

Chapter 4

Nature, networks and desire: Changing cultures of water in Australia

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'We are in the middle of a desert and we get rain twice a year if we're lucky for an hour-and-a-half at a time.' (Keith, Alice Springs)

'We're not short of water here.' (Tom, Alice Springs)

'I love water [laughs]. I think I have a fetish about watering gardens ... I just get extreme pleasure out of being in the garden.' (Jacqui, Wollongong)

I have recently been analysing urban Australian relations to nature through the lens of the backyard garden. The quotes above are from three study participants, interviewed by team members during fieldwork in 2002–3. Water surprised us by emerging as one of the most important aspects of people's domestic environmental engagements. Nearly five years later, this consciousness is less surprising and likely even more entrenched.

Keith is referring to Alice Springs' average annual rainfall of 286mm. He is apparently well attuned to the realities of living in the centre of the driest permanently inhabited continent. He has learned to live with nature, since it is nature that delivers his water. Tom, on the other hand, is talking about the unrestricted water supply provided by the Roe Creek borefield and piped to domestic houses. He understands well where his domestic water comes from, via the complex infrastructure tapping into the Mereenie aquifer outside town. This can be understood as an eco-socio-technological network (a hybrid, or assemblage, in Latourian terms). In such a network, nature is just one component, and then one that is only constituted by virtue of its relationships to other phenomena.

Is it nature-thinking or network-thinking that will serve us best in providing sustainable urban water supplies in the next century? In this chapter I argue that many urban Australians have a well-developed understanding of our low and variable continental rainfall patterns and the necessity of adapting to these conditions. This consciousness ('nature thinking') influences patterns of practice towards reduced water consumption in ways that policymakers would be pleased about. Examples of such practices are outlined here. However, because it

represents a disconnect with the complex infrastructure of domestic supply in urban contexts, it is unlikely to be as resilient to changed conditions as 'network thinking'. In what follows, I demonstrate detailed understanding of, and intervention in, networks of water supply and usage in the context of the backyard garden.

In contrast to a number of other environmental issues which stimulate more polarised responses, a commitment to reducing water consumption was shared across the diverse study population and manifest in a variety of changed practices. That such indications were present several years ago, at the beginning of the current drought, suggests substantial underlying support for stronger government action on water.

However, for many people their aspiration towards water-saving practices is in tension with the pleasure derived from water, and their expressed desires for more watery environments, as exemplified in Jacqui's quote. Summarised around the concept of desire, this trend is explored here as a contradictory pressure to that of water conservation. It is exacerbated by the consumptive forces of capitalism.

Cultural geographies of water

In arguing that there is a significant cultural shift occurring, I am not discussing here the actual levels of water consumption. Rather this is a complementary perspective that seeks to understand everyday practices and habits, and the processes that reinforce or change them. I am influenced by Shove's argument for a shift in the focus of social environmental research 'so as to comprehend the collective restructuring of expectation and habit' (Shove 2003: 4). Through a detailed focus on everyday practice, Shove shows, for example, how changes in what is considered 'normal' with regards to personal cleanliness and laundering have implications for water and energy consumption. Everyday knowledge and practice is an important issue for water managers in urban areas, with, for example, garden use accounting for 25 per cent of all household water use in the Greater Sydney area (Sydney Water 2003), and over 60 per cent in Alice Springs.

In bringing to awareness 'routinised' habits and interactions, retrieving them from the wordless background of 'practical consciousness', and subjecting them to scrutiny and reflection' (Sofoulis 2005: 448), such research provides an important complement to more quantitative analyses of both attitudes to and consumption of water (for example, Kolokytha *et al.* 2002; Nielsen and Smith 2005; Hurlimann and McKay 2007; Zhang and Brown 2005). As Sofoulis (2005: 448) argues, 'who normally entertains an attitude about a tap, a drain, or a sewage pipe?' Yet it is precisely everyday objects such as these that connect consumers and householders to the wider socational networks that constitute 'waterscapes'

(Swyngedouw 1999), so understanding habits of interaction with taps, pipes and buckets provides a crucial analytical link. Further, an emphasis on everyday practice can throw light on contradictory behaviours such as observed differences between attitude and practice (Askew and McGuirk 2004; Sofoulis 2005: 446), unrealistic perceptions by consumers of their actual water-consumption levels (Kolokytha *et al.* 2002: 399) and the use of discursive strategies to justify or excuse environmentally damaging practices (Kurz *et al.* 2005).

The study contributes to a growing body of work examining commonalities and differences in cultures of water (Strang 2004; Allon and Sofoulis 2006; Jackson 2006; Gibbs 2006). The theoretical framing draws on moves within geography and elsewhere to go beyond ideas of nature and society as separately constituted entities. New conceptualisations framed around hybridity and networks, as articulated for example by Latour (1993), Swyngedouw (1999) and Whatmore (2002), provide lines of approach to the complex entanglements of humans and nature, and to earth-surface processes pervaded by human agency. In an age of accelerating urbanisation, some of the most stimulating work illustrates ways in which cities are themselves saturated with non-human nature, and enmeshed with non-urban landscapes through intricate networks for the transfer of goods and services (Cronon 1991; Swyngedouw 1999; Gandy 2002; Braun 2005; Heynen *et al.* 2006).

I build particularly on the work of Kaika (2005), who has provided an important study extending analysis of the modernist urban denial of nature to the space of the home, using the example of water. She argues that:

[T]he social construction of the Western (bourgeois) home as an autonomous, independent, private space is predicated upon a process of visual and discursive exclusion of undesired social (anomie, homelessness, social conflict, etc.) and natural (cold, dirt, pollution, etc.) elements ... while the familiarity of the bourgeois home is dependent upon the visual exclusion of social and natural processes, the very creation of the safety and familiarity of the modern private home is nevertheless predicated upon the domestication of natural elements (water, air, gas, etc.) through a socio-economic production process. (7–8)

Kaika makes the point that while the processes of social exclusion in and around the home have been extensively studied, for example in Sibley's (1988, 1995, 2001) influential work on socio-spatial classifications and boundaries, the exclusion of nature and socio-natural processes have not been adequately researched or documented (52). The above studies draw in turn on the work of anthropologist Mary Douglas (1966). In illustrating how different cultural groups order the world, Douglas argued that the classification systems (albeit themselves all different) leave certain things not belonging. In different ways, these come to be labelled 'dirt'; that is, disorder, or matter out of place. Kaika argues that:

'Natural elements are not in fact kept altogether outside the modern home; but rather are selectively allowed to enter after having undergone significant material and social transformations, through being produced, purified, and commodified' (Kaika 2005: 64).

Thus water is purified to become 'good' nature before it enters the house, and once it becomes 'bad' nature, in the form of sewage, it must not only be removed, but be visually excluded. In fact, of course, both the purified water and the sewage are hybrid forms dependent on complex material and social networks. The familiarity and comfort of the bathtub or swimming pool, Kaika argues, require those networks to remain invisible, and the space of the home to remain clean and pure.

A number of recent studies have analysed 'droughts' as complex events in which rainfall scarcity, public discourse, changing regulatory regimes, technological networks and private behaviours are entangled (Nevarez 1996; Haughton 1998; Bakker 2000; Kaika 2003). Full discussion of these wider networks in Australia is beyond the scope of this paper, but our fine-grained focus here on household behaviours provides important points of intersection with these other studies. Consumer resistance to water-conservation measures, and continued expectation of water as a 'naturally' abundant good, has been documented in cases where there is a lack of confidence in a privatised supplier (Haughton 1998: 426; Bakker 2000: 16) or a discursive disconnect between the householder and the networks of technology and supply (Strang 2004; Kaika 2005). In Strang's analysis, the combination of privatisation of supply, water technology that encourages visions of an unlimited resource and increasingly individualised social lives has created a situation where, 'domestic users are ... impervious to efforts to conserve water' (208). As a site where these networks are rendered partially visible and with which people engage on a daily basis, Australian domestic gardens provide a contrasting example; they are both arena and agent of changing practice.

Context and methods

The broader study is of 265 backyards and 330 backyarders (a number of couples were included) in Alice Springs, Sydney and Wollongong (Head and Muir 2006, 2007). Our sampling strategy was designed to encompass the socioeconomic and geographic variability in each of these areas (Commonwealth of Australia 2002). Participants were recruited through media advertisements and appeals, letterboxing, snowballing from other participants, and by liaising with community groups. Each backyard was visited and a semi-structured interview undertaken on site with the participant/s by one of a team of three researchers. Questions related to the activities of different members of the household, changes that had occurred over time, people's feelings about the space, what sorts of plants and animals were considered to belong, wider environmental attitudes

and practices, and major influences. None of the initial questions was explicitly about water, but water emerged consistently in conversations about a variety of topics. The backyard was mapped and photographed, and checklists on the demography of the household, the structures in the backyard and the biogeography were completed. The interviews were transcribed and imported into the qualitative data-analysis program, N6. Initially, all water comments were content-coded for the context in which they were talked about and the practices described. Using a discourse-analysis framework, we coded for different kinds of motivations and investments.

Water and other 'environmental' issues

The period of fieldwork, 2002–3, corresponded to a time of significant drought onset in south-eastern Australia. By the end of winter 2002 there was considerable discussion of the drought in the Australian east-coast media. However, people were already talking about water well before this, and it seemed to us as interviewers that the drought sharpened an existing consciousness rather than creating a new one. Media influences in relation to water consumption and the drought were diverse and pervasive during this period. Messages about water consumption came through all forms of everyday media, even down to the reporting of dam levels on the TV news. With the imposition of water restrictions there was extensive advertising in the daily press, as well as mail-outs to individual households.

In contrast to the diversity of their views on other issues (for example, the role of trees, the importance of native species, love and hate of lawns), recognition of the importance of water conservation was the nearest thing to a shared environmental commitment across the study population. While a few thought 'the government' or 'they' should have built more dams, none contested the idea that as a society we need to change our ways when it comes to water. This is consistent with Kurz *et al.*'s (2005) finding in Perth that 'water was constructed as being a finite, precious and shared resource that must not be wasted' (616), in contrast, for example, to energy resources.

Water as nature: The arid-continent consciousness

Water is threaded through Alice Springs participants' responses with greater frequency than in the coastal interviews in Sydney and Wollongong, relating not only to the supply of water but also to detailed observations of weather and rain events. Comments about how much or how little rain has fallen were made in over 80 per cent of Alice Springs interviews, compared to 35 per cent for Sydney and 45 per cent for Wollongong. For example, Keith's teenage son Matt commented: 'This year we've had three millimetres since January 1st, nearly six months. In six months we've had three millimetres.'

A number of the coastal participants also referred to the aridity of the continent as an influence on their water-consumption patterns. These references tend to be spatially removed from the person's current location, and lack the detailed rainfall references of the Alice Springs participants. They are perceptions of a more generic, continental awareness of aridity.

I think a major, major, major issue with the Australian environment is water. I think most of us don't really accept the fact that this is a really, really dry country and we use water as if it's really abundant and that's going to be a big issue for the next ten, hundred years, who knows. (Sue)

'The biggest problem this country has is the lack of water', said one woman, who went on to connect her present water-saving practices to a childhood on the land and the normality of scarcity. The connection to rural or agricultural childhoods and living with tank water was common.

For many of the Alice Springs participants, particularly those who have moved from elsewhere, it is the rarity or lack of rainfall events that acts to disrupt customary patterns, leading them to re-evaluate their consumption and consider alternative strategies:

We first noticed when we moved here, people don't have gutters and when it rains there's all this water going everywhere, big sheets of it. It was amazing that people didn't have bigger tanks and collect the water. But water's cheap here and it's from an aquifer. It's non-renewable. It's about 20 000 years old. (Brad)

I think I calculated that about three centimetres of rain will fill up the tank ... which is a typical summer downpour here ... And also if we can harvest some of the water that is falling in our backyard and use it, that's just saving what is actually a non-renewable resource out here essentially, which is the Mereenie bores which have only got 20 years left of water in them at the current consumption rates. (Michael)

Several coastal people related awareness of the harshness of the Australian environment to a more specific experience in their lives.

Dave and I went travelling around western Victoria and NSW on a motorbike before we had kids and there were a lot of areas out there that were badly affected by drought ... I was totally shocked and just seeing animals that were dying in paddocks, and I can still recall the smell, it was just so bad. And I think we came back here and I think we were just like "that's amazing", we just take it for granted so much and we are living in the driest continent so we're looking at water tanks for the front and the back and for recycling as much water as we can. Yeah, and I think even when the drought breaks, I think we'll continue doing it. (Maureen)

We travelled across the Tanami [Desert] last year and I gained a sense of the real fragility; it gave me such a deep sense of kind of touching almost the womb of the land and realising how fragile it is, how precious things like water is and we're looking at a way to put water tanks in. (Maggie)

These stories demonstrate direct links between a specific life experience and a willingness to change consumption patterns. Both Maureen and Maggie seem to have used that experience to 'come to terms' with a dry Australia, but the connections are totally symbolic. The connection between the Tanami and Sydney in terms of water is, in a material sense, far-fetched. Using water tanks in Sydney will not save water for the Tanami. There is no strong relationship between water availability in the two places, either in terms of where the rain falls or where the storage and distribution infrastructure moves it to. A similar symbolic power is in operation when Barb tells her teenage daughter in the shower to 'save some water for the farmers, Jess'. She is expressing a broad consciousness of the arid continent rather than a belief that if Jess showers for less than 20 minutes in Sydney, the farmers in western New South Wales will actually get the water.

A further dimension of considering water as nature, or a purely natural resource, is in descriptions of changed behaviour in response to drought. There were many examples of this among the coastal participants:

Well I don't believe in watering the garden in the summer months when there's a particularly bad drought and quite a bit of the front lawn died this year completely. The buffalo died out completely there so I thought 'well, why maintain it?', because being light sandy soil there, the moisture drains out of it very quickly. (Ted)

But once the building work was finished I was going to put the lawn in but that was in the middle of the drought last year; it was last July so I just thought it was really silly to try and put a lawn in with the dry weather so it looked pretty horrible for months and months. (Trudy)

This is not to deny the power of the symbolic connections or of the practices altered to adapt to an observed scarcity of water. However, it is appropriate to question how deeply such practices are likely to be embedded. Will Jess lengthen her showers when the farmers are in flood? Will Ted and Trudy return to watering their lawns once it rains? The idea of water as pure nature is expressed in broader community debates that focus on the abundance of 'wasted' or 'unutilised' water in Australia's north, with naïve and simplistic suggestions to transport it southward (or transport agriculture northward).

Networks of water: Abundance or scarcity?

In Kaika's (2005) reading of urban environments, the networks of water supply are hidden from or ignored by domestic consumers until something goes wrong. Yet both on the coast and in Alice Springs there is often quite detailed knowledge of these networks, whether for the drainage of excess or conservation of scarce water. A number of people explicitly visualised the pipes that brought the water to different parts of the house and garden, and recognised the implications for conservation.

Because our ensuite is right at the front of the house, you can use two-and-a-half litres of cold water before you get your hot water through. So we trap that water as well. The same at the sink here at the back. It's just the set up of the tap. You turn it on. You hear the water coming through. You do what you have to do, you turn it off and it keeps on running. So again we've got a bucket in that sink and we trap all that water. For quick rinsing and stuff like that I just rinse my hands in that. So you get four litres of water in no time. (Robert)

I would take a big bucket up and put it in the shower and when you turn that tap on, I mean your hot water has got to come from the hot water service which in our case is sitting there in the corner of the garage. So you've got a couple of gallons that comes off before the water is hot and then I would carry it down and water the garden or water something in the garden. (Mrs Heywood)

An important reason that people have detailed knowledge of the networks is that they are active agents within them. Participants recounted both creative and banal strategies to conserve and reuse water: the jug beside the sink, the bucket in the shower, the basin of vegetable-washing water, letting the lawn go, not planting annuals, water-saving shower heads, rain-soaker crystals, mulch and water tanks. 'Water-gathering' is the term we use for a loosely defined set of practices that were informal, irregular or unstructured in nature and differed from participant to participant.

Even from ... the washing machine I tend to collect the water with buckets, you know, for the garden, water the trees and the lawn ... At the moment because of the drought we haven't had much rain for many months so even when I have a shower I have a bucket underneath it to collect the water and water the garden. The other thing is even when I wash the vegetables in the house or I wash my hands I tend to have a bowl or a basin underneath it to collect all the water. (Emily)

For Emily and a number of people, responses to the drought built on longstanding practices based on an ethic of not wasting. Several elderly

Macedonian women in Wollongong shared a generational practice of collecting water in buckets for use on their extensive vegetable gardens.

In Alice Springs, over 80 per cent of participants discussed the supply of water from the borefields, and the fact that it has a limited lifespan, although they had a range of views on how long it would last. In these conversations participants reveal a depth of knowledge of the technological networks of provision, discussing pumping, depths, capacity, as well as capital costs, rates of consumption, and comparisons to other parts of Australia. Implicit in this detail is a concern for the amount of water used by themselves and Alice Springs residents generally, focusing on change and extending to discussions on current and future direction regarding the government's water strategies. As one participant said of the community as a whole, 'consciousness has definitely shifted'. An example of someone with a good understanding of the network is Tom, whose quote opened the paper. A long-term resident of Alice Springs, he is conscious of the challenges of living in an arid environment, while maintaining a level of comfort through the provision of shade and water in his backyard:

But currently, Alice Springs, we're not short of water here. The aquifer that Alice Springs uses to supply domestic water isn't small. I guess it's just a cost factor. So the government and authorities here encouraged people to have water-efficient gardens. You can do that with drip irrigation and the right selection of plants and still have a nice green garden like we have without having a huge water bill. It's the cost of managing the demand for water in Alice Springs that's the issue. If people consume excessive amounts of water here, it's going to cost the government more to expand the borefield that they're using and put new bores down and harvest the water there. So they're trying to manage water use for conservation reasons and also for economic reasons. But there is no actual shortage of water. (Tom)

On the other hand, Keith's observations of rainfall outlined above do not necessarily translate into reduced water consumption when combined with a busy lifestyle: 'So who has time to garden? ... I like the no-maintenance garden, you know, press the button on the American-style sprinklers and that's about all you have to do, leave it on the set timer.'

Those participants who discuss the socioecological networks reflect on long-term changes, particularly towards increasing demand. An important part of any water network is 'government', who were frequently constructed discursively as poor managers of the precious resource of water. This enabled some to distance themselves from any responsibility to 'fix the problem'. For others, the relevant policy-makers were considered to be a long way behind community consciousness and preparedness to change. For example:

[T]he government at its policy level has decided that it doesn't want to put water restrictions on or actually charge people what the cost of the water is, because they are trying to encourage people to come, and it's part of the frontier mentality that we still have in the Territory. (Peter, Alice Springs)

If there is little incentive beyond a moral one for Alice Springs residents to conserve water, and more costs are incurred than elsewhere to establish water-storage infrastructure, the water consciousness is even more striking. It indicates that both nature-thinking and network-thinking are strong, in different combinations. Indifference was rare. On the other hand, the diversity of understandings about exactly how sustainable the Alice Springs water supply is reflects a particular requirement of good network thinking; that its multiple connections and pathways be well understood.

Dilemmas and desires

Backyarders articulated a set of sensual and embodied engagements with water. It is a part of nature that is usually a source of pleasure, as illustrated first by discussions of the pleasures of watering, of which Jacqui's quote is an example. A number of women described a time of relaxation at the end of a day's work. This enjoyment of watering goes so far as to influence the watering systems they install, several describing deliberate decisions to not install drip-irrigation systems in at least part of their garden so that they could continue to enjoy hand-watering. Themes of pleasure, tranquillity and meditation came through in these conversations:

I water a lot in summer and when I'm miserable I talk to the plants; I go out and let the plants cheer me up. And they tell me when they're thirsty or over-watered. (Betty)

At least a few times a week I get out there in the morning and I water the garden. For me that's before I start my day and that is a very pleasurable activity, and as I water the different pots that are on the wall I check on the wellbeing of the plants just to see how they are travelling ... and they're like my babies. And so I start my day with that uplifting experience and that's a major activity for me ... I jog around the street, come back here and while I'm cooling down I'll water the garden and just check on the health of everything. (Patrick)

As Patrick indicated, this is a time when detailed observation of processes occurs. People do not just water; they observe the activities of ants and monitor the growth of plants. This is something that is lost if watering is an automated process in which the human does not have to participate. However, these are certainly not universal feelings. Jessica, for example, said: 'I hate watering. Some people love standing there with the hose and I hate it.'

In the Alice Springs context a strongly connected theme was shade, the necessary labour of creating a cool, green oasis. Long-time residents have watched the town change from the early days of bare-dirt backyards to a city with green lawns and automated sprinklers. Kerry, who has spent most of her life in Alice Springs, is aware that the changes in technology have created the demand for something that was previously not possible, but a past ethic of frugality has been usurped by habits and practices that are now well established and provide pleasure: '... we do keep getting told that it is not a renewable resource and it will conk out. But yeah, it's a bit hard to think in those terms when it's there. And the water is actually very good ... it's just so nice to do that, you water by hand.'

An extension of these pleasures is that participants voiced desires for more water in their everyday environments; swimming pools, ponds, streams, and water features were called on to bring serenity and the touch of water. Such desires are both fed and gratified by the lifestyle industry. Water is very clearly connected to visions of a nature that is tranquil and peaceful. In speaking about water features, people referred to beauty, the sound of running water, soothing natural sounds and the notion of creating a restful place within the garden: '[H]aving been in a city, close to the water, every day I passed the water and there's something tranquil and relaxing about that. Again, that's nature' (Diana). Justin described his swimming pool as not being about swimming, but 'about having water, being around water'.

The pleasures associated with water influence consumption in opposing directions. Hand-watering can increase or reduce consumption depending on how it is undertaken. If acted on, the set of desires focused on water features and swimming pools would increase the consumption of water. Other areas of unease relate to desires associated with increased affluence. In this quote the desire for a swimming pool is a somewhat guilty add-on to a conversation about replacing lawn as a water conservation measure:

But we don't want grass, we are very pleased that we don't have any grass too ... It just takes water in Alice Springs, says us who are about to build a swimming pool [laughs]. (Alice)

Conclusions

Clear understanding of the 'nature' part of our urban water supply is a necessary but insufficient condition of making it sustainable. All elements of the network also need to be made visible. Water is now an important issue in both consciousness and practice of suburban householders. In our broader study, water contrasts with a number of other environmental issues that stimulate more polarised responses. Commitments to reducing water consumption are manifest in a variety of changed practices, many of which are hidden in the rhythms of

daily life and can only be unearthed using qualitative research methodologies. Such methodologies also allow contradictions to be brought to light. The strongest example here is that aspirations towards water conservation are in tension with the pleasure derived from water, and expressed desires for more watery environments.

The presence and the value of the garden is not coincidental in these practices. The backyard garden is not a passive backdrop against which pre-existing attitudes are played out. Rather it is in the relationship between house and garden that people see, understand and participate in the network of water storage and distribution. Their active engagement with these processes enhances their capacity to manage and reduce consumption. They know their own power and they understand where and how to make a difference. To the extent that the garden or favourite plants are particularly valued, they are willing to make sacrifices, and to inject their own labour into the water network. This may explain why recent per-capita water consumption in separate houses with gardens in Sydney is little different from that of apartments and units (Troy, Holloway and Randolph 2005). On the other hand, domestic gardens, like other parts of our living spaces, are also sites of desire and consumption where intentions can come undone.

There is little support in this evidence for the construal of gardens themselves as environmental problems, and considerable support for the idea that more localised strategies for water collection, storage and distribution are likely to garner more support and active connections than Big Water schemes such as new dams. The widespread evidence of willingness to change practices suggests that there is underlying support for stronger government action on water, provided it is done in a way that maintains and utilises these human connections. The different scale of analysis provided by domestic ethnography adds a broader range of potential solutions to the complex issues of sustainable urban water supply. The everyday, habitual nature of human engagements with the non-human world provides an underrated human resource of considerable potential in the necessary shifts towards more sustainable cities. It should be regarded with cautious optimism.

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