

The Exploitation of Raw Materials in the Roman World: A Closer Look at Producer-Resource Dynamics

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Pre-industrial societies were all dominated by agricultural production. What distinguishes them is the importance of the non-agrarian sector of the economy against that agricultural background. While not escaping the limits of an organic economy, the Romans stand out for having developed a wide range of manufacturing businesses and services (e.g. construction, fuel supply, metal- and pottery production), with an estimated involvement of between 10% and 20% of the total workforce.¹ This development stimulated the widespread and large-scale extraction of raw materials like stone, ores, clay and wood. Compared to other premodern economies, raw material consumption rates in the Roman world were thus high.

The way in which both renewable (e.g. wood) and non-renewable (e.g. stone, minerals, metal, clay) resources were exploited is an important determinant for the functioning and longevity of a pre-industrial economic system. Even in a territory as large as the Roman Empire, such activities put considerable pressure on the land. Strategies of resource-exploitation and conservation were essential in dealing successfully with this situation in the medium- or long-term. The question of how the Romans dealt with the uncertainty of natural reserves and the unpredictability of consumption is very much at the core of the debate on the non-agricultural ancient economy. The issue revolves around whether producer decisions and actions merely reflect a ‚substitution of resource sources‘ mentality – that is, exploiting a particular resource until depletion, after which new possibilities were simply explored further afield – or if optimal extraction strategies may be identified. In other words, how rational were the Romans in their exploitation of raw materials, and to which extent did they counteract over-exploitation for economic and ecological reasons?

On an Empire-wide scale, this research topic thus feeds into the long-standing debate on the nature and general performance of the Roman economy; that is, in essence, framed between formalist/modernist and primitivist/substantivist views, or fitted within market-driven vs. predation-driven models.² On a smaller scale, we are interested in a number of specific questions related to the nature of Roman economic practice, such as: 1) how did producers organise the exploitation of natural resources at hand (can we, for example, identify measures that show environmental concerns in their management strategies?); 2) how did (changes in) consumption behaviour affect exploitation and production strategies; 3) can we identify indicators of ‘Smithian growth’ in the production and distribution of non-renewable resources (e.g. standardisation, specialisation, prefabrication, stronger/weaker market integration etc.); and 4) did producing regions respond similarly or differently to changes in demand?

Throughout a series of territorial cases studies, this section explores if, when, where and how the Romans pursued a harmonious balance between the limited availability of a particular resource and the law of supply and demand. The first paper by Fernando López Sánchez scrutinises the Roman fishing industry in the Mediterranean and explores the possible link between the seemingly efficient and sustainable exploitation of a sea with limited fishing capacities and the building of the empire under the *Pax Romana*. With the second paper by Fabien Becker et al., we shift our attention to Elba (Italy), and more specifically to the debate surrounding the possible end of iron smelting on the island due to deforestation around the mid-1st century BC. The third paper by Christophe Vaschalde et al. deals with the production of fuel for the great imperial amphora workshops of Loron in Croatia, and shows how these high-yield kilns were kept supplied through a rational management of the forest, and sustainable investments in the land. In the fourth paper, Sophie Insulander et al. focus on the logistics of stone supply in the Carnuntum-Vindobona area, based on a detailed provenance analysis of the stone monuments from these two important military centres on the Pannonian Limes. The stone resource economy is also the subject of the fifth paper by Florent Delencre et al., who analyse the use of stone in the buildings from the territories of the Aeduans and the Lingons civitates in Central-Eastern Gaul in the 1st century BC; this in order to shed light on the plurality of supply sources. The sixth and final paper by Maddalena Bassani discusses the exploitation of thermomineral resources in Roman Italy from the 2nd to the 4th century AD, and examines the use of some thermal by-products on the basis of archaeological and literary evidence.

Notes

¹ Bang 2008.

² Scheidel 2014; Temin 2013.

References

Bang 2008

P. F. Bang, *The Roman Bazaar. A Comparative Study of Trade and Markets in a Tributary Empire* (Cambridge 2008).

Scheidel 2014

W. Scheidel, *The Shape of the Roman World: Modelling Imperial Connectivity*, *JRA* 27, 2014, 7–32.

Temin 2013

P. Temin, *The Roman Market Economy* (Princeton 2013).