



The necropolis of Tútugi

Tútugi is a necropolis from the Iberian culture, at a distance of one kilometre from the town of Galera, in the province of Granada. It was discovered in 1914, repeatedly plundered, and it was only from 1916 onwards that a series of excavations were carried out by Federico de Motos, who was joined at a later stage by Juan Cabré, publishing the first results in 1920. In this sizeable necropolis, more than one hundred tombs have been found, some of which are very large, dating from the seventh to the third century BC. In general they are square or rectangular chambers made of stone blocks, covered with large slabs, and with stuccoed and painted walls. The original settlement is in Cerro del Real, to the south of the necropolis, and on the other side of the River Orce. The *Dama de Galera* was found in barrow 20, in the central part of the necropolis. The details of its discovery are unknown, as it was plundered at an early date, around 1916, although we do know that the statue was purchased by the Belgian archaeologist Luis Siret y Cels for 170 pesetas.

Special points of interest:

- The necropolis of Tútugi is the largest found to date that belongs to the Iberian culture.
- It includes around 130 tombs dating from the 8th century BC to the 3rd century BC, although it grew the most between the 5th and 4th centuries BC.



General view of the archaeological excavations carried out in 1918 at the necropolis of Tútugi. Signed by Juan Cabré in 1918. Photo library of the Institute of Spanish Cultural Heritage, Cabré Archive.

Funerary urns from Tútugi

Despite the repeated plundering of this necropolis, a number of funerary urns were preserved, which normally belong to two types. The first type consists of a box, normally made of limestone; while the second type are clay pots. They may be decorated or undecorated. Their decoration is very characteristic, and is predominated by geo-metric shapes with circles and spirals, in reddish tones.

Left: urn from tomb 152, measuring 38x24x19 cm; it contained the remains of a person between 35 and 50 years of age. Right: vessel from tomb 147, measuring 20 cm high.



Iberian funerary rituals

In the Iberian culture, the most common type of burial method was cremation. The ashes were placed in different types of vessels: stone boxes, ceramic pots, or sculptures such as the *Dama de Baza* or the *Dama de Elche*. The urn was placed in a tomb that was more or less complex depending on the status of the deceased, which in some cases were covered with complex structures, steles and columns. The most monumental example of a tomb we know is in Pozo Moro. In the case of Tútugi, the tombs consist of square chambers carved into the earth, with an entrance corridor. The whole tomb was covered with stone slabs or false vaults, over which stones and earth were then piled to make a barrow that protected the underground structure. The urns were often decorated in reddish tones with geometric motifs. In the case of the *Dama de Baza* the sculpture was covered with a layer of stucco which was then painted in different colours.

«At the start of August 1916, with one of the undersigned (Motos) together with the French abbot H. Breuil, in the region of Huéscar... They knew that in the town of Galera, excavation work was underway which due to its originality had caused a great uproar amongst the inhabitants of the town, not only because of the discoveries that had been made, but because the work had been started by a young lady named Marta ... who with great faith and enthusiasm, prophesised that a rich abundance» (Cabré y Motos, 1920).



The Dama de Baza has a hollow rear section to contain the ashes of the deceased (photo: AMF).



Funerary urn (photos: AMF)

The 3-D model

The urn consists of two pieces: a body and a lid, which fit together with irregular, angled *teeth*. We considered it appropriate to create two separate full models, presenting them as a single piece. Both pieces were photographed using a Pentax 645Z with a 51 megapixel sensor and a fixed focal length of 120 mm. In both cases, the pieces were placed on a rotating plate to turn them while taking the photos. The lighting used two LED panels with diffusers. To obtain an authentic colour, a calibrated colour sheet was photographed, and all of the images were corrected according to the specific colour profile for the session.

The photos were then stitched together using a computer programme, creating a *cloud* of points with coordinates in three dimensions. This *cloud* was then used to create a grid of triangles, on which the colour was superimposed, based on the initial photographs. In this case, two different models were made, which were scaled and aligned using the CloudCompare application.



The image above shows the photos taken to create the 3-D model of the lid: a total of 64, taken from different perspectives. Below, the same image for the body of the vessel, for which a total of 92 photos were taken.



3-D model of the funerary urn. This is an embedded 3-D object; by opening this document in Acrobat Reader and clicking on the model, this will be activated and allow you to rotate it, change its size, make cross-sections, etc. The model is simplified to reduce its size. To see it in full quality, visit the link <https://skfb.ly/VXBI> and use the full screen setting on your monitor.

Participating bodies

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ANÁLISIS DE DATOS
REPRODUCCIÓN Y MODELADO 3D



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CMPLab

CMPLab is a laboratory at the University Centre of Mérida, part of the University of Extremadura in Spain. It was created as a result of a project presented to a call for Funding for Scientific and Technical Equipment and Infrastructures from the State Secretariat for Research, and began operating in 2016. The CMPLab and its associated research groups use material for documenting cultural and archaeological heritage that includes two 3-D Go!Scan scanners, and a Pentax 645Z camera.



Basic bibliography:

- MADRIGAL BELINCHÓN, A. 1994: «Cajas funerarias ibéricas de piedra en Andalucía oriental», *Actas del II Congreso de Historia de Andalucía*. Córdoba: 113-120.
- PEREIRA SIESO, J. 1988: «La cerámica ibérica de la cuenca del Guadalquivir, I. Propuesta de clasificación». *Trabajos de Prehistoria*, 45: 143-173.
- SÁNCHEZ, J. 2004: «La arquitectura en la Necrópolis de Galera», en J. Pereira, T. Chapa, A. Madrigal, A. Uriarte y V. Mayoral (eds.), *La Necrópolis ibérica de Galera (Granada)*. La colección del Museo Arqueológico Nacional, Madrid: 195-212.

Other 3-D models from the series



Left: Bicha de Balazote, a limestone sculpture from the 6th century BC; Right: Vaso de los Guerreros (Cabezo del Tío Pío, Archena, Murcia).