Site occupation intensity and the paleoclimate of Geißenkl'osterle and Hohle Fels caves (Ach valley, southwestern Germany) during the Middle and Upper Paleolithic

Sara Rhodes*[1], Britt Starkovich[1,2], and Nicholas Conard[1,3]

[1]Eberhard Karls Universität Tübingen – Urgeschichte und Naturwissenschaftliche Archäologie, Universität, Allemagne

[2]Senckenberg Center for Human Evolution and Palaeoenvironment – Allemagne

[3]Eberhard Karls Universität TübingenAbteilung Ältere Urgeschichte und Quartärokologie, Universitaät Tübingen – Geschwister-Scholl-Platz 72074 Tübingen, Allemagne

Résumé

The exceptionally long tradition of Paleolithic research in Germany has resulted in a detailed prehistoric record of the Ach and Lone valleys spanning the Middle Paleolithic to Holocene periods. During the early excavations of Geißenkl'osterle cave by Joachim Hahn a period nearly-devoid of anthropogenic deposit was identified directly preceding the beginning of the Aurignacian (Hahn, 1988), like that documented by R.R. Schmidt (1912) at Sirgenstein cave. New excavations at Geißenkl'osterle as well as Hohle Fels cave documented further evidence for a period of exceptionally low occupation and/or regional abandonment by Neanderthal groups before the arrival of modern humans (Conard & Malina, 2001, 2002, 2004, 2005). These findings lead to the development of the "Population Vacuum" model arguing that Neanderthals had all but abandoned the Ach Valley before Aurignacian groups arrived (Conard, 2003; Conard & Bolus, 2006; Conard, Bolus, Goldberg, & M'unzel, 2006). This paper tests this model using new material records from the Middle Paleolithic and early Aurignacian deposits Geißenkl'osterle and Hohle Fels caves. A new paleoclimatic reconstruction of the Ach valley based on small mammals (rodents, insectivores, and bats) from both sites is compared to past sedimentary, botanical and faunal records to test the assumption of direct environmental causality inherent in early descriptions of the model (Conard, Bolus, Goldberg, & M'unzel, 2006). This paleoclimatic record is then compared with density data from new studies of the lithic and faunal assemblages in an attempt to discern a temporal record of site occupation intensity through the Middle Paleolithic and early Aurignacian periods (_˜48,000 – 33,000 kya). The diacronic density of small mammal remains is also considered as a line of evidence for human site occupation intensity idependent of human decision-making. Lastly, evidence for anthropogenic modification of all material types (including burning, trampling, and fragmentation) is considered as a further proxy of site use. Comparing these different material records against a detailed diachronic climatic signal produces a record of variability in settlement dynamics and organization in the Ach valley at both a intra- and inter-site scale. The picture of Neanderthal adaptive stratigies derived from this comparative framework allows us to test the Population Vacuum model in light of

*Intervenant

the late Middle Paleolithic climatic context and earlier Neanderthal behavioural and technological adapations.

Works Cited

Avery, D. (2007). Micromammals as palaeoenvironmental indicators of the southern African Quaternary. *Transactions of the Royal society of South Africa, 62*(1), 17 - 23.

Conard, N. (2003). Palaeolithic Ivory Sculptures from South western Germany and the Origins of Figurative Art. *Nature, 426*, 830 - 832.

Conard, N. J., & Bolus, M. (2006). The Swabian Aurignacian and its Role in European Prehistory. In O. Bar-Yosef, & J. Zilhão, *Towards a Definition of the Aurignacian* (pp. 211 - 239). Lisboa: Instituto Português de Arqueologia.

Conard, N. J., & Malina, M. (2001). Neu Ausgrabungen in den suntersten Schichten des Aurignacien und des Mittelpal´aolithikums im Geißenkl´osterle bei Blaubeuren, Alb-Donau-Kreis. *Arch´aologische Ausgrabungen in Baden-W´urttemberg*, 16-21.

Conard, N. J., & Malina, M. (2002). Abschließende Ausgrabungen im Geißenkl´osterle bei Blaubeure, Alb-Donau-Kreis. *Arch´aologische Ausgrabungen in Baden-W´urttemberg*, 17 - 21.

Conard, N. J., & Malina, M. (2004). Die Ausgrabungen 2004 in den fr´uhen jungpal´aolithischen Schichten des Hohle Fels bei Schelklingens, Alb-Donau-Kreis. *Arch´aologische Ausgrabungen in Baden-W´urttemberg*, 17 - 21.

Conard, N. J., & Malina, M. (2005). Neue Ergebnisse zum Mittelpal´aolithikum, zum Aurignacien und zu den letzten Neanderthalern am Hohle Fels bei Schelklingen, Alb-Donau-Kreis. *Arch´aologische Ausgrabungen in Baden-W´urttemberg*, 17 - 20.

Conard, N. J., Bolus, M., Goldberg, P., & M´unzel, S. (2006). The Last Neanderthals and First Modern Humans in the Swabian Jura. In N. J. Conard, *When Neanderthals and Modern Humans Met* (pp. 305 - 341). T´ubingen: T´ubingen Publications in Prehistory.

Hahn, J. (1988). *Die Geßenkl´osterle-H´ohle im Achtal bei Blaubeuren I.* Stuttgart: Kommissionsverlag Konrad Theiss Verlag.

Hahn, J. (1988). *Die Geißenkl´osterle-H´ohle im Achtal bei Blaubeuren I. Fundhorizontbildung und Besiedlung im Mittelpal´aolithikum und im Aurignacien.* Stuttgart: Konrad Theiss Verlag.

Schmit, R. R. (1912). *Die diluviale Vorzeit Deutschlands.* Stuttgart: E. Schweizerbartsche Verlagsbuchhandlung.

Mots-Clés: Middle Paleolithic, Swabian Jura, Small mammal, Site occupation intensity, zooarchaeology