ABRIDGED ENGLISH VERSION

Introduction

A “motillas” is a type of archaeological site located exclusively in the natural region of La Mancha (Spain). They are isolated stone-walled enclosures, which could be ringed by 2-3 walls and sometimes had a central tower. The earliest scientific investigations of these sites date to the end of the 19th century. There are currently 45 known “motillas” (Fig. 1). The inventory of “motillas” that is most widely accepted by the scientific community can be found in Benítez de Lugo (2010) and in Mejías et al. (2015). Between 1974 and 2010, the most thorough archaeological excavation of a motilla took place at El Azuer (Daimiel, Ciudad Real) (Fig. 1). This project developed in two phases. In the first, between 1974 and 1986, the so-called “eastern patio” was exposed and later defined as the oldest well in the Iberian Peninsula and probably in Europe (Fig. 2). In its external morphology, a “motilla” appears as a small mound on a flat landscape. The largest ones are around ten metres high and have a diameter reaching around a hundred metres. Because their appearance can be easily confused with other artificial elevations in the landscape (Fig. 3), it is important to carefully investigate their archaeology to determine whether they are indeed a “motilla” of the Bronze Age of La Mancha. The key to our current interpretation of the La Mancha “Motilla” Culture focuses on two aspects: on the one hand, the existence of the well at the El Azuer “motilla” (and probably in five other “motillas”) and, on the other hand, on the physiographic location of the “motillas”. “Motillas” are located on a Quaternary geological landscape on flat ground on deposits of fluvial plains, in endorheic basins, and at the bottom of sinkholes or peat bogs. That is to say, they are found on land closely related at some point in recent geological history with the presence of surface water. Because the landscapes where regularly flooded, it was difficult for archaeologists to imagine that they were human settlements or storage facilities for grains.

The culture of the “Motillas” and the third millennium cal BC

The interpretation of the origin and disappearance of the culture of the “motillas” has evolved due to the advance of archaeological and paleo-environmental studies. At the end of the 19th century, “motillas” were initially identified as funerary monuments. Later, Nájera and Molina proposed the existence of two different kinds of sites: hilltop settlements and “motillas”. The hilltop settlements, according to these authors, would have their origin in the Argaric culture, whilst the “motillas” would have come from the Levante of Spain. In the 21st century, two new classes of Bronze Age sites were identified in the La Mancha region: pits and sacred monuments. An example of the former is La Villeta (Ciudad Real) (Fig. 4). Castillejo del Bonete (Terrinches, Ciudad Real) (Fig. 5) is an example of the second type; it has ceremonial centre where a burial cave was monumentalized by a mound and from which several corridors, oriented to the solstices, were built.

The current interpretation of the El Azuer “motilla” is that it was built to control the water available in La Mancha, as well as to store cereals at a time when climatic conditions were different from today, and were marked by cold and severe aridity. Given that “motillas” were largely built on the flood plains of the rivers, where the phreatic level could be relatively easily reached, it seems likely that inhabitants were concerned with accessing water, particularly in periods of aridity.

In addition to the archaeological and paleo-environmental evidence, recent genetic studies have also contributed to our understanding of the third millennium cal BC. These studies suggest that there was a significant shift in the ancestry of males living in Iberia at the

beginning of the second half of the third millennium cal BC, with these males showing genetic ancestry to people from the Steppic regions of Eastern Europe.

Water in La Mancha 4,000 years ago

The flat topography of the Manchega plateau and the existence of aquifers close to the surface means that the water table was close to the surface. The water table near the “motillas” ranges from 5 m to 30 m.

The 4.2 ka cal BP climate event

In recent years, special scientific attention has been placed on the so-called 4.2 ka cal BP event (~ 2200-2000 cal BC), which was a cold and arid climatic event recognized in numerous sedimentary contexts in the northern hemisphere. It has been defined as a phase of environmental stress characterized by a severe and prolonged global drought, which lasted perhaps about 300 years. It has been documented from the North Atlantic through America, Europe, Africa and Asia. The Iberian Peninsula was also affected, both in the evolution of vegetation probableand the demographic dynamics as observed in the transition between the Chalcolithic and the Bronze Age.
The emergence of the La Mancha “motillas” has been related to the arid conditions of the 4.2 ka cal BP event and viewed as a response to an urgent need for water in a time of drought. The palynological analysis of the Azuer “motilla” has been the key to this question. Four paleo-environmental phases have been documented at the site: 1) 2200/2150-2000 cal BC, in which there was a dehesa landscape under warm and sub-humid conditions;

2) 2000-1800 cal BC, in which the climate became progressively more thermal but fundamentally more arid;

3) 1800-1600 cal BC, with characteristics similar to the first phase; and 4) 1600-1400/1350 cal BC, in which conditions of high rainfall and maximum environmental humidity were reached, which caused the end of the use of the “motilla”.

Conclusions

The culture of the “motillas” of the Bronze Age of La Mancha can be considered the first hydraulic culture of Europe. The relationship between the appearance and disappearance of the “motillas” and the development of the 4.2 ka cal BP event, which was characterized by extreme aridity, especially in the Mediterranean, is indisputable. The existence in the Manchega Plateau of aquifers close to the ground surface and the presence of shallow water tables led human groups to excavate wells between 5 m and 30 m deep to supply the population with good quality water during periods of water scarcity. The timing of the 4.2 ka cal BP climate event and the arrival of people with Steppic ancestry coincides with the construction of the La Mancha “motillas”. For this reason, it seems reasonable to presume a relationship between these events, although the precise nature of this relationship needs to be further investigated, since there were other population shifts on the peninsula at this time. Similarly, the end of the climatic event, when wetter conditions developed, coincides with the abandonment of the “motillas”. The increase in precipitation and the progressive elevation of the phreatic level after 1800 cal BC would have allowed for the recovery of rivers and humid zones that had nearly disappeared between 2000-1800 cal BC, to the point that some “motillas” could have flooded. From that moment, after abandoning the “motillas”, the people of La Mancha redefined their relationship with the environment. At the end of the Bronze Age,

they were involved in new forms of social and economic organization and new models of settlement away from the wetter environments where the “motillas” used to be.