

New evidence for the chronology of the Aurignacian and the question of Pleniglacial settlement in western central Europe

■ THOMAS TERBERGER ■ MARTIN STREET

ABSTRACT The paper examines the phenomenon of the Aurignacian at the northern edge of the German uplands in the light of the absolute dating evidence, in particular ^{14}C results obtained by the authors in collaboration with the Oxford Radiocarbon Accelerator Unit (ORAU). Previously existing evidence for dating the Aurignacian ca. 30 000 BP is supported by results for material from Level III at the Wildscheuer Cave in Hessen. On the other hand dates from Breitenbach B further to the east are consistently several thousand years younger — ca. 27 000 BP, raising the question of the survival of the Aurignacian into a later period contemporary with the oldest phase of the Gravettian. At Wiesbaden-Igstadt the lithic assemblage was originally classed as Aurignacian on purely technological and typological grounds but absolute dating instead dates the site close to

the Pleniglacial. A number of broadly contemporary assemblages from southeastern and southwestern Europe are similarly characterized by poorly developed laminar debitage and described variously as “aurignacoid”, “epi-Aurignacian” or “Badegoulian”. Such assemblages have until now been interpreted against the background of isolated Pleniglacial refugia. The geographically intermediate results at Igstadt and similar new dates from Switzerland now raise questions as to connections between western and eastern Europe at this time and on the details of the period between the youngest Gravettian and the earliest Magdalenian. Important is the reexamination of the evidence for the direct dating of German fossil hominids attributed to the period between 20 000 and 40 000 BP. AMS results show that major revision of this material is necessary.

Introduction

The following paper briefly presents some results obtained over the past several years by the authors in collaboration with the Oxford Radiocarbon Accelerator Unit (ORAU).

At the start of the project, ^{14}C dating efforts mainly concentrated on clarifying the chronological position of specific Upper Paleolithic sites in the Rhineland. Over time, the project developed a more global approach. The intention now is to progressively contribute to a better understanding of the chronology of the Upper Paleolithic in western central Europe generally. Topics and sites (Fig. 1) covered by the dating project include:

- new ^{14}C dates for the Aurignacian sites of Wildscheuer cave (Horizon III) in Hesse and Breitenbach B in Saxony-Anhalt;
- evidence for the dating of German fossil hominids attributed to the period between 30 000 and 40 000 BP;

- a more general overview of the evidence for Aurignacian chronology in Germany;
- new information for the period around the Upper Pleniglacial, when “Aurignacian” elements again form an element of those western central European lithic industries falling between the Gravettian and the Magdalenian.

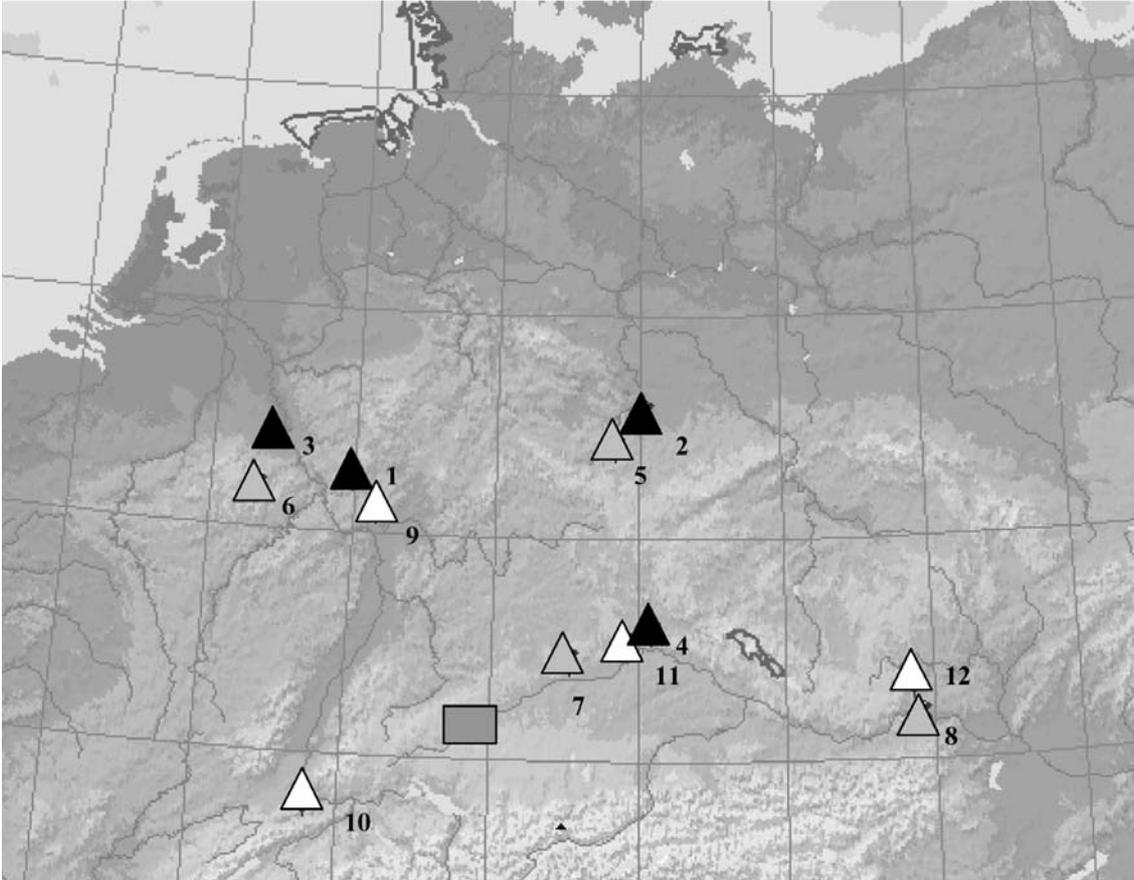


FIG. 1 – Location of archeological sites discussed in the text. Aurignacian sites: 1. Wildscheuer III; 2. Breitenbach B; 3. Lommersum; 4. Keilberg-Kirche. Gravettian sites: 5. Kniegrotte (?); 6. Magdalena-Höhle; 7. Weinberghöhle; 8. Langmannersdorf. Pleniglacial sites: 9. Wiesbaden-Igstadt; 10. Kastelhöhle-Nord; 11. Mittlere Klause; 12. Grubgraben. Rectangle: Swabian Alb (Aurignacian sites — Vogelherd, Hohle Fels, Geissenklösterle, Bockstein-Törle VII, Hohlenstein-Stadel; Gravettian sites — Hohle Fels, Geissenklösterle, Bockstein-Törle VI).

Wildscheuer III and Breitenbach B

Until only a few years ago, German evidence for the chronology of the Aurignacian technocomplex was concentrated in the south of the country, the location of such well known sites as Vogelherd and Geissenklösterle (Hahn, 1995). The only Rhineland site with somewhat more detailed information was the open air site of Lommersum, located west of Cologne and excavated by the late Joachim Hahn (Hahn, 1989).

The Wildscheuer cave had already been first investigated in the late 19th century and for decades the stratigraphy of this site has made a major contribution to our understanding of the Upper Paleolithic in Germany (Terberger, 1993). The Aurignacian is well developed at the site, lying below a Gravettian layer. The finds consist of stone artifacts manufactured on locally occurring, poor quality indurated schist (*Kieselschiefer*), but with well defined typically Aurignacian elements such as keeled and nosed scrapers. Reindeer seems

to be the most important game animal, but a number of mammoth remains were also recovered. Although some organic artifacts were excavated from the Wildscheuer cave, a large Aurignacian bone point found in the nearby Wildhaus cave is typologically more significant (Terberger, 1993).

For accelerator radiocarbon dating of the Wildscheuer III assemblage we selected a number of typical faunal elements, where possible with clear marks of butchery, and other worked organic material (Pettitt et al., 1998a). The obtained series of nine dates shows a main concentration between 30 000 and ca.34 300 BP, with an isolated outlier at ca.28 000 BP. A date of ca.21 000 BP for an ivory object must be rejected, confirming earlier observations that ivory often seems to be a less reliable material for radiocarbon dating.

Although it is difficult to decide whether we are dealing with a single or multiple phases of Aurignacian occupation at the Wildscheuer cave, we can observe a very good correspondence with the conventional radiocarbon dates from Lommersum and place the Rhineland Aurignacian into the “classical” phase of this technocomplex between ca.34 000 and 30 000-29 000 BP.

The situation for the site of Breitenbach is somewhat different. Excavations at this large open air site took place mainly in the 1920s and until today it has remained an isolated but very important piece of evidence for this technocomplex in the eastern part of Germany. The analysis of the stone artifacts by Jürgen Richter was able to demonstrate the classical character of this Aurignacian industry with numerous keeled scrapers (Richter, 1987). The conditions for sampling the inventory for radiocarbon dating were somewhat difficult because the only faunal material available was a small collection of bones housed at the Nuremberg Museum. Although the rather poor conditions of preservation meant that traces of human activity could not be demonstrated on the bone surfaces, the excavation of the Breitenbach faunal material in an open site context, together with the Aurignacian lithic assemblage makes their association seem very probable. Five accelerator results fall between 26 000 and 28 000 BP with a concentration in the period from 27 000 to 28 000 BP (Street and Terberger, 2000). The results are surprisingly young for an Aurignacian context, but their good accordance argues for a homogeneous context for the material and we see no reason not to trust them.

Human remains

A recent aspect of the dating program was AMS dating of German late Pleistocene human remains which have previously been dated to the Upper Paleolithic by conventional radiocarbon. The series included samples taken on skulls recovered at Binshof-Speyer (Rhineland-Palatinate), Paderborn-Sande (North Rhine-Westphalia) and Hahnöfersand (Hamburg) from fluviatile deposits (Henke, 1980, 1982, 1984; Henke and Protsch, 1978; Bräuer, 1980) (Fig. 2). Altogether these finds have only poor contextual information and were dated in the late 1970s and early 1980s by R. Protsch at Frankfurt.

The first AMS result was obtained on the cranium from Binshof-Speyer, which had been assigned an age of ca.21 300 BP by conventional radiocarbon. The new sample provided an Oxford AMS date of 3090 BP, which places the Binshof-Speyer find into the Middle Bronze Age (Terberger and Street, 2001).

Of greater significance is the AMS date for the Hahnöfersand skull fragment. The previously quoted conventional radiocarbon age of ca.36 300 BP would place the find into the period of replacement or transition between late Neandertals and early anatomically modern

humans and the specimen has been discussed against this background (Bräuer, 1980, 1982). Bräuer has argued that the specimen can be identified as a modern human, but with some features reminiscent of Neanderthals, and suggested that the Hahnöfersand hominid might represent possible evidence for hybridization due to coexistence and mixing of two different populations. The new sample gave an Oxford AMS date of 7500 BP, placing the Hahnöfersand human firmly into a Mesolithic context (Terberger et al., 2001). With hindsight, this indeed seems to be a much more plausible habitus for the skull, found on the surface at a dredging-site next to the river Elbe, and numerous northern European parallels for contemporary human remains can be cited (Lübke, 1993; Terberger, 1998a).

The discrepancy between conventional and AMS dating is even more disturbing in the case of the Paderborn-Sande calvarium (Henke, 1984; Henke and Protsch, 1978). Protsch had obtained a radiocarbon date of 27 400±600 BP (Fra-15) for the specimen, suggesting that this find was also one of the few Upper Paleolithic hominid remains older than 20 000 BP. The new Oxford AMS result of 238±239 BP (OxA-9879) now overturns this interpretation.

A further calvarium recovered from fluvial deposits at Emsdetten (also North Rhine-Westphalia) had not been previously directly dated, but was also believed, on contextual grounds, to be of Pleistocene age. The ORAU result on this specimen of 2460±37 BP (OxA-10048) places the specimen firmly within the first millennium BC and warns that, in the absence of unquestionable contextual security, the dating of human fossils on their anthropological-morphological features is most unreliable.

The Oxford AMS results for human remains lead to the following conclusions:

- a) The Hahnöfersand fossil is no longer of relevance for the discussion of the emergence of early anatomically modern humans;
- b) The conventional ¹⁴C dates for human remains from Binshof-Speyer, Paderborn-Sande and Hahnöfersand obtained by R. Protsch at Frankfurt in the years around 1980 consistently demonstrate systematic errors. This probably means that the Pleistocene age of the Kelsterbach human skull, also dated at this period by Protsch to

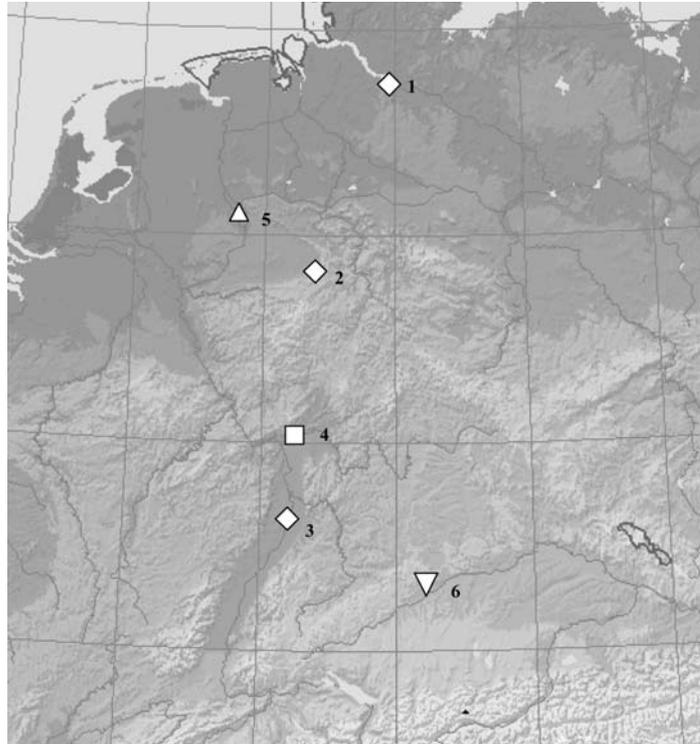


FIG. 2 – Location of finds of *Homo sapiens* discussed in the text. Diamond = supposedly early anatomically modern human, conventionally ¹⁴C dated by the Frankfurt laboratory and now shown by AMS dating to be much more recent (1. Hahnöfersand; 2. Paderborn-Sande; 3. Binshof-Speyer). Square = other supposedly early anatomically modern human, conventionally ¹⁴C dated by the Frankfurt laboratory (4. Kelsterbach). Triangle = supposedly early anatomically modern human, previously undated and now shown by AMS dating to be much more recent (5. Emsdetten). Wedge = Late Pleistocene human remains not yet directly dated (6. Vogelherd - Stetten).

ca.32 000 BP, but unavailable for the present study, should equally be rejected until this can be independently confirmed.

c) The only German human remains reliably dated to the early Upper Paleolithic period are the well known finds from Vogelherd cave in the Swabian Alb (Churchill and Smith, 2000a, 2000b).

Overview of Aurignacian chronology in western Central Europe/Germany

The last few years have seen a confusing debate on the beginnings of the Aurignacian and its relationship to “transitional” industries such as the Châtelperronian (Clark and Willermet, 1997; Orschiedt and Weniger, 2000; Zilhão, 2000; Zilhão and d’Errico, 2000). New evidence for the mechanisms of this change cannot be presented here, but perhaps very relevant to the debate is the fact that in southern Germany there are already clear indications for the very early presence of lithic industries of fully Aurignacian type by around 38 000 BP. The sites of Geissenklösterle and Keilberg-Kirche have both provided quite consistent series of ¹⁴C dates of this age (Hahn, 1995; Uthmeier, 1996) and, although the identification of the makers of this very early Aurignacian with anatomically modern humans is not yet proven by associated finds of human fossils, this seems the most probable interpretation.

Also in southern Germany, the “classical” phase of the Aurignacian is represented by a number of sites, such as Vogelherd, Geissenklösterle, Hohlenstein-Stadel and Hohle Fels, and the lithic assemblage is now regularly associated with worked organic material, objects of jewellery and artwork such as the famous ivory sculptures. This phase appears to begin ca.35 000 BP and its connection with modern humans is now demonstrated at Vogelherd (Churchill and Smith, 2000a). The Aurignacian in the Rhineland can also be dated to this period.

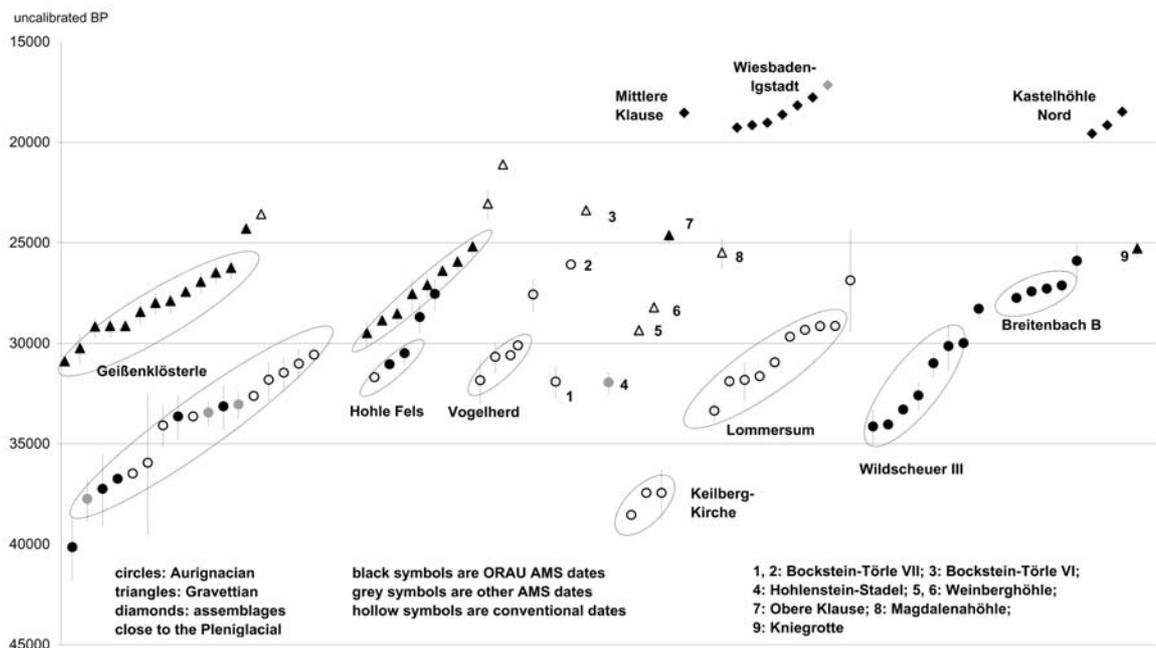


FIG. 3 – Uncalibrated ¹⁴C dates for sites discussed in the text.

The evidence for the question of the latest Aurignacian survival and for the timing of the beginning of the Gravettian is less clear. AMS dates for southern Germany suggest that here the Gravettian already begins at around 30 000 BP (Hahn, 1995). The ORAU dating results for the Wildscheuer III complex suggest that Aurignacian occupation ends here at about this time, while the dates for Lommersum suggest ca.29 000 BP as the youngest evidence for the Aurignacian technocomplex.

By contrast, at the site of Breitenbach B a consistent series of dates argues for a continuation of the Aurignacian in eastern German Saxony-Anhalt until ca.27 000 BP, a time when the Gravettian had been present in southern Germany for several millennia. Two different models might explain these results:

- a) The Breitenbach dates are reliable and indeed demonstrate a late regional persistence of Aurignacian lithic technology and typology (and population?) for at least 2000 years after its disappearance further to the south and west.
- b) The dates must be regarded as unreliable for reasons unknown at present.

In our view more evidence is necessary in order to arrive at a reliable decision. It is possible that Gravettian assemblages appeared at different times and driven by different mechanisms in the various regions under consideration. Possibly there was indeed a prolonged period of transition, leading to a kind of patchwork effect permitting the survival of different regional traditions for some time. While we admit this possibility until perhaps as late as 27 000 BP in the case of Breitenbach, we see no reliable dating evidence for still later survival of the Aurignacian beyond this period and cannot accept the concept of a continuation of the central European Aurignacian until ca.20 000 BP (see below).

Calibration of ¹⁴C results with the program CalPal (Jöris and Weninger, 1999, 2000) demonstrates that whereas the main evidence for the emergence of the Gravettian lies in GISP2 Isotope Stages 8 to 6, the Breitenbach dates would place this Aurignacian site as late as the cold period following Isotope Stage 5 (Figs. 3-4).

Lithic industries with “Aurignacian” elements dated to the period around the Pleniglacial

Four years ago, Wiesbaden-Igstadt was presented at the UISPP conference as a possible new Rhineland Aurignacian site. At that meeting, inconsistencies between the lithic typological evidence and the absolute dating of the site already raised some doubt on the

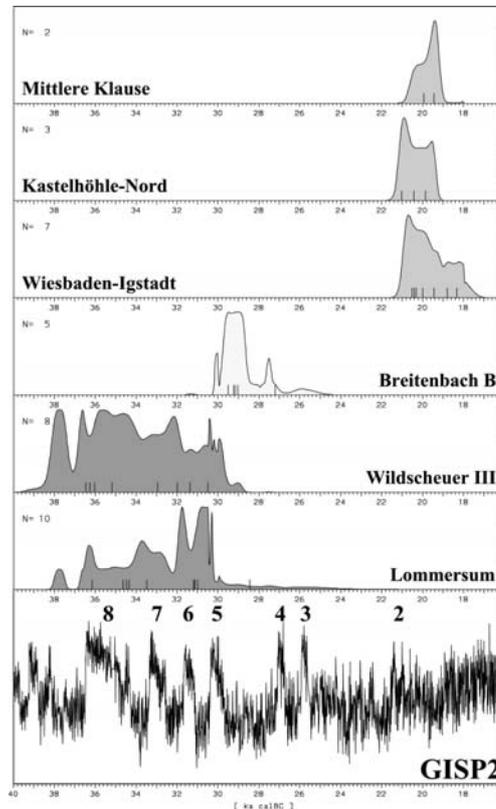


FIG. 4 – Calibrated ¹⁴C dates for sites discussed in the text.

attribution of Wiesbaden-Igstadt to the Aurignacian. Work has been continued and thanks to the cooperation with the Oxford laboratory we now have a reliable basis for dating the site to ca. 18 700 BP (Pettitt et al., 1998b). An important consequence of this is that western Central Europe can no longer be considered as a periglacial desert, without human presence for thousands of years, during the whole of the pleniglacial period *sensu lato* (Street and Terberger, 1999; Terberger, 1998a).

Clearly, the evidence of a single site might be seen as inadequate grounds for drawing such a wide ranging conclusion and further evidence for pleniglacial settlement has been actively sought over the past few years. New and relevant results have been obtained for the Kastelhöhle-Nord in cooperation with J. Sedlmeier. The Kastelhöhle-Nord cave is situated in the Kaltbrunnen valley in the northern Swiss Jura (Le Tensorer and Sedlmeier, 1993). The middle find horizon, with only a small number of finds, was identified in the 1950s below a late Magdalenian layer and has been discussed since that time as possible evidence for a Badegoulian presence in Switzerland (Höneisen et al., 1993), although it has never been possible to substantiate this hypothesis by absolute dating. J. Sedlmeier was recently able to locate faunal remains in the museum collection documented as originating from the relevant horizon and with clear evidence of human modification. AMS results for three samples now confirm the pleniglacial context indicated by the artifact assemblage (Street and Terberger, 2002). With a mean age of ca. 19 200 BP the dates are indeed somewhat older than those for Wiesbaden-Igstadt.

Together with a new AMS result for the human burial from the Mittlere Klause in Bavaria (Narr, 1977; Protsch and Glowatzki, 1974) we thus have an expanded database to suggest that western central Europe saw a first phase of human incursion at the period around 19 000 BP, very soon after the coldest part of the upper Pleniglacial. Setting the calibrated dates against the isotopic record makes it probable that human presence may have been made possible by slightly more favorable conditions following upon Isotope Stage 2.

The lithic assemblages from Kastelhöhle-Nord (middle horizon) and Wiesbaden-Igstadt find their best parallels in the French Badegoulian. Nevertheless, the absolute dating of the Badegoulian in western Europe is somewhat younger than the new central European dates presented here and an eastward expansion of the Badegoulian into Switzerland and the Rhineland from France seems unlikely against this background. By contrast, the site of Grubgraben in lower Austria clearly already demonstrates human presence between ca. 20 000 and 16 000 BP and some elements of the lithic assemblage here have much in common with the Badegoulian of western Europe. The young radiocarbon dates for the “Aurignacian” at nearby Langmannersdorf (Hahn, 1977) might suggest this site should also be reconsidered in this light.

The chronological sequence may therefore suggest that the development of the Badegoulian in France ca. 18 400 BP was in fact influenced, if not indeed initiated by influences from the east transmitted by human movement through western central Europe, as demonstrated at sites such as Wiesbaden-Igstadt and Kastelhöhle-Nord (Street and Terberger, in press; Terberger, 2001).

We propose that the possibility of contacts between eastern central Europe and western Europe has hitherto been underestimated for the period between the end of the classic “pan-European” Gravettian and the eastward expansion of Upper Magdalenian assemblages of ultimately Franco-Cantabrian origin (e.g. Housley et al., 1997). At a time of ongoing European unification it might be encouraging to think that contacts between east and west have, in fact, been established in the past whenever this was possible.

Acknowledgments

We would here like to thank Robert Hedges, Tom Higham and Paul Pettitt for the fruitful collaboration with the Oxford Radiocarbon Accelerator Unit which made this project possible.

REFERENCES

- BRÄUER, G. (1980) - Die morphologischen Affinitäten des jungpleistozänen Stirnbeins aus dem Elbmündungsgebiet bei Hahnöfersand. *Zeitschrift für Morphologie und Anthropologie*. Stuttgart. 71, p. 1-42.
- BRÄUER, G. (1992) - Africa's place in the evolution of Homo sapiens. In BRÄUER, G.; SMITH, F. H., eds. - *Continuity or Replacement. Controversies in Homo sapiens evolution*. Rotterdam: Balkema, p. 83-98.
- CHURCHILL, S. E.; SMITH, F. H. (2000a) - A modern human humerus from the early Aurignacian of Vogelherdhöhle (Stetten, Germany). *American Journal of Physical Anthropology*. New York. 112:2, p. 251-273.
- CHURCHILL, S. E.; SMITH, F. H. (2000b) - Makers of the early Aurignacian of Europe. *Yearbook of Physical Anthropology*. New York. 43, p. 61-115.
- CLARK, G. A.; WILLERMET, C. M., eds. (1997) - *Conceptual issues in modern human origins research*. New York: Aldine de Gruyter.
- HAHN, J. (1977) - *Aurignacien. Das ältere Jungpaläolithikum in Mittel- und Osteuropa*. (Fundamenta A 9). Köln-Wien: Böhlau.
- HAHN, J. (1989) - *Genese und Funktion einer jungpaläolithischen Freilandstation: Lommersum im Rheinland*. Köln-Bonn: Rheinische Ausgrabungen, 29.
- HAHN, J. (1995) - Neue Beschleuniger-¹⁴C-Daten zum Jungpaläolithikum in Südwestdeutschland. *Eiszeitalter und Gegenwart*. Hannover. 45, p. 86-92.
- HENKE, W. (1980) - Das Calvarium von Binshof (Speyer) im Vergeleich mit anderen Jungpaläolithikern. *Zeitschrift für Morphologie und Anthropologie*. Stuttgart. 70, p. 275-294.
- HENKE, W. (1982) - Der Jungpaläolithiker von Binshof bei Speyer – eine vergleichend-biometrische Studie. *Mainzer Naturwissenschaftliches Archiv*. Mainz. 20, p. 147-175.
- HENKE, W. (1984) - Der jungpaläolithische Schädel von Paderborn-Sande. Morphologische und röntgenologische Befunde. *Ausgrabungen und Funde in Westfalen-Lippe*. Münster. 1, p. 1-20.
- HENKE, W.; PROTSCH, R. R. R. (1978) - Die Paderborner Calvaria – ein diluvialer Homo sapiens. *Anthropologischer Anzeiger*. Stuttgart. 36, p. 85-108.
- HENKE, W.; ROTHE, H. (1994) - *Paläoanthropologie*. Berlin [etc.]: Springer.
- HÖNEISEN, M.; LEESCH, D.; LE TENSORER, J.-M. (1993) - Das späte Jungpaläolithikum. In *Die Schweiz vom Paläolithikum bis zum frühen Mittelalter*: SPM 1 - Paläolithikum und Mesolithikum. Basel: Verlag SGUF, p. 153-164.
- HOUSLEY, R. A.; GAMBLE, C. S.; STREET, M.; PETTITT, P. (1997) - Radiocarbon evidence for the Lateglacial human recolonisation of Northern Europe. *Proceedings of the Prehistoric Society*. London. 63, p. 25-54.
- JÖRIS, O.; WENINGER, B. (1999) - Calendric age conversion of glacial radiocarbon data at the transition from the Middle to Upper Palaeolithic in Europe. *Bulletin de la Société Préhistorique Luxembourgeoise*. Luxembourg. 18, p. 43-55.
- JÖRIS, O.; WENINGER, B. (2000) - Approaching the calendric age-dimension at the transition from the Middle to Upper Palaeolithic in Europe. In ORSCHIEDT, J.; WENIGER, G.-C., eds. - *Neanderthals and Modern Humans - Discussing the transition: Central and Eastern Europe from 50,000 - 30,000 B.P.* Mettmann: Neanderthal Museum. (Wissenschaftliche Schriften des Neanderthal Museums; 2), p. 13-19.
- LE TENSORER, J.-M.; SEDLMEIER, J. (1993) - Kastelhöhle. In *Die Schweiz vom Paläolithikum bis zum frühen Mittelalter*: SPM 1 - Paläolithikum und Mesolithikum. Basel: Verlag SGUF, p. 263.
- LÜBKE, H. (1993) - Eine jungpaläolithische Geschoßspitze und mesolithische Geweihgeräte aus dem Elbtal bei Hamburg-Billwerder. *Hammaburg*. Neumünster. Neue Folge. 10, p. 71-81.

- NARR, K. J. (1977) - Das Rätsel von Neuessing. Bemerkungen zu den Skelettfunden aus der Mittleren Klause. In SCHRÖTER, P., ed. - *Festschrift 75 Jahre Anthropologische Staatssammlung München*. München: Selbstverlag der Anthropologischen Staatssammlung, p. 53-56.
- ORSCHIEDT, J.; WENIGER, G.-C., eds. (2000) - *Neanderthals and Modern Humans - Discussing the transition: Central and Eastern Europe from 50,000-30,000 B.P.* Mettmann: Neanderthal Museum (Wissenschaftliche Schriften des Neanderthal Museums; 2).
- PETTITT, P. B.; STREET, M.; TERBERGER, T. (1998a) - Comments on the dating of Wildscheuer Cave. In HEDGES, R. E. M.; PETTITT, P. B.; BRONK RAMSEY, C.; VAN KLINKEN, G. J., eds. - *Radiocarbon dates from the Oxford AMS system: Archaeometry Datelist 26. Archaeometry*. Oxford. 40, p. 441-443.
- PETTITT, P. B.; STREET, M.; TERBERGER, T. (1998b) - Comments on the dating of Wiesbaden-Igstadt. In HEDGES, R. E. M.; PETTITT, P. B.; BRONK RAMSEY, C.; VAN KLINKEN, G. J., eds. - *Radiocarbon dates from the Oxford AMS system: Archaeometry Datelist 26. Archaeometry*. Oxford. 40, p. 443-444.
- PROTSCH, R.; GLOWATZKI, G. (1974) - Das absolute Alter des paläolithischen Skeletts aus der Mittleren Klause bei Neuessing, Kreis Kelheim, Bayern. *Anthropologischer Anzeiger*. Stuttgart. 34, p. 140-144.
- RICHTER, J. (1987) - Jungpaläolithische Funde aus Breitenbach. Kr. Zeitz im Germanischen Nationalmuseum Nürnberg. *Quartär*. Bonn. 37, p. 63-96.
- STREET, M.; TERBERGER, T. (1999) - The last Pleniglacial and the human settlement of Central Europe. New information from the Rhineland site Wiesbaden-Igstadt. *Antiquity*. Cambridge. 73, p. 259-272.
- STREET, M.; TERBERGER, T. (2000) - The German Upper Palaeolithic 35,000-15,000 bp. New dates and insights with emphasis on the Rhineland. In ROEBROEKS, W.; MUSSI, M.; SVOBODA, J.; FENNEMA, K., eds. - *Hunters of the Golden Age. Papers from the European Science Foundation Colloquium at Pavlov*. Leiden: University, p. 281-298.
- STREET, M.; TERBERGER, T. (2002) - Hiatus or continuity? New results for the question of pleniglacial settlement in Central Europe. *Antiquity*. Cambridge. 76, p. 691-698.
- TERBERGER, K. (1993) - *Das Lahntal-Paläolithikum. Materialien zur Vor- und Frühgeschichte von Hessen* [Landesamt für Denkmalpflege Hessen, Abteilung Archäologische Denkmalpflege, Band 11]. Wiesbaden: Landesamt für Denkmalpflege Hessen.
- TERBERGER, T. (1998a) - Endmesolithische Funde von Drigge, Lkr. Rügen - Kannibalen auf Rügen? Mit einem Beitrag von Jürgen Piek. *Bodendenkmalpflege in Mecklenburg-Vorpommern*. Lübstorf, 46, p. 7-44.
- TERBERGER, T. (1998b) - Siedlungsspuren zwischen 20.000 und 16.000 B.P. am Mittelrhein? Vorbericht zu den Ausgrabungen an der jungpaläolithischen Freilandstation Wiesbaden-Igstadt, Hessen. *Germania*. Frankfurt. 76, p. 403-437.
- TERBERGER, T. (2001) - *Vom Gravettien zum Magdalénien in Mitteleuropa – Aspekte der menschlichen Besiedlungsgeschichte in der Zeit um das zweite Kältemaximum der letzten Eiszeit*. Habilitationsschrift Universität Greifswald.
- TERBERGER, T.; STREET, M. (2001) - Neue Forschungen zum "jungpaläolithischen" Menschenschädel von Binshof bei Speyer, Rheinland-Pfalz. *Archäologisches Korrespondenzblatt*. Mainz. 31, p. 33-37.
- TERBERGER, T.; STREET, M.; BRÄUER, G. (2001) - Der menschliche Schädelrest aus dem Elbmündungsgebiet bei Hahnöfersand und seine Bedeutung für die Steinzeit Norddeutschlands. *Archäologisches Korrespondenzblatt*. Mainz. 31, p. 521-526.
- UTHMEIER, T. (1996) - Ein bemerkenswert frühes Inventar des Aurignacien von der Freilandfundstelle "Keilberg-Kirche" bei Regensburg. *Archäologisches Korrespondenzblatt*. Mainz. 26:3, p. 233-248.
- ZILHÃO, J. (2000) - Nature and culture in Portugal from 30,000 to 20,000 bp. In ROEBROEKS, W.; MUSSI, M.; SVOBODA, J.; FENNEMA, K., eds. - *Hunters of the Golden Age. The mid Upper Palaeolithic of Eurasia 30,000-20,000 BP*. Leiden: University, p. 337-354.
- ZILHÃO, J.; D'ERRICO, F. (2000) - La nouvelle "bataille aurignacienne". Une révision critique de la chronologie du Châtelperronien et de l'Aurignacien ancien. *L'Anthropologie*. Paris. 104, p. 17-50.