

Woodland use in Gasteiz during the Middle Ages (700-1200 AD)

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Summary:

Wood charcoal retrieved from archaeological contexts dated ca. 700-1200 AD in Vitoria-Gasteiz (Northern Iberia) suggests that *Quercus* subg. *Quercus*, *Fagus sylvatica* and *Rosaceae* were the main fuels used in domestic activities. The use of *Fagus* increases through time and *Prunus* and *Pomoideae* are very important in contexts related to metallurgy.

Key words: woodland, Middle Age, *Quercus*, *Fagus*, metallurgy.

INTRODUCTION

The Project of restoration and excavation of the Santa María Cathedral of Vitoria-Gasteiz (Basque Country, Spain) has included as one of its main areas of research the analysis of different types of bioarchaeological material in order to shed light on past landscape and on the economy and subsistence in Gasteiz during the Middle Age (Azkarate and Solaun, 2009). The excavated contexts have been sampled for plant macro-remains, faunal remains and pollen.

The village of Gasteiz (named Vitoria in 1181 through the Fuero given by the King of Navarre Sancho VI the Wise) has a strategic location in the centre of the “Llanada alavesa” plateau, a crossroads between the Meseta, Ebro Basin, Western Pyrenees and Atlantic Valleys. From the end of the 7th century or early 8th century AD a permanent settlement can be documented.

Here we present the result of the wood charcoal analyses which have focused on the period from the 8th to the 12th century AD, a moment when written records are particularly few for this area. The aim of this work has been: 1) to identify the charred wood preserved in the different types of contexts, 2) to offer new information that helps us understand past vegetal landscape around the site, 3) to know the selection and exploitation of woodland resources by the inhabitants of the village, and 4) to assess the existence of woodland management practices during this period.

MATERIAL AND METHODS

During the excavation of the immediate area around the Santa María Cathedral a systematic sampling strategy has been carried out. For wood charcoal 44 samples have been analyzed with an average of 40 l of sediment per sample being processed through flotation. They come from stratigraphic units with different origins and functions. The number of fragments analysed is higher for the earlier centuries (8th-10th) due

to context availability which is smaller in the later periods. Here we present: 1) scattered wood charcoal from general contexts which most probably derives from domestic fuel, and 2) wood charcoal from stratigraphic units where primary iron metallurgy is attested (8th and 9th centuries AD only). Both types of contexts show different results. Fragments bigger than 4 mm have been identified and the samples include both, the flot and the charcoal collected from the residue.

RESULTS

Scattered charcoal (700-1200 AD)

The results of the analysis of scattered charcoal are summarized in Figure 1. There is a higher diversity of taxa during the earlier centuries, including the samples from metallurgical activities (*Pinus*, *Acer*, *Cornus*, *Corylus*, *Fagus*, *Fraxinus*, *Rosaceae*, *Quercus* subg. *Quercus*, *Quercus ilex/Q.coccifera*, *Salix*, *Ulmus*, *Rhamnus* and most probably *Juglans*). During the first centuries, according to our results, the most important fuel in the village is deciduous *Quercus* wood followed by *Rosaceae* (which here includes *Prunus*, *Pomoideae* and *Rosaceae*) and some *Fagus sylvatica*. Beech wood increases its importance through time and eventually becomes the most important fuel during the second half of the 11th century and during the 12th century (Fig. 1). Although we must bear in mind that the number of fragments analysed for these last periods is lower, it probably reflects a major trend. The rest of the fuels have a minor representation with the exception of *Fraxinus* during the first half of the 11th century and *Corylus avellana* during the 12th (both close to 10%).

Contexts linked with iron metallurgy (8th and 9th centuries AD)

Contexts associated with the primary reduction of iron ore have been detected in the earliest occupations (8th and 9th centuries AD). *Rosaceae* wood (*Prunus* and *Pomoideae*) are the most important fuels here (almost 70% of the total) followed by deciduous oaks (18%)

and *Fagus sylvatica* (8%). Other woods such as *Acer*, *Cornus*, *Corylus*, *Fraxinus*, *Salix* and *Ulmus* are present in percentages lower than 2% (Fig. 2).

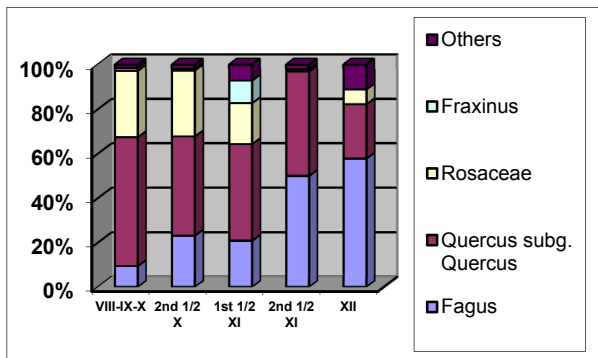


FIGURE 1. Summary of the scattered wood charcoal not linked to metallurgy identified along the sequence from the Cathedral of Vitoria-Gasteiz ($n=1493$).

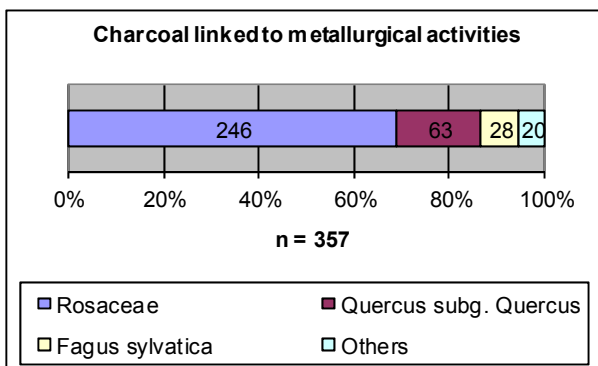


FIGURE 2. Summary of charcoal results from wood coming from contexts where primary reduction of iron ore has been attested.

DISCUSSION

As a major trend in the charcoal samples not linked with metallurgy, we can see the general importance of *Quercus* wood and progressively of *Fagus* which eventually becomes the main fuel during the 11th and 12th centuries. Different explanations might be suggested taking into account that *Quercus* formations would be the potential ones in the immediate vicinity of the village (Aseginolaza *et al.*, 1992): 1) a growing impact in *Quercus* woodlands which might result in overexploitation, 2) an extension of *Fagus* in the plateau where the site locates, 3) cultural preferences and changes in fuel and raw material use, and/or 4) changes in wood catchment areas.

The selection of Rosaceae wood (at least *Prunus* and Pomoideae) for iron reduction seems clear maybe due to their firing properties when used (density, size).

CONCLUSIONS

According to the contexts analysed, the main wood used during the Middle Ages in Gasteiz are *Quercus* subg. *Quercus*, *Fagus sylvatica* and Rosaceae. The importance of *Fagus* increases through time and *Prunus* and Pomoideae are particularly important in contexts related to the reduction of iron ore. There are a higher number of taxa during the earliest medieval centuries. Until the second half of the 11th century we suggest a diversified, maybe opportunistic exploitation of woodlands next to the site. From that moment the importance of *Fagus sylvatica* seems to increase significantly, something that might be related to an organized exploitation of the beech woodlands located in the mountains away from the plateau where the village is located. We suggest this might reflect a change in the main wood catchment areas of the site. As cautionary notes we must say that the number of fragments and samples analysed is bigger in the older periods and, thus, we find here a higher reliability and also a higher probability of minor taxa to appear. Also, the Fuero of Vitoria (1181) suggests the existence of different supply areas of wood for building and for fuel, both with free and restricted access: “Y donde quiera que halláreis madera para hacer casas, y leña para quemar, tomadlas sin ninguna contradicción, excepto las cosas conocidas y defendidas en las cuales no está permitido su uso”.

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