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Roman wells of north-eastern Iberian Peninsula: Landscape and use of wooden resources



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ABSTRACT

Preservation of wood and other archaeobotanical remains is quite common in Roman wells from urban contexts. Wood recovered inside these wells can offer extraordinary information about forest exploitation and management, woodworking and building technology. The aim of this paper is to discuss and present the results and methodological approach of the analysis of wood recovered from three Roman wells in the Northeast of the Iberian Peninsula. Paleocological information, different uses of raw material, and technological as well as dendrochronological data obtained are presented and contextualized in relation to the period and the region. The main taxa used for manufacturing the goods and the structural elements of the wells were obtained in a wide catchment area. Besides local wood, non-local wood such as fir, birch and scots-black pine was transported to the sites.

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1. Introduction

Wells were one of the most common, because necessary, equipment in most historical settlements. In this type of structure, the presence of the water table enhances the possibility of wood preservation, the elements used for building the wells themselves, as well as waste materials or other debris thrown inside, providing valuable opportunities to study uncommon archaeological material. The study of archaeobotanical remains of wells has already provided interesting data of the economy and woodworking technology. The Roman wells of Lattara (Chabal and Feugère, 2005), Gasquino (Figueiral et al., 2010) and La Lesse-Espagnac (Figueiral et al., 2015), in France, are good examples of the relevance of data obtained. In these cases, remains of seeds and fruits, as well as furniture and household objects made of wood, branches, and twigs were recovered. In the southeast Iberian Peninsula, the wells of Tossal de les Basses (Carrión Marco and Rosser, 2010) have also provided a sample of wooden artefacts which have allowed an interesting approach to the woodworking technology in Iberian and Roman times (from 4th century BC to 3rd century AD), demonstrating the continuity of certain techniques.

Despite their recurrence in urban contexts, there is little tradition of study of wells in the NE Iberian Peninsula. The city of Iesso

(Guissona), dated 1st BC–2nd AD, (Guitart and Pera, 2004) is the only case where wells were excavated, systematically sampled and studied until recent times (Buxó et al., 2004). However recent excavations carried out in the framework of commercial archaeology activities during the last decade has recovered several wells in urban contexts in the northeast Iberian Peninsula. In 2008, a well was discovered and excavated during the works in the train station of Estació Badalona-Pompeu Fabra (López Bultó, 2010) in the modern city of Badalona (*Baetulo* in the Roman era). In 2009, due to subway construction, another Roman well was discovered in Foneria Street in Barcelona (Ravotto and Juan, 2010). *Iesso* is located in the hinterland of Catalonia, while Foneria Street and Estació Badalona-Pompeu Fabra are located on the coast (Fig. 1).

In the three cases, archaeobotanical waterlogged remains were recovered. In this paper, attention is focused on the waterlogged wood from these wells. The first objective of this paper is to provide an overview of the contribution of the study of these wells to the knowledge of landscape, exploitation of territory, uses of wooden resources, and woodworking during Roman times in the northeast Iberian Peninsula.

A second aim deals with the contribution of dendrochronology to the study of the wooden remains of wells. In Catalonia (Spain), dendroarchaeology has been a neglected field in comparison to other Mediterranean regions. At the present time we only have some floating chronologies from sites as La Draga (Banyoles), dated to the 6th millennium cal BC (Gassman, 2000) and a medieval shipwreck (Barcelona) (Soberón et al., 2012). Archaeological

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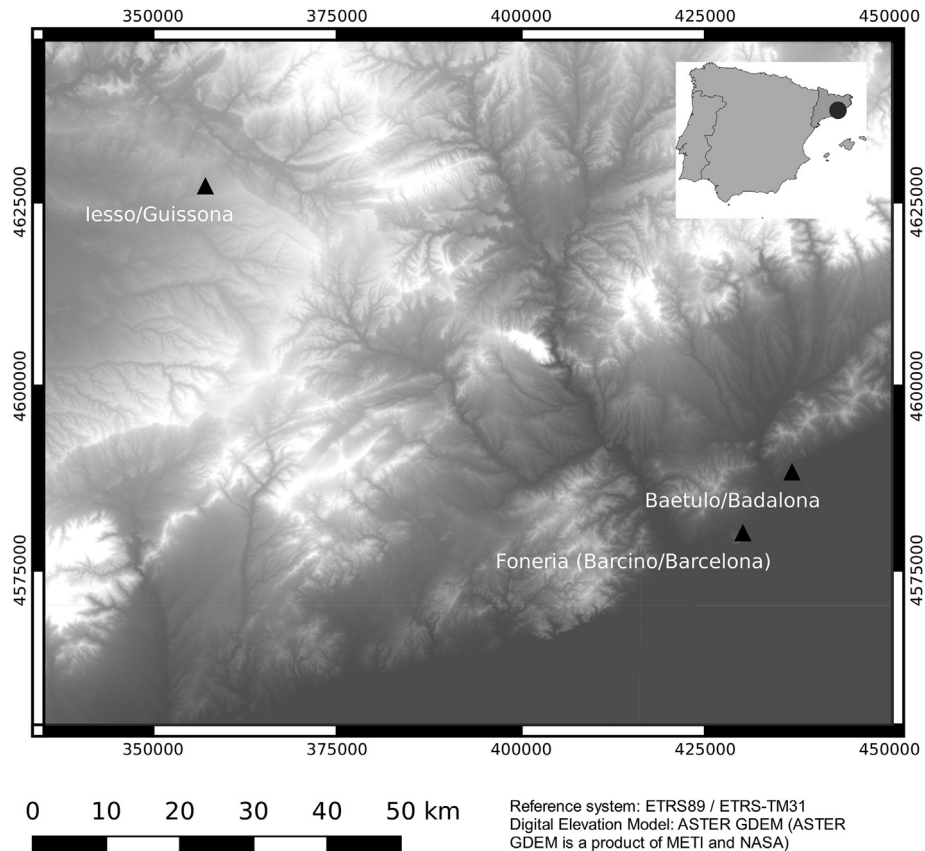


Fig. 1. Locations of study sites.

waterlogged wood of historical times is a unique opportunity for building the dendrochronological series in the region. Other dendrological studies have been also applied to archaeological sites of other regions of the Iberian Peninsula in order to assess climate and patterns of human exploitation. Charcoal and wood remains of the prehistoric and Roman sites of Tres Montes (Navarra), el Cabezo de la Cruz and Segeda (Zaragoza) and O Castelo (Ourense) were studied with this objective (Carrión Marco, 2005).

2. Material and methods

The material studied come from four wells located in three Roman sites of North-east of Iberian Peninsula: *Ilesso*, *Baetulo* and *Foneria* street.

Two of the wells are located at the archaeological site of *Ilesso* (Guissona), one of the most important Roman sites in Catalonia. *Ilesso* is located near the modern city of Guissona at 490 m asl. It was founded in the 1st century BC and was occupied until the 6th century AD. The more ancient one was constructed at an undetermined time in the republican age: in the 1st century BC it was surely in use, while it was definitely abandoned at the half of the 1st century AD. It was square at the top, where it had a lining of masonry. It measured 1.15 m per side and was formed by blocks of local stone, arranged in regular courses. Its height was 2.5 m, while the total depth of the well was 6.75 m. Under the lining of masonry, as the depth of the well increased, it tended to a somewhat circular form with a diameter of 0.90 m (Buxó et al., 2004). The second well was constructed at an undetermined time in the 1st century AD and remained in use until the second half of the 2nd century AD. It had a circular shape, and its upper part was provided with an internal lining of masonry 2.4 m high, made of irregular local stones bound

by mud. The internal diameter of the lining was 1.2 m; below, the diameter of the well narrowed to 0.95 m. The total height of the structure was 7.7 m (Buxó et al., 2004).

The two wells of *Ilesso* were excavated and systematically sampled and washed for recovering the archaeobotanical remains for analyses (Buxó et al., 2004). A total of 64 fragments of charcoal and 308 fragments of waterlogged wood were recovered: 72 had traces of manufacturing. They mainly correspond to small fragments of objects, obsolete artefacts, combustion residues, and branches and unshaped wood of unidentified function.

The second case is the well located in the ancient city of *Baetulo* (Badalona), funded in the 1st century BC and occupied until the 6th century AD. A partially preserved well was found during the construction of a new train station in Badalona. During the excavation, four large logs (approximately $100 \times 30 \times 20$ cm), fitted together to form a square at the bottom of the well, and a fifth small piece of wood decontextualized inside this square were found. From the position in which they were found, it seems clear that the four main pieces of wood were intentionally placed in this position. These wooden elements correspond to the lower wooden lining below the masonry structure of the well. This position follows a specific function: to maintain the shape of the well and strengthen the walls in the base where the soil composition is unstable. The sediment inside the well was not sampled. The good preservation of wood encouraged the study of woodworking technology.

The third case of study is the well of *Foneria* Street, in Barcelona (Roman *Barcino*), about 4 km south-west from the city centre. This well was excavated in 2009, due to a subway construction. The historical site is located in the deltaic area of the Llobregat River, and corresponds to a long rural occupation from the Iberian age to the Late Antiquity. The first phase, prior to the 3rd-2nd centuries

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