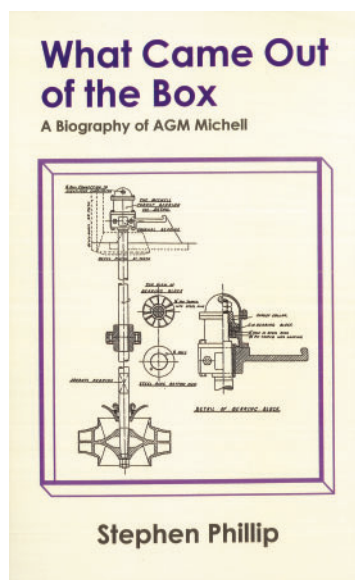


## Reviews

Compiled by Peter Hobbins

Australian National Maritime Museum, NSW 2000, Australia.

Email: [peter.hobbins@sea.museum](mailto:peter.hobbins@sea.museum)



**Stephen Phillip:**

*What Came Out of the Box: a Biography of AGM Michell.* Tellwell Talent: Milton Keynes, 2020. 506 pp., illus. ISBN: 9780228820512

(PB), \$46.99.

Anthony George Maldon Michell (pronounced Mitchell) was an Australian engineer best known for the invention of the tilted-pad thrust bearing in 1905. Still manufactured today by the 100-year-old Michell Bearings company, this device transformed the design of propulsion systems in large ships in the early twentieth century. He also made

important innovations in the design of crankless engines, centrifugal pumps, water turbines, hydraulic transmissions and he developed the viscometer. These significant engineering contributions were underpinned by a deep theoretical understanding of fluid mechanics, especially as it applied to lubrication problems. Indeed, Michell is recognised as one of those who shaped the field of tribology globally.

Michell shunned publicity so while his considerable accomplishments were recognised by his peers and he was a ‘household name’ in shipbuilding circles—especially in Britain—he was largely unknown in his own country. Michell’s work received some publicity in the local press when HMS *Hood* visited Australia in 1924, with reporters proposing that without the Michell thrust bearing this sleek new battlecruiser would not have been feasible. The only other times he received press coverage were at moments of significant global recognition: being elected a Fellow of the Royal Society, London (1934) and being awarded the prestigious James Watt International Gold Medal (1942). Since 1978, the AGM Michell Medal has been awarded annually by the Institution of Engineers, Australia for outstanding contributions to mechanical engineering.

This book is written for a general audience. It provides thoughtful explanations of the engineering principles behind the different devices and machines designed by Michell, while also delivering

sufficient engineering detail for the technically minded. While there are a limited number of illustrations, these are chosen to either visualise an engineering principle or to convey a sense of the prevailing technology of the time. Phillip locates the major events of Michell’s life within their wider social, economic and geopolitical context of the time. A prodigious ideator, when asked what he was going to do next, Michell once replied ‘One never knows what might come out of the box’—hence the title of this biography.

Each of the thirty-two chapters in the book is short and focused. Together they span five important phases of his life and work. The first seven chapters describe his family background, engineering education and the early years of his career as a consultant developing pumps, turbines, flowmeters and other hydraulic technology. We get a sense of Michell’s comfortable suburban life in the Melbourne suburb of Camberwell around the turn of the twentieth century. He shared those formative years with his three siblings, as Michell engaged in a range of cultural pursuits, developed the family’s extensive garden and honed his practical skills through wood working. As neither Michell nor his siblings married, the four shared the same two-storey Victorian mansion in the Italianate style throughout their lives. He was the last to pass away.

Michell’s significant contributions to lubrication theory are canvassed over the next eight chapters. They elucidate how his conceptual insights led to the world-beating tilted pad thrust bearing that revolutionized ship propulsion. It is here also that Phillip introduces us to Michell’s deft use of mathematics to derive these new design principles. Often an innovative concept needs a pressing practical need for it to be appreciated; sometimes it requires the creation of a new technology to make it practical or economic. A case in point is what has become known as Michell’s Theorem, the basis for elegant structural forms that make extremely efficient use of materials. Its application to engineering practice only became viable many decades later, in the design of aircraft structures where minimising weight is of the essence.

Over several chapters, Phillip describes the development of Michell’s revolutionary thrust bearings and his struggle to gain begrudging acceptance of the new concept from shipbuilders, even though its benefits seemed obvious. Engineering is clearly imaginative yet deeply conservative. Before going on to describe the arrangements to commercialise his innovation through the Mitchell Bearing Co., ‘Farm Life’ reveals how Michell withdrew to his country retreat near Bunyip in Gippsland to escape from the vicissitudes professional life. He was a keen gardener, so time spent on this self-sufficient farm and orchard provided a sanctuary for him from 1911 until his death in 1959.

The final chapter on thrust bearings examines the patent dispute involving Michell and Albert Kingsbury, a US engineer who independently came up with a similar bearing concept around the same time as Michell. In the end, Kingsbury was awarded a patent in the US because he was able to demonstrate that he had built a working prototype before the date of the application by Michell for a US patent. Unlike most countries, US patents were awarded on the basis of who was 'first to invent' rather than 'first to file'. This process changed in 2011, when the US patent system moved to a 'first to file' basis.

At the same time as the thrust bearing was going into commercial production, Michell also made major contributions to the development of the crankless engine, an existing technology enhanced by his introduction of slipper pads. His detailed mathematical analysis led to a simplified design. Michell set up a new company in Fitzroy with the purpose of producing working prototypes of crankless engines and pumps for a variety of applications and then licensing the technology to volume manufacturers worldwide. Although there seemed to be opportunities for this technology in two rapidly developing industries, automobiles and aviation, the promise was never fulfilled. Phillip proposes ten possible reasons for the lack of commercial success of the crankless engine. One of these, Michell's perceived lack of business acumen, is also a factor in why he did not achieve the financial rewards that might have been expected given his inventive mind.

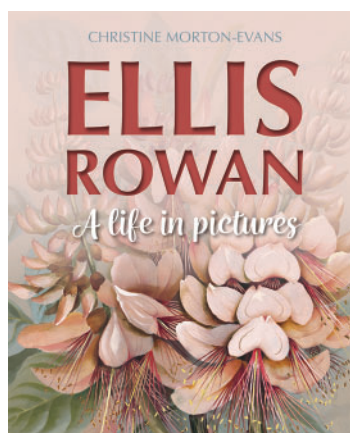
When it comes to major infrastructure projects, there are moments when engineering proposals are caught up in the politics of the day. In the 1910s, Victoria was seeking a reliable and sustainable source of electric power for the state; the choice was between brown coal and hydroelectricity. Michell prepared a thorough report for the Victorian Hydroelectric Co. on the feasibility, capacity and costs of hydro power based on the Kiewa River, but the idea was not taken up by the government. With the establishment of the State Electricity Commission (SECV), Michell was appointed the consultant hydraulic engineer. Sir John Monash, Chair and Managing Director of the SECV, advocated strongly for brown coal. Monash won the day but in the process he and Michell had a major falling out, permanently rupturing their friendship. In a presentation he made to Parliament, Monash is alleged to have misrepresented Michell's report on hydroelectricity. Both very accomplished engineers, Michell and Monash clearly had different personalities and aptitudes, the former being more reserved and scholarly and the latter more at ease in the rough and tumble of business and politics.

A recurring theme across Michell's career is the apparent paradox of engineering. Engineers are both cautious and conservative about change (the bridge must not fall down), yet also innovative in imagining new ways of working or forging new techniques and technologies to solve pressing problems. Another theme is the symbiosis between theory and practice. Michell had a motto borrowed from Leonardo da Vinci, that 'theory is the captain, practice the soldiers'. Or, as the psychologist Kurt Lewin observed, 'there is nothing so practical as a good theory'. Michell is said to have 'used mathematics like tradesmen used their tools'. As a counterpoint, Phillip provides an interesting account of why Michell opposed the proposal by Sir Mark Oliphant to form the

Australian Academy of Science. These complexities make it all the more tragic to discover that no library or archives was willing to accept and preserve Michell's papers. As a consequence, these have all been lost to history, and we are the poorer.

It is surprising that there has not been such an extensive biography of A. G. M. Michell before. To date we have had be content with short summaries of his work like those published in the *Australian Dictionary of Biography* and by Museums Victoria, or the longer, but difficult to discover, biographical memoir of Michell published by the Royal Society, London. Thus Phillip's book fills a critical gap by sharing the creative genius of Michell with a broader audience.

David Radcliffe  
Melbourne



**Christine Morton-Evans:**

*Ellis Rowan: a Life in Pictures*. National Library of Australia Publishing: Canberra, 2020. 185 pp., illus., ISBN: 9780642279576 (PB), \$35.00.

Ellis Rowan is one of Australia's most eminent botanical artists, internationally renowned in England and North America. Her collection of over 970 paintings now held at the National Library of Australia is a legacy to the rich natural history of Australia. In this new biography, Christine Morton-Evans has skilfully delved into the stories behind Rowan's impressive paintings.

Primary material was gathered from Ellis' letters to her husband, plus newspaper and magazine articles, interviews and family accounts. Morton-Evans has brought a new layer of life to Rowan's paintings and revealed her contribution to science through her numerous field trips to remote parts of Australia, New Zealand, Papua New Guinea and North America. In all of these locations she fearlessly sought to obtain and collect primary data for documenting nature.

Rowan dedicated most of her life (1848–1922) to hunting Australian wildflowers and fauna, painting and illustrating both their diversity and their environments. Through her prolific output of an estimated 3000 paintings, we gain a glimpse of her understanding of the web of nature, quite extraordinary for a woman of the Victorian era. Up till her death, aged 74, she desired to keep the Australian collection together as an entity. Negotiations with the Australian Government to purchase them were continued by family members beyond Rowan's death.

Ellis (whose first name was Marian) was born in Melbourne as the eldest daughter of Charles Ryan and Marian Cotton. Her artistic talents and observation were recognized early and she received

much encouragement from her grandfather, John Cotton, a renowned ornithologist and artist. During the 1870s, Rowan met William Guilfoyle, then director of the Melbourne Botanic Gardens, and his predecessor, Baron Ferdinand von Mueller. Through correspondence between von Mueller and Rowan, Morton-Evans suggests that this introduction played an important part in the young woman's success as a botanical collector and artist.

In 1873, Charles Ryan introduced his elder daughters to Captain Frederic Rowan, a young Irishman with interests in landscape gardening, who had served in New Zealand during the Land Wars in 1864. After a short courtship and engagement, the Rowans began married life in Pukearuhe, North Island, New Zealand. Ellis found herself in a different role as wife and mistress of her home. She missed the social life of Melbourne, but threw herself into exploring nature around Pukearuhe. She also plunged into advancing her botanical painting skills, encouraged by her husband who said 'Never mind, little woman, you will conquer it'.

Rowan indeed conquered the art of painting with watercolours and developed the confidence to put her brush to paper directly without doing a preliminary pencil sketch. Her use of dark-tinted paper was technically innovative as it allowed the translucence of watercolours to show through and served as background contrast for the many white-flowered plants. She became an acclaimed artist and writer, and by 1894 had won 29 exhibition medals.

Morton-Evans charts the evolution of Rowan's art, including her travels to remote parts of northern and western Australia, Thursday Island, and Papua New Guinea. These trips were funded through the sale of paintings, commissions and travel correspondence for newspapers in Sydney, Melbourne and Brisbane. She paid a high price for her passion and profession, seeking rare and undescribed plants in the wild to paint, often spending several months away from her husband and son Puck.

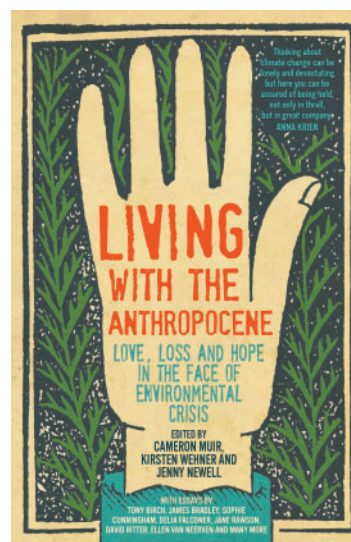
Surprisingly, not many Australian plants were named after Rowan in spite of her contributions to botanical science. Frederick Manson Bailey, Queensland government botanist, named a *Phaius* and *Nepenthes rowanae* after Rowan. Unfortunately, the orchid had already been named *Phaius australis* by von Mueller in the *Fragmenta Phytographiae Australiae* (1858) and *N. rowanae* was synonymised to *N. mirabilis* in the *Nepenthaceae* treatment by T. D. Standley for the *Flora of Australia* vol. 8 (1982). Intriguingly, von Mueller did not name any taxon in recognition of Rowan's contributions, which would have been much to her disappointment.

Nevertheless, Rowan's social networking brought her in contact with Baron Wimborne, a member of Queen Victoria's household, which resulted in the Queen acquiring three of her paintings. This royal imprimatur brought huge success for her exhibition which opened in London in 1896. Rowan then spent 1897–1906 in America as an illustrator for Alice Lounsberry, a botanist and board member of the New York Botanical Gardens. The fate of Rowan's paintings during this period is a gap in her story and would be an interesting research project for the future. Rowan then returned to Australia and for the next 16 years executed many more watercolours, including the exquisite 42 species of birds of paradise from the Nobonob region of Madang Province.

*Ellis Rowan: a Life in Pictures* is aesthetically delightful, featuring many full-page, high-resolution images of Rowan's paintings, with taxonomic names in the captions. Although not mentioned in the book, the 165 herbarium vouchers lodged at the Royal Botanic Gardens Victoria—collected by Rowan and identified by von Mueller—attest to her scientific credibility.

In 1927, Henry Tardent asked in his book, *Mrs. Ellis Rowan and Her Contributions to Australian Art and Science*, 'what has Australia done to honour and commemorate the one who has done so much for her?'. His answer was: 'Up to now very little'. Almost a century later, Morton-Evans has revealed an extraordinary woman who put Australia on the artistic and scientific world map. Her contributions to science and art now remain to be fully recognised and duly honoured.

Bee F. Gunn  
Honorary Research Fellow  
Royal Botanical Gardens Victoria



**Cameron Muir, Kirsten Wehner and Jenny Newell (eds):** *Living with the Anthropocene: Love Loss and Hope in the Face of Environmental Crisis*. NewSouth Publishing: Sydney, 2020. 304 pp., ISBN: 9781742236889 (PB), \$34.99.

As we watch from the sidelines while our governments persist in ignoring climate change mitigation and adaptation measures, we must turn to other ways of thinking about our collective and individual futures.

One option is to learn from living with the Anthropocene, the new geological epoch that recognises the adverse human impact on the planet. Humanists have long called for scientists to listen to them because they have particular value and contributions to make in these debates. Humanists are less likely to convey change through data or numbers and more likely to focus on the people in both cause and effect. This book demonstrates that storytelling, defined by the editors as a human technology, bridges any abstract dichotomy between disciplines formed in the academy. Muir, Wehner and Newell are imploring a role for storytelling interventions for thinking about the climate change questions that face us all, if unevenly, in the near and far future.

The aims of this book are 2-fold: to bring individual reflections on change in disparate places into conversation with one another and to operationalise these stories through 'a culture of attention'. The authors all invoke what it is to be human. Showing how to live



with the Anthropocene is to stir an array of passions, and to story emotively is to bring this technology of humanity to bear on the crisis of our times. The list of emotions explored in this book is as long as the disciplines entering the debate. Given the state of inaction around climate change, it is surprising how many of the authors are hopeful; it is a thing of wonder. The two Indigenous writers, Ellen van Neerven and Tony Birch, lead the way in bringing the vast story of the Anthropocene to the level of the particular place and experience. Both are aware of the grief in the enormity of environmental change while articulating a kind of hopefulness found in the sense of community to protect Country. Through these emotions, stories might mobilise change, whether operating in the everyday or at a broader governmental or global scale.

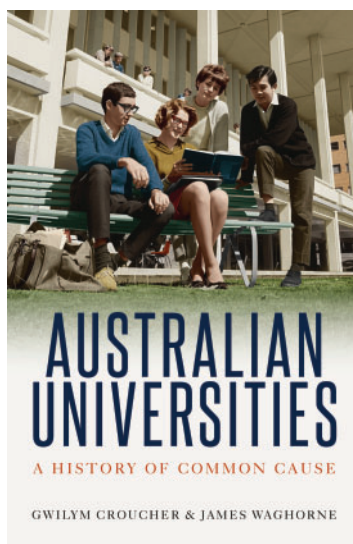
This book weaves together the authors' work from the environmental humanities, alongside scientists and managers of land and sea. The editors draw them into conversation, to express the loss and grief induced by environmental change in various settings. In many ways grim, the book does not yield to the impossibilities of these changes. The editors look at points of adhesion and sense of community through turmoil and disruption to both make conscious the loss and create ways, in Tony Birch's words, to face the storm.

The editors divided the forty-two essays into eight sections, each holding a group of papers together through shared subject matter or perspectives. These sections are imaginatively titled, for example, 'Holding On' and 'Regenerating Country', yet each represents actions required to make a difference rather than the stasis that paralyses many. The book draws together authors from a wide range of academic disciplines to make this point about the universality of storytelling—environmental history, poetry, geography, journalism, library studies, agronomy, visual art, climate science, marine ecology, anthropology, documentary podcasting, nature photography, cultural studies and soil conservation. David Ritter, CEO of Greenpeace Australia Pacific, adds a concluding chapter on the roles of love and activism.

One structural element that sets this anthology apart from others of its kind is the variation in the length of each piece. Many chapters are as short as one thousand words; others are longer and, in a handful of cases, extended treatments of a topic. This format does not always work, with some of the shorter pieces, more like a provocation than a full story. However, such short pieces also give the volume a sense that one can dip in and out, sampling a wide range of ideas and emotional responses along the way. This may make them useful for teaching, bringing storytelling into all kinds of academic realms.

Muir, Wehner and Newell have collected stories that show the sheer scale and variety of different perspectives on living with the Anthropocene, from birds to soil conservation and the ocean's depth to the atmosphere's particles. In each chapter's grainy detail lies the possibility of understanding something of the breadth of ways of stopping and seeing the environmental change that heralds the future. The book aims to be read by specialist, educated and general readers. The anthology is a mighty contribution to shaping the readership of crafted and emotive storytelling about living with the Anthropocene.

Jodi Frawley  
Byron Bay



**Gwilym Croucher and James Waghorne:**

*Australian Universities: a History of Common Cause.*  
UNSW Press: Sydney,  
2020, 278 + viii pp.,  
ISBN: 9781742236735  
(PB), \$39.99.

*Australian Universities* traces the evolution of the Australian tertiary sector from its institutional beginnings in the 1850s to the present. By World War One, six of today's 'Group of Eight' universities had been established. Between the close of World War Two and the election of the

Whitlam Government in 1972, nine other universities came into being, heralding the rise of mass tertiary education. There are now 39 universities in Australia enrolling a total of around 1.3 million undergraduate, postgraduate and other students. It is big business. In 2018 it was estimated that the Group of Eight alone contributed around \$65.4 billion to the GDP.

The authors provide several contexts for the massive sector's development. The needs of capital and industry in part drove the emergence of different fields of teaching and research. Colonial and later state and federal governments played a strong role in shaping and controlling universities. The international political economy had impacts through decolonisation, the Cold War and globalisation. Ideologies such as liberalism, neoliberalism, economic rationalism and managerialism have been important. Although discernible, these interpretive frames are not brought to the foreground in this book.

*Australian Universities* examines the complex and multilayered nature of the tertiary sector's history to answer one key question: how did these diverse and tribal (my word not theirs) organisations maintain their independence 'while pursuing common cause'? Their answer is derived largely from the perspective of the former Australian Vice-Chancellors' Committee (AVCC). This seemingly secretive organisation was formed in 1920, yet only issued its first formal statement of objectives in 1968. It was reconstituted as Universities Australia (UA) in 2007. Reliance on AVCC sources, however, has created problems in the work.

Under the Columbo Plan, around 5,500 mainly Asian tertiary students studied in Australia between 1951 and 1965. This development is referred to in some detail, including high-level discussions about entry standards, the need for intensive English language courses and mutual benefits. There were, however, significant problems with the scheme. In the first year, three Asian students at the University of Western Australia took their own lives. It appeared that their deaths had been caused by social isolation. Another had a nervous breakdown. Australia's international reputation had been sullied by the White Australia Policy. Officials were concerned about Asian students' experiences while staying in the country and locals' perceptions of them. This gulf has been a dark theme in the history of Australia's tertiary sector since then, but it is absent here.

Similarly, some achievements claimed by universities could have been more rigorously interrogated. Writing of the federal government's growing interest and intervention in tertiary institutions from the 1920s, it is noted that: 'The increasing importance of science, and particularly the belief in applied science to support Australian primary industries, captured the public imagination'. But agricultural science was also a major contributor to the environmental disasters that spread throughout rural Australia for the rest of the twentieth century—and into the twenty-first. Unsustainable farming practices, for example, led in 1938 to the establishment of the New South Wales Soil Conservation Service to rehabilitate degraded and eroded land.

Across the Western world, universities now claim to do many things: in their own estimation they redress inequality, break generational cycles of poverty and redistribute wealth. French economist Thomas Piketty strongly refutes these assertions in his book *Capital in the Twenty-First Century*. This contestation has yet to be put to the test in Australia.

*Australian Universities* is nonetheless a useful book that will generate diverse responses and important debates. Members of the professoriate will certainly agree with the authors' assessment of their gradual disempowerment over the last decade or so. Vice-chancellors, in turn, may disagree about academic interests being unaligned to institutional imperatives.

Reading along or between the lines it is clear from this accessible text that universities are at a major crossroads. The pandemic—which was escalating just as this book was published—has drastically accelerated this process and removed or frozen many checks and balances. Are universities ivory towers, corporate bunkers or open institutions—or a mix of all three? What do academics do? What do universities do? And for whom? Are they generators of GDP; teaching institutions; policy advisors; knowledge creators; innovators; credential makers; community engagers; health and well being providers; global magnets for brain power and bullion; investors; or engines for social change and environmental justice? And, most importantly, why?

Paul Ashton

Director

Public History Australia

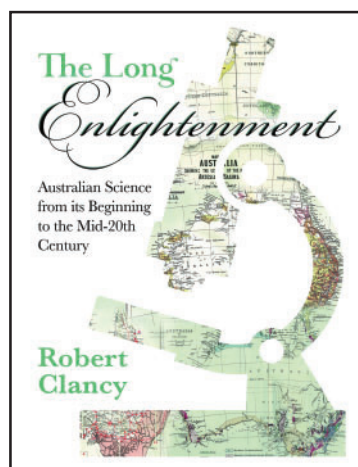
pages. Robert Clancy has included everything, both pure and applied sciences, with chapters on the natural sciences, agricultural science, anthropology, chemistry, biomedical science, geology, surveying, astronomy, physics and engineering.

Under each of these headings, the author provides a brief history of the relevant discipline, as well as short biographical accounts of its more important contributors and a brief summary of their contributions. He finishes the book with some very pertinent criticisms of the present state of Australian science, including the lack of government support for it. He argues that for many years Australia contributed to global science way beyond what would be expected from such a relatively small population. However, Clancy urges, that contribution is now seriously imperilled by lack of research funding, as well as support to turn the results of that research to practical or industrial outcomes.

In undertaking this work, the author by necessity has drawn heavily on the various entries in the *Australian Dictionary of Biography* and on reviews and essays of particular disciplines by historians and scientists. Thus, the accuracy of the various chapters is very dependent on the strengths and weaknesses of this secondary literature. In my own discipline, geology, this secondary literature is patchy in coverage and widely scattered across several journals and books. Given that the nature of the geology of Australia is very provincial, a concise summary of its development is difficult.

Given the size and scope of the book, it is inevitable that some important contributors and contributions have been overlooked. Overall, however, the author has succeeded remarkably well in covering the various branches of science and the principal players. Nevertheless, there are some errors, for instance Alfred Howitt, not Hewitt. John Osborne's process of photolithography, important as it was for the printing of topographic maps, had nothing to do with printing geological maps. Colour printing of geological maps of Victoria was first suggested to Alfred Selwyn by Joseph Pittman. After the failure of contract printing to produce satisfactory results, Thomas Ham was brought in to the Geological Survey of Victoria to carry out the printing in-house and it was he who introduced the printing of the colours by means of a power press. T. W. Edgeworth David was not the first to recognise Palaeozoic glaciation in Australia. It was Alfred Selwyn who first reported Late Paleozoic glaciation at several places in Victoria as early as 1861. An important omission in the history of Australian geology is the contributions of T. S. Hall, W. J. Harris and D. E. Thomas in the development of a scheme of graptolite zonation of the Ordovician Period that has been applied world-wide.

Clancy argues that the principles of the Enlightenment were the driving force in the initial development of science in Australia, at the time of the first European exploration and colonisation. His outline of Australian science in the late eighteenth century and early to mid-nineteenth century begins with Joseph Banks and those who followed him. This lineage is well known and Clancy makes no claim to new insights into that development. In my opinion, the real strength of the book lies in outlining the later history of particular disciplines, for instance biomedical science. Clancy is also to be lauded for covering disciplines, such as agriculture and engineering, that tend to be overlooked in the history of science.



**Robert Clancy:**

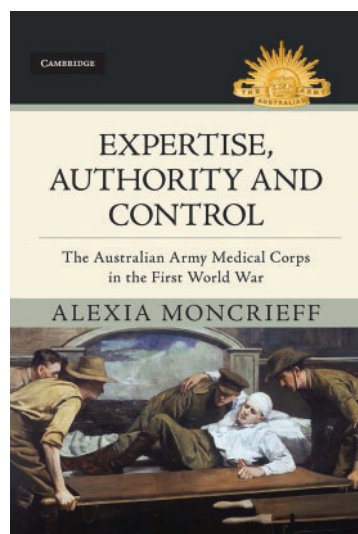
*The Long Enlightenment: Australian Science from its Beginning to the Mid-20th Century*. Halstead Press: Braddon, 2021.

184 pp., illus., ISBN: 9781925043532 (HB), \$49.95.

As the title suggests this book attempts to give an outline of the history of science in Australia from the eighteenth century through to the middle of the twentieth century, all within 180

This is a book for dipping into to find something about the history of a particular discipline; it deserves a place in public and school libraries.

Tom Darragh  
Emeritus Curator  
Museums Victoria



**Alexia Moncrieff:**  
*Expertise, Authority and Control: the Australian Army Medical Corps in the First World War.*  
Cambridge University Press: Cambridge, 2020.  
220 + xvii pp., illus.  
ISBN: 9781108478151  
(HB), \$59.95.

When at last he saw the final volume in his trilogy published in 1943, (Arthur) Graham Butler must have been proud, exhausted and disconcerted. Twenty-five years after the First World War ended, he had at last delivered a thoroughgoing

medical history of the Australian Imperial Force (AIF). By this time, however, many former AIF 'diggers' had already earned early graves. Meanwhile, in the Middle East and the South-west Pacific, the Australian Army Medical Corps (AAMC) was painfully re-learning many of the lessons that Butler slowly documented through personal experience, and via extensive consultation and research. His volumes were marred by many gaps and flaws, in addition to Butler's often fiercely judgemental assessments. Yet his official history was nevertheless an impressive record of the progress of Australian military medicine over four years of global war.

David Noonan queried key elements of Butler's statistics in his 2014 monograph, *Those We Forget*. Michael Tyquin has also comprehensively critiqued the AAMC's management of the Gallipoli campaign and its responses to 'shell shock'. Yet it was only in 2020 that Alexia Moncrieff delivered the first major re-evaluation of the overall performance of the AAMC throughout the First World War. The result is a fine work that confirms just how socially embedded medicine remains as both an art and a science, particularly in the face of unprecedented clinical and organisational challenges.

*Expertise, Authority and Control* is a thoughtful and well-argued account of key elements of the AAMC's war. Drawn from her doctoral research, Moncrieff's monograph both enfold and disputes major strands in Butler's work. In particular, she focuses on the cultures of medical command and the systems of care that evolved throughout the conflict. Each chapter moves from conditions in the field—including regimental aid posts and casualty clearing stations—through to AAMC headquarters and major operational planning. The focus is very much on how medical resources were arranged and deployed, and on how troops suffered or benefited accordingly. The German employment of poisonous

gases, for instance, 'was discussed frequently by the medical men, not just in terms of the immediate effects of exposure but the cumulative effects of the gas lingering in the air'.

The first three chapters address campaign medicine, respectively interrogating Gallipoli, the static Western Front of 1916–17 and then the mobile warfare of 1918. The final two chapters consider the gendered spaces of auxiliary hospitals in Britain and the vexed issue of venereal disease (VD) in the AIF. Although concern with VD permeated the entire military establishment, this final chapter lacks the spatial and situational focus that helped hold the preceding sections together. Nevertheless, by spanning the conflict and many of its critical medical challenges, Moncrieff concludes that the AAMC's successes ensured its authority to challenge both British practices and the AIF's high command in order to minimize human 'wastage'.

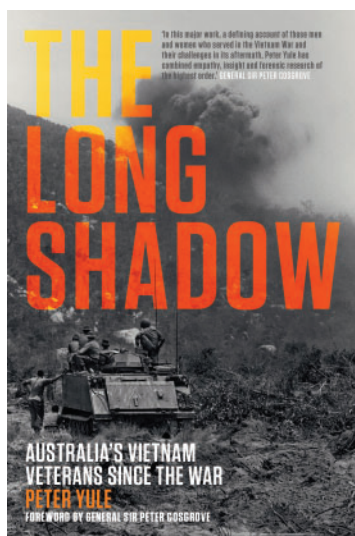
Constrained by far fewer words and lacking the luxury of a 25-year publishing schedule, the author could not possibly address the myriad themes laid out in Butler's official history. Moncrieff's work is strongest where she analyses the personal and organisational context of major planning decisions and disputes, and in detailing how casualty evacuation, treatment and recuperation systems operated. An underlying thread, especially in the later chapters, is the importance of gender in shaping both personal and professional practices. Here Moncrieff's touchstone is the intellectually adventurous work of Ana Carden-Coyne, although this monograph falls into line with the more prosaic tone of Cambridge's Australian Army History Series. Moncrieff's writing is uniformly clear, concise and effective, echoing the clipped and unambiguous language of her archival sources.

*Expertise, Authority and Control* is also a reminder that major aspects of early twentieth-century military medicine remain to be examined in the antipodean context. Isolated articles and sections within wider professional histories have, for instance, explored the military application of emerging clinical sciences such as radiology, respiratory medicine, aviation medicine, nutrition, immunology and haematology. Yet there remains no overall study of the contribution of the sciences—medical or otherwise—to Australia's military effectiveness up to 1939. As Tyquin noted two decades ago, in 1901 a health crisis aboard a troopship prompted the first Royal Commission ever conducted by the new Commonwealth of Australia. More than a century later, no systematic study has been undertaken of the vast and complex medical records of troop transports and hospital ships. And with the exception of the important work of Kate Blackmore, we also know little about how mass mobilisation helped to fund and inform the work of demographers, epidemiologists, actuaries, public health administrators, social workers or the very infrastructure of Australian medical research.

In both challenging and complementing Butler's official histories, *Expertise, Authority and Control* helps us comprehend the human and systemic circumstances that reformulated the expectation, performance and status of Australian medicine in the early twentieth century. At a time when we require adroit leadership and rapidly applied clinical lessons, this study is both apposite and salutary.

Peter Hobbins  
Head of Knowledge  
Australian National Maritime Museum





**Peter Yule: *The Long Shadow: Australia's Vietnam Veterans Since the War*.** NewSouth Publishing: Sydney, 2020.

672 + xiv pp., illus., ISBN: 9781742237183 (HB), \$49.99.

At first glance *The Long Shadow* appears somewhat intimidating as reading matter. Not only does the author deal with the ongoing controversy of the medical consequences of the Vietnam War, but the book is voluminous, comprising over 670 pages. Such a work is long overdue: nothing on this

scale has appeared since Brendan O'Keefe's official history, *Medicine at War*, was published over 25 years ago.

The genesis of this study came from Vietnam veterans' exasperation with the 1994 official medical history, particularly Barry Smith's analysis of the Agent Orange controversy. As a result, the Australian War Memorial agreed to commission Peter Yule's new history of the medical legacies of the Vietnam War.

Non-military readers and those not acquainted with either the services or the Vietnam War will find Yule's work enlightening, sympathetic and perhaps a little disturbing for what it reveals about the war's human detritus. It is particularly topical given the apparent increase in mental and other health issues from veterans of Australia's protracted involvement in Afghanistan. As Sir Peter Cosgrove observes in the foreword: 'the prism might be Vietnam, but the landscape beyond is universal'.

The author explores the link between the health issues affecting returning World War 2 prisoners of war and veterans from Vietnam. He focuses in particular on their fight to have the effects of chemical exposure recognised as a personal health risk. Indeed, Yule provides as good a study as I have read anywhere of the history behind the recognition, classification and diagnosis of post-traumatic stress disorder (PTSD). It certainly resonated with my own work on 'shell shock' in World War 1. He adds another dimension by including veterans' families and their issues, as part of the health legacy of that war.

Yule delivers a blistering critique of Smith's methodology and conclusions of the use of Agent Orange in Vietnam. That said, he has the advantage of being able to draw on hundreds of studies into veterans' health published since 1994. Nor does Yule shy away from the politics of this issue. We see the often-bitter and unresolved internecine war between the veterans' own lobby groups and organisations, which splintered along activist strategies or state boundaries. This tension was never far below the surface in the ongoing and sometimes acrimonious exchanges between veterans and officialdom.

The author identifies the early antipathy between the then Repatriation Department and various ex-servicemen's groups and lobbies. This stand-off would continue, albeit with less venom, into the twenty-first century. In retrospect it seems strange that, as Yule

makes clear, the Repatriation Department, despite its mission to care for Australia's war veterans, gave little consideration to the specific needs and problems of Vietnam veterans. Even after it morphed into the Department of Veterans' Affairs, it was not above altering key reports and scientific summaries to suit its own departmental and political agenda.

Too often Agent Orange takes centre stage when it comes to health studies of the Vietnam War. What is clear from reading *The Long Shadow* is that much of the 'science' is still questionable, unknowable or still evolving. Most veterans then will never see a definitive answer to the aetiology of their health problems.

The physical environment of the Vietnam theatre is also discussed as a factor in the health of combatants, something often forgotten in non-military studies of war. The tropical conditions played on men's nerves and bodies. Chronic exhaustion due to poor rotational and leave policies did not help. It was refreshing to see possible causative agents other than herbicides discussed in veterans' health, including skin cancers, exposure to insecticides, and over-use of alcohol and tobacco. Yule suggests that the long-term consequences of alcohol abuse are one of the major legacies of the Vietnam War.

The book is enlivened throughout by numerous first-hand accounts, witnesses to combat, and personal recollections and reflections—the good and the bad. This device removes *The Long Shadow* from the impersonal perspective of a purely clinical study. However, I found that the space devoted to American studies—material that might better have been summarised—tended to overwhelm some chapters. For decades the US led the way in research into the health of Vietnam veterans but, as the author himself acknowledges throughout, there were key differences between Australian and American service personnel and their deployment in Vietnam.

A curious omission is any discussion of moral injury, which rates but a single mention. Perhaps this is because of the absence of relevant studies, but Yule is more than qualified on the basis of his research to have made some informed comment. This could have provided another perspective to his treatment of PTSD and veterans' mental health.

A plus is the use of comparative data from New Zealand veterans of the Vietnam War. As a reference, researchers will find Yule's work a valuable tool. It offers an extensive bibliography of up-to-date studies and draws on 122 veterans' interviews, as well as interviews with pivotal figures who had a key role in responding to the issues affecting Vietnam veterans. *The Long Shadow* contains several useful tables and several well-chosen photographs which enhance the narrative.

The author is indeed right to note that the Vietnam War continues to cast a long shadow over a generation of former servicemen and women. It is a credit to the author and his research team that they have produced such a readable account of a complicated and vexed issue. Anyone with a scientific or history background will find this account particularly absorbing. Vietnam veterans too should feel some satisfaction with Yule's wide-ranging and very fair analysis. His study again reminds us that memory and history are not the same.

Michael Tyquin  
Consulting Historian  
Swansea, Tasmania