Persistent Foragers

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Editorial

Persistent foragers: New insights into Holocene hunter-gatherer archaeology in northern Eurasia

1. Introduction: aims, objectives and research context

Holocene archaeological sequences across much of northern Eurasia record hunter-gatherer societies undergoing long-term transition. Many of these communities took considerable time to develop full reliance on agro-pastoral farming, and several maintained mixed forager-farmer economies for long periods. Others living along major waterways, lakes and in coastal areas found ways to innovate within the older foraging mode of subsistence, particularly through an increasingly specialised exploitation of aquatic resources. Some of these coastal foragers eventually went on to develop resilient modes of interaction and exchange that enabled them to persist in some areas right through to historic times.

In recent years, much more detailed understandings of what drives variability and change in these long-term archaeological trajectories have been emerging, thanks both to increasing international collaborations and the sharing of information across linguistic boundaries, but particularly through the application of new scientific methods and approaches, which have refined chronologies, and generated higher-resolution insights into diet, mobility, interaction and long-term culture change. In turn, this expanding body of information stimulates productive critique of established models and opens exciting new lines of enquiry.

Many papers in this special issue were presented at a session entitled '*Comparative Perspectives on Hunter–Gatherer Archaeology of Northeast Eurasia*', which was held at the 19th Annual Meeting of the European Association of Archaeologists (EAA), Pilsen, Czech Republic, 3–8 September 2013. In line with the founding aims of the EAA, which were to enable archaeologists from diverse international backgrounds to communicate and exchange archaeological information, the goals of the session were threefold:

1. To explore evidence for the exchange of skills, practices and technologies among prehistoric hunter-gatherers living across northern Eurasia; this is important because older political divides – and especially enduring *linguistic* boundaries – continue to block fuller integration of archaeological evidence between regions and across national boundaries;
2. To undertake structured comparative analyses between hunter-gatherer sites, landscapes and archaeological sequences in eastern and western Eurasia, in order to explore alternative interpretations, and critique implicit assumptions about particular sequences of innovation and culture change;
3. More generally, to trace how new theory and scientific methods are dramatically improving insights into the lifeways and behavioural strategies of the hunter-gatherers living across Holocene Eurasia.

A few papers were added after the EAA session, and the outcome is a diverse yet mutually-complimentary set of case-studies, which engage with all three goals, and provide truly Eurasian coverage (Fig. 1). Together, the special issue is a timely overview of the range of innovative research underway across this region, much of which is being generated by long-running international collaborations. Although fresh ideas, new approaches and emerging insights are presented, all papers highlight that much important work still remains to be done, a clear signal that this is a dynamic and rapidly-evolving research field.

2. Eurasian perspectives: inter-regional connections and comparative approaches

Damlien (2016) addresses the first goal of the EAA session – to explore long-range connections – and reaches back into Late Palaeolithic of Eurasia. Her goal is to link local technological innovations taking place in Mesolithic Norway with the dispersal of new skills and cultural traditions across the wider continent. Having identified that lithic blade techniques in Mesolithic south-eastern Norway share many apparent similarities with those in other parts of Eurasia, she argues that they may form a single, widely-shared, technological tradition. This hypothesis is important, because Mesolithic traditions in Norway have generally been understood to derive exclusively from the Late Palaeolithic of Western Europe.

Chronological patterns appear to lend preliminary support to her 'eastern' dispersal model: the distinctive 'conical core pressure blade concept' appears around 20,000 years ago in northern China, Siberia, Mongolia, and Japan, and somewhat later in Central Asia and the southern Urals; by the early Holocene it was adopted by hunter-gatherers living in Northwest Russia and the eastern Baltic, eventually reaching Finland around 8300–8200 cal. BC, and the Varangerfjord in Arctic Norway shortly afterwards.

Although these broad spatio-temporal patterns do suggest that knowledge of this distinctive 'eastern cultural tradition' may have been spreading into Scandinavia from a previously under-studied source area further to the east, much more work will be needed to test these ideas further. But even by introducing the potential for the contribution of eastern cultural influences on the

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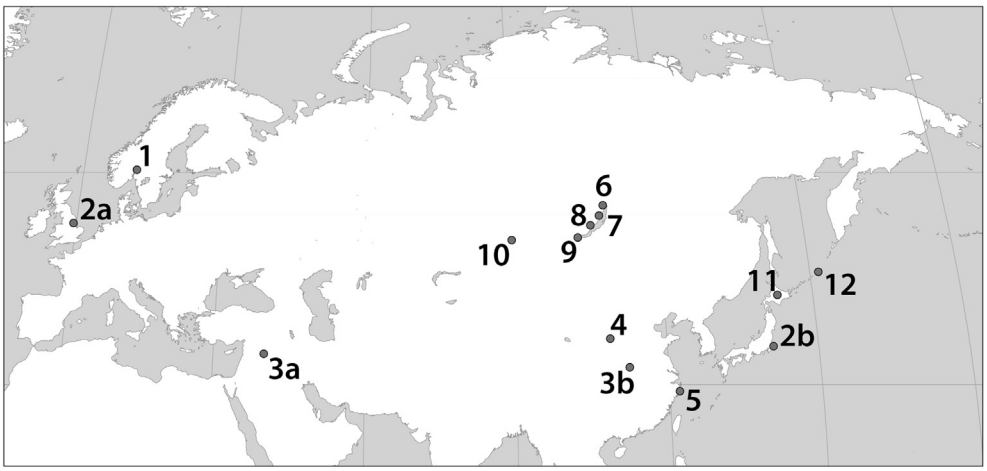

Fig. 1. Location Map: Holocene Hunter-Gatherer Archaeology of northern Eurasia. The case-studies in this special issue focus on: (1) lithic traditions – Norway (Damlien, 2016); (2) comparative analysis of Awashimadai/Star Carr – Japan and UK (Uchiyama, 2016); (3) comparative analysis of 'eastern' and 'western' Neolithics – Southwest Asia and East Asia (Gibbs and Jordan, 2016); (4) Neolithization (inland areas) – China (Liu et al., 2016); (5) Neolithization (coastal areas) – China (Jiao, 2016); (6) subsistence activities – Cis Baikal (Losey et al., 2016); (7) chronology and dietary change – Cis Baikal (Weber et al., 2016); (8) social consequences of an increased reliance on fishing – Cis Baikal (Scharlotta et al., 2016); (9) ancient DNA of marmot/hunting strategies – Cis Baikal (Masuda et al., 2016); (10) macro-regional interconnections – Cis Baikal/Inner Eurasia (Shepard et al., 2016); (11) maritime adaptations – Japan (Eda et al., 2016); (12) population history and resilience – Kuril Islands (Fitzhugh et al., 2016).

Norwegian Mesolithic she makes an important step of 'embedding' prehistoric Scandinavia firmly back into wider Eurasian interaction networks. Similar motivations have informed recent work on the emergence of early pottery among hunter-gatherers in northern Eurasia (Jordan and Zvelebil, 2009); some early pottery traditions may have dispersed into northern Europe from areas located further to the east, although these preliminary models also require additional research, and in particular, the building of much more accurate chronologies (Jordan et al., 2016).

The next two papers focus on the second goal of the EAA session, and undertake carefully-structured comparative analyses, but operate at contrasting analytical scales. Uchiyama (2016) works at the site-based scale, but shuttles between opposite end of Eurasia in order to creatively apply insights from the Japanese Jomon site of Awashimadai to understand activities at the Mesolithic site of Star Carr in Northwest Europe. He argues that Awashimadai is much better understood, both as a site, but also how it operated in its wider landscape context. In contrast, the role of Star Carr in wider settlement and subsistence activities remains enigmatic despite long-running debate. By working through the structured similarities, Uchiyama concludes that both sites were being visited by specialist task groups that used them for highly-ritualised hunting activities.

In contrast, Gibbs and Jordan (2016) provide a continental-scale comparative analysis of the divergent 'western' and 'eastern' Neolithic trajectories that were playing out in different parts of Eurasia during the Holocene. These insights provide a useful context for all the later papers in the special issue, and make three overarching conclusions: (1) fundamentally different sequences of Neolithization unfolded at opposite ends of the continent; the Eastern Neolithic is marked by the innovation of pottery technology among hunter-gatherers, while the Western Neolithic is defined by the transition to agriculture; (2) the classic Neolithic traits of farming, pottery and sedentism (*sensu* Childe 1950) were all independent developments, which appeared separately, at different times, and in different sequences; (3) the emergence and wider uptake of each innovation – including farming – was a protracted process, not a sudden revolutionary step.

Looking out across Holocene Eurasia, these findings highlight that at more local scales: (a) foraging and mixed forager-farmer economies were persisting for many millennia; (b) communities were shifting repeatedly between less and more mobile lifestyles; (c) groups had a wide array of alternative technologies available to them. In other words, local choices were playing an important role in each of these localised developments, and awareness of new strategies, subsistence resources and alternative practices did not necessarily result in their automatic adoption. But at a more general level, Gibbs and Jordan's (2016) paper highlights that much more work still needs to be done to understand how these local choices fed into longer-term archaeological sequences, and specifically, to investigate how and why diverse forager societies innovated, interacted and changed over time. All the following papers in this special issue grapple with this central theme.

3. Transitions in Holocene hunter-gatherer subsistence

The next two papers examine the pace, timing and long-term implications of changes in subsistence in Holocene China. Liu et al. (2016) employ an inter-disciplinary approach to reconstruct shifting plant use strategies in south-central Inner Mongolia, China. They identify an extended Neolithization trajectory that involved long-term use of wild plants, a strategy later combined with low-level food production, which was only replaced much later on by the rise of intensive cereal-based agriculture. The paper by Jiao (2016) broadens these insights, and emphasizes that Neolithization trajectories were complex and highly variable, even within China, not to mention across Eurasia.

Jiao (2016) focuses on understanding hunter-gatherer cultural changes in coastal areas of China that had started to become peripheral to the core areas of early rice and millet faming. By 7000–8000 BP these coastal societies were becoming increasingly sedentary and had adopted pottery traditions, making them Neolithic according to the eastern definition (Gibbs and Jordan, 2016). However, reliance on food production remained very limited, and communities chose instead to focus on aquatic resources and exploitation of highly productive coastal ecosystems, in some cases developing ocean-going boat technologies. Jiao concludes that although this reliance on coastal foraging (mixed with some low-level food production) was a viable strategy, and persisted over several millennia, it may ultimately have kept

population densities low. This may also have slowed the overall pace of cultural developments, to the extent that social ranking and other traits commonly associated with higher levels of 'complexity' appear here much later than in other areas of China where farming economies had already become well established.

The next set of papers shift focus from China to Cis Baikal, whose archaeology has benefited from long-term international research efforts. Losey et al. (2016) use zooarchaeological assemblages recovered from the stratified habitation site of Bugul'deika II to examine long-term trans-Holocene trends in hunter-gatherer subsistence. This work highlights the enduring reliance on hunting of Baikal seals right through the Holocene, despite several major cultural transitions, and the eventual arrival of pastoralists into the region after 2900 cal BP. Losey et al. (2016) conclude that zooarchaeological data provide a unique set of insights that complement other work such as isotopic analysis of human bone materials to reconstruct dietary trends. However, there are to date very few well-dated and studied Holocene faunal assemblages from the region; clearly, there is much more work to be done.

Both Weber et al. (2016) and Scharlotta et al. (2016) focus on reconstructing long-term culture change among Holocene hunter-gatherers of Cis-Baikal, this time, via analysis of bone materials recovered from several of the area's major cemeteries, and the associated grave goods. However, building the kinds of high-resolution chronologies needed to understand these changes is far from simple, as the prehistoric population had a high underlying reliance on the lake's aquatic resources, adding a Freshwater Reservoir Effect to all radiocarbon dates done on human skeletal remains.

Using paired dates on human and terrestrial animal bones recovered from the same grave contexts, Weber et al. (2016) develop regression equations to correct for these effects, and examine for chronological trends using a Bayesian approach. This enables them to refine the timing of local cultural sequences down to the level of particular individuals, whereas previous results had been lumped into large analytical 'units' such as cemeteries or particular culture-historical periods. In addition to identifying important trends over time, such as an increasing reliance on aquatic resources (Weber et al., 2016) – and the potential social consequences of these dietary changes (Scharlotta et al., 2016) – these papers set new standards in high-resolution chronology building, creating new scope for exploring cumulative changes in behaviour over time, as well as opportunities to better correlate fine-grained cultural sequences and environmental records across diverse sites and regions.

4. Understanding mobility, interaction and social networks

The next two papers remain in Cis-Baikal, but examine how local hunter-gatherer populations moved and interacted with each other. Scharlotta et al. (2016) have already argued that attempting to understand mobility among prehistoric foragers – rather than settled farmers – creates its own conceptual challenges, requiring new models and approaches. Masuda et al. (2016) contribute to these debates by generating complementary insights into forager mobility and activity patterns in and around local landscapes, albeit from an unusual evidential base. Through a small pilot-study of ancient DNA of marmot teeth recovered from graves at two large cemeteries – Shamanka II and Lokomotiv – they suggest that hunters from each cemetery may have been targeting different marmot populations, and probably maintained non-overlapping hunting ranges, even though the two cemeteries were only a few days walk from each other. These emerging insights compliment the work of Scharlotta et al. (2016), and hint at complex patterns of structured movement within social and ecological landscapes – and perhaps even the maintenance of discrete hunting territories – though more definitive interpretations will require much more work, including fuller integration of the many new lines of evidence now emerging across the wider Cis Baikal region.

Shepard et al. (2016) cast a much wider net, and attempt to understand the longer-term consequences of mobility and interaction strategies at much larger scales. In seeking to break away from the assumption that all hunter-gatherers tend to live in isolated social units, they undertake a multi-scalar analysis of the transition from the Late Neolithic to the Bronze Age (4900–3700 BP) in Cis Baikal and surrounding areas. Very much in line with the wider goals of the original EAA session, this paper is impressive in that it displays a confident critical engagement with both the Russian and English language literature, enabling the authors to synthesize a diverse array of evidence pertaining to the interplay of macro-regional interconnections which linked Cis Baikal's hunter–gatherers into the emerging Bronze Age 'world system' that was emerging across the steppe and forest-steppe zones of inner Eurasia. Interestingly, basic subsistence strategies and underlying mobility patterns in each of Cis Baikal's micro regions appear to remain stable across this important cultural transition; in contrast, ritual activities at new kinds of regional aggregation sites appear to have enabled these local hunter-gatherer communities to participate in most of the hallmark cultural developments that were playing out across the wider region, such as the rise of new ideologies and the spread of metal working.

The next two papers shift the focus from Cis Baikal out to the maritime periphery of eastern Eurasia and into the North Pacific Rim, a region whose history is also defined by long-term hunter-gatherer histories. Eda et al. (2016) undertake a study broadly similar to that of Masuda et al. (2016), and undertake a novel analysis of faunal materials in order to get at underlying human mobility strategies, for which direct archaeological evidence is largely absent. In this case-study, the goal is to understand how past human populations in Hokkaido were using maritime resources, and specifically, the extent to which they were venturing offshore, or remaining along coastal strips. Histological and ancient DNA evidence recovered from albatross bones appears to indicate that mature birds were being hunted for meat out on the open ocean, providing strong (albeit indirect) evidence that Late Jomon and Okhotsk Culture communities maintained sophisticated maritime adaptions that included knowledge of open water seafaring technology.

Certainly, it was exactly these kinds of complex seafaring skills that would have been essential to settle and survive in Northeast Asia's remoter island chains – Fitzhugh et al. (2016) complete the set of papers in the special issue by presenting a long-term reconstruction of human population dynamics in the remote and hazardous Kuril island chain, which was fully occupied by maritime foragers from no later than 3500 years ago, through to historic times. But this cultural trajectory is far from smooth. Integrating a wide range of information, they reconstruct two contrasting cycles of population growth/decline, each underpinned by divergent social-network strategies.

Kuril populations peak first in the Epi-Jomon period, and then undergo a gradual decline. Occupations throughout this period are argued to have been underpinned by a relatively resilient mix of highly localised adaption, combined with only limited longer-range contacts; this strategy may later have enabled communities to partially ride out the negative impacts of cooling climate, which was adversely affecting productivity in local terrestrial and maritime ecosystems.

As climates warmed again, a new round of population growth occurs between 1400 and 900 years ago as the Okhotsk Culture

moved into the Kuril Islands. However, Fitzhugh et al. (2016) argue that populations living in the Kurils during this period were predominantly reliant on intensive interactions with distant groups living in Hokkaido, and that in the long run, this contrasting strategy may have made them much more inherently vulnerable. Certainly, around 700 years ago, something does appear to have gone wrong, with evidence pointing to a sharp decline in Kuril populations.

This sudden depopulation of the Kurils appears to have been triggered primarily by a decline in the long-range interaction networks that had made Okhotsk occupation of the islands viable; this increasing social and geographic isolation made it much more difficult for remote Kuril communities to cope with a new cycle of climatic cooling that was now underway. Contacts between Kurils and Hokkaido had decreased sharply due to epidemics taking place in Hokkaido; these effects were further amplified by the emerging East Asian political economy, which was also leading to a fundamental reorientation of Hokkaido's exchange networks away from the Kurils, and increasingly towards the rest of Japan.

5. Conclusions and outlook

Each of these papers illustrates that we are on the brink of achieving a much higher-resolution understanding of Holocene hunter-gatherer sequences in Eurasia. In part, this progress results from exploring new concepts and alternative definitions (e.g. the Eastern Neolithic, low-level food production, resilience, etc.), but also from being able to work back and forth over ascending scales of analysis (ranging from individual life histories, cumulative (inter-generational) trends in diet and subsistence over time, through to major shifts in macro-regional connectivity); papers also illustrate the importance of deeper critical engagement with both local and international literature in order to generate full critical synthesis of larger spatiotemporal datasets.

At the same time, almost all the papers are underpinned by deployment of new scientific methods to resolve some of the unique challenges and opportunities that are thrown up by engagement with hunter-gatherer archaeological sequences. In particular, some of the fullest insights into the lifeways and long-term histories of prehistoric hunter-gatherers emerge through creative integration of multiple methods and approaches, as evidenced by papers from Cis-Baikal and the Kurils. But this is not a quick fix or an easy undertaking, and requires sustained international commitment to specific sites and regions to produce both the basic empirical datasets and build a deeper sense of what factors drive both deeper continuity and also long-term change.

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