

# Acorn bread in Iron Age of NW Iberia: From gathering to baking

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*For two-thirds of the year the mountaineers feed on the acorn, which they dry, bruise, and afterwards grind and make into a kind of bread, which may be stored up for a long period.*  
(Strabo, Geography, III, 3, 7)

Literal interpretation of classic texts, like this Strabo's quote, caused the vision of a precarious agriculture in Iron Age of NW Iberia that was hegemonic for decades. But nowadays, critical reviews of classical texts and archaeological researches show a reality in which crops and management of forest resources are complementary.

## Acorns in the kitchen?

From the Study Group for the Prehistory of NW Iberia (GEPN) we have opened a new line of research focused on food and consumption in the Iron Age of NW. One of our first steps in this area was the study of the operational chain of bread in the Iron Age.

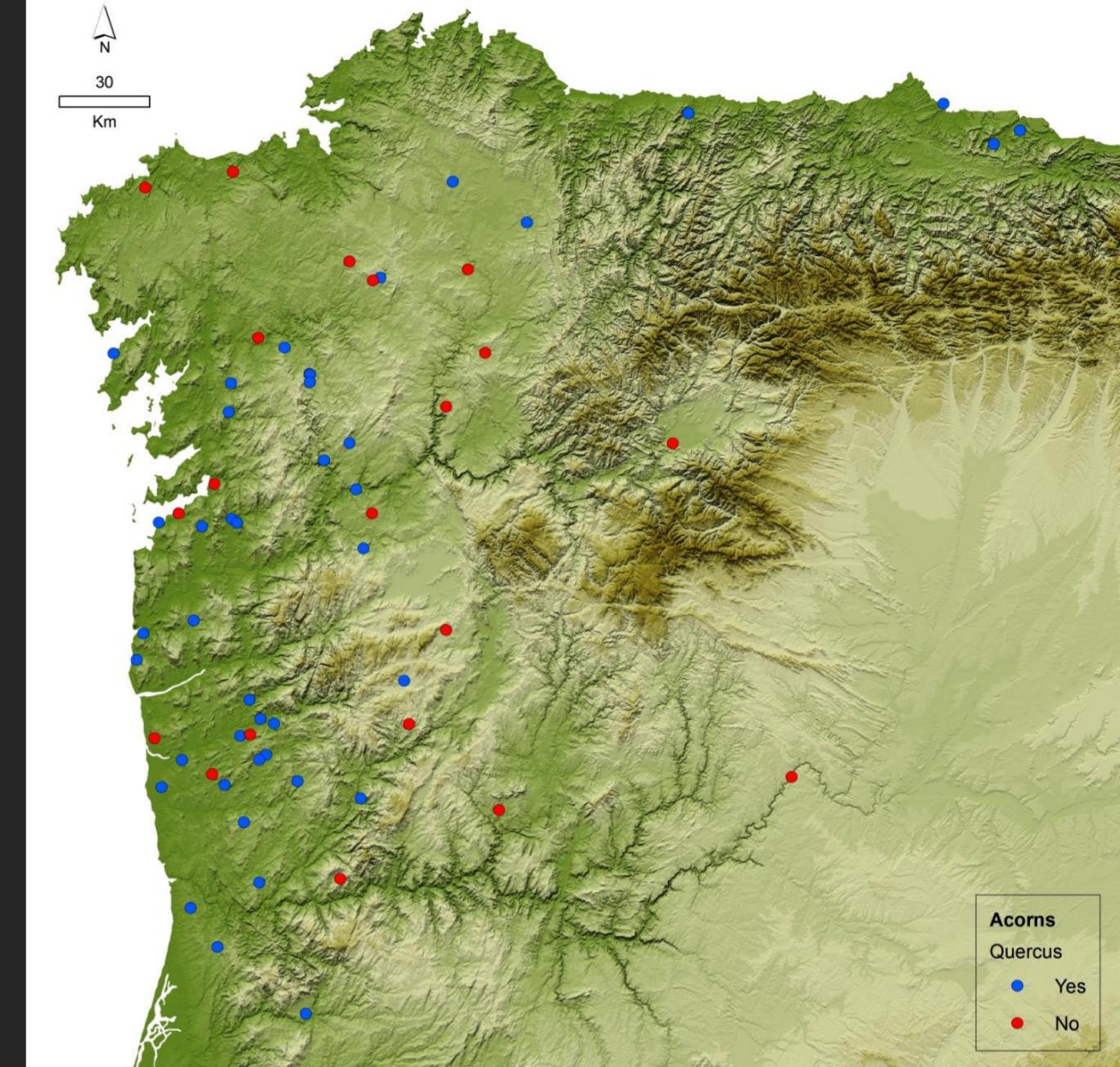
Acorns are present in an important number of settlements. Mainly preserved charred and peeled, this could be the result of pre-processing for conservation or for tannin extraction, but they also could be discards. In recent years Residue Analysis (phytoliths, starches ...) have also shed light on this matter, as many remains of acorn have been

found on mills and potsherds (Juan-Tresserras, Matamala, 2003; Juan-Tresserras, Maya, 2001).

Acorn abundance in the archaeological record must also be treated with caution because of its potential overrepresentation when compared to other seeds. Its large size compared with other remains make acorns easier to recover in fields where no archaeobotanical sampling has been planned.

## Our experimentation

Acorn bread had already been subjected to some experiences in the NW (Oliveira, Pereira, Queiroga, 1991). Our main goal was the reconstruction of bread production process, regarding the different technical possibilities and problems arising. We have paid special attention to steps such as tannin extraction, milling or baking.



Gathering would take place between September and December, it is a simple job that could be done in two ways, picking the ripe fruit from the ground, or causing them to fall by knocking down the tree. After gathering, the acorns would be transported to the settlement in sacks or wicker baskets.



To preserve acorns in good conditions for several months it is necessary to remove any moisture by drying them with the help of sun or the fireplace. There are some ethnographic examples, some of them still active, in which structures, known as *sequeiros*, are used for drying chestnuts by smoking. (Photo and reconstruction: Fernán López)



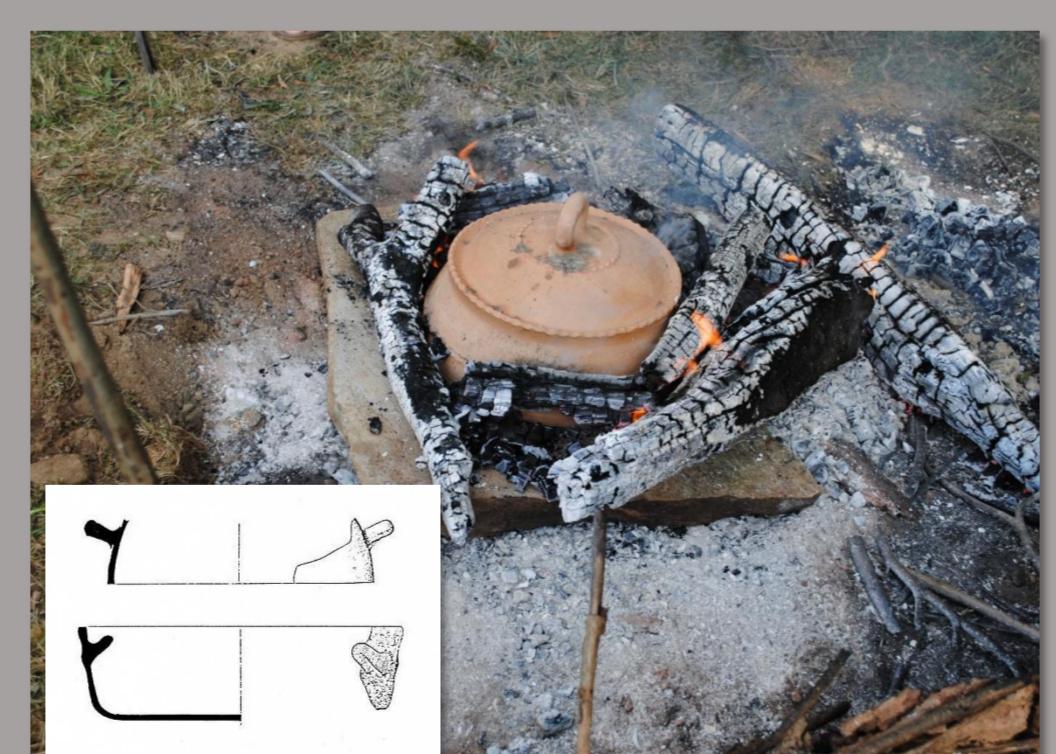
One of the biggest problems of NW Iberia autochthonous oak (*Quercus robur*), unlike another species such as holm oak (*Quercus ilex*), is the bitterness of the acorns caused by tannin concentration. To remove them, we can use several procedures, as roasting (useful for a proper conservation) or boiling (making easier grinding with "saddle" hand mills).



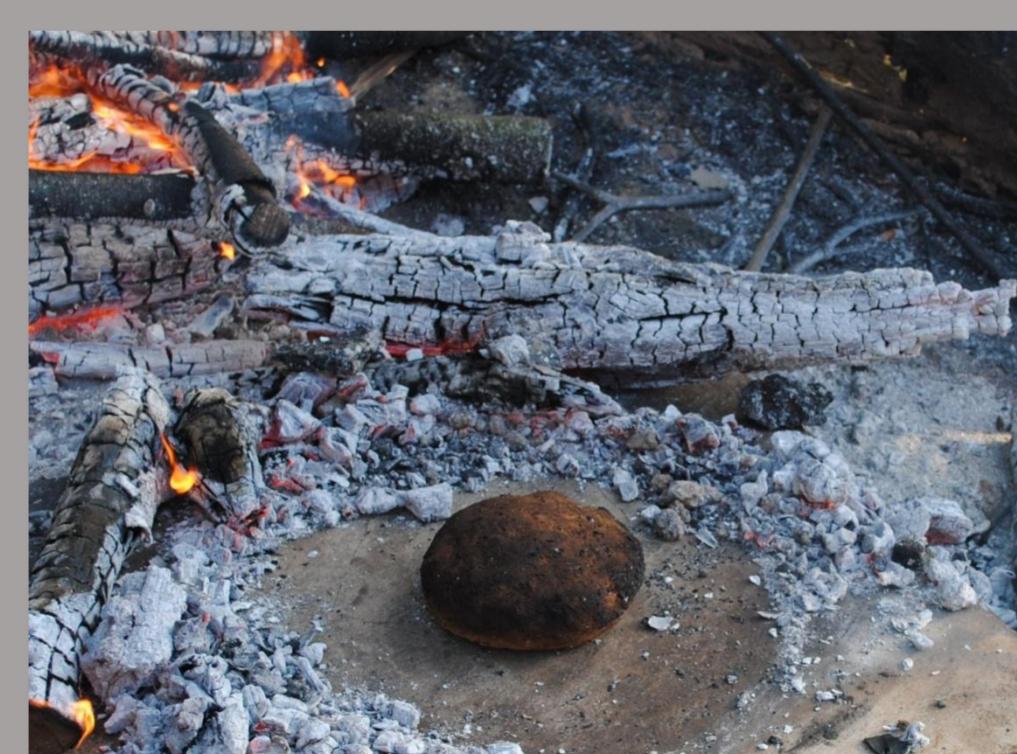
Besides "saddle" hand mills, rotary hand mills are found in the NW from the s. IV B.C. (Carballo et al., 2003). While the first ones can grind whole cotyledons, the latter ones would require prior crushing. In both cases a flour of acceptable quality is obtained.



A simple way of baking bread consists in putting the bread coated with collard greens in the coals. This method could be the most common, given the absence of ovens in most settlements.



The existence of pieces such as Típico Miño Bowls (Rey, 1991) which could be used as covers, led us to test similar pieces of traditional pottery, as this *buleira* from Gundivós (Sober, Lugo, Galicia).



The results achieved with both methods have been fully satisfactory, resulting in pleasant-tasting bread with a quality similar to that obtained by using an oven.



Mixing acorn flour with wheat flour and yeast (obtained from the fermentation of beer or sourdough) it would be possible to obtain leavened bread because of the elasticity of gluten. A higher content of acorn flour will result in more compact and less fluffy bread.



## Bibliography

- BETTCOURT, A. M. S. & FIGUEIRAL, I. 2007. Estratégias de exploração do espaço no Entre Douro e Minho desde os finais do IV aos meados do I milénios AC. In S. O. Jorge, A. M. S. Bettencourt & I. Figueiral (eds.) A concepção das paisagens e dos espaços na Arqueologia da Península Ibérica. Actas do IV Congresso de Arqueología Peninsular. Faro: Centro de Estudos de Património, Departamento de História, Arqueología e Património, Faculdade de Ciências Humanas e Sociais, Universidade do Algarve: 177 - 187.
- CALO LOURIDO & F. SOEIRO, T. 1986. Castro de Barrofa : campañas 1980-84, Xunta de Galicia, Dirección Xeral de Cultura e Patrimonio Histórico-Artístico, Santiago de Compostela.
- CARBALLO ARCEO, L.X.; CONCHERO COELLO, A. & REY CASTIÑERA, I. 2003. A introducción dos muíños circulares nos castros galegos, Brigantium. N. 14: 97-108.
- COBAS FERNÁNDEZ, I. & PARCERO OUBIÑA, C. 2006. Alto do Castro (Cuntis, Pontevedra). Síntesis de resultados y estudios de materiales, campaña 1993. TAPA (Trabajos de Arqueología e Patrimonio), Santiago de Compostela, CSIC.
- COELHO FERREIRA DA SILVA , A. 1986. A Cultura castreja no norte de Portugal, Câmara Municipal Paços de Ferreira.
- DOPAZO MARTÍNEZ, A.; FERNÁNDEZ RODRÍGUEZ, C. & RAMÍREZ REGO, P. 1996. Arqueometría aplicada a yacimientos galaico-romanos del NW peninsular, valoración de la actividad agrícola y ganadera, en Biogeografía pleistocena-holocena de la Península Ibérica, Ramil-Rego, P.; Fernández Rodríguez, C. & Rodríguez Gutián, M. (coord.), Consellería de Cultura, Santiago de Compostela : 317-332.
- JUAN-TRESSERRAS, J. & MATAMALA, J.C. 2003. Yacimiento castrejo de Isla de Toralla (Vigo, Pontevedra). Análisis de contenidos de recipientes. Informe inédito.
- JUAN-TRESSERRAS, J. & MAYA, J.L. 2001 La Campa Torres (Glíñon): análisis preliminar de indicadores microscópicos y biogeoquímicos. In J.L. MAYA Y.F. CUESTA (eds.): El castro de La Campa Torres. Período prerromano, Serie Patrimonio 6: 373.
- LÓPEZ CUEVILLAS, F. 1953. La Civilización Celta en Galicia. Santiago de Compostela: Porto y Cia. Editores.
- MARTÍNS, M. 1991. O povoado de Santo Ovidio (Fafe) : resultados dos trabalhos realizados entre 1980-1984, Braga : Universidade do Minho, Unidade de Arqueología, Cadernos de arqueología. Monografias: 6.
- OLIVEIRA, F.; PEREIRA DINIS, A. & QUEIROGA, F. 1991. O pão de bolota na cultura castreja. Paleoecología e arqueología. II: trabalhos dedicados a A.R. Pinto da Silva. Editores: F. Queiroga, A.P. Dinis. Vila Nova de Famalicão: Centro de Estudios Arqueológicos Famalicenses, pp. 251-268.
- PARCERO OUBIÑA C. et al. 2007. Arqueología, paisaje y sociedad. In Los Pueblos de la Galicia céltica, González García, F. J.(coord.), Madrid: Akal, D.L., pp. 131-258.
- REY CASTIÑERA, I. 1991. Yacimientos castrejos de la vertiente atlántica : análisis de la cerámica indígena, PhD Thesis, Universidade de Santiago, Departamento de Historia.
- STRABO 1903, Hamilton, H.C. (ed.), Falconer W. (ed.), Geography. The Geography of Strabo. Literally translated, with notes, in three volumes. George Bell & Sons, London.
- TERESO, J. P. 2012. Environmental change, agricultural development and social trends in NW Iberia from the Late Prehistory to the Late Antiquity, PhD Thesis, Universidade do Porto VV.AA.
2008. Contribución al patrón alimenticio y de actividad de las poblaciones del Norte peninsular. Fuentenegroso, Asturias, Munibe, 59, Donostia: 171-185