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## Book Review Section

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**Roger Cross:** *Fallout: Hedley Marston and the British Bomb Tests in Australia.* Wakefield Press: Kent Town, 2001. xii + 226 pp., illus., ISBN: 1 862 54523 5 (PB), \$24.95.



In the 1950s CSIRO biochemist Hedley Marston became embroiled in what Roger Cross describes as ‘the single most important crisis’ of his professional life. Research into fallout from the British atomic tests in Australia brought Marston into bitter conflict with the government-appointed Safety Committee. It was a dispute that involved many of the major players in the Australian scientific community, and one that culminated in ‘perhaps the most unseemly episode in twentieth-century Australian science’. This is a fascinating story of ‘jealousy, hate and power’ that takes us behind the facade of scientific

detachment and adds to our knowledge of the politics and personalities involved in Australia’s atomic adventures.

Hedley Marston, Chief of CSIRO’s Division of Biochemistry and General Nutrition, was approached by British authorities in 1955 to assist in studying the effects of radiation on animals. After initial firings in 1952–3, the British atomic testing program was about to recommence in the Monte Bello Islands, and at the newly-established mainland test site known as Maralinga. Marston decided to examine the take-up of radioactive fallout in grazing animals by measuring the concentration of radioactive iodine in their thyroid glands. His research indicated that fallout was being deposited over a much wider area than the physicists on the Atomic Weapons Test Safety Committee (AWTSC) had publicly admitted. Either they were fools or charlatans, and Marston became increasingly determined to bring them down.

Roger Cross provides a detailed account of Marston’s anger and frustration as he tried to force the AWTSC, led by Leslie Martin and Ernest Titterton, to admit their errors. Attempts at mediation by Fred White, CSIRO’s Chief Executive Officer, and Mark Oliphant, Marston’s close friend, failed. Rancour and recrimination escalated as Marston strove to publish his findings, only to meet obstruction and delay. Even when his work was finally made public, the controversy continued, as the AWTSC sought to have a rebuttal accepted for publication. Oliphant finally

brought an unpleasant battle over who would have the last word to a halt. In the end, Marston's revelations seem to have had little immediate impact, but as Cross demonstrates, public opinion was already on the turn as opposition to atmospheric nuclear testing, both in Australia and overseas, mounted.

Marston imagined himself a champion of science and a defender of truth, but Cross reveals a much more complex figure. Marston was egotistical and belligerent, ready to take the credit for his colleagues' research into coast disease, and prepared to bully anyone who stood in the way of his ambitions. His high standing within the agricultural community, and his carefully cultivated circle of influential friends, gave him a sense of power that he clearly relished. He was no anxious whistleblower. As Cross shows, most clearly in Marston's correspondence with Oliphant, his attacks on the AWTSC were driven as much by anger and revenge, as by a desire to protect the public and defend the standards of science.

Roger Cross has given us a picture of a flawed man, a would-be hero barely able to rise above his own pettiness and insecurities. Our understanding of Marston and his bitter crusade is greatly enriched by Cross' efforts to examine the personality of the man and not just the persona of the scientist. Unfortunately, we don't gain as much insight into his opponents. Titterton clearly had an ego to match Marston's, but Les Martin seems a much more enigmatic figure. From Cross' account, and other sources, it appears that Martin was uncom-

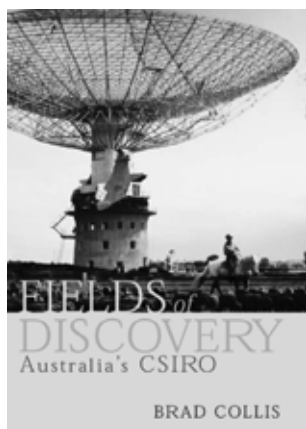
fortable with the public role assigned him as first chairman of the AWTSC. What doubts and torments might Marston's provocations have engendered? Oliphant, as always, is difficult to pin down. At times he tries to soothe Marston, but on other occasions he carelessly fuels his friend's burning rage. Might he have done more to help? It is a measure of the book's success that such questions emerge. There can be no easy answers once we try to explore the human dimensions of scientific controversy.

The book provides a good read, even though the complex chronology of events makes it difficult to keep track of who said what to whom and when. It makes excellent use of oral and archival sources and is thoroughly documented. Of course, you end up wishing for a full biography of Marston, but that hardly detracts from the current volume. If only other attempts at scientific biographies showed the same willingness to deal with their subject's flaws and complexities.

Was this the most unseemly episode in twentieth century Australian science? Who knows? So little has been written about the feuds and conflicts. So much lies hidden behind euphemisms such as 'a difficult man', or 'a controversial figure'. Roger Cross hopes that his story will aid our understanding of 'the tensions that lurk behind the bland face of 'science rhetoric' here in Australia'. Here's hoping that others will follow his lead.

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**Brad Collis:** *Fields of Discovery: Australia's CSIRO*. Allen & Unwin: Crows Nest, NSW, 2002. 540 pp., illus., ISBN: 1 865 08602 9 (HB), \$49.95.



In 1926, the Commonwealth government established the Council for Scientific and Industrial Research, now CSIRO. This was a very significant step, taken at a time when financial conditions were difficult. Science was very much tied up with Australia's interwar views of its emerging nationhood. In his address to the 1939 (jubilee) meeting of ANZAAS, Australian history Professor Ernest Scott of the University of Melbourne, prophesied that the 'future of Australia was bound up with the progress of science'.

The twentieth century has borne out Scott's prophesy. Australia has been shaped by science in an extraordinary number of ways. Historians, however, have largely neglected these stories in their tales of the nation. In 1988 Roy MacLeod in *The Commonwealth of Science*, commented that 'despite their importance in our everyday lives, scientists and science have been posted to the periphery of our history' (p. 1). Despite a growing number of studies of Australian identity and culture, the idea that science is integral to that identity has still seldom been explored.

*Fields of Discovery* does important work by putting a human face on the nexus between Australian nationhood and industry. CSIRO as Australia's flagship research science organisation does (inter)national science for the (inter)national economy. Whether it is food technologies, or in the mapping of the ocean floor, even beyond the earth to moon missions and outer space, Australia's understandings of itself and its place in the world have been mediated by science.

Are there too few national stories with scientists as heroes? Yes, particularly for the twentieth century. Australian historians have, perhaps, been put off by the technicalities of recent science. But they have also been reluctant to write histories of big bureaucracy. There have been important exceptions: for example, Ken Inglis' pioneering work, *This is the ABC*, and Brad Collis' own book *Snowy — the Making of Modern Australia* are examples of the very few stories of industrial Australia. Like the ABC and the Snowy Mountains Hydro-Electric Scheme, CSIRO is 'an Australian icon' (This is the phrase used on the front flap of the book). Iconic status brings problems and expectations as well as a niche market. The challenge is to write interestingly and on a human scale about twentieth century 'Big Science', which is typically dominated by large teams of workers and labyrinthine administrative structures.

Collis, with his journalist's eye, has grasped the nettle of the 'human-sized narrative' with extraordinary success. *Fields of Discovery* offers a rich pastiche of individual stories that unfold in the dramatic style of an adventure or travel narrative. Collis begins with the scientific war on 'alien invaders', the acclimatised plants and animals that have thrived excessively in Australia's distinctive ecosystems, and this war is full of individual and unlikely heroes. Scientist Wendy Forno appears in her fisherman's waders,

scouring Brazil for a natural enemy to the floating aquatic weed, *Salvinia molesta*. Forno was building on a long history of finding biological controls for pest species. The early CSIR had built its reputation on the success of the *Cactoblastus* moth in combating the noxious garden escapee, prickly pear. Collis treats this contextual material lightly, however, and brings his focus on the lone woman on 'a search for the proverbial needle in the haystack' (p. 29). First she had to locate the *Salvinia* itself in its native habitat. In a piranha-infested swamp, less than 100 kilometres from where she was stationed, she had 'sheer luck', and pressed a specimen. Once this was confirmed to be the right species, it took four more years to find a suitable beetle, and confirm that it could indeed destroy the weed.

The sixteen chapters compress work from the many sections and divisions of CSIRO that have waxed and waned over its history. But all are enlivened by individuals, thinking creatively and laterally to solve Australia's perceived problems. George Bornemissza, an observant entomologist working in Western Australia in 1951, was 'struck by the quantity of old cow pats' (p. 47). In his native Hungary, dung beetles could clean up a fresh cow pat in three hours. As a result of his observation, dung beetles arrived to join the cow pats, first north-western Australia, and later many of the southern districts. Bornemissza found suitable species in Hawaii and South Africa. Doug Waterhouse, Chief of the Entomology Division, regarded the dung-beetle program as 'one of the riskiest ventures' he had sanctioned. The second introduction (the dung beetle) dealt with a problem arising from the first (the cattle dung), which had provided Australia's native bushfly with excessive breeding grounds. In a wry aside, Collis notes that the rise of the café society is predicated on the steady reduction in bushflies since the 1980s.

Collis has a real gift for explaining science in plain English — and for making personal connections that enliven his narrative. In 1940s, the mission to recover wool from sheepskins demanded fundamental protein biochemistry. In the 1970s, with wool industry funding declining, the Division of Protein Chemistry recognised that their biochemical knowledge would be applicable to human medicine. We all understand influenza, if not X-ray diffraction technology. Collis takes us through just enough biochemistry to lead to Peter Colman's Relenza flu drug. The idea of a neuraminidase inhibitor was not new: it had been tried before, and abandoned. Colman (with Jose Varghese, and ANU biochemist Graeme Laver) established the 3-D structure of the neuraminidase protein on the flu virus and observed the changes that occurred when the virus mutated. 'There was one small part on the surface of the neuraminidase that didn't change!' (p. 194). A local entrepreneur established a company, Biota, to back this and two other projects to manufacturing stage: a \$100 million enterprise. Only when the drug was clearly proven active did the big global companies, in this case Glaxo, venture capital in trials and marketing.

The CSIRO's publicly-funded national science has been directed towards perceived 'useful' ends in all eras. *Fields of Discovery* offers the reader a rich set of responses to the question: 'What is Australia about?'; CSIRO stories reply loudly: 'the agricultural economy'. The land, its pests, and its productivity have been the overwhelming focus of national scientific effort for most of the twentieth century. This was, of course, the wish of the original Empire Marketing Board in London, whose matching funds tempted the Australian government to invest in science in the 1920s. But this influence persisted well beyond this period. Thus, in the 1930s, Australia was told not to do textiles research since this was the 'prerogative of

the Wool Industries Research Association at Leeds' (p. 152). The war brought some changes to this, with CSIR's Division of Industrial Chemistry taking over some textile development, but the 'primary industries in the colonies, secondary industries in the Old Country' adage died hard. In 1949 Trevor Pearcey and others, concerned about the time taken to do mathematically-complex research, designed CSIRAC, one of the world's first computers, which was commissioned in 1951. Soon after, the CSIRO Executive abandoned computer research, still apparently influenced by British advisors 'who recommended Australia concentrate on agriculture' (p. 413).

But what happens when the sheep's back is no longer available for a ride? Colman's story indicates just some of the many complexities of big science in the 'commercial-in-confidence' era. Colman, with CSIRO's agreement, became a Research Director of the company Biota — but found that this meant giving free scientific advice. 'When they get legal or accounting advice they pay for it', Colman commented, 'but for scientific advice, which is even more fundamental, they weren't accustomed to paying' (p. 195).

'Strategic research' sits uncomfortably at the intersection between basic research and commercial patents. Basic research outcomes are intellectual property available to all through the peer-reviewed literature. Product patents, particularly for human pharmaceuticals, are only affordable for a handful of global players, and therefore secret — or 'commercial-in-confidence'. There is a definite national interest in being in the game, but it is a long run, even for the 'success' stories (just over two decades for Relenza). The other two products backed by Biota were not proven commercial successes in that time-frame. Meanwhile, scientists' careers are measured by their publication outputs, and organisational success criteria for

institutions such as CSIRO are also biased to published output.

The stories of the scientists and their quests for discovery are mostly drawn from the memories of present and retired CSIRO staff. Collis is a good listener, and clearly many of the scientists themselves are great story-tellers. *Fields of Discovery* has also benefited from CSIRO's rich crop of divisional histories. In 1949, when the CSIR acquired its O, there was a radical reorganisation and new sections and divisions such as Wildlife (now Sustainable Ecosystems), Wool Technology and Mineral Chemistry emerged, and there was a corresponding rush of jubilee histories in the late 1990s. There have also been a handful of biographies and a detailed history by Boris Schedvin of the CSIR period. *Historical Records of Australian Science* has been a significant and important resource, and one of the few that is genuinely independent of CSIRO.

Collis has combed this literature intelligently in his search for a new 75-year synthesis. His style is chronologically eclectic, but focuses mostly on the last fifty years. This is a welcome change from the histories of Australian science that start at the beginning and pretty much stay there. Collis has referred to very few documentary primary sources such as letters and memoranda, which is a pity, as they have the potential to correct the inevitable biases of memory.

In a climate where CSIRO must find 30% of its funding from industry, Collis has manifested a definite (and understandable) bias to stories of success. Marketing the good products is an essential skill. But science itself needs to know its 'bad' stories — failure or negative results may be as important for future developments in a different context, and this is where archives have the potential to play an essential part.

The story of the polymer banknotes (pp. 461–3) has an interesting historical

dimension, not noted by Collis. The work done in 1967 on polymers, which was essential to the 1988 product that is a familiar item in our wallets today, could easily have been lost. At a time when the needs of basic research and the creation of production technology led to conflict between partners on the project, CSIRO became aware of the critical role played by the records and archives of science as evidence of achievement. They called in the Australian Science Archives Project (now Austehc) to locate and document the original scientific records. These records were not in the central filing systems but in the desks and laboratories of the scientists and technologists. The banknote project also ensured that CSIRO records were kept rather than discarded and these are now preserved in the National Archives of Australia. Archives management is essential to history and to future science, and in this case, to the financial rewards for science.

The words 'commissioned history' are studiously avoided. This book is published by an independent commercial publisher, yet the copyright rests neither with the creator nor the publisher, but with CSIRO. The reflective moments in this book are brief, and inhibited. The Epilogue of less

than four pages is less than one percent of the book. The final word is David Rivett's plea for intellectual honesty in the pursuit of knowledge, something that undid him in 1949. History, like Rivett's science, needs to travel that road to knowledge 'with unrestricted, passionate and fearless enthusiasm' (p. 481). It cannot be conflated with communication and marketing. Nor can it be just a story of the victors.

If you are looking for a rattling good yarn of national success that is neither military nor sporting, *Fields of Discovery* is your book. Rich with Eureka moments, Brad Collis has created a great read. But there is a nervousness in the analysis that suggests that we are still not comfortable about the role of science in the nation, and that scientists are still anxious about their future. The challenge is, as Collis says, 'to determine how to invest rather than squander this legacy' (p. 481). There is still another crossroad ahead.

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**Warwick Anderson:** *The Cultivation of Whiteness: Science, Health and Racial Destiny in Australia.* Melbourne University Press: Carlton, 2002. 364 pp., illus., ISBN: 0 522 84989 X (PB), \$34.95.



If you have seen the film *Rabbit-Proof Fence* you will recall the chilling moment when A. O. Neville, the Chief Protector of Aborigines in Western Australia, peers under the clothes of his new Aboriginal charges and closely examines their skin colour. What was the ‘whiteness’ he and others were looking for?

In the wake of an election where the Australian Prime Minister tapped into popular concerns about race and border protection, here is an important book that helps us make sense of the tenacity of visions of a white Australia. The author, Warwick Anderson, is a medical doctor and an historian of science, and he wants us to recognise the clinic and the laboratory as sites where a nation may be imagined. Science and medicine, he shows, once helped to set Australia’s racial agenda, and those ‘deeper contours of old biological thought’ remain. ‘White Australia’, which was inscribed on the birth certificate of the federated nation, may have been officially declared dead about 1970, but it persists in our psyche and politics.

*The Cultivation of Whiteness* brings together aspects of Australian life and history that are now more often separated — race and environment, blood and soil, medicine and geography, tropical science and urban health, biological thought and national policy, Aborigines and immigration, the body and the mind. The result is a rich and subtle history of ideas that is both intellectual and organic, and that vividly evokes past states of mind and their lingering, haunting power. In its exploration of the perceived threat to the European race from within the continent and from without, *The Cultivation of Whiteness* sits beside two other landmark books in Australian history, *Anxious Nation* by David Walker (University of Queensland Press, 1999) and *Imagined Destinies* by Russell McGregor (Melbourne University Press, 1997).

‘Whiteness’ did not just stand for skin colour. Warwick Anderson shows how the term could generalise many physical and cultural attributes — British ancestry; membership of a Caucasian race; a certain bodily constitution or temperament; a cultural legacy and thought style; a head circumference and brain capacity; a predisposition or resistance to certain diseases; a blood group; or an emerging national type.

The book vividly evokes the geographical viewpoint of much colonial medical practice, and reminds us that medicine was a discourse of settlement. Transferring British bodies to the Antipodes jeopardised their constitutional balance. In the nineteenth century, bodies appeared more attuned and vulnerable to place, and they were analysed in terms of their equilibrium with the environment. Medical treatises could read like meteorological reports. The displaced British lived with a fear of bodily imbalance, exhaustion, and degeneration, and their constitution — their whiteness — could be threatened by hot winds, sudden



shifts in temperature, bright sunlight, and by the dark history of their adopted land.

By the 1880s, however, with the rise of contagionist doctrines and germ theory, it was the social rather than environmental milieu that came to matter more to health. The identified sources of disease were increasingly people rather than places, and citizens were urged to regulate their personal contacts rather than their environmental exposure. The threats to the body were no longer sensual and geographical, but instead were invisible, minute and mobile — and detectable only by science and its burgeoning laboratories. As germs took over from climate as the perceived determinant of disease, it was other human bodies — especially the bodies of the poor and other races — that became the subject of civic discipline.

The moral geography of disease persisted longest in the tropics, where the environmental threats to European inhabitation seemed most severe. Whether a working white race could ever be established above the Tropic of Capricorn was a subject of popular and learned debate well into the twentieth century. But the concerns that whiteness would wither or brown in the tropics soon gave way to a sense that there were no environmental limits to white colonisation. This was partly a result of changing scientific ideas about the power and imperviousness of heredity, and a growing confidence in the robustness of racial biology and identity.

The spectre of degeneration that had haunted Europeans in an alien land was gradually transformed into a triumphant celebration of new, limitless territories for the self-possessed white man. But if the racial inheritance of whites was a more resilient and transportable commodity than colonists had first feared, then for the same reasons, coloured races were condemned as reservoirs of disease. European contact with them must be minimised. Anderson writes that ‘this medical endorsement of a

quarantine sensibility meant that the white Australia policy, once a physiological impossibility, by 1920 had come to appear a microbiological necessity’. Biology and the nation were united.

One of the most interesting and perceptive chapters of the book concerns the attempts by some white scientists, particularly from the 1920s, to incorporate Aboriginal Australians into an expanded understanding of ‘whiteness’. In this period, scientists subjected Aborigines to far more biological and medical scrutiny than ever before; they endlessly measured, probed and bled tolerant outback peoples. The scientists concluded that the original Australians were distant relatives of Europeans because they were ‘archaic Caucasians’. Aborigines might look different, but they were white at heart; they were biological and even perhaps spiritual kin; they could be admired as an alternative to modernity; and they might indeed be successfully absorbed into the white population. A scientific rationale had emerged for the policies of ‘breeding out the colour’ that especially targeted half-castes, a proliferating and disturbing group that was regarded as neither white nor authentic black.

Two of the scientific lives featured in the book illustrate the alternative possible trajectories of ideas about racial destiny in twentieth-century Australia. Raphael Cilento, Director of the Australian Institute of Tropical Medicine in Townsville in the 1920s, was a brilliant promoter of white settlement in the north. He was co-author of a history of Queensland entitled *Triumph in the Tropics* (1959). Anderson describes how, in the 1970s, Cilento was still urging his fellow Australians to ‘examine the purity and dilution of our racial blood’. The abandonment of the white Australia policy, argued Cilento, was dangerous. National health required continued immigration restriction, the selective breeding of our existing white

population, and the eradication of multiculturalism.

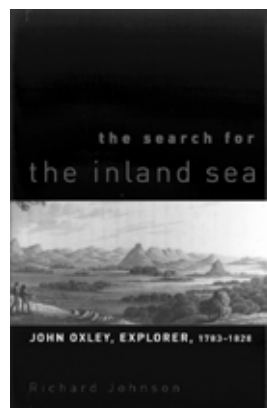
Joseph B. Birdsell, a Harvard graduate student in physical anthropology, studied 'race crossing' in Australia. Together with Adelaide entomologist and anthropologist Norman B. Tindale, Birdsell measured and tested 'black-white crosses' in South Australia, New South Wales and Bass Strait in the late 1930s, recording their 'daily catch' of physical characteristics, blood groups and genealogies. Birdsell was impressed by the Australian hybrids: it looked almost as if 'two kinds of whites had mixed'. Their tests revealed no half-caste degeneration, and they recommended absorption, not isolation, as the solution to the half-caste problem. Aborigines were found to be not sufficiently different, biologically, to threaten Australia's whiteness.

Birdsell's war service delayed his analysis of his measurements and when he returned to the task in the late 1940s, he had come to distrust racial typologies. He found himself unable to define any clear racial boundaries. Hybridity was everywhere. He had set out to find a solution to the 'problem' of half-castes, and had found that 'race crossing' was not so much bad, as meaningless. By the 1980s, he and Tindale had become supporters of Aboriginal self-determination and land rights, and their genealogical data were helping to reconstruct the black families their science had promised to dissipate.

This is an outstanding history, very well written, and full of thoughtful analyses of frames of mind that persist today. A. O. Neville appears in it briefly, still peering at coloured skins and faces and bodies, searching for a residual blackness and a redeemable whiteness.

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**Richard Johnson:** *The Search for the Inland Sea: John Oxley, Explorer, 1783–1828*. Melbourne University Press: Carlton, 2001. 305 pp., illus., ISBN: 0 522 84959 8 (HB), \$49.95.



Richard Johnson comes to his topic with a background similar to John Oxley's. As a Research Surveyor with the Central Mapping Authority in NSW he became interested in the work of the early Australian inland explorers, many of whom came from the Survey Department. According to the jacket cover he spent ten years researching Oxley's life and there can be little doubt of this level of devotion in his investigation of his subject. The book is a mine of facts, not only about Oxley's three expeditions, but also about his land grants and property management and his involvement in a wide range of public affairs from the Auxiliary Bible Society and the Agricultural Society to the Philosophical Society and the Bank of Australia. The accounts of the major inland journeys are illustrated by two clear maps, prepared by Johnson and showing both the names Oxley bestowed on geographical features and the present-day names, and by seven black-and-white reproductions of contemporary engravings.

Yet, despite all this wealth of factual material, we do not get to 'know' Oxley in

any way that is memorable. There is no discussion, for example, of his apparent insistence on preserving social distinctions even when Governor Macquarie sought to relax them. More seriously, we are not given any context for Oxley's aspirations to discover an Inland Sea, no examination of why this issue was important in Macquarie's time, or why it was to dominate inland exploration for decades afterwards.

Oxley's *Journals of Two Expeditions into the Interior of New South Wales* are among the most interesting and elegantly written of Australian exploration narratives. It is therefore ironic that, although the bulk of the information contained in this book is paraphrased from Oxley, it lacks the vivacity and style of the originals. In the (sadly few) instances where Oxley's own words are quoted, the liveliness of his prose and his heart-felt response to the landscape, his disappointments at failing to find evidence of an inland sea alternating with his persistent hopes of future success, transform the pedestrian account. Oxley's *Journals* abound with strong human emotions that give us a vivid sense of his elation or despair: 'it was with infinite regret and pain that I was forced to come to the conclusion that the interior of this vast country is a marsh and uninhabitable'; 'the river presented a most singular phenomenon to our astonished view'; 'Nothing can be more melancholy and irksome than travelling over wilds, which nature seems to have condemned to perpetual loneliness and desolation. We seemed indeed the sole living creatures in those vast deserts'. More extracts from the *Journals* could have given us a much more immediate sense of Oxley, the man. Instead, we are left with a battery of questions. Why was Oxley interested in the Auxiliary Bible Society? Was he a religious man? There is no other evidence of this. What were his views about the Aborigines? There are also mysterious innuendoes about the moral

failings of Oxley's brothers but with no evidence as to what they might have been.

Even so, Johnson's subtitle, *John Oxley, Explorer*, is more apposite as a description of the contents than is the title. The search for an inland sea was a major fixation, even an obsession, for more than thirty years of Australian colonial history, beginning with Matthew Flinders' speculation that a hypothetical great river emerging on the north-west of the continent, as envisaged by Dampier in 1699, might lead to a Mediterranean sea. It is highly probable that Oxley would have read Flinders' *A Voyage to Terra Australis* before setting out on his 1818 expedition, and almost certainly, he would have read it before writing his own account where he discusses the concept of an inland sea. Yet none of this fascination with the prevailing myth (and the alternative version of a great river flowing across the continent) surfaces in this book, not even when Charles Sturt, the most obsessed of all the explorers with finding it, makes an appearance in the last few pages. In a footnote to the Epilogue, there is a reference to Tim Flannery and Paula Kendall's *Australia's Inland Sea*, but there is no such context in this narrative. We are told merely that 'Oxley volunteered his services for any further expeditions Macquarie might consider sending to the interior ... and they briefly discussed the mysteries of the inland'. It is later suggested that Macquarie asks Oxley to lead the expedition to follow the Lachlan River, even though he personally has more faith in George Evans, Assistant-Surveyor in Van Diemen's Land, only because Lord Bathurst considered Evans to be lacking the required level of education. In these post-colonial times, some discussion of this conflict is surely appropriate.

One of the many appealing aspects of Oxley's *Journals* was the inclusion of engravings based on George Evans' sketches illustrating events in the narrative. Three of these are reproduced in this

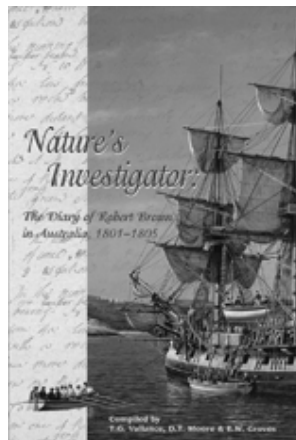
volume, but a strange omission is that based on Evans' fascinating drawing 'The Grave of a Native of Australia', which directly illustrates a passage in the text.

Readers of history today justifiably require meticulous research into details, but they also expect a social context, a degree of philosophical and sociological discussion, and a sense of the personality of the protagonist. It is these last requirements that are unfortunately absent in this volume. There are also some strange lacunae in explanatory material. Oxley recorded that a particular hill reversed the needle of his compass, even though the rock contained no iron. Puzzled, but recalling that he had read of a similar anomaly at Loadstone Rock in the Hebrides, he called the feature Loadstone Hill. Yet there is no geological discussion of such a phenomenon.

The book is a solid and impressive piece of research into the archival background of Oxley's *Journals* and other selected aspects of his life, but it rarely becomes more than this.

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**T. G. Vallance, D. T. Moore and E. W. Groves (compilers):** *Nature's Investigator: The Diary of Robert Brown in Australia, 1801–1805*. Australian Biological Resources Study: Canberra, 2001. xii + 666 pp., illus., ISBN: 0 642 56817 0 (HB), \$75.



The year 2001 was the first of five years of bicentennial celebrations of Robert Brown's visit to Australia. He arrived in 1801 as naturalist on Matthew Flinders' voyage of exploration, which circumnavigated the continent before its conclusion in 1803, then stayed a further two years in New South Wales, Tasmania and Victoria. As the bicentenary passes for Brown and Flinders' contact with various localities in Australia, it is marked by a variety of exhibitions, talks, and press notices. *Nature's Investigator*, which reproduces Robert Brown's Australian diary, was launched at a conference in Western Australia in December 2001, and will be one of the more enduring forms of commemoration.

Brown is famous internationally for his discovery of molecular agitation, or 'Brownian motion', and his expansion of the so-called 'natural system' of botanical classification. In Australia he has been called the 'father of Australian botany' because he was the author of the first,

albeit incomplete, flora of Australia, *Prodromus Florae Novae Hollandiae et Insulae Van-Diemen* (Preliminary Flora of New Holland and Van Diemen's Land) which was published in 1810. A planned second volume never eventuated, apparently because Brown was disappointed with sales of the first.

The story of Brown in Australia has been told from various documents emanating from the Flinders' expedition, but his diary has been largely overlooked. As David Mabberley commented in *Jupiter Botanicus* (1985), the most definitive biography of Brown:

Most entries are mere notes on plants and so carelessly written, with no eye on posterity, with no 't's crossed nor 'i's dotted, and penned in such cramped and hot conditions, the scripts from one side of the leaf soaked through to the other, that they are frankly of little value in giving us an idea of life on the expedition, so that it is necessary to use Flinders' accounts and to a lesser extent the diary of Peter Good (p. 87).

While the editors of *Nature's Investigator* acknowledge Mabberley's comments, they also assert that 'with some effort, the execrable handwriting could be read' (p. 11). Moreover, they claim that it is worth doing so because the diary helps to fill certain gaps in the story of Brown's contribution to the natural history of Australia, from a scientific point of view. These gaps relate to precise information about Brown's movements in Australia, especially after he separated from Flinders, and also to information about what specimens Brown collected, and how many of these were eventually referred to in publications.

It took the three editors (who modestly call themselves 'compilers') nearly twenty years, and enough vicissitudes to make a good story in itself, to transcribe, compile, edit and annotate the diary manuscript. The editors are all scientists by profession, with a shared interest in the history of science, especially in Australian natural history exploration. Thomas Vallance, a geologist,

died in 1993, eight years before the diary's publication. Eric Groves, a botanist, is now retired, and David Moore, a botanist and geologist, thanks his wife for 'virtually financing the UK end of the project between 1993 and 2000' (p. ix).

It is clear that long hours were spent preparing *Nature's Investigator*. The attention to detail in the publication is remarkable, with the contribution of many experts acknowledged. The editors and some of these experts have published a number of other papers on Brown, and more are in preparation, which are mentioned in the text or in the references. Patrick McCarthy of the Australian Biological Resources Study (ABRS) is responsible for the excellent maps redrawn from Vallance originals. A general map appears in the endpapers and more detailed ones are appropriately located throughout the text. The 31 colour plates include scenes and organisms photographed by J. R. Clarkson, M. Fagg and D. T. Moore.

The diary is prefaced by a general introduction in which the editors sketch the background of the voyage and its main participants, Australian natural history and Brown's contribution to it, and the relevant surviving papers and artwork. This survey reveals the complexity of task undertaken to transcribe and edit the diary. There are many Brown manuscripts and specimens in a number of repositories in Britain and Australia. Such material includes Brown's 'slip catalogue' of manuscript plant descriptions, plant specimens in the Natural History Museum London and his correspondence to Joseph Banks. The editors tried to view all of the material relevant to Brown's diary, and to incorporate it, or at least references to it, in *Nature's Investigator*.

While it is convenient in some ways to have this information presented in a book form, web sites now present possibilities for the compilers of multiple sources not available to the editors of *Nature's Investigator* when they started their work. A good example of what can be done is the James

Fairfax Matthew Flinders Electronic Archive of the State Library of New South Wales (<http://www.slnsw.gov.au/flinders/>). It allows readers to compare transcriptions with photographs of manuscripts in colour and in black-and-white. It is easy to access different kinds of information in this site, without any sense of clutter, and without the space constraints of a book.

In *Nature's Investigator*, Brown's diary itself is presented in the form of 27 chapters. Some of these are prefaced with a short introduction. Chapters one to three cover Brown's preparations for the expedition and its voyage to Australia. Chapters four to nine cover the voyage from Western Australia to Sydney, including an encounter with the French exploring expedition led by Nicholas Baudin. Chapters 10 to 17 cover the circumnavigation, including an encounter with Malay fishers; chapters 18 to 26 cover Brown's final two years in Australia; and chapter 27 covers 'The return voyage and homecoming'.

Within the chapters, each day is given as a separate entry, with the date in bold and the subject in italics. The relevant diary fragments are then transcribed faithfully, except for the addition of some punctuation 'for clarity' (p. 12). The diaries of Matthew Flinders and Peter Good, the expeditions' gardener, are used to flesh out Brown's usually minimal text for the period of the voyage out and the circumnavigation. Good died in 1804, and for Tasmania, Brown's account is augmented by the diaries of A. W. H. Humphrey, a mineralogist, and the Rev. R. Knopwood, a colonial chaplain. On the days on which Brown himself had nothing to say, the diaries of other people are the main source of information on his whereabouts and activities.

Brown certainly seems to have been taciturn. He makes little reference to what he thought or felt on his remarkable voyage of scientific discovery. For example on 6 December 1801 his response to sighting Australia for the first time was: 'At

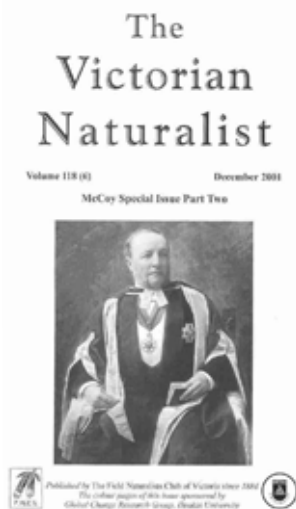
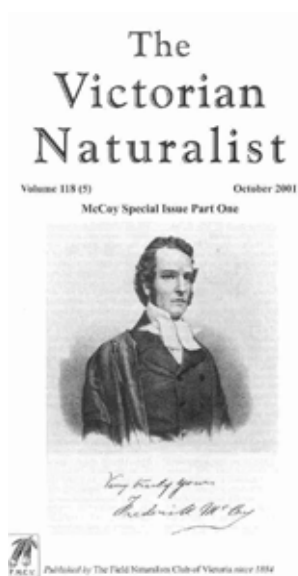
2 PM Land in sight. The South West coast of New Holland'. There are longer entries for various land excursions such as an ascent of Mt Brown in South Australia on 10 March 1892, but with little reference to the effort involved. He resorted to memoranda for what he considered to be more momentous events such as the encounter with Baudin, who failed to impress him, especially because of the 'extreme badness of his English'.

Explanatory notes on the diary are located at the end of each day's entry, and these constitute the main editorial contribution to the publication. They are often longer than the entries themselves, especially when Brown made none, and transform the otherwise terse and enigmatic text into a coherent and informative narrative. The notes include modern identifications of plants, animals, rocks and minerals, and localities, and corrections or alternatives to Brown's account. The most detailed commentary is on Brown's geological observations, which reflects the expertise of the editors but not Brown's main interest, which was botany. The notes also refer to other manuscripts and publications that relate to the diary text.

*Nature's Investigator* is not a book intended to be read from cover to cover. Its publication by ABRS emphasises its importance as a reference work for scientists, but historians of science are also interested in the same kinds of information. Thomas Vallance came up with the idea of the title *Nature's Investigator* with 'Investigator' being a word to describe Brown as well as the name of the ship on which he sailed. Future 'Brown Investigators' will need the diary to hand if they intend to write with confidence about where he was in Australia on any given day and what he saw. What he thought about what he saw, however, remains obscure.

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**Field Naturalists Club of Victoria:** *The Victorian Naturalist: McCoy Special Issues Parts 1 and 2*, vol. **118(5)** October 2001, pp. 145–236 and vol. **118(6)**, December 2001, pp. 237–332.



In view of his stature in the last years of the 19th century, Sir Frederick McCoy has been strangely neglected in the history of Australian science. Now, just a year or two after the centenary of McCoy's death, the

Field Naturalists Club of Victoria (FNCV) has devoted two special issues of its journal to McCoy's life and work, presented in some twenty-eight separate short papers. There are several little-known portraits of McCoy in his younger years, numerous other black and white photos and figures, while the second part (through funding from the Global Change Research Group, Deakin University) contains seven fine colour reproductions of lithographs of McCoy's work, mainly from the *Prodromus of the Zoology of Victoria*, with McCoy colourfully arrayed in all his glory on the cover.

Part one deals largely with the broader aspects of McCoy's life, including his early years, work in Ireland and England, Melbourne University and the National Museum of Victoria (including McCoy's 'Living Museum', a specialised botanic garden). His dealings with John Gould (as a supplier of birds, and who was often unpaid) and his controversy with the Rev. W. B. Clarke about the age of eastern Australian coals are significant parts of these. Perhaps his most important palaeontological work, the study of the brachiopods, is discussed by Neil Archbold. Part two consists largely of papers dealing with specific aspects of McCoy's wide-ranging research on Australian zoology, and his dealings with scientific and other societies.

Part of the neglect of McCoy since 1900 as an important figure in Australian science is hinted at by several authors. Barry Butcher in his discussion of McCoy's anti-evolutionism points out the complexity of both McCoy's and other scientists' stands against Darwinism. A complexity of which modern students of the history of science are well aware, and which researchers such as John Brooke have explored in recent years. As Butcher writes about McCoy: 'anti-Darwinism was not an eccentric excrescence on an otherwise scientific career'. Nevertheless, many earlier historians of science were often

inclined to paint things in black and white, so that McCoy and his kin tended to be dismissed, not only for their anti-Darwinism, but for their work as a whole. Even shortly after his death, McCoy was earning few bouquets. J. W. Gregory, the energetic, ever restless, geologist and geographer, on taking up his post as Professor of Geology at Melbourne, was quick to mention the almost complete absence of specimens for his students at the University left by his predecessor. Gregory was soon rushing off to collect, and incidentally capsized his canoe in the Murray River, a foretaste of his death in a South American River thirty years later. Even McCoy's obituarist, Henry Woodward (quoted by Doug McCann), felt that McCoy really belonged 'to the first half of the present century, but ... survived almost to its close'. McCann discusses this topic in his paper on the Naturalist Tradition and feels that 'McCoy remained an amateur in spirit even though he became a professional at a very early age'.

While it was probably not intentional, the opinions of Woodward, Gregory and others did little to continue a strong memory of McCoy's scientific work. Furthermore at the University, despite the range of his lectures, he did not build up a strong student following, unlike the next generation of professors such as Baldwin Spencer, Thomas Lyle and Orme Masson. The later professors undoubtedly had an advantage in the establishment of professional faculties, as Ian Wilkinson mentions in his paper on McCoy and the University of Melbourne. Was he a good teacher? He was certainly, I think, outshone by the later comers, and by then, McCoy was more interested in his museum and related research.

Nevertheless McCoy has remained not entirely forgotten among Australian scientists, as one of those Victorian Knights who must have done something, but is hardly worth chasing up. (Wasn't he the bloke who unlawfully moved the Colony's

Museum holus bolus from the Government Assay office to the University)? This event was recorded in a famous *Melbourne Punch* cartoon, together with a poem that goes in part:

There was a little man,  
and he had a little plan,  
the public of their specimens  
to rob, rob, rob ...  
yet it don't become professors,  
when they become possessors,  
of property by methods  
contraband, band, band.

Malcolm Carkeek, supported by Ian Wilkinson and Carolyn Rasmussen, does much to clear up, and essentially exonerate, McCoy from this oft repeated claim. As Carkeek writes:

McCoy was 'not a brigand commandeering that to which he had no right, but rather the orderly transfer of the collection, as agreed and arranged between the government and the Council of the University.

A difficulty with McCoy has always been his early years in Ireland, of which some elements still remain essentially unknown. Tom Darragh's paper on the Irish Years sets out clearly what is known, but McCoy seems to emerge relatively fully equipped as a palaeontologist. How much did he learn from Dr Scouler? Were there other teachers? There is more digging required in Ireland, but it might be difficult, I suspect. However it would be nice to know for sure just when he was born.

It is not possible in this review to discuss all the brief papers about McCoy's contributions to the study of various fossil phyla, and similar papers on a variety of zoological matters. Part of this vast range of matters is summarised in the multi-authored paper, with accompanying extensive table, on McCoy's *magnum opus*, the unfinished *Prodromus of the Zoology of Victoria*. The range is truly astonishing and few present-day scientists would be prepared to 'stick their necks out' to identify and name brachiopods, graptolites,



bryozoa, ostracods, snakes, thylacines and ichthyosaurs. Although McCoy didn't always get it right, as with the ichthyosaur, there remains a corpus of work of considerable quality that has stood the test of time. Philip Bock follows up the tabulations in the *Prodromus* paper by tabulating McCoy's work on the bryozoa, but this would be even more useful with a reference list for the authors (e.g. Busk, 1852; MacGillivray, 1869) named in the list. Noel Schleiger's paper on the graptolites contains much of interest and shows the extent of McCoy's work on this fascinating fossil group. However, the stratigraphic ranges could have been more easily understood by the uninformed with a table setting out the order of the Australian zones: Bendigonian, Darriwilian etc., and how they accord with the international zones (e.g. Llandovery, which now includes the Darriwilian). Also, despite George Thureau's claim for a first find in 1856 in Victoria, Selwyn beat him to it by a year or more.

Bernard Mace provides an interesting paper on McCoy and the Thylacoleonid, although I found Fig. 2 a little confusing. A. J. Hell's paper on the ichthyosaur suggests, I believe, that McCoy rather rushed into affirming a definite Cretaceous succession occurring in Australia in his 1865 paper prior to having a really good look at the fossils. But he wasn't the only one to put the cart before the horse in the stratigraphic stakes.

The relations between the 'top scientists' of McCoy's time in Melbourne perhaps might have received more attention. Sara Maroske tells us a little about McCoy's relations with von Mueller in their controversy about the fate of the Cranbourne Meteorites, from which their friendship survived. Incidentally the Cranbourne story might have been taken a bit further, as bits of one or the other ended up in Museums in Liège and Harvard, and possibly elsewhere, a few years after the 1860s.

Perhaps the relationship with Alfred Selwyn before the latter's departure to Canada at the end of 1868 deserved a look. McCoy's position as Chairman of the Royal Commission on gold mining, which receives a brief mention by Carkeek, was clearly an aberration as he had little or no interest in the matter, and his geological expertise was a long way from the practical knowledge required to assess the evidence provided. Selwyn and others were certainly not pleased with McCoy's prognostications.

In hindsight, however, perhaps the greatest bungle by McCoy, aided and abetted by others, was the encouragement of the Acclimatization Society of Victoria. McCoy delighted in the introduction of the Indian mynah, the sparrow, and other more exotic creatures. There is a much fuller story to be made of these activities, as Linden Gillbank indicates.

Sheila Houghton suggests McCoy was a little condescending about the FNCV when it began, clearly thinking of it as an amateur body, but he seems to have quickly realised it had possibilities for enhancing his beloved museum collections. McCoy's battles with Thomas Lucas on society matters are interesting, but the careful reader might be a little puzzled by the listing of A. H. S. Lucas' relatively uninformative autobiography in the reference list on some of these matters, rather than A. H. S. Thomas, the brother of Dr Thomas, who was also an active member of the Society. Thomas edited the Society's journal between 1884–1892, before departing for the more salubrious climes of Sydney. Talking of Societies, did McCoy ignore the Royal Society of Victoria, its predecessors, and the Australasian Association for the Advancement of Science? He certainly had only limited contact with the latter organisation. Is there a story there?

There are some interesting insights into McCoy's activities. In the old tradition of Australian journalism, dating back at least to C. P. N. Wilton and John Lhotsky around

1830, the *Microzoon* articles show something of McCoy's sense of humour, and even, perhaps surprisingly, an interest in field geology. Doug McCann's digging has also produced information about McCoy's 'country estate' at Mt Macedon, including evidence of remnants of his drainage work and exotic plantings.

McCann, the instigator of this McCoy publication project, has contributed a number of biographical papers. His particularly useful *Timeline* shows, in tabular form, McCoy's contributions to both European and Australian science and notes the gradual recognition of McCoy's work in awards from various bodies, including the Royal Society of London, and an honorary doctorate from Cambridge, not to mention a KCMG in 1891.

His paper on McCoy's contribution to stratigraphical palaeontology is an interesting review of McCoy's work in Ireland and England, and particularly his relations with Sedgwick and Murchison. He makes a good case for McCoy's contribution to recognising in the field the unconformity between the Cambrian and Silurian rocks in Wales, although Figure 4 (p. 172) might have benefited from a little more explanation in the caption. Figure 5 (p. 173) suffers from a typographical error in assigning Lapworth's work to 1866, rather than 1879 as stated in the text on p. 172.

McCann works hard to give McCoy credit for being the first to confirm in 1867, after his early Australian work, that the 'geological column was a global phenomenon', McCoy claiming there was an almost complete correspondence between northern hemisphere and southern hemisphere stratigraphy. However, as the coal controversy paper by Roger Pierson shows, there were some aspects of Australian stratigraphy that were not clear-cut, even years after this.

For almost 45 years McCoy's name was synonymous with the National Museum of

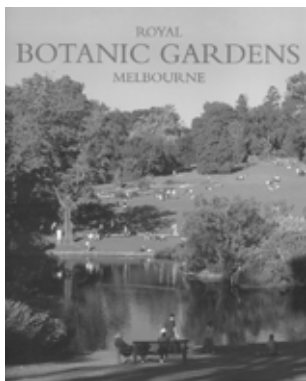
Victoria. He nurtured this institution, if not from birth, at least from infancy, and despite poor funding and inadequate staffing, built an institution that, in his time, achieved international status. It was a solid foundation that has enabled the Museum to overcome many vicissitudes, and which, on its new site, is now celebrating its 150th birthday. If for nothing else, this should have ensured the memory of McCoy as a prime contributor to the history of Australian science.

The papers are all interesting with few typographical errors. For anyone reading it right through, there is some repetition of basic information, but this is necessary for readers 'dipping' into only one or two papers. There is also clearly a little more to be said about McCoy's home life. His family gets a brief mention, but the loss of wife and children within five years must have had quite an effect. Perhaps these matters and other suggested trails mentioned above will be covered in later work.

This fine effort of the FNCV, some 180 pages in all, will serve as a reminder of a multi-skilled person, his wide-ranging interests and his sense of humour, but like all scientists, flawed to some degree. Downgraded in the past for what he did not do, and for a few inevitable errors, this publication reminds of what he did do, and, if perhaps a little too positive about his achievements, serves to correct the balance. It will serve as an excellent base for a biographer. I am sure it will be widely read and appreciated, and if it does not cause McCoy's resurrection, will at least bring him to mind when we think of the pioneers of the natural sciences in Australia. Hopefully it will prove a prelude to what one hopes will be a full-blown biography of McCoy which Doug McCann is well equipped to write. I look forward to it.

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**Deborah Morris** (text) and **Greg Elms** (photographs): *The Royal Botanic Gardens, Melbourne*. Allen & Unwin: Crows Nest, NSW, 2001. 160 pp., full colour, ISBN: 1 865 08551 0 (HB), \$55.



This book illustrates the dilemma faced by many a historian of presenting material in a style that will be accessible to the average reader while observing the traditions of scholarly research. Here the emphasis is on the popular rather than the research tradition. The success of this volume owes much to a set of about seventy photographs taken by Elms. They are, as described on the dust jacket, ‘stunning’ and the combination of superb photography and fine production techniques by Allen and Unwin makes the ‘photo essay’ a delight to behold.

In attempting to cater for a popular audience, the style of writing is popular and readable with occasional light-hearted asides. The material is organised in a style that is a little quirky and at times slightly confusing. Sections on ‘People in the Gardens’ have been inserted in most chapters and in addition the second chapter has an extra section on the Old Melbourne Observatory. These extra sections are marked by the use of a greyish colour as background to the text instead of white and oddly enough have no page numbers. So

the main text stops on one page and resumes unannounced two or three pages later. Page numbers may in any case disappear with up to a ten page gap.

Quotations are periodically featured, almost in the way an illustration might be, in bold type and large font, but are not necessarily ‘grabs’ for text on that page. So a quotation about plant labels appears on page 14, but the text relating to this does not occur until page 43! These quotes are not referenced on the page and may not be referenced at all. References are not numbered but appear on a single ‘end note’ page towards the back of the book, where they are located by means of the page number. Efforts to find the references are not helped by the small font and somewhat faint print used for this end note page, by some limitations in indexing and by the erratic use of page numbering.

Morris (or Allen and Unwin) might argue that the ‘average reader’ would disdain footnotes — might indeed lie on the floor and go into a tantrum at the sight of them. But the ‘average reader’ who wants to know more about William Guilfoyle should be guided to R. T. M. Pescott’s eminently readable *W. R. Guilfoyle 1840–1912: Master of Landscaping*. Pescott is referred to as Guilfoyle’s biographer in the chapter and the book is mentioned under ‘sources’, in tiny font, but it would be more effective to refer to it directly. Pescott’s *The Royal Botanic Gardens Melbourne: A History* remains an important research resource and certainly is not superseded by this new volume.

Turning to more recent research, we have two pages on research in the Herbarium, prepared by the Herbarium staff. There is no real recognition of the remarkable project under the leadership of Professor R. W. Home to locate, and where possible reproduce, the massive correspondence of Baron Sir Ferdinand von Mueller, the largest project of its kind in the Australian history of science field.

Regrettably Rod Home appears in the sources as 'Hume' while Richard Aitken becomes 'Aiken'.

Some comments on the milieu in which Australian botanic gardens were founded would have been useful. Melbourne's Botanic Garden did not emerge in a vacuum. Nearly all the Australian capital cities have botanic gardens that were developed, and publicly funded, within ten to twenty years of European settlement beginning. This was a very different pattern to that of Canada or the United States.

Comparisons with other Australian botanic gardens, even if brief, would have been valuable. For example, Adelaide with a much smaller site, and one lacking the natural advantages of the botanic gardens of Melbourne, Sydney and Hobart, made use of avenues of trees which, unlike those of Melbourne, have survived. Its second director, Dr Richard Schomburgk, developed important structures such as the Museum of Economic Botany, Palm House, and more recently the bicentennial conservatory has been built. The Adelaide

comparison is even more relevant, since Schomburgk was a compatriot from the Germanic states. While lacking von Mueller's academic brilliance, Schomburgk had greater success in extracting money from his government in the cause of science, developing an agricultural and horticultural research institution of note and gaining significant funding for projects.

Putting the botanic gardens story in context in this way could have provided more depth. However, while this is not a scholarly book in the traditional sense, *The Royal Botanic Gardens, Melbourne* can be regarded as a successful popular book. You may be mildly irritated by the way the material is organised, but it is a very handsome volume. It certainly would make a fine gift for someone dear to you — and if you buy a copy, the pleasure you would get from the stunning photographs will probably make up for the occasional discrepancies in the text.

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**Georgina Whitehead (ed.):** *Planting the Nation*. Australian Garden History Society: Melbourne, 2001. xii + 196 pp., illus., ISBN: 1 876 47344 4 (HB), \$42.90.



Initiated during planning for the Australian Garden History Society's 22nd annual national conference in 2001, this book is a response to the absence of gardens in the Centenary of Federation's proposed events, and received a Federation grant to support its publication. *Planting the Nation* is a great title, but it deserves an explicitly horticultural subtitle to indicate the book's basic theme: Australian gardens and horticultural landscapes in the peri-federation years, 1890–1914.

Many of the nine essays are based on talks delivered at the Society's 2001 conference: John Rickard's historical overview 'The Federal Era 1890–1914', Suzanne Hunt's 'State School Gardens in Victoria 1901–1914', Oline Richards' 'Public Parks and Recreation Reserves in Western Australia', Susan Reidy's 'How Recreation and Sport [in Melbourne] Bowled into the Australian Garden', Nina Crone's 'Australia's Flora in the Decorative Arts 1890–1914', Harriet Edquist's 'Arts and Crafts Gardens in Melbourne', Jeannie Sim's 'A Golden Age of Gardening in the

[Queensland] Subtropics', David Jones' 'Grottoes, Rockeries and Ferneries: The Creations of Charles Robinette' and Robert Freestone's 'Imagining the City Beautiful'.

*Planting the Nation* offers a broad spectrum of authorial perspective and ranges widely across Australian geography and garden type. The perceptions of landscape architects and social, garden, architectural and urban (but not science) historians dance across the Australian landscape from Brisbane to Perth, pirouetting several times through Melbourne. Their horticultural focus moves through public and private gardens and into the decorative arts, to show how gardens were shaped by a wide range of peri-federation ideas about cities, architecture, education and health. But what about science? What about botanical ideas?

In her detailed description of WA parks, Oline Richards discusses species planted and some of the people who influenced their selection. WA's first Conservator of Forests, John Ednie Brown, who was determined to encourage tree planting, established the Woods and Forests Department nursery at Hamel, south of Perth. Its supplies included Bunya Bunya, Norfolk Island and Remarkable Pine, cypress, Lombardy and Upright Poplar, Golden Willow, catalpas, Red and White Cedar, Kurrajong, tamarisks, Sugar and Desert Gum, Marri, Tuart, Silky Oak, Port Jackson and Moreton Bay Fig and various acacias. Meanwhile bananas, pineapples, coconuts, date palms, macadamias, mangos, pandanus, poincianas, jacarandas and figs came from Brisbane's Botanic Gardens. Richards mentions other sources of plants and records some of the indigenous and exotic species planted at Kings Park, Rottnest Island and other parks. Kings Park was reserved for the public by John Forrest. Comments by the designer of Melbourne's beautiful Botanic Gardens, William Guilfoyle, to prevent further

destruction of native plants in Kings Park may have influenced future developments. They certainly echoed Forrest's earlier instructions to retain 'good scrub', 'good flowering shrubs' and 'all well-grown trees of whatever kind'.

By the late nineteenth century, much was known about the horticultural potential of temperate Australia, but a horticultural understanding of tropical and subtropical Australia lagged far behind. Jeannie Sim claims that 'the 1890s were arguably the pinnacle of Queensland's horticultural development — a Golden Age of subtropical gardening' and explains how nurserymen and curators of Queensland's botanic and acclimatisation gardens contributed to this horticultural climax. Queensland's first botanic garden was established even before Queensland — in Brisbane in 1855. By 1875, plants could also be trialed in many parts of Queensland — in government botanic gardens in Ipswich, Rockhampton, Maryborough, Townsville, Cooktown, Cains, Mackay, Toowoomba and Warwick. The Queensland Acclimatization Society also had experimental gardens at Bowen Park in Brisbane. In discussing the horticultural work at Bowen Park under William Soutter, and at Brisbane's Botanic Gardens under Philip MacMahon and then John Frederick Bailey, Sim shows how botanical knowledge was generated and disseminated. Soutter edited the *Queensland Horticulturalist and Fruit-Growers' Journal* and MacMahon wrote articles for the *Queensland Agricultural Journal*. There was also Queensland's Royal Society, which provided a forum for Bailey's 'Introduction of Economic Plants into Queensland'.

*Planting the Nation* includes the voices of some of Bailey's brother botanists (yes, all male). While director of Sydney's Botanic Gardens, Joseph Henry Maiden was interested in promoting gardens as an integral part of civic improvement. Robert

Freestone mentions his suburban influence and his involvement in the Wattle Day League and the Town Planning Association of New South Wales. Maiden's botanical successor at Sydney's Technological Museum was Richard T. Baker. Nina Crone discusses Baker's prominent support for the Waratah as Australia's national flower, while others sought to have the Wattle selected instead. She mentions that in Victoria Archibald Campbell founded a Wattle Club to promote an annual Wattle Day, and his subsequent lecture 'Wattle Times: or Golden Haired September' (but not its publication in *The Victorian Naturalist*).

While director of Melbourne's Botanic Gardens, William Guilfoyle (mentioned above) commissioned and planted a triangular grotto in the Gardens [Jones], redesigned Melbourne's Parliament House gardens [Reidy], was a member of Melbourne's Kalizoic Society, which aimed to encourage the cultivation and protection of plants in cities [Freestone], wrote *Australian Plants Suitable for Gardens, Parks and Timber Reserves* (1911) [Edquist] and preferred naturalistic rather than formal garden design [Edquist].

The Principal (not Director) of the Burnley School of Horticulture, Charles Bogue Luffman, who also preferred naturalistic planting, wrote *The Principles of Gardening for Australia* (1903) [Edquist] and contributed to the 1901 congress on the federal capital [Freestone]. Luffman's 1902 *Education Gazette* supplement 'Gardening for Victoria's State Schools' provided practical advice on soil, planning drainage, plant selection, germination and transplanting.

Suzanne Hunt mentions Luffman's gardening supplement in her essay on Victorian State School Gardens, in which she explains how Victoria's first Director General of Education, Frank Tate, made the school garden an integral part of the 'new' education which he was introducing

into the state system. In the school garden students could learn by experience about nature, horticulture, botany, and other aspects of the curriculum. School garden produce was exhibited at the impressive and crowd-attracting State Schools Exhibition in Melbourne in 1906 that showcased the subjects taught under the new education philosophy. Perhaps it included some grown under the enthusiastic eye of ‘the resourceful Mr Williamson’, whose prize-winning school garden Hunt discusses (without mentioning that he was the botanist, Herbert B. Williamson).

Hunt includes splendid photos of bygone school gardens, and describes Tate’s multifarious efforts to encourage school gardens. Arbor Day (also mentioned by Crone and Sim) provided a timely incentive to plant trees in the often-treeless school grounds. This USA concept was first implemented in Victoria as part of the schools beautification program in 1901. Hunt discusses Tate’s establishment of the State Schools Horticultural Society and its plant nursery, and mentions early assistance from ‘R. T. M. Pescott, Principal of Burnley School of Horticulture’. However E. E. (not R. T. M.) Pescott was Luffman’s successor. The Society encouraged better planned and planted grounds — just as the ‘Playground Movement’ (also from USA) was advocating provision of playing space for town and city children.

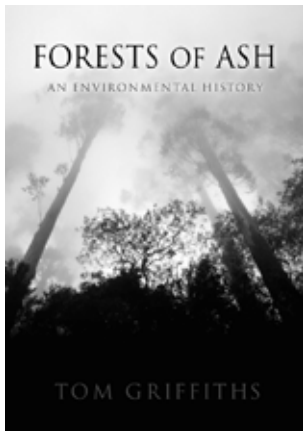
In her essay on Melbourne’s ‘Arts and Crafts Gardens’ Harriet Edquist explains

that they were formal architect-designed gardens, which often included an informal wild or wilderness area. Edquist describes (sometimes with plans) some of these extensive gardens that beautified Melbourne mansions. An area of Australian trees and shrubs often replaced the English wilderness or wild garden section. At his Toorak residence, ‘Miegunyah’, Russell Grimwade transformed a tennis court into a plantation of Australian trees, and later wrote *Anthography of the Eucalypt* (1920).

Ever since humans began to grow plants for food, people have transferred plants and botanical ideas around the globe and thereby changed landscapes inside and outside gardens. I am interested in the origins of plants and botanical ideas that, across time, have shaped landscapes across Australia, and also how those landscapes have in turn shaped botanical ideas. *Planting the Nation* provides interesting glimpses of plants and botanical ideas that influenced some Australian gardens around the time of federation, and how some of these gardens influenced botanical thinking. The contributors, editor and Australian Garden History Society deserve congratulations for providing fascinating stepping-stones towards a comprehensive botanical analysis of Australia’s garden history.

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**Tom Griffiths:** *Forests of Ash: An Environmental History*. Cambridge University Press: Melbourne, 2002. viii + 227 pp., illus., ISBN: 0 521 01234 1 (PB), \$34.95.



Tom Griffiths is arguably Australia's most distinguished environmental historian. In *Forests of Ash* he has revised and extended *Secrets of the Forest* (1992), the work that first announced his emergence as a presence in Australian historiography. A comparison of the two works can illuminate shifts in the intellectual climate of Australian environmental history.

*Forests of Ash* charts the ecological history of the *Eucalyptus regnans* forests in the Great Dividing Range north and east of Melbourne. Integrating human and natural history deftly, Griffiths tells of the central role of fire in the creation and destruction of the forests of Mountain Ash; he explains clearly and concisely how and why the forests regenerate through fire, and the complex pressures that human development in and around the forests have placed upon this very special fire regime. The story of Black Friday testifies to the impact of fire and is the subject of a fine chapter, as in the original edition. The stories of tourism, mining, farming, timber getting and saw milling as well as water management are all told.

Griffiths correctly asserts the place of history in any study of our environment.

[A] forest is not just any forest, but a unique community of trees, and a fire is not just any fire, but one of a particular frequency, a particular intensity, a particular range. The forest will have a history ... (p. 9).

Griffiths noticed that ecological science has become more attuned to 'disturbance rather than equilibrium' and this concern with 'instability in nature' allows consideration of history in a way that older equilibrium-centred views did not. History is back. Griffiths is always concerned with these complex cultural and natural processes of historical change in the forest, particularly those since European settlement began. In reflecting on these processes, he poses some important dilemmas for policy and public debate.

Ten of the chapters survive from the original, and a fair proportion of the text follows that book word for word. Yet *Forests of Ash* is a new and impressive study. How so? Everywhere Griffiths registers the contributions of recent scholars, as for example in the work of Tim Bonyhady on the aesthetic appreciation of forests. The section on improving and clearing the land amplifies the history of acclimatisation, drawing on the work of Alfred Crosby and others on 'ecological imperialism' while it recognises that in the early days, as Warwick Frost has shown, native animals were more worrisome to farmers than imported species. Mostly these references to the field merely reinforce suggestive leads already offered by Griffiths. Yet there is more to the changes in this work.

To *Secrets of the Forest* there have been added three chapters. The first is 'Contentment of Fire' on the very 'longue durée', a brief meditation on the geo-history of Australia and its forests since their formation. In 'Crossing the Blacks' Spur', Griffiths acknowledges the importance of Aboriginal history, a theme contained within separate chapters in the original book.



Another chapter, aptly named 'The Theatre of Nature' deals with the history of naturalists' encounters with the fauna of the forests and raises at its end questions about the survival or extinction of the lyrebird in the Sherbrooke area and the dangers of encroaching suburbia. As elsewhere, Griffiths displays here an acute awareness of the complexity of cultural impacts on and perceptions of nature.

Each of these changed chapters registers developments in environmental historiography, in Australia and abroad. The geo-history appears to be informed by such works as those of Mary White and, among other studies, Stephen Pyne's *Burning Bush* (1992). The study in 'Crossing the Blacks' Spur' of Aboriginal efforts to develop settled agriculture in 'accommodating' to 'European ways' in Coranderrk (p. 49) draws on Diane Barwick's *Rebellion at Coranderrk* (1998). 'Theatre of Nature' may reflect intellectual collaboration through now-published work on ornithology by Libby Robin.

Fire history and the fauna of the forests (and Aboriginal impacts) were all treated in the original, but mostly scattered through the text, and in some cases dealt with in the capsule accounts in Part II, 'Selected Historic Sites' and written by other authors. Now these ideas are drawn together under Griffiths' single authorship and treated as part of an integrated and quite interdisciplinary history.

This new book is subtitled 'An Environmental History' and that is the essence of what it is. *Secrets of the Forest* focused on the human heritage of the forests and detailed its places — their secrets. That book could function partly as a handbook to enable visitors to understand and make use of the cultural landscapes that humans and nature had created. The new book reflects much more 'science' as understood in the Anglo-American world. It suggests a more interdisciplinary environmental history rather than the influence of

the fledgling public history movement and cultural landscape interests that informed the original work. Thus today's volume includes thumbnail sketches by a variety of contributors reflecting materials in the Victoria Museum on lyrebirds, butterflies, Leadbeater's possum and other vignettes.

Clearly this book does not replace the earlier one. Libraries will want to have both precisely because the studies of particular landscapes and ecosystems are not included in the new volume. Much more lavishly illustrated with colour photographs and handsomely produced by Cambridge University Press, this book is a pleasure to read. Its carefully chosen words reflect theoretical insight and wide reading.

Nevertheless, it is difficult to see what special conceptual advance this book has over the older one which remains striking as an example of how public history themes meet environmental ones in the story of human/natural heritage issues. Though Griffiths registers new research, he does so not as a pioneer in that research which is in some cases of scientific work outside the competence of historians, but as a populariser and synthesiser of the themes of this research. Perhaps this is history's distinctive contribution. The way Griffiths meditates on scientific research is most clearly seen in the long section added on the practices of clearfelling. Do they mimic the natural processes of fire? Here Griffiths draws upon the work of David Lindenmayer which 'profoundly challenges the ecological justification for clearfelling as it is currently practiced' (p. 166).

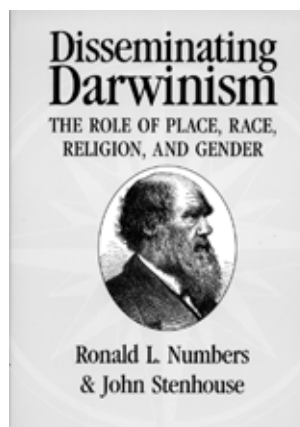
The blurb proclaims that the book 'illuminates the story of the continent as a whole'. But Griffiths makes clear that not all forests are alike and that the ecological and social history of the *Eucalyptus regnans* is indeed unique, with characteristics that cannot simply be applied elsewhere. That would be ahistorical. It is more the case that the wider environmental

history of Australia contextualises and informs this study.

While historians and advocates of public history will still turn to the earlier volume as a model, path-breaking work, this new volume is full of provocative and yet gently framed ruminations on Australia's ecological history and the complex cultural and natural forces that go to make up that history.

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**Ronald L. Numbers and John Stenhouse (eds):** *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*. Cambridge University Press: Cambridge & Melbourne; Australian edition, 2002; British edition, 1999. ISBN: 0 521 01105 1 (PB), \$49.95.



This richly detailed and diverse collection of essays centres on a fascinating question: how did issues of locality, race, gender, and religious affiliation affect the reception — in particular the acceptance or rejection — of Darwinism? All of the essays take case studies in the English-speaking world in the period between the publication of *The Origin of Species* in 1859 and the 1930s. Many of the essays are confined to the first generation or two after *Origin* and leave off the story at around the turn of the twentieth century with Darwinism pervasive and socially powerful, if somewhat scientifically eclipsed.

The collection had its origins in a conference and was first published in 1999, although here it is reprinted in a substantial paperback form. Not a handsome book, but rather an earnest and solemn one, the tone is set by the inset portrait engraving of the elderly Darwin on the front cover.

For all its solemnity, this collection of essays promises a significant and fresh interpretation of the dissemination of

Darwinian ideas. It is indeed very strong in 'filling in the gaps' of scholarship. There has been considerable work on the reception of Darwinism by, for example, Protestant churches, and this collection is careful to also include less well-understood responses. The case studies include the responses of African-Americans (not just by whites using Darwin as a basis for racism); educated women reformers of the late nineteenth century; Australian, New Zealand and Canadian societies; American Jews and so on.

Like many conference-based collections, this book suffers somewhat from a lack of coherent vision. Yet this is also a product of its subject matter. These widely differing essays collectively argue that the dissemination of Darwinism was an extremely heterogeneous, unpredictable and highly differentiated process. Although this is no doubt true, nonetheless it seemed to me that an opportunity to create a sense of shared threads and overall tendencies may have been missed here. With very little in the way of synthesis, the reader is left with a sense that there was no particular pattern to the reception and dissemination of Darwinism; a rather dull and perhaps insufficiently bold conclusion to draw about an enormously influential and explanatorily powerful theory of life's history and processes of change.

Nonetheless there are some very fine essays in the collection. Of particular interest to Australian readers will be those on Australia (Barry Butcher) and New Zealand (a very fine summary by John Stenhouse). Although both writers have published on these topics elsewhere, they bring some new arguments and evidence here to their underlying concerns that enliven the book considerably. Butcher revisits the question of the conservatism of the Australian scientific establishment between *Origin* and the 1890s. While he agrees with the well-established view that establishment scientists and churchmen

were allied in a complacent hostility to Darwin, he also highlights the importance of free-thought societies and other informal channels in the dissemination of Darwinian theory. Butcher writes very evocatively of the ardent well-educated amateurs, who were disappointed by the conservatism of the intellectual and religious elite. His essay is a timely reminder that intellectual change is more likely to be wrought at the edges of established knowledge institutions than at their core.

Some of the most original work in this volume is to be found in the last chapters of the book, particularly the two that deal explicitly with race and gender. Eric Anderson's essay on 'Black responses to Darwinism' is frank and compelling. Anderson argues that 'Darwinism' is too readily used as a simplistic synonym for scientific racism. Far from being simply hostile to Darwinian thinking, black writers and social theorists took up a variety of positions — many of them quite neutral — on the question of natural selection, and some used Darwinian principles to argue for the vitality of the black race. Much more threatening to the underlying unity of the human races were polygenist theories of human origins — of which Louis Agassiz, Darwin's great American opponent, was a champion. Black activists could use either Darwin *or* Genesis to support their claims for a single origin for all of the races of humankind. This rather surprising conclusion points to some of the most interesting themes to emerge from this collection.

There were many 'Darwinisms'. This collection takes a very broad view, sometimes too vague in my view, of what constitutes Darwinism. In part this reflects the incredibly pervasive and complex nature of theories of natural selection and the 'struggle for existence' especially in the last decades of the nineteenth century. However, it also seems to render the notion of a 'Darwinism' that can be 'disseminated'

rather problematic, and makes comparisons across essays quite difficult. For example in an otherwise fascinating essay on women as readers, opponents, and appropriators of Darwin, Sally Gregory Kohlstedt and Mark Jorgensen seem to see 'Darwinism' as simply a view of the biological determination of sex differences, a principle neither exclusive to, nor defining of, Darwinian theory. Many of the essays in this collection are as much about the impact of Spencerism as Darwinism in any strict sense.

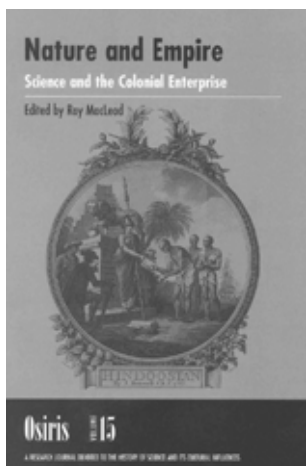
Just as there were many 'Darwinisms' there were almost infinite variations on the reception of them. Darwinian Natural Selection was an extraordinarily plastic theory. In its purist form it was indeed a powerful tool in the hands of those who would 'disenchant' the world by removing supernatural explanations from the understanding of the biological world. In its muddled, complicated, ambiguous, and often Lamarckian popular forms, however, it could be the servant of anything from radical co-operative evolutionary

humanism, to the most hard-line of hereditarian eugenicists.

Although this collection is a very fine reference tool in drawing out the nuances of these many responses, its key failing is that, in eschewing a discussion of the theories themselves, the essays fail to capture something of the dynamic interchange between scientific theory and its transformation into ideas in the popular and/or social realm. Darwinism, if we are to include its multifaceted social manifestations, was not so much a theory to be disseminated, as a complex and kaleidoscopically changing collection of ideas, all of which are loosely linked to Darwin's identification of competition for scarce resources as the engine room of nature's evolutionary processes. These were not so much 'disseminated', as continually remade, according to new cultural, racial and social contexts, as they continue to be today.

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**Roy MacLeod (ed.):** *Nature and Empire: Science and the Colonial Enterprise*. *Osiris* Second Series **15**, 2000. 328 pp., illus., ISSN 0369 7827, US\$33.



This volume deals with the changing perceptions of colonialism and science in events spread over five hundred years, from 1500 almost to the end of the twentieth century. This is a vast canvas indeed. Although the majority focus on 18th and 19th century events, not many of the papers focus specifically on the Australasian region, but the rich comparative insights in the collection are of regional importance.

The material is presented in four sections of almost equal length, roughly chronologically ordered. The first three, 'Imperial Legacies', 'Milieux and Metaphor' and 'Science, Culture, and the Colonial Project', deal with themes of interest to the Australasian region — but as they have occurred in other places, including the Iberian peninsula, Latin America, Southern Africa and India. Themes with regional resonance include 'Ordering the World for Europe' (by Sverker Sölin, working in Sweden), 'Acclimatizing the World' (by Michael A. Osborne on Africa and Australasia), and 'Racism and Medical

Science' (by Harriet Deacon on South Africa). The concluding section, 'Colonial Science and the New World System' has Australian, Indian and South African case studies, as well as ideas about intellectual property rights in Bioprospecting (a subject that includes Australia and New Zealand amongst the cases put forward by John Merson).

Roy MacLeod's introduction sets out three themes:

1. the changing perspectives of historians of science in the past forty years in relation to colonialism;
2. the realisation that colonial science was a distinct entity and worthy of study in its own right; and
3. the notion that science 'became, in turn, both a colonising ideology and an agency of colonial self-identity' (p. 11).

MacLeod laments that the coverage is not global, with a significant absence of papers on the Dutch and German colonial empires, little on French activities and, surprisingly, nothing on the United States in its connections with the Philippines, Cuba, Puerto Rico or Panama. Nevertheless, he has attracted contributions from eleven different countries. Non-English speaking researchers have made important contributions to this volume, providing a rich listing of references and footnotes for those whose reading is dominated by sources in English. Editing has been particularly good in relation to English grammar, and there are few typographical errors.

Despite the fashion that often dictates that only recent literature is cited, many authors here, in addition to dealing with original sources, have acknowledged the work of historians of the early and mid-twentieth century, so papers offer rich literature reviews of their regions, as well as comparative dimensions. Some papers have suffered by spending too long on introductory matters and leaving their 'main' topics, or empirical matters, treated

only briefly. A few others suffer in the opposite direction.

A minor disappointment is the quality of reproduction of some of the interesting figures, partly due to the quality of paper used. While historians largely depend on the printed word, their messages could often be more effectively given through good figures, especially maps. In some cases, the figures reproduced might have been more effectively wedded to the texts.

Despite many difficulties in the academic world, this volume shows that the history of science is alive and surprisingly well. The theoretical aspects of the book are of particular value to the Australasian and Pacific historian of science, although many of the case studies are elsewhere. There is a strong general indication of moving on from George Basalla's notions of metropolitan versus peripheral science, to a dynamic interchange between the two. The book shows there is still plurality of approaches to the study of the history and philosophy of science.

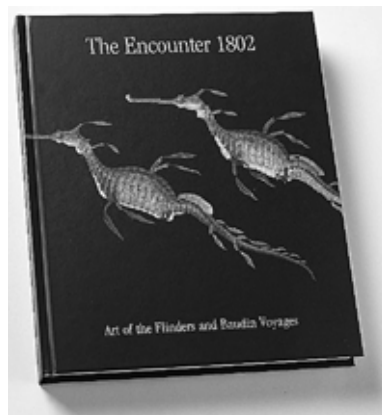
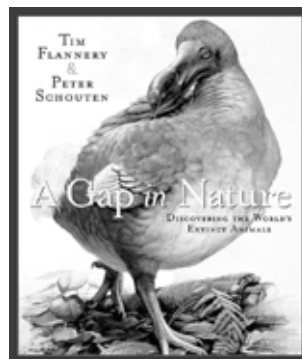
The emphasis in this volume is very much on biological, geological and medical topics, matters of practical interest to both colonisers and colonials everywhere, but particularly in our region. This marks an important move away from the dominance of physics and chemistry as 'main topics' of the history of science. The focus on such sciences draws in comparisons with indigenous knowledge systems. In the case of Wade Chambers' and Richard Gillespie's chapter, the idea of locality as being important to scientific theory is articulated, a concept that makes particular sense for biology, geology and medical science.

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**Tim Flannery (text) and Peter Schouten (illustrator):** *A Gap in Nature: Discovering the World's Extinct Animals*. Text Publishing: Melbourne, 2001. xxiv + 184 pp., illus., ISBN: 1 876 48577 9 (HB), \$50.

**Sarah Thomas (ed.):** *The Encounter, 1802: Art of the Flinders and Baudin Voyages*. Art Gallery of South Australia: Adelaide, 2002. 228 pp., illus., ISBN: 0 730 83005 5 (HB), \$70.



These two richly illustrated works, in their distinctive ways, graphically reveal and celebrate the marriage of science and art and its importance in the history of science.

The year 1802 marked the year in which two great voyages of maritime exploration, the British Admiralty's HMS *Investigator* (under the command of Matthew Flinders)

and France's *Le Géographe* and *Le Naturaliste* (commanded by Nicholas Baudin), met off the coast of South Australia at Encounter Bay. Impelled variously towards Terra Australis (or Terre Napoleon) by national imperial ambitions and a driving interest in scientific enquiry, the two expeditions, carried out while their countries were at war, were to bring back to the Old World the first major documentary records and paintings of Australia's wildlife and flora.

In the growing tradition of the period, both expeditions were equipped with the personnel and instruments for the pursuit of physical and natural science. Backed by the powerful Sir Joseph Banks, the British Admiralty appointed not only the youthful Flinders, already experienced in Australian waters, but the botanist Robert Brown, the natural history illustrator Ferdinand Bauer, topographical artist and draughtsman William Westall, a mineralogist, and a gardener, Peter Goode. In turn, the French expedition, sanctioned by Napoleon and under instructions from France's most prestigious scientists at the Institut de France, sailed with a contingent of twenty-two civilian scientists that included five zoologists and a mélange of anthropologists, botanists, natural history artists and others.

Both parties were generously laden with scientific equipment and an array of artists' materials including camera obscura, brushes, quills, pencils, reams of paper and tablets of colour that enabled the ships to serve as floating laboratories and artists' studios. In both expeditions, scientists and artists worked in close accord.

Robert Brown aboard the *Investigator* was the first interpretative European botanist to reach Australia. There, faced with flora that was singularly new, he applied both knife and microscope in studying and describing the structure, anatomy and physiology of the plants in their stages of development. His work moved away from

the Linnaean classificatory system towards Jussieu's natural system, founded on the anatomy and physiology of parts. In all, around the continent from 1801–4, he collected some 4000 Australian species over 1700 of which were new to science. His publication, *Prodromus Florae Novae Hollandiae et Insulae Van-Diemen* (1810), covered 464 genera and 2000 species. This, and his 'General Remarks, Geographical and Systemic on the Botany of Terra Australis' published as an appendix to Flinders' *Voyage to Terra Australis* (1814), opened up botanical classification, launched the study of plant geography and set Brown on the way to becoming Britain's leading botanist of the century.

Bauer, already versed in accurate scientific illustrations from his training and earlier work, proved a gifted collaborator. His brilliant depictions of seed and structure, stamen, roots, foliage and fruiting bodies in his plant sketches and watercolours reveal the influence of Brown's knowledge and approach. Working indefatigably across the four years he spent in Australia, he also addressed the fauna, and in both his floral work and his zoological drawings, he attained a technical mastery, scientific veracity and an aesthetic sense that has not been surpassed. Bauer's contribution was to convert the rich evidence of scientific observation into spectacular visual form.

The French experience also produced compelling outcomes. While illness, death, disaffection and desertion reduced the scientific corps to a fraction of its original strength before the ships reached Australian waters, the close working relationship established between the remaining zoologist, François Péron, and the young apprentice illustrator, Charles-Alexandre Lesueur, ensured a striking record of the Australian fauna and the gauzy, brilliantly-hued invertebrates of the sea. All the fauna were the subject of rapid sketches and some dissections in the field where

Lesueur's scientific accuracy flourished under Péron's tutelage. By journey's end they had together assembled 100000 species of animals large and small and, as Cuvier declared jubilantly on their return, 'made known more new creatures than all the travelling naturalists of recent times put together'.

Significantly, it was not the specimens, but the visual imagery of science that endured from the two nations' voyages of discovery. While few of either Bauer's or Lesueur's watercolours and pencil drawings saw the light of print in the immediate aftermath of the voyages and in the critical post-war economic climate of the times, the artists' representations of the flora and fauna have found their visual flowering in a number of published works and exhibitions of the late 20th century.

In *The Encounter, 1802* these illustrations are brought together for the first time. Conceived for an exhibition at the Art Gallery of South Australia to mark the 100th anniversary of the meeting at Encounter Bay, this handsome work is far more than an Exhibition Catalogue and contains seven contributed chapters on different aspects of the expeditions and their scientific and artistic accomplishments. Introduced with an essay by curator Sarah Thomas, it offers a rich showcase of Bauer's Australian animal and floral watercolours. Together with these are the reproductions (some graphically enlarged and often more visually dramatic in detail than the originals) are Lesueur's marine creatures (sea stars, sea dragons, starfish, sea snakes, jellyfish, squirts, turtles and elephant seals) along with frogs, dingoes, marsupials, birds, platypus and echidna. To these are added William Westall's topographical drawings and coastal views, pen, pastel and watercolour drawings of Aborigines, and the first depiction by a European of an Aboriginal cave painting, along with a selection of Aboriginal portraits and coastal views by the second

French artist, Nicholas-Martin Petit. All works are carefully provenanced, and the book is further enriched with maps.

While Bauer was clearly a more sophisticated and accomplished artist than Lesueur, Thomas discerns their separate contributions to the natural history record in these terms:

Bauer's animals generally have a great sense of vitality, sometimes even personality. In some instances they could be described as portraits, seated or standing in profile, their head turned towards the viewer with quiet dignity. Lesueur on the other hand was more often interested in capturing his animals in motion, sometimes going to greater length to portray them scampering over rocks, foraging for food or swinging from trees [and sometimes] the inherent violence of nature is revealed.

It is no coincidence that Péron believed in the modification of species by climate and environment, and that Lesueur often went to some trouble to render his animals within their environmental contexts.

Bauer's luminous flora, however, stand alone. Far more than any photographs could convey, these illustrations, flowing with vitality and executed from sightings on the spot, supply us with imperishable records that tell us not only of the dedication and fervour of the artists and 'scientific gentlemen' on the voyages of discovery, but of the signal nexus between science and art.

Flannery and Schouten's book, *A Gap in Nature*, combines art and biological knowledge and introduces the reader to a related, but different genre. Contemplating the long and continuing extinction of species over evolutionary time, Tim Flannery, evolutionist and museum director, argues that there are periods of history when the rate of extinction is so rapid 'that whole ecosystems are destabilised and swept away'.

*Homo sapiens*, spanning out over continents for at least 50000 years has been a prime destroyer, causing exterminations



that gained momentum from the 15th century through maritime exploration and invasion of the remote reaches of the world. 'We live', as Alfred Russel Wallace reflected, 'in a zoologically impoverished world from which all the hugest and fiercest and strangest fauna have recently disappeared'.

In *A Gap in Nature*, Flannery and wildlife artist Peter Schouten, have chosen to focus on 103 species of birds, mammals and reptiles that have disappeared from continents, coasts, islands and archipelagos of the Pacific, Indian, and Atlantic Oceans over the last five hundred years. Often many of these species were last sighted in the nineteenth and early twentieth century when travelling natural historians documented the flora and fauna of distant lands.

Here, then, is a contemporary manifestation of the long-honoured marriage of science and art. But here the scientist/artist collaboration in constructing and representing the vanished species has distinctive traits. Denied sight of the animals in the field, the methodology was to visit together the museums that held relevant materials — the faded specimens of skins and feathers, skull-bones, horns or an occasional 'distorted mounted specimen', along with written accounts, a rare photograph and some sketches from life — to assemble the reference material for their task. The work on paintings and text, Flannery explains, 'began when both of us felt confident that we understood what the species must really have been like'.

While Flannery adroitly relates what is known of the history and habitat of the animals, their specialist evolution in remote outposts; their prehistoric and last recorded provenance; and the fragmentary, sometimes unprovenanced records, glimpsing as he proceeds 'a tiny flicker of the wonder of this lost world', the book's impact lies in Schouten's powerful assemblage of paintings, reduced for publication

from the original life-size portraits, and shaped by zoological knowledge, imaginative insights and the shared research deductions of the authors.

Known for his drawings of Australian wildlife, Schouten is also highly reputed for his visual representations of ancient faunal worlds in which he has provided palaeontological reconstructions from a tooth here, a bone or jawbone there, of extinct Australian fauna. No background could have been more fitting for his ambitious plunge into a largely undocumented, but more recent, faunal past. If not 'the hugest and fiercest', here in the Moa and the monumental Seller's Sea Cow, are some of the most bizarre creatures of a departed world.

No animal has a greater hold on our notions of extinction than the sad-eyed Dodo that adorns the book's cover. 'As dead as a dodo' is a byword for something truly defunct. Already a strange relic in Mauritius decimated by the native inhabitants when the Dutch settled on the island in 1590, 'within a century', writes Flannery, 'the Dodo was gone'. On the authors' visit to the Ashmolean Museum at Oxford, a Dodo's head, the last surviving remains of the famous flightless bird, was placed reverently in Flannery's hands.

The extinction of species followed seafarers of all races as they spilled out from the surrounding mainlands to islands apparently offering larders of food. Australia too experienced 'a cascade of extinction' in the last 6000 years as changing patterns of burning and the advent of sheep and cattle literally decimated its marsupials of all sizes, including the splendid Thylacine, all illustrated here.

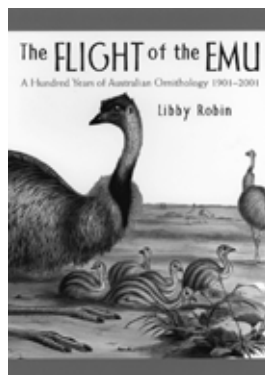
Although little detail is given of the act of painting this 'paper ark', Schouten's record of lost species is an outstanding artistic accomplishment. The tiny Pacific and Caribbean birds and other larger species glitter like jewels set against the foliage of their lands; the marsupials and

bats combine a vibrant beauty of fur, eye and skin. The Lagarto Skink, the largest skink to have ever lived and hunted to extinction during famine on the Cape Verde Islands, gleams from the pages richly brown. The two studies of the Thylacine that closed its eyes for the last time in 1936 in the Beaumaris Zoo near Hobart, is a brilliant portrait of one of Australia's most lamented species losses.

*A Gap in Nature* with its important biological and environmental detail of each animal is a unique addition to the discourse on extinction and biodiversity and, with its beautiful zoological recreations that transcend the art of photography in conveying scientific knowledge, furnishes an extension to the established relationship between science and art and a new genre in the history of science.

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**Libby Robin:** *The Flight of the Emu: A Hundred Years of Australian Ornithology 1901–2001*. Melbourne University Press: Carlton, 2001. 432 pp. + 32 pp., illus. (colour and b/w), ISBN: 0 522 84987 3 (HB), \$69.95.



The Emu is a flightless Australian bird, and also the name of the journal of the Royal Australasian Ornithologists' Union (RAOU), which celebrated its centenary in the year 2001. The *Emu* has been the face of Australian ornithology for one hundred years and is now fledged to roam the southern hemisphere from the Indian Ocean to the mid-Pacific with the new subtitle of *Austral Ornithology*.

*The Flight of the Emu* is a thoroughly researched and most objectively written history of Australian ornithology, commemorating the centenary of the Union, now also called 'Birds Australia'. The environmental historian Libby Robin undertook the task with the able assistance of Rosanne Walker, who helped to unearth much unpublished material and compiled records for the appendices. The author took the attitude that 'a history of ornithology is about field science and the experiences of being in the bush with birds'. Robin herself had hands-on experience working with volunteers at Roebuck Bay, north-western Australia, cannon-netting migratory waders. She also interviewed

many ornithologists and jogged their memories to fill in gaps in the early history and to provide anecdotes. As a result, the book is not only informative and readable, but also extremely interesting.

The main part of the book, consisting of twelve chapters, is threaded with stories of the struggles of the Union to balance the popular and authoritative approaches and the influences of amateurs and professionals. Both groups are described vividly as they have engaged intricately with each other and in different ways in the understanding of the peculiar forms and habits of Australian birds. Nomenclature, systematics and distribution were the primary concerns of the founders of Australian ornithology. This period, leading to the publication of the 1926 Checklist, was characterised by intensive collecting. The Gould League of Bird Lovers, which arose to discourage egg collecting by children and plume collecting by traders, confronted the members of the RAOU, who in early days collected birds and eggs even at their official campouts. Serious scientific collecting, despite strict government restrictions and public pressure against it, continued throughout the history of ornithology, but photography and sound recording largely replaced collecting for amateurs in the second half of the century. For this latter period, the book describes the growing partnership between amateurs and professionals in their effort to band birds, protect threatened species, conserve their habitats, compile the bird atlas (twice), and most recently produce the definitive *Handbook of Australian, New Zealand and Antarctic Birds* in seven volumes.

Libby Robin treats the history of Australian ornithology since the foundation of the RAOU by conscientious Australians in Melbourne and Adelaide, making the pioneering work of John Gould and Baldwin Spencer seem almost like prehistory. The book is more about people who studied

Australian birds than birds themselves, as exemplified by numerous illustrations that contain more pictures of people than of birds. However, the beautiful colour plates, of which there are twenty-four, are mostly paintings and photographs of native birds and some of their habitats.

The author gives an international perspective to each new major undertaking of the RAOU and its members, such as the production of modern field guides; the establishment of observatories and sanctuaries; the development of the bird banding and nest record schemes; formation of the bird atlas project; and the staging of the international congress. Each of these activities is described in detail.

The 1968 AGM of the RAOU, which the author calls 'the 1968 Revolution', is seen as the modernising turning point of the Union, which also gave *Emu* a firm foundation of science. New diversifications of ornithological science were apparent in the work of younger generations, who challenged the traditional concepts of classification, descriptive field ecology, ethological studies and conservation, as they took up positions in universities, CSIRO, museums and State fauna authorities. New ornithology professionals emerged. Unfortunately, the book in this section is more concerned with who said or did what, than with investigating what drove ornithologists. Consequently, the opportunity is lost to record the theories developed by Australian ornithologists through original work on characteristically Australian phenomena, such as cooperative breeding and aseasonal nesting. One whole chapter is devoted to the saga of organising the International Ornithological Congress in Canberra and the contributions made by Australians in the twelve symposia of the Congress. Again, issues taken up are parochial rather than fundamental.

There are three short interludes breaking up the history into four periods. These

are stories of the elusive Night Parrot, the elegant Lyrebird and the once-extinct Noisy Scrub-bird. Each is a uniquely Australian episode, involving early explorers, poetic or mystic description and extraordinary encounters. Each forms a highlight in Australian ornithological history, and the saga is still continuing.

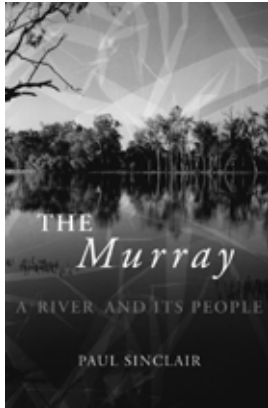
Exciting challenges and continuing controversies depicted in this history are put in proper context by the author and are easy to follow. Robin has avoided the style of reference-studded scientific literature in her writing; instead, she gives authentication and sources of information in thirty-five pages of Notes at the end of the book. The accuracy and thoroughness of the information are impressive, and very few people today would feel uncomfortable reading this book as its history encroaches upon them. Some 108 ornithologists out of 190 profiled in an appendix for their contribution to the RAOU are deceased, and another appendix also lists officers of the RAOU 1901–2000, staff 1976–2000 (mostly in the past fifteen years), sites of each congress and campout held since 1901, and the WW1 RAOU Honour Roll. Another very useful list given in an appendix consists of over 200 Australian

ornithological periodicals of the past and present; and, in addition to the Notes, the Bibliography lists some 500 publications right up to 2001. This is presumably a list of published work used in writing the book, with or without reference in the Notes. If so, there are some important omissions, such as the RAOU Checklist of 1926 and Herbert Condon's 1975 Checklist (non-passerines), the publications of which are treated in the book as important events in Australian ornithology.

Today, ornithology seems to represent many aspects of human endeavour. It can be a hard-core biology, a subject in fine arts, music and literature, or a symbol of peace and a clean environment. Birds have assumed an important part of our social life. *The Flight of the Emu* is a human history of how this subject has been developed and cherished during the past century in Australia. Its scientific content could be expanded to form another volume, companion to this one, to give a new foundation for the promising twenty-first century in Australian ornithology.

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**Paul Sinclair:** *The Murray: A River and its People*. Melbourne University Press: Carlton, 2001. 320 pp. + 41 pp., illus. (b/w), ISBN: 0 522 84940 7 (PB), \$32.95.



*The Murray* is a book of advocacy rather than a definitive history of a river. It does not focus on the role of economics, river regulation, irrigation or the squabbles of the States over management of the Murray, although all those themes have a place in the book. Fundamentally it is a plea, perhaps more a demand, for a change in the way we should think about the river when we consider its future. Sinclair argues that cultural, aesthetic and environmental values should be central to our thinking rather than just an optional extra.

Australians need to recognise how the decline of the Murray has not only eroded biodiversity but also diminished our culture (p. 21).

Sinclair attacks the pragmatic, materialistic priorities that have shaped settler Australians' behaviour towards the river for more than 150 years. A major theme of environmental reformist literature is the question of how to be both sustainable and productive. That dual task dominates the research agenda of organisations like CSIRO. The need to achieve progress on both fronts, to take a balanced approach, is the core of much of the policy work of the

Murray-Darling Basin Commission and Land and Water Australia. That is clearly the 'sensible' approach. Sinclair, however, sees that coupling coming at a high cost.

If we start the discussion by accepting that we have to be in the black before we can be green there is overwhelming pressure to give primacy to the needs of production at all levels of the debate. This requires people to develop arguments that are effective within a framework of values that put productivity first. It then becomes much harder to assert the value of things that do not provide some sort of material benefit. Sinclair wants to change the framework of values that shape the way we think about these issues. He is arguing that there is more to life than meeting our material needs and that the costs of ignoring that old truth, while subtle, are profound.

This perspective is presented not as some alien philosophy that he is attempting to impose. Rather, he suggests, it is an idea that readers will understand because it has long been a persistent theme in popular culture, subdued but not quite suppressed. Sinclair thinks that the alternative view is there, nagging in the back of most people's minds, and that we and the river would be the better for it if we responded to those murmurings. Many people have regrets about environmental and aesthetic costs, the weakening of the connections with the river experienced by earlier generations, incurred as the price of 'progress'. The rhetoric of progress has been so overwhelming that it has cowed us from working out for ourselves what really matters, what makes living worthwhile. Sinclair wants readers to be more aware of an alternative voice within, to consider seriously the challenge it offers.

Oral history, much of it collected during a two-month canoe trip, is an important source for the book. Many of the stories came from people near the end of their lives. Often the reader is told that the informant is now dead. Accounts of loss,

impending mortality and questions about the point of it all recur frequently. Sinclair tells stories about encounters and reflects upon what was said and has been done. The conceptual framework is unobtrusive. I suspect that he set out to write a subversive book, to create debates *within* people and communities even more than between them.

Sinclair's informants 'consider (the river's) present degraded condition as evidence of destructive relationships: ecological degradation is seen to have cultural costs' (p. 222). In developing this argument, which recurs throughout the book, Sinclair makes it clear that the loss is not only to people. The lack of a strong cultural perspective has had other impacts; it is one of the fundamental causes of degradation. Furthermore, ignoring the need to foster this cultural dimension weakens the environmental reform movement by failing to draw on an important potential source of energy. Unless we feel passionate about the need for change, it will not happen, particularly if it involves significant sacrifices of time and income.

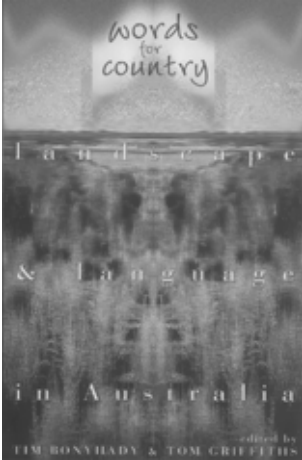
Sinclair does not attempt to present his case by weighing the merits of the various approaches. Rather, he puts it energetically and single-mindedly, in a way that some readers will reject as provocative, unfair, unrealistic, unbalanced, unconstructive and unhelpful. His approach has the great advantage that it allows him to be much more forceful and clear than he could be if he spent time explaining the opposing view, that primacy should be accorded to material production and consumption. Until recently that approach has dominated

the field and it still has plenty of champions. His aim is to put the argument for culture forcefully in a way that will make readers respond. He is attempting to break through the reasonable discourse about win-win solutions, which aims to convert without causing anger or making enemies. Unless this discussion is allowed to engage the basic emotions it will never become intense and real, as it has to do, before it can cause a significant shift in the thinking of communities and governments.

Stepping back from the fire of the conflict, it can be said that there is a place for both the pragmatic materialist approach — there is real force in the argument that unless we can make sustainability pay it will not happen — and also the deliberately 'unreasonable' approach of Sinclair. We should strive to find a way to reconcile the need to be productive with the imperative that we should live and work sustainably. But behind that rather glib and formulaic response lurks a number of unsettling questions. How much material production do we need? What is enough? What should be the relationship between people and their environment? In essence, what is the purpose of life? Such discussion makes many people uncomfortable but it is at the core of the debate about whether we can implement a sustainable society. These are the issues that Sinclair is pushing us to confront. If he succeeds, his unreasonableness will be thoroughly justified.

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**Tim Bonyhady and Tom Griffiths (eds):** *Words for Country: Landscape and Language in Australia*. University of New South Wales Press: Sydney, NSW, 2002. x + 253 pp., ISBN: 0 868 40628 7 (PB), \$39.95.



*Words for Country: Landscape and Language in Australia* is a recent book of new writings about the intersection of culture and country in Australia. This collection of ‘conversations with places and their communities’ (p. 10) is an important contribution to the exploration of the vocabulary of the land. It digs deep into the layers of history, perception and representation, in particular places to unearth stories and perspectives. From the Kimberley to Mount Druitt to the Murray, these stories reveal vernacular landscapes of Australia.

Tim Bonyhady and Tom Griffiths, the editors, are both from the Australian National University. They are amongst the most active thinkers and writers on environmental history in Australia at present. They gauged the current cultural environment correctly in determining the potential interest in a collection of thoughts and studies on this topic. Just as George Seddon’s adoption of ‘sense of place’ was ‘ripe for the time’ (p. 9) in the early 1970s, so

too is this ‘attempt to find words for country’ (p. 11) ripe for the early 21st century. Australians from many walks of life are seeking ways to interpret stories, read landscapes, understand perceptions and map the land to better comprehend our links with our country.

The book includes chapters from fourteen contributors, who provide a range of styles from personal stories to historical accounts, from the literary to the scientific. There is a universal enthusiastic energy from the contributors for their stories. They have unearthed myths, dug below the surface to understand why and how and by whom the languages of places have evolved. Their stories reveal the vernacular histories of particular places, combining the cultural, social, economic and political with the environmental. They unearth the use of language as a means to construct place.

Each chapter is appealingly titled by a phrase or quote that encapsulates the essential theme of that chapter. Some of the titles themselves are gems; for example, Nicholas Brown’s chapter entitled ‘Everyone Who Has Ever Done a Tree Sit Always Says That the Tree Talks To You’. This is very Australian vernacular.

Another satisfying aspect of the book is the inclusion of ‘sources’ at the end of each chapter. These are not just lists of references, but discussions by the authors of the written and oral sources they used. These sources provide additional insights: they are stories about stories.

There are a number of recurring themes that are dealt with by many of the contributors and drawn together by the editors in their introductory chapter. The issues of conflict over and politics of land are raised repeatedly. Such conflict is usually between those who see, read and value the land through ‘different cultural lenses’ (Goodall, p. 35), such as Aboriginals and colonists, pastoralists and irrigators,

environmentalists and timber workers, insiders and outsiders.

Aboriginal perceptions of landscape both in the past and the present are dealt with by ten of the contributors. This focus reflects not only the close connections between indigenous Australians and country, but also the broader contemporary social grappling with indigenous Australia. The difference between indigenous and non-indigenous cultural constructions of landscapes and space-time is a recurrent theme.

The concept of place naming is dealt with by a number of the contributors, and revealed as a highly political process both in the colonial past and in recent times. Bonyhady's account of the naming and renaming of Kutikina Cave in Tasmania is an entertaining exposé of this politics at work. Paul Carter's *The Road to Botany Bay* (1987) raised the politics of place naming. There is ample scope for more exploration on this topic.

A number of the contributors use pieces from Australian literature to exemplify perspectives of landscape. For example, in exploring the many voices of the south coast, Brown quotes from David Foster's novel *The Glade Within the Grove* (1996). Similarly, P. J. Hay uses pieces from poems and novels to draw out the vernacular voices of Queenstown. Tom Griffiths draws on the writings of Henry Lawson, Judith Wright and Eric Rolls to give further depth, breadth and illustration to his essay about *The Outside Country*.

Likewise, links to visual art are employed by some of the authors. Bonyhady is a master at linking art and environmental history, as he revealed in *The Colonial Earth* (2000). In this volume he provides a description of a Bea Maddock's artwork called 'We Live In the Meaning We Are Able to Discern'. A very fitting title and link for this collection.

Other contributors provide critical analyses of explorers' journals. Such

journals reflect the way landscapes were decoded, read and created. They allow us to see the visions held by colonial explorers and their 'conceptual transformation of the land' (Morphy and Morphy, p. 104).

Kirsty Douglas outlines two different views of 'imagining a country scientifically' (p. 70). She juxtaposes the nineteenth century biblical-scientific accounts of the explorer and naturalist Charles Sturt with the twentieth century secular-scientific accounts of the geologist Jim Bowler in an investigation of the 'similarities and intersections between two different ways of framing an account of the mechanics of landscape modification'. Her search concludes that there are many continuities between these different paradigms, despite 'differences in the way the cloak is worn'. She reiterates one of the universal themes in the book, that 'reading the land operates on an unconscious, or implicit level, as a structuring device for interpretation' (p. 74).

The narratives in this volume successfully 'draw out the diversity of voices that speak for a landscape and the ways in which these voices emerge from complex social processes' (Brown, p. 87). They remind us of Bernard Cohen's words that 'landscapes have histories and these are contained not only in the soils and the fauna and the traces of human life, but in the history of ways of seeing the land'.

We are left, however, with a somewhat disturbing exposé of the fact that landscape 'is overlain with many voices' and that 'these voices express diverse sensibilities and histories as they speak through landscape and for it' (Brown, p. 87). Disturbing, not because we did not intuitively already know this, but because there is a degree of reverberation in revelation of these voices and how they fit together, where they are going and what is our part in them. They expose some of our cultural secrets and do not necessarily provide answers for what we can do with this

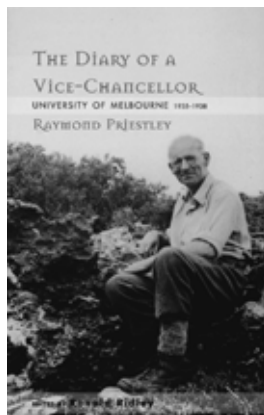


knowledge. But this is healthy discourse, of which there is arguably not enough in Australia.

*Words for Country* is a poignant publication. Australians will be seeking a second volume to unearth more stories to help us comprehend our words for country.

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**Raymond Priestley (Ronald Ridley, ed.):**  
*The Diary of a Vice-Chancellor: University of Melbourne 1935–1938.* Melbourne University Press: Carlton, Victoria, 2002.  
xxxvii + 555 pp., illus.,  
ISBN: 0 522 84985 7 (HB), \$59.95.



When scarcely out of his teens, Raymond Priestley, the son of an English school-master, was one of the two geologists on Shackleton's Antarctic expedition in 1908–9, and then one of the survivors of Scott's ill-fated expedition in 1911–12. He served in the First World War and wrote two books on aspects of it before becoming a Cambridge don. There in 1934 he was appointed Secretary-General of the Faculties, a post that in the days of two-year Vice-Chancellors entailed many of the duties that later fell to Vice-Chancellors.

The following year he was appointed the first full-time salaried Vice-Chancellor of the University of Melbourne. During his time there he kept a voluminous diary whose extensive extracts in this handsomely produced book provide a remarkable insight into the life of a Vice-Chancellor in the 1930s. In Priestley's time, the University of Melbourne had some 80–90 teaching staff and something under 4000 students. On his arrival he was dismayed by the total lack of social facilities for those students who were not

housed in colleges, and appalled by the accommodation of the Chemistry department. He made the building of a students' union and a new building for the Chemistry department two of his prime objectives, both of which were accomplished before he left.

Those were the days when the government of the University lay with the Professorial Board (23 members in his time). He worked closely with a few key colleagues, especially Douglas Copland, Kenneth Bailey and Samuel Wadham, and energetically busied himself with a host of matters concerning the internal activities of the university. With financial assistance from the Carnegie Corporation he spent a memorable two and a half months visiting leading universities in North America, gleaning from their experiences anything which could be relevant to the university scene in Australia. Throughout his time, he made it his business to go on periodic lecture tours around groups of towns outside Melbourne, whereas on like occasions in Melbourne he regularly related his Antarctic experiences to the great appreciation of his audience. His diary includes a particularly vivid account (18–19 July 1935) of a two-day tour around the Metropolitan Water Board's water supply works, and there are a variety of entries about his

interactions with Sir David Rivett, the Walter and Eliza Hall Institute and the Melbourne Medical School.

From the start, he encountered difficulties with both his Chancellor and his Deputy Chancellor, neither of whom found it easy to adjust to the insertion of the office of Vice-Chancellor in the university's hierarchy. Two other matters particularly oppressed him, however. Despite his frequent public addresses on the importance of the university, and his assiduous courting of the Melbourne establishment, both as a member of the Melbourne Club and of Rotary, he found public attitudes towards funding the University incorrigibly negative. He eventually reached the end of his tether when in a deliberate response to his mounting pleas for an increase in government funding of the university, the Victorian government granted less than half his request. Having meanwhile had two offers of Vice-Chancellorship in British universities, he departed in 1938 to pursue a lengthy and very distinguished career as Vice-Chancellor of the University of Birmingham. He left behind him those major concerns about funding, which, it seems, remain unresolved 65 years later.

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