between archaeology, ethnography, and longterm history. Our focus on social and economic history, and the integration of historical and anthropological approaches in archaeology, fit squarely within current attempts to harmonize humanistic, scientific, and social science disciplines, and to develop a human-science approach to the study of the past.

Acknowledgements

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Ian Johnson and I particularly wish to thank Steve Held and Priscilla Keswani for the work, respectively, on the lithic materials and Late Bronze Age pottery. Dr Stuart Swiny provided further support on many levels; without him this season could not have succeeded. To all these individuals and institutions, the SCSP extends its sincere thanks.

References


PALEOLITHIC & MESOLITHIC RESEARCH IN BELGIUM, 1993: LE TROU MAGRITE, HUCCORNE & L'ABRI DU PAPE

L. G. Strauss, University of New Mexico
M. Otte, J-M. Cordy, J-M Leotard, and P. Noiret, Université de Liège
A. Gautier, Rijksuniversiteit Gent
F. Hassaerts, Institut Royal des Sciences Naturelles de Belgique
Ph. Lacroix, Musée du Cinquantenaire

Introduction

For a third summer, the Universities of Liege and New Mexico collaborated in the study of Stone Age chronostatigraphy, environments, resources and human adaptations in the basin of the Meuse River in southern Belgium. The original focus of the project has expanded from the study of the Middle and Early Upper Paleolithic (including the MP-UP transition), to include the investigation of human responses to the environmental changes of the Tardiglacial and early Postglacial. Thus the project’s scope encompasses the gamut of proto-
human (Neandertal) & anatomically modern human hunter-gatherer adaptations (sometimes including abandonment) in this northerly region bordering the Ardennes during the last interglacial-glacial-interglacial cycle (>100 –<10 kya). Work is currently underway to monographically publish the excavations at le Trou Magrite and (in association with the Institut Royal des Sciences Naturelles, which conducted major research at the site in 1976 & 1980), Hucorgne. Plans are also being made to obtain evidence from the one major period of Upper Pleistocene human occupation not yet sampled by this project: the Magdalenian/Tardiglacial. Proposed excavation of a recently tested Meuse valley site dating to this period would add to the modern data base on regional Magdalenian settlement, technology, mobility and subsistence patterns from such sites as the Troux Chaleux, Abri, des Blaireaux, DaSomme, du Frontal & Walou (Dewez 1992). And it would provide further evidence on the nature and evolution of human reoccupation of “the northern European frontier” after the Last Glacial Maximum, as well as for the baseline of human adaptive behaviors prior to Preboreal reforestation and the development of Mesolithic lifeways (Gob 1984).

Research on le Trou Magrite

In 1993, analyses of materials collected during the 1991-92 excavations at the Magrite cave site (Pont-à-Lesse/Walzin, Dinant) focused on chronozontography & evidence of seasonality. The following radiocarbon determinations are now available (Table 1). High precision AMS dates on individual amino acids are in progress.

**TABLE 1: TROU MAGRITE RADIOCARBON DATES**

<table>
<thead>
<tr>
<th>Level Period</th>
<th>Date</th>
<th>Lab No.</th>
<th>Material</th>
<th>Dating Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Aurignacian</td>
<td>17,800±700</td>
<td>ChA-4060</td>
<td>Bone charcoal</td>
<td>AMS</td>
</tr>
<tr>
<td>2 Aurignacian</td>
<td>22,700±1100</td>
<td>GX-1907A</td>
<td>Bone apatite</td>
<td>Convex</td>
</tr>
<tr>
<td>2 Aurignacian</td>
<td>26,580±1300</td>
<td>GX-17127G</td>
<td>Bone gelatin</td>
<td>Convex</td>
</tr>
<tr>
<td>2 Aurignacian</td>
<td>30,100±2200</td>
<td>GX-18396</td>
<td>Bone gelatin</td>
<td>Convex</td>
</tr>
<tr>
<td>2 Aurignacian</td>
<td>34,250±1925</td>
<td>GX-18017G</td>
<td>Bone gelatin</td>
<td>Convex</td>
</tr>
<tr>
<td>3 Aurignacian</td>
<td>27,800±1400</td>
<td>GX-18151G</td>
<td>Bone gelatin</td>
<td>Convex</td>
</tr>
<tr>
<td>3 Aurignacian</td>
<td>&gt;31,800</td>
<td>GX-18196G</td>
<td>Bone gelatin</td>
<td>Convex</td>
</tr>
</tbody>
</table>

The first two determinations are manifestly too young. Bone apatite is a generally unreliable material, while the charcoal flecks could easily have contaminated from the overlying Gravettian and/or Magdalenian levels that were shovelled off in the 1830’s—or from the modern humus layer and ground surface directly above Stratum 2. Otherwise, despite inversions in the remaining dates (possible due to migration migration in the open-work eboulis of Strata 2 & 3), the Aurignacian horizon at le Trou Magrite can be placed between about 34-27 k radiocarbon years (possibly equivalent to about 37-30 k calendar years old).

Detailed analysis of micromammalian remains from the owl regurgitation pellet lenses within the upper-middle part of Stratum 5 yielded a rich, diverse spectrum of rodents (including a variety of lemming species), all indicative of moderately cold, continental climate and open, steppic vegetation. This picture is confirmed by smaller rodent samples from adjacent parts of Stratum 5, which also yielded rare, isolated Mousterian artifacts, testimony to ephemeral Neandertal occupations of the cave. The Trou Magrite Stratum 5 microfaunal spectrum is similar to that of Couches Vg/4 in Sclayn Cave, 40 km downstream on the middle Belgian Meuse. At that cave this type of spectrum is assigned to the Melisey II pollen zone, which is correlated to oxygen isotope stage 5b, ca. 95-85 kya (Cordy 1992). The evidence of water-lain sedimentation in the 1991-92 Trou Magrite could be due to spring snow melt preceding dry summers.

High-precision cementum analyses of two reindeer jaws from Aubignacian Stratum 2 yielded unambiguous results: winter-late winter kills (Stutz 1993). These results confirm less precise indications of cold season kills (fall-spring) from reindeer tooth eruption and wear data in both Strata 2 & 3. On the other hand a thick section of an ibex molar, read by the traditional reflected light method, yielded a result suggesting of death between late spring and middle fall (A. Spiess n.d.). As ibex is the third most abundant ungulate in Stratum 2 (and in Stratum 3)—after reindeer and horse—it is conceivable that the cave was principally used by humans as a winter residential site form which reindeer were hunted on their sheltered cold-season range, while it was visited by hunting parties taking advantage of the steep, rocky ibex habitats immediately surrounding le Trou Magrite in various seasons of the year.

Repeated efforts by Cl. Schutz (pers. comm.) to obtain positive results from the extensive pollen columns taken at le Trou Magrite have yielded nothing beside sterile or virtually sterile samples. Technological, spatial and micro-wear analyses of the lithic assemblages are underway.

Excavations at Hucorgne (Figure 1)

The open-air site of Hermitage at Hucorgne is on a ridgetop cutting across the gorge of the Méhaigne River, 6 km upstream of its confluence with the Meuse at Huy. The 1993 excavations focused on two deep sondages to the east of the main site locus, in an area called the Smetz wood. Both the
first sondage, J-L/53-55, opened in 1992, and the second one, JJ-KK/45-46, opened in 1993 (Figure 2), yielded traces of Upper Paleolithic occupations at the base of the loess of Last Glacial maximum. Artifacts included a burin spall, narrow, elongated blades among the total of 444 lithic debris from Stratum 4, plus a thin-nosed endscraper (adding to the 2 burins found in the Smetz locus in 1992). There are two pairs of refitted lithics from this level (Stratum 4) in the J-L/53-55 sondage. The aspect of this small collection is fully compatible with the abundant Gravettian materials from the main part of the site between the road and railroad trenches.

The Gravettian component at the main locus is now radiocarbon dated by the following determinations (Table 2). AMS dates on individual amino acids are underway at Lawrence-Livermore Labs.

TABLE 2: RADIOCARBON DATES FOR THE GRAVETTIAN OF HUCCORNE.

<table>
<thead>
<tr>
<th>Level</th>
<th>Date</th>
<th>Lab No.</th>
<th>Material Dates</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>467</td>
<td>22,170+160</td>
<td>CIN-934</td>
<td>Bone collagen</td>
<td>Conventional</td>
</tr>
<tr>
<td>4</td>
<td>26,300+160</td>
<td>CIN-286</td>
<td>Mammoth bone collagen</td>
<td>AMS</td>
</tr>
<tr>
<td>4</td>
<td>24,170+250</td>
<td>CAMS-593</td>
<td>Mammoth bone collagen*</td>
<td>AMS</td>
</tr>
<tr>
<td>4</td>
<td>28,310+320</td>
<td>CAMS-591</td>
<td>Mammoth bone gelatin*</td>
<td>AMS</td>
</tr>
<tr>
<td>3</td>
<td>26,670+580</td>
<td>CAMS-595</td>
<td>Mammoth bone collagen</td>
<td>AMS</td>
</tr>
<tr>
<td>1</td>
<td>284±52</td>
<td>CR-17016</td>
<td>Charcoal flacks</td>
<td>AMS</td>
</tr>
</tbody>
</table>

*Same bone sample.

Assuming that the first date (from the unpublished 1969-70 excavation by J. Destech) is probably slightly young, a reasonable age for the Huccorne Gravettian (certainly consisting of multiple occupations of this strategic site, as suggested by refits from a two-episode blade core reduction process at the main locus [Martinez & Guillaud n.d.a, n.d.b]) would be on the order of 25-26 k radiocarbon years (probably at least 27-28 k calendar years). These dates tend to confirm the hypothesis of a Gravettian presence at Huccorne during the Tursac oscillation sensu lato, and more specifically around the time of the Wartons episode, which was a period of neither intense nor moderate cold (Haesaerts 1978; Haesaerts & Laville 1988). (The last date serves as a reminder of the ease with which sub-modern charcoal flecks can be moved downward—in this case as much as 1 m—by worms or other “invisible” agents of turberation.) Pollen analysis of Cl. Schutz (Institut de Paleontologie Humaine) has produced limited evidence for localized woods and brush with moderately humid conditions at the time of Gravettian occupation.

Directly below the Gravettian component in Smetz locus sondage J-L/53-55, there is a layer of weathered limestone blocks in a co-illuval silt matrix. A total of 131 cores, flakes & other lithic debris of Mousterian appearance were found in this unit (Stratum 5). One Levallois flake with a prepared butt and a plain flake (from different squares) were refitted onto a Levallois core from this level. (Another non-conjoining Levallois flake was found between these pieces.) This tends to prove that, although the stone layer may have been the result of solifluction from the limestone butte at the center of the ridge to the west, the subsequently deposited Mousterian occupation residues remained intact. Another indication of this fact was the discovery of a concentration of burnt flints & limestone blocs within an area of < 1 m: remnants of a simple hearth with no sign of construction. Five of the fire-cracked flints were refitted. Samples of burnt stone were taken for TL dating, which, if successful, could determine whether the humid, temperate conditions of this Mousterian pertained to the Last Interglacial (sensu lato) or, more likely, to the Würm Interpleni-glacial. In either case, there is a depositional lacuna in the stratigraphic sequence in the Smetz locus between the Mousterian and Gravettian components. In fact, in the second Smetz sondage (JJ-KK/45-46) there is clear evidence of erosion and mixing of the two. Channel features had been found along the west side of the road trench in 1980 (Froment 1980). Physical separation of the Gravettian and Mousterian, while not great, is present in the main locus at Huccorne—in the stratigraphic sections of both the 1991-92 and the 1978/1980 excavations. No faunal remains were found at the Smetz locus, save a few highly weathered bone lenses probably pertaining to mammoth. However, the collections from the 1980 cuts along the east side of the road trench contain several eroded mammoth tooth & bone fragments and the base of a shed antler of a very large cervid. This last item is matched by another shed antler base from the 1991 excavation in the main locus, perhaps suggestive of deliberate human collection of these times for use in flint knapping, which was one of the main activities at this site, located at a source of excellent flint.

Huccorne Collections in l’Institut Royal des Sciences Naturelles

Straus analyzed nearly 6000 artifacts from the 1976 & 1980 geological work directed by Haesaerts along both sites of the road trench at Huccorne. This collection pertains to the Gravettian component (Haesaerts’ Level Cl-I=Stratmun 4+4.d) and includes all components of the reduction sequence, although cores are relatively rare. The primary objective of profligate Gravettian knapping at Huccorne was the production of blades, some of which were converted into weapons and other tools.
The eastside road section yielded 138 tools, including 23.1% burins (notably truncation burins), 25.3% backed pieces, 6.4% truncated pieces and the normal moderate percentages (9-17%) of retouched, notched and denticulated pieces. There are only 4 endscrapers, 1 sidescraper and 2 fragments of shouldered points. Some of the backed blade(let) fragments may also have been (Micro-) Gravettian points. Despite its small overall size, the collections from the westside road section includes a pair each of elegant endscrapers and dihedral burins, as well as a truncated and a retouched piece and a sidescraper.

Nine pairs of lithic refits (and one triple set) were found during a brief conjoining session with Haesaerts’ east roadside collection. Most (but not all) are pieces that were found close to one another in Cartesian space, a fact which, together with the pristine sharpness of all artifact edges, suggests the absence of significant reworking by running water in this area.

L’Abri du Pape (Figure 3)

Pape is a small rockshelter (ca. 38 m² of covered area under the present overhang) at the base of the 100 m high Freyr Cliff on the east bank of the Meuse River, 5 km downstream of the French border. Archaeological deposits were discovered by Lacroix in a sondage dug at the rear of the abri in 1988. Major excavations directed by Leotard (1999) in 1989-90 uncovered a sequence of late Roman, Iron Age and middle Neolithic levels. A Mesolithic horizon (Stratum 20) was encountered at the base of the trench, which at this depth (3.75 m below ground surface) measured 3.5 x 2 m in size. Lacroix dug a second 1 x 1 m sondage at the base of this trench in 1992 and found a second pre-Neolithic layer (22), though at the time to date to the terminal Paleolithic (Fig. 4).

The 1993 excavation covered a total of 5 m². All observed finds ≥1 cm in size were piece-plotted, and all sediments were dry or wet screened through 5, 2.5 and 1 mm mesh. A total of 2095 lithic artifacts was found. The remainder of Mesolithic Stratum 20 (total thickness=50 cm) was removed. Archaeologically poor Stratum 21 (20-25 cm thick) nonetheless yielded medium-large mammal remains (perhaps natural deaths), as well as abundant microfauna. Stratum 22(+22.1) proved to also be Mesolithic, with the presence of 2 miocroolith triangles and a possible Tardenoisian point fragment. Strata 23, 24, 24.1, 25 & 26 are, like 21, all archaeologically sterile gravels spalled from the cliff, with varying amounts of blocks & slt. Strata 20 & 22/22.1 are distinguished by grey color and high organic content (notably ash), with distinct concentrations of charcoal and fire-cracked rocks in the center of the trench closest to the back of

FIGURE 3

ABRI DU PAPE
Freyr
Province of Namur - Belgium
Plan of Excavations

[Diagram of excavation plan]
the rockshelter. In general, the excavation reached a total depth of ca. 6.3 m below ground surface, but 7 m was obtained in two soundings, in one of which the nearly vertical edge of cliff bedrock was found at about 2.5 m back from the present dripline.

Stratum 20 produced 3 cores (2 of which are pyramidal bladelet cores) and 1735 items of debitage, notably many short, broad bladelets (35.7%) and several short, thick blades (6.4%)—both types rather poorly struck. In addition, there are 24 tone tools: 4 notched bladelets, 5 notched flakes, 2 denticulates, 6 retouched pieces, 1 burin, 1 perforator and 5 endscrapers. Another perforator and 3 retouched pieces, technically from Stratum 21, could have moved down from Stratum 20 through the loose gravels. Stratum 20 also yielded 2 antler punch tips and an artificially grooved, burned bone fragment. Stratum 22/22.1 has 25.9% unretouched narrow bladelets and relatively more flakes (30.7 vs. 15.5%) than Stratum 20. However, besides the two triangles (one a complete scalene and the other a tip fragment) and the possible Tardien point tip fragment, there are only two retouched pieces and a notched bladelet. M. Newman (University of Calgary) has determined the presence of cervid protein (NOT from Cervus, hence possibly Capreolus) on an unretouched blade from Level 22 at l’Abri du Pape.

Preliminary analysis by Gautier indicates the presence in the Page Mesolithic levels of wild cat, otter (?), boar, roe and red deer, aurochs/bison, voles, murids, hamster, various fish (including a cyprinid), frog/toad, large and small birds, and a wide variety of molluscs (terrestrial and riverine). Detailed identification of fish remains will be done by W. Van Neer (Musée Royal, Tervuren). Lacroix is undertaking a study of the molluscs and microfauna. C. Schutz, V. Matterne (Universiteit Leiden) and M. Demaret (Université de Liège) will identify the pollen, seeds and wood charcoal respectively. Charcoal samples for AMS radio-carbon dating have been sent to H. Krueger (Geochron Labs).

Although the general impression is of short human occupations centered around simple hearths within the rockshelter itself, it is also possible that the excavations only “caught” the edge of major cultural horizons centered slightly further to the west. In 1994 it is planned to excavate the remaining area of the abri (heretofore left intact as a witness section), where the 1 m²-1988 sondage had yielded a great relative abundance of retouched artifacts: 10 tools, including a double-edge backed point.

Acknowledgements

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EXCAVATION AND STUDY OPPORTUNITIES

The University of Durham, Dept. of Archaeology now offers MAs in Prehistoric, Roman and Medieval Archaeology, Environmental Archaeology, the History & Philosophy of Archaeology, Archaeological Survey, and an MSc in Applied Archaeological Science.

The Roman Aqaba Project: The 1994 Campaign at Ancient Aila on the Red Sea. In May/June, 1994 a new archaeological project will begin work at ancient Aila, a site now within modern Aqaba, Jordan's port on the Red Sea. The site was occupied from the first century B.C. to the seventh century A.D. and served as key transit point for commerce from south Arabia, east Africa, and India and for caravans traveling north into the Roman Empire. Aila was the southern terminus of a great Roman road (via nova Traiana) that ran north to Syria. Aila became an important Roman military base, where the famous X Fretensis Legion was stationed. The project will focus on excavation of the ancient city and also conduct a regional surface survey north into the Wadi Araba. The 1994 field season will be from about May 14 to July 10.

The project is sponsored by North Carolina State University and is directed by Dr. S. Thomas Parker, Professor of History at NCSU. In 1980-89 he served as director of the Limes Arabicus Project, an investigation of the Roman military frontier east of the Dead Sea in Jordan.

A professional staff of experienced excavation supervisors and specialists is now being recruited. Current positions to be filled include area supervisors, conservator, photographer, human osteologist, and small finds specialist. Those interested should send a letter and current c.v. to the direct at the address below.

Applications are also being accepted for the student staff. Students may earn six hours of undergraduate credit through NCSU. Students from all academic majors are encouraged to apply. No prior archaeological field experience is necessary. Costs for students are roundtrip airfare (N.Y. to Jordan, ca. $1,000), student contribution ($1,000), and academic tuition (optional, $300 for six hours).

For applications and more information, please write or call: Dr. S. Thomas Parker, Department of History, Box 8109, North Carolina State University, Raleigh, NC 27695-8108 (919) 515-2484, FAX 919-515-3886.

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The Art on Film Database is a project of the Program for Art on Film, established in 1984 as a joint venture of The Metropolitan Museum of Art and the J. Paul Getty Trust. At present, the Database includes more than 20,000 entries from seventy-four countries covering fine arts, architecture, decorative arts, costume, crafts, folk arts, archaeology, and related topics. Archaeology titles include material produced or distributed in the United States and Canada, and foreign language productions about archaeology not currently distributed in the U.S. Individual researchers or institutions can access the database by subscribing to the Art on Film Database Service. The initial enrollment fee is $34 for individuals and educational institutions, which includes one free search.

A CD-ROM version is projected for mid-1994.

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