

Editorial

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Who is the only New South Wales-born Nobel laureate so far? The chemist, Sir John “Kappa” Cornforth AC FRS (1917–2013).¹ A graduate of Sydney University, he and his wife, Rita née Harradence, another chemist, independently won 1851 Exhibitions to Oxford in the late ’thirties. Their first publications were in this *Journal* some eighty years ago (Harradence & Lions 1936, Cornforth et al. 1937). Cornforth’s 1975 Nobel was awarded “for his work on the stereochemistry of enzyme-catalyzed reactions.”²

Thinking about some way for the Society to remember John Cornforth,³ I wondered whether we could perhaps publish his last piece. I came upon reference to the talk, “The Hidden Asymmetry of Life — why the hidden asymmetry of most living things is fundamental to life and how it is manifested,” given in Canberra at the Australian Academy of Science on 9 November 1977. Sounded like an interesting piece, and not too technical, so I tried to find the text. Unsuccessfully. Eventually, at the Royal Society in London I came across an unpublished address, “Adventures with Sugars,” delivered at the University of Sussex on 23 July 1999. With the

Royal Society of London’s permission and with John Cornforth’s family’s permission, this address is here published for the first time. Its publication is a suitable bookend to John Cornforth’s publishing career: with an eighty-year span, his first and last publications appear here, in the *Journal & Proceedings of the Royal Society of New South Wales*.⁴

Recently a friend rang me and told me about an article in *The Monthly* of October, 2018. I bought the issue, read the article she had mentioned (on drug policy), and then noticed another, about one of the founders, two hundred years ago, of the Philosophical Society of Australasia, Judge Barron Field (1786–1846).⁵ When constructing the on-line archive of papers presented to the Society and printed in the *Journal & Proceedings*, I had come across an 1825 book, published in London, and edited by Barron Field, his *Geographical Memoirs on New South Wales*, which contained the earliest records of papers presented in 1821 at meetings of the Philosophical Society. I added the book’s chapters to the on-line archive of the *Journal & Proceedings*.⁶ *The Monthly* article was on Field and his poems, reprinted at the back of his 1825 book.⁷

¹ Patrick White (1912–1990) was born in England of Australian parents.

² See <https://www.nobelprize.org/search/?s=Cornforth>

³ Past President Don Hector had approached Professor Cornforth to join the Society as an FRSN, but he declined: age and distance.

⁴ See <https://royalsoc.org.au/council-members-section/234-cornforth>

⁵ See <http://adb.anu.edu.au/biography/field-barron-2041>

⁶ <https://royalsoc.org.au/links-to-papers-since-1856>

⁷ See <http://gutenberg.net.au/ebooks13/1304421h.html#ch22>

Two thoughts occurred to me: the approaching two-hundredth anniversary of the Society, and our recent determination to widen to the ambit of the Society, to encompass “Science, Art, Literature and Philosophy.” I contacted the author, Professor Justin Clemens at Melbourne University, and *The Monthly*, and permission to reprint was quickly received. The *Journal* has never published a paper about Barron Field, and Clemens’ paper is much more than a review of his poetry, giving a richer idea of Field’s time in Sydney, including his role in coining the phrase *terra nullius*. Clemens is the erstwhile art critic for *The Monthly*.

This issue includes three submitted papers. The first is by Dragovic and Bajpai, on the issue of estimating erosion on paths in the Royal National Park. This study continues our publication of works on the Australian environment.

A year ago we published a report from 1885 by the Rev. Julian Tenison-Woods (2017) on the geology of Malacca written for the colonial government of the Straits Settlements. Tenison-Woods was a frequent contributor to the *Journal* in the late nineteenth century.⁸ Roderick O’Brien, who uncovered the earlier report, has for this issue found an address given by Tenison-Woods in Hong Kong about the mines and minerals of the Malay Peninsula, published in a local newspaper of the time, on 3 February 1885.

As well as a discourse about Malayan geology, the piece is of interest by contrasting European technology against Chinese contracting in mining tin in Malaya. The industrial revolution had equipped European miners with new technology — machinery, explosives, mechanised transport — but Tenison-Woods

argues that, for mines both in Victoria⁹ and in Malaya, the “tribune” system of contracting had produced higher profits. As we would say, the tribune system of contracting shifted the risk from the mine owners to the contracting labourers: instead of paying the miners for the amount of material they brought up, the tribune system paid the miners for the amount of tin they extracted. The incentives faced by the miners had changed, as in the Clunes mine, and the mines’ lives would be extended and the owners’ profitability enhanced, if not the miners’.

In 1974 I was a graduate student at Stanford, living in a studio apartment off-campus. In the same building I got to know Wendy Bracewell, daughter of Professor Ron Bracewell. I did not take any classes from her father, but I knew of him: the Australian radioastronomer, at a university where there were few if any Australian professors. Christmas was looming and Wendy was wondering what to give her father: “He’s interested in trees,” she told me (see Bracewell 2005). I suggested a recent book that I had just bought, and so Ron Bracewell was given a copy of Anthony Huxley’s *Plant and Planet*, by the son of Julian Huxley FRS and the nephew of Aldous Huxley, author of *Brave New World*.

Irene Kelly, widow of past President Jak Kelly, tells me that the Kellys and the Bracewells were fast friends; she had visited him in Palo Alto just before his death.¹⁰ On

⁹Thompson, H.A. (1858), *Description of the Clunes Gold Mine, Victoria*, *The Sydney Magazine of Science and Art* 2: 79-80, 1859. (Paper presented at the Philosophical Society of N.S.W. on Aug. 11, 1858.) <https://archive.org/stream/sydneymagazines01socigoog#page/n95/mode/1up>

¹⁰At the 1269th OGM of 5 December 2018, in her acknowledgment of Anita Petzler, the 2018 Jak Kelly Award winner, Irene Kelly mentioned a colleague of Ron Bracewell’s: pioneer radioastronomer, Ruby Payne-Scott; see Halleck (2018).

⁸See the list in O’Brien (2017).

16 May 1978, Ron Bracewell gave the Society's Pollock Memorial Lecture, "Life in outer space" (Bracewell 1979). Ron Bracewell died in 2007, weeks after his 86th birthday, and I decided to include a piece on his life. With permission, we are reprinting an obituary by Thompson and Frater, first published in 2010. We are also publishing the edited transcript of a previously unpublished interview between Ron Bracewell and Ragbir Bhathal FRSN, recorded in 2000 in Sydney. A recent book puts Bracewell's pioneering work into context: Frater, Goss, and Wendt (2017); he should have been FRS, as so many of his collaborators in Australia and abroad were. (Indeed, given his mathematics, some have argued that he should have shared the 1979 Nobel Prize in Physiology or Medicine with Cormack and Hounsfield, "for the development of computer assisted tomography.")¹¹

Apart from our interest in trees, another point of connection between Bracewell and me, it turns out, is Ron Bracewell's development of the Hartley Transform, named after Ralph Hartley (1888–1970), a mathematician and engineer at Bell Labs. Recent work of mine has also used research of Ralph Hartley's: his Hartley (1928) measure of information (a necessary forerunner to Shannon's 1948 work) solved the problem of how to measure the amount of uncertainty associated with a finite set of possible alternatives. I use the Generalised Hartley Measure to measure the distance between pairs of sets of vectors in work exploring validation of computer simulations of real-world phenomena (Marks 2019).

¹¹ In 1992 he was elected to foreign associate membership of the Institute of Medicine of the US National Academy of Sciences, the first Australian to achieve that distinction, for fundamental contributions to medical imaging.

David Hush FRSN is an eminent composer. He offered to write a piece for the *Journal*, and after some discussion we decided on Mozart's music. So his paper and Clemens' paper on Barron Field, Australia's first published poet, move the *Journal* away from its previous focus on hard science, towards the wider remit of "Science, Art, Literature and Philosophy."

Earlier this year Len Fisher FRSN was selected as a finalist in the Stockholm-based "New Shape" competition to suggest new institutional ways to deal with global challenges; his entry was one of 14 chosen from an initial field of 2,702 entries. Len agreed to my suggestion that he write an account of the Competition, his analysis of global catastrophic risks facing mankind,¹² and the governance solution he had proposed in the Competition. His write-up of this is published below, including his thoughts about his lack of success at winning the US\$5 million prize.

When I took over the editorship, I talked with Michael Burton, the previous editor, about the issue of selecting excellent theses for the PhD abstracts section. We agreed that the editor should ask the universities to choose a few excellent theses. Easier said than done: the newer, smaller universities have been good at responding to my enquiries, but the larger ones (Sydney, UNSW, ANU, Macquarie, Wollongong) have been quite dilatory. This time around I thought I'd use the results of the Three-Minute Thesis (3MT) competitions to identify good work. Problem is that students usually don't complete for some time (years) after the 3MT. Nonetheless, two of the four Abstracts derive from the 3MT: Dr. Kaye-Smith's and Dr. Marks'.¹³

¹² See U.S. Global Change (2018).

¹³ Full disclosure: Dr. Marks is my daughter; she was the Monash runner-up in the 3MT in 2015.

In future, I'd like the universities to be more forthcoming with excellent theses.

A note arising from the address by Tom Keneally DistFRSN in the June 2018 issue: he has recently published the historical novel he spoke of in May, tying Mungo Man with today: *Two Old Men Dying* (Keneally 2018).

Finally, I'd like to thank the team who helped me in finalising this issue: Ed Hibbert, Rory McGuire, and Jason Antony, as well as Eryl Brady, many reviewers and those who acted as sounding boards.

Balmain, 6 December 2018.

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