PREFACE TO PROCEEDINGS

As those who venture into some of Tasmania's wilderness areas and national parks will know, we have many geographical references to the name "Humboldt". So it is worldwide, with all such features named for Baron Alexander von Humboldt, the early nineteenth century German aristocrat: natural scientist, diplomat, linguist, explorer, adventurer and humanist, one of the last great polymaths, forerunner of Darwin, and founder of ecology.

The modern Alexander von Humboldt Foundation was inaugurated by the German Government in 1953, to follow von Humboldt's own personal philanthropy, as an institution to support foreign scientists of all disciplines, to work collaboratively with hosts in Germany, and to carry that experience back to their own countries to further scientific advancement, education, and cultural exchange. Today more than 25 000 such individuals worldwide have received significant long-term support from Alexander von Humboldt Fellowships and grants; amongst these are several hundred Australians and New Zealanders, whose experiences have forged career-long links with colleagues in Germany and with German culture and society.

The 2015 biennial conference of the Australian and New Zealand Associations of Alexander von Humboldt Fellows was held in Hobart, at the University of Tasmania's prestigious Institute for Marine and Antarctic Studies (IMAS) building — a fitting venue for the geographical reach and scientific passions of von Humboldt. We are delighted that we are able to publish our proceedings collection for this meeting, under the auspices of the *Papers and Proceedings of the Royal Society of Tasmania* — another institution whose mission also clearly resonates with Alexander von Humboldt's. In fact, von Humboldt's reach has indirectly already been felt here for quite some years: the stunning mounted displays of beetles at the Tasmanian Museum and Art Gallery, which locals young and old come to admire, are a donation of the collections of the late Dr George Bornemissza, the former CSIRO entomologist and von Humboldt Fellow, who ran the transformative Australian dung beetles project. George received his Alexander von Humboldt award at the start of his career, and is celebrated as one of our most distinguished alumni.

Our cooperation with The Royal Society of Tasmania also featured in the opening of our conference — a gala evening event at Government House, with a public address, and subsequent reception in elegant surroundings hosted by Her Excellency Professor the Honourable Kate Warner AM, Governor of Tasmania (pl. 1). The talk, by Dr Brandon Menzies from the University of Melbourne, entitled "Thylacine DNA — life after death" also returned to a theme deeply embedded in the Tasmanian psyche. On this occasion, the audience was treated to a scientific coup and world premiere: the first public unveiling and presentation of a draft assembly of the complete thylacine genome. The results that Brandon reported on were the outcome of his work on thylacine and marsupial genetics with German colleagues during his recent tenure as an Alexander von Humboldt Fellow in Berlin, as well as that of his Australian laboratory.

The pattern of colloquia in the von Humboldt biennial series always reflects the broad and interdisciplinary concerns of the von Humboldt family (pls 2, 3). Our topics this year ranged far and wide — from astrophysical and cosmological questions, such as potential variations of the fundamental constants (and presciently, on physicists' longstanding prediction of gravitational waves, that have since been sensationally confirmed); to visually guided decision-making and universal language in foraging honeybees; to that notorious and infamous US chemist Thomas Midgley Jr. — inventor not only of anti-knock lead petrol additives, but also of chlorofluorocarbons for refrigeration!

PLATE 1 — Friday 20 November: Opening event in the ballroom at Government House (jointly with The Royal Society of Tasmania). Dr Brandon Menzies' address "Thylacine DNA: life after death" featured the release of the first draft assembly of the complete thylacine genome. (Photo Simon Ellingsen)

PLATE 2 — Dr Katrin Amian (Alexander von Humboldt Stiftung) addresses the plenary session in the Institute of Marine and Antarctic Studies (IMAS) lecture hall, on behalf of the Foundation, with an update on its funding programmes and new initiatives for research support and German-Australian scientific cooperation. (Photo Simon Ellingsen)

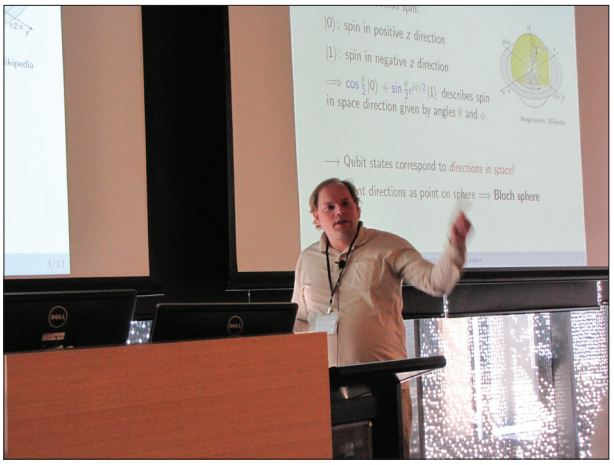

PLATE 3 — Dr Christopher Eltschka (Institute for Theoretical Physics, University of Regensburg) explains the intricacies of entanglement and monogamy in quantum information science. (Photo Simon Ellingsen)

Perhaps we have his match in Tasmania, in the person of Robert Sticht, geochemist at Mt Lyell who oversaw the reduction process of sulfide ores that made Queenstown and Tasmania at the turn of the century a world leader in acid rain! Alexander von Humboldt would have appreciated the careful and rigorous work of Gustav Thureau, first Tasmanian Government mining geologist whose career we heard about; he could not have known anything about molecules, still less molecular structure, but he would have been amused to hear that significant puzzles remain in the unravelling of the properties of that most basic and vital of substances, H_2O.

A sample of our presentations is included in our collection here (the complete programme of talks is provided as an appendix to this volume). We also include the inspiring address given to us in the official part of the programme at the conference dinner by Dr Christoph Müller, Ambassador for Germany. The after-dinner presentation on some of the work of Alexander von Humboldt and the ethos of the Foundation was presented by Professor Peter Rathjen, Vice-Chancellor of the University of Tasmania. Both of these contributions added perspective to the significance of our conference, and of the von Humboldt vision itself in the advancement of science and society.

In closing, the invitation from the Governor to host the opening lecture as a joint Royal Society of Tasmania/ Alexander von Humboldt associations event undoubtedly provided a significant drawcard for the conference, which attracted our largest ever attendance of nearly 100 participants, and we are extremely grateful to Government House for this support. It goes without saying that the success of the conference has as usual been guaranteed (*gewährleistet*) through significant financial underpinning provided by the Foundation, through a Humboldt Kolleg grant, as well as the German Embassy, the University of Tasmania, and the Deutscher Akademischer Austauschdienst, all of which we deeply appreciate. We also acknowledge the unflinching administrative and logistical support of Mrs Karen Bradford, School Executive Officer, School of Physical Sciences, as well as that of Mr Sean Dwyer. The local committee is also grateful to our association's executive (President Professor Gabrielle MacMullen, Secretary Associate Professor Trevor Finlayson and Treasurer Professor Gary Bryant) for their constant guidance and encouragement, through their ready responses via email contacts and regular teleconferences, and for the benefit of their good judgement and experience in matters of protocol and planning.

Peter Jarvis
Hobart, April 2016

For the organising committee: Professor Simon Ellingsen, Assoc. Professor Michael Gardiner, Dr Peter Jarvis (chair), Dr Nathan Kilah and Professor Jeff Malpas.