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# The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands

Edited by Marc Oxenham and Hallie Buckley

# The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands

In recent years the bioarchaeology of Southeast Asia and the Pacific Islands has seen enormous progress. This new and exciting research is synthesised, contextualised and expanded upon in *The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands*.

The volume is divided into two broad sections, one dealing with mainland and island Southeast Asia, and a second section dealing with the Pacific Islands. A multi-scale approach is employed to the bio-social dimensions of Southeast Asia and the Pacific Islands with contributions varying between region and/or site-specific scales of operation to the individual or personal scale. The more personal level of osteobiographies enriches the understanding of the lived experience in past communities.

By including a number of contributions from sub-disciplinary approaches tangential to bioarchaeology, the book provides a broad theoretical and methodological approach. It provides new information on the globally relevant topics of farming, population mobility, subsistence and health; no other volume provides such a range of coverage on these important themes.

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# The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands

*Edited by Marc Oxenham and Hallie R. Buckley*

 **Routledge**  
Taylor & Francis Group  
LONDON AND NEW YORK

First published 2016

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge

711 Third Avenue, New York, NY 10017

*Routledge is an imprint of the Taylor & Francis Group, an informa business*

© 2016 selection and editorial matter Marc Oxenham and Hallie R. Buckley; individual chapters, the contributors

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*British Library Cataloguing-in-Publication Data*

A catalogue record for this book is available from the British Library

*Library of Congress Cataloging-in-Publication Data*

The Routledge handbook of bioarchaeology in Southeast Asia and the Pacific Islands / edited by Marc Oxenham and Hallie Buckley  
pages cm

Includes index.

1. Human remains (Archaeology)—Southeast Asia. 2. Human remains (Archaeology)—Pacific Ocean. I. Oxenham, Marc, editor, author. II. Buckley, Hallie, editor, author.

CC79.5.H85R68 2015

930.1—dc23

2015016135

ISBN: 978-1-138-77818-4 (hbk)

ISBN: 978-1-315-72544-4 (ebk)

Typeset in Bembo Std

by Swales & Willis Ltd, Exeter, Devon, UK

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It is a great pleasure for me to write the foreword to this remarkable Routledge Handbook, a volume dedicated to the research advances and accomplishments in the bioarchaeology of Southeast Asia and the Pacific Islands, a vast region of the globe occupied by people having complex histories, variable social contexts, and remarkable diversity of circumstances of life and living. The book's focus is on bioarchaeology, the study of human and faunal remains from archaeological contexts, which is a relatively new science. Two decades ago, I took on the task of presenting a synthesis of the field as it relates to humans (Larsen, 1997). Since then, I have watched with considerable interest the remarkable expansion in bioarchaeological research, its increasingly global coverage and its population and regional perspectives, including for Southeast Asia (Oxenham and Tayles, 2006). So expansive has bioarchaeology become that I prepared a new synthesis (Larsen, 2015), giving me a chance to present theoretical and methodological advances made in regard to a range of issues. But no synthesis can be truly comprehensive. Rather, a comprehensive synthesis of bioarchaeology in Southeast Asia and the Pacific Islands is presented in this Routledge Handbook, providing broad coverage of the region, giving the reader a go-to source written by leading experts in the field, and presenting new meanings and understanding of population history. This Handbook gives us a fundamental source that presents a new vision and broad scope, informing our growing understanding of how humans adapt.

While the focus of the book is on the study of human remains, new analyses of animal and plant remains and other key contextual data for interpreting transformative adaptive systems are also provided by the contributors to the book. Past dietary transitions and related adaptations are certainly revealed in the book, but the implications relating to climate change, nutritional deprivation, and negative health outcomes in these settings collectively give us new meaning for understanding the world we live in today. Simply, the biological and social changes and transformations put into place hundreds and thousands of years ago set the stage for the world we live in today.

The biocultural framework of the book illustrates the diverse array of adaptive systems and the richness of the human record when viewed in its wide context. In this regard, the diversity of adaptive systems applies to the foraging-to-farming transition, arguably the leading economic change having the most profound impact on human societies, population history, health and wellbeing, and lifestyle. The results presented by a number of contributors to the Handbook emphasize the region's role in the global Neolithic revolution. This work underscores the important point that the manner and scope of the revolution was neither monocausal nor did it result in universal changes in health and wellbeing (Armelagos and Cohen, 2013). The bioarchaeological record from Southeast Asia and the Pacific Islands emphasizes the diversity of life experiences and social change during the Neolithic and after, including for those settings where farming and reliance on plant carbohydrates was not a dominant part of the adaptive transition. The results presented for a range of research programs so nicely documented in the following pages highlight the various approaches to understanding the adaptive frameworks in the ancient past, providing the essential context for understanding the complex biological, social, and cultural world we live in today.

## References

- Armstrong, G. J. and Cohen, M. N. 2013. Preface to the 2013 edition. In G. J. Armstrong and M. N. Cohen, editors. *Paleopathology at the Origins of Agriculture*. Gainesville: University Press of Florida: xvii–xxxvi.
- Larsen, C. S. 1997. *Bioarchaeology: Interpreting Behavior from the Human Skeleton*. Cambridge: Cambridge University Press.
- Larsen, C. S. 2015. *Bioarchaeology: Interpreting Behavior from the Human Skeleton, Second Edition*. Cambridge: Cambridge University Press.
- Oxenham, M. F. and Tayles, N. 2006. *Bioarchaeology of Southeast Asia*. Cambridge: Cambridge University Press.

*Hallie R. Buckley, Kate Domett, Siân E. Halcrow and Marc Oxenham*

This volume is dedicated to the recently retired, but still most active, Associate Professor Nancy Tayles. The legacy of Professor Tayles' influence on bioarchaeological research in Southeast Asia and the Pacific is abundantly clear from her contributions to many of the chapters in this volume as first author and contributing author. For over 30 years, Nancy has engaged in field-based bioarchaeology in Thailand, Myanmar and Laos, Vanuatu, Micronesia, Polynesia and New Zealand. Throughout her career, she has directly trained and mentored a substantial number of the contributing authors in this volume (Buckley, Domett, Halcrow, Harris, King, Ward and Willis), many of whom have gone on to establish their own independent field-based research programmes and extended the influence of her research into wider parts of Southeast Asia, the Pacific and beyond. Nancy has also established training programmes in the countries she worked in, encouraging and mentoring her Southeast Asian colleagues in building local knowledge and skills for heritage management. Nancy's pedagogy has always been firmly embedded in a biocultural or biosocial approach to understanding the past and through her fieldwork she has extensive experience with grassroots-level community engagement. These are the reasons for the dedication of this current volume.

Appended to this Dedication is a bibliography of Associate Professor Tayles' published work. Because of space restrictions, this does not include the numerous contributions to reports on fieldwork findings for official Thailand institutions or the many reports compiled as a community service to various government bodies and *iwi* (tribal groups) in New Zealand. Nancy's work has contributed to the field of bioarchaeology on an international scale and has been instrumental in setting Southeast Asia on the world stage. Among her most important contributions to scholarly work in Southeast Asia are the studies addressing the significance of this region during the so-called Agricultural Revolution. Through Nancy's work and that in collaboration with colleagues, these publications (e.g., Tayles et al., 2000; Tayles et al., 2009; Domett and Tayles, 2007) have questioned the almost universal assumption that the intensification of agriculture had consequent negative impacts on human health. Her work questioning long-held methodological assumptions (e.g., Dias and Tayles, 1997) has had an impact on interpretive bioarchaeology outside of the region. Recently, the field of research that uses isotopic evidence of childhood residence for assessing mobility has become a standard part of the bioarchaeologist's repertoire throughout the world. With Alex Bentley, Nancy introduced this method for adding to biocultural investigations of the quality of life of people in Southeast Asia (Bentley et al., 2007). While Nancy has now retired from the daily grind of academic life, her career and outstanding achievements have been recognised by an invitation for her to act as a Visiting Professor at Khon Kaen University, Thailand, where she will be mentoring and advising Thai bioarchaeologists on research design and teaching the fundamentals of bioarchaeology in practice. We are sure that she will continue to inspire and nurture generations of Thai and *farang* bioarchaeologists well into the future.

## **Publications of Associate Professor Nancy Tayles to date**

### ***Journal articles***

- Clark, A. L., Tayles, N. and Halcrow, S. E. (2014) Aspects of health in prehistoric mainland Southeast Asia: indicators of stress in response to the intensification of rice agriculture. *American Journal of Physical Anthropology*, 153, 484–495.
- Foster, A., Buckley, H. and Tayles, N. (2014) Using entheses robusticity to infer activity in the past: a review. *Journal of Archaeological Method and Theory*, 21, 511–533.
- Halcrow, S. E., Rooney, J., Beavan, N., Gordon, K. C., Tayles, N. and Gray, A. (2014) Assessing Raman spectroscopy as a prescreening tool for the selection of archaeological bone for stable isotope analysis. *Plos One*, 9 (7), e98462.
- King, C. L., Bentley, R. A., Higham, C., Tayles, N., Viðarsdóttir, U. S., Layton, R., Macpherson, C. G. and Nowell, G. (2014) Economic change after the agricultural revolution in Southeast Asia. *Antiquity*, 88, 112–125.
- Domett, K. M., Newton, J., O'Reilly, D. J. W., Tayles, N., Shewan, L. and Beavan, N. (2013) Cultural modification of the dentition in prehistoric Cambodia. *International Journal of Osteoarchaeology*, 23, 274–286. DOI: 10.1002/oa.1245.
- Halcrow, S. E., Harris, N. J., Tayles, N., Ikehara-Quebral, R. and Pietrusewsky, M. (2013) From the mouths of babes: dental caries in infants and children and the intensification of agriculture in mainland Southeast Asia. *American Journal of Physical Anthropology*, 150, 409–420.
- Kinaston, R. L., Walter, R. K., Jacomb, C., Brooks, E., Tayles, N., Halcrow, S. E., Stirling, C., Reid, M., Gray, A. R., Spinks, J., Shaw, B., Fyfe, R. and Buckley, H. R. (2013) The first New Zealanders: patterns of diet and mobility revealed through isotope analysis. *Plos One*, 8 (5), e64580.
- King, C. L., Bentley, R. A., Tayles, N., Viðarsdóttir, U. S., Nowell, G. and Macpherson, C. G. (2013) Moving peoples, changing diets: isotopic differences highlight migration and subsistence change in the Upper Mum River Valley, Thailand. *Journal of Archaeological Science*, 40, 1681–1688.
- McKay, S., Farah, R., Broadbent, J. M., Tayles, N. and Halcrow, S. E. (2013) Is it health or the burial environment: differentiating between hypomineralised and post-mortem stained enamel in an archaeological context. *Plos One*, 8 (5), e64573.
- Clark, A., Tayles, N. and Halcrow, S. (2012) Sexual dimorphism in adult skeletal remains at Ban Non Wat, Thailand, during the intensification of agriculture in early prehistoric Southeast Asia. *Proceedings of the Twelfth Annual Conference of the British Association for Biological Anthropology and Osteoarchaeology*, 17–28.
- Halcrow, S., Tayles, N., Inglis, R. and Higham, C. (2012) Newborn twins from prehistoric mainland Southeast Asia: birth, death and personhood. *Antiquity*, 86, 838–852.
- Harris, N. J. and Tayles, N. (2012) Burial containers – a hidden aspect of mortuary practice in prehistoric archaeoanthatology at Ban Non Wat, Thailand. *Journal of Anthropological Archaeology*, 31, 227–239.
- Bedford, S., Buckley, H. R., Valentin, F., Tayles, N. and Longga, N. F. (2011) Lapita burials, a new Lapita cemetery and post-Lapita burials from Malakula, Northern Vanuatu, Southwest Pacific. *Journal of Pacific Archaeology*, 2 (2), 26–48.
- Cox, K. J., Bentley, R. A., Tayles, N., Buckley, H. R., Macpherson, C. G. and Cooper, M. J. (2011) Intrinsic or extrinsic population growth in Iron Age northeast Thailand? The evidence from isotope analysis. *Journal of Archaeological Science*, 38, 665–671.
- Halcrow, S., Tayles, N., Pureepatpong, N. and Boonlop, K. (2011) Human remains from prehistoric archaeological sites in Thailand: legislative and ethical issues (in Thai). *Muang Boran Journal*, 3 (3), 143–148.

- King, C. L., Tayles, N. and Gordon, K. C. (2011) Re-examining the chemical evaluation of diagenesis in human bone apatite. *Journal of Archaeological Science*, 38, 2222–2230.
- Buckley, H. R., Tayles, N., Halcrow, S. E., Robb, K. and Fyfe, R. (2010) The people of Wairau Bar: re-examination. *Journal of Pacific Archaeology*, 1 (1), 1–20.
- Halcrow, S. E. and Tayles, N. (2010) Talon cusp in a deciduous lateral incisor from prehistoric Southeast Asia. *International Journal of Osteoarchaeology*, 20, 240–247.
- Halcrow, S. E. and Tayles, N. (2010) The archaeological infant in biological and social context: response to Mike Lally and Traci Ardren 2008. Little artefacts: rethinking the constitution of the archaeological infant. *Childhood in the Past* 1, 62–77. *Childhood in the Past* 3, 123–130.
- Halcrow, S. E., Tayles, N., Stanton, J-A. L., Robins, J. and Matisoo-Smith, E. (2010) An application of ancient DNA methods for understanding health and social changes with agricultural intensification in prehistoric Southeast Asia. *The 9th International Conference on Ancient DNA and Associated Biomolecules*, 293–305.
- Bentley, R. A., Cox, K., Tayles, N., Higham, C., Macpherson, C., Nowell, G., Cooper, M. and Haye, T. E. F. (2009) Community diversity at Ban Lum Khao, Thailand: isotopic evidence from the skeletons. *Asian Perspectives*, 48 (1), 79–97.
- Willis, A. and Tayles, N. (2009) Field anthropology application to burial contexts in prehistoric Southeast Asia. *Journal of Archaeological Science*, 36, 547–554.
- Buckley, H. R., Tayles, N. G., Spriggs, M. J. T. and Bedford, S. (2008) A preliminary report on health and disease in early Lapita Skeletons, Vanuatu: possible biological costs of island colonization. *Journal of Island and Coastal Archaeology*, 3, 87–114.
- Halcrow, S., Tayles, N. and Livingstone, V. (2008) Infant death in late prehistoric Southeast Asia. *Asian Perspectives*, 47 (2), 371–404.
- Halcrow, S. E. and Tayles, N. (2008) Stress near the start of life? Localised enamel hypoplasia of the primary canine in late prehistoric mainland Southeast Asia. *Journal of Archaeological Science*, 35, 2215–2222.
- Halcrow, S. E. and Tayles, N. (2008) The bioarchaeological investigation of childhood and social agency: problems and prospects. *Journal of Archaeological Method and Theory*, 15, 190–215.
- Bentley, R. A., Tayles, N., Higham, C., MacPherson, C. and Atkinson, T. C. (2007) Shifting gender relations at Khok Phanom Di, Thailand. *Current Anthropology*, 48 (2), 301–314.
- Halcrow, S. E., Tayles, N. and Buckley, H. R. (2007) Age estimation of children from prehistoric Southeast Asia: are the dental formation methods used appropriate? *Journal of Archaeological Science*, 34, 1158–1168.
- Cox, K., Tayles, N. G. and Buckley, H. R. (2006) Forensic identification of ‘race’: the issues in New Zealand. *Current Anthropology*, 47 (5), 869–874.
- Domett, K. M. and Tayles, N. (2006) Adult fracture patterns in prehistoric Thailand: a biocultural interpretation. *International Journal of Osteoarchaeology*, 16, 185–199.
- McGrath, M. C. and Tayles, N. (2004) Anatomical observations related to radiological findings in spina bifida occulta of the lumbosacral spine. *Journal of Osteopathic Medicine*, 7 (2), 70–78.
- Tayles, N. and Buckley, H. R. (2004) Leprosy and tuberculosis in Iron Age Southeast Asia? *American Journal of Physical Anthropology*, 125 (3), 239–256.
- Buckley, H. R. and Tayles, N. (2003) Skeletal pathology in a prehistoric Pacific Island sample: issues in lesion recording, quantification, and interpretation. *American Journal of Physical Anthropology*, 122 (4), 303–324.

- Buckley, H. R. and Tayles, N. G. (2003) The functional cost of tertiary Yaws (*Treponema pertenuis*) in a prehistoric Pacific Island skeletal sample. *Journal of Archaeological Science*, 30, 1301–1314.
- Tayles, N. (2003) Murder or mortuary behaviour? An Iron Age enigma from northeast Thailand. *International Journal of Osteoarchaeology*, 13, 197–206.
- Kieser, J. A., Dennison, K. J., Kaidonis, J. A., Huang, D., Herbison, P. G. P. and Tayles, N. G. (2001) Patterns of dental wear in the early Maori dentition. *International Journal of Osteoarchaeology*, 11 (3), 206–217.
- Nelsen, K., Tayles, N. G. and Domett, K. (2001) Missing lateral incisors in Iron Age South-East Asians as possible indicators of dental agenesis. *Archives of Oral Biology*, 46, 963–971.
- Tayles, N. G., Domett, K. and Pauk, U. (2001) Bronze age Myanmar (Burma): a report on the people from the cemetery of Nyaunggan, Upper Myanmar. *Antiquity*, 75 (288), 273–278.
- Tayles, N. G., Domett, K. and Nelsen, K. (2000) Agriculture and dental caries? The case of rice in prehistoric Southeast Asia. *World Archaeology*, 32 (1), 68–83.
- Dias, G. and Tayles, N. (1997) Abscess cavity – a misnomer. *International Journal of Osteoarchaeology*, 7, 548–554.
- Tayles, N. (1996) Anemia, genetic diseases, and malaria in prehistoric mainland Southeast Asia. *American Journal of Physical Anthropology*, 101 (1), 11–27.
- Tayles, N. (1996) Tooth ablation in prehistoric Southeast Asia. *International Journal of Osteoarchaeology*, 6, 333–345.
- Higham, C., Bannanurag, R., Mason, G. and Tayles, N. (1992) Human biology, environment and ritual at Khok Phanom Di. *World Archaeology*, 24 (1), 35–54.

## **Books**

- Oxenham, M. and Tayles, N. (eds) (2006) *Bioarchaeology of Southeast Asia*. Cambridge: Cambridge University Press.
- Tayles, N. G. (1999) *The Excavation of Khok Phanom Di, a Prehistoric Site in Central Thailand*. London: Society of Antiquaries.

## **Book chapters**

- Foster, A., Buckley, H., Tayles, N., Spriggs, M. and Bedford, S. (2013) Gender, labour division and the skeleton: a case study from the Teouma Lapita cemetery. In: G. R. Summerhayes and H. Buckley (eds) *Pacific Archaeology: Documenting the Past 50,000 Years*. Dunedin, New Zealand: University of Otago Press. pp. 76–90.
- Tayles, N., Halcrow, S. and Pureepatpong, N. (2012) Regional developments: Southeast Asia. In: J. M. Buikstra and C. A. Roberts (eds) *The Global History of Paleopathology*. Oxford University Press. pp. 528–540.
- Halcrow, S., Tayles, N., Pureepatpong, N. and Boonlop, K. (2011) Thailand. In: N. Márquez-Grant and L. Fibiger (eds) *The Routledge Handbook of Archaeological Human Remains and Legislation*. London, UK: Routledge. pp. 623–631.
- Halcrow, S. E. and Tayles, N. (2011) The bioarchaeological investigation of children and childhood. In: S. C. Agarwal and B. A. Glencross (eds) *Social Bioarchaeology*. Wiley-Blackwell. pp. 333–360.
- Halcrow, S. E. and Tayles, N. (2011) Human diversity in mainland Southeast Asia: the contribution of



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