Neandertal adaptations to Interglacial conditions – a case study from the Eemian site Neumark-Nord 2 (Germany)

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Summary

After a long period of cold conditions that characterize the Saalian Glacial in Europe, Neandertals were confronted with the warm and more forested environments of the Eemian Interglacial (about 125-115,000 years ago). We do know that Neandertals were present in these environments, but the number of known sites and the size of their assemblages is relatively limited. The Last Interglacial deposits of Neumark-Nord 2 (eastern Germany) yielded the unique opportunity for a detailed analysis of Neandertal behaviour within its environmental context.

Basin formation at Neumark-Nord 2 did not only result in a sediment trap in which archaeological material was encased in a protective matrix, but also provided anaerobic conditions favorable to the preservation of environmental proxies. The environmental record made it possible to identify phases of increased and decreased presence of water within the basin. Of relevance for debates about the character of the vegetation of Eemian environments is the reconstruction of the vegetation surrounding the Neumark-Nord 2 basin. Like at other Eemian basin localities yielding an archaeological record, the vegetation in the wider Neumark-Nord 2 environment was overall semi-open during the early part of the Interglacial. Finegrained analysis of the data shows that the vegetation directly surrounding the Neumark-Nord 2 basin fluctuated between semi-open and more forested. The abundant evidence for large herbivores in the Neumark-Nord environment and the fact that more open conditions correspond to phases of an increased presence of water in the basin, may indicate that the observed vegetation openness can be attributed to large herbivore activity. The abundance of resources in the Neumark-Nord environment during phases of increased water levels - including water, large herbivores, and a mixed vegetation with an edible plant component - most likely attracted hominins to this and to similar localities. This seems reflected by a strong correlation between hominin activity and semi-open environmental conditions in the Neumark-Nord area and the large faunal assemblage with abundant evidence for anthropogenic modification at Neumark-Nord 2.

Through their vegetation, Interglacial environments constrain the visibility of lithic resources. Movement in the Neumark-Nord subsoil not only created basin structures, but also pushed up flint-bearing till deposits at the basin margins, which were subsequently exposed and exploited by Neandertals. This local availability of lithic resources may offer a good explanation for the abundant evidence of on-site knapping and the rich lithic assemblage recovered from Neumark-Nord 2, which are often lacking at other Eemian sites near freshwater localities with a different genesis. Nevertheless, the small dimensions of the flint nodules resulted in relatively small tools, as also observed at other Eemian sites with no direct access to primary flint sources. The heavily cut-marked bone assemblage suggests that flint tools were put to direct use, i.e. for the butchery of animals. Although wood, whether worked or not, did not survive in the archaeological record of Neumark-Nord 2, its use as a fuel has been documented through the analysis of the charcoal recovered from the site. Though the exact function of these fires remains elusive, evidence for fire strongly correlates with traces of Neandertal presence in the basin environment.

In forested Eemian environments with lower quantities of secondary biomass and flint sources obscured by vegetation, semi-open “magnet locations” like the Neumark-Nord basins must have played an important role in Neandertal subsistence. Although these basin localities may present a context- biased view of hominin activity, they provide unique opportunities for documenting Neandertal behavior from a very short slice of Pleistocene time (lasting a few thousand years) and preserving it for archaeological analysis.