Journal of Archaeological Science: Reports xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Journal of Archaeological Science: Reports

journal homepage: www.elsevier.com/locate/jasrep

Bringing culture back into focus: Osseous implements from Southern Vietnam

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ARTICLE INFO

Keywords:
Bronze Age
Vietnam
Osseous artefacts
Technofunctional analysis
Social zooarchaeology
Chaîne opératoire

ABSTRACT

The comprehensive analyses of osseous technologies in the Neolithic and early Bronze Age of Southeast Asia are relatively undeveloped. The technological and social relevance of osseous implements is poorly understood, despite relatively large assemblages having been recovered from various archaeological sites across the region. By examining the entire assemblage and applying a chaîne opératoire approach, the technological developments and socio-cultural importance of osseous artefacts during these periods can be illuminated. The analysis presented here from the Bronze Age settlement of Lò Gạch, will demonstrate the technological skill invoked to produce a diverse range of implements, and how they can inform on the socio-cultural aspects.

1. Introduction

Osseous raw materials have long been used to manufacture implements, particularly in Southeast Asian contexts, however this has often been insufficiently documented. A systematic classification was undertaken at a few sites (Harrisson and Medway, 1962) but this system did not become widely applied. There has been renewed interest in the osseous technologies of Island Southeast Asia recently (Rabett, 2012) but this interest has not yet widely spread to mainland Southeast Asian nor later Holocene contexts. Also increasingly apparent is the lack of technological and functional analyses of osseous implements despite dozens of recorded assemblages, predominantly on the mainland (Zhang et al., 2015).

There are several documented sites in Thailand and Northern Vietnam that contain osseous implements; these sites contain examples of fish hooks, projectiles, and various pointed implements, some with hafting evidence (Higham and Thosarat, 1993; Rabett and Piper, 2012). There is evidence of early Holocene projectiles and pointed objects with hafting residues such as the use of resins and fibres; including those made from sting ray spines (Barton et al., 2009; Pawlik, 2013; Rabett and Piper, 2012).

The osseous implements discussed in this paper form part of a larger study of five sites ranging from the late Neolithic to the Iron Age in southern Vietnam. The main objectives of this study are to provide detailed analyses into the osseous assemblages by applying a chaîne opératoire approach; beginning with the acquisition of raw materials, through the manufacturing process, to the final discard (Lemmonier, 1993; Leroi-Gourhan, 1965; Pelegrin et al., 1988).

The site of Lò Gạch is located on the left bank of the Vàm Co Tây River in the Vĩnh Hưng District of Long An Province, Southern Vietnam (Fig. 1). It is a mound approximately two metres above sea level spanning an area of 2000–2500 m^2. Lò Gạch was first discovered during a survey in 1989, and was excavated in 2003 by the Vietnam Institute of Archaeology and the Long An Provincial Museum. A 4 m^2 test pit revealed several artefacts including a stone adze, a grinding stone, a clay pellet, a casting mould and thousands of pottery fragments (Bùi et al., 2006).

In 2006 a 24 m^2 trench was again excavated by the Vietnam Institute of Archaeology which revealed a cultural deposit 0.9–1.2 m thick. Faunal remains, broken stoneware, and evidence of early-phase Óc Eo cultural remains were found within the upper 0.4 m of the deposit. The lower 0.8 m of deposit contained pottery, faunal remains, and osseous artefacts. Another test pit excavated in 2012 by the Department of Archaeology, Southern Institute for Sustainable Development in Hò Chí Minh City, revealed floor surfaces and midden deposits were uncovered in approximately 1.5 m of a well stratified deposit.

In 2014, three trenches were excavated in a collaborative project between the Australian National University, the Southern Institute for Sustainable Development, and the Long An Provincial Museum. The project write-up is still in progress (Philip Piper personal communication, 2017). Trench 1 was placed next to the test pit excavated in 2012, and initially measured 12 m^2, but was expanded upon the discovery of a burial in the northeast wall. Trenches 2 and 3 were each 6 m^2. These excavations revealed several well preserved floor and surface deposits with a clear sequential development.

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http://dx.doi.org/10.1016/j.jasrep.2017.07.032
Received 22 March 2017; Received in revised form 19 July 2017; Accepted 28 July 2017

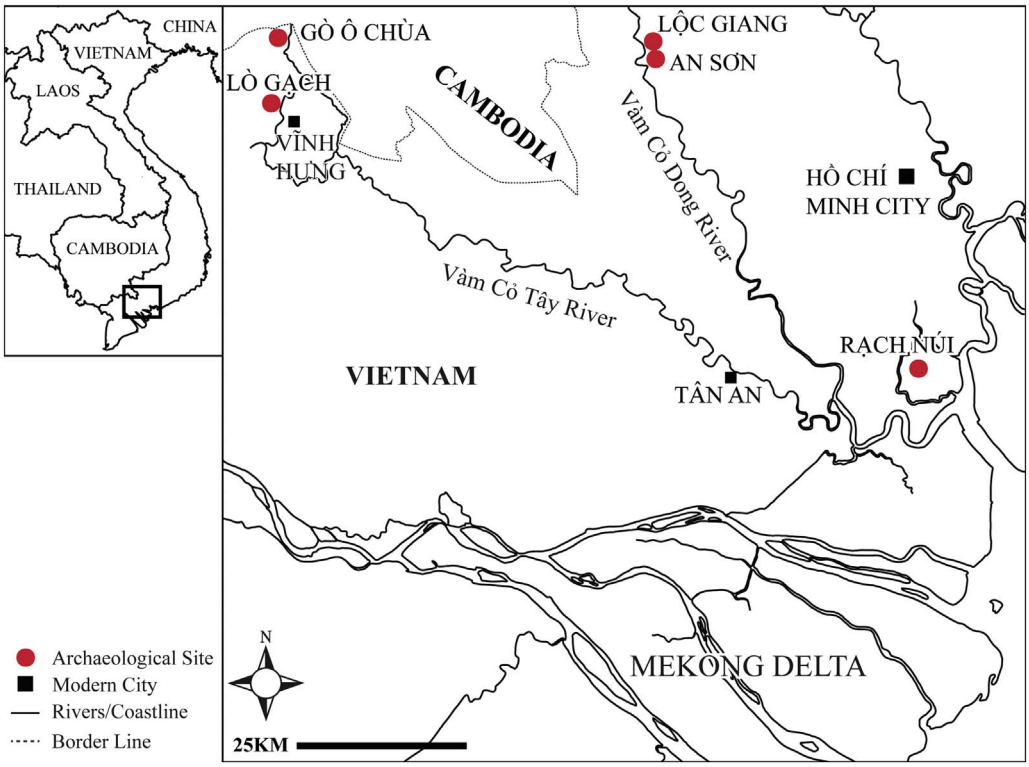

Fig. 1. Site location map.
(Drawn by author.)

The radiocarbon dates obtained from various levels in the archaeological sequence of Trenches 1–3, suggest that Lò Gạch was primarily occupied between *c*. 2800–2700 cal. BP (P.J. Piper, unpub. data). The archaeological excavations produced a range of cultural materials including large quantities of pottery, well-preserved animal bone, evidence for the production and use of copper alloys, and several stone artefacts. The stone and metal artefacts have some parallels with the osseous implements with several stone adzes and a single bronze projectile (P.J. Piper, unpub. data). A notable feature of the assemblages from 2003, 2005 and 2014 was the quantity and diversity of osseous implements recovered from the site. The combined assemblage of the excavations conducted at Lò Gạch consists of 266 implements and modified faunal remains.

2. Methods

The identification of raw materials is a combination of the in-progress faunal analysis being completed by Trần Thị Kim Quý and Assoc. Prof. Philip J. Piper, and the blanks and débitage sufficiently intact to use in taxonomic identification. This includes a more specific identification of deer taxa (Fig. 2).

The chaîne opératoire reconstruction was primarily based on the theory primarily outlined in Lemmonier (1993); Leroi-Gourhan (1965) and Pelegrin et al. (1988). The application of this theory and the visual representation of the chaîne opératoire (Fig. 3) were reconstructed based primarily on Martinón-Torres (2002); Miller (2007) and Zhilin (2016). The manufacturing processes have been divided into three phases; Primary, Secondary and Tertiary (adapted from Miller, 2007) and is aimed at identifying the variety of shaping methods (Barton et al., 2009; David, 2016; Lothrop, 1955; Pasveer, 2007; Poplin, 1974; Rabett, 2008). The techniques used in these three phases were recorded (David, 2016; Poplin, 1974; Semenov, 1964).

The Primary Phase manufacturing traces recorded (Fig. 4), were primarily used to identify the creation of blanks. The analyses of this phase are restricted to the débitage and few blanks recovered. Due to the complete surface modification in the process osseous implement

Fig. 2. Taxonomic Identifications of Cervus edlii (left) and *Cervus unicolor* (right).
(Photographs taken by P.J. Piper, reproduced with permissions.)