Late Pleistocene Human Occupation and Ice Development in the Eastern Alps

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Problem: The environment of the Eastern Alpine area during the Last Glacial cycle is not well known yet. The large mammal assemblage of the Alps during MIS 3 seemed to be rather restricted with a preponderance of cave bear and few carnivorous species. How about human evidence in the Alpine area during MIS 3 ?

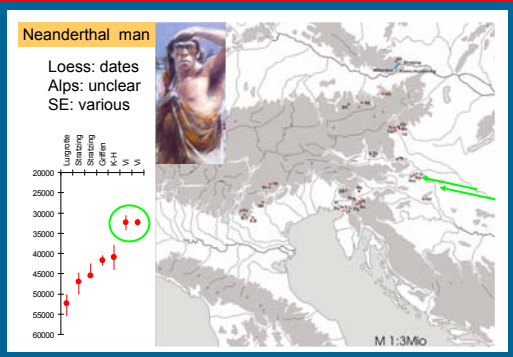

Figure 1:

Neanderthal sites in the Eastern Alpine region. To the southeast various sites are known. In the loess to the north Neanderthal evidence is suggested by dates on charcoal only. Few sites are known in the Alpine area.

Fig.2

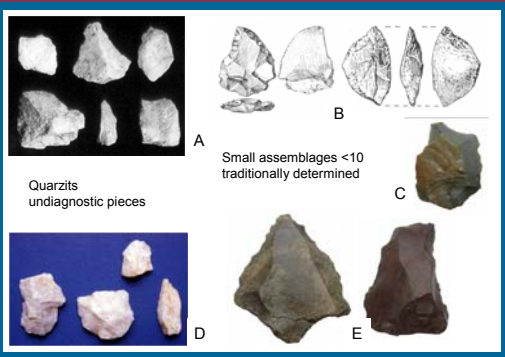

Figure 2: Evidence of Neanderthal man is scarce in the Alpine area and mainly based on traditionally determined small assemblages or undiagnostic pieces (A...Mixnitz, B...Salzofen, C...Herdengelhöhle, D...Griffener Tropfsteinhöhle, E...Ramesch-Knochenhöhle). The Levallois-artefact (left) from Ramesch-Knochenhöhle is not of Alpine origin and is similar to pieces from Salzgitter and Roncheres (Pittioni 1986). Proposed visits of Neanderthals in high Alpine caves clearly need to be revised.

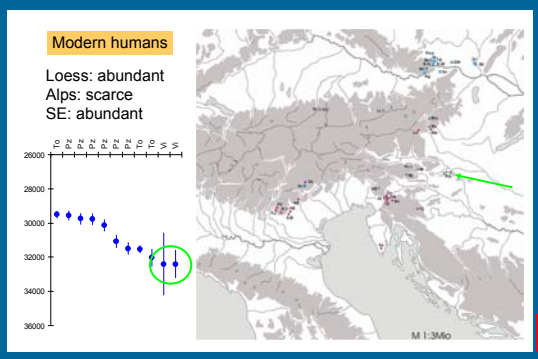

Fig. 3

Fig. 4

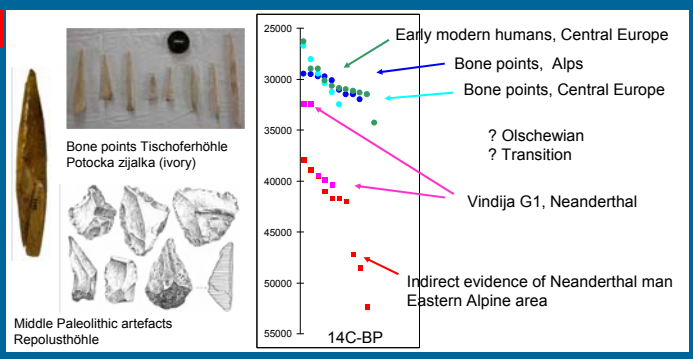

Figure 3, 4: Early modern humans are often identified by the presence of bone points and are suggested for Alpine sites by direct dates on the points (Tischoferhöhle, Potočka zijalka). The cultural assemblages in the Alps are generally small (eg. Liegloch, Drachenhöhle) except for the rich site Potočka zijalka. Radiometric dates indicate a gap between Neanderthal man and modern humans in the Eastern Alpine area. Human samples from Vindija G1 show morphological features of both modern humans and Neanderthal man (Smith et al. 1999).

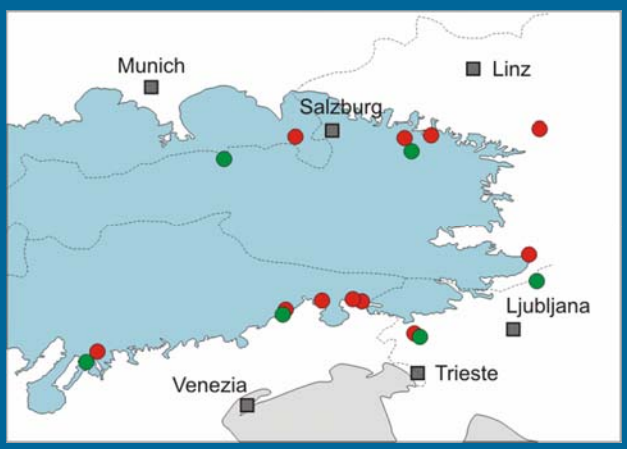

Figure 5:

Selected sites along the glaciation of the Last Glacial Maximum.

red dots: Mousterien green dots: Upper Palaeolithic

(ice extention after Ehlers & Gibbard 2004).

Fig. 6

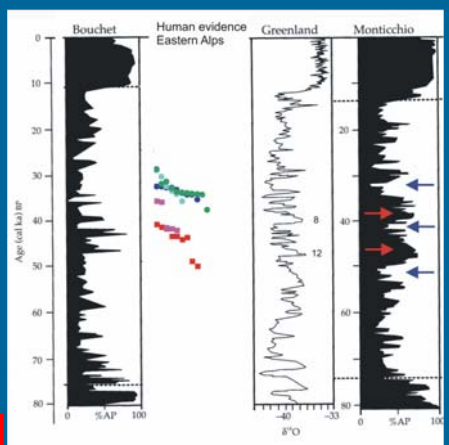

Fig. 6: Severe vegetational changes are indicated in the pollen profiles from Bouchet and Monticchio (after van Andel & Davies 2003). Among other things two prominent interstadials are visible in the greenland isotopic record: Hengelo (12) and Denekamp (8). Amazingly human evidence (dots as in Fig. 4) seems to correlate with climatic cold phases.

Results: A comprehensive approach that combines for the first time human and faunal evidence and glacier fluctuation at particular sites is necessary in order to achieve a well-based chronology of periods with human/faunal evidence and colder periods with glacier increase in the Eastern Alpine area.

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