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Soakers and Scorchers

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Soakers and Scorchers

The Social Construction of El Niño and the Role of Historical Knowledge in Environmental Policy Implementation

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Abstract: Within the context of world environmental ideology, this paper examines the social construction of El Niño in Australia. Drawing on perceptions of El Niño from the 1890s to the present it argues that what this weather phenomenon means to Australians, in rural, urban and industrial settings, relates to broader social and environmental issues such as global warming and industry practice. It argues for a greater appreciation of historical knowledge in communicating sustainable policies and practice/s into the future.

Keywords: Australia, Culture, El Niño, Environment, History, Social construction, Sustainability

THE CITY IN which I live has a water supply problem. Advertisements from the supply authority inform residents of drought conditions and make a plea for restraint. The catch cry is 'Go Slow on the H₂O'.¹ Letters to the editor of the city's morning paper complain of water restrictions and agree with them. Some offer suggestions for a more reliable supply, others fault government planning.² Farmers, chatting to each other on Internet forum sites, commiserate about the drought, compare previous periods of low rainfall, worry about farm incomes and show annoyance that they are thought to use too much water.³ Others discuss the likelihood of rain next week, next month or a better season next year. Many are familiar with meteorological terms such as the El Niño Southern Oscillation (ENSO) phenomenon, the Southern Oscillation Index (SOI) and the Pacific Decadal Oscillation Index (PDO) and their role in prefiguring long-term weather patterns. Some reaffirm their belief in the reliability of the behaviour of snakes and ants as weather predictors, advocating the sanctity of local knowledge versus the competing authority of government scientists.⁴ Postings suggest a preoccupation with meteorological phenomena and the vocabulary professionals use to describe them.

This interest in meteorological phenomena, particularly those related to water, is nothing new in Australia. An examination of the historical record, from the Federation Droughts at the turn of the twentieth century to the present, shows that European Australi-

ans have long felt ill at ease in their environment. The continual reference to the hardships and trials of living in a land dominated by a scarcity of rainfall, and of then dealing with too much rain when the floods come, shows how embedded the battle against nature is within the Australian psyche. Australians have demonised drought since the early nineteenth century, sought ways to alleviate its effects, cursed the lack of rain causing their paddocks to turn to dust and bemoaned farming practices that have resulted in pastures being 'flogged to a finish'.⁵ Underlying this battling the elements, of fighting floods, droughts and bushfires, is a sense of nature as somehow hostile and unforgiving—as a sentient being, an active agent, shaping lives and destinies, directing the flow of events. This social construction of El Niño, how Australians think and feel about it, how they describe it, gives us an understanding of how Australians relate to their environment. This understanding, based on the historical record, can be applied to broader social and environmental issues and can help provide a foundation for the formulation of environmentally sustainable practice.

What people think about the natural environment and how they express their ideas of nature falls within the realm of inquiry of environmental historians. Environmental history, says J. Donald Hughes, 'never strays far from the question of how attitudes and concepts affect human actions in regard to natur-

¹ Sydney Water, 'Making it Crystal Clear', information pamphlet, June 2005.

² Julie Hawken, Graham Anderson, Letters to the Editor, *The Sydney Morning Herald*, May 19, 2005.

³ 'Water Issues', ABC Rural Online – Bush Telegraph Guestbook, www.2b.abc.net.au/guestbookcentral, November, 2004.

⁴ Holdfast, 'Weather wonders', ABC Rural Online – Scribblygum, www.2b.abc.net.au/science/scribblygum, February 17, 2005.

⁵ Henry G. Lamond, 'Our Changing Pastures', *The Pastoral Review and Graziers' Record*, Vol. 50, June 1940, p560.



al phenomena.⁶ A growing interest in environmental history has seen historians turn their attention to issues such as pollution, deforestation, species extinction, waste disposal, drought, global warming and climatic trends including El Niño. One of the purposes of this paper is to convey the importance of recognising the cultural dimensions of environment. The physical world exists but nature is also our creation: it is that meeting place between the world 'out there' and the ideas, values and perceptions that we project on to it. As William Cronon argues, if we think about nature as purely a physical phenomenon then we remove it from history and separate it from the cultural processes that have created this deeply human way of thinking.⁷ As will be demonstrated, this cultural constructedness of nature is evident in the historical record.

Sources examined were *The Australasian Pastoralists' Review*, *The Pastoral Review* and *The Pastoral Review and Graziers' Record*, from the period 1890 to 1975 and Australian Broadcasting Corporation forum discussion postings and letters to the editor in *The Sydney Morning Herald* from 1985 to 2005. These were studied for evidence in El Niño years. The Australian Bureau of Meteorology has identified 12 'classic' El Niño years in the 20th century in that they had an Autumn to Autumn onset (evolution) and decay: 1905, 1914, 1940/41, 1946, 1965, 1977, 1982, 1991, 1993/94, 1997. It is these 'classic' El Niño years and the La Niña years of 1906, 1938, 1950, 1955, 1973, 1975, 1988 and 1998, on which my research centres.

My method focuses on the examination of language because it is through language that the lived experience of these meteorological phenomena is expressed. The world El Niño story originates in Peru with the naming of the meteorological event off the South American coast by Paita fishermen as the Christ Child, because it appeared at Christmas time and brought the gifts of exotic fish and rain to the normally arid inland. In Australia, El Niño and La Niña are associated with droughts and floods and references to these events and their effects is evident in the historical record. Throughout the period examined a preoccupation with weather, and with water in particular, dominates the literature. From the mid-1980s on, the terms El Niño and La Niña—adopted by Western science for the two cycles of ENSO—comes into common usage in Australia. It is from this point that my research centers on the descriptions of these terms in particular. Through the

examination of language, and the concerns surrounding El Niño and La Niña, it can be demonstrated how cultural perceptions—the social construction of El Niño—impacts on the formulation of policy.

In Australia, some environmental issues have not changed significantly in 100 years and neither have the perceptions of those issues and the suggested solutions. European Australians have repeatedly cursed El Niño-induced droughts and La Niña-induced floods, recognised water as an essential element in their survival and seen the Australian spirit as one pitted against nature. Australians have placed their faith in Western science and technology to alleviate the effects of farming and living in a dry continent. They have despaired at the failure of scientists and technocrats, government planners and the leaders of the day, to remedy the water shortfall. Many have advocated the lessons learned from nature as of equal validity to the solutions suggested by Western science—they have sought reliance on commonsense and hands on experience to 'see them through'.

El Niño can prolong droughts in Australia and intensify their effects. Farmers and pastoralists were aware of the periodical occurrence of extended drought at the beginning of the twentieth century even though the term El Niño was not in use. References are made to 'King Drought' in 1905 and the 'demon of drought' in the same period. In the drought of 1922–23 pastoralists were encouraged to take measures to conserve water to provide 'insurance' against the 'ravages of drought'.⁸ Country towns were described as 'most desolate'. References to drought-induced dust storms dot the literature.⁹ As 'Bacblox' commented: 'Tracks in the dust here are more often obliterated by dust storms than by rain.'¹⁰ An iron wall next to the stockmen's huts provides a measure of protection from wind-blown local sand but cannot prevent 'the dust storm of distant origin which hangs in the air for days and penetrates the whole house'.¹¹ Descriptions could also be more extended and comprehensive, as with Henry Lamond's account from 1940:

'...we're running through a bit of a drought. We know the symptoms: stock are weak; the downs are open, dusty and cracked; holes are dry; grass and trees are lifeless; men's spirits are sagging; and even the birds seem listless. The air, of course, is cracking with an intensity of the heat. In short, it's one of

⁶ J. Donald Hughes, 'The Greening of World History', in Hughes-Warrington, M., (ed), *Palgrave Advances in World Histories*, Macmillan, New York, 2005, p239.

⁷ William Cronon (ed), *Uncommon Ground: Rethinking the Human Place in Nature*, W.W. Norton, New York and London, 1996, p458.

⁸ Charles A. Blaxland, 'Our Drought from a National Standpoint', *The Pastoral Review*, Vol 33, January 1923, pp 40–41.

⁹ 'Bacblox', 'The Conservation and Control of Water', *The Pastoral Review and Graziers' Record*, Vol. 48, February 1938, pp 138–9.

¹⁰ John Lewis, 'Drought in the Drylands, Part I', *The Pastoral Review and Graziers' Record*, Vol.75, May 1965, p453.

¹¹ John Lewis, 'Drought in the Drylands, Part II', *The Pastoral Review and Graziers' Record*, Vol.75, June 1965, p555.

those hateful times with which we all have, at least, a nodding acquaintance.¹²

The drought in 1940 was particularly severe. The Southern Oscillation Index was minus 16.32, the following year minus 15.3. Bureau of Meteorology rainfall figures for the period December 1940 to February 1941 show the coastal region of NSW and the central areas of Queensland were the most affected by the suppression of expected rainfall in this period.¹³ Monthly values for the Pacific Decadal Oscillation peaked for the century to date in these years and did not reach the same values until the mid 1980s. In scientific terms, conditions hadn't been this ripe for an extended ENSO-induced drought since 1914, when the SOI measured minus 14.5 but had swung back to a positive reading in 1915. A dry 1940 winter meant that in NSW, even in the districts that still had dry feed for stock—mostly cut scrub—the limited water supplies were 'causing some anxiety'.¹⁴ Spring lambing was largely a failure with heavy losses in breeding ewes and lambs.¹⁵ The journal of the Australian grazier, *The Pastoral Review and Graziers' Record*, editorialised on drought as Australia's 'arch enemy'. The 'attack' on drought, it advised, needed a firm scientific and 'logical' footing.¹⁶ The battle with nature is a reoccurring perception throughout the literature of the twentieth century. Livestock losses during the 1925 drought numbered in the millions. Yet still 'the sheepman fought his losing battle with desperate, unflinching courage'.¹⁷ However, at the beginning of a new century some farmers acknowledged that their courage may have faltered and that losing the battle had brought depression and thoughts of suicide.¹⁸

From the 1980s on, when the terms El Niño and La Niña came into common usage, farmers, graziers, city dwellers, the media, government planners and scientists commented not only on drought but also on El Niño. The onset of the 1997 El Niño elicited a headline in the Melbourne *Sun-Herald* 'El Meano. Our worst drought in 15 years has just begun'.¹⁹ In 2002 El Niño was invested with agency in the headline, 'The night nature called and raised the roof: El

Niño threatens to steal the rain, again.'²⁰ El Niño was generally depicted as the herald of bad times; 'Dry doom for farmers as El Niño returns', and seen to have far-reaching effects, 'El Niño may dry up the economy as well as the land' and 'Dust to dust. Country in crisis'.²¹

A public discussion forum on the naming of weather patterns and landscape demonstrates the influence the Australian climate has on its inhabitants. The European seasons, it was argued, were inappropriate as descriptions of the Australian situation where much of the continent experienced 'wet' and 'dry' seasons. Participants suggested that a lake was not expected to necessarily contain water as Australians also accepted extended or local meanings for the term—that a drought was a drought no matter how frequent and that summer could be renamed the 'flammable season'.²² The power of language to give shape to perceptions was acknowledged, as was its utility in embedding cultural change.²³

While this preoccupation with meteorological phenomena and with water in particular is evident in language throughout the twentieth and early twenty-first centuries, evident too is a concern with how to alleviate the effects of El Niño and La Niña. In addition, the need for a reliable supply of water, the gauging of rain by its 'usefulness', the appeal to technology and Western science, in particular weather forecasting, to ameliorate the effect of drought and flood, all demonstrate the way in which these meteorological phenomena are culturally constructed. For, by the twenty-first century water had become a political tool, in the view of some farmers, the object being 'to squeeze as much money from farmers and other consumers as possible'.²⁴ It is a similar sentiment to that voiced in *The Australasian Pastoralists' Review* some 114 years earlier when squatters felt they had been forced from the land through the combination of 'the curse of drought' and economic imperative. Government policy was held to blame and there seemed no 'justice' for the squatter. The 'broken-down' squatter, as he described himself, and generally squatters were men, though

¹² Henry G. Lamond, 'Trouble in the Channels: The bogged sheep problem', *The Pastoral Review and Graziers' Record*, Vol. 50, December 1940, p1073.

¹³ Bureau of Meteorology, www.bom.gov.au/climate/enso.

¹⁴ 'New South Wales Letter', *The Pastoral Review and Graziers' Record*, Vol. 50, November 1940, p970

¹⁵ 'Summary of the season', *The Pastoral Review and Graziers' Record*, Vol. 50, December 1940, p1052.

¹⁶ Editorial notes, *The Pastoral Review and Graziers' Record*, Vol. 50, February 1940, p23.

¹⁷ H. Anning, 'Drought feeding of stock', *The Pastoral Review and Graziers' Record*, Vol. 75, July 1965, p651.

¹⁸ ABC Rural Online—Bush Telegraph Guestbook, www.2b.abc.net.au/guestbookcentral, August 2003.

¹⁹ 'El Meano. Our worst drought in 15 years has just begun', *The Sun-Herald*, July 20, 1997, p52.

²⁰ 'The night nature called and raised the roof: El Niño threatens to steal the rain, again', *The Sydney Morning Herald*, February 19, 2002, p2.

²¹ 'Dry doom for farmers as El Niño returns', *The Sydney Morning Herald*, July 11, 2002, p5, Maria Nguyen, 'Dust to dust: Country in crisis', *The Sydney Morning Herald*, September 21, 2002, p10.

²² ABC Rural Online Forum—Bush Telegraph Guestbook, www.2b.abc.net.au/guestbookcentral/list, August 2003.

²³ Ibid.

²⁴ John R. Bicknell, 'Farming', ABC Rural Online Forum – Bush Telegraph Guestbook, www.2b.abc.net.au/guestbookcentral, February 17, 2005.

down on his 'luck' still kept up his 'pluck'. But government aid was not forthcoming, lamented the squatter and there was 'no court of appeal' to remedy the situation.²⁵

In times of particularly severe El Niño events such as that of 1940, the perception that rainfall was diminishing, year by year, was strong. The loss of stock seemed to prove the point. For example Pearson, writing in 1940, noted: 'If rainfall cycles can be determined from rain gauge records then I see no reason why they should not be determinable from heaps of bones.'²⁶ Rain was measured not only by its volume but also by its usefulness. 'There is what we might call the wasted or useless rainfall which goes into the records; falls of a few points that dot the dust.'²⁷ The lack of rain in El Niño years brought to light the argument that rainfall from previous years had been wasted and should be stored. 'During the last years of high rainfall millions of acre feet of water have gone down this small river (the Horton) to waste and has been the cause of wide erosion; today this water could be used to irrigate large areas of land and save thousands of head of stock . . .'²⁸ By 1972 the *Pastoral Review* was publishing the storage levels of reservoirs.

This preoccupation with water was evident in the drought of 1938 when 'Bacblox' wrote: 'There is one weapon and one only, with which you can fight drought—water.'²⁹ Further, as the columnist 'Paroo' editorialised in 1940: 'The matter of providing an adequate water supply for pastoral lands throughout this country is always of paramount importance.'³⁰ A review of inland NSW in 1965 advised: 'The greatest measures, and the most expensive measures taken to prevent drought losses, are watering points . . .'³¹ The conservation and use of water predominates in Australian thinking and has for more than 100 years.

The belief that technology and scientific knowledge could 'protect' pastoralists and farmers against the effects of El Niño varies in intensity throughout the century. In 1923, scientific knowledge coupled

with 'practical experience', was heralded as the way forward in 'overcoming the ravages of drought'.³² 'A great factor in drought insurance is scientific knowledge. It is imperative for men on the land and our legislators to recognise the assistance those who engage in scientific research and experienced stockmen and farmers with advanced ideas can give the pastoralist and agriculturist . . .'³³ By 1965 pastoralists and farmers were still looking to science to ameliorate the effects of El Niño and La Niña. However, science was seen as increasingly academic and scientists as insular. As was editorialised in the *Review*: 'The question is being posed quite often nowadays—is the scientific revolution too narrow-minded to cope with everyday problems of the pastoral industry? The answer, in a distressing number of cases, is yes.'³⁴ There were those who held practical experience as paramount, as with Wiseman, who reflected: 'Our education dealing with nature is never finished; the grazing industry is no place for theorists, specialists or any other 'ists', but for level heads and commonsense.'³⁵ In a 1972 article on providing water in low rainfall areas, local knowledge was again pre-eminent. ' . . .there is really no substitute for local knowledge and experience, supported, if possible by expert hydrological and geological opinion.'³⁶

Western science was perceived as failing to do its job. For example, from early in the twentieth century pastoralists and farmers looked to weather forecasting to help them deal with droughts and floods. 'Weather forecasting is of great importance to the drought problem.'³⁷ However, its apparent lack of reliability is often voiced. For example, the connection between sunspots and drought was described as 'a nonsense', the writer basing his observation on 'experience'. ' . . .science teaches us nothing and has yet to learn all about forecasting of future seasons.'³⁸ The contemporary standard of weather forecasting was still viewed as unreliable in 1965, resulting in lost time and money for the pastoralist.³⁹ 'Graziers would agree that, at present, four-day forecasts are

²⁵ 'The Broken-down Squatter', *The Australasian Pastoralists' Review*, June 16, 1891, p113.

²⁶ S.E. Pearson, 'Diminishing Rainfalls in the Interior', *The Pastoral Review and Graziers' Record*, Vol. 50, March 1940, p237.

²⁷ Lewis, Part I, op cit, p453.

²⁸ N.J. Waddington, Bingara NSW, Letter to the Editor, *The Pastoral Review and Graziers' Record*, Vol.75, October 1965, p1121.

²⁹ Bacblox', 'The Conservation and Control of Water', *The Pastoral Review and Graziers' Record*, Vol. 48, February 1938, p138.

³⁰ 'Paroo', 'Water Supply Problems', *The Pastoral Review and Graziers' Record*, Vol. 50, June 1940, p558.

³¹ Lewis, Part II, op cit, p555.

³² Blaxland, op cit, p 41.

³³ Ibid.

³⁴ 'The Need for Broad-Minded Scientists', *The Pastoral Review and Graziers' Record*, Vol. 75, January 1965, p6.

³⁵ A.S. Wiseman, 'Training of a Competent Manager', Letter to the Editor, *The Pastoral Review and Graziers' Record*, Vol. 75, April 1965, p481.

³⁶ B.A. Keon-Cohen, 'Watering Cattle in Fringe Areas: Hints on Utilising Resources', *The Pastoral Review*, Vol. 82, February 1972, p56.

³⁷ B.A. Keon-Cohen, 'Watering Cattle in Fringe Areas: Hints on Utilising Resources', *The Pastoral Review*, Vol. 82, February 1972, p56

³⁸ Charles A. Blaxland, 'Our Drought from a National Standpoint', *The Pastoral Review*, Vol. 33, January 1923, p 41.

³⁹ G.T. East, 'Sun Spots and Drought', Letter to the Editor, *The Pastoral Review*, Vol. 33, April 1923, p318.

⁴⁰ 'Weather Forecasting Comes of Age', *The Pastoral Review and Graziers' Record*, Vol.75, January 1965, p7.

only a rough guide as to possible weather conditions and they cannot be acted upon with much assurance.⁴⁰ Long-range forecasting was viewed with contempt. As was expressed in letters to the editor: 'In my opinion long range weather forecasting is not worth the paper it is written on.'⁴¹ Letters from graziers provided examples of the discrepancy between forecast droughts or rainfall and lived experience from 1914 to 1965.

An understanding of Australia's climate as different from Europe and the recognition of the continent as ecologically fragile, led to concerns about the management of the environment. In a review of NSW land management practices reference is made to the reduced carrying capacity of the land since the turn of the century despite the 'advances' made in water supplies and transport.⁴² Alarm is expressed at the cutting down of mulga scrub so that it is 'useless as a future stand-by' as livestock feed in times of drought.⁴³ Overstocking is viewed as the interference of 'unscientific man' who tries to improve on nature with disastrous results.⁴⁴ Grasslands are turned to desert in what is seen as a 'sorry reflection' on the lack of intelligence of humans. 'For long enough, ever since the days of the early colonists, the wastage of our national assets has gone merrily on. The day of reckoning has arrived.'⁴⁵ An advocate of earth dams and tanks as opposed to bore water comments on the 'punishment of country' by stock and the removal of ground cover which leads to the drying of the soil and a 'continual hovering on the verge of famine'.⁴⁶ The reference is to a grass famine—a lack of food for stock primarily rather than a lack of food for people.

The newly 'discovered' erosion of soil due to 'climatic causes' of 'rainfall, wind, temperature and evaporation' was cast as a 'direct menace to our national well-being and prosperity' in 1938. This understanding of fragility may have come from an awareness of international events, such as the drought conditions and land management practices that resulted in the Dust Bowl conditions in North America in the 1930s.⁴⁷

More recently resentment at blame being levelled at farming practices for environmental problems has

surfaced in the form of a perception that contemporary droughts are the worst in 50 years. Environmentalists are described as 'utopian' in that they fail to understand that it is not the fault of the farmer that creeks dry up but rather climatic circumstance coupled with government policy that results in a water crisis through the mismanagement of the environment.

I have been an orchardist for 45 years on my property at Lakesland. This current drought is the worst I have seen yet the old timers back in the '50s used to talk about droughts that equalled if not excelled this current dry spell that they and their forebears had experienced. It would seem that since the late '50s we have enjoyed a period of plenty of rain with creeks and rivers continually running with water. Unfortunately environmentalists of today, having grown up with that utopian scenario think that it is normal and therefore that which is stopping the creeks and rivers from having 'environmental flows' must be farmers.⁴⁸

These 'on the ground' observations correlate with Bureau of Meteorology data that shows mostly negative values for the Pacific Decadal Oscillation Index in the period from the late 1940s to the late 1970s. A highly negative PDO is indicative of La Niña-induced years of higher than average rainfall.

There is a perceived discrepancy in the lot of the pastoralist and farmer as seen by the coastal city-dweller and as seen by those living in rural inland areas themselves. As a letter to editor states in 1913: 'The daily press and our politicians have been for so long telling the public that the pastoral industry of NSW has been enjoying "a wonderful run of good seasons" since the big drought of 1902-3 ended, that there is a widespread belief—in the city—in the truth of the statement.'⁴⁹ This discrepancy shows itself in the attitude of government bureaucracies, as an article on taxation concessions to drought-affected farmers in 1965 acknowledges. Farmers, it states, know when they are experiencing drought. However, from the taxman's point of view, the 'dry spell' is only a 'drought' if it has an adverse effect on pastures.⁵⁰

⁴⁰ Ibid.

⁴¹ 'One Who has been Stung', 'Long-Range Weather Forecasting', Letter to the Editor, *The Pastoral Review and Graziers' Record*, Vol. 75, March 1965, pp260-261.

⁴² 'Paroo', 'A Changing Land: The Western Division of New South Wales', *The Pastoral Review and Graziers' Record*, Vol. 50, January 1940, p31.

⁴³ Ibid.

⁴⁴ Glenroy, 'When Man Makes Desert Nature Exacts Penalty', *The Pastoral Review and Graziers' Record*, Vol. 50, January 1940, p35.

⁴⁵ Ibid.

⁴⁶ S.E. Pearson, 'Pastoral Problems: The Merits of Tanks and Dams', *The Pastoral Review and Graziers' Record*, Vol. 50, April 1940, p332.

⁴⁷ V.R. Alldis, 'Climate and Erosion', *The Pastoral Review and Graziers' Record*, Vol. 48, January 1938, pp 34-35.

⁴⁸ Bicknell, op cit.

⁴⁹ H.S. Officer, Kallara Station, NSW, 'Declining Rainfall', Letter to the Editor, *The Pastoral Review*, Vol. 23, June 1913, p570.

⁵⁰ C.A. Mallyon, 'Taxation Concessions and Droughts', *The Pastoral Review and Graziers' Record*, Vol. 75, August 1965, p759.

In 1972, farmers tired of being told of the rural recession and the healthy state of pastures resulting from good rains in 1971, led the *Review* to editorialise that the ‘Mother Grundies’ in the daily press and on radio and television had got it wrong. ‘It is as plain as a pikestaff that the rural industry has turned the corner . . . the patient did not actually die, but was just a little off colour for a short while.’⁵¹ City dwellers, as well as the government, stated the *Review*, needed to be reminded that statements about pastoral doom were ‘irresponsible’ and that the ‘Australian grazier is obviously a more resolute fellow than they first thought’.⁵² However, a strong El Niño was on its way and by March the pastoral situation in NSW had ‘changed dramatically’. The feed had dried up and ‘a lot of graziers were really looking for a break’.⁵³ By May the situation was ‘depressing’⁵⁴ and by September it was acknowledged that NSW was ‘in the grip of drought’⁵⁵ with the Graziers’ Association of NSW appealing to the State Government for drought relief. In November the *Review* reported a ‘dramatic’ turnaround.

The other cycle of ENSO, La Niña, can bring flooding rains. While rain is prayed for during El Niño drought conditions, when it comes in torrents as the result of La Niña, the result can seem devastating. The ‘break’ had come to many farmers and graziers in the last weekend in October 1972. Now widespread and ‘serious’ flooding was the cause for concern with wheat growers worried that rising waters would cover crops before they could be harvested.⁵⁶ Floods are as much a concern for farmers along the Eastern seaboard of Australia as droughts and form part of the lived experience. ‘I remember a season in Queensland when 10 inches of rain fell in October in a few hours. It knocked the country about terribly, swept away fences and dams, boosted the rainfall average in a liberal manner and did no lasting good . . . Extra wet years, like extra dry ones, bring a lot of penalties in their train.’⁵⁷

An examination of the historical record shows that the social perception of environmental issues in Australia has remained constant for the more than 100 years. Australians have cursed droughts and floods, recognised water as an essential element in surviving the rigours of an arid climate, described the continent’s ecological fragility and bemoaned the inability of Western science and government

planners to ameliorate the effects of El Niño and La Niña events. Government policy formation, however, displays an acute indifference to the cultural construction of the Australian environment.

For example, while it has been accepted by both rural and urban Australians alike for more than 100 years that Australia faces a water shortage, government opinion is that there needs to be a change in the way we think about water. A case in point is the CSIRO’s National Research Flagship into Australia’s use, distribution and generation of water dubbed “Water for a Healthy Country”. The CSIRO’s website explains the research agenda with an introduction outlining the basic strategy: ‘Australia is short of water and the situation is getting worse. What is needed is a whole new approach to how we think.’⁵⁸ The historical record shows that Australians have always been preoccupied with water. However, the CSIRO gauges public opinion in the following way: ‘The problem with water is that it’s “invisible”: like air, we need it, but take it for granted.’⁵⁹ The historical evidence does not support this statement.

Contemporary scientific research demonstrates a line of thinking that appears to have changed little over the past century. The leader of the Flagship’s Urban Water project Carol Howe has commented: ‘What’s driving our research in cities and beyond is a lack of water and our belief that science and smart management can deliver the answers we need. We’ve got a shortfall, so we need to be creative. Better predictions, demand management, reuse and recycling, smarter technologies and desalination can all be part of the response.’ Howe is echoing the belief in Western science and its technology as the saviour for our environmental problems—a belief that has surfaced periodically in the historical record over the past 100 years.

CSIRO says the outlook for Australia’s future water resource is also tied up with climate change, now morphing from a debating topic into something that affects the bottom line. It is something every prudent corporation is preparing for, evaluating and seeking to anticipate its impacts on viability and operations. ‘We’ve reached a limit to water availability,’ says Howe. ‘Luckily, it’s happened at a time when innovative technology and science can help us cope. We’ve got the capability to do something about it.’⁶⁰ So, while CSIRO attitudes that technology can

⁵¹ ‘What Rural Recession?’ *The Pastoral Review*, Vol. 82, March 1972, p120.

⁵² Ibid.

⁵³ ‘A Review of the Pastoral Situation: New South Wales’, *The Pastoral Review*, Vol. 82, April 1972, p171.

⁵⁴ ‘A Review of the Pastoral Situation: New South Wales’, *The Pastoral Review*, Vol. 82, May 1972, p217.

⁵⁵ ‘The Season: New South Wales’, *The Pastoral Review*, Vol. 82, September 1972, p429.

⁵⁶ ‘The Season: New South Wales’, *The Pastoral Review*, Vol. 82, November 1972, p675.

⁵⁷ S.E. Pearson, ‘Diminishing Rainfalls in the Interior’, *The Pastoral Review and Graziers’ Record*, Vol. 50, March 1940, p235.

⁵⁸ Tony Kaye, ‘Solving Our Water Headache’, *Solve*, Issue No. 1, November 2004, www.solve.csiro.au.

⁵⁹ Ibid.

⁶⁰ Ibid.

save our environment are nothing new, the impact of climate change on business now appears to make the finding of these solutions an economic imperative. For example, one of the aims of the project is to grade water in an economic sense from drinking water as the mostly highly priced to a lesser monetary value for recycled water. However, as outlined above, farmers and graziers have always been in the frontline of experiencing the economic imperative of an adequate water supply. Underpinning the CSIRO research agenda is the claim that the public undervalues water and in fact takes its availability for granted. These claims do not tally with perceptions evident in the historical record or with contemporary opinion.

Federal Government research strategies and the general public correlate the issue of population growth with attitudes to the use of and availability of water. As postings to the *The Sydney Morning Herald's* online forum demonstrate, population increase is seen as the determiner of water use. For example: 'A feast or a famine. Nothing new about this in this driest of inhabited continents on earth. We just have to learn to live with it and to keep our population densities down to sustainable levels.'⁶¹ And: 'Perhaps somebody should mention the water problem in our capital cities to the experts on population in the Federal Government.'⁶² While the Australian Bureau of Statistics reported a rise in the household consumption of water between 1996 and 2001, this was attributed in part to a population growth of six percent nationally (from 1993 to 2001). Climate change plays a significant role in household water consumption with 44 per cent for outdoor purposes. Agriculture accounted for 67 per cent of water consumption nationally in 2000-01 and households, 8.8 per cent.⁶³

Government policy, on the other hand, sees population growth and climate change as givens. As the leader of the CSIRO's Water Smart City Systems program, Dr Shiroma Maheepala, comments: 'The challenge is how to accommodate population growth, climate change and environmental needs while maintaining people's quality of life.'⁶⁴ The CSIRO website details the ways in which research is 'deliv-

ering the science' needed to underpin state and Australian government water resource strategies.⁶⁵

Rather than an attitude that water is a free commodity in endless supply, what predominates in public forums is an attitude that nothing much is being done about the water shortage. For example Sandford writes:

What a fantastic example of droughts and flooding rains it has been. However, it would seem that there is an extreme drought where common sense is concerned in our parliaments, both state and federal. All this water that is falling will amount to nothing except misery and inconvenience because our fearful leaders do nothing to fix water storage problems.⁶⁶

And this from O'Shea: 'Quite clearly our catchment system is inadequate to cope with such drought-and-flood conditions. It's not like we haven't had enough time to plan—we have known of Australia's weather patterns for 200 years at least.'⁶⁷

And finally from M. Ross: 'Floods and drought are a part of this country Australia. The weather is not something that can be controlled, at least not yet. The NSW state government and previous governments should have had some forethought in the storage of water over the past 10 to 15 years with the Sydney population growing at alarming rates.'⁶⁸

The Australian preoccupation with nature, with water in particular and with battling the elements predominately those of drought and flood, is evident in the historical record for the period examined from 1890 to the present day. From the 1980s a public awareness of ENSO has seen an association of the El Niño phenomenon with the harsh climatic conditions endured by Australians. As Tim Sherratt explains, the idea of El Niño has been embraced by the public as a sign that drought is not random nor is it arbitrary.⁶⁹ Media sources, environmental historians, government publications and scientists tie the ENSO phenomenon to factors such as global warming, speculating that Australia's fragile environment may be vulnerable in the future to more extreme weather.⁷⁰ In the foreword to the Bureau of Meteorology's *Drought, Dust and Deluge: A century of climate ex-*

⁶¹ Arthur C. Macartney, 'Your Say', *The Sydney Morning Herald Online*, www.smh.com.au/yoursay/2005/006/30/index.

⁶² Ian Mccallan, 'Your Say', *The Sydney Morning Herald Online*, www.smh.com.au/yoursay/2005/006/30/index.

⁶³ Australian Bureau of Statistics, 'Environment: Water supply and use', *Year Book Australia*, www.abs.gov.au-AusStats:Water supply and use, March 18, 2005.

⁶⁴ Robin Taylor, 'Water for a Healthy Country', *Solve*, August 2005, p17.

⁶⁵ Ibid.

⁶⁶ David J. Sandford, 'Your Say', *The Sydney Morning Herald Online*, www.smh.com.au/yoursay/2005/006/30/index.

⁶⁷ Peter O'Shea, 'Your Say', *The Sydney Morning Herald Online*, www.smh.com.au/yoursay/2005/006/30/index.

⁶⁸ M. Ross, 'Your Say', *The Sydney Morning Herald Online*, www.smh.com.au/yoursay/2005/006/30/index.

⁶⁹ Tim Sherratt, Tom Griffiths and Libby Robin, (eds), *A Change in the Weather: Climate and Culture in Australia*, National Museum of Australia Press, Canberra, 2005, p14.

⁷⁰ Stephanie Peatling, 'Deluges and drought risk grows as state sweats', *The Sydney Morning Herald*, September 8, 2004, www.smh.com.au. Australian Greenhouse Office, Department of the Environment and Heritage, 'Climate Change: Risk and Vulnerability. Promoting and Efficient Adaptation Response in Australia', Canberra, March 2005, www.greenhouse.gov.au/impacts/publications/pub/risk-vulnerability.pdf.

tremes in Australia, its director, Dr Geoff Love, sought to cast doubt on the notion that Australia's climate was indeed becoming more extreme. The climate, he said, was neither steady, nor necessarily undergoing a constant trend, but varied on a range of different time scales.⁷¹ However, climate change remains one of the CSIRO's prime considerations in their 'Water for a Healthy Country' research initiative and there is considerable support for this position within the scientific community.⁷²

Whatever shape climate takes in the future, Australians are aware of the crucial role water plays in their everyday lives. That Australians have always been critically aware of their climate is evident in a study of perceptions of weather in the past. It has

been argued by government planners that what is needed is a change in attitudes—a change in the way we think about our climate.⁷³ However, the historical record shows that ordinary Australians have always understood the fragility of their environment, have battled to survive in it and have doubted the ability of governments, scientists and bureaucracies to mitigate the effects of meteorological events that are a part of the Australian lived experience. An appreciation of the public perception of weather—the social construction of El Niño and how it has come to be formed over time—can only facilitate the communication and formulation of practices that both governments and the public understand to be environmentally sustainable.

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⁷¹ Geoff Love, *Drought, Dust and Deluge: A century of climate extremes in Australia*, Australian Bureau of Meteorology, Melbourne, 2004, piii.

⁷² Robin Taylor, 'Water for a Healthy Country', *Solve*, August 2005, p17.

⁷³ Robin Taylor, *ibid*, Tony Kaye, 'Solving Our Water Headache', *Solve*, Issue No. 1, November 2004, www.solve.csiro.au and Tim Sherratt, 'Human Elements' in Tim Sherratt, Tom Griffiths and Libby Robin, (eds), *A Change in the Weather: Climate and Culture in Australia*, National Museum of Australia Press, Canberra, 2005, p17.

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