



Contents lists available at ScienceDirect

Quaternary International

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

Needles made of human bones from Xochimilco

Marta Blasco Martín ^{a,*}, Gabriela Inés Mejía Appel ^b, Gilberto Pérez Roldán ^c^a Universitat de València, GRAM, Departament de Prehistòria i Arqueologia, Avda. Blasco Ibáñez, 28, 46010 Valencia, Spain^b Instituto Nacional de Antropología e Historia, Dirección de Salvamento Arqueológico, Córdoba 45, Delegación Cuauhtémoc, 06700 Mexico City, Mexico^c Universidad Autónoma de San Luis Potosí, Avda. Industrias 101a, 78399 San Luis Potosí, Mexico

ARTICLE INFO

Article history:

Received 25 January 2017

Received in revised form

16 November 2017

Accepted 17 November 2017

Available online xxx

Keywords:

Needles

Aztecs

Human bone

Experimental archaeology

Mesoamerica

Mexico

ABSTRACT

This paper presents the study of needles made of long human bones (*Homo sapiens*) from the region of Xochimilco, now a quarter in Mexico City, which in pre-Hispanic times was one of the cities conquered by the Aztec empire. We shall discuss the development and use of these needles, as well as the identification of the raw material they are made of and a proposal about what people these bones were obtained from: captives or craftsmen's relatives?

The archaeological household at San Pedro, in Xochimilco, presents in its early stages (12th century–15th century) stone technology, and in its final stages (16th century, around the time of arrival of the Spanish conquerors) the possible use of metal. Therefore, it is important to study the technology produced by these different tools. In order to achieve this goal, we have used experimental archaeology with obsidian cutting tools and abrasives (igneous rocks) as well as metal tools and other abrasives (emery). Thus, we have analyzed the use trace, the operational chain (*chaîne opératoire*) and the effort and time spent when applying each of these techniques.

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1. Introduction

In the territory that is nowadays Mexico, before the arrival of the Spanish conquerors in 1517, different cultures developed a variety of societies that had a high political, economic and religious complexity. For 4000 years (2500 BCE–1521 A.D.), the Olmec, Teotihuacan, Mayan, Zapotec, Mixtec, Totonaca and Huasteca cultures, among many others, raised cities, roads and an intricate exchange network across the Mesoamerican cultural area (López and López, 1999).

During the Postclassic period, from the 12th to the 16th century, there was an important migration of the Chichimeca nomadic groups from the northern region of Mesoamerica, and they gradually settled down by the Lake of Texcoco, in the Basin of Mexico (Fig. 1). Among these groups, the Xochimilca were the first ones to build their city in the southern part of the lake, which is known, even today, for being a place with ideal conditions for agriculture and where the human groups implemented and improved agricultural technology like *chinampas*, which is to plant in floating plots on the lake (Durán, 1984; Parsons et al., 1982).

The last Chichimeca group that came to the Basin of Mexico was the Mexica (also known as Aztecs). In just 105 years (1325–1430) this people managed to settle on a small islet and build the largest city in the region, Tenochtitlan. They also went from being a minor tributary of the Tecpaneca group, to conquering all the other cities surrounding the lake, including Azcapotzalco, Coyoacan, Xochimilco, Tlahuac and Mixquic. Throughout the remaining part of the 15th century, the Aztecs conquered half of what is now the Mexican territory, and their domains even reached areas that now belong to Honduras, in Central America, in the early 16th century (López and López, 1999).

Both groups, Xochimilca and Mexica, shared a common language, religion, political, economic and social development of their settlement organization and cultural practices: religious ceremonies, offerings to deities, types of burial, clothing, food, construction techniques and technology for manufacturing tools (Gibson, 1964). The last point is the main focus of this investigation.

The chronology of the household area from where these objects were recovered is particularly interesting. It is a place where the clash between two cultural, technological, religious and economic ways of life took place: the encounter between the Mexica and the Spanish Empire, in which the latter was represented by the conquerors led by Hernán Cortés. Due to its proximity to Mexico-Tenochtitlan, the capital of the empire, Xochimilco soon saw

* Corresponding author.

E-mail addresses: Marta.blasco@uv.es (M. Blasco Martín), gabriela_mejia@inah.gob.mx (G.I. Mejía Appel), gilbertoperezroldan@yahoo.com.mx (G. Pérez Roldán).

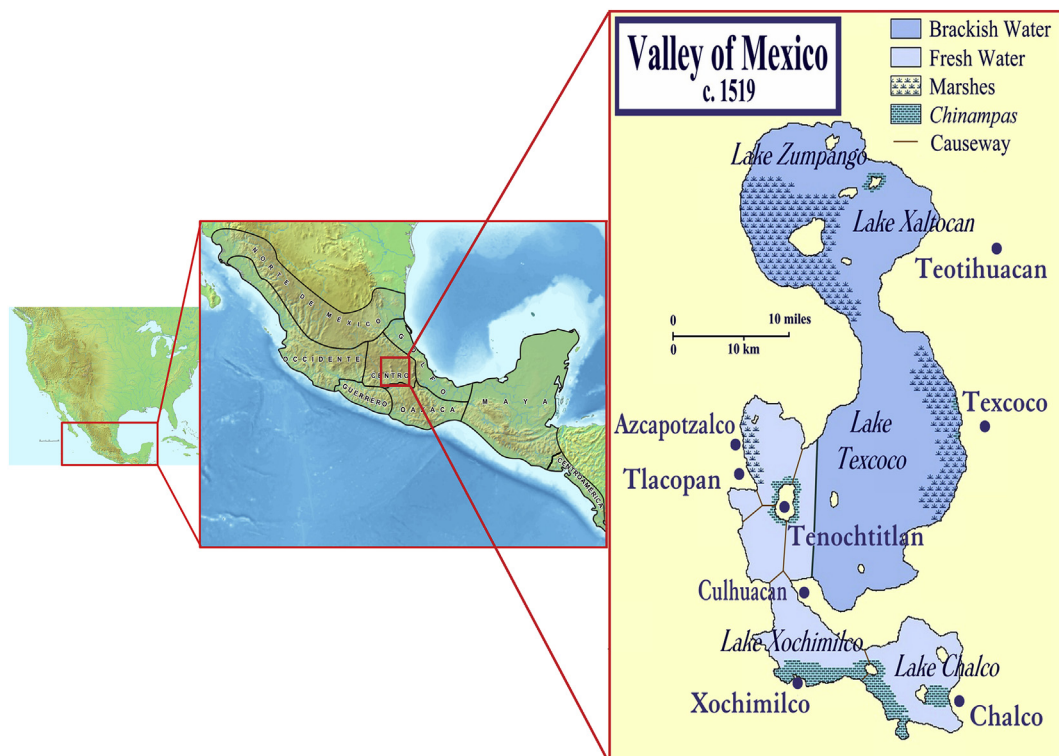


Fig. 1. The Valley of Mexico during the Postclassic period. Xochimilco is located in the southwest region of the Lake of Texcoco.

progressive changes in everyday life. For example, the colonizers brought new ideas and objects that we can identify in all aspects of daily life; even in something *a priori* as simple as the artifacts made of worked animal hard tissues.

The archaeological needles that were studied in this research were discovered in an urban context in Xochimilco, which is now part of Mexico City, specifically in the neighborhood of San Pedro Tlalnahuc, known during the *Colonial* era (1521–1821) as the place where blacksmiths lived. The archaeological project located a household area built in the 14th century and occupied, at least, until the early 17th century. It was owned by artisans who specialized in lapidary artifacts and textile manufacturing (Mejía et al., 2017 in press).

The work was carried out as a salvage archaeology project so it was impossible to excavate the entire household complex. However, around 2000 m² were excavated, and in that area, a set of pre-Hispanic rooms, probably inhabited by a nuclear family, and a fragment of a large patio, shared by several families, were registered. In them, there were hearths, pits, 18 burials (3 belonging to adults and the rest to infants) and a great variety of archaeological finds such as pottery vessels, grinding tools, artisan's tools, lapidary pieces (*bezotes* and *orejeras*) in the process of elaboration and the waste materials from that production (Mejía et al., 2017 in press) (Fig. 2).

The building material used in the structures corresponds to gray basalt, black and red *tezontle* and rose andesite rocks, which led us to infer about the economic status of its occupants, who can be compared with urban middle-class craftsmen dedicated to lapidary production. However, the paleobotanic evidence, the bone tools, which are the main elements of this presentation, and other elements like stamps, indicate that the household's inhabitants may also have manufactured clothes or cotton blankets (Manzanilla et al., 2011b).

Unfortunately, the recovery of pre-Hispanic needles in an

archaeological context is not very well documented and there are not abundant findings of these objects. Despite the aforementioned, it can be said that the bone industry for tools and ceremonial objects spread widely in the different cultures of Ancient Mexico and that the highly developed technology allowed the exploitation of almost every bone of the skeletons of a wide range of animals (Lagunas, 2003).

For the Late Postclassic period some needles are registered in Tenayuca, Azcapotzalco and Tenochtitlan; and with regard to Xochimilco, Teresa Castillo (personal communication, 2016) conducted an archaeological excavation in the Historic Center of Xochimilco and the Barrio El Rosario, and she recovered 4 and 7 pieces, respectively, as well as waste flakes, which were apparently part of the manufacturing process of these artifacts. Both collections will be compared in further research.

2. Material and methods

2.1. Objectives

The worked bone industry has merely been studied over the past decades in the Mexican territory (Talavera et al., 2001; Padró, 2000, 2002; Pérez-Roldán, 2005, 2013). This work's aim is to continue on this path; therefore, we will state the analysis results of the bone industry recovered in Xochimilco. The needles made from *Homo sapiens'* long bones have been specially analyzed because of their raw material's importance, and we have tried to find out how they were made (technological study) and what they were used for (use-wear analysis).

In order to present a complete technological analysis and consider the tools and the different stages of the "*chaîne opératoire*" (Feugère et al., 2008: pp. 29–32), it was essential to previously make some replicas of this variety of needles. Therefore, we considered it appropriate to make experimental replicas of

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