

Reviews

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Bill Gammage: *The Biggest Estate on Earth: How Aborigines Made Australia*.
Allen & Unwin: Crows Nest, NSW, 2011.
xxiii + 434 pp., illus. (colour),
ISBN: 9781742377483 (HB), \$49.95.

The Biggest Estate on Earth, the product of ten years' research, sets out in meticulous detail the evidence for a bold but straightforward argument: the Australian landscapes described and experienced as 'natural' by early European observers were in fact made landscapes, extensively shaped and intensively maintained for generations by their Indigenous inhabitants. Across the Australian mainland and Tasmania, Indigenous people 'obeyed a strict inheritance, followed the same Law, allied with fire and worked locally to make plants and animals abundant, convenient and predictable. They made a continent a single estate.'

Bill Gammage pursues this argument with vigour and conviction, embedding extracts from wide-ranging primary research in terse, powerful prose. Chapter 1, 'Curious landscapes', outlines peculiarities and paradoxes that suggest that pre-European Australia was a managed landscape. Early European observations reveal dramatic changes to vegetation patterns post-settlement: 'Across Australia newcomers saw grass where trees are now, and open forest free of undergrowth now dense scrub.' Vegetation patterns were often counterintuitive: 'Typically, grass grew on good soil and trees on poor', rather than the reverse, and plant communities could change suddenly with no difference in soil type or altitude sufficient to explain the change. Other curious landscapes included regularly spaced avenues of trees and 'fire tolerant and fire sensitive plants side by side' (p. 11). Different fire regimes 'made similar plant patterns across Australia': from Victoria to Perth, Tasmania to Lake Eyre, European observers repeatedly encountered landscapes they described as

'park-like', well grassed, lightly timbered, clear of undergrowth. Only a few took the seemingly logical step of assuming that such landscapes were deliberately made.

In Chapter 2, 'Canvas of a continent', Gammage analyses these unnatural vegetation patterns in a series of 59 full-colour images, including landscape paintings and survey plans by early colonial artists, along with historical and contemporary photographs illustrating distinctive Australian plant responses to light, drought and fire. Subsequent chapters examine aspects of the Australian environment that made it amenable to Indigenous land management—specifically, a high percentage of fire-dependent and fire-tolerant plants, coupled with a lack of large predators that might have disrupted the regulation of grazers' movements by controlled fire—and discuss in detail the kinds of patterns and associations of plant communities typical of Indigenous land management. Readers who, like myself, prefer to access broader arguments via concrete examples will find Chapter 9, 'A capital tour', particularly helpful: here Gammage reconstructs Sydney, Hobart, Brisbane, Perth, Melbourne, Adelaide, Darwin and Canberra as they were at the time of first European settlement, noting particularly how Indigenous burning 'patterned country in ways which influenced where newcomers settled' and thereby 'shaped the layout of Australia's capital cities.'

The majority of Gammage's chapters deal with fire, consistent with his argument that it was 'the chief ally' in Indigenous land management. Perversely, however, I found most challenging and enlightening those chapters that dealt with separate, albeit related, themes. I was particularly moved by Chapters 4 ('Heaven on earth') and 5 ('Country'), which I had initially approached with scepticism: could the Dreaming really have exerted sufficient governing power to unite the great diversity of Indigenous Australian languages and cultures, and the

enormous geographical area they covered, into something that could legitimately be described as a single estate? Gammage argues that it could. Indigenous knowledge ‘was inextricably continent-wide’: songlines, personal travel and trade webs linked Indigenous groups across language boundaries for hundreds, even thousands of kilometres. The Dreaming encoded detailed ecological knowledge and ‘made environmental management obligatory’; even in the face of capture and death, following the catastrophic disruptions of white settlement, small bands of brave men and women still cared for their country, ‘toiling to do what perhaps ten times as many would once have done’. Chapter 10, ‘Farms without fences’, conclusively busts the persistent stereotype of hapless wanderers dependent on luck, and the vagaries of a difficult environment, for their next meal. On the contrary, Gammage reveals, Indigenous Australians skilfully combined farming and mobility to their advantage, promoting plant and animal resources in numerous ways: ‘bans, sanctuaries and totems reinforced abundance; open seasons and culling limited excess; planting improved crop yields’.

The Biggest Estate on Earth is not a ‘how-to’ manual for Australian land management. Gammage describes his work as ‘only a start’, adding that the records he has drawn on represent ‘a fraction of what exists’ and that ‘more is possible than this book offers’. To a certain extent, Ron Hateley’s *The Victorian Bush: Its ‘Original and Natural’ Condition* (2010), reviewed in *HRAS* 22(2) by Linden Gillbank, inadvertently addresses this challenge. Although the two authors approach the topic of Indigenous burning practices from fundamentally different perspectives—Gammage emphasizing the impact of Indigenous fire, Hateley questioning it—their conclusions, at least for policy purposes, are strikingly similar. Both acknowledge that Indigenous people were skilled and careful users of fire; both agree that burning practices varied widely across the continent, reflecting local environmental conditions and requirements. Hateley is concerned that exaggerated claims of the frequency and extent of Indigenous burning are currently used to support over-frequent burning of Victoria’s mountain forests, as distinct from open woodlands and grassy plains; Gammage concedes that Indigenous land management could include ‘leav[ing]

land alone for long periods’ and that early pastoralists often burnt far more extensively than traditional custodians. Both conclude that we still know too little about Indigenous burning practices to be able to imitate them effectively.

If this book attracts accusations of primitivist fantasy, as it doubtless will, such accusations will be misplaced. Gammage does not describe primeval Noble Savages mystically at one with nature, but intelligent, resourceful people using hard-won, fine-grained local knowledge to manage available resources to their advantage. He emphasises that Indigenous land managers were ‘active, not passive’, and registers admiration of their achievements while acknowledging that their practices did not always succeed in ‘leaving the world as they found it’. He concedes that ‘[t]here is no return’ to pre-contact land management, but adds that ‘across the shattered centuries’ Indigenous knowledge ‘can still teach, and some have begun to learn’. Effective management of Australia’s unique landscapes does not depend on being Indigenous, but on acquiring adequate knowledge. The book’s final challenge is addressed to all Australians: ‘We have a continent to learn. If we are to survive, let alone feel at home, we must begin to understand our country. If we succeed, one day we might become Australian’.

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Ann Elias: *Camouflage Australia: Art, Nature, Science and War*. Sydney University Press: Sydney, 2011. 240 pp., illus., ISBN: 9781920899738 (PB), \$60.00.

It would not seem a misnomer to label the 1939–45 conflict as ‘the War of Committees’. Much as it represented the material and logistical apex of militarised industrialism, World War II also institutionalised a post-Progressive culture of expertise fusing innovation with governmentality. But whence did its prophets come? Historians of science and medicine have long acknowledged the syncretism between warfare and techno science, just as cultural historians and critics have depicted a Janus-faced mobilisation of the arts for protest and propaganda. Less frequently, however, have scholars linked Modern art, science and defence: a trinity fostered

by wartime committees and united via a common faith in experimentation.

It is these productive intersections and tensions that Ann Elias traces so ably in *Camouflage Australia*. Grounded solidly in archival records, her text elaborates the evolution of Australia's Defence Central Camouflage Committee (DCCC) from pre-war civilian roots to formalisation within the Department of Home Security. Commanded by William Dakin, Sydney University's Professor of Zoology, the DCCC pursued a double remit of visual misrepresentation. Its camoufleurs—later restyled less effete as 'camouflage officers'—both concealed installations and personnel while crafting deliberate deceptions. In their attempts to disrupt recognisable shapes, divert attention from known targets and deploy simulated ordnance, 'The painter's studio ... was as much a laboratory for understanding the principles of camouflage as was the science laboratory'.

Beyond biologists and artists such as photographer Max Dupain and painter Frank Hinder, the committee also recruited architects and carpenters, chemists and cosmeticians, commercial designers and textile manufacturers. DCCC activities ranged from the demanding new field of photographic interpretation to experiments in visual design and perceptual psychology, and from observation of natural environments to instructing front-line units in concealment. Elias makes much of Dakin's interest in animal patterning and his (unacknowledged) debt to pre-war pioneers of camouflage who drew heavily on the presumed evolutionary advantages of faunal colouration. However, she contends that techniques from abstract and surrealist art—especially diffuse forms and *trompe l'oeil*—were equally important to the camoufleurs' abandonment of 'realist' deceptions in favour of counter shading and disruptive patterns.

While within the committee, 'Camouflage had come to symbolise the road to victory through superior intelligence', discord rather than deference characterised the DCCC's relationship with its clientele. Encouraging soldiers to don face paint, eschew highly visible khaki uniforms and hide in cover and shadow, camoufleurs encountered masculinist and racist refusals to mimic 'primitive' Aborigines, Japanese jungle troops or native fauna.

While not cited by Elias, this scenario recalled Tony Sweeney's meticulous history of wartime malaria research in Australia, especially the rigid discipline necessary to enforce individual acquiescence to 'proven' prophylactic measures. Indeed, in detailing the DCCC's frustrated desires for acknowledgement as serious contributors to the war effort—and their side-lining by competing schemes or apparent inertia—*Camouflage Australia* recapitulates a tale common to hybrid advisory committees.

As such, the analysis might have benefited from a wider appraisal of shifting logistics and strategy. Like numerous advisory committees, the DCCC only attained full stride in 1943–44, when the material advantage and tactical initiative had passed so firmly to the Allies that concealment was often pointless. Indeed, by 1944 Allied combat aircraft were not only delivered uncamouflaged in the interests of weight, speed and cost, but painted machines were laboriously stripped back to bare metal. Moreover, although reliant on David Mellor's unsurpassed official history of science and industry in WWII, *Camouflage Australia* could have productively engaged with more contemporary accounts of the military-scientific-industrial nexus. Beyond scholarly analyses by Roy MacLeod, Rod Home, Bridget Goodwin, Michelle Freeman and Andrew Ross, Elias might perhaps have consulted non-academic but archivally sound camouflage historians such as Geoffrey Pentland and Ian Baker. Likewise, the DCCC's intersections between war art, modelling techniques and visual deception made it surprising that Laura Back and Laura Webster's volume on the Australian War Memorial's innovative dioramas was not cited.

Structurally, *Camouflage Australia* presents an archivally driven serial biography of the key DCCC protagonists. It thus affords only passing reference to military camouflage units and none to other channels for defence innovation such as the Army Inventions Directorate. The sporadic analytical discursions cite Roy Behrens' oeuvre on camouflage and Jean Baudrillard's seminal exegesis on simulacra, but there is curiously little interpretation of the committee's visual materials. Elias elaborates the ironies of camoufleurs craving visibility and soldiers reticent to wriggle like snakes, but more could have been made of racial hierarchies and skin tone, psychological

sequelae for troops whose bodily boundaries 'merged with the jungle', and the limitations of monochrome photography in evaluating camouflage colours. Such reservations aside, *Camouflage Australia* offers a unique contribution to Australian scientific and military history, and is sure to stimulate thoughtful responses.

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Peter D. Griggs: *Global Industry, Local Innovation: The History of Cane Sugar Production in Australia, 1820–1995*.
Bern: Peter Lang, 2011. 928 pp.,
ISBN: 9783034304313 (HB), \$124.95.

It is hard not to see Griggs' *Global Industry, Local Innovation* as becoming the definitive single-volume work on the history of Australia's sugar industry. As Griggs notes, the book is unique in its national focus and includes the history of cane and sugar refining. This breadth of scope is accompanied by a depth of detail, as shown by the book's substantial 928 pages. *Global Industry, Local Innovation* may also become a definitive work because such ambitious and detailed historical treatments rarely attract the interest of publishing houses. Peter Lang's well illustrated, but expensive, hardback edition suggests the book is geared towards specialists and libraries rather than local historians or 'general readers'.

The book is separated into three chronological sections that consider 'Beginnings' from 1788 to 1863, 'Becoming Established' from 1864 to 1914 and 'Expansion, Export-Orientated and Regulated' from 1915 to 1995. Within these sections, Griggs provides chapters of a historical-geography flavour that narrate the expansion of the cane-sugar industry; chapters that consider the business history of sugar mills (in particular the Colonial Sugar Refining Co. (CSR)); and general themes such as agricultural research and advising, water management, pest and disease control and the changing technologies for the harvesting, transport and refining of sugarcane.

Griggs notes that *Global Industry, Local Innovation* has been researched and written over nearly two decades and its pages bring together much of Griggs' previously published work on

the Australian sugar industry from *Historical Records of Australian Science, Agricultural History, Environment and History* and the *Journal of Historical Geography*. Griggs clearly has a detailed and comprehensive knowledge of the practice of cane-growing and how local knowledge, science and technology interacted in unique ways in Australia's different sugar growing regions. Indeed, one of the book's significant contributions is its account of the differences in settlement and economic structure between regions. For example, Griggs shows that North Queensland developed a very different sugar industry to Southern Qld and Northern NSW. He traces this back to remoteness and initial generous land allocations in North Queensland that led to sugar plantations rather than family farmers. This produced a more highly status-divided workforce and population that relied on external labour, initially in the form of large gangs of cane-cutters and later due to a greater reliance on machinery contractors. In contrast, Griggs argues that southern sugar-farmers were slower to embrace labour saving machinery (and machinery contractors) because they had traditionally done a greater percentage of the farm-work themselves and favoured independence over efficiencies of scale. Griggs convincingly charts how these historical and cultural differences shaped the economic structure of these different regions. His account is a cautionary tale to historians not to ignore local context in favour of broad economic and statistical averages.

Griggs is a historical geographer 'with an interest in agriculture and environmental history'. This focus emerges through his attention to geography and environment throughout the work. For example, there is an excellent opening chapter on the biology and growing conditions of cane-sugar and its refining processes. Likewise, his chapters on the economic and geographical expansion of the industry are deftly written. At times, Griggs' enthusiasm for charting the development of sugar-growing technologies or for telling the story of the 'development' of the industry leads him to lose his environmental and biological perspective. For example, in his chapter on 'managing water', Griggs considers the development of irrigation and drainage systems and their role in expanding the sugar industry, but only briefly discusses the environmental impacts these had on the landscape.

As I read the book, several comparisons with other Australian land industries came to mind that Griggs might have usefully pursued. Most significant seems to be that sugar refining was a capital intensive process, and this distinctively shaped the industry through its dominance by large sugar companies like CSR. This meant there were powerful and wealthy stakeholders in the industry that wielded as much (or probably more) power and influence than government. For example, in his chapter on 'Science and the Canegrowers', Griggs suggests that CSR's private research and practices were often more influential than that of institutions like the Queensland Bureau of Sugar Experimentation. CSR also continued to operate its own sugar plantations and exerted significant control over share-farmers. This strikes me as a significant difference to pastoral industries or even the more intensive dairying and fruit industries where companies further 'upstream' in supply chains were traditionally concerned with little more than assessing produce and setting prices. Griggs also tells a story that would be familiar to historians of Australia's nineteenth and twentieth century agriculture and land settlement. This is a story of idealistic boosters proposing grandiose settlements requiring heavy government intervention and lavish funding. As often happened with other intensive and 'novel' industries, the results were often the economic and environmental failure of settlement.

Another of the book's strengths is its focus on technology and how farmers took this up. Indeed, Griggs shows a fascination with the details of machinery and how it changed the production of sugar and the environment in which it was produced. He provides excellent accounts of the economic pressures and decisions made regarding new machines that would carry out the ploughing of cane fields and the harvesting, loading and transportation of sugarcane. These sections of the book would be of particular interest to historians researching the impact of technology or the 'diffusion of innovations'.

It seems to me that what is lacking, and what may limit the appeal of Griggs' work, is context. For example, there has been much written on the politics and symbolism of sugar, with its history as an oppressive commodity that has so commonly been associated with deprivation of freedom and environmental damage (Sidney

Mintz's *Sweetness and Power* comes to mind as do many other post-colonial histories). Similarly, the history of the push for the cane-farming labour force to become 'European' seems to me to have been one of the major campaigns for proponents of the White Australia Policy. Griggs might have alluded to this importance and placed sugar-industry labour-disputes (which he covers in detail) in their broader cultural and political context. Likewise, while Griggs skilfully charts momentous changes to the history of north-eastern Australia and provides a thorough industry history, there is no complimentary discussion of the links this industry had with the broader history of Queensland and northern NSW or with the development of other land industries in Australia. This criticism, however, does not take away from the quality of the book and is not so much a reflection on Griggs' work but on the fact that more work needs to be done on interrelationships and comparisons between Australia's major agricultural industries, and for that matter, on the agricultural history of Australia.

While specialists in the field may argue over interpretations and Griggs' conclusions, and may add more as to the 'why' rather than 'how' things occurred, this book is likely to become the standard work on Australia's sugar industry.

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Alan Powell: *Northern Voyagers: Australia's Monsoon Coast in Maritime History*. Australian Scholarly Publishing: North Melbourne, 2010. 435 pp., ISBN: 9781921509933, \$49.95.

'It is a crowning irony of Australian exploration history that the miserable deaths of Burke and Wills and the disappearance of Ludwig Leichhardt are better remembered than the successes of all the great marine surveyors.'

If tragedy and conflict were guarantors of posterity, popular Australian history would not focus so exclusively on the south-eastern corner of our continent, but would give due credit to the colourful history of our north and west as well. Alan Powell's *Northern Voyagers* seeks to redress

both the inland and south-eastern bias in our history by providing a comprehensive account of the maritime history of Australia's northern coastline. Vibrant and violent, this is an Australian history few of us would recognize. Our northern coastline was explored by people from a wide range of European (and Asian) countries, long before its apparent 'discovery' by James Cook. Asian influences reverberate throughout the region's history from Macassan trepang fishermen and Polynesian labourers to Japanese pearl divers and later, invaders. Racial tensions do so not much simmer here as erupt at flashpoint in this frontier landscape whether in the dispatch of shipwrecked Europeans by islanders, or the excessive force of later retributions again the 'myalls'.

Like the cartographers and surveyors featured in the book, Powell perhaps pays less attention to science than the readers of this journal might like. The obvious contributions of Darwin on the *Beagle* and Huxley on the *Rattlesnake* are duly acknowledged, but of the numerous French expeditions only that of Baudin is credited with 'having done remarkably well for science' (p. 45). Otherwise, Baudin, Laperouse, d'Entrecasteaux and de Freycinet are all dismissed as having 'done little for Australian navigation'. The first complete published map of Australia might be regarded by an achievement of some kind generally—certainly Flinders thought so.

Such omissions are forgivable, however, as this is a maritime history not a history of science. Powell's northern focus fills in the context for a great many surveying voyages and their participants who so frequently populate the periphery of southern histories. It is refreshing to read of these voyages in their own right and in their entirety, rather than as bit players in the history of other people and places. I was frequently struck by the sensation that I was reading the other half of a family history, which suddenly makes sense of the half-told accepted version. The broad scope of this book, from the earliest exploration through settlement, war, natural disasters and people smugglers, makes for fascinating reading. Powell makes excellent use of personal voices and colourful anecdotes as well as his own pertinent interjections. His writing is as engaging and vibrant as the history he describes.

But it is perhaps possible to have too much of a good thing. There is such a wealth of drama and action, shipwrecks and tragedies, that the unwary reader might be overwhelmed and drown in the detail. It is ironic that a book dedicated to a navigational history uses so few of the navigational devices that general readers might use to find their way through a complex text. Over 400 pages broken by only six chapters (with an average of just 1 1/2 paragraphs per page) demands a dedicated reader. Subheadings, paragraph breaks and boxes could all have provided the buoys to mark the channels in the text. A scattering of maps and high resolution images throughout the text, instead of clumped at the beginning and end, would have done better justice to a fascinating read and brought this story to the public audience it so richly deserves.

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E. B. Joyce and D. A. McCann (eds):

Burke & Wills: the Scientific Legacy of the Victorian Exploring Expedition.

CSIRO Publishing, State Library of Victoria,
Royal Society of Victoria: Melbourne,
2011. xxiv, 343 pp., illus.,
ISBN: 9780643103320 (HB), \$59.95.

The Royal Society of Victoria (RSV) was the driving force behind the 1860 Victorian Exploring Expedition. Largely regarded as a tragic failure, the 'Burke and Wills' expedition nonetheless has remained a subject of enduring historical and popular interest to this day. The sesquicentenary of the expedition provided the RSV with several opportunities to re-assert its role in the original circumstances of this ultimately-tragic episode. The launch of *Burke & Wills: the Scientific Legacy of the Victorian Exploring Expedition* in November 2011 followed a series of other RSV events aimed at commemorating the 150th anniversary. These included a dinner with guest speakers, rather ironically held close to the dates on which the leaders of the Expedition had died of starvation.

The scientific achievements of the Burke and Wills expedition have not featured large in the considerable body of literature created in its wake. The three scientists on the trek, Becker,

Beckler and Wills, were each directed to make and record observations, collect specimens and keep diaries. Somehow, the data accumulated through these efforts did not see the light of day. As the blurb on the back cover of this book points out, ‘the results of the scientific investigations were not reported or published.’ This may have been because of the tragic conclusion to the Expedition, but whatever the reason, this volume now fills that gap in the record. More than that, however, it also provides a range of new perspectives on both the history of the Expedition and scientific investigation in Australia.

The enormous volume of detail contained in this book is set out in three sections. Before the reader arrives at Chapter 1, in the roman-numeraled preliminary pages there is a Preface and an Introduction. The first of these reads more like an introduction to the book’s theme than does the second. The Introduction provides an excellent overview of the background to the Expedition, its conduct, and the aftermath, and could easily have been made one of the chapters.

In the second section, the scientific legacy of the title is dealt with in six of the nine chapters that comprise the bulk of the volume. The subject areas within which the achievements of the Expedition are detailed and assessed by specialists are surveying (Leahy); geology (Joyce and McCann); botany (Gillbank); zoology (Mace, Menkhorst, *et al.*); hydrology (Lawrence) and meteorology (Bye). These were the disciplines identified in the instructions provided in 1860 to the Expedition scientists, by the Exploring Committee of the RSV. For this book the discipline of anthropology has been added. Although not an area of much interest to the Expedition Committee, sufficient relevant data were gathered—by Becker and Wills in the Expedition and Welch and Howitt in the relief parties—to develop a view of the relations between members of both the Expedition and relief parties and local Aboriginal people. This section begins and ends with chapters by the editors. In the first, ‘Conflicting priorities’, they look in detail at the scientific background to the Expedition, and the various imperatives that drove Australian exploring parties. Chapter 9 is titled ‘Conclusion: rewriting history’ but it is more an overview of the history of how the Expedition has been seen in the past 150 years, plus brief summaries of each of the areas studied by the other authors.

These substantive chapters are followed by four Appendices, which provide further information of relevance in assessing the Expedition’s scientific legacy. Of these appendices the most germane are Dave Phoenix’s biographies of the principal scientists, and an essay on the art of the expedition, by Elizabeth Ninnis.

This is a beautifully produced book, illustrated throughout with contemporary paintings and sketches, maps, and photographs of botanical specimens, all presented in full colour; the black and white photographs of significant individuals are excellently reproduced. Perhaps most importantly, the index is comprehensive and includes both scientific and common names for the many mentioned genera and species.

Burke & Wills: the scientific legacy of the Victorian Exploring Expedition is a significant addition to the history of scientific endeavour in Australia. It also deserves to be the last word on the subject of the Burke and Wills expedition. Although this is unlikely to happen, given the enduring interest there is in the subject of the ill-fated expedition, at the very least this book adds a whole new dimension to the story of exploration and science in this country.

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Richard Gillespie: *The Great Melbourne Telescope*. Melbourne: Museum Victoria, 2011. 188 pp., ISBN: 9781921833052 (PB), \$29.95.

The Great Melbourne Telescope—or ‘GMT’ as it was known to generations of astronomers—was the largest operational reflecting telescope in the world when it was erected at Melbourne Observatory in 1868 and great things were expected of it as a research instrument. That these expectations never quite materialised is outlined in this fascinating book by Dr Richard Gillespie, Head of the Science and Technology Department at Museum Victoria in Melbourne. Admittedly, the research objectives developed for the GMT by the Great Southern Telescope Committee in England were laudable: to reveal the true nature of the southern nebulae. But the lattice tube of the telescope and design of the building that housed the telescope partly militated against this, as did the use of speculum (metal)

mirrors which rapidly tarnished in the salty Melbourne air and required repolishing and figuring. There was also the matter of public visitors to the telescope, who sometimes ate into valuable observing time that otherwise could have been assigned to research. Finally, staffing restrictions during the economically-turbulent 1890s and the simultaneous commitment of the Observatory to the demanding international Cart du Ciel Project effectively sounded the death knell of the great telescope as a Melbourne icon. Yet it would rise from the ashes, phoenix-like, to be reborn again in two totally different guises at Mount Stromlo Observatory in the years following WWII and towards the end of the twentieth century.

Gillespie weaves all of these threads into his account of the GMT, but he does much more than this. He provides a social dimension for the telescope by bringing those who planned it and used it to life. For instance, I knew that William Parkinson Wilson, the young foundation Professor of Mathematics at the newly-founded University of Melbourne, and George Verdon, the equally-youthful Treasurer of the colony of Victoria, played key roles in making the dream of a great southern telescope a reality, but Gillespie shows how they skilfully used their political acumen and contacts in both Australia and Britain to actually make this happen.

I also knew that Albert le Sueur, the original GMT ‘Observer’, was trained for the task in Britain, and returned to England after an all-too-brief sojourn in the antipodes, but I did not realise that he was a mere 16- or 17-year-old recent mathematics graduate from Cambridge with no formal astronomical education—let alone observing experience—when appointed in 1866 to conduct research with the most advanced astronomical telescope in the world. I also found it fascinating to read of le Sueur’s trials and tribulations with the telescope, and the problems that arose through his dual allegiances to the Royal Society in London (that appointed him) and the Government of Victoria (that formally employed him and paid his salary). Eventually it all became too much for the youthful, inexperienced and somewhat naïve le Sueur and he tendered his resignation and returned to England where he was quickly abandoned by the scientific community. Le Sueur subsequently turned to teaching, and I wonder how many of his pupils knew that he once made pioneering naked eye and spectroscopic

observations of the famous Eta Argus (now Eta Carinae) with the largest telescope in the southern hemisphere. I came away from this book feeling sorry for le Sueur.

Le Sueur’s successor as GMT Observer was Farie MacGeorge whose tenure of this prestigious position was equally short-lived. MacGeorge was in his mid-30s when he resigned, so youthful inexperience played no part in his decision to quit Melbourne Observatory, but Gillespie reveals the actual reason: MacGeorge and his wife were heavily involved in spiritualism—which was very popular in Melbourne during the 1870s—and evening meetings eventually took precedence over observing sessions with the great telescope. As Gillespie wryly writes: ‘MacGeorge was seeking a greater understanding of the universe than he could find in the eyepiece of the telescope.’

Gillespie does a magnificent job sandwiching these topics and others into a mere 188 pages that are liberally sprinkled with historical illustrations, some of which have not previously been seen in print. After discussing the concept of a ‘great southern telescope’ in Chapter 1, he explains in the following three chapters how this was brilliantly metamorphosed into the ‘Great Melbourne Telescope’, before summarising the observational efforts of le Sueur, MacGeorge and his successor, Joseph Turner. However, this is not a book that emphasises research astronomy, so those seeking a *detailed* examination of the research output of the GMT will be forced to look elsewhere.

Yet it is this very focus on the non-research aspects of the telescope’s history that is one of its strong points. For instance, Chapter 6 on ‘The Telescope in the City’ is compelling reading. After introducing Britain’s popular young royals, Prince Albert and Prince George, who shared an evening with the GMT in July 1881, Gillespie shows how night time visits to the telescope became standard fare for distinguished visitors to the city and members of Melbourne society, until they reached the point where they interfered with the research work of the Observatory. The telescope was its own worst enemy in that it was simply too successful! As Gillespie points out, by 1881 the GMT

had become the city’s scientific icon. As well as a key instrument in an international scientific research program to understand nebulae,

the telescope had become woven into the life of the observatory and the city. The telescope took on a public life that was a much ceremonial as scientific, becoming a focal point for the public understanding of science.

The final chapter, titled simply 'Rebirth', discusses the telescope's re-emergence in the 1950s as the Stromlo 50-inch reflector, complete now with a silver-on-glass primary mirror (although one of the two original speculum mirrors was proudly displayed on the wall of the dome). For several decades this telescope and its near neighbour, the 74-inch reflector, were the 'work-horses' of the ANU's astrophysical research programs. Then at the end of the 1980s the 50-inch was refurbished and was used for the MACHO Project: the search for evidence of missing mass in our galaxy and the universe. The disastrous Canberra bush fires of January 2003 abruptly terminated this project, but not before surviving remnants of the original GMT had been transported to Melbourne, thereby allowing the third renaissance of this remarkable historical telescope. This ambitious conservation project, that combines the resources of Museum Victoria and the Astronomical Society of Victoria, is currently underway, and ultimately will see the reconstructed GMT back in its original distinctive roll-off roof building at Melbourne Observatory and once more available to the people of Melbourne through educational programs and public viewing nights. But in order to meet the latter objective a modern glass mirror will be used instead of a speculum metal mirror (which is now regarded as antiquated technology).

The Great Melbourne Telescope is attractively produced, beautifully illustrated and well written, and I found it compelling reading (even on the second time round). It is very reasonably priced, and should be on the bookshelf of every astronomer interested in the history of Australian astronomy or the evolution of the telescope. But because of its non-astronomical content it deserves a far wider audience than this, and I can do no better than to mimic Fred Watson's perceptive statement in his Foreword: 'If ever there was a book that all Australians *interested in their cultural heritage* should read, this is it.' (my italics).

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John Bailey: *Into the Unknown: The Tormented Life and Expeditions of Ludwig Leichhardt.*

Pan Macmillan: Sydney, 2011. 396 pp., ISBN: 9781742610450 (PB), \$34.99.

One of the great mysteries of Australian exploration is the fate of Ludwig Leichhardt. Much has been written about Leichhardt and a great deal of that writing is neither accurate nor useful. The forthcoming bicentenary of his birth in 2013 and the fascination that he still holds for Australians will result in the production of several articles, books, exhibitions and celebrations both in Australia and Germany. John Bailey's biography of Leichhardt is the first of such contributions.

Bailey is the author of an acclaimed account of the explorer John McDouall Stuart, though the question could be asked whether we really need another biography of Leichhardt by an author, who cannot read the documents by Leichhardt written in German, such as his notebooks and diaries, and that still have not been translated. In this respect Colin Roderick's biography, *Leichhardt the Dauntless Explorer*, published in 1988, but now unfortunately out of print, remains the most authoritative account of Leichhardt in English. Roderick could and did read the original documents. Hans Finger's biography, *Leichhardt*, first published in 1999 and revised in 2000 as *Das unmögliche Wagen*, was based on original sources, including those written in German, but until the proposed English translation is published, it is only accessible to those who can read German.

By necessity, Bailey has relied heavily on Marcel Arousseau's edition of Leichhardt's letters and also has drawn on Roderick's biography, thereby repeating some errors in Roderick's book, including the erroneous claim that the plant Leichhardt called by its Aboriginal name *jindilli* was the Macadamia nut tree. Bailey has also used Webster's *Whirlwinds in the Plain* published in 1980, which systematically demolishes criticisms about Leichhardt's competency and achievements as an explorer that began circulating after his death.

Into the Unknown outlines what is known of Leichhardt's early life and education and gives succinct accounts of his time in Berlin, England and France, attending lectures and undertaking studies at museums in London and Paris. Bailey describes the nine month's journey Leichhardt

and his patron William Nicholson undertook through the south of France, Italy and Switzerland, which Leichhardt used to prepare himself for future exploration in unexplored countries. Leichhardt's activities in Australia are covered in great detail. Bailey has used the sources mentioned above, as well as the diaries kept by Leichhardt's companions on his two expeditions. An attempt has been made to acknowledge Leichhardt's contributions to botanical science by using a recently published assessment of the botany of his first expedition. Leichhardt's contribution to geology, however, has been overlooked, although this is assessed in one of the references listed by Bailey.

Various suggestions have been made by scholars to explain the illness that beset the members of Leichhardt's second expedition, and ultimately led to its failure. Bailey argues persuasively that the cause was salmonella poisoning caused by lack of hygiene and eating of contaminated meat.

The final chapter *Into the Unknown* summarises the speculations made by various authors of how and where Leichhardt met his death, and the various expeditions that have looked for remains of Leichhardt and his party.

Bailey's sub-title suggests that Leichhardt had a tormented life, yet this is not borne out by the biography he has written. Leichhardt was certainly single-minded and driven by his desire to achieve an education in science, and later to make new scientific discoveries in an unexplored country, but was successful in both of these aims, despite his premature death. Despite this quibble, *Into the Unknown* is a well written and readable biography that gives an even-handed and fair-minded account of Leichhardt's life.

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Mark Lewis: *Cane Toads: an Unnatural History*. Screen Australia: Sydney, 1987. 47 minutes, DVD, not on current release.

Mark Lewis: *Cane Toads: the Conquest*. Radio Pictures: Mullumbimby, 2010. 85 minutes, DVD and Blu Ray (3D), \$29.99.

At heart the cane toad kerfuffle interrogates a single word: nature. This is why the sub-title of writer/director Mark Lewis's almost

uncategorisable first film featuring *Bufo marinus—An Unnatural History*—betrayed his brilliance. Deeply ironic, this 1987 release deployed the deadpan structure and techniques of natural history documentaries to evince complex yet frequently comedic relationships between (northern) Australian culture and the conundrum of 'nature'. While the narrative centre of the production follows the 1935 release of 102 Hawaiian cane toads at Gordonvale and their subsequent peregrination across Queensland, history—whether 'natural' or chronological—plays a promiscuous role in the series of impressions that follow.

Curiously, the most 'unnatural' element of this film is its human talent. Unpolished, hesitant, bemused or strident, biologists, councillors and citizens alike betray their contemporary models: the Leyland Brothers, Rod and Valerie Taylor, even *The Curiosity Show*. Never appearing onscreen, Lewis is omnipresent in the direction and editing, positioning cane toads to alternately confirm or counterpoint their rendering by humans.

The toads themselves are, after all, the stars of this show. Superficially, the film appears to tick the requisite documentary boxes: introduction, reproduction, toxicology, ecological interactions and evolutionary adaptations. We learn that almost from the outset, the toads followed their own logic. Eschewing the cane beetles and grubs they had been introduced to eradicate, toads proceeded instead to consume any animate object amenable to their capacious mouths. Demonstrating this polyphagous proclivity via comic-horror, a pure white mouse picks its way gingerly between a plethora of toads and—oh! And so it goes. Such faux-Hitchcockian moments are punctuated by stiff-backed expertise. A zoologist squeezes a toad, ejaculating its toxins into the camera lens; a detective adumbrates the 'natural' but illicit high attained from boiled-down batrachians; an ecologist enumerates native species—kookaburras, ibises, herons and snakes—murdered by bio semiotic misadventure: unlike indigenous prey, toad poison exudes no unpleasant warning taste.

Decisively tilting docu-drama into farce, however, are the disparate cultural responses. A farmer declares cane toads 'as big a menace as the German army', while a Gordonvale councillor bemoans the voting-down of the town's

mooted ‘big toad’ statue. Some Queenslanders demonstrate a ‘perverted reverence’ for *Bufo marinus* by proffering pet food and tickling toad tummies; others lurch their cars across highways and celebrate the satisfying ‘pop’ of flattened toads, inverting the popular 1980s computer game, *Frogger*.

What, if any, pedagogical value can be derived from such diversions?

This conundrum hovers equally over both of Lewis’s *Cane Toads* films, his second in many ways a remake at twice the length and exponentially higher production spend (as the first Australian feature produced in 3D, the 2011 premiere season of *The Conquest* lasted less than a week).

Beyond the lush cinematography and sophisticated graphics, the most dramatic transformation is the human talent. Two decades of the Discovery Channel and innumerable ‘reality’ programmes have re-scripted Australians, far outstripping the impact of a few media training sessions. Biologists, politicians, publicans and showmen alike warm to the camera and converse with ease, blithely delivering often risible performances. Similarly, as the dramatized re-animation of a poisoned pet segues to a canine ‘trip’ sequence, a dog is castigated for its ‘addiction’ to licking toad toxin. And so it goes. The review DVD classed *The Conquest* as ‘comedy’.

From the pointed ambiguity suffusing the first movie, Lewis has progressed to sympathetic, even empathetic portrayals of *Bufo marinus*. This admiration is far from absolute: depicting toad deaths remains unproblematically blunt, occasionally being manipulated for comic intent. Parochial attempts to wrest profit from the on-going slaughter include converting carcasses into fertiliser or exporting toads to apparently credulous Chinese medicine consumers. A toad sculpture has now been erected but a travelling show populated by taxidermied toads enticed few Queenslanders: despite a growing anthropomorphism, the perceived ugliness of the animal is, it seems, a decisive factor against more wholehearted human embrace.

The toads themselves have also travelled far: 2600 km from Gordonvale, to be exact, with an estimated population exceeding 1.5 billion. Moreover, the conquest is accelerating. Toads heading the drive across the Northern Territory are, herpetologist Rick Shine informs us,

evolving into more efficient invaders than their sluggardly 1935 ancestors. A disquieting teleology is at work here: the toads have a ‘natural’ imperative to hop ever westward, surmounting all obstacles amid the harsh selective pressures of the top end. The film’s visual and verbal rhetorics conjure an irresistible amphibian army, effacing names from the map as settlements subside under the advancing pall of *Bufo* biogeography.

Absent, however, are the ecological sequelae. Indeed, *The Conquest* is a misnomer: Lewis provides no indication of environmental reshufflings inside occupied territory. Frequently juxtaposed against human cultural and infrastructure transformations of the north, toads are framed within emptied landscapes, rhetorically ‘naturalising’ them while glossing any local biotic accommodations or displacements.

Which brings us full circle. The true pedagogical value of Lewis’s *Cane Toads* movies lies in the profound questions they raise about ‘nature’ in Australia. Where does *Bufo marinus* belong in the local environment, amid accelerating human impacts and barely submerged anti-Asian xenophobia? Should we valorise this ‘unnaturally’ exotic species and its astounding adaptability in conquering ‘natural’ barriers of local climate, geography, flora and fauna? Which behaviour is more ‘natural’: an unerring quest to reach the sunset or the paralytic pleasures of a tummy rub? Furthermore, as Shine asks, has the physiological and behavioural ‘nature’ of cane toads—at least along the lines of migration—changed fundamentally in a mere 80 years? These are, at root, cultural questions: the toads, as one northern denizen remarks, ‘don’t know any different’.

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Bo Beolens, Michael Watkins,
Michael Grayson: *The Eponym Dictionary of Reptiles*. Johns Hopkins University Press: Baltimore, 2011. xii + 296 pp., ISBN: 9781421401355, \$128.00.

Eponymy is a way of remembering co-workers, collectors, patrons, family, friends, and even lampooning opponents, a suggested motive of Wilhelm Blandowski’s fish *Brosomius bleas-dalii*: ‘a slippery fish. Lives in the mud’. As well as satisfying curiosity, knowing something

about people honoured can help uncover networks in the areas of science concerned. It can be extremely difficult to track down eponymized figures: dictionaries like this can help.

No matter how excellently produced, as this one is, a reference book must be accurate. I have recently analysed zoological species named for Ferdinand von Mueller. Four reptiles were named after him. Only one of these is listed in the *Dictionary*, but not under the genus to which Peters assigned it in 1878. Since the dictionary is organised by the name of the person honoured, Mueller was easily found. The ‘missing’ species have been synonymized, losing the specific epithet *muelleri*. Mueller’s entry gives his broad career, but has errors of detail. For example, his 1848–52 explorations were in South Australia, not Victoria; he was ‘botanist’, not ‘naturalist’ to Gregory’s expedition, with J. R. Elsey the ‘surgeon and naturalist.’ The entry for Elsey (*Elseya*) has him as the expedition’s ‘assistant naturalist’. The broadly accurate *resumé* for William Denison (*Denisonia*, a snake genus in which *Hoplocephalus muelleri* was earlier described) has some potentially misleading nuances: for example, his designation as Governor General was less important than implied, and his scientific roles are underplayed. Gerard Krefft erected *Denisonia*. Here there is a serious blunder: Krefft was not dismissed from the ‘National Museum, Melbourne’, but from the Australian Museum, Sydney. Thence to A. C. L. G. Günther, who named *Cacophis krefftii*. The epitome neglects his zoological D.Phil. before training as a physician, a qualification that helps explain his career; a probable typographical error has him as Keeper in 1857, rather than 1875; he was president of the Linnean Society from 1896–1900, not 1881–1901. Finally, J. E. Gray, who named *Holapsis guentheri*. Gray worked voluntarily at the British Museum for about eight years before gaining the junior position mentioned in his entry, explaining why he was appointed without formal education; his role as a founder member of the Zoological Society of London, and vice-president for ten years, is omitted. Brief notes cannot include everything, but it is disappointing that each entry checked by following connections from my starting point contains errors and/or omissions of relatively significant facts.

Dictionaries must also be comprehensive. Forty-three eponymous species listed as valid by

the Australian Faunal Directory were not found, of which thirteen were excluded from the *Dictionary* because they came from 1984 and 1985 work, which ‘was still not universally accepted’. Another three were published very recently and probably could not have been included. The *Dictionary* has several derivative names, but in the absence of a headword for ‘*baritj*’, an aboriginal word for white, the name *Varanus baritji* would lead only those already in the know to the entry for Neville White. Of the remainder, almost all appeared as a synonym.

Listing synonyms would inordinately increase the labour of compilation and the length of the work. The authors’ decision to limit themselves to the 2,330 people plus some other apparent names in the 4,163 eponymous species and genera accepted by the *Reptile database* is understandable. But those whose eponyms have been synonymized away become invisible, for example *Lygosoma bancroftii* described in 1916 is now considered to be the same species as the 1862 *Anomalopus leuckartii*, so Dr T. L. Bancroft’s role in herpetological discoveries is lost. Also, decisions about names made by one authority are not those made by others, and serious users must search synonyms to check that a person whose name is listed is actually the one after whom a species is named: there are seven Smiths giving rise to *smithii* or *smythii*, for example.

I have found no errors in the attributions. So, despite my concerns about accuracy of the biographical notes and the lack of comprehensiveness, the volume will remain on my shelves, as a convenient starting point for identifying persons honoured in reptile names.

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Notices

Martin Thomas and Margo Neale (eds):

Exploring the Legacy of the 1948 Arnhem Land Expedition. ANU E Press: Canberra, 2011.

ISBN: 9781921666445 (print), \$39.95,

ISBN: 9781921666452 (online).

The American-Australian Scientific Expedition went to Arnhem Land for seven months in 1948. Although mainly focused on anthropology, it was also intended to foster relations between Australia, and recent war-time ally, the United States

of America. The fraught politics of Australian anthropology, and animus towards expedition leader, Charles Mountford, undermined the reputation of the expedition, which the authors argue can be regarded as ‘the last of the big expeditions’ in inland Australia.

Louis J. Pigott: *The Bird Man of Brisbane: Sylvester Diggles and his Ornithology of Australia*. Boolarong Press: Salisbury, Qld, Moorooka Qld, 2010. 214 pp., ISBN: 9781921555626, \$49.95.

Sylvester Diggles migrated to Queensland with his family in 1855. Best known for an unfinished work on the ornithology of Australia, Diggles also helped found the Queensland Museum, and participated in the solar eclipse expedition to Cape Sidmouth, 1871–72. This book portrays Diggles as a pioneer naturalist, who struggled against health and financial problems to contribute to his chosen discipline.

John Hassal: *RPA & Beyond: An Unauthorised Memoir*. Phillip Mathews Book Publishers: Willoughby, NSW, 2010. 169 pp., ISBN: 9780977553266 (HB), 9780977553259 (PB).

In this brief memoir, John Hassal shares the highlights of a fifty-year association with the Royal Prince Alfred Hospital. A specialist in arthritis, Hassal puts his career in the context of the great changes in the practice of medicine that occurred in Australian hospitals in the second half of the twentieth century. The second half of the book reproduces twelve papers published or presented by Hassal between 1967 and 2007, about various aspects of medical practice.

Peter Shotton: *A Historical Overview of Agricultural Research at Douglas Daly Research Farm (1960s–2010)*. Darwin, NT: Northern Territory Government, 2011. 99 pp., ISBN: 9780724547470. www.nt.gov.au/d/Content/File/p/Tech_Bull/TB338.pdf

The Douglas Daly Research Farm (DDRF) was set up by the Federal Government in the 1960s to support the development of agriculture in the Top End of the Northern Territory. This report provides an overview of the diverse

projects carried out by the DDRF in areas such as crop varieties, biofuels, weed control, agroforestry, cattle breeding and farming systems research.

Rhyll Vallis: *A Veterinary Awakening: The History of Government Veterinarians in Australia*. Canberra, ACT: Dept of Agriculture, Fisheries and Forestry, 2011. ISBN: 9781921575204. <http://www.daff.gov.au/animal-plant-health/animal/a-veterinary-awakening-the-history-of-government-veterinarians-in-australia>

Published as the Federal Department of Agriculture, Fisheries and Forestry’s official contribution to the World Veterinary Year in 2011, this booklet is an anecdotal history of government veterinarians in Australia.

Kristen Weidenbach: *Rock Star; The Story of Reg Sprigg – An Outback Legend*. East Street Publications, 2008. ISBN: 9781921037290 (PB), 334 pp., \$32.95.

This is a narrative-style biography of Reg Sprigg, pioneering geologist in South Australia. It covers his discovery of the oldest fossils in the world, work on the atomic bomb, founding of SANTOS, and establishment of the Arkaroola Wildlife Sanctuary.