Technological change at the South-western limits of the Mediterranean basin during Neolithic and early Chalcolithic times: pottery production and consumption

Rapports

Informations projet

NEOMEDPOT

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Site web du projet

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Coordonné par
THE UNIVERSITY OF SHEFFIELD
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Periodic Reporting for period 1 - NEOMEDPOT
(Technological change at the South-western limits of the Mediterranean basin during Neolithic and early Chalcolithic times: pottery production and consumption)

Période du rapport: 2015-10-01 au 2017-09-30

Résumé du contexte et des objectifs généraux du projet

This project examines the radical social changes which took place in the SW Mediterranean basin during the Neolithic and early Chalcolithic period, specifically the interactions between North Africa and the southern coast of the Iberian Peninsula across the Straits of Gibraltar. It takes a technological...
approach informed by Material Culture Studies to reconstruct pottery manufacture and its implications for social transformation. The study is focused on the analytical examination of ceramic products from the S and SE Iberian coast, and NW coast of Morocco, during 6th to 3rd millennia BC. It comprises the first research programme focused in pottery analysis across this wide area of study, and offers rare analytical insight into early North African pottery production.

The methodology employed integrates optical petrography and scanning electron microscopy, along with shape, decoration and functional characterization of pottery vessels and other ceramic products; as well as the study of potential raw materials.

Key archaeological questions are addressed for a time which see changes in food production, increased sedentism and specialization in craft production of ornaments. While Neolithic cultures have often been defined according to their pottery and their stylistic groups, it is the technological traditions associated to them that allow us to explore mechanisms of knowledge transmission and innovation, labour organization and the construction of exchange networks. These are all key aspects which allow us to explore the links between technological change and social change in human communities, at a time when semi-nomadic groups adapt to sedentary ways of life, with the emergence of social inequality and labour specialization in the early Chalcolithic.

Activities carried out over the duration of the fellowship:
• Production of new data addressing issues of social asymmetry and labour specialization in the early recent prehistory
• Macroscopic characterization of Neolithic and Chalcolithic ceramic assemblages
• Petrographic characterization of selected samples from the previous assemblages to define ceramic provenance and technology
• Microstructural observations on fresh fracture in order to assess firing conditions
• Coordination of a research teams in Spain, Germany, Morocco and United Kingdom
• Dissemination in scientific and general public contexts

Teaching
• Mineralogy and Petrography of Archaeological Ceramics (AAP6106), Masters level module: module coordinator (2016) and microscopy laboratory assistant (2017).
• Co-tutor in short-course Introduction to Ceramic Petrography: teaching material preparation and lecturing (2016 and 2017).
• Teaching, demonstration and assessment on a variety f Masters level modules

Training
• Ceramic conservation
• Archaeometallurgical studies
• Petrography of metamorphic and sedimentary rocks
• SEM-EDX, XRD and Raman spectroscopy
• Development of advanced skills in written and spoken English (C1)

Publications
• At least two other papers for peer-reviewed journals to be published.

Scientific meetings
• Five presentations at Scientific Meetings

Other activities
• Reviewer for the journal Munibe Antropologia-Arkeologia
• External PhD examiner Universities of Barcelona, Seville

Other publications

Progrès au-delà de l’état des connaissances et impact potentiel prévu (y compris l’impact socio-économique et les conséquences sociétales plus larges du projet jusqu’à présent)
• Identification of petrographic fabrics present during the Neolithic, showing marked differences between European and African contexts, while the recurrence of temper such as grog and later calcite is clear in the North, as observed previously, North-African contexts follow different dynamics.
• Identification of new local patterns of ceramic production and consumption, offering the first comparative analysis of clay-rich materials from early metallurgical contexts in South-eastern Iberia. New data obtained argues against top-down, chiefly theoretical models regarding metallurgy inception and diffusion in Eurasia.
• Accurate identification of firing conditions during first phases of recent prehistory in SE Iberia and NW Africa. The integrated characterization of the vessels (macroscopic, optical petrography and microstructural observation) sheds light on firing conditions, generally overseen due to the
consideration of early pottery as simply 'low-fired'. Results point to a wide range, from barely-fired ceramics to those highly altered by firing. The diachronic approach points to the fact that changes in the control of firing temperatures are not just a matter of accumulated knowledge, but also dependant on the social dimension of ceramics and associated to different degrees of care for redox conditions.

Impact
567 individuals macroscopically characterized, approx. 200 samples analysed by optical petrography, 150 by SEM-EDX. Substantial data produced for two periods of prehistory previously obscured by large-scale models of technological transmission and innovation, in these cases ceramic and copper metallurgy. NEOMEDPOT's focus on understanding local contexts of adoption helps strengthen deductions at broader scales and to contextualize socio-economic processes such as the diffusion of peasant communities' ways of life. The publication of new data regarding NE Moroccan sites will enrich discussions about the role of hunter-gatherer groups in the adoption of pottery and new ways of food consumption in the area, as well as connections across the Gibraltar straits.

Microstructural observations for ceramic materials were scarce for Neolithic and Chalcolithic materials in the area. This new approach to pottery firing temperatures has enabled innovative interpretations of the variety of firing conditions used. Our analysis shows that firing temperatures were not necessarily low, but rather irregular. The priority seems to have been the maintenance of safe firing temperatures and stable redox conditions for specific parts of the ceramic assemblage during each period, possibly reflecting a well-established social system of values. Hence the project has offered a powerful example of the synergies between archaeological science and anthropological archaeology.

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