

Connectivity

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The need for profound change in our intellectual traditions is a part of the current re-examination of water management in the Murray-Darling Basin. The language of water management has changed to recognise the ‘environmental needs’ of the river, described as environmental water allocations or environmental flows. But this language continues to position the rivers as just a consumer of water, instead of the source of river water, and is in denial of our dependency on fresh water ecologies for survival.

Environmental philosopher Val Plumwood has argued that we need to investigate how such conceptual frameworks have made invisible the crucial support that natural systems provide humanity (Plumwood). Vast extractions of water from the Murray River have only been achieved by water managers mobilising knowledge frameworks that narrowly perceive river water as a resource for human consumption. As part of the antidote, Plumwood encourages us to engage with knowledge frameworks that bring into the foreground our relationships with nature.

We need to push the current re-examination of water management further, and move the focus to our life-sustaining connections with rivers; this is what I am calling ‘connectivity thinking’. Connectivity is a way of being in the world as described to me by traditional owners whose country is the southern part of the Murray-Darling Basin, although they refer to it as connectedness or being connected. Connectivity is also a term I have drawn from ecologists and environmental philosophers. It is intended as a conceptual framework that focuses on relationships, flows and connections.

Imagining an expanded ecology

In the academic literature, the concept of connectivity has its roots in the analytical work conducted by ecologists and focuses on relationships among all species and with their environment. Ecologists use connectivity to describe how animals and plants live in interconnected relationships, across multiple spatial and temporal scales. For the ecologists, connectivity is ‘the ease with which

¹ I would like to acknowledge the theoretical work of Deborah Rose as a major influence in the formulation of this paper, and the work of the Elders and traditional owners from along the Murray River who have taken the time to share with me their river philosophies. This paper is based in my fieldwork with an alliance of traditional owners—the Murray Lower Darling Rivers Indigenous Nations. The interviews were conducted between June and October 2004, unless otherwise stated, and were funded as part of a Land and Water Australia PhD scholarship. I would like to thank Rob Jansen and the anonymous peer reviewers for their comments on an earlier draft.

organisms, matter or energy traverse the ecotones between adjacent ecological units' (Ward et al, 129). The importance of the connection is emphasised rather than the substance of that which is connected. In landscape connectivity, spatial structures and habitat patches provide different species with different opportunities for movement. In floodplain river ecosystems, advancing and receding waters create a shifting mosaic of habitat patches. This 'hydrological connectivity' maintains a diversity of connected ecological zones over both time and space. This analytical work has critically countered narrow perceptions of water as an abstract resource for consumption, to focus on fresh water as a critical life force. However, this ecological connectivity is often represented as external, where humans are the only animals not included, much like 'wilderness' thinking. An expanded connectivity is needed to (re)position humans *within* a web of life sustaining relationships.

The conceptual habit of analytically removing humans from their environment is part of the nature/culture dualism—a way of thinking that hyper-separates people from the environment (see Strathern; Plumwood; Rose, *Reports*). In dualism two fundamental concepts exist in opposition to each other, forming binary pairs—for example, mind/body, male/female, rational/emotional, nature/culture, human/nonhuman, economy/ecology, tradition/change, subject/object. The problem with making distinctions such as nature/culture is not that distinctions are identified, but how the distinctions are organised into binaries, and then the binaries are hyper-extended into oppositional relationships. If humans are rational, then nature is mindless; if humans are active, then nature is passive (Rose, 'Connecting Nature and Culture'). The distinction is transformed into an insurmountable tension that cannot be resolved (Latour 58).

Plumwood has described this dualistic thinking as 'hyper-separation' (Plumwood 49) and philosopher Bruno Latour describes it as 'hyper-incommensurability' (Latour 61). The result is a highly flawed perspective that both increases human power to transform nature and limits human capacity to respond to ecological devastation. As Plumwood has argued:

[When] we hyper-separate ourselves from nature and reduce it conceptually in order to justify domination, we not only lose the ability to empathise and to see the non-human sphere in ethical terms, but also get a false sense of our own character and location that includes an illusory sense of autonomy. (Plumwood 9)

This is also a structuring of hierarchical power relations, with humans assumed to be dominating nature. By characterising nature as lacking human attributes—that is, mind, rationality, spirit, or the outward expression of these in language and communication—we can more easily deny our dependency on this presumed subordinate or alien other (Plumwood 10, 41). In an expanded

connectivity, we can move beyond considerations of a separate, subordinate nature to consider living ethical engagements within a dynamic nature.

Crucially, ecologists theorise connectivity as a subjective experience for all species. Connectivity for one species will be different from another, as each species has a unique experience of living in and perceiving their ecological niche or *umwelt* (Allen Allen and Hoekstra 169; Hoffmeyer 54; Manning et al. 622-623).² Thus, there are as many understandings of the world as there are species. The notion of *umwelt* reinforces the perspective that there can be no single understanding of nature. This scientific work on subjectivity and agency brings sentience to these newly acknowledged actors, where sentience is the capacity to have feelings and/or to feel sensations.

Anthrozoologists have made persuasive arguments that animals have feelings and thus are sentient. These arguments are extended by ethnographer David Anderson, who has theorised the myriad solidarities and obligations between people and places and animals as a ‘sentient ecology’ (Anderson 116). This ecology brings us into communicative relationships with the ecological world and extends the concept of personhood to all ecological life, not just animals. Anthropologist Timothy Ingold discusses how these communicative relationships evoke feelings of care, love and attachment toward the environment as toward another person (Ingold, *Perception* 69, 76). This establishes an emotional and ethical context for our ecological relationships.

Understanding a sentient ecology is critical to reorienting our engagement with fresh water ecologies. According to anthropologist Gregory Bateson, our survival depends on our understanding that we are coupled to our conceptualisation of our ecological relationships, and our ways of thinking and acting on them (Harries-Jones 8). Humans lose water constantly—we are not water tight—and we need to replenish ourselves or die. This is a ‘hydro-contract’, an inescapable biospheric life support that we need to work with to maintain ‘hydro-harmonies’ (Warshall 42-43). However, the conceptualisation of water as an abstract unconnected resource denies these connections between water and human survival.

To deepen our understanding of an expanded connectivity, we should explore conceptual frameworks that are not entrenched in a history of dualism. The traditional owners of the Murray River have inherited Indigenous knowledge frameworks that have only recently been transforming through engagements with dualistic knowledge traditions. The traditional owners speak of a connectivity that encompasses, and goes beyond, food web dependencies to include stories, histories, feelings, shared responsibilities and respect.

² *Umwelt* was originally articulated by Estonian biologist Jakob von Uexküll.

Water connections: complexity and the ecology of life

In their interviews with me, the Elders reminisced about times past when their lives were connected to the rivers through the essential act of drinking the water and eating the plants and animals that also lived by the river. Ngarrindjeri Elder Agnes Rigney grew up in what she called a 'semi-traditional' lifestyle next to the Murray River at the Swan Reach mission. Here, the Murray supplemented mission food with fresh water, fish, yabbies and waterbirds. This subsistence economy was mixed with the welfare economy provided by the missions, as well as the traditional owners' involvement with the market economy. As Agnes talked about her experiences, she expanded connectivity to include a merging of the river with her own body. Agnes continues to live near the Murray today:

I don't think I can be far away from the river because the river I believe it is in my blood. It is a part of me. I was born on the river. I have lived on the river all of my life and I am an Elder now. I wouldn't be happy too far away from the river ... We are all part of the food chain, and that's why I say I feel a part of it—well I am ... The river gave us life, the river fed us.

Agnes is expressing connectivity as an embodied experience. This relationship includes her daily lived experience next to the river, full of sensory encounters such as sight, smell and touch, as part of her intimacy with the river. Such comments can also be heard from settler Australians who have long and intense relationships with a specific environment. They talk about the way the place gets into their bones or into their blood (Rose, 'Fresh Water').

Agnes places herself *within* a relationship of connectivity with the Murray River. This is a perspective that moves beyond an understanding of the world as separated into spheres of human and natural, to an understanding of a world in which our being and the environment are bound together. This is not taking a view of the world, but is 'taking a view *in it*' (Ingold, *Perception* 42; emphasis in original). This relationship with the environment is a dynamic experience of life and survival. It is not a simple addition of our being to the environment, rather it is an acknowledgement that 'we' affect the environment just as the environment affects 'us'. We do not simply live together, side by side, as a matter of coincidence, but our form and being are interconnected. Our being and the environment are active, alive, and respond to each other through multiple fields of relations, and these interactions influence the form of the relations (Ingold, *Perception* 19).

This experience is not exclusively human; it is an experience shared by all life forms. Different species have developed close symbiotic relationships in which they are co-dependent for survival. For example, lichen is not a single organism, but a combination of fungus and algae growing together in symbiosis—a mutually

beneficial connectivity. Other connectivities may be beneficial in primarily one direction, as when insects lay their eggs on eucalyptus leaves. Such seemingly small connectivities can be expressed on much larger scales, as their lives encounter innumerable links with other lives, including the exchange of energy in food webs. Environment and living things make exchanges through webs, clusters, knots, loops, ripples, waves and curves. Gaps in these interactions permit the creation of distinctions and differences (Harries-Jones 14). For example, the furthest reach of the floodwaters creates a distinct ecological boundary. Acknowledgement of these holistic and diversely interconnected relationships is an approach to ecology which Ingold has summarised as 'the-whole-organism-in-its-environment'. Ingold calls this 'the ecology of life' (Ingold, *Perception* 18-19).

Connectivity not only ensures that life benefits ramify, but can also become a conduit for damage. This has happened with the 'white death' that is salination, which occurs through the rupturing of certain connectivities while other connectivities remain. Salinisation is a process wherein agricultural land becomes so salty that it cannot support life. The salt occurs naturally in the landscape and it is dissolved and brought to the surface when the water table rises. The water table is rising on farm lands often due to excess irrigation water being added to existing groundwater and/or the clearing of deep-rooted vegetation which previously regulated the water table by drawing down the ground water. When the water that rises from below evaporates from the surface, the salt that is carried with it is left behind.

Agnes brings us into this world of salt and water by talking about the river flowing through her veins. Agnes's world view reveals to us what Bateson meant when he said that an organism that destroys its own environment is committing suicide (cited in Rose, 'Connecting with Ecological Futures' 3). Agnes places her life within her relationship with the river.

Sentient beings, sentient ecology

When Agnes explains that, 'the river gave us life, the river fed us,' she is describing that relationship as a caring and giving one. It is an appreciation of the river as sentient, bringing agency into focus. Indeed, many of the traditional owners attribute the capacity of the river to sustain life to a life force that is the river itself. This capacity for feelings can be extended to all things and, in the broadest sense, country is appreciated as being alive and having the capacity to act. Rose describes Aboriginal understandings of country as a 'nourishing terrain', which both gives and receives life, and is lived in and lived with (Rose, *Nourishing* 7).

Being responsive to extra-human agency is something Yorta Yorta man Lee Joachim talked to me about at length. Lee Joachim's country is centred around

the Barmah-Millewa Forest, which is a large river red gum forest on the Murray. Lee understands his relationship with the Murray River as a relationship held between sentient beings:

The importance of the river is to ensure that it is seen as a continuing living being. That it is respected like any other person should be respected. It has got the ability to cleanse itself. It has got the ability to nurture itself. And it has got the ability to ensure that the life that it touches upon also has an ongoing process ...

Lee brings the river into the foreground. This perspective moves away from a world where humans transcend nature. By extending the recognition of power and agency to all living things, Lee grasps a dynamic world in which humans and other beings participate.

The importance of extra-human actors in the world was something I was introduced to by the traditional owners. Early on in my research in Murray River country, Yorta Yorta woman Monica Morgan critiqued the United Nations' approach to protecting a human right to water, by saying that such approaches went 'too much the other way'.³ Monica explained that the UN approach misses the point about respecting country by recognising the importance of water bodies only in terms of human needs (UN). Monica critiqued this analysis that denies the agency of living beings other than humans. To extend her idea: if nature is just matter, then nature is neither hostile nor friendly but rather indifferent to our interests; it is thus possible to exploit nature without regard for its agency or interests (Matthews 14, 32). Such perspectives enable people to transform nature without considering the ethical consequences.

Lee Joachim linked his argument that the river has its own agency to his other argument that this agency demands its own respect. By appreciating the river as alive, as a sentient being, as a person, Lee wishes to inspire in other people feelings of empathy, care and respect towards the river. Lee has argued that this understanding is critical to transforming the way the river is appreciated in Australia. As Lee says:

They must see that there is a connection to everyone's life through the rivers and through the environment attached, that is an ongoing care and recycling of themselves and a continuation of life within that. But they just don't seem to be open to the fact that the river can speak for itself, and the country can speak for itself.

This is a communicative relationship: the river and country not only have agency, but they communicate this agency to us. Lee brings all people, Indigenous and

³ Comment in a meeting of the Murray Lower Darling Rivers Indigenous Nations at Swan Hill in September 2003.

settlers, into this relationship. Our survival depends on our ability to respond to this communication. Such comments describe the inland rivers not as passive instruments or neutral surfaces for human activity, separate to human existence, but alive with the agency of many other beings, innately connected to our own human life.

I asked Lee what he meant by the river and the country being able to speak, and Lee explained that the crickets and the frogs did not make as much noise anymore, 'those noises that tell you that they are alive and well', and the animals and the fish had disappeared. Their absence is now communicated by silence. Lee described a sentient ecology where listening is part of being connected. These communicative relationships are critical to informing our responses to ecological devastation. As outlined by Rose:

... to listen is to be drawn into a world of ethical encounter: to hear is to witness; to witness is to become entangled. (Rose, *Reports* 213)

For Lee, country is speaking loudly to him about connectivity and loss, and Lee is ethically compelled to respond.

When nature/culture meets ancestral creators

One of the most significant aspects of connectivity is that it offers an alternative to knowledge frameworks that hyper-separate nature and culture. Anthropologist Marilyn Strathern has described how the nature/culture distinction is part of the modern habit of engaging with concepts as oppositional relationships (Strathern 186, 179, 190). Strathern points to the lack of consistency in the images of nature and culture in western constructs, as evidence of how the distinction is struggled with in western thought:

There is no such thing as nature or culture. Each is a highly relativised concept whose ultimate signification must be derived from its place within a specific metaphysics. No single meaning can in fact be given to nature or culture in western thought; there is no consistent dichotomy, only a matrix of contrasts. (Strathern 177)

Seeing the world as connectivity addresses the separation of culture and nature because connectivity places people (and their culture) *within* relationships with the environment (or natural world). Our minds are not suspended from a reality that we then must try to understand externally, but our whole selves experience and apprehend the world as a part of living in it. This is not to say that we cannot objectify the world. As Sillitoe has argued:

All humans are capable of abstract thought and have notions of causality, that they can suspend prior beliefs and will revise these if evidence suggests that they are wrong, even if counter-intuitive ... All cultures accumulate and interpret knowledge rationally according to their value

codes, although until we appreciate these latter it may seem otherwise.
(Sillitoe 3)

What connectivity thinking additionally acknowledges are our sensory experiences: connectivity breaks from abstract thought to acknowledge the palpable links that exist between mind and body. The intellect is inseparable from our feelings and experiences of living in a sensory world (Harries-Jones 5).

Some anthropologists argue that the world is socially constructed by humans, and as humans we can only know our perceptions; and that we can never know the world as it is. As anthropologist Roland Littlewood has argued:

We determine only in part what we call our environment, but we determine our experience of it, our human world. 'It' determines us, we 'are' it, but this 'it' is only an 'it' through human procedures, shared with our fellows. (Littlewood 122-23)

Not all anthropologists agree with Littlewood on the nature/culture divide, and this is actively debated in anthropology (Ingold, *Key Debates*). Ingold has argued that the world is not 'free-floating' and separate from us, but is 'coming into being through the activities of *all* living agencies.' (Ingold, 'Human worlds' 139, 141; emphasis in original).

When Matt Rigney looks out in Ngarrindjeri country at the Murray River in South Australia he can see where his ancestral creator Ngurunderi chased the giant pondee down the small stream that was the Murray River back then. Matt's country is down at the Coorong, where the Murray River pours into the Southern Ocean. Matt connects the Ngurunderi creation story to the ecological life of country, his position within this life, and to his rights and responsibilities to look after country:

[This story] tells us how our country was created and what was the purpose of the creation—it was to sustain life, to give life, and to create an environment that sustains us in that way. Like the bird life, the animal life, the plant life. So I have an inherent right, a cultural right, and a responsibility to make sure that those things are maintained and continue to survive and live for the duration of time. It makes me who I am. Ngarrindjeri man. It is my responsibility as a Ngarrindjeri man to make sure these things happen, and that our culture and spirituality is not disconnected from the river and the waterways.

For Matt this is not just knowledge held in his mind, but knowledge held in country and experienced through the senses, as part of long held sensitivities and orientations of living within an environment (Ingold, *Perception* 25).

Alternatively, this Ngarrindjeri creation story could be described as a cultural perspective, which comes from a culturally constructed discursive world, and is projected onto the natural world. That is, the creation story has its origins in discussions held in Ngarrindjeri cultural life and is a Ngarrindjeri-constructed interpretation of the natural world. In this view, the connections that Matt observes are romantic or religious, but they are not 'real' or scientific.

In order to place this cultural perspective onto the real or objective world, Matt would have to be able to step outside of the environment within which he lives. For an observer then to observe that this creation story is a cultural perspective and not part of the environment, the observer would have to be able to take an additional step outside of both Matt and the environment (Ingold, *Perception* 14). Matt, however, is not taking any such steps and instead is embedding himself in relationships with the natural world and identifying the causal and connective relationships:

We are of these waters, and the River Murray and the Darling and all of its estuaries are the veins within our body. You want to plug one up, we become sick. And we are getting sick as human beings because our waterways are not clean. So it is not sustaining us as it was meant to by the creators of our world.

Dreaming stories are the epitome of a sentient ecology. They describe country not as inert resources, but as a lively narrative with immanent ancestral beings. This is a way of understanding country as part of cosmic energy, within which the traditional owners have certain responsibilities. This connectivity brings to the forefront the life-sustaining co-dependences held between all living agencies, and the traditional owners look to country to tell them about their own lives. A healthy country tells the traditional owners that the ancestors are happy and that they are managing their rights and responsibilities. But if country is sick, then so are the traditional owners—sick with the diminishment of life.

Death and dying are parts of the recycling of life by the rivers, but this is a death that breaks down the life-supporting connectivities. In this death there is no connection to the re-generation of life.

Everywhen, everywhere

In South Australia, Ngarrindjeri Elder Richard Hunter told me that he could see beyond the loss that is the damaged landscape to the beauty of the Murray River:

Well I have got a good dream of what they done back there. But I know I'll never get to show it to you today out there. But I still sit there with the beauty that I know is there, and I'm never going to lose that ... That is the beauty of the land. We can see the beauty, what the rivers were before, and the tall trees. They talk about the damage that has happened

now, but we were still taught how to have the skill to see the beauty that is there. Even though it is not there physically, but it is, because you know what it was like before. Before Europeans come here.

Richard, it seems, is saying that connectivity of life is still there, in contradiction to the view that we are heading towards the death of connectivity. This life has an enduring presence that is more than physicality; it is a presence that cannot be killed or destroyed. Richard can go there in his mind's eye, seeing through today's salty silted Murray River to the beauty of a living enduring river. The power of the river is a force of life beyond physical manifestations. Perhaps this is a reference to the Dreaming, although Richard did not say so to me. The Dreaming is the time of creation, but this sacred time is not situated in the past, it is ongoing, it is 'everywhen' (Stanner 228). Or, perhaps this is a vision of what can be—neither the past nor future—a potential.

This is the vision of one man about the resilience of the river country. Such visions sustain people in the work of restoring the river country. Agnes, Lee, Monica, Matt and Richard together with many other traditional owners have lobbied the government for the return of water to country.⁴ In their work to respond to ecological crisis the traditional owners reveal their resilience, interconnected with their belief in the resilience of the river country. The traditional owners are open to the importance of these relationships, and the power of the river as the key agency in river restoration.

It is easy to characterise, and then dismiss, the connected perspectives of Indigenous peoples as a chaotic or undifferentiated view of a world that cannot be read or quantified. Instead, as Debbie Rose has argued, Indigenous peoples' philosophies are not simply the view that 'everything is connected to everything', but rather, that everything is connected to something, and there are patterns of connections: healthy, torn, patchy and intricate (Rose, 'Connecting Nature and Culture'). It is possible to follow connections and to make distinctions; to differentiate so as to analyse, understand, respect and objectify the world. Moreover, once we can understand that our lives are held in the hands of other beings, and vice versa, we have the groundwork for building ethical obligations between species, and between all sorts of life forms (Rose, 'Indigenous ecologies' 175).

We need to broaden the conceptual frameworks that dominate today's water management regimes, so that we can respond to these important relationships when they are threatened. Rather than elevating consumptive water use as the pre-eminent or sole relationship with water, we can reposition this water use within the connectivity of life. Crucially, water is not just another participant in connectivity, but is a key connecting life force because all living things need

⁴ See further www.mldrin.org.au, and Weir and Ross 2007; Morgan et al. 2006.

water to survive. The life supported by water is not through weak or distant networks, but strong life-giving connections. By denying this, current water management has led to the destruction of many life-giving relationships sustained by fresh water ecologies. 'Connectivity thinking' makes visible this dependency and is fundamental to building an ethic of and commitment to river restoration.

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