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Guest Editorial

The Baikal–Hokkaido Archaeology Project: Environmental archives, proxies and reconstruction approaches

The idea of this special issue first arose at the start-up meeting of the Baikal–Hokkaido Archaeology Project (BHAP: <http://bhap.artsrn.ualberta.ca/>) held in Jozankei and Sapporo, Hokkaido Prefecture, Japan, on July 15–18, 2011. The conference organisers gathered together a multidisciplinary team of scholars investigating Holocene hunter-gatherer cultural dynamics and environmental and climate changes in the Lake Baikal region of Russia and the Hokkaido region of Japan. The running time of the project is seven years (2011–2017). It is primarily supported by the Major Collaborative Research Initiative (MCRI) program of the Social Sciences and Humanities Research Council of Canada, with additional funding from Canada, Japan, Russia, UK and Germany.

The start-up conference program consisted of twelve BHAP-related business meetings, representing different research directions and scientific disciplines (i.e. archaeology, human osteology and DNA analyses, zooarchaeology, bone chemistry, radiocarbon dating, palaeoenvironmental field and laboratory work and numerical modelling), project management, student training, and public and academic dissemination of results. Following the notion that success of a multidisciplinary research project, such as BHAP, requires mutual understanding and collaboration, the business meetings were arranged in a series of discussions and not as parallel sessions. This gave everybody an opportunity to learn more about the methods, approaches and strategies applied by each research group, providing better knowledge of the advantages, and also the shortcomings, of the diverse proxies and data archives generated by the project, and to stimulate a productive discussion between the working groups.

This strategy was indeed very successful. In particular, the archaeological component of the project was interested in obtaining as detailed as possible, and preferably quantitative, information about the Holocene environments, vegetation and climate of the study regions. Being aware that to answer these questions is one of the major aims of the project, we came to the idea of a special issue of *Quaternary International* to focus attention to these issues. In our understanding, such a volume would allow us, in a relatively short period of time, to accomplish four important tasks: (i) to review current palaeoenvironmental research in central and eastern Asia; (ii) to understand better the nature of environmental archives, archaeological records, and human–environment dynamics in the Baikal and Hokkaido regions; (iii) to indicate gaps in our current knowledge that are necessary to address during the running time of the project; and (iv) to develop new ideas on how these gaps can be filled.

In order to achieve these goals, we extended our invitation to scholars external to BHAP. As a result, papers included in this volume cover wide-ranging topics such as pollen, *n*-alkane biomarker, diatom, mollusc, chironomid, geochemical and geophysical analyses of lake sediments, isotope analysis, quantitative vegetation and climate reconstructions and age modelling, and others introduce the aims and scopes of BHAP and recent work in Holocene hunter-gatherer prehistory as a common denominator of the entire material.

The 24 articles included in the special issue are arranged in the following order. The first paper (Weber et al.) provides a comprehensive review of environmental changes and cultural dynamics of Holocene hunter-gatherers in Cis-Baikal (Siberia, Russia) and Hokkaido (Japan) and discusses potentials for further research and comparative analyses. The following eight papers present results of the multidisciplinary studies on the terrestrial sediments and archaeological bone material from the sites around Lake Baikal (Bezrukova et al.; Kostrova et al.; Mackay et al.; Nomokonova et al.; Zhang et al.), the Selenga River valley (Andreeva et al.; White et al.) and from the northernmost part of Mongolia (Orkhonselenge et al.).

The next five papers are related to the NW Pacific region and present Holocene pollen, vegetation and climate records from Hokkaido (Igarashi; Leipe et al.) and the Kuril Islands (Razjigaeva et al.), and an atlas of late Quaternary pollen, spores and non-pollen palynomorphs recovered from Lake Suigetsu sediments (Demske et al.). The paper by Nakagawa et al. deals with a standard sample method for controlling microfossil data analyses. The method enables higher data quality control and improves opportunities for collaboration between specialists working on sediments from the same core. The last block consists of papers presenting environmental and archaeological proxies and new methodological approaches from Siberia (Kalugin et al.; Nazarova et al.; Tei et al.; Tarasov et al.) and China (Li Jie et al.; Li Xiao et al.; Panizzo et al.; Taft et al.; Zhu et al.; Wagner et al.). While these latter studies are not at the centre of BHAP research, they nevertheless show substantial potential for future collaborative work and inter-regional comparisons.

We would like to thank all of the contributors to this special volume of *Quaternary International* and hope that the papers included both highlight the array of current palaeoenvironmental research in NE Asia and stimulate new discussion and future collaborations. In assessing to what extent the four aforementioned major goals have been achieved, we are pleased to see that the special issue generally fulfils our expectations and indicates

potential directions of BHAP research over the next few years. In particular, the recent compilations of the Holocene pollen data from the Hokkaido and Baikal regions demonstrate relatively high numbers of available records but with poor age control and low-resolution analyses. These common problems make direct correlation between the individual palaeoenvironmental archives and objective discussion of local environmental responses extremely difficult at present, and prevent identification of leads and lags in regional changes. A need for high resolution and accurately-dated environmental records from both regions comparable to the recently obtained environmental archives from central Japan (i.e. Lake Suigetsu), China (i.e. Lake Sihailongwan) and Germany (i.e. Lakes Holzmaar and Meerfelder Maar) is obvious. The methodological aspects of the special issue are most valuable for future BHAP activities. For example, the atlas of fossil Japanese pollen, spores and non-pollen palynomorphs aims to serve as a practical and thorough guide for consistent palynological identifications and investigations, essential for the robust reconstruction of past vegetation, environmental and climate dynamics on Hokkaido.

The methodological issues of chronological control and dating accuracy of environmental and archaeological records received special attention in the majority of the papers. An advantage of age modelling over the conventional use of individual radiocarbon dates anchoring the palaeoenvironmental sequences in a few places is obvious and the same observation is fully applicable to the archaeological sequences. To integrate archaeological and environmental research fully, as discussed in the introductory paper by Weber et al. in the context of Cis-Baikal and Hokkaido archaeology, scholars will have to pay much more attention to temporal controls. It is clear that this can only be achieved by an approach that employs extensive dating programs and statistical modelling. Not least, we believe that this special issue will be helpful in recruiting more scientists and invigorating fieldwork dedicated to the examination of the very exciting and challenging topic of past human-environment interactions within and beyond the spatio-temporal framework of the BHAP research focus. This will enhance further the scientific output of the project as a whole.

Finally, this issue is the first in a series of special volumes of *Quaternary International* related to BHAP and the Bridging Eurasia research initiative. The next BHAP volume, already in preparation,

will be dedicated to comparative perspectives on hunter-gatherer archaeology of Northeast Eurasia and the last will focus on the bioarcheological research within the same spatio-temporal framework.

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