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Review Article

Prehistoric mining

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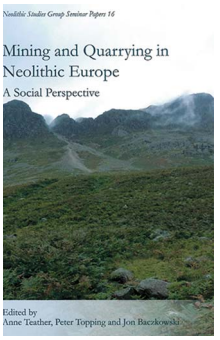
Anne Teather, Peter Topping & Jon Baczkowski (ed.). 2019. *Mining and quarrying in Neolithic Europe: a social perspective* (Neolithic Studies Group Seminar Papers 16). Oxford: Oxbow; 978-1-78925-148-7 paperback £38.

Núria Rafel Fontanals, Mark A. Hunt Ortiz, Ignacio Soriano & Selina Delgado-Raack (ed.). 2018. *Prehistoric copper mining in the north-east of the Iberian Peninsula: La Turquesa or Mas de les Moreres Mine (Cornudella de Montsant, Tarragona, Spain)* (Revista d'Arqueologia de Ponent 3). Lleida: Universitat de Lleida; 978-84-9144-029-1 paperback.



Prehistoric copper mining in the north-east of the Iberian Peninsula continues the previous work on copper mining by the editors and main authors N. Rafel Fontanals, M.A. Hunt Ortiz, I. Soriano and S. Delgado-Raack. The site La Turquesa, a deposit mainly of Gossan type (iron cap), belongs to the same fault zone and mining basin as the already published Solano del Bepo (Rafel Fontanals *et al.* 2017). Mining of copper and lead (galena) at the site cannot certainly be traced back into prehistory, let alone to the Neolithic, and the earliest radiometric dates point to mining beginning before the early Middle Ages. The typo-chronology of mining tools is inconclusive, as is usual at these sites, and as the reader may infer from the comprehensive 80-page catalogue of hammerstones and picks. In his archaeo-metallurgical chapter, Montero Ruiz concludes convincingly that, currently, the most reliable date for mining at La Turquesa is in the Copper Age or the Early Bronze Age: the isotope signature of the mine's ore seems to accord with isotope ratios measured in a handful of artefacts from that period. The geology and mineralogy of the deposit is instructively summarised, adding archaeologically relevant information on visibility, accessibility and workability (with A. Andreazini and J.C. Melgarejo as co-authors). Traces of prehistoric opencast copper mining in small and irregular shafts have been heavily damaged by nineteenth- or twentieth-century mining of turquoise and variscite (with accessory chalcopyrite and malachite). The archaeological documentation of shafts and galleries from recent and pre-industrial times is cursory and does not fully attend to the three-dimensionality of the deposit. The use of more up-to-date measurement technology would have offered a clearer understanding of the site in its excavation, analysis and publication. No traces of tools were documented, making it impossible to combine

the mineralogy of the deposit with the practical mining work. Without any quantitative information on heap material the mine's productivity cannot be estimated. The discovery of evidence for fire-setting using thermoluminescence (detailed in the chapter by A.L. Rodrigues *et al.*) seemed a promising test for archaeological hypotheses. Unfortunately, the palynological sediment sample gives a *terminus ante quem* of the seventh or eighth century AD (chapter by S. Pérez Díaz and J.A. López Sáez). Alongside unpublished indeterminate pottery, 117 mining tools are described in detail (including use-wear, lithology and surface types). Comparison with material from nearby Solana del Bepo (Rafel Fontanals *et al.* 2017) reveals that the artefacts from La Turquesa are less sophisticated and more opportunistic: mainly hammerstones modified during use or simple picks, sometimes with a picked groove that indicates hafting. Delgado-Raack argues convincingly that the tools were used in a context of direct extraction, for crushing the rock as well as for fragment-crushing copper ore at the site.

The obvious contrast between the practices reflected in mining tools from Solana del Bepo and those from La Turquesa may be due to their chronological distance, but they could also provide a point of departure for further investigations into varied mining techniques and working practices. This volume is highly welcome as an informative, well-written and richly illustrated multi-disciplinary monograph dedicated to the excavation of a single site.

Mining and quarrying in Neolithic Europe collates papers presented at the 2017 annual meeting of the Neolithic Studies Group entitled 'Extracting more than Rock? Insights into the acquisition of stone and flint in the Neolithic'. The difference between the original theme and that of the monograph lies in the addition of European and social perspectives—these are the benchmarks against which the volume has to be measured. With one exception, all contributions are dedicated to Neolithic extractive industries in the British Isles, and collectively these 12 papers do not cite more than a handful of non-Anglophone references. The notable exception is A. Nyland whose chapter focuses on quarries and operational chains in western Norway *c.* 4000 BC. Her examples lie in the North-west European zone of the Caledonian orogenesis (the geological zone of comparable lithologies and landscapes in Scotland and Norway) where people were facing the Neolithic lifeways from the South roughly at the same time as the inhabitants of the UK and Ireland.

Quarrying itself was a deep-rooted practice in some areas but unfamiliar in others; this mediated ideas, claims to resources and feelings of belonging or disaffiliation in group identities. The chapter by G. Cooney *et al.* focuses on an extraction landscape on Shetland, where a distinctive material was produced: reibeckite felsite. When contrasted with the more diverse choices of raw material and preference for smaller axe blades on Orkney, a Shetland tradition can be recognised in the use of artefacts made from this distinct material. Mining transforms outcrops into managed landscapes, as demonstrated by S. Dickinson who takes a phenomenological viewpoint on the sources of the Cumbrian Langdale axe blades. Those landscapes might have contributed more or less tangible or imagined properties or meaning to artefacts—an idea that partly contradicts the common ethnographic observation which holds that esoteric knowledge of a source generates the value of raw material. Discussing the enclosed pit circle at Monkton Up Wimborne, S. Greaney states "it is argued that social relations, sometimes unequal in nature, existed between people, materials and places"

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(p. 203), while T. Darvill, drawing on Heideggerian arguments, describes the very "magic" (p. 126) of the dolerite mining site of Carn Menyn, Wales. From geological and archaeological fieldwork on the Welsh sources of Stonehenge's bluestones, the smaller monoliths, M. Parker Pearson develops no less impressive narratives of moving megalithic stones transforming or maintaining identities. Ownership, place and movement remain important elements, regardless whether the stones were transported by their original owners or were taken from them in an act of appropriation.

K.A. Whitaker's paper on ancient and modern quarrying of Sarsen stones (silcretes of southern England) demonstrates the need for a more thorough examination of sources that takes into account the entire history of use of distribution areas: the occurrence or absence of Neolithic features, for example, may be explained simply by a recent use of dynamite. R.J. Stewart, writing on Portland and Greensand chert from south-western England, and F. Brown *et al.*, considering raw material use in northern England, take a descriptive approach to the distribution patterns of some of the most important lithic raw materials in the UK and Ireland from the Mesolithic to Neolithic. The role of networking becomes more and more obvious. It is difficult to see why the continental approach of analysing whole assemblages is not utilised by British scholars; without knowing the percentages of raw materials, from as many sites as possible, it remains difficult to construct formal social networks that could further quantify, prove or dismiss so many nice hypotheses.

Three papers (by R. Holgate, J. Baczkowski and A. Teather) deal with south-east English flint mining, mostly from archival material. Considering similar evidence from France, Belgium, the Netherlands and Southern Scandinavia, it is unsurprising that shaft flint mining, occurring between the fifth and fourth millennia BC, is one of the earliest Neolithic activities in the British Isles. It would have been worth emphasising that the Cretaceous geology in south-east England is the northern margin of the Paris and Brussels basins, where more than a hundred flint procurement sites are known from these layers, including mines with dozens, and even hundreds, of deep shafts. Only a few of these shafts pre-date the English examples, thus being their possible predecessors.

Peter Topping's work on ethnographical analogies related to Neolithic mining adds useful data, but is, due to formatting constraints, too short to present a fully convincing methodological study. Instead, referring to older classics of middle-range theory, a construction of "frames of reference" (*sensu* the late L. Binford) would allow Topping to keep his research focus while also bypassing the pitfalls of uniformitarianism. Topping's contribution is clearly addressing the social, but what happened to the promised general 'social perspective' of the volume? The word 'social' seems to have undergone a semantic change: in most of the papers 'social' could be exchanged for 'symbolic' without changing any meaning. 'Social' refers to the formation and maintenance of identity groups, here ultimately ethnic groups—there are very few internal conflicts identified, nor is the situational character of social groups taken into account. The volume loses sight of the old questions: who actually did the mining? Were they skilled or unskilled? Were they part-time or full-time specialists? Was mining done by bounded labour? Was it organised as an

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expedition to mystical highlands or as a working feast? And by whom? Could Neolithic mining create individual wealth or prestige? Was mining essential in the struggle between genders or age groups or lineages? Is there a place for social inequality and aggression? With the shift to phenomenology and new materialism, 'social' was extended to the non-human sphere, and by tacit acceptance 'social groups' became synonymous for 'ethnic groups'—one wonders why.

References

Rafel Fontanals, N., I. Soriano & S. Delgado-Raack (ed.). 2017. *A prehistoric copper mine in the north-east of the Iberian Peninsula: Solana del Bepo (Ulldemolins, Tarragona)* (Revista d'Arqueologia de Ponent 2). Lleida: Universitat de Lleida.

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