how we may understand humanity more fully, and how we may intervene in environmental crisis in order to secure a more stable and habitable future. They ask, in short, how we may avoid committing suicide through failure to enact the worldview shattering idea that the unit of survival is organism plus environment.

Rather than summarise these sub-disciplines, I will return to what I take to be the key issues, and examine some of the ways in which interdisciplinary and transdisciplinary research is engaging with some of the big issues. I am concerned here not only that we enlarge our conversations beyond our own disciplines, and across the arts/science divide, but that we also engage the public with new ways of imagining society, ecosystem, place, nature, and the future.

My guiding theme is connectivity. The key points are these:

1. the fundamental condition of life is connection (not separation);
2. the basic unit of survival is the organism in environment;
3. mind and matter, like particles and waves, are two ways of perceiving life;
4. systems are holistic; knowledge is therefore of necessity partial.

Points 2, 3, and 4 follow from point one. The imperative of learning to think connectivity can be operationalised as an imperative to enlarge the boundaries of thought and to enlarge thinking itself – to enhance our ability to think in dialogue and, perhaps, in empathy with others. In line with Hannah Arendt's (1961) concept of enlarged thinking as thought that takes place in an intersubjective mode, I suggest that enlarged dialogue opens possibilities for inter-cultural, inter-species and other conversations. Since I cannot explore every possible domain, I will spotlight three that I believe are especially pertinent to Australia as a 'new world settler society'. Each is a domain in which new transdisciplinary research shows enormous potential, where more research is urgently required, and where there is broad public interest. Each thus offers the possibility for an increased transdisciplinary research effort that will achieve new and increasingly sophisticated results, and for new knowledge that can engage the public and influence the future of society and environment.

Indigenous ecological knowledge

Australia is home to a remarkable diversity of systems of knowledge about the ecology of this unique continent. Indigenous knowledge systems and systems based on western scientific tradition have often been seen as the most distant poles on a

continuum that ranges from 'myth' to 'fact'. Recent analysis undermines this dichotomy (C. Scott 1996), and research in Australia shows that Indigenous ecological knowledge on this continent is detailed, localised, and well grounded in empirical observations. In addition, Indigenous knowledge is embedded within a system of ethics that is oriented toward long-term productivity.

Professor Marcia Langton in her recent book *Burning Questions* (1998) notes that the High Court's Mabo decision showed the concept of *terra nullius* to be a legal fiction, and she says:

I suggest that Aboriginal people and their land management traditions have also been rendered invisible in Australian landscapes, not only by legal but also by 'science fictions' that arise from the assumption of superiority of Western knowledge over indigenous knowledge systems, the result of which is, often, a failure to recognise the critical relevance of these latter to sustainable environmental management. (Langton 1998: 9)

The sharing of ecological knowledge is an important response to the crises in which all our lives are entangled. The sharing can go both ways, for in contemporary Australia there is knowledge on both sides that can help to recover the capacity of systems to nourish human and other forms of life. Langton offers some examples of co-management, and there are numerous others.

It is also the case that indigenous and western knowledge systems are different pathways of knowledge: they are embedded in different worldviews, they are transmitted differently, they organise human action and human authority differently. Aboriginal people bring a large bundle of issues into their conversations about environments, issues that lie outside western concepts of environment. People insist upon talking about them because they hold them to be law. Put another way, the connections between and among living things are the basis for how ecosystems are understood to work, and thus constitute laws of existence and guidelines for behaviour. These connections build upon large and significant amounts of knowledge, and constitute the basis for the sets of responsibilities that can be labelled ecological ethics. In my work on ethnoecology with Aboriginal people, my

teachers have refused to cut up the world the way academic disciplines do. They say that connections are what matter.

The Aboriginal philosopher Mary Graham (1999: 105) writes that indigenous cultures of land and place are based on two axioms: the land is the law; and you are not alone in the world. These two axioms can be heard as an indigenous ethic and practice of connectivity. The second axiom – you are not alone – situates humanity as participant in a larger living system. The first – land is law – requires humanity to recognise and submit to the law of the living world.

The late David Burrumarra M.B.E. stated that the real human rights are the rights to learn about your country and to take care of your country and the life there (McIntosh 1994: 78). This definition puts rights in the context of connection. The right to return, to know, to protect, to take care, and to sustain connection are all embedded in his conception of rights.

Connection with nature

Nature is a problematic term, not least for the reason that the nature / culture divide is part of the problem, not the solution. In its problematic, provocative, and violent history, the term continues to challenge us, and for that reason, especially, I continue to use it.

Any question of connection with nature, of organism in environment, is made further problematic in our so-called 'new world' settler societies. Our societies are built on a dual war — a war against nature and a war against the natives. As the old Australian saying has it: 'If it moves shoot it, if it doesn't move chop it down'. Each war has been devastating. Social reconciliation is vividly present in Australian public discourse, and undoubtedly also within the minds and hearts of many Australians, settlers and indigenous alike. The war against nature is less vividly present to us, in part because it is consistent with the cultural imperative of human mastery over nature.

The destruction of Australian biota and ecosystems has been immense; much of it is on-going, and much of it is irreversible (for example, see Beale & Fray 1990). We know, for example, of the exterminations (some intentional, many incidental to the project of colonisation), and we know of the 'acclimatisation societies' (see Griffiths 1997 on 'ecological imperialism'). We also know of the entangled histories of conservation, reclamation, preservation, the emergence of a politically powerful Australian environmental movement (see Robin 1998). Almost daily we encounter in the public media highly contested issues of what is 'best' for Australian ecosystems, and whose authority is 'best' in making decisions about them.

Alongside the specifically environmental issues there a fine body of literature analysing Settler Australian's relationships with place. I see three main sides to this issue. One is the actual question of belonging in a place where one's history is short, and which one occupies as the inheritor of violence (for example, Carter 1996, Gibson 1999). These are issues Peter Read (2000) explores beautifully in *Belonging*. In his earlier work, *Returning to Nothing* (1996), Read examined the underside of belonging – the vulnerability to which one is exposed when one comes to love a place, a home, a landscape, or a way of life. I must note as well that while the tendency is to imagine connection with nature as something that happens in the bush, there is also strong new research examining nature in the city (for example, Mathews 2000).

A second dimension concerns globalisation and place. Globalisation appears to devalue the local in favour of the global, and to offer connection either in virtual space, or through consumption (that is, through participation in transnational commodity chains). Ecological connectivity works against the virtual and against the commodity imaginary, as well as working against the transience and fragmentation of modern and post-modern globalising society. In the Australian context, Mathews refers to this connection with the local as a process of nativisation. Echoing the words of Burrumarra, she asserts that 'every human being has the 'right' to resist or overcome the existential alienation of modernity'. Overcoming alienation depends on the right 'to preserve or restore her relation of belonging to the world through a particular place' (Mathews 1999: 265).

A third dimension examines ecological connectivity in its embodied form. If we take connection as seriously as I am urging, then the vulnerabilities go deep. Consider,

for example, research with white pastoralists in South Australia, Central Australia and North Australia (Fergie 1997, Gill 1998, Rose 1998) which shows that there is a powerful set of metaphors that link people to place. The country 'gets under the skin' or 'gets into the blood'; people become 'married to' their country. This is the language of kinship mingled with a language of embodied nativisation. Such permeability opens persons not only to place, but to the substance and history of the place. The country that gets into people's blood invariably contains the blood and sweat of Aboriginal people as well as settlers. It may contain convict blood, and the remains of humans and non-humans. Embodied connectivity requires settlers to acknowledge our connections with indigenous people and with nature; to acknowledge that we are co-participants in earthly reciprocities of being, becoming, and dying.

Connectivity ultimately allows no free riding. The concept of the global is deeply significant in providing a context for the understanding that consequences displaced are really just consequences deferred. Robyn Eckersley addresses connectivity mediated by risk in her concept of a community of fate. She envisions new transnational and trans-species forms of the state in which some communities are context-specific and are defined by their shared potential to suffer ecological or biological harm (Eckersley nd: 18).

As Eckersley's work indicates, more inclusive concepts of justice seek to include non-humans within the domain of those to whom rights are owing. The focus need not be on harm, although risk clearly mobilises action. The extension of the concept of rights to non-humans, debated briskly in environmental philosophy for over two decades now, has led to theorising political representation for non-humans, and to theorising an ethics of care or an ethics of solidarity across species boundaries (for example, Plumwood 1999, Warren 2000).

The possibilities for dialogue with indigenous people is profound. Indigenous ethics speak to a world of sentient living beings whose passion for life is sustained in connection. From this starting point, one's responsibilities toward life might be most properly understood as responsibilities toward emplaced connections. This analysis lifts issues of justice from the level of the individual to a much more focussed and interactive level of place and connection. It follows that connectivity will require an

enhanced system of human rights as well as animal and ecosystem rights, one that includes not only individuals but relationships.

Connection as a mode of reason

Steven Muecke (1997: 184-5) offers us the view that connection is a way of reasoning that leads us to commitment. He provokes us to decentre (not abandon) Cartesian rationality in favour of a more inclusive set of logics. Connections are non-linear, and representation thus requires non-linear forms. It may be that narrative is the method through which the reason of connectivity will find its most powerful voice. This method offers the profound possibility of telling stories that communicate, invoke, and invigorate connections. My discussant, Tom Griffiths, is a master of this art, and I will defer to his skills on this issue.

We often hear that 'we' – meaning settlers, or westerners, or cybernetic age people – are in need of new stories. We need stories of our place in the biosphere, stories of the human organism as a living moment in connection with environment. We need stories of justice that enlarge our thinking, stories of relationships to place that enlarge our thinking. We need enlarged conversations with indigenous people, not only because we share the continent with them, but equally because they already have more expansive and connective concepts of the relationships between humanity and biosphere.

The point I wish to develop is cautionary. We would compound the Cartesian epistemological error if we were to ignore (or forget) that the world already has its own stories. Scientists approach this issue through theories of communication, proposing, for example, that all living things (cells, plants, bladderworts, etc) are expressive communicators (Hoffmeyer 1993). Similarly, the concept of autopoiesis depends on a theory of the communication required for self-renewal and patterned connectivities (Maturana & Varela 1980). In the social sciences and humanities we are challenged to foster an expressivity that is suited to the connectivities we are exploring and communicating, and that is both vigorous and rigorous.

Communicative engagement does not offer a license to make up stories. Rather, we need to expand our capacity to tell what Greg Dening calls true stories. The deep

imperative is to expand our epistemological repertoire: to find new forms of reason, and to rethink the research capacities of some older forms of reason: the reason of contiguity and association, or metonymy and phenetics (for example, Zimmerman 1996). The imperative, therefore, is part of the emancipation of oppressed knowledges through dialogical inclusion of marginalised western traditions (Plumwood 1993). It is also part of the decolonising of western knowledge in dialogue with other knowledge traditions (Apffel-Marglin 1996).

Ecosystems have their own integrity, their will to flourish. Living things other than humans have their own reasons, their own sentience, their own will to flourish. Our challenge in engaging in new ways of thinking and doing connectivity is to embed the human in the non-human, and to enlarge human conversations so that we may find ways to engage with and learn from the world's own expressivity and will to flourish.

The last word belongs to my friend and teacher Daly Pulkara (in Rose 2000: 202). 'We been listen to [your] story. You, you whitefellow, [you] can listen to story too.' The story he wanted us to listen to is clear but not simple: 'I tell you: nothing can forget about that Law'.

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