

# Book Review Section

Compiled by John Jenkin\*

**D.W.A. Baker**, *The Civilised Surveyor: Thomas Mitchell and Australian Aborigines*. Melbourne: Melbourne University Press, 1997. xv + 213 pp., illus., \$29.95 pb.

**Lech Paszkowski**, *Sir Paul Edmund de Strzelecki: Reflections on his Life*. Melbourne: Australian Scholarly Publishing, 1997. xxvi + 370 pp., illus., \$39.95 pb.

**Glen McLaren**, *Beyond Leichhardt: Bushcraft and the Exploration of Australia*. South Fremantle: Fremantle Arts Centre Press, 1996. 316 pp., illus., \$19.95 pb.

These three additions to the history of Australian exploration provide a fitting invitation to pause and review the development of this sub-discipline. As in other British settlement colonies, exploration history traces the growth of a cultural identity distinct from that of the mother country. The explorers made some of the hardest yards in creating the Australian identity, and recounting their exploits made historians active agents in a process that, like settler capitalism, fed on itself. Even failed explorations generated publicity that maintained momentum and support.

The first significant history of exploration by an Australian-born author was explorer William Howitt's *History of Discovery in Australia, Tasmania and New Zealand* (1865). As the blank spots shrank at the end of the nineteenth century, the topic became the province of professional historians and popularizers, just as exploration itself

became a mopping-up operation conducted by methodical scientists. The most noteworthy work of this era is Ernest Favenc's centenary *History of Australian Exploration from 1788 to 1888*.

In 1909, J.H. Maiden (*Sir Joseph Banks: The 'Father of Australia'*, 1909) initiated a new trend by examining the work of Banks as a metropolitan promoter of exploration and Australian colonization. As the First World War began, Ernest Scott began his extended project of rewriting the history of Australian exploration with his *Life of Captain Matthew Flinders, R.N.* (1914). Following the peace, G. Arnold Wood published his classic *Discovery of Australia* (1922). In 1933, Scott's two chapters in the *Cambridge History of the British Empire* emphasized that geographical discovery destroyed the convict system and that stockmen rivalled explorers in revealing the interior. Popular writer Frank Clune's contemporary *Dig*, the first full treatment of the Burke and Wills Expedition, continued to reflect the evolution of Australia's national identity by dwelling on the expedition's embodiment of colonial rather than imperial aspirations.

During the Second World War, A.H. Chisholm produced a controversial evaluation of Leichhardt, himself the most controversial of Australian explorers, that portrayed him as an irresponsible, attention-seeking blunderer (*Strange New World*, 1941). While this echoed Favenc's appraisal, it cut against received wisdom and owed something to contemporary anti-German feeling. Geoffrey Ingleton gave Australian maritime exploration specialized treatment in *Charting a Continent* (1944). After the war, histories of inland exploration such as Geoffrey Rawson's *Desert Journeys* (1948) continued the tradition of lauding heroics and promoting economic development. Whiggish biographies of hitherto untreated explorers, such as Keith Bowden's *George Bass, 1771-1803* (1952), emphasised their contributions to nation building. In the early 1960s, Alan Moorehead's well told *Cooper's Creek* (1963)

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*Historical Records of Australian Science*, 12(2) (December, 1998)

reawakened popular interest in Australian exploration. In the latter half of this decade of cultural upheaval, biographies of Australian explorers divided into four streams: scholarly efforts such as James Mack's *Matthew Flinders, 1774-1814* (1966), works of piety by descendants, such as Adelaide Lubbock's *Owen Stanley, R.N., 1811-1850* (1967), sycophantic volumes that continued to praise explorers as national father-figures, like Michael Langley's *Sturt of the Murray* (1969), and attempts at psychoanalysis. In the latter vein, Geoffrey Dutton examined Edward Eyre in *The Hero as Murderer* (1967). Dutton's work exemplified a general trend toward psycho-biographies of explorers worldwide, the aim of which was exploding myths and dethroning heroes; fitting work for the years in which the statues of imperialists were pulled down throughout Africa.

Iconoclasm continued in the 1970s. Kenneth MacIntyre's *Secret Discovery of Australia* (1977) began a controversy that has yet to subside in claiming that the Portuguese preceded Cook by 200 years in charting Australia's east coast. Edgar Beale destroyed Sturt's legend, revealing a tragic, delusion-driven man, unfair to his subordinates (*Sturt, the Chipped Idol*, 1979). Australian historians subsequently pursued this line of research with ferocity, perhaps demonstrating, in the aftermath of Whitlam's dismissal, the nation's need for independence from British sources of authority. The English umbilicus is inescapable, however. In 1977, a new biography of Sir Francis Beaufort emphasised his role, along with Sir John Barrow, in succeeding Banks as a key promoter of British scientific exploration (Alfred Friendly, *Beaufort of the Admiralty*).

In the 1980s, C.J. Binks' *Explorers of Western Tasmania* (1980) set a new trend in regional histories of exploration that linked discovery with pioneer exploitation and environmental concern. Colin Roderick produced a detailed, if hagiographic, biography of Leichhardt (*Leichhardt, the Dauntless Explorer*, 1985), while Russell Braddon's *Thomas Baines and the North Australian Expedition* (1986) highlighted the role of artists in shaping perceptions of newly explored regions. Paul Carter's brilliant *The Road to Botany Bay* (1987) challenged orthodox perspectives by examining landscape as explorers saw and imagined it, before horizons solidified under the imposition of European names and

narratives. The Australian bicentennial triggered many new histories, including Ian McLaren's herculean bibliography (*Australian Explorers by Sea, Land and Air, 1788-1988*, nine vols). My study of Sir Roderick Murchison emphasised the importance of the successor of Barrow and Beaufort to the promotion of colonial exploration (*Scientist of Empire*, 1989).

The 1990s brought the continuation of established trends as well as new developments. Banks' central role as a power broker in exploration was reinforced by R.E.R. Banks et al. (eds), *Sir Joseph Banks: A Global Perspective* (1994), while Tim Bonyhady analysed the meaning of Burke and Wills in national culture (*Burke and Wills: From Melbourne to Myth*, 1991). Carter and Bonyhady have produced the most exciting new works about Australian exploration to appear during the last dozen years. Both treat the meaning of exploration. Comprehensive reassessments of the actual contributions of most Australian explorers are now required, examining especially their scientific achievements. Disappointingly, these new studies of three major explorers – Mitchell, Strzelecki and Leichhardt – add little to the debate, except in explaining the dependence of exploration on the development of bushcraft.

D.W.A. Baker's *The Civilised Surveyor* is a study of Mitchell's attitude toward Aborigines rather than a biography to supersede William C. Foster's *Sir Thomas Livingstone Mitchell and his World* (1985). Baker fails to present a complete picture of Mitchell's psychology, to explain adequately his contradictory feelings toward Aborigines or to assess his contribution to science. Baker's very purpose in writing the book seems questionable, for isolating the views about Aborigines of one man, however influential, hardly covers such a profound issue. The book is based, necessarily, on the Mitchell Papers and other sources, but there is nothing new here, nor in Baker's uninspired interpretation. Writing in a stilted, antiquated style, Baker sketches Mitchell's early life too sparsely, while clogging the narrative with excess contextual background.

Interestingly, Baker describes Mitchell's surveying techniques in detail, since he saw exploration as survey. On Mitchell's first expedition of 1831-32, for example, he chained every mile travelled, and toiled endlessly up peaks in search of trigonometric points. Mitchell made nightly

astronomical observations from his tent, which he rigorously aligned with the compass points. Having studied chemistry and geology, Mitchell described, sketched and collected natural history specimens wherever he went. He had scientific assistants, such as botanist Richard Cunningham on his second expedition to explore the Darling River in 1835, or surgeon W. Stephenson and assistant surveyor Edward Kennedy on the fourth expedition of 1845–46 to the Gulf of Carpentaria. Unfortunately, Baker tells us nothing about Mitchell's pioneering fossil investigations in the Wellington Caves, or his important relationships with London savants. In sum, we are left with the impression that a new biography of Mitchell is required to draw together the disparate strands of his life – one written by an historian alive to new currents of thought.

Lech Paszkowski's volume about Strzelecki offers a worthy effort at such a biography of one of Australia's least-known explorers, a man who won his laurels for scientifically describing much of south-eastern Australia in the wake of other explorers. Paszkowski's work is a painstakingly thorough paean to a fellow Pole. Clearly a labour of love, its strength is yet its weakness. Paszkowski's research has covered every possible source of information about the enigmatic Count. These are scant enough, given the burning of Strzelecki's correspondence and papers after his death, the destruction of his letters to Poland during the First World War, and the loss of his diary.

Paszkowski's objective is to correct the historical record, and he takes particular aim at Helen Heney's *In a Dark Glass* (1961), which, through innumerable examples, he exposes as slanderously unfair. He also updates the three major and positive biographies of Strzelecki: W.L. Havard's of 1939, Geoffrey Rawson's of 1953 and Waclaw Slabczynski's (in Polish) of 1957. Often pedantic in its focus on minor incidents for lack of evidence about larger issues, the book is frequently boring. We are given too much detail on Strzelecki's early life and too many extensive quotes from his writings. The author's minutely-detailed style pays dividends, however, in adequately covering Strzelecki's exploration routes in Australia for the first time. On Paszkowski's calculations, Strzelecki walked an astonishing 7,000 miles during his five years' research.

Coverage of Strzelecki's science is accurate if incomplete, correctly categorising him as Humboldtian in his wide-ranging grasp of natural phenomena. Alive to James Hutton's radical new geological theories, Strzelecki remained primarily Wernerian in his perspective on earth science. Historians of science will also find interest in the balanced discussion of Strzelecki's role in the controversy over the first discovery of gold in Australia, and in his attempt to convince the Colonial Office in 1847 to establish geological surveys in all the settler colonies. Were Paszkowski more familiar with the history of science in Britain, he might have avoided several grating mistakes regarding leading geologists and other notables.

One intriguing question Paszkowski raises, but does not adequately answer, is why Strzelecki never became a fellow of the Geological Society of London. Instead, he became an active member of the less rigorously-scientific Royal Geographical Society, which awarded him its Royal Medal in 1846 for his *Physical Description of New South Wales and Van Diemen's Land*, the centrepiece of which was his celebrated geological map of the region. Even more fascinating is the possibility, mooted by Lord John Russell in the 1860s, that had Strzelecki accepted Sir George Gipps' offer of a post in the New South Wales administration during the 1840s, he might have become the first Governor of Victoria. Paszkowski thus tells us more than we want to know, which he could have easily avoided, and less, which he cannot help since crucial documents are missing. While this volume would have benefited greatly from stronger editing, we shall certainly not require another reappraisal of Strzelecki for some time.

Glen McLaren's *Beyond Leichhardt* is at once the most confrontational and frustrating of this trio, and the one offering by far the freshest insights. This paradox is perhaps attributable to McLaren's background as a farmer and horsebreaker, which has sensitized him to issues of bushcraft that more 'indoor' historians might overlook or discount. His book is a revised version of his doctoral thesis for Curtin University.

McLaren maintains that lack of bush skills hampered European exploration of the Australian interior before Leichhardt's achievements enabled subsequent explorers to build on his example and push on into

the arid interior – for McLaren, the true Australia. His case is clear and generally well argued, though McLaren is on surer ground describing explorers' bush skills and survival achievements than assessing their scientific contributions. He scathingly deconstructs the bushcraft of many exploring greats with compelling evidence. Oxley and Evans are portrayed as ineffectual amateurs, Mitchell as authoritarian and fearful, Sturt as helpless, Grey as irresponsible and impetuous, and Eyre as stubborn and foolhardy.

McLaren's underlying theme is the colonists' need to come to terms with Australia's strange and hostile environment. He thus depicts scientific exploration as dependent on the development of bushcraft. More provocatively, McLaren argues that explorers could not conduct proper scientific research and should not have tried. He believes that the role of the explorer is to reconnoitre, and that he must therefore remain highly mobile. Mapping, collecting, describing, drawing, measuring – all these aspects of field research merely bog the explorer down with impedimenta and tedious routine. McLaren goes so far as to claim that mapping hindered the development of crucial orienteering skills.

The main key to success was thus the horse, replaced by the camel in the interior deserts. Fully-mounted expeditions made possible all of the major explorations after the mid-1840s. Gradual improvements in clothing, camping gear, saddlery, horse-shoes, firearms and food preservation techniques all helped increase the range and duration of expeditions. Fitness, acclimatization and psychological adjustment to the bush likewise grew as Europeans learned to be at home in the Australian wilderness. The author's parochialism, evident throughout in sneers at Britons' inability to adapt, becomes overt when he moves on to his home ground in Western Australia. Here, he argues, the colonists' adjustment to the bush was quicker than in the south-eastern colonies, the bushcraft tradition being based from the start on the use of horses. J.S. Roe, the first Surveyor-General of Western Australia, drew on this pool of experience to create an unrivalled school of exploration. The emphasis was on mobility at all costs, and Roe perfected the pack-horse methods he later transferred to his protégés, the Gregory and Forrest brothers.

McLaren also presents a case study reassessing Leichhardt, whom he rightly considers the most scientifically trained of Australian explorers in the first 100 years and the most professional before Baldwin Spencer. McLaren spent eight months in the field investigating Leichhardt's route, concluding that criticisms of his science, navigation, mapping and bushcraft are invalid. For McLaren, Leichhardt is the great innovator, who integrated all advances in bushmanship up to his day and established a new benchmark in exploration.

McLaren concludes that primary exploration of Australia was completed by the work of Ernest Giles during the 1870s: 'Thereafter, field work would be a process of refinement and painstaking, scientifically oriented research'. McLaren overplays his hand on the fundamental issue of the relationship between science and exploration, seriously flawing what is otherwise a powerful work. Explorers accomplished a great deal of valuable scientific research, but McLaren largely dismisses these achievements because he has not taken the trouble to trace the influence that the observations, maps and collections had on scientific debate, and indeed on the course and pace of settlement and economic development. Exploration involves not only the act of finding, as McLaren implies, but also documenting discoveries so that others can fit them into the existing body of knowledge as well as retrace the explorer's route. Exploration, like scientific experimentation, must be repeatable. His work would be more telling had he spent more time in the library and less on horseback.

Despite its defects, McLaren's book demonstrates the value of re-examining the apparently obvious, considering contingencies and avoiding complacency. Our worst sin is believing that the story has been completely told. McLaren deserves great credit for having tackled it from a new perspective.

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**A.J. Harrison**, *Savant of the Australian Seas: William Saville-Kent (1845-1908) and Australian Fisheries*. Hobart: Tasmanian Historical Research Association, 1997. vi + 173 pp., illus., \$17.00 pb.

For those bibliophiles who collect Australiana, William Saville-Kent is known as the author of two books that are desirable items: *The Great Barrier Reef of Australia* (London, 1893) and *The Naturalist in Australia* (London, 1897). The former, in particular, is illustrated with many plates, some coloured, and caused something of a sensation when it appeared as a record of the colourful invertebrate life of Australia's coral reefs. Of the author of these books, it is probably fair to say that few would know anything about him, yet he was one of the first professional fisheries' scientists and one of the most important figures in nineteenth-century Australian fisheries. His reports were the basis for fisheries' legislation and management in Tasmania, Victoria, Queensland and Western Australia. Despite his importance, however, his name does not occur in any of the standard biographical dictionaries. This lack of knowledge of Saville-Kent is now overcome by the publication of this book, that gives a detailed account of his life and work in an area of science – applied biology – that has hitherto attracted little attention from historians of science.

William Saville-Kent was born in Devon in 1845 and suffered a difficult childhood and upbringing, subject to constant moves of household and changes in education. He lost his mother at an early age, and a beloved elder sister was imprisoned for the murder of an infant half-brother. Instilled with a love of natural history, he was able to secure employment, first at the Royal College of Surgeons under William Flower, where he was introduced to the study of corals, an interest that continued throughout his life, and then at the British Museum under John Gray and later G. R. Waterhouse. The first two of his many scientific papers appeared in 1869. Discouraged by the low pay and lack of promotional prospects in the Museum, Saville-Kent resigned his position in 1873 and joined the newly established Brighton Aquarium as resident biologist, where he was able to turn his attention to studying the behaviour of marine animals, a passion that remained with him thereafter. Further appointments

in aquaria at Manchester and London, and under T.H. Huxley at the Buckland Fisheries Museum, provided further opportunities to extend his experience. Following an unsuccessful attempt to establish a marine biological research station, first in the Channel Islands and then at Brighton, Saville-Kent accepted a position as Inspector of Fisheries in Tasmania, with a brief to revitalize the oyster fishery there.

When Saville-Kent arrived in Tasmania, there was an initial uncertainty about his role, and particularly about his relationship with the Salmon Commissioners, who refused to recognise his authority over them. Harrison has outlined the role of the Commission and provided an account of the introduction of salmon to Australia. The intrigues of the gentleman amateur fishermen who were part of the social and scientific establishment (they were influential members of the Royal Society of Tasmania), and the difficulties that professionals faced in dealing with ministers who were under pressure to act against professional advice when vested fisheries' interests were concerned, are well handled by the author. Because he studied the life history of marine organisms, Saville-Kent was regarded by some of the Commissioners as just a naturalist, and he was criticized for undertaking any scientific research. His critics failed to realise that such work was necessary in order to develop sustainable commercial industries. When his recommendations were ignored and his professional competence was questioned, Saville-Kent responded in undiplomatic terms through the columns of newspapers, thus receiving a reprimand and making a number of influential enemies. Eventually, short-term politics, gentleman scientists, vested interests and government parsimony so destabilized his position that he was glad to take up a consultancy in Victoria in 1887.

Saville-Kent's experiences in Victoria, as outlined by Harrison, have many similarities to those of the Director of the Geological Survey, Alfred Selwyn, in connection with the search for coal in Victoria, Selwyn being blamed for not finding payable seams. Saville-Kent reported on oyster culture in Gippsland, Western Port and the Western District, and on estuarine fisheries and crayfish. One of his most important recommendations was the introduction of a legal minimum size for catches to preserve the stock.

In 1888, Saville-Kent went to Queensland and saw living coral for the first time. He was invited to join the cruise of the *Myrmidon* across northern Australia to the Kimberley District. On his return to Brisbane, he was appointed Commissioner of Fisheries for three years, during which he reported on food fishes, oysters, beche-de-mer and the pearl-fishing industry. He also experimented with colour photography of corals, thus providing material for his first book, that he wrote on his return to England in 1892.

In 1893, Saville-Kent took up an offer to go to Western Australia to report on the pearl-shell fishery. His recommendations on restocking saved the industry. His work in Western Australia led him to recognise the significance of what is now called the Leeuwin Current and its role in faunal distribution. He also was responsible for the successful introduction of trout, a success that would now be regretted by some as it has involved the decline of native fauna. Harrison points out that Saville-Kent was an avid acclimatizer who, like most of his contemporaries, failed to see the effects that introduced species would have on the indigenous fauna.

Saville-Kent returned again to England in 1895 and started work on his second book. The success of the first book in publicizing Queensland persuaded the Western Australian Government to support the second. For the remainder of his life, Saville-Kent was involved with private companies in the pearl industry, though he was called back to Queensland in 1905 to report on the pearl industry that was failing owing to the gradual dismantling of the regulations that he had earlier put in place. Harrison gives compelling evidence that it was Saville-Kent who was the first to develop a technique for the production of cultured pearls, and that it was almost certainly copied from him by the Japanese who visited him at work on Thursday Island in 1901.

Harrison has not only given us a biography of Saville-Kent but has also provided excellent backgrounds to each stage of his life, to the web of patronage that surrounded scientific appointments in Britain, to the problems of the professional middle-class scientist as against the gentleman scientist of independent means, and to the clash between a scientific approach to fisheries management and the attitudes of gentleman anglers in Tasmania,

who were only interested in the acclimatization of salmon. There is a good summary of the history and background of fisheries' legislation in all the colonies except South Australia and of the role of the Federal Council of Australasia in fisheries' regulation.

Harrison has produced a major contribution to the history of fisheries' biology in Australia, the development of the pearl industry, and the clash between short-term political expediency and balanced development of a natural resource through scientific study. The similarities between the situation in Saville-Kent's time and the present day are remarkable. The book should be compulsory reading for all fisheries' managers and politicians responsible for fisheries.

The book has a good index, extensive end-notes and a substantial bibliography, including a list of Saville-Kent's published works, as well as an unusually comprehensive list of newspaper references to Saville-Kent and his work.

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**Edward Duyker, *Nature's Argonaut: Daniel Solander 1733-1782: Naturalist and Voyager with Cook and Banks*. Melbourne: The Miegunyah Press, 1998. xx + 380 pp., illus., \$49.95.**

The title of Dr Duyker's latest book refers to the mythological Greek heroes, the Argonauts, who sailed the seas with Jason in quest of the golden fleece and to whom the author likens Daniel Solander, the man who sailed with Captain Cook on his first journey around the globe. Daniel Solander was a Swede and a pupil of Linnaeus, who sent him to London in response to a request from English naturalists to learn more about the new methods of Linnaean classification. Solander was also to make sure that he helped to enrich the natural history collections of his patron. Later it suited Linnaeus to arrange a professional posting for Solander in St Petersburg, but by that time Solander had taken root in England, was employed at the British Museum, and soon planned to depart on

the great adventure of exploration to the southern hemisphere with Cook in the *Endeavour*. He sailed as a scientist in the private entourage of Joseph Banks, via Terra del Fuego, through the Pacific to Tahiti, where Cook's party was to observe the transit of Venus, and on to New Zealand and the east coast of Australia. He returned to England but never to Sweden.

After a three-year absence from England, it was Banks and Solander who were celebrated in London. It was they who had brought unheard-of natural history treasures back to England; it was they who had observed strange foreign peoples in their weird environments; it was they who had escaped death by dysentery, drowning or execution by natives; and again it was they who were immediately summoned by the king. Duyker writes, 'In all these initial accounts there was sparse mention of James Cook and his extraordinary seamanship or cartographic achievements. An ignorant modern reader reviewing the press coverage would be forgiven for thinking Cook a mere bus driver for the two naturalists'. For it was James Cook, the correct naval officer, who handed his papers and reports to the Admiralty, with the unfortunate result that their official publication by Dr John Hawkesworth in 1773 was preceded by several unofficial accounts.

Later, Banks and Solander's original intentions to join Cook on his planned second journey of discovery to the Pacific region with the *Resolution* failed because the Admiralty thought Banks' demands for shipboard accommodation were excessive, which indeed they were. So Banks organised his own tour, this time to Iceland, with the people he had originally selected for his entourage on Cook's second voyage. Naturally, Solander joined the party. Even after Banks married, the relationship between Banks and Solander remained close, in terms of both personal contact and scientific interests, until Solander died suddenly in middle age.

Fifty years ago, when I first came to Australia, it was generally stated that Captain Cook had discovered Australia; posters and articles proclaimed this as a fact. Since then we have come a long way. The Australian public, schoolchildren and even tourists are now aware that the Dutch were the first Europeans to arrive here. The distribution of knowledge through the written word and the electronic media has

made people conscious of their historical heritage, and not only have they become hungry for their own history but they also have a reservoir of astonishing knowledge, drawn from the popularization of historical research. Historians like Beaglehole and Dunmore have done excellent fundamental research and have allowed others to share in its fruits.

In 1995, I reviewed with much pleasure the earlier book by Edward Duyker and Per Tingbrand entitled *Daniel Solander: Collected Correspondence 1753-1782*. I enjoyed the book and read it carefully – every letter and all the footnotes of this well-researched and historically-documented work. It gave me a satisfying picture of Solander and his times, both in Sweden and in England, but I was disappointed that, due to a lack of extant correspondence, little information was available on his attitudes and thoughts during the epoch-making journey with Cook around the globe and to Australia. So I eagerly awaited the arrival of this biography of Daniel Solander; but since he did not have time to write letters during his three years on the *Endeavour*, the story of Solander's world cruise with Cook has had to be woven from other sources (mainly from Beaglehole's *The Endeavour Journal of Sir Joseph Banks*); and after Solander's return to England, partly from the Solander letters but also again from other sources. Indeed, Duyker has left no stone unturned to secure every possible reference to Solander, both as a scientist and as a private person. He has consulted a very wide-ranging array of materials, both published and unpublished. Duyker also clearly benefited from a visit to the North Queensland sites of the *Endeavour* voyage, however changed he found the environment to be; and he adds a very personal touch to the story by reporting on his own bout of dysentery on board ship, to illustrate the suffering of his stricken subject.

The book is essentially a popular historical narrative, woven from the letters published in the earlier book and from a broad collection of other sources: the first seven chapters – leading up to the first Cook voyage – are constructed almost entirely from the letters, while the later chapters are built from the wider field. While I admire the tenacity and persistence of the author in searching for all possible sources of information, it seemed to me unnecessary to include here the lists of plants collected

at each location visited during the expedition, since they have been published by Diment and Humphries, and I doubt that the ordinary (or even botanical) reader would find them advantageous.

This book seems to provide as complete an account of the life and times of Daniel Solander as is likely to be possible, but there remains one nagging qualification. All too frequently, especially in the first seven chapters, the author uses words such as 'presumably', 'we would think', 'doubtless', and 'there is little doubt'. He does not use them as much in the later chapters, but they do make it clear that there is a significant amount of historical reconstruction in the story. I liked the book, but I could not help wondering sometimes how much was fact and how much was fiction. Overall, however, Melbourne University Press has maintained the high standard of its Miegunyah series, and Solander is here well presented to the reading public. I am sure they will enjoy the book, as I did.

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**Marsden Hordern, *King of the Australian Coast: The Work of Phillip Parker King in the Mermaid and Bathurst 1817–1822*. Melbourne: The Miegunyah Press, 1997. xxi + 441 pp., illus., \$49.95.**

This book gives a brief biography of P.P. King, the eldest legitimate son of Governor Philip Gidley King, as well as a detailed, lively narrative account of his surveying trips around the northern coast of Australia. King was commissioned to fill in details that Flinders had missed. He made four voyages in the *Mermaid* and one in the *Bathurst* between 1817 and 1822. These boats were not nearly as grand or well equipped as Flinders' *Investigator*. The *Mermaid* was a cutter of 84 tons, just 54 feet from stem to stern, and after heavy duty it had almost disintegrated by 1821. The *Bathurst* which replaced it was over twice the size, at 170 tons, and had two masts as against the *Mermaid's* one.

King was a Lieutenant when he undertook these journeys, though he ultimately was made Australia's first Rear-Admiral. He and his assistants, in particular his mate John

Septimus Roe and the botanist Allan Cunningham, were talented and assiduous in describing both the water and the land of the northern coasts that they explored. They drew charts, painted landscapes, collected specimens and made detailed notes of all they saw and did. They had been ordered to study the flora, fauna and native population, as well as to map the coast, with a view to further settlement and trade. Their major discoveries were in the north west; for example, they found Exmouth Gulf and identified Melville Island and Van Diemen's Gulf.

King published a two-volume account of his work in 1827, and until now this has been our major source of information about his journeys. However, Roe and Cunningham also kept journals, and all of them produced other documents – reports, letters and log books – that Hordern has consulted carefully in preparing this history. He also has an intimate knowledge of the coast itself, and of the boats they sailed and how they worked, which enriches his story. The resulting history is both authoritative and detailed, yet never boring. This is largely because Hordern describes what happened from the point of view of those involved, imagining their feelings and capturing the sights, sounds and smells they encountered every step of the way.

As a narrative of King's voyages around Australia, this book could hardly be bettered. It also provides many interesting biographical details of King's life, both before and after his exploration of Australia; yet it is not a full biography, for it does not describe his surveying of the coast of South America in HMS *Adventure* with HMS *Beagle* between 1826 and 1830, nor does it detail his subsequent service to the Australian Agricultural Company (1834–50) and to the New South Wales Legislative Council (1850–56). Its focus is, as its title says, King's exploration and mapping of the Australian coast. In the process, King's character emerges as that of a decent Australian, brave, sensible, thorough, considerate, and with a deep religious faith.

From an academic point of view, the book is disappointingly unreflective. There is no sustained consideration of the significance of King's expeditions. Was their constant effort and repeated danger and hardship really worthwhile? Hordern does mention some of King's major discoveries and one or two settlements that were subsequently attempted on the basis of his reports,

though without lasting success. He also explains that the Admiralty in Britain wanted to reduce the loss of ships and men from shipwreck by producing accurate charts, and that the Colonial Office was interested in securing the land for Britain. But how significant were all those specimens that Cunningham sent back to Kew Gardens in England? And how useful were the detailed geological descriptions and the accounts of the behaviour and language of the Aborigines? In the two-volume report that King published, more than 200 pages (in an Appendix) are devoted to a detailed summary of the natural history of the places they visited. How significant were all these observations? King's place in the history of science may have been small, but it is surely worth a more detailed investigation.

One can deduce a little of the significance of King's mapping from Hordern's list (in an Appendix) of the thirty-three charts that King submitted to the Admiralty, about fifteen of which, it seems, were published. He says that Flinders' map of the Australian coast was corrected and much improved by incorporating King's observations. But how useful have the 150 pages of 'Sailing Directions' been, that King published in his *Narrative*? These describe every feature that King had named on his expeditions, as well as information about winds, rocks, sea and magnetic variations. They also include and often comment upon observations made by previous explorers. I imagine sailors might have found them very useful, and perhaps they still do.

We might remain uncertain about King's place in history, but we can be immensely grateful for this splendid description of his voyages. The book is handsomely produced, continuing the splendid tradition now established for the Miegunyah volumes. It has a number of illustrations, many of King's watercolours of the coast, and several coloured plates. It provides some maps of Australia, giving a rough indication of each of King's voyages. I would have liked more detailed maps to help the reader follow the detailed descriptions, though perhaps the facsimiles tucked inside the back cover were intended to serve this purpose. Unfortunately they are not very clear, the small writing on them being somewhat blurred. The bibliography and index are excellent.

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**Tom Griffiths and Libby Robin**  
(eds.), *Ecology and Empire: Environmental History of Settler Societies*. Melbourne: Melbourne University Press, 1997. vi + 248 pp., illus., \$29.95 pb.

The explosion of imperial Europeans, their ideas and their non-human camp followers over the surface of the earth has caused a major extinction event and a mingling of previously geographically disparate biotas. Those who believe that the maintenance of biological diversity is important are struggling to mitigate the consequences of this explosion, which has far from subsided. The tension between the imperial ambitions of a subset of people and the ecological reality of people as a part of nature continues to grow at present, with a globally imperial socioeconomic system based on the absurd assumption that growth in the use of material resources can increase indefinitely and exponentially on a finite planet. It is therefore fitting that an effort be made to understand the early stages of development of this tension. *Ecology and Empire* makes a substantial contribution to such an understanding.

The aim of the editors of the book was to put the relationship between ecology and empire 'under the microscope' and to pursue 'its wayward offspring around the globe'. To achieve this aim, they have assembled contributions in five areas: the ecologies of invasion, the empire of science, nature and nation, economy and ecology, the historiography of imperial environmental history. Most of these contributions concentrate on settler societies such as Australia and South Africa. However, sojourner societies, and those not subject to any great degree to European political imperialism, are far from ignored.

The contributions are highly varied in their ideological approaches, their tendency towards polemics and their temporal and spatial scope. This is not a book that evenly and logically develops a thesis, but rather a rich collection of disparate and often mutually contradictory material, that is but a sample of the possibilities inherent in the theme of ecology and empire. The sample is biased more to empire than ecology.

The first section of the book tends most to the ecological. The coruscating prose of Pyne, Rolls and Flannery draws the reader into their empires of ecological imagination. Pyne continues his love affair with fire:

Even as the settlers dutifully carried the flame from the metropole's heart, they had to feed it new fuels and, in the process, they altered the character of the defining fire itself. From their virgin lands they nurtured a new vestal flame.

Rolls gives us a brief geological history, describes the Aboriginal and European interactions with the landscape, and discusses the recent multicultural browning of the Australian population. Flannery hypothesizes that the nature of the ecosystems of Australia and North America can be used to explain the natures of their biota and societies. His main thesis is that the nutrient-poor, arid and climatically-variable Australian continent elicited, and still elicits, different biotic and social adaptations than the nutrient-rich, moist and relatively climatically-stable North American ecosystems. One can only admire an author who can relate the diminutive brain of the koala, and a lack of philanthropy, to the severities of the Australian environment.

The grand visions in these first three contributions are the antithetic part of several dialectics. Thus, irresistibly polemical prose does not necessarily bear close examination in relation to substance. Pyne is so devoted to changing the perception of fire from one more type of natural disaster, that he omits any analysis of the disastrous impact of imperial fire management and incendiarism on ecosystems that do not require fire for their perpetuation and have been destroyed by its incidence. Such an ecosystem, rainforest, was far from rare in the empire. Rolls promotes the idea that European land management led to an increase in the number of trees in Australia, an idea that is not supported by the historical information and ecological data (see Benson and Redpath, *Cunninghamia*, 5 (1997), 285–328). The reader also needs to remember that many of the evocative hypotheses that pepper the Flannery paper require some considerable testing.

The 'empire of science' section consists of contributions by Robin on the history of ecological science in Australia, by Dunlap on the relationships between ecological science and environmentalism in the Anglo settler societies, by Beinart on the history of the science of veterinary management in pastoral South Africa, and by Powell on the history of water management in Australia.

All these contributions emphasize the importance of ecological science disseminating from the motherland to the colonies, while pointing out that there has been no lack of reverse flow or local adaptation. They are all very interesting stories.

Robin makes the argument that 'ecology in Australia is still, in a sense, a science of empire'. She sees co-operative research with indigenous people as a way to free Australian ecologists from the imperial shackles. This argument and opinion reveal a suspect reading of the recent nature of, and possibilities for, scientific ecology in Australia. From the 1950s onwards, the major proportion of the research output of Australian ecologists has been devoted to the patterning and functioning of elements of native biological diversity, with a more recent strong emphasis on the applied ecology of conservation of native biological diversity. The knowledge of indigenous peoples can help solve some ecological problems, in the limited part of the continent where such knowledge survives. Yet, however well the environmentally relevant paradigms of indigenous people may have worked to ensure the sustainability of their land and society, they are not likely to be able to help answer many of the questions posed by ecologists.

The section labelled 'nature and nation' contains an article by Carruthers on the post-imperial development of national parks, an article by Grove on John Croumbie Brown and the development of environmentalism in South Africa, and an article by Hains on Mawson and Flynn and progressivism. These three papers have little in common apart from their inherent interest. Carruthers advances the proposition that 'the hegemonic Yellowstone model of a wilderness free from people...is inappropriate for the twenty-first century'. The ideological model she appears to like is based on sustainability for people rather than preservation for nature. This ideology, popular among those devoted to traditional use of all kinds, promises to accelerate the loss of global biological diversity. While it is the case that most national parks were populated by human beings before being declared, the reintroduction of *Homo sapiens* in a situation where relatively natural ecosystems are islands in a sea of development is unlikely to improve the prospects for sustaining nature. The main point of the paper on John Croumbie Brown seems to be to establish a connection

between his religious beliefs and his environmental activities, while that of the paper on Flynn and Mawson is to draw out their common attitudinal positions, of which, I suspect, we are not expected to approve.

The three papers in the 'economy and ecology' section cover the relationship between deforestation and imperialism, the relationship between global developments and Latin American environmental change, and the history of the Transvaal beef frontier. The first of these papers, by Williams, partly escapes Anglo imperialism to discuss the contrast between massive deforestation in imperial China compared to forest retention in Japan. Deforestation appears to be a phenomenon not totally related to imperialism. The second paper, by Melville, analyses the Latin American experience, to test the hypothesis that environmental deterioration is related to commercialization, not imperialism. The third paper, by Milton, leads to the conclusion that beef development in Transvaal was motivated by political ideologies, not economic forces (shades of Wik).

The final two chapters are designed to integrate the rest of the offerings. Mackenzie advances a historiographic classification of studies of ecology and empire, his classes being: empire, power and the apocalypse; the apocalypse; neo-Whiggism; the longer perspective school; the fully integrated cultural school. He concludes by exhorting his favourite research agenda, that includes developing 'indigenous conceptualizations of the environment' and exploring the ability of Europeans to learn from these. In the last chapter, Lowenthal takes on the challenging task of summarizing the main themes of the book. In doing so he necessarily adopts a wider perspective than most of the previous papers, seeing the tension between economy and environment as cyclical, pointing out that what was good is now evil, seeing the tendency to regard indigenes as incapable of environmental harm to be as dehumanizing as regarding them as animals, and urging us 'to embrace our antecedents within, rather than exile them from, our normative ecologies'. If I knew what and where my normative ecology was, I would probably try to do so.

While all the contributions to this book are excellent and entertaining in their own ways, from the perspective of my own

ecocentric value system I see several ideological threads within several of them that threaten the future of the other passengers on our eccentrically-rotating ball in infinite nothingness. In historiographic terms, the book is a bit long on the fully-integrated cultural, neo-Whiggish and longer-perspective schools and a bit short on ecology and apocalypse.

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**James C. Noble**, *The Delicate and Noxious Scrub: CSIRO Studies on Native Tree and Shrub Proliferation in the Semi-Arid Woodlands of Eastern Australia*. Canberra: CSIRO, 1998. viii + 137 pp., illus., \$19.95.

Forest historians in Australia are enthusiastic about tall timber and primeval forests. There is much less enthusiasm for semi-arid woodlands. There are various reasons why these do not seem so 'special'. They occur in country without much geographic relief, the borders of the forest are less easily defined, and the timber is significantly less valuable than that which grows in higher-rainfall areas. But there is another reason too. Some of these forests are pests – 'bad' forests. They are not perceived as 'natural', although they often comprise native plants. They are rather discomfiting 'cultural' forests. They have emerged since European invasion because of European land-use practices. Such forests are neither tall nor primeval.

With the notable exception of Eric Rolls' *A Million Wild Acres* (1981), there has been a tendency in forest history to favour our lost (good) forests and to overlook the (bad) forests we have gained since European invasion. James Noble's new book, *The Delicate and Noxious Scrub*, is part of the 'other' sort of forest history that considers the increasing, scrubby forests. He offers his readers economic, social and scientific history alongside recent ecological studies of 'feral' native plants, demonstrating the many facets of this particular sort of forest history. He also offers nine appendices, including extracts from historical documents, short biographical summaries of key players, and short histories of CSIRO Experimental Research Stations.

Noble's book considers the various cultural readings of western New South Wales, such as the delicate scrub of C.E.W. Bean in 1910 and the 'noxious scrub problem' of the 1901 Royal Commissioner enquiring into the conditions of crown tenants of the Western Division of New South Wales. The shrub/small-tree associations of the semi-arid woodlands have sometimes been called 'pine scrub', but today they are increasingly known as the 'woody weed problem'. Noble enjoys the irony that, according to testimony from the Royal Commission, one of the reasons for the so-called 'pine problem' was a concern for forest protection, that led to 1882 legislation forbidding the ringbarking of pines. Pines were regarded as valuable timber, valued because of their resistance to termites; so whilst eucalypts were ring-barked, pines were protected by law.

How many trees do we need together to constitute a forest? And what sort of trees are 'real' ones? These are issues that environmental and forest historians need to discuss and tease out – for these are cultural, not natural, distinctions. Do Australians, even though they no longer travel on horseback, still distinguish between good (open) 'bush' and bad (thick) 'scrub', as Anthony Trollope noted in 1871? We all need to see where we are going – metaphorically as well as literally. What makes a tree a real tree? In a footnote, Noble draws attention to Julian Tenison Woods' declaration (1882) that mallees are not trees:

instead of a trunk or stem, there rises from each root a cluster of slender stalks scarcely an inch in diameter, which ends at from eight to fourteen feet in height in a cluster of pale olive leaves. All round the stem, small dry withered branches stand out. These represent successive bush fires which sweep over the plains, at intervals of about three years or more, for it takes three years' growth to place the bushes in a state of thickness sufficient to feed a fire again.

But whether we find the mallee attractive or not, Noble does important service in reinstating it to our forest history. Its place as an historical agent in the environmental history of the Western Division of New South Wales allows us to re-value and re-evaluate our thinking about mallee scrub.

Forest science energies have been directed towards potentially-profitable timber by economic and cultural preconceptions. Problem trees have been left to agronomists and ecologists, whose first task has been to focus on increasing the open plain at the expense of the trees. But, as Noble discusses, this scientific work has broadened significantly to encompass some fine studies of both individual forest species and vegetation mosaics. The 'woody weed' phenomenon, Noble argues, was identified with significant help from scientists working in Experimental Farms in the region. But these farms were then closed down. The one most relevant to the Royal Commission, Coolabah, famous because of its association with William Farrer and wheat, was closed in 1906. It was nearly sixty years after this that shrub proliferation became a subject for ecological research. The concerns of the Pastoralists' Association of Cobar and the Enngonia Branch of the New South Wales Graziers Association spurred the research beginning in 1965, and it was funded by grants to CSIRO from the Wool Research Trust Fund. It is these CSIRO agronomists and ecologists who have in turn shaped our most recent understanding of this particular forest. The first phase of the research identified by Noble (1965–74) was descriptive, examining individual shrub species and shrub communities; the second phase (1975–84) was more interventionist, developing shrub-control options. The third phase (1985–94) has focused on long-term management – using two or more treatments.

Noble is fundamentally an ecologist, but he works hard to embrace the policy and political implications of his work. He sees the dominant problems of semi-arid woodlands today as structural rather than ecological – relating to 'land tenure, property size, enterprise diversification, [and] incentives for conserving biological diversity'. The language of this list perhaps betrays his early training in agricultural economics – a science of the factors that get included in cost-benefit analyses. It is also a reflection of the tension in working for CSIRO, where research is often sponsored by those driving for efficiency and cost-effectiveness in businesses based on European-style land use. Noble manages to stand clear of the CSIRO sponsors much of the time and to advocate a self-healing land-centred view, not too subject to heavy-handed management regimes:

Paradigms for pastoral management ...may well include partial control of scrub in more productive land while remaining reconciled to living with scrub in other less productive parts...[and] larger properties running a mixture of animals, including domestic, feral and different native species...[and] fuel accumulation during favourable seasons to be later exploited by prescribed fire.

The American wildlife manager and transcendentalist, Aldo Leopold, advocated 'thinking like a mountain'. Jim Noble goes some way towards 'thinking like a semi-arid woodland' when he describes increasing shrubs as a protective 'vegetative scar tissue or callus' on damaged country. Such a reading sends a warning to land managers that the simple eradication of 'woody weeds' may not lead to hoped-for productivity increases.

*The Delicate and Noxious Scrub* seriously accommodates many paradigms, or different ways of understanding the land, but ultimately privileges the scientific/ecological. Noble has been part of the CSIRO team of all three phases of the scientific work he describes. He transferred out of irrigation agronomy to rangelands ecology in the late 1960s as the economic imperatives for wetland farming dried up. He is also well-known as a fire ecologist of mallee ecosystems. His scientific work straddles the divide between agriculture and forestry, and his history-writing reflects this tension. Noble has used the Western Division of New South Wales to study the phenomenon of 'increaser shrubs' – a term he sees as less loaded than the more colourful and popular 'woody weeds' of what he calls 'tabloid ecology'. The term 'woody weed', Noble argues, induces confusion between native woody plants and exotic agricultural weeds. We see him at his most scientific/ecological when he advocates aiming for the restoration of 'desirable and resilient vegetation mosaics', not shrub eradication – except where the problem shrub is introduced.

The tensions of crossing and recrossing paradigms sometimes show within the prose itself. For example, Noble talks of the need to control 'shrub seedling recruitment in more productive open areas'. In the end, it is impossible to be cost-effective and orientated towards practical production *and* to value seriously the place of semi-arid woodland in the mosaic of vegetation that

makes up the Western Division of New South Wales. The economic and ecological paradigms are incommensurable. The scientist reaching for ways to restore damaged landscapes to their original pre-settlement condition is inadvertently either idealising the Aboriginal, pre-invasion landscape, or worse, denying Aboriginal agency in land management. As Noble shows, the ecologist of semi-arid woodlands is already juggling with the interactive effects of European land practices, indigenous vegetation, native fauna, climate, and the accidents of history itself: initial European settlement happened to take place during an abnormally good run of seasons in the 1880s. Perhaps it seems impossible to take on the cultural complication of Aboriginal land-management practices as well. But the search for ecological purity – of conservation for biological diversity – is deeply culturally constructed, and creates a niche that privileges ecologists as experts, something that is resented by other groups; for example, the Aboriginal groups who say that 'biodiversity is a whitefella word'. It is very important that historical work like Noble's, that works across many paradigms and that includes predictions and prescriptions for land-use management in the next millenium, is deeply reflexive about its own holy grails.

Noble's historical work and his willingness to survey literary sensibilities (which includes an abridged Lawson Anthology as an epilogue) take him beyond both the economic paradigm and an internalist account of the Division's ecological work. The ecological view he presents is both cultural and natural, and not always exactly in line with the view of the scientist-ecologist. Because of Noble's willingness to recognise the human factor in understanding increaser shrub country, *The Delicate and Noxious Scrub* transcends both economics and ecology. This book will influence the sub-disciplines of both environmental and forest history. More importantly, it suggests a strengthening recognition within CSIRO of a role for the humanities in the management of land.

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**Donal P. McCracken**, *Gardens of Empire: Botanical Institutions of the Victorian British Empire*. London: Leicester University Press, 1997. xiv + 242 pp.; illus., \$45.00.

*Gardens of Empire* is a factual account of the many botanical institutions that existed in all corners of the British Empire during the reign of Queen Victoria (1837–1901). It was a period of great imperial expansion that saw a parallel increase in the number of botanic gardens. By the end of the century, the 37 imperial gardens that existed in 1837 had grown to 115. Many were carved out of the wilderness in remote regions with minimal resources, led a precarious existence, and were staffed by dedicated and poorly-paid curators.

The book is divided into an introduction and six chapters. The scene is set by tracing the development of botanic gardens in the Georgian period immediately before Victoria's accession, but without indicating the purpose of the book. The first chapter presents a chronicle of basic information concerning colonial botanic gardens. Starting with 'The jewels of Asia', the author moves through broad geographic areas discussing people, dates and events in the principal colonial gardens. India is followed by Ceylon, Singapore and Hong Kong, then Australia, New Zealand and the Pacific islands, Africa, and finally North America (including the United States) and the Caribbean. Chapter two is short, being devoted to the botanic stations established in the West Indies and West Africa in the 1880s as co-ordinated networks of experimental agricultural gardens. The administration of a dispersed network of botanic gardens is the subject of the third chapter. Kew's primary position in the botanical empire is underlined, and financial resources, labour and the exchange of plants take centre stage.

Chapter four charts the physical aspects of creating a colonial garden, from taming the wilderness at the chosen site to the erection of glasshouses and memorials and the selection of plants. It is only in the fifth chapter that the functions of colonial botanic gardens are discussed. These related either to the successful establishment of agricultural crops or to the scientific programmes of establishing a comprehensive herbarium, with an attendant library and museum, and the dissemination of botanical information. The final chapter

concentrates on the colonial curator: his appointment and the difficult task of managing his garden. Throughout the book, the role of the Royal Botanic Gardens at Kew, in co-ordinating, advising, persuading and providing both plants and staff to the botanical empire, is given a central place.

Imperial botanic gardens are rightly celebrated for their diverse activities and achievements in the face of considerable difficulties. If McCracken's purpose in writing this book was to document those achievements, then he has succeeded. What his intentions were beyond this is not stated, and the reader is left to ponder what could have been done to analyse the contribution of the gardens to the enterprise of empire. In fact, the Empire is curiously missing from this account. There is a sense that, as the Empire progressed naturally towards its zenith, so too did its constituent botanical empire; but the Empire was an extraordinarily complex, constantly shifting entity. It is arguable that there was little in the way of cohesive colonial policy originating from the seat of power throughout the period under discussion. A distinction is drawn between the colonies in the Indian subcontinent and those in the rest of the Empire, but the tensions that might have arisen between their respective supervising ministries (the India and Colonial Offices) are not explored. Changes of government in London might well have resulted in significant shifts in policy in relation to the botanical enterprise; this is hinted at with the comment about Gladstone chopping down the trees planted by Disraeli, but is taken no further. Since each colony differed in its political and social development, it is inevitable that there was enormous variation in the interactions between the separate gardens, and between each garden and both its local colonial government and the home authorities. An examination of the dynamics of these relationships might have illuminated the common themes and critical differences among the colonial gardens that affected their contributions to the Empire.

In his introduction, the author ranks Calcutta, Pamplemousses (Mauritius), Peradeniya (Ceylon) and Trinidad as the greatest of the imperial gardens, but it becomes apparent through the book that their greatness is assessed on their role as centres for the translocation of those exotic crop plants most likely to form the basis of agricultural industries, but on few other

criteria. Thus Kew's greatest triumph is described as the successful establishment of rubber plantations through the agency of the Asian botanic gardens. The aspect of botanic gardens that is presented as being most significant is the economic one. Australia's botanic gardens barely participated and hence are further down the author's league table despite their horticultural, landscaping, educational and scientific achievements. The other great network that shared with botanic gardens the purpose of introducing useful plants to the colonies, that of acclimatization societies, receives little attention.

It was the view of the botanists at Kew that their position as co-ordinators of colonial botanic gardens and of information was of vital importance to the imperial government. Director Thistelton Dyer's 1880 address, 'The botanical enterprise of the Empire', stated his firm belief that Kew was the botanical headquarters of the British Empire and its dependencies. This was a strategic statement of the progress made by Kew since the time, only forty years before, when it had nearly ceased to exist. In training so many men to become curators of colonial gardens, Kew exercised a system of patronage that both reinforced its own importance and ensured that the conduct of the botanical empire was of an acceptable standard. The flow of specimens to Kew was encouraged so that the scientific examination of colonial floras could be properly undertaken there. A succession of publications provided botanical information, practical advice and progress reports on the state of the botanical empire, to underline the benefits of following the guidance of Kew. The author takes as read Kew's self-image of being central to the functioning of the botanical empire.

However, this is a view that bears closer examination. There were other spheres of influence at work in the colonies, a fact acknowledged but unexplored by McCracken. Australia, in particular, is an example of the tempering of the authority exercised by Kew. With the exception of Charles Moore (appointed to Sydney on John Lindley's recommendation) and Walter Hill (appointed to Brisbane), none of the directors of the major Australian botanic gardens during the Victoria era was trained at or appointed on the recommendation of Kew. Richard Schomburgk's background gave him a reference point that was German and somewhat antithetical to the views held

by Kew's principal botanists. Ferdinand von Mueller maintained a vigorous correspondence with botanists around the world (including Kew) over many years, and was determined, despite exhortations from Kew to the contrary, that the scientific examination of the Australian flora should be done in Australia. The Australian botanic gardens present a very different picture from those in West Africa, for example, where there was a considerable reliance on Kew.

By closely identifying botanical enterprise with the progress of the Empire, botanists sought to legitimize both their own existence and the Empire itself. The possession of imperial artefacts offered a spectacular means of demonstrating the power of the Empire. Richard Owen's remarks about Kew doing nothing more than 'attaching binomials to dried foreign weeds' are quoted, but without the context. Owen was the successful rival to Kew for control of the Banksian collection in the British Museum (one of the greatest collections of colonial plants) and the kudos that would attach to its custodian. The author does not discuss what it meant to the colonial gardens to belong to the Empire. In mentioning the number of gardens that grew the *Victoria regia* (now *V. amazonica*) as a symbol of Victorian Britain's supremacy in gardening, he passes over the fact that colonial curators, in choosing to propagate this majestic plant, were paying tribute to Victoria as sovereign of their Empire. Trophy guns from the Crimean War are also mentioned in passing, but not the imperial pride with which colonial citizens installed these symbols of imperial might in their peaceful scientific gardens.

There are a number of errors that are not simply orthographic. It is unlikely that B.L. Blakely was writing in both 1893 and 1972 (p.223); Adelaide is not in Victoria (p.34); Joseph (not John) Maiden was Director of the Sydney Botanic Gardens (p.32); the first word is consistently missing from the title of Ferdinand Mueller's publication *Fragmenta phytographiae australiae*; the curator of the Ballarat Botanic Gardens was not W. Lulplay but George Longley (p.69). These errors were easily spotted and suggest a worrying lack of attention to detail in a work devoted to detail. Of more concern is the author's reliance on a limited range of available sources. In relation to the Adelaide and Melbourne Botanic Gardens in particular, he has not consulted the

considerable body of scholarship published in the past fifteen years. He relies almost solely on the work of R.T.M. Prescott (not Prescott) for information on the Melbourne Gardens and in consequence reiterates, as have so many writers before him, the received wisdom (now disproved) about some of the major events in the career of Ferdinand von Mueller. William Hooker did not appoint Mueller to his post in Victoria, Mueller did not usurp John Dallachy's position in charge of the Gardens, and Mueller's removal from the Gardens was not the simplistic sacking presented here.

A number of tables are presented through the text. Some of these purport to be comparative in nature but are misleading in their statements of fact. Table 3.10, for instance, presents figures of the labour force in the gardens at Peradeniya and Melbourne in 1852. These bald figures do not, however, reflect the relative size of the two gardens, their respective progress and horticultural priorities, or the severe labour shortages being suffered in Melbourne in the wake of the gold rushes. Similarly, Table 6.2 compares the salaries earned by curators in the 1880s as though the value of money was the same from one colony to the next and as though each colonial garden enjoyed an equal level of political support.

As a contribution to studies of the British Empire, *Gardens of Empire* lacks an analysis of the role that botany and the colonial botanic gardens, and particularly the Gardens at Kew, played in the imperial enterprise. Despite these reservations, however, *Gardens of Empire* provides a useful starting point for the comparison of botanical endeavours across the Empire. The author will undoubtedly be thanked by many for undertaking the task of assembling a multitude of facts about the colonial botanic gardens. For illustrations, the author has chosen mainly contemporary engravings that are pertinent and clearly reproduced.

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**Penny van Oosterzee**, *Where Worlds Collide: The Wallace Line*. Melbourne: Reed Books, 1997. xiv + 234 pp., illus., \$24.95 pb.

While it is usually true that you can't tell a book by its cover, in this case you can. The cover reflects the salient characteristics of this lively account of the historical biogeography of the Malay Archipelago, where the faunas of Australia and Asia meet on thousands of islands. The cover illustration combines a small photograph of Alfred Russel Wallace and three delicately colored butterflies with a slightly faded engraving of Malaysian forest birds, the latter borrowed from Wallace's narrative. The book centres on Wallace's biogeographical observations as a point of departure for a scientifically-modern explanation of faunal distributions in this enormously complex zone of tectonic and biotic activity.

Wallace's Line, as it has come to be called, was one of numerous lines drawn in the attempt by nineteenth- and twentieth-century naturalists to divide the surface of the globe into clearly delineated faunal regions. Van Oosterzee's view, in accord with that of George Gaylord Simpson, one of this century's foremost evolutionary thinkers, is that the goal of drawing a single line is a fool's errand. Absorbed by the unique and tumultuous history of the region, she sees the islands as 'a biogeographic law unto themselves'. She uses the Wallace Line in the spirit in which it was first drawn, as a tool to explore the tremendous range of historical, geological, botanical, vegetational and zoological phenomena that comprise the biogeography of the Malay region. Synthesizing more than a century of scientific observations and theories around this theme into a readable narrative presents a challenge that Van Oosterzee meets with uneven success.

Wallace's Line works well as an organizing principle for the book as a whole. Starting with a historical chapter that provides the intellectual backdrop for the Wallace and Darwin theories of evolution, she uses Wallace's observations to draw attention to the remarkable qualities of the biogeography of the Malay Archipelago. As a historian of nineteenth-century biology, I find the early chapters devoted to the history of Wallace's science the weakest in the book; I daresay this is predictable when a historian reviews a science book meant

for general readers. The historical summary is based on limited sources and is replete with generalizations and misconstruals of the kind that historians devote themselves to correcting. I am certainly sensitive to what is incorrect and not able to read this section as a general reader might. I disagree that Wallace was unprepared for echoes of Australia in the midst of the Orient; Lyell and other authors Wallace read had suggested as much. When Van Oosterzee writes that a letter written by Wallace to Bates in 1858 'marks the birth of biogeography', she errs. Even with poetic licence, marking the middle of the nineteenth century as the beginning of biogeography does not match the historical record. From the middle of the eighteenth century, an enormous amount of work on the geographical distribution of plants and animals was carried out in Europe. One need not dramatize the magic and mystery of Wallace or of the biogeographical riches of this region in order to write a good story. Indeed, the rest of the book is a demonstration of this.

Turning to the geological history of the region, the author devotes three chapters to drift and tectonics, volcanism and events of the Pleistocene to inform the reader on climate changes and palaeogeography. These were subjects that Wallace could only guess about, and he sometimes did so with surprising acumen. Van Oosterzee incorporates discussions of animal distributions and of Wallace's Line in nearly every chapter, peppering the text with interesting information, explaining a lot of geological theory, and yet moving quickly enough through the material to keep the reader's attention on the larger theme.

The following three chapters then treat the different kinds of islands: the oceanic islands of the eastern part of the archipelago, the ecological islands of high-altitude alpine communities, and Sulawesi (Celebes in Wallace's day), the oldest and biogeographically the most perplexing of the Malay islands. Captivating stories about animals and plants keep the chapters alive, as biogeographic and tectonic patterns are gradually woven from the details about pitcher plants, primate evolution and mimicry in birds. Each portion of Wallace's Line is thus explored, its patterns and exceptions explained using Wallace's observations along with modern scientific ones. Occasionally the author argues with Wallace, finding it ironic that he did not see

the region as she does, as an area unto itself rather than as a meeting ground of Asian and Australian faunas.

In a short chapter on butterflies, the author makes use of Wallace's delight in their dazzling beauty to explain aspects of wing pigmentation and the genetic basis of *Papilio* polymorphism and mimicry. Orang-utans merit a chapter to themselves, and once again Van Oosterzee brings together recent observations with those of Wallace to tell a good story. She tries to come to terms with the fact that Wallace shot and skinned seventeen Orangs by reminding us that, in addition to being forward thinking, kind and thoughtful, he was a product of his time. His role in the Victorian colonial scheme was, among others, as a collector of natural history specimens, and she notes that modern-day scientists are little different. I take issue with her surmising that Wallace probably did not feel the slightest twinge of pity when he aimed at and shot Orang-utans. Wallace's letters describing his 'dear little duck of a darling of a little brown hairy baby' attest to the empathy he felt for the infant Orang whose mother he shot (*My Life*, vol. 1, p. 345). My guess is that he did feel pity, but carried on with his work. Using details such as the fact that Orang-utans are the only other primate besides humans that has sex facing each other, the author slowly leads us through primate evolution, abruptly confronting us with the cold facts of their rapidly-dwindling habitat. I underscore the note of sadness with which the book ends, as the forest fires and population pressures of the last year have turned a difficult situation into a disastrous one.

The book is sometimes confusing, and readers will not come away with a clear scientific understanding of evolution by natural selection, plate tectonics, endemism, or island biogeography. However, they will come away with a good feeling for these processes, having seen a wonderful thick-brush painting of the biogeography of one of the most interesting places on earth, and they will come away caring about it more than before. Written with love but without a trace of sentimentalism, I venture to say that Wallace would give the book high marks.

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I hope the book inspires researchers in other states to consider the production of comparable volumes.

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