Alpine rock axeheads became social and economic exchange fetishes in the Neolithic

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Alpine rock axehead found at Harras, Thuringia, from the Michelsberg Culture (c. 4300-2800 ANE). Credit: Juraj Lipták, State Office for Heritage Management and Archaeology Saxony-Anhalt.

Axeheads made out of Alpine rock had strong social and economic symbolic meaning in the Neolithic, given their production and use value. Their resistance to friction and breakage, which permitted intense polishing and a re-elaboration of the rock, gave these artefacts an elevated exchange value, key to the formation of long-distance exchange networks among communities of Western Europe. Communities that had already begun to set the value of exchange of a product according to the

time and effort invested in producing them.

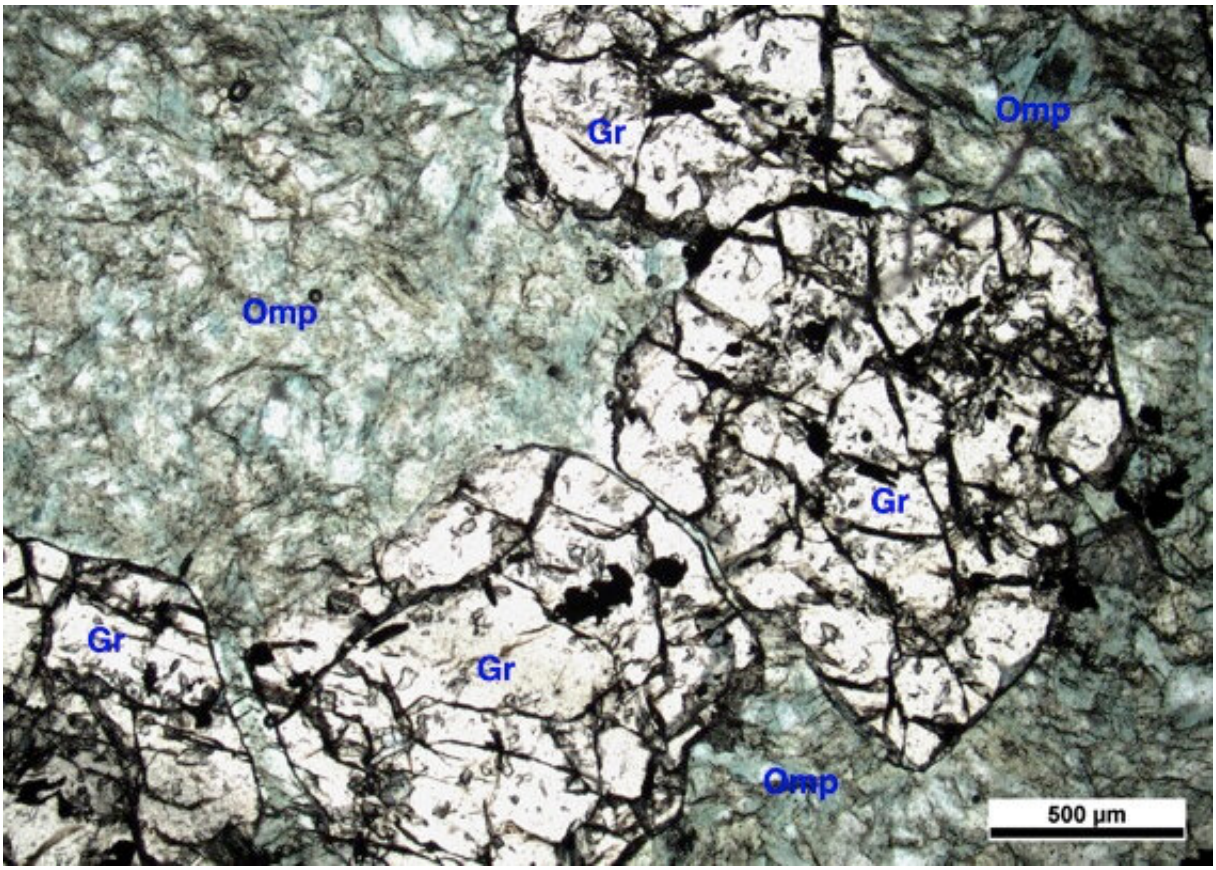
This is what a study led by a research group at the Universitat Autònoma de Barcelona (UAB) indicates in regards to the mechanical and physical parameters characterising the production, circulation and use of a series of rock types used in the manufacturing of sharp-edged polished artefacts in Europe during the Neolithic (5600-2200 BCE).

The objective of the study was to answer a long debated topic: the criteria by which Alpine rocks formed part of an unprecedented pan-European phenomenon made up of long-distance exchange networks, while others were only used locally. Was the choice based on economic, functional or perhaps subjective criteria? Stone axeheads were crucial to the survival and economic reproduction of societies in the Neolithic. Some of the rocks used travelled over 1000 kilometres from their Alpine regions to northern Europe, Andalusia in southern Spain and the Balkans.

This is the first time a study includes in a specialised bibliography comparative data obtained by testing the resistance to friction and breakage of the rocks. These mechanical parameters have led to the definition of production and use values, which were then correlated with the distances and volumes of the rocks exchanged in order to obtain their exchange value. The results help understand the basic principles underlying the supply and distribution system of stone materials during the Neolithic in Western Europe, as well as its related economic logic.

"The reasons favouring the integration of specific rock types into these long-distance networks depended on a complex pattern of technological and functional criteria. This pattern was not solely based on economic aspects—their use value—but rather on the mechanical capacity to resist successive transformation processes—i.e. their production value—and remain unaltered throughout time," explains Selina Delgado-Raack,

researcher at the Department of Prehistory, UAB, and first author of the article.



Microscopic view of a thin section of an omphacitite, one of the Alpine rock types used for axeheads in the Neolithic analysed in this study. Credit: UAB

Supply System and Economic Logic

The study points to the diverging economic conception between the manufacturing of tools using other rocks and Alpine rock axeheads. Neolithic communities selected the most suitable raw materials available from all resources in their region and knew each of their mechanical and

physical characteristics. These tools normally travelled in a radius of 200 kilometres from where they originated and rarely went farther than 400-500 kilometres. Only Alpine rocks travelled further than those regional and economic limits.

"The circulation of these rocks at larger distances did not respond to a functional and cost-efficient logic, in which each agent takes into account the costs of manufacturing and transport when selecting the different rock types, all of them viable in being converted into fully functioning tools," indicates Roberto Risch, also researcher at the Department of Prehistory, UAB, and coordinator of the research. "It rather obeys the emergence of a very different economic reasoning, based on the ability to transform one material through ever greater amounts of work, something which many centuries later Adam Smith used to define the British economy of the 18th century. In the case of Alpine axeheads, their exceptional exchange value was due to the increase in manufacturing costs, a result of the intense polishing of these stones as they passed from one community to another."

A Primitive Form of Currency?

For the research team, the fact that the Alpine axeheads are categorised as the most commonly crafted and modified artefact in different periods and regions during the Neolithic rules out their role as symbols of power or ceremonial elements. "The economic pattern points towards more of a fetish object used in social and economic interactions among European communities of highly different socio-political productions and orientations," Selina Delgado-Raack states.

The exceptional exchange value reached by some rock types, such as the omphacitites and jadeitites, leads the team to think that they may have been used as a primitive form of currency, although they admit that there is a need for more studies before this topic can be clarified.

More information: Selina Delgado-Raack et al, Material Principles and Economic Relations Underlying Neolithic Axe Circulation in Western Europe, *Journal of Archaeological Method and Theory* (2019). DOI: 10.1007/s10816-019-09425-x