

# DR MELANDRI VLOK PH.D

LECTURER (BIOMEDICINE) AT THE UNIVERSITY OF NOTRE DAME AUSTRALIA

My research specialty is palaeoepidemiology, the study of disease patterns in the past. My current research seeks to understand how prehistoric people adapted to climate change related changes to tropical diseases in the past as a potential proxy for future uncertainty. The primary aim of this research is to utilise new and pre-existing archaeological data from up to 10,000 years ago in Southeast Asia to spatially map geographic hot spots of disease in the past and assess the conditions within which these pathogens evolved, especially in relation to climate change events.

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📍 Pioneer House, 128-140 Broadway, The University of Notre Dame, Chippendale, 2007, Sydney, Australia

## SKILLS

excavation osteological analysis  
science communication and media  
ancient disease diagnosis

## LANGUAGES

English Native  
Afrikaans Native  
Japanese Elementary  
Vietnamese Elementary

## EXPERIENCE

- JAN 2024 - PRESENT** LECTURER (CONTINUING)  
The University of Notre Dame Australia, Sydney, NSW  
Lecturer (Teaching and Research) in Biomedicine. I teach the undergraduate degree Bachelor of Biomedicine. I supervise honours, Masters and PhD students.
- JAN 2024 - PRESENT** HONORARY RESEARCH AFFILIATE  
The University of Sydney  
School of Languages and Culture, Faculty of Arts and Social Sciences
- JAN 2023 - PRESENT** CASUAL FORENSIC ANTHROPOLOGIST  
Kenyon International Emergency Services  
This casual (standby) role involves deployment for disaster recovery, management, human identification, and affected family services following environmental disasters and conflict.
- NOV 2021 - DEC 2023** POSTDOCTORAL RESEARCH ASSOCIATE  
The University of Sydney, NSW, Australia  
In this position I designed a research project focusing on ancient climate variation and their relationship with patterns of tropical disease
- OCT 2020 - PRESENT** RESEARCH AFFILIATE  
Centre for Osteoarchaeology in the North Atlantic, University of Aberdeen, Scotland, UK
- OCT 2020 - NOV 2021** ASSISTANT RESEARCH FELLOW  
The University of Otago, Dunedin, New Zealand  
This position involved management and recording of over 1000 Maori and Mori ancestral skeletal remains (kōiwi tangata) that are housed in the department in preparation for their repatriation in the near future. My role responsibilities involved providing human skeletal analyses expertise and preparing casework reports for iwi (tribes), police or museums, and liaising with the New Zealand repatriation research network.

## EDUCATION

- AUG 2017 - DEC 2020** PH.D (ANATOMY)  
University of Otago, Dunedin, New Zealand  
Thesis Title: *The Impact of Human Interaction on the Health of Past Populations in Asia*  
I undertook macroscopic and radiographic palaeopathological analyses of 450 human skeletal remains from Mongolia, Vietnam, and Japan (7000 to 2000BP) to assess whether an increase in population interaction through migration, trade, and conflict led to significant increase in the prevalence and diversity of infectious and nutritional diseases. A statistically significant increase in the prevalence of infectious diseases with increasing interaction was identified for sedentary populations, and a significant increase in the diversity of infectious disease was identified for mobile populations. Nutritional disease increased if the interactions led to a subsistence change. A new model considering human population interaction in the theory of prehistoric disease transmission was produced.

- JAN 2012 - DEC 2016** BACHELOR OF ARTS/BACHELOR OF SCIENCE (HONOURS)  
The Australian National University, Canberra, Australia  
Biological Anthropology Major (Science), Archaeology Major (Arts) Social Anthropology Minor (Arts), Biology Minor (Science) Biological Psychology (Science elective), Statistics (Science elective), Arabic (Arts elective)

- 2022 - 2023** DIPLOMA IN PYTHON PROGRAMMING  
Austin Peay State University, USA (online study)

- 2021 - 2021** CERTIFICATE III IN TIKANGA MĀTORI  
Te Wāhanga o Aotearoa, Dunedin, New Zealand

## HONORS & AWARDS

**Wiley Top Cited Article (2023)**  
Awarded for top cited article in the International Journal of Osteoarchaeology 2021-2022

**Health Sciences Division Exceptional Doctoral Thesis Award- University of Otago (2020)**  
Awarded for top 10% of all theses examined with exceptional quality of research, originality, quality of expression and accuracy of presentation. This award requires unanimous awarding of an outstanding grade by all three examiners and is decided by the Pro-Vice Chancellor of the Health Sciences Division.

**Department of Anatomy Best Postgraduate Paper Prize- University of Otago (2020)**  
Awarded for the publication of a paper that has significantly contributed to the literature in the field of palaeopathology. \$500 award.

**Chancellor's Outstanding Academic Performance Award- Australian National University (2017)**  
Achieved for a GPA of 7 out of 7 in 2016.

**Chancellor's Outstanding Academic Performance Award- Australian National University (2015)**  
Achieved for a GPA above 6.75 out of 7 in 2014.

## PUBLICATIONS

TOTAL: 25 publications, 18 First/corresponding author, 7 Co-author, 179 citations, H-Index 7, I10 Index 6

Vlok M, McFadden C, Matsumura H, and Buckley HR. In press. Nutritional Disease, Ecological Stress, and Resilience in the Middle to Final Western Jomon. *Antiquity*.  
Buckley H, Vlok M. In press. 'A Long Want' An archival exploration of scurvy in the Otago goldfields of New Zealand. *Journal of the Royal Society of New Zealand*.

Vlok M. 2023. Technical Note: The use and misuse of threshold criteria in paleopathology. *American Journal of Biological Anthropology*. 181(2): 326-335.  
Snoddy AM, Vlok M, Ramesh N, Wheeler BJ, Standen VG, Arriaza BT. 2023. Reply to Mays and Brickley 2023: 'Dietary calcium versus vitamin D in rickets: A response to Vlok et al.'. *American Journal of Human Biology*. 35(4): e23882. \*as co-lead author.

Vlok M, Snoddy AM, Ramesh N, Wheeler BJ, Standen VG, Arriaza BT. 2023. The role of dietary calcium in the etiology of childhood rickets in the past and the present. *American Journal of Human Biology*. 35(2): e23819.  
Walker MM, Oxenham MF, Vlok M, Matsumura H, Mai Huong NT, Trinh HH, Minh TT, and Miskiewicz JJ. 2023. Human Femur Bone Morphology and Histology Variation with Ancestry and Behaviour in an Ancient Sample from Vietnam. *Annals of Anatomy* 247: 152054

Wang, T McFadden C, Buckley H, Vlok M, and Oxenham, M. 2023. Paleoepidemiology of cribra orbitalia: Insights from early seventh millennium BP Con Co Ngua, Vietnam. *American Journal of Biological Anthropology*. 181(2): 250-261.

Vlok M, Oxenham MF, Domett K, Hiep TH, Minh TT, Mai Huong NT, Matsumura H, McFadden C, Huu NT, and Buckley H. 2023. Scurvy in the Tropics: Evidence for increasing micronutrient deficiency with the transition to agriculture in northern Vietnam. *American Journal of Biological Anthropology*. 180(4): 715-732.

Vlok M, Maloney, TR, Dilkes-Hall I, et al. 2023. Reply to: Common orthopaedic trauma may explain 31000-year-old remains. *Nature*. 615: E15-E18.  
Robbins Schug G, Buikstra JE, DeWitte SN, Baker BJ, Vlok M, et al. 2023. Perspective: Climate Change, Human Health, and Challenges to Resilience in the Holocene. *PNAS* [invited for special issue].

Maloney, TR, Dilkes-Hall I, Vlok M, et al. 2022. Surgical amputation of a limb 31,000 years ago in Borneo. *Nature*. 609:547-551. [As equal-lead author.] \*This paper has an Altmetric score of over 4000, the 2nd highest of any tracked archaeology paper of all time.

Vlok M, Myagmar E, Batsuren B, and Buckley HR. 2022. Pott's disease of the spine in a Liao Dynasty (10th-12th Century AD) adult from Mongolia. *Bioarchaeology International*. 6(3): 149-160.  
Vlok M. 2022. BOOK REVIEW: Bioarchaeology of care through a population level analysis. *Childhood in the Past*. 15(1): 79-80.

Vlok M, and Buckley HR. 2022. Palaeoepidemiological considerations of mobility and population interaction in the spread of infectious diseases in the prehistoric past. *Bioarchaeology International* 6(1-2): 77-107. [invited for special issue].

Vlok M, Buckley HR, Domett K, Willis A, Tromp M, Trinh HH, Minh TT, Mai Huong NT, Nguyen LC, Matsumura H, Huu NT, and Oxenham MF. 2022. Echinococcus granulosus in a forager community from pre-agricultural northern Vietnam. *American Journal of Biological Anthropology*. 176(1): 100-115.

Vlok M. 2022. BOOK REVIEW: Handbook of East and Southeast Asian Archaeology. *The Journal of the Royal Anthropological Institute*. 28(2): 687-688.  
Techaraweevan N, Mann, RW, Vlok M, Ruengdit S, Panthongviriyakul C, and Buckley HR. 2021. Thalassemia Major and Anemia in a 49-year-old Thai female: Gross and X-ray Examination of Dry Bone. *International Journal of Osteoarchaeology*. [as corresponding author].

Vlok M, Buckley HR, Miskiewicz JJ, Walker M, Domett K, Matsumura H, Hiep T, Minh T, Mai Huong NT, Huu NT, and Oxenham M. 2021. Forager and farmer evolutionary adaptations to malaria evidenced by 7000 years of thalassemia in Southeast Asia. *Scientific Reports*. 11:5667. \*This paper has the highest Altmetric Score in this journal compared to papers of similar age (175)

Adams A, Halcrow S, King C, Miller MJ, Vlok M, Millard M, Gröcke D, Buckley H, Domett K, Trinh HH, Mai Huong NT, Tran TM and Oxenham M. 2021. We're all in this together: Accessing the maternal-infant relationship in prehistoric Viet Nam. In: E Kennallands R Kendall (eds.). *The Family in Past Perspective: An Interdisciplinary Exploration of Familial Relationships Through Time*. Oxfordshire UK: Taylor & Francis.

Vlok M, Oxenham M, Domett K, Tran M, Mai Huong N, Matsumura H, Trinh H, Higham T, Higham C, Huu N and Buckley H. 2020. Two Probable Cases of Infection with *Treponema pallidum* during the Neolithic Period in Northern Vietnam (2000-1500B.C.). *Bioarchaeology International*. 4(1):15-36. \*This paper has the highest Altmetric Score in this journal (105)

Snoddy AM, Beaumont J, Buckley HR, Colombo A, Halcrow SE, Kinaston RL and Vlok M. 2020. Comment on Charlier et al., 2019: 'The Mandible of Saint-Louis (1270 AD): Retrospective Diagnosis and Circumstances of Death'. *Journal of Stomatology, Oral and Maxillofacial Surgery*. 121(2): 192-194.

Snoddy AM, Beaumont J, Buckley HR, Colombo A, Halcrow SE, Kinaston RL and Vlok M. 2020. Sensationalism and speaking to the public: Scientific rigour and interdisciplinary collaborations in paleopathology. *International Journal of Paleopathology*. 28:88-91.

Vlok M, Paz V, Crozier R, Oxenham M. 2017. A New Application of the Bioarchaeology of Care Approach: A Case Study from the Metal Period, Philippines. *International Journal of Osteoarchaeology*. 27 (4): 662-671.

Vlok M. 2017. So that their graves overlooked the sea: Student experience of the Philippines International Archaeological Field School. *The Human Voyage*. 1: 105-111.

## AWARDED GRANTS

TOTAL: AUD \$127,123, USD \$84,982

**Faculty of Medicine and Health Showcase Travel Grant Total (2023)**  
Principal Investigator

**Sydney Southeast Asia Centre Workshop Grant (2023)**  
Principal Investigator

**Elizabeth Jean Trotter Postgraduate Research Travelling Scholarship in Biomedical Sciences (2019)**  
Principal Investigator

**Brooker Travel and helloworld Doctoral Travel Scholarship (2019)**  
Principal Investigator

**Australasian Society for Human Biology Student Travel Grant (2019/2017/2016)**  
Principal Investigator

**National Geographic Society Explorer Early Career Grant (2018)**  
Principal Investigator

**Australasian Society for Human Biology Studentship (2018)**  
Principal Investigator

**Royal Society of New Zealand Skinner Fund (2018)**  
Principal Investigator

**University of Otago Doctoral Scholarship (2017)**  
Principal Investigator

**Student Development Grant- Otago University (2016)**  
Principal Investigator

**Student Enrichment Extracurricular Fund Australian National University (2015)**  
Associate Investigator

## DISTINGUISHED INVITATIONS

**National Geographic Leaders Workshop (2023)**  
Hong Kong, China

**World Science Festival Brisbane (2023)**  
Panel: From Stone Age Surgery to Modern Medicine

## GUEST LECTURES

**Health and Sustainability through an Evolutionary Perspective (October 2022)**  
Presenting anthropological and evolutionary approaches to students in the Masters of Sustainability and Public Health at the University of Sydney for the course SUST5004: Sustainability and Population Health.

**Diagnosing diseases in the context of Southeast Asia (January 2021)**  
A seminar for Australian, New Zealand, Thai and Vietnamese bioarchaeologists on recording lesions and diagnosing nutritional and infectious diseases in a tropical context for the Thai Bioarchaeology Forum hosted by Silpakorn University, Bangkok.

**The Impact of Migration and Trade on the Prevalence of Infectious and Nutritional Diseases in Asia (April 2018)**  
A seminar held at the National Museum of Science and Nature in Tokyo, Japan.

**Experiencing Disability in the Prehistoric Philippines (January 2018)**  
A lecture held for University of the Philippines and Australian National University Students as part of their lecture series for the course ARCH2059: International Archaeological Field School

**Bioarchaeology of Care at Catanauan, Philippines (January 2017)**  
A lecture held for University of the Philippines and Australian National University Students as part of their lecture series for the course ARCH2059: International Archaeological Field School

**Experiencing Disability in the Prehistoric Philippines (September 2016)**  
Held as part of the Canberra Archaeological Society Lecture Series 2016

## SELECTED CONFERENCE PAPERS

TOTAL: 24 First author or equal contribution to speaker

**JULY 2023: Porous Skeletal Lesions: International Meeting, Coimbra, Portugal**  
Two decades of searching for malaria in Asia-Pacific: What we've learnt (or rather unlearned) when it comes to porosity.

**OCTOBER 2022: 23rd Indo-Pacific Prehistory Association Congress, Chiang Mai, Thailand**  
'Yaws and malaria: Current synthesis and future directions on the origins and antiquity in Southeast Asia and the Pacific'

**OCTOBER 2021: Society for the Study of Childhood in the Past, Online**  
'The Children of Yoshiwara: Childhood and disenfranchisement during the Edo Period of Japan.'

**APRIL 2021: Society of American Archaeology Conference, Online**  
'Nutritional and Infectious Diseases in the Bronze and Iron Ages of Mongolia: The Archaeological Significance'.

**APRIL 2021: Meeting of the Paleopathology Association, Online**  
'Bone mineralisation disorders in Bronze and Iron Age skeletal assemblages from Mongolia'. [Poster]

**APRIL 2021: Meeting of the American Association of Physical Anthropologists, Online**  
'The impact of scurvy mortality during the transition of agriculture in northern Vietnam'.

**APRIL 2020: Meeting of the American Association of Physical Anthropologists, Los Angeles, USA**  
'Modelling the Disease Impacts of Migration and Trade in Prehistoric East and Southeast Asia'. [Poster]

**DECEMBER 2019: Australasian Society for Human Biology, Canberra, Australia**  
'Climatic cooling, population displacement and nutritional stress in the prehistoric Jomon hunter-gatherers of Japan'.

**MARCH 2019: American Association of Physical Anthropologists, Cleveland, Ohio, USA**  
'The Antiquity of Treponemal Disease in the Asia Pacific Regions: Implications for History'

**SEPTEMBER 2018: 22nd Indo-Pacific Prehistory Association Congress, Hue, Vietnam**  
'A Biocultural Approach to Human Interaction and Consequences of Disease in Vietnam'.

**DECEMBER 2017: Australasian Society for Human Biology, Ballarat, Australia.**  
'Impact of Human Interaction on Health in Prehistoric Asia'  
'Applying Ethnographic Practice to the Bioarchaeology of Care: A Philippines Pilot Study'. [Poster]

**NOVEMBER 2017: Otago Global Health Institute Conference, Dunedin, New Zealand**  
'Health Problems Surrounding Immigration Aren't New: Disease and Human Interaction in Prehistoric Asia'.

**DECEMBER 2016: Australasian Society for Human Biology, Dunedin, New Zealand**  
'A Case of Experienced Disability and Community Healthcare in the Metal Period, Philippines'.

**DECEMBER 2016: Australian Archaeological Association, Terrigal, Australia**  
'Community Education on the Indigenous and European Interactions in Canberra's History: The Springbank Island Project'.

**MAY-JUNE 2016: SEAMEO SPAFA 2nd International Conference for Southeast Asian Archaeology, Bangkok, Thailand**  
'Applying the Bioarchaeology of Care in the Metal Period Philippines'.

## ACADEMIC ASSOCIATIONS

Member of the Sustainability, Climate and Health Collaboration (2022- CURRENT)

Member of the Sydney Southeast Asia Centre (2021-CURRENT)

Member of the Ngakahu Repatriation Research Network, Aotearoa New Zealand (2020- CURRENT)

Member of the Paleopathology Association (2019- 2021)

Member of the American Association for Biological Anthropologists (2019-2021)

Member of the Indo-Pacific Prehistory Association (2018- CURRENT)

Elected Social Media Representative for the Executive Committee of the Australasian Society for Human Biology (2017- 2021)

Member of the Society for American Archaeology (2019- 2020)

Member of the Australasian Society for Human Biology (2016- CURRENT)

## RESEARCH SUPERVISION

Nicola Czaplinski- Honours (*First Class*) -The University of Sydney, NSW, Australia (2022)  
Supervisor.

Pratiwi Yuwono- PhD- Southern Cross University, Lismore, NSW, Australia (2023- CURRENT)  
Supervisor

Minh Tran- PhD- The University of the Philippines, Diliman (2023- CURRENT)  
Supervisor

## DISCIPLINARY SERVICE

**Associate Editor- Frontiers in Nutrition**  
2023-CURRENT

**Review Editor- Frontiers in Environmental Archaeology**  
2023-CURRENT

**Reviewer: Nature Communications**  
2023

**Reviewer: SPAFA Journal of the SEAMEO Regional Centre for Archaeology and Fine Arts**  
2022 (two times)

**Reviewer: American Journal of Biological Anthropology**  
2022 (two times)

**Reviewer: International Journal of Paleopathology**  
2021 (two times)

**Reviewer: International Journal of Osteoarchaeology**  
2021 (two times)

## SCIENCE COMMUNICATION

**Nice Experts Podcast (S02E05) Germ Spotting! (2022)**  
An invited expert on a popular commercial science podcast. This season won the Best 'Science and Technology Podcast' at the 15th Annual International Social Awards, as well as an Audience honour. The Shorty Awards are the 'Emmys' for content and social media.

**Article: World's earliest evidence of a successful surgical amputation found in 31,000-year-old grave in Borneo. The Conversation. (2022)**  
Co-authored with Dr Tim Maloney, Dr India Dilkes-Hall et al. Article has over 18,000 reads.

**National Geographic 'The Spark' (2022/2023)**  
My work was highlighted in a 1.5-hour event among other selected Nat Geo Asia-Pacific Explorers

**SSEAC Stories Podcast (2022)**  
I was interviewed in November 2021 about my research on yaws and malaria in Southeast Asia.

**The Arch and Anth Podcast (2019)**  
I was interviewed by Michael Riviera, host of the Arch and Anth podcast for the 4th episode released on the 20th of May 2019 about my research as a paleopathologist.

**Documentary: The Portable Artefacts of a Seafaring People (2018)**  
This is a documentary on the artefacts found in the Metal period of the Philippines and documents the excavation and thought processes of archaeologists at the excavation of a site. I was one of the archaeologists interviewed for the documentary. Produced by: Robert Rownd

**Documentary: Professor Nguyen Lan Cuong, Hanoi TV. (2018)**  
A documentary about the life's work of Professor Lan Cuong, Vietnam's father of paleoanthropology.