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Editorial

Bioarchaeology of Northeast Asia

This volume of *Quaternary International* is the third in a series of special issues stemming from the Baikal-Hokkaido Archaeology Project or BHAP (http://bhap.artsrn.ualberta.ca) that, in its current (and third) funding cycle, runs until 2018. The BHAP consists of an international team of multidisciplinary researchers investigating middle Holocene hunter-gatherer cultural dynamics and environmental change among occupants of Siberia's Cis-Baikal (Russian Federation) and Japan's Hokkaido Island. The project is funded largely by the Social Sciences and Humanities Research Council (SSHRC) of Canada, with additional support coming from other agencies and institutes in Canada, Japan, the Russian Federation, United Kingdom, and Germany. The topic of this special issue, specifically, grew out of a symposium of the same name that was organized for the 78th annual meeting of the Society for American Archaeology (SAA) in Honolulu, HI (April 3–7, 2013).

Bioarchaeology, the analysis of human remains from within their past biological, environmental, and cultural contexts, has played a pivotal role in the BHAP, particularly in the establishment of the project's pioneering "individual life history" approach (e.g., see Zvelebil and Weber, 2013). Recent innovative developments in bone chemistry, ancient DNA, microanatomy, and skeletal morphology, for example, have provided a suite of methods that have enabled us to reconstruct an extraordinary range of information on past individuals' life histories. This, in turn, has helped to shed light on the complex relationships among environmental, cultural, and human biological change.

The significant contribution of bioarchaeology to interpretations of past human life ways is not limited to the spatial and temporal confines of the BHAP, and neither is this volume. Human remains are the most direct link to our past, and bioarchaeology can be credited with much of our current understanding of human adaptation, diversity and transition in antiquity. Nowhere is this more relevant than in Northeast Asia, where cultural complexity and diachronic change are coupled with an abundance of prehistoric human remains spanning much of the last 10,000 years. This special issue of *Quaternary International* includes bioarchaeological research across Northeast Asia, including Siberia and the Russian Far East, Mongolia, northern China, the Korean Peninsula, and the Japanese Archipelago, and throughout the modern epoch, from the early Holocene through the early historic period(s). We use the term 'bioarchaeology' in its broadest sense, referring to research that "emphasizes the human biological component of the archaeological record" (Larsen, 1997:3). While various approaches are employed in the papers that follow, all ultimately reveal crucial aspects of past human adaptation and cultural transition. It is through these common themes that bioarchaeology has become an integral part of archaeological research in recent decades, not only in Northeast Asia, but also across the globe.

The 21 articles that comprise this special issue are divided into three broad thematic areas: 1) stress and paleopathology; 2) adaptation and human variation; and 3) activity and lifestyle. Under the first thematic area, the first three papers (Temple; Merrett et al.; Hoover and Hudson) all investigate environmental stress burdens during growth and development among ancient populations in northern Japan (Hokkaido and Honshu), northeastern China, and southern Japan (northwest Kyushu), respectively, as reflected by linear enamel hypoplasia (LEH) defects on human teeth. Temple estimates age-at-defect formation and periodicity of LEH more specifically to compare coastal and inland populations, while Hoover and Hudson examine the resilience of persistent hunter-gatherers using two different dental markers of development stress, LEH and fluctuating asymmetry. Merrett and colleagues look outside of China's well studied Yangtze and Yellow River Valleys and present LEH data on the mixed-economy occupants of the vast Dongbei (Northeast) Plain. The next two papers (Okazaki et al.; Zhang et al.) examine various dental pathological indicators, the first paper also including LEH defects, to compare community oral health levels between urban and rural populations and between foraging and agricultural populations, respectively, in northern China. The last three papers under this thematic banner (Kondo and Aono; Faccia et al., Kim et al.) focus on other aspects of human pathology as gleaned from the archaeological record. Kondo and Aono present evidence for the initial expansion of tuberculosis (*Mycobacterium*) into Japan's Hokkaido Island, while Faccia and colleagues discuss the oldest known case of diffuse idiopathic skeletal hyperostosis (DISH) in Asia, discovered in Siberia's Cis-Baikal region. Finally, Kim and colleagues investigate paleoparasitological data—2000-year-old parasite eggs—recovered from midden and fortress sites in the southern Korean Peninsula.

The five papers under the second thematic area of adaptation and human variation focus on human diversity, both environmentally and genetically determined. The first two papers (Igarashi; Hoover and Williams) examine morphological characteristics of the mandible and their relationships with genetic and non-genetic—especially dietary—factors. In the third paper, Schmidt and Seguchi use craniofacial variation to study the population history and biological structure of the world's first Inner Asian steppe empire (Mongolia), with results suggesting admixture of at least two biologically distinct groups. The fourth paper by Waters-Rist and colleagues examines dental non-metric traits to investigate middle

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Holocene population discontinuity in Siberia's Cis-Baikal region. In the last paper, Osipov and colleagues study long bone midshaft dimensions from four distinct populations, including two from Northeast Asia, in order to better understand the genetic and environmental factors contributing to changing limb robusticity during growth and development.

Under the final thematic area of activity and lifestyle, the first three papers (Suzuki et al.; Lieverse et al.; Eng) examine the prevalence and/or severity of degenerative joint disease (osteoarthritis) in order to better understand behavioural variability among ancient populations from Japan, Siberia's Cis-Baikal, and northern China and Mongolia, respectively. All three emphasize the complexity and high variability of activities engaged in by foragers, pastoralists, farmers, and urban dwellers alike. The fourth paper (Gresky et al.) focuses on entheseal changes (muscle and ligament attachment sites on the skeleton) and vertebral fractures in order to reconstruct activity and musculoskeletal stress among mounted pastoralists from northwestern China. In the fifth paper, Stock and Macintosh use cross sectional geometric properties of the femur and tibia to investigate variation in mechanical loading and terrestrial locomotion in two distinct groups from Siberia's Cis-Baikal region. Next, McKenzie and Popov present a metric assessment of artificial cranial modification from the site Boisman 2 in the Russian Far East, which has yielded perhaps the earliest documented examples of this practice in all of East Asia. The seventh paper by Nagaoka and colleagues examines age-at-death distributions in premodern Japan to reveal demographic trends that cannot be reconstructed using historical or ethnological records. Finally, the last paper (Weber et al.) presents insights into chronology and dietary variation gleaned from radiocarbon and stable isotope data from the Cis-Baikal cemetery of Shamanka II.

In sum, the papers that follow provide a detailed overview of recent and ongoing bioarchaeological research conducted across Northeast Asia and spanning much of the last 10,000 years. Together, they emphasize the variability of ancient human adaptations and life ways, from foragers and pastoralists to farmers and urban dwellers, and they reveal the complex relationships among environmental, cultural, and human biological change. Their various approaches reflect the diversity of bioarchaeological research and demonstrate the breadth and significance of this growing sub-discipline's contributions to the historical sciences, not only in Northeast Asia, but also well beyond.

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