## THEOSOPHY-SCIENCE GROUP

## NEWSLETTER NUMBER 74

## April 2014

## **EDITORIAL NOTES**

This Newsletter is prepared by the Theosophy-Science Group in Australia for interested members of the Theosophical Society in Australia. The email version is also made available on request to members of the Theosophical Society in New Zealand and USA by the respective National bodies. Members in USA should contact tsa@theosophical.org Members New Zealand should in contact: john@serion.co.nz. Recipients are welcome to share the Newsletter with friends but it must not be reproduced in any medium including on a website. However, permission is given for quoting of extracts or individual articles with due acknowledgment. Selected items appear from time to time on the website of the TS in Australia – austheos.org.au.

As the editor of this Newsletter and Convener of the Australian Theosophy-Science Group I hope to continue providing readers with news of our activities, past and future, as well as articles of general scientific and theosophical interest. I would welcome contributions from our readers.

Victor Gostin, 3 Rose Street, Gilberton, S.A. 5081 Email: victor.gostin@adelaide.edu.au

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## **REGISTRATION FOR OUR NEXT SPRINGBROOK SYMPOSIUM SEPT-OCT 2014**

All TS members who have some scientific/medical/health training or who are keenly interested in attending are welcome to apply. Total cost will be \$250 for your registration, accommodation, meals (vegetarian) and all sessions. Space is limited, so please lodge your application (see below) as soon as possible, along with a cheque or money order for the \$50 non-refundable deposit. All applicants will be contacted by 01 Aug to confirm their booking. The remaining \$200 should be paid by 1<sup>st</sup> September. A maxi taxi transfer will be arranged for those flying into Coolangatta Airport or arriving by train at Varsity Lakes Station preferably between 12.30 and 15.30 on Monday 29 September. Please tell me if you require such transport.

Arrive Springbrook Monday 29 September Meeting after dinner Monday 29/9; Tuesday 30; Wednesday 1 Oct; Thursday 2 Oct morning Depart Thursday 2 Oct after lunch. It is intended to feature several invited keynote speakers dealing with a wide range of stimulating topics from quantum physics, cosmology, and planetary sciences, to neuroscience, psychology, health, and sociology. Depending on the number of participants, the number of speakers may be restricted, but time will be available for discussions.

Given the variety of specializations of our science group, perhaps a fairly general theme may apply:

MIND OVER MATTER: a scientific overview

Topics may include: The mental world, noosphere, telepathy & ESP, placebos, memes, psychic healing, oxytocin & brain chemistry, time and memory, racial memory & akashic memory, etc

These presentations are not meant to be very formal. Rather they should stimulate some interesting discussions and would be very informative to us all.

## Registration

If you wish to attend this seminar, please let me know ASAP by Email: <u>victor.gostin@adelaide.edu.au</u>, and send your deposit of \$50 to the TOS below:

Please make cheques payable to Theosophical Order of Service in Australia and post to the National Treasurer, Carolyn Harrod, 26 Lytham Street, Indooroopilly, Q 4068 OR

Payments can be made by direct debit to:

Bank: Commonwealth Bank, George Street Sydney: BSB: 06 2009 ; Account Name: Theosophical Order of Service Australia Account Number: 00903790

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## INTERNATIONAL THEOSOPHICAL NEWS:

European Congress 2014

"Bridging Science and Spirituality" 30 July to 4 August 2014 Adyar Auditorium 4 Square Rapp, Paris 7th Arrondissement.

[By the way, a city 'Square' is called 'place' in French, but this is indeed called 'square' and is actually a very short dead-end street off Avenue Rapp, lined with imposing buildings including the TS one. The closest Métro is *Pont de L'Alma* at the river end of Ave Rapp, an easy walk.]

Further details from Geoff Harrod [geoffrey.harrod@gmail.com]

## **INTRODUCING Kevin Davey**

to the Australian Theosophy-Science community.

While at school in England Kevin had two ambitions: to study astronomy at university or migrate to Australia. Migration to Australia won out. Kevin became a teacher of high school maths and physics and for a time taught at the Transcendental Meditation school established in Adelaide. After completing a graduate diploma in systems analysis, he left teaching and established a specialist software company in which he is still involved on a part time basis. Kevin fulfilled his other ambition by completing a Master of Science in astronomy in 2010.

Since then he has again registered as a teacher, taught subjects in the area of astronomy on a voluntary basis and presented a number of public talks on the subject. A member of the Adelaide Lodge of the Theosophical Society, Kevin is involved with the production of their radio program, has presented at their Science Group meetings and led Saturday morning discussion groups. He is also a committee member of the SA branch of the Australian Science Communicators.

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## **NEW BOOK**

Review of *From Eternity To Here: The Quest For The Ultimate Theory Of Time* by Sean Carroll (2010). Plume Books (a division of the Penguin Group). ISBN 978-0-452-29654-1

Kevin Davey MSc (Astronomy)

Sean Carroll is a theoretical physicist involved in the areas of particle physics, cosmology, dark energy and gravitation who works at Caltech – the California Institute of Technology. He is becoming a prolific communicator of science. Although published four years ago, Sean Carroll's book *From Eternity To Here: The Quest For The Ultimate Theory Of Time* remains both topical and highly readable. His second book, *The Particle At The End Of The Universe*, is about the hunt for and discovery of the Higgs boson using the Large Hadron Collider. He is also featured in a TED talk and has a number of videos freely available in YouTube, to be found by searching for his name.

*From Eternity To Here* follows the familiar route of multitudes of others having been written about time, incorporating a view of the history of human measurement of time, the evolution of the universe from its inception in the Big Bang and discussions of black holes and wormholes. Carroll's approach, however, is refreshing. While conceding that we have no idea of what time actually is, he offers entropy as being the rationale for the existence of time in the universe, from its very beginning and forever on. In the prologue to the book Carroll recognises that not everyone agrees with such views. He writes that an unnamed professor of physics was very disparaging of his ideas, referring to them as being dumb and nonsensical. Despite this, the book offers compelling arguments that Carroll could well be on the right track.

Starting with our human concepts of time, Carroll points out that it seems to flow, although we cannot calculate its speed. This, of course, is because we live in a fourdimensional space-time, as described by Einstein. If the rate of time was to increase or decrease the distance light could travel would increase or decrease in the same proportion: physical tools capable of measuring the "speed" of time would themselves change as measurements were made. We should perhaps be aware of how our consciousness seems to allow time to flow more rapidly or slowly depending on what we are doing or our level of mindfulness. However, these are not fully measurable by current scientific methods.

Turning to the arrow of time, Carroll explains how time can be thought as having directions, the future moving away from the Big Bang while the past is back towards the Big Bang. He notes that the Big Bang was the time of total order in the visible universe – there are not many ways all the matter and energy in the universe could then be packed together. This was a state of very low entropy, low disorder. Now, some 13.789 billion years after the Big Bang our universe has a much higher level of disorder, a higher entropy – and it will continue to become more and more disordered. Carroll argues that this increase in entropy is the cause of the arrow of time in our universe, but in other universes time could run backward as he demonstrates with the use of diagrams. If you are unsure about entropy, rest assured that this book explains what it is, with the use of more diagrams, very well.

The announcement of the discovery that the expansion of the universe is accelerating was a major surprise to cosmologists. It means that the universe will continue to expand forever, for infinite time, and will not collapse onto itself due to the gravitational pull of all the matter within it as had been thought. Carroll uses this to explain that the visible universe will continue to increase in entropy until, after many billions of years, it will be come very, very cold and empty. All stars, atoms and black holes will decompose or evaporate, Carroll suggests. All matter will have converted to electromagnetic energy whose wavelengths get stretched in the ever continuing expansion of the universe in the same way as the cosmic microwave background radiation has been stretched to become microwaves with a temperature of about 2.7 Kelvin. As our universe continues to expand, its temperature will reach as low as 10<sup>-</sup> <sup>29</sup> K. This is as cold as space can get. Random guantum fluctuations throughout space will constantly create virtual particles which spontaneously annihilate each other but produce enough energy to prevent the universe cooling all the way to absolute zero. The universe will have become what is known as de Sitter space, after Willem de Sitter (1872 – 1934) who derived such conditions using Einstein's theories of relativity.

So the universe we experience will become vast – infinitely vast – and very cold. One would think this would be the end of everything, but not so according to Carroll. He suggests that our universe came out of de Sitter space and the arrow of time is purely the universe returning to its natural state. In de Sitter space entropy stops. As Carroll

states, "the entropy of a system either remains constant or increases in time". In de Sitter space, entropy has increased as far as it can go, it can increase no further.

At this stage Carroll turns to quantum fluctuations, which he discusses in some detail. A fluctuation in a quantum field will usually be very small, but in an infinite de Sitter space there is a possibility, a very small possibility that *anything* can be spontaneously created: be it a subatomic particle or even an aware, thinking brain (such a probability is described as a Boltzmann brain). After all, there is infinite space and infinite time for this to happen. Perhaps less an extreme thought to contemplate may be the idea that a quantum fluctuation could spontaneously release a huge amount of energy from which matter and a universe such as ours forms. This, Carroll, states, is precisely how our universe did form: the Big Bang was the result of such an event.

Considering this, if our universe formed from a quantum fluctuation in a de Sitter space, then more universes could have formed .... and will continue to be formed. Our visible universe, according to Carroll, is but one of an infinite number of universes that have formed and will be formed, eternally. They will not all be the same. Some will have laws of physics just as in this universe, others will not. That, he says, means that carbon based life may be possible in many universes, but not all. Not to be despondent, Carroll goes on to say that it does not mean that life cannot exist in universes which are not exactly like our own, as "we don't know what life is".

In this book Carroll is saying that we live in a visible universe, but this is only a very small part of the universe. The universe is, he suggests, made up of multitudes of universes, some like ours, others most definitely not. Our universe is merely one in the multiverse.

As suggested at the start of this review, not everyone accepts Carroll's stance. Carroll states that he is not proposing a theory, merely an idea that is very difficult, perhaps impossible to test. We will not, after all, be able to visit of even see universes beyond ours – the laws of physics do not allow it. (We cannot even reach the edge of our universe to see beyond it as we would have to travel faster than light to do so.) But the recent announcement of the discovery of signs of gravitational waves in the cosmic background radiation suggest that inflation, an early feature in the evolution of our universe, did happen. Others cosmologists, such as Andrei Linde who proposes a "pocket universe" version of Carroll's multiverse, also rely on inflation for their ideas to be possible. Carroll would surely be heartened by the announcement.

*From Here To Eternity* is a compelling book to read. If one enters it with some patience (there is much ground covered by Carroll in setting the scene for his argument) and an open mind, there is much reward to be gained. Carroll's style is easy to follow and contains a number of examples and anecdotes to keep the reader interested and believing that it is the "real world" that is being discussed. I read the book with two bookmarks. One was to keep my place in the text and the other was to enable me to follow the reference notes (304 of them) located near the back of the

book. A fine writer of science, Carroll's reference notes contained much detail of interest and his 10 bibliography pages provide a complete background to follow up, should you desire. I can highly recommend this book. When you hear someone say that time didn't exist before the Big Bang, smile quietly and accept that the Big Bang just signalled a clock being started, a clock that had its roots in eternity and which will continue forever.



"Unknowingly, we plow the dust of the stars, blown about us by the wind, and drink the universe in a glass of rain."

Ihab Hassan

Milky Way panorama by Caroline Thompson. The scene stretches from Norma in the south, to Delphinus in the north. ASSA, The Bulletin - November 2013.

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# from the SECRET BOOK OF DZYAN translated by H.P. Blavatsky COSMIC EVOLUTION

## STANZA I

- 1. The eternal parent (Space) wrapped in her ever invisible robes had slumbered once again for seven eternities.
- 2. Time was not, for it lay asleep in the infinite bosom of duration.
- 3. Universal Mind was not, for there were no Ah-hi (celestial beings) to contain it.
- 4. .....
- 5. Darkness alone filled the boundless all, for father mother and son were once more one, and the son had not awakened yet for the new wheel, and his pilgramage thereon.

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## EARLY VIEWS OF ABORIGINAL SOCIETIES

## Victor Gostin

The early years of the Theosophical Society were heavily influenced by the publication of Charles Darwin's *Origin of Species* in 1859. The idea of evolution, known to the ancient Greeks, was rediscovered and put so convincingly that its influence spread beyond the strictly scientific world. From 1870 onwards, evolutionary philosophy pervaded many departments of academic learning.

As spelt out by Henry Reynolds in his book *Frontier: Aborigines, Settlers and Land* (1987) Darwin's evolutionary synthesis overturned some aspects of earlier racism but confirmed others, providing them with scientific support. Social Darwinism incorporated the concept of race itself, the idea of a racial hierarchy and the commonly accepted grading of the world's people. Darwinians now saw the concept of "the great chain of being" as a staircase of living matter, as a type of living genealogical tree, with so-called savages ranked just above monkeys, from which they were believed to have evolved.

Darwinian scholars were convinced that the Aborigines were among the oldest surviving races; they were relics of the early history of mankind, living fossils to be studied. Haekel in his *The History of Creation* (1892) wrote that "The lowest stage of all human species is occupied by the Australian or Austral negro." Such ideas remained widespread even until the 1930s.

Social Darwinism also gave sanction to racial violence as various races were seen to be in a ceaseless struggle for survival, out of which the fittest and the best emerged. The destruction of Aboriginal society was 'simply a question of superiority of race and the greater inherent capability on the part of the whites' (James Collier, as quoted in Reynolds 1987, Ch.5 'Savages'). The growth of scientific racism was a European rather than a purely Australian phenomenon, but it furthered the material interests of most settlers. It made it much easier to take Aboriginal land without negotiation or purchase.

Early Theosophical literature, while promoting the brotherhood of all humanity, nevertheless followed the common beliefs of Social Darwinism, placing Aboriginals as relics of an ancient round of evolution. The ancient texts "Stanzas of Dzyan" interpreted, translated and examined in the *Secret Doctrine* by H.P. Blavatsky, held to the concept of "the great chain of being" and identified Aboriginals as the most primitive humans on Earth.

In an explanatory note to STANZA VII in book II ANTHROPOGENESIS, Blavatsky (1888) writes "... the inferior Races, of which there are still some analogues left – as the Australians (now fast dying out) and some African and Oceanic tribes ..."(p162) "The Secret Doctrine teaches that the *specific unity of mankind* is not without

exceptions even now. For there are, or rather still were a few years ago, descendants of these half-animal tribes or races, both of remote Lemurian and Lemuro-Atlantean origin. The world knows them as Tasmanians (now extinct), Australians, Andaman Islanders, etc." (p195). The hypothetical ancient continents of Lemuria and Atlantis, now presumed submerged by oceans, were also part of the then accepted geological and biological world-views. Such concepts were completely overturned in the 1960-70s by the theory of Plate Tectonics based on detailed geophysical, oceanographic and geological evidence.

In a similar and ongoing revolution of anthropological, medical and especially recent genetic research, our understanding of human origins has drastically been overturned. While all modern humans have their mitochondrial DNA going back some 190 000 years, all people outside Africa have closer links of less than 73 000 years. The following review of "How Aborigines made Australia" will help to illuminate some aspects of Aboriginal cultures, and their determining role in the making of Australia.

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## THE BIGGEST ESTATE ON EARTH - Book review

Bill Gammage (2011), *The biggest estate on Earth: How Aborigines made Australia*, Allen and Unwin, Sydney.

Review by Dr Olga Gostin,

David Unaipon College of Indigenous Education and Research, University of South Australia, Adelaide, 16-3-2014.

At the height of the much contested Aboriginal lands rights movement in the 1980s, Aboriginal elder, Pat Dodson, famously declared that all of Australia was in fact an Aboriginal artifact, that is, the product of the deliberate engagement of the First Australians with the continent that they had inhabited for at least 50 000 years, or in Indigenous understanding, since the unspecified dawn of time, The Dreaming. As a social anthropologist I understood Dodson's description to refer to the cultural overlay on the Australian landscape as manifest in the over 250 linguistic groups (600 including dialects) that inhabited the continent at the time of the European invasion, with a total population variously estimated at between 750 000 and 1,500 000. No part of Australia was uninhabited or failed to fall under the cultural embrace of The Dreaming with its distinctive creation stories pertaining to each group; its extensive song-lines linking widely separated groups; its various cultural overtones related to specific groups, and trade routes crossing the continent in every direction. The continent was indeed a vibrant human artifact.

In *The Biggest Estate*, Gammage describes and analyses the making of this artifact by Aboriginal people over thousands of years of active engagement with the land. Quite literally he proposes that the continent was the visible and tangible product of

deliberate land management. The author thus challenges the orthodoxies of the early British settlers and colonising agencies that Australia in 1788 was an empty wasteland, an untamed wilderness as it were, with groups of hunter-gatherers wandering over it aimlessly to eke out a meagre sustenance. Instead, the author asserts that Australia was a finely managed estate - hence the title of the book.

Gammage's argument rests on three premises: (1) About 70% of Australia's plants need or tolerate fire, and not just haphazard conflagrations generated by lightning strikes. "Knowing which plants welcome fire, and when and how much, was critical to managing land. Plants could then be burnt *and not burnt* [OG emphasis] in patterns, so that post-fire regeneration could situate and move animals predictably by selectively locating the feed and shelter they prefer. (2) Grazing animals could be *shepherded* [OG] in this way because apart from humans they had no serious predators. Only in Australia was this so. (3) There was no wilderness. The Law - an ecological philosophy enforced by religious sanction - compelled people to care for all their country. People lived and died to ensure this" (BG 2011:2). Gammage is careful to note that the Aboriginal ethic of land management was far from static despite being conservative and driven by embedded spiritual values. "On the contrary, an uncertain climate and nature's restless cycles demanded myriad practices shaped and varied by local conditions. Management was active not passive, alert to season and circumstance, committed to a balance of life" (BG 2011:2).

What led the author to these conclusions? In his first chapter entitled 'Curious landscapes' Gammage cites at length the observations of early explorers and settlers who commented on the counterintuitive fact that "the poorest soils contained more than treble the number of trees that are found in the best soil, being also much longer and taller" (Robert Dawson, 1826, cited by BG 2001:6). Others commented on the park-like landscape of open meadows with a few judiciously distributed shade trees, akin to gentlemen's estates in England. Acute observers pondered on the apparent illogical distribution of heavily wooded ranges surrounding denuded, grassy plains despite the similarity in soil and chemical composition of adjacent areas. Examples are drawn from across the continent with a particularly interesting insight into the vegetation of Tasmania that, early observers noted, was guite unlike that of New Zealand's South Island with a similar climate. Instead of dense rainforest, there was, at the time of first European arrival in Tasmania, a spread of eucalypt forests interspersed with scrub, heath and grassland patches. Following European settlement of the island, dense, impenetrable rainforest re-asserted itself. Two factors are relevant here: first, eucalyptus seedlings won't grow in rainforest because there is not enough light. It follows that the prevalence of eucalyptus forests at the time of European settlement was a managed phenomenon; and secondly regular and systematic burning halted with the arrival of Europeans, followed by the return of rainforests. As Rhys Jones reflected: "The present distribution of floristic units in western Tasmania can be explained only in terms of both a high fire regime over a long period during the past, and the lifting of that pressure during the past hundred and fifty years" (cited in BG 2011:11).

Thus very early in *The Biggest Estate*, Gammage affirms Aboriginal deliberate control of their environment, and the use of fire as the major tool of land management. The author cites many examples of the detailed botanical knowledge that informed the use of fire and how it was applied differentially in different environments. Three examples among dozens given, make the point: "Fire made Tasmania's dry Buttongrass plains, yet besides them may stand pines which fire kills, some 2000 years old. In Arnhem Land Blue Cypress needs mild fires every 2-8 years. Fires more frequent or intense kill or damage the stand; fires less frequent let it choke with saplings. Lightning or casual burning could neither commence nor maintain such a fire regime, yet the pine stood in vast tracts in 1788, and stopping fire [after] 1788 caused a 'widespread crash' in its population" (BG 2011:13). And finally, "of twelve food plants in the Centre, five need fire, three tolerate it, and four are killed by it. All twelve flourished in 1788, so people managed them with different but adjacent fire regimes over many centuries" (BG 2011:14). No wonder the eminent botanist Peter Latz concluded that central Australians "may have, guite literally, made the country what it is today by their use of fire" (cited in BG 2011:14).

So much for the botanical evidence that Australia's vegetation and landscape in 1788 was the product of centuries of deliberate land management, largely through the discriminating use of fire. In his second chapter entitled 'Canvas of a continent' Gammage elaborates on this theme by discussing the representations of landscape by early post-settlement painters. Starting from the premise that 'artists were the photographers of their day' Gammage presents a richly illustrated series of paintings depicting a wide range of landscapes and contrasts these with current photographs. The author doesn't doubt the accuracy of the painted landscapes. "Why invent a landscape that viewers might know was false, when the original was so novel? It was safe to embellish a transient foreground, but not the broad span of the land, for along with its people and animals this was a main reason for painting Australia at all" (BG 2001: 19). The author presents the photographs and painted landscapes with copious annotations and concludes: "To see unnatural plant patterns in one picture is persuasive; to see in pictures across the Australia the same patterns in different climates and terrain and among different plant species is powerfully convincing; to see those patterns in both mainland Australia and Tasmania is extraordinary" (BG 2001:20). The importance of the final observation is highlighted by the fact that the islands were separate for 8 000 years - a degree of isolation unparalleled in human history.

Everywhere the same combination of good soil/open forest/ no undergrowth seems to prevail. "Unnatural but common, this can only have been caused by deliberate and repeated fire" (BG 2001:19). The reason for this pattern is explained in Gammage's comment on a photograph of Kangaroo Grass near Berridale (NSW): "Most introduced grasses are winter or spring flourishing annuals; most natives are summer flourishing perennials. Fire and drought kill annuals readily but perennials rarely. This made native perennials invaluable: being perennials they re-shoot green when burnt, and being summer flourishing they feed grazing animals when drought is worst and fires most easily lit. Burning thus attracted the animals, and limiting the burn

concentrated them. People burn carefully, for perennial pastures also carried herds, annuals, tubers and bulbs, each needing different fires" (2011:32). Not surprisingly, Gammage berates the changes brought about by European repression of traditional land care and the introduction of new plant species: "Introduced winter or spring flourishing annuals, dead in summer, replaced summer flourishing perennials. *Golden Summer's* [referring to the 1986 seminal exhibition of Heidelberg School paintings] golden creams are colours of death. Conserving drought-shielding perennials took more skill than the newcomers had" (2011:34).

Nor was Aboriginal land management merely a generational matter. Some of the landscapes, as in Tasmania where original rainforest had been replaced by eucalyptus forest, were the product of centuries of fire management. Likewise, Adelaide's Mount Lofty ranges whose middle reaches and foothills at the time of European contact were described as verdant rolling pastures featuring a mere scatter of beautifully-formed trees that "nature had planted as if with the hands of a gardener" (Dirk Hahn 1839, cited in BG 2011:43) would have been the product of 300-500 years of deliberate management by systematic burning (BG 20011:41). Gammage concludes: "the template was flexible but simple to maintain. What fire to use and when varied across Australia, but the purpose was the same, to associate water, grass and forest, providing habitats and making the clean, beautiful landscapes dear to Aboriginal feeling... Across Australia the end was the same: to make resources abundant, convenient and predictable. Only the means varied." (BG 2011: 61, 87). Ironically, the very care that the First Australians put into creating an optimal environment for their prosperity was the drawcard for the European takeover of their land: "People made the land beautiful, but settlers took it because it was useful. Paddocks in forests gave them water, pasture, timber and security. By shaping the land so carefully for grazing animals, people paved the way for pastoral occupation. The more carefully they made the land, the more likely settlers were to take it" (2011:95). Nor does the author mince his words over European impact on the continent: "A landscape once carefully maintained has been let run wild...Controlled fire and no fire are beacons of history" (2011: 63, 67). And we might judiciously add: wildfires and uncontrolled conflagrations are the price present generations are paying for over two centuries of poor post-colonial land management.

The first two chapters discussed above set the framework for subsequent chapters which elaborate on the main premises set out earlier. Thus chapter 3 'The nature of Australia', contrasts pre- and post-settlement changes in soil, plant (notably grass), animal and bacterial composition, as well as changed alluvial and water regimes. Of particular interest is Gammage's discussion on the link between trees, saltbush and perennial grasses that mitigated surface salinity under Aboriginal land management, and post-1788 increases in salinity (BG 2011:110-1). The author elaborates on the importance of soil-plant associations and the distinctive attributes of particular plant communities. Not surprisingly, fire as an active tool of land management is an important focus of this chapter. According to Gammage "fire is drought with legs...Yet whereas drought is rarely a friend, fire often is"(2011:118). Specifically, he looks at different species of gum and shows how their smooth or

stringy barks are adaptations to either repel or facilitate fire. "In a nutrient-poor continent...allying with fire let eucalyptus conquer Australia" (2011:121). But this was no fortuitous or rampant wildfire; it was a carefully husbanded tool, wielded by people who had fine botanical knowledge and who fully appreciated the interdependence between human, plant and animal communities.

I am less convinced by chapter 4 'Heaven on earth', which engages with Aboriginal spirituality and the role of the Dreaming in regulating behaviour generally, and land management specifically. Some of the diction is somewhat New Agey but certain observations ring true: "Aboriginal landscape awareness is rightly seen as drenched in religious sensibility, but equally the Dreaming is saturated with environmental consciousness. Theology and ecology are fused... Ecology explains what happens, the Dreaming why it happens" (2011:133). This line of thinking is expanded in chapter 5 'Country' where the connection of humans to the land is explained, notably through totemic beliefs. Specifically the author engages with Aboriginal sense of country: land belonging to a specific group, imbued with Dreaming and associated values which dictate one's obligation to care for country, to carry out proper ceremonial, to clean it (notably by judicious fire management) and nurture it. It is in this sense that the mantra 'we belong to the land' can best be explained; it refers to the duty of care and the obligation to manage one's country/land properly. This is not to say that groups were constrained to their local areas. Marriage followed prescribed rules that ensured that ties were spread far and wide, especially in less productive areas; there were extensive ceremonial cycles that required the movement of people across vast distances; while trade routes that criss-crossed the continent over thousands of kilometers were "among the world's most extensive systems of communication recorded in hunter-gatherer societies" (Isobel McBryde, cited in BG 2011:149). Country was thus the very essence of Aboriginal wellbeing and identity and 'like the magic pudding never reduced' (2011:140). Never, that is, until the European invasion. The eminent anthropologist Bill Stanner describes what ensued: "When we took what we call 'land' we took what to them meant hearth, home, the source and locus of life, and everlastingness of spirit...The aborigines (sic) faced a kind of vertigo in living. They had no stable base of life; every personal affiliation was lamed; every group structure was put out of kilter; no social network had a point of fixture left"(cited in BG 2011:143).

Gammage notes this cross-cultural impact almost in passing, for his focus remains steadfastly on what led to the creation of the biggest estate on earth. Chapter 6 entitled 'The closest ally' deals at length with the use of fire, while the next chapter 'Associations' fascinatingly describes the outcome of prolonged burning on the landscape. Through careful fire management the dichotomy between grasslands and forests gives rise to a diversified environment where country comprises edges, belts, clumps and clearings - all used for different purposes and carefully managed. This is what he calls 'Templates' in chapter 8. "People catered to preferences. They coupled preferred feed and shelter by refining grass, forests, belts, clumps and clearings into templates...Templates set land and life patterns for generations of people. They were the land's finishing touches, offering abundance, predictability, continuity and

choice...Templates ...were...linked into mosaics ultimately continent wide. Each template might have multiple uses or overlap, but together they rotated growth in planned sequences, some to harvest, some to lure [game] and locate...All demanded controlled fire."(2011:211). This theme is picked up in chapter 10 'Farms without fences' where the author expands on the theme of harvesting vegetable foods and game in a systematic way. "People civilised all the land, without fences, making farm and wilderness one" (2011:304). The author makes the point (rather lyrically) that in 1788, "the land was no passive space, but the Dreaming's timeless gift, wondrous bounty, and ageless duty. It was alive, giving, receiving, teaching, correcting, balancing...No chance of Nature, no careless hand, no random fire, could make so rich a paradise" (2011:238).

In case the reader needs further convincing, chapter 9 'A capital tour' looks at the continent's capitals and shows how the newcomers to each area engaged with the land they had come to claim. The mantra is repeated: "What people until 1788 prized most, the newcomers prized least. Sometimes deliberately, sometimes not, as soon as they landed they began to destroy" (2011:239). This argument is taken up in the final chapter 11 'Becoming Australian' in which Gammage records the progressive dismantling of the Australian template by the newcomers, the neglect of carefully nurtured estates and ironically, the emergence of wilderness where there had been none before. The author states tellingly: "If terra nullius exists anywhere in our country, it was made by Europeans...A majestic achievement ended...For the people of 1788 the loss was stupefying. For the newcomers it did not seem great. Until recently few noticed that they had lost anything at all. Knowledge of how to sustain Australia, of how to be Australian, vanished with barely a whisper of regret." (2011:323). Gammage ends his exploration with the admonition: "We have a continent to learn. If we are to survive, let alone feel at home, we must begin to understand our country. If we succeed, one day we might become Australian" (2011:323).

These concluding words of Gammage's prize-winning text are clearly aimed at non-Aboriginal Australians. There is little in the text that Aboriginal people haven't known or claimed in the past two centuries and some, of European takeover of their continent. Nor is Gammage a pioneer in presenting the argument he has on the importance of managing fire in shaping the Australian landscape. This is not the place to review or list the copious precedents on this theme, though the interested reader might profitably scan Hallam S.J. *Fire and Hearth: peopled landscapes in southwestern Australia in the early 1800s* (1975); Peter Latz *Bushfires and Bushtucker: Aboriginal plant use in Central Australia* (1995); Marcia Langton *Burning Questions: emerging environmental issues for Indigenous peoples in northern Australia* (1998); David Horton *The pure state of nature: sacred cows, destructive myths and the environment* (2000); and Lesley Head *Second Nature: the history and implications of Australia as Aboriginal landscape* (2000). What makes Gammage's text so alluring is its easy style and its juxtaposition of early colonial art, photos and texts as part of his detailed analysis. The elephant in the room, of course, is what about the First Australians? Where are they positioned given the enormous blow to their inheritance and legacy as carers of country, as managers of the biggest estate on Earth? The interested reader is referred to Langton's text above but the issues raised run deep and require careful analysis of the power play between Black and Green politics, the ideological packaging of notions of wilderness, the undercurrents to Native Title claims and the ongoing fight of Indigenous Australians to be recognised for their crucial role as caretakers of the country. Do we need a more graphic reminder than the fact that Australians are yet to be convinced that Aboriginal people should be recognised in the Constitution, and that we are to have a referendum on the formal acknowledgement of the managers of the biggest estate on Earth?

[Readers comments are invited - Ed]

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## THE LAND IS MY BACKBONE

"The land is my backbone, I only stand straight, happy, proud and not ashamed about my colour because I still have land. The land is the art. I can paint, dance, create and sing as my ancestors did before me. My people recorded these things about our land this way, so that I and all others like me may do the same."

"I think of land as the history of my nation. It tells us how we came into being and in what system we must live. My great ancestors who lived in the time of history planned everything that we practice now. The law of history says that we must not take land, fight over land, steal land, give land and so on. My land is mine only because I came in spirit from that land and so did my ancestors of the same land. We may have come in dreams to the living member of the family, to notify them that the spirit has come from that part of our land and that he will be conceiving in this particular mother."

"The land is my foundation. I stand, live and perform as long as I have something firm and hard to stand on."

Galurrwuy Yunupingu, quoted in Deborah Rose (1996) *Nourishing Terrains*. Aust. Heritage Commission, p40.

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