

## ACKNOWLEDGEMENTS

Opportunities for formal expression of gratitude may arise only seldom in my lifetime. Consequently, I should like to treat this particular instance with due reverence. Thanks firstly be to the American tax-paying public for financial support, mediated through a substantial NASA Exobiology grant. For technical support, thanks be to Scott Kuehner (microprobe analysis), Wai Pai Chan (SEM analysis), Diane Cornelius (XRF/ICP analysis), Richard Armstrong (U-Pb zircon dating), Dominc Papineau ( $\delta^{15}\text{NH}_4^+$  analysis), Julien Foriel ( $\delta^{34}\text{S}$  analysis) and especially Andrew Schauer (isotope laboratory).

For sample preparation, thanks be to Ryan Lipscomb, Greg Horn, Molly Ravits, Ryan Richardson and especially Kyle Samekk. Thanks be to Allen Devol and Rick Keil for an opportunity to engage in oceanographic research. Thanks be to Mark Ghiorso, Jan Huizenga and James Connolly for assistance in thermodynamic modeling. Thanks be to Jan Veizer for kindly providing ancient carbonate geochemical data. Thanks be to Dick Stewart and Charlotte Schreiber for petrological assistance. Thanks be to Minik Rosing, John Dunlop and Axel Hofmann for field logistics and coordination. Thanks be to my committee members Bernard Evans, Olivier Bachmann, John Baross and Vladimir Chaloupka.

For inspiration and friendship, thanks be to Beth Orcutt, **Bonnie Chang**, Carel Haumann, **Cheryl Fitzgerald**, **Cynthia Updegrave**, Daniel Hornal, **Elizabeth Nicholls**, Farah Abdul, Jessica Garvin, **Joshua Strange & family**, Leonard Davis, Lina Agliandolo, the Loyd family, Marwa Maziad, Melanie Lyon, Michelle Koutnik, Michiel Zuidweg, **Nicolás Pinel**, Randy Waugh, Roeland Odijk, Ruby Wells, Silja Talvi, Solmaz Mohadjer, **Tarek Maassarani**, Tom ‘Lazer’ Finlay, Tony Scruton, William Brazelton and Zach Adam. I further thank Jan-Willem, Joanne, Anna and Elizabeth – distant but ever-present relatives. Friends & family – what is left of a man without them?

Lastly, it befalls me to thank Roger Buick. I was afforded my first glimpse of certain salient features of Roger's personality when he interceded on my behalf, somewhere in Australia's outback, during the opening phases of hand-to-hand combat between myself and his boss<sup>1</sup>. A sincere commitment to justice and truth, not to speak of counterweighing humility, is about as common in tenured professors as it is in mankind. Should my embodiment of these rare traits ever rise above mere aspiration, it will be due to Roger's example.

HOOPA VALLEY INDIAN RESERVATION,  
HUMBOLDT COUNTY, JANUARY MMX

---

<sup>1</sup> My adversary had quite incorrectly inferred the presence of a racist streak in my immediate forebears through appeal to faulty geographical and historical axioms.