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CONTRIBUTIONS TO THE MESOLITHIC OF BELGIUM : EARLY HOLOCENE CAMPS & BURIALS IN THE MEUSE BASIN OF NW ARDENNES

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Introduction & Background

The northwestern edge of the Ardennes (including the foothill subregions of Condroz and Famenne and the French enclave of Givet) is an area known for its rich and varied Bölling-age Magdalenian settlements along the entrenched valleys of the Meuse and its tributaries (notably the Lesse) between its confluence with the Semois to the south and the Sambre to the north. Together with a series of sites along the north-eastern edge of the massif, in the basins of the Meuse tributaries the Ourthe and Vesdre where there is another cluster of late Magdalenian sites, and the band of open-air locations of similar age in between Orp and Maastricht in Belgian Brabant, Belgian and Dutch Limburg, these sites can be argued to represent an independent settlement-subsistence system established between 50-51 degrees north latitude as a result of migration during the Late Glacial Interstadial period of ameliorating temperature, humidity, vegetation and faunal resources. The recolonization of Belgium was marked by the maintenance of social contacts with the probable homeland of this/these "daughter" band(s), namely the Paris Basin, source of most of the fossil shells that are found in many of the Belgian Magdalenian sites (Charles 1996; Rensink 1993; Otte and Straus 1997; Straus and Otte 1998). This period of cultural florescence lasted only about 700 radiocarbon years (c.12,900-12,300 BP) and was followed in the upland region by scant evidence of a successor Creswellian occupation, c.12,200-12,100BP (but see Charles 1994). The Alleröd-age Federmesser (Azilian-like curved backed point) occupations of Belgium seem to have been centered on the sand-covered area of Lower Belgium, with no evidence (at least so far) from the southern uplands (or loess-covered plains of Middle Belgium). Nor are there any reported Ahrensburgian sites (with distinctive tanged points) from the NW Ardennes, although there are a few in the Ourthe drainage of eastern Belgium. This Dryas III industry is perhaps better represented in the sandy region of Dutch Limburg. In short, there seems to have been a significant hiatus in evidence for human occupation of the Upper Belgian Meuse basin during Alleröd and Dryas III, despite intensive archeological testing of large numbers of caves - big and small - in this classic prehistoric region during the past 130 years.

When the 70 km stretch of the Meuse Valley between the Semois and the Sambre rivers seems to have been reoccupied during the late Preboreal and Boreal, it was under far different environmental conditions than during any of the Tardiglacial phases cited above. This paper will suggest that, in contrast to the far-flung and heavily hunting-dependent cultural adaptations of the Terminal Paleolithic (Magdalenian and "Epi-Magdalenian"), the early Mesolithic of the NW Ardennes constituted a small, localized, perhaps relatively isolated social and geographic territory with a peculiar, distinctive form of human burial and a subsistence strategy possibly more dependent on plant gathering and fishing than was the case among neighboring systems to both the north and south. We stress that data are still very limited and, hence, our hypotheses highly tentative.

There are conflicting archeotaxonomic schemes covering the region and time period in question: that of André Gob and that of Jean-Georges Rozoy. Gob (1984) included the Upper Belgian Meuse in his Beuronian (*sensu* W. Taute) culture area, but this was on the basis of only one site (Trou du Chêne at Montaigle), which was excavated in 1867. The rest of the Belgian Beuronian sites are in eastern Belgium. It is defined by the presence of numerous geometric microliths (mainly triangles) and Zonhoven points (see Gob 1981, 1984, 1991); it is, in short, rich in probable projectile tips and/or barbs ("armatures"). In contrast, Rozoy (1978, 1990, 1997a,b,c) defines an Ardennian tradition that includes sites in the Upper Belgian Meuse and French Givet enclave (the location of his "type site" of Roche-à-Fépin) (fig. 1). This is characterized on the one hand by relatively low relative frequencies of "armatures" and microburins, and on the other hand by relatively many retouched flakes (including many very thick items). The "Ardennian" also lacks invasively retouched "holly leaf" points, which begin to appear in Gob's (1985) Middle Beuronian and which are present in the Limburgian and Tardenoisian. Rozoy distinguishes the Ardennian "culture" from these latter two traditions, respectively to the north and to the south, and both with more geometric microliths,

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greater use of the microburin technique and production of more gracile blades in the so-called "Coincy style". "Ardennian" blades are thicker, more irregular and in general "cruder" in appearance. Often they are retouched or truncated, but not backed. Gob (1981:289) has expressed doubts as to our ability to distinguish small regional cultural traditions (as opposed to geographically very extensive ones such as the Beuronian, which is centered in Germany), given the small sample of well-excavated (i.e., systematically fine-screened) sites. At best, he acknowledges that there may exist local facies of major cultures. Semantics aside, recent discoveries suggest that there may be legitimate reason to distinguish a distinctive local cultural adaptation in the Upper Belgian Meuse basin during the late Preboreal and Boreal. These include (in addition to Rozoy's publications on Roche-à-Fépin) our excavations at l'Abri du Pape (Léotard *et al.* 1999; Straus *et al.* 1999) and at la Grotte du Bois Laiterie (Otte and Straus 1997) (the latter being continued by I. López-Bayón), plus the excavations and/or radiocarbon datings by N. Cauwe, M. Toussaint and I. Jadin of several early Mesolithic burial sites in the region.

Direct evidence for the vegetation of this area during the Preboreal and Boreal is scarce. Macrobotanical analyses of flotation samples from l'Abri du Pape by J.-M. Pernaud (1999) show woods including Scots pine, elm, a tree in the apple group, and especially hazel in Level 22, dating to 8800 BP (uncalibrated, as are all dates given in this paper). Underlying Level 23 has pine, hazel and birch. These data suggest a rapidly changing environment dominated by open woodlands under a cool-temperate climate. They coincide well with the few available pollen data for the Preboreal and Boreal of southern Belgium and northern France, as cited by Pernaud (1999): increase in hazel at the expense of pine and birch, slight presence of elm and oak, which increase later (in the Middle Mesolithic; extensive pollen samples taken at Pape by C. Noirel-Schutz all unfortunately proved to be sterile). The Mesolithic pollen spectrum from the Grognon site in Namur has a high, but fluctuating arboreal fraction, with pine and birch, but also considerable hazel and traces of alder and lime (Mees and Plumier 1994). There were apparently still grassy clearings in the vicinity. This spectrum is judged to be of Boreal age. While the early Mesolithic of this region occurred under transitional (successional?) vegetative conditions, the environment was already largely wooded, in strong contrast to the open or mosaic conditions of the various Tardiglacial phases.

Faunal data are also scarce, but support the image provided by the paleobotany. The few ungulates from the early Mesolithic levels at l'Abri du Pape (8800-7800 BP) include boar, roe deer, red deer and a bovine (probably aurochs; Gautier 1999). The first two species are indicative of wooded habitats; the second two are fully compatible with woods with clearings. The presence of wild cat, common fox and marten also fit with wooded, relatively temperate environments. The terrestrial malacofauna and microfauna (currently under study) confirm this picture, as do the abundant avifaunas from the Mesolithic levels which are composed of woodland and riverine forms (Deville and Gautier 1999). The many fish species are also indicative of Holocene conditions (Van Neer 1999). Van Neer characterizes the Pape ichthyofaunal assemblage as the first large sample of Mesolithic age to be studied in Belgium. Its nearly 300 remains pertain to eel, shad, chub, roach, unidentified cyprinids (carp family), catfish, pike, salmonids (salmon or trout) and perch. The sample is roughly equally divided between Stratum 20 and Strata 21-22.

The breccia deposit in Bois Laiterie Cave, which contained human skeletal remains dated to 9200 BP, also yielded red deer and boar remains (López Bayón *et al.* 1996). The almost identically dated human skeleton from Petit Ri Cave was apparently generally associated with remains of roe deer and boar (Jadin *et al.* 1995). The site of Grognon in Namur has also recently yielded remains of roe and red deer, boar and aurochs, as well as wild cat, common fox, badger, beaver and wolf or dog (Van Neer 1995). The same basic spectrum of species has recently been described at the open air Mesolithic site of Place Saint-Lambert in Liège (López-Bayón 1994). These few finds confirm a temperate, humid, wooded environment, a radical contrast with the habitats of Bölling which, although mosaic in character, still contained abundant open grasslands on the Ardennes plateaux with herds of reindeer, horses, bison and even muskoxen, plus ibex on the rocky canyon slopes. Nonethless, one must not forget that in Preboreal times Belgium was still far more "continental" than it is today, since much of the area of the present North Sea was still dry land. The Straits of Dover were not fully breached until the beginning of the Boreal period, when Britain finally once again became insular.

The Mesolithic Artifact Assemblages of l'Abri du Pape

The site of Pape is a small rockshelter at the base of the 100 m-high Freyr Cliff on the right (east) bank of the Meuse, 5 km upstream of the Belgian town of Dinant and 7 km downstream of the French border at Givet. Excavations substantially begun by J.-M. Léotard (1989) of the Université de Liège and which revealed a major Medieval, Roman, Iron Age, middle and late Neolithic sequence, were continued into the Mesolithic (and nearly sterile layers below) by the authors in 1993-94, with support from the National Geographic Society, L.S.B. Leakey Foundation, Belgian Federal and Wallonian Regional Gover-nments. As described elsewhere (Straus *et al.* n.d.a.b), the principal Mesolithic strata (20-22, together with several lesser levels and lenses) are radiocarbon dated by 4 stratigraphically coherent determinations between 8800-7800 BP (uncal.) (fig. 2). The Mesolithic strata were excavated over an area of maximally 14 sq.m (including the test pits of the site discoverer, Ph. Lacroix, most of whose collections could be included in our totals) (fig. 3). All sediments were water-screened through 1 or 3 mm mesh. The lowest Mesolithic level lies c. 4.5 m above the present (artificially high) level of the Meuse, whose shore is only c.10 m from the base of the talus.

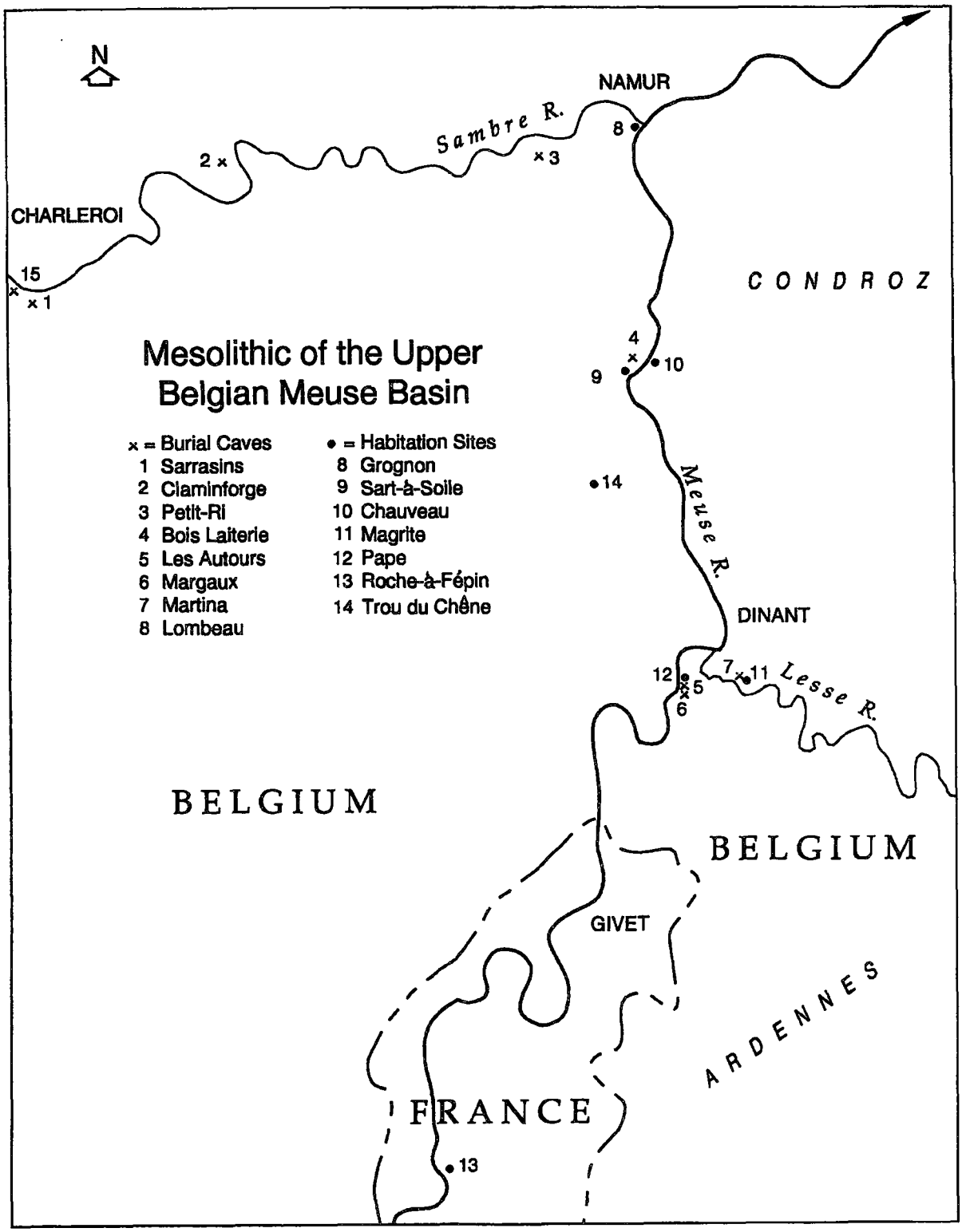

Figure 1: Map of Mesolithic sites in the Upper Belgian Meuse Basin.

The Mesolithic strata yielded a total of nearly 2800 lithic artifacts. Since most (73%) are from the more recent (7800 BP) Stratum 20 and since the underlying levels have statistically indistinguishable dates (8800 BP), comparisons will be made between Stratum 20 and combined Strata 21-22 (with lenses). The early assemblages are heavily dominated by *local* raw materials (Tertiary [?] flints and cherts of variable quality, plus quartzite, limestone, quartz, psammite). In contrast, Stratum 20 has far more flints of excellent quality: probably chalk flints from the Upper Cretaceous sources c. 60-70 km distant, to the WNW in Hainaut and to the north on the Hesbaye Plateau respectively. These latter kinds of flints had been extensively imported to the Magdalenian cave sites of this area (Upper Meuse and its major tributary the Lesse). Interestingly, however, neither the early nor the later Mesolithic assemblages at Pape have any Wommersom quartzitic sandstone, a material which was very popular among open-air Mesolithic sites in Middle and Lower Belgium (Caspar 1984). Wom-mersom is 65 km north of Pape in Brabant.

In no case are the non-local flints present in the form of large size items: the 5 cores in Stratum 20 and the 4 in Strata 21-22 are all small, and are accompanied by small numbers chunks (angular debris). The only large, heavy artifacts are 12 limestone flakes in Stratum 20. The total weight of lithic artifacts in Stratum 20 is only 1.98 kg and in Strata 21-22, 1.81 kg.

The earlier assemblages have far fewer bladelets (24%) than does Stratum 20 (35%), while Strata 21-22 have nearly twice as many unretouched flakes (30%) as does the more recent assemblage (17%). Both strata have about the same percentage of blades (10-11%), but these are generally short and fairly thick. The blades in the early assemblages are especially broad. Narrow blades/bladelets are more common in Stratum 20.

There are 31 retouched tools in Stratum 20 and only 16 in Strata 21-22. In Stratum 20 there are 7 endscrapers a burin and a perforator, but none of these in the earlier levels. In contrast, Strata 21-22 have 3 armatures (2 triangles - one of which is only a possible fragment of a triangle - and a possible Tardenois point), while Stratum 20, despite its larger assemblage, has none. Both assemblages have truncated and retouched flakes, blades and bladelets, notches and 1-2 denticulates, and a sidescraper each. There are no backed pieces. In general terms, these assemblages, although very small, seem to fit Rozoy's characterization of the Ardennian tradition. They are clearly not typical of the Tardenoisian, Limburgian or Beuro-nian, with their abundant microlithic armatures.

The "Ardennian" Context

The total amount of cultural and anthropogenic faunal material at Pape is small; there are no constructed features (just traces of simple hearths lit on the ground surface in a hollow between the rear shelter wall, the steep talus down to the riverbank and two lateral scree cones). The overall impression gained from the excavation of Pape is that this was a short-term, but repeatedly visited campsite: a bivouac. Activities here seem to have included fishing (perhaps involving nets, as no harpoons or other antler

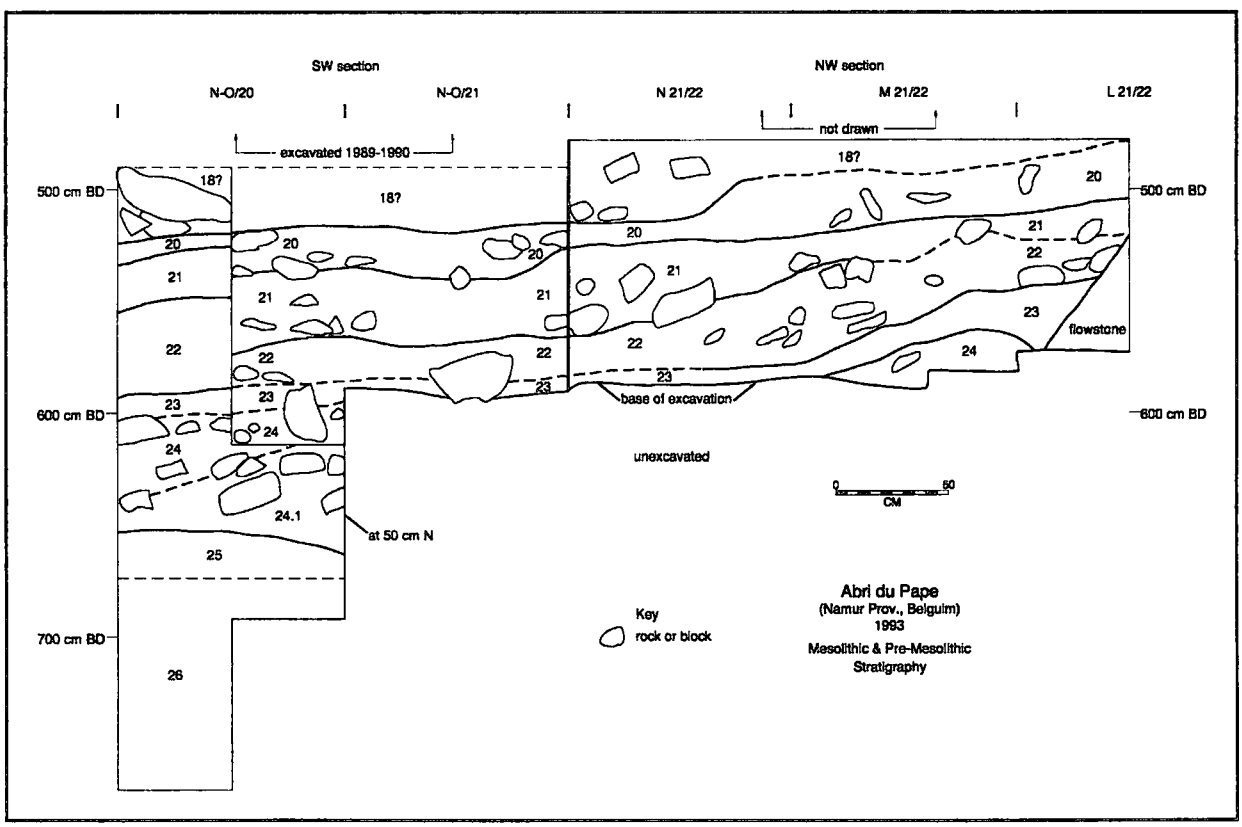

Figure 2: Stratigraphic section of l'Abri du Pape.

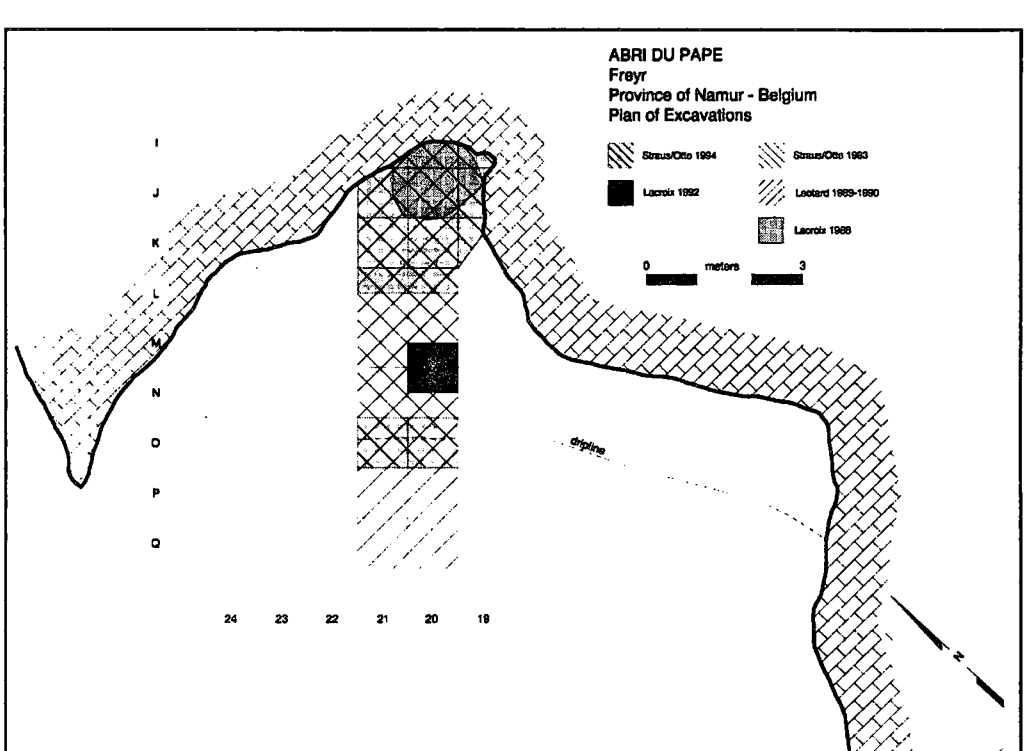

Figure 3: Plan of l'Abri du Pape.

points were found), very limited hunting and, judging from the fairly abundant charcoal (generally pulverized), apparently gathering and use of plant materials, presumably for fuel, raw materials and food. The diminutive size of this rockshelter suggests that the human groups which repeatedly used it as an ephemeral, expedient campsite were small indeed, perhaps microbands or task groups formed of only a few people.

While there are a few other known Mesolithic living sites in caves of the Upper Meuse-Lesse basin, none have been excavated with modern methods, except for Chauveau, near Bois Laiterie, which, however, is radiocarbon dated to 7350 BP (i.e., Atlantic period) and contained trapezes and triangles, plus a few artifacts made on Wommersom material (Toussaint *et al.* 1993). However Rozoy's site of Roche-à-Fépin, provides a glimpse of a type of site different in many respects from Pape, though also relatively small in size. This open-air location is 35 km upstream of Pape and is at the rim of a 220 m cliff directly overlooking a bend in the deeply entrenched Meuse. Similar «outlook» sites have been found in the area of the lowermost French Meuse (Roma, Roc la Tour II - the latter, however having Tardenoisian characteristics, i.e., many backed bladelets, circle segments, triangles, micropoints and other armatures), as well as in eastern Belgium (Roche aux Faucons, Mazures) (Rozoy 1978, 1990). (Another spectacular cliffside site dominating the Meuse on the prominent Sept Meuses hill between Namur and Dinant, Sart-à-Soile, was unfortunately collected over a century ago, but is argued by Rozoy [1978] to have pertained to a very late Mesolithic). Despite the panoramic views of the Meuse, there would not have been easy access to the river floor from these sites and their high rimrock locations may simply have been places where there were clearings and some respite from insects in the otherwise often dense woods.

The flint used at Fépin is believed by Rozoy to have come from the area of Marlemont, some 50 km by foot (34 air km) to the SW. This is the closest source of flint and at it there is a Mesolithic site, also attributed to the Ardennian by Rozoy (1978, 1990). As organic materials are absent in the surficial, open-air site of Fépin, there are no radiocarbon dates. The fact that "Ardennian-type" artifacts are found at the flint-rich site of Marlemont would suggest that this phenomenon was not "caused" by the distance to good raw materials of the sites along the flint-poor (or flintless) sites of the Upper Belgian and Lower French Meuse. It would seem to support Rozoy's territorial «ethnic/cultural» explanation for the Ardennian's distinctiveness.

As noted above, armatures are relatively few at Fépin, as are microburins, perforators, burins, and even endscrapers. On the other hand, retouched flakes (albeit small here, due to the distance to the flint source in this Devonian schist bedrock area of the French Ardennes) and tools made on blades (retouched and truncated, but not

backed) are relatively abundant. The blades are often stubby and irregular (not "elegantly" parallel-sided). Cores are obviously relatively few and small. Fépin and Pape are clearly different kinds of sites from a functional standpoint, but they share lithic assemblages which, for the Mesolithic of most European regions (including those immediately to the north on the lowlands of Belgium and Holland and to the south on the plateaux and basins of northern France), are surprisingly low in geometric microliths - a characteristic they share with several other sites catalogued by Rozoy (unfortunately few of which have been the object of modern excavations and none the source of faunal remains).

Recently Rozoy (1997a:490, 1997b,c) has in effect suggested two alternate hypotheses to explain the scarcity of armatures in his Ardennian assemblages: 1. the use of different methods of hunting or 2. the use of fewer microlithic elements per projectile vis à vis the Tardenoisian (and presumably the Limburgian). These intriguing suggestions lead us to propose the following: perhaps hunting was less important to human subsistence in the initial Holocene of the Ardennian area (mainly the Meuse Basin between Namur and Charleville). We have already seen that fishing was a very significant activity at Pape. The only other fish remains to have been reported from a Mesolithic context are from the open-air site of Grognon/Place Saint-Hilaire at the confluence of the Meuse and Sambre in the City of Namur which was the object of recent salvage excavations (Van Neer 1995). However this locality is believed to be a relatively recent Mesolithic site (late Boreal) and seems to have been within the typological and raw material sphere of the Mesolithic of Middle Belgium (presence of many armatures, backed blades and bladelets, Wommersom quartzitic sandstone) (Mees and Plumier 1994). Possible confirmation of the relatively lesser importance of hunting in this area comes from the fortuitous discovery of a Mesolithic burial in Bois Laiterie Cave, between Namur and Dinant (Otte and Straus 1997).

The Mesolithic Component in Bois Laiterie Cave

During the course of our excavation of the Magdalenian component in this small cave, we observed human and ungulate bones and ceramic sherds exposed at the base and edge of a breccia adhering to the wall and ceiling that had been left after the uppermost deposit in Bois Laiterie had been shovelled out by pothunters. Given the apparent sherd-bone association and the existence of another known Neolithic ossuary cave in the immediate vicinity, we assumed that we were dealing with Neolithic human remains. We salvaged a human foot and various other bones that were in danger of being lost. We submitted a talus for AMS dating by Geochron Labs. The surprising result was 9235+/-85 BP, in line with a growing number of early Mesolithic-age (Preboreal/early Boreal) human burials in caves in this area (see below). The late Harrold Krueger (1997), on his own initiative, conducted carbon and nitrogen stable isotopic analyses of the talus. Three runs each gave identical results of carbon isotopes averaging -20.5 o/oo and nitrogen isotopes averaging +8.3 o/oo. Krueger stated that the carbon isotopes indicate a 95-100% C3 diet, but that the nitrogen isotopes indicate some animal protein in the diet of this Mesolithic individual. The difference between bioapatite carbon and gelatin carbon (9.3o/oo) indicate a low lipid diet with not enough animal protein to contribute significantly to energy metabolism. He concluded that this person had been largely herbivorous, with a small amount of animal protein. The preliminary human paleontological study by Vandenbruaene and Gautier (1997) indicates that this person was an adult. A minimum of 2 adults and a juvenile were identified among the remains we rescued from the Bois Laiterie breccia (which apparently also includes a Neolithic component, perhaps intermixed with the Mesolithic). Although backdirt from the pothunter diggings which we extensively screened yielded other human remains - perhaps belonging to another child and 2 other adults - we *found not a single possible Mesolithic artifact*, and indeed few lithic artifacts of any kind, since the pot-hunters had not reached the Magdalenian horizon. The breccia also lacks Mesolithic-type artifacts. The Mesolithic humans had thus been buried without associated offerings. Subsequent to our excavation, I. López Bayón and Ph. Lacroix chiselled out and removed a large block of the breccia whence had come the dated talus. The human remains in this block are being prepared and studied in Liège by López-Bayon and M. Toussaint (Toussaint *et al.* 1998). Altogether, there are now a minimum of 4 adults and 2 children, at least one of which is directly dated to the early Mesolithic period. The teeth show evidence of caries, calculus and significant wear suggestive of heavy chewing of gritty vegetal foods (López-Bayón *et al.* 1996).

If confirmed by stable isotope (and dental wear) analyses of other early Mesolithic human remains from Bois Laiterie and from the other sites discussed below, this discovery could help explain why the «Ardennian» had relatively few armatures: these people may really have done relatively little hunting and subsisted heavily on plant gathering and fishing (perhaps with nets or weirs). Such a scenario would be fully in line with the suggestions made over 20 years ago by the late David Clarke in his classic article, "Mesolithic Europe: the economic basis" (1976) concerning the probable significance of riverine (and other aquatic) habitats and vegetal resources in the pre-Neolithic early Holocene of Europe - in sharp contrast to Rozoy's (e.g., 1978, 1993) emphasis on bow-hunting as being the defining characteristic of all Mesolithic adaptations.

A Local Mesolithic Funerary "Tradition"?

As mentioned above, Bois Laiterie is not alone as a cave in the Upper Belgian Meuse/Sambre basin having Mesolithic human interments of Preboreal age. (There is virtually no limestone in the Lower French Meuse Givet enclave, hence no caves and no preserved burials there.) In recent years individual or small numbers of human burials have been found in 5 other sites besides Bois Laiterie - 2 of them in caves of the Freyr Cliff, within a few hundred

meters of Pape near Dinant. These sites, summarized recently by Toussaint *et al.* (1998) are:

Margaux (near Dinant): collective burial of 9 people in a stone-lined and covered pit with no associated artifacts, dated to 9190 BP (conventional C-14) and between 9300-9500 BP by AMS (Cauwe 1988, 1993);

Autours (near Dinant): a collective burial with a few unretouched bladelets and an AMS date of 9090 BP, plus an individual burial with no artifacts and an AMS date of 9500 BP (Cauwe *et al.* 1993; Cauwe 1993, 1994, 1995a, b);

Claminforge (near Sambreville): 5 burials without artifacts and with an AMS date of 9320 BP (Toussaint *et al.* 1996);

Petit Ri (near Namur): a small collective or individual burial with 11 artifacts (an endscraper, a partly backed bladelet,a retouched flake and some unretouched bladelets) and an AMS date of 9270 BP (Jadin *et al.* 1995);

Sarrasins/Loverval (near Charleroi): 2 burials with no associated artifacts; there is a conventional C-14 date of 9090 BP and an AMS date of 9640 BP (Cauwe 1993);

Lombeau (near Charleroi): hundreds of human bones mainly found clustered in a «natural box», with three AMS determinations between 9000-9400 BP (Toussaint *et al.* 1998).

Although not absolutely unique in the Mesolithic of Europe, these burials in a limited region of Belgium do seem to signify a peculiar local funerary tradition, as rightly discussed by Nicolas Cauwe (e.g., 1993, 1997). The dates - now including Bois Laiterie - all fall between 9600 and 9000 BP: Preboreal. The latest dates fall just before those for the basal Mesolithic occupation levels at Pape, which are at the Preboreal/Boreal transition. As Cauwe has noted, the use of caves as ossuaries reappears in the regional Neolithic (including the Pape rockshelter and many of the same caves that have early Mesolithic burials) - as is also the case in many other regions of Europe (e.g., Iberia). Any argument for local cultural continuity would have to rely on evidence for similar funerary practices in the intervening period. Interestingly, such has recently been found. In 1949, a remnant of breccia was excavated in the cave of La Martina near the confluence of the Lesse with the Meuse (and adjacent to the classic Middle and Upper Paleolithic site of Trou Magrite). The collections from this amateur excavation have recently begun to be analyzed by a team directed by M. Dewez at Louvain-la-Neuve (Dewez *et al.* 1995). Remains of 2 human individuals were found: one femur has been conventionally radiocarbon-dated to 7440 BP and was apparently associated with typical Holocene fauna. The site, like Bois Laiterie, also has sherds and it is possible that Neolithic and Mesolithic human burials had become mixed, perhaps as a result of the interment of Neolithic cadavers (?). While no Mesolithic artifacts are mentioned, the original radiocarbon determination predates the appearance of the Neolithic in this region, although other human bones from Martina have recently been AMS dated to the Neolithic time period (Toussaint and Ramon 1997). Hence the local "tradition" of burying one or a few individuals in caves with few or now artifacts may have continued into the later Mesolithic and even into the Neolithic: an argument for regional continuity of population, despite the appearance of pottery, cultigens and domesticated animals in nearby Middle Belgium with the Omalian variant of the Bandkeramic culture c. 6500 BP (uncal.).

Conclusions

This paper tentatively suggests that when the Upper Belgian and Lower French Meuse basin was reoccupied by humans after the Dryas III episode, under increasingly densely wooded conditions in the Preboreal and Boreal, a local Mesolithic cultural adaptation developed. Current evidence suggests that small bands in this area had fairly limited mobility, especially at first. Their territory did not extend northward into Brabant, although some Wommersom quartzitic sandstone does appear in the northernmost and latest Mesolithic sites in and near Namur. Good quality flints - to supplement or make up for poor-quality local lithics - seem to have been obtained at moderate distances, especially around Marlemont and Mons, both to the west. After all, mobility would have been hindered by the forests and canyons. Subsistence may have been based primarily on plant food gathering (notably hazel nuts, together with roots, tubers, seeds, berries, etc., especially rich in the riparian zone of the Meuse and its tributaries) and on fishing. Hunting may have been only a secondary economic activity, hence the relative scarcity of lithic projectile armatures and absence of antler points. The local culture may have also been distinguished quite serendipitously as an "isocrestic" style by the characteristics of knapping (i.e., less oblique percussion resulting in thicker *débitage* products than in the Tardenoisian) discussed by Rozoy (1978, 1990, 1997 a, b, c; see also Walczak 1997) for his "Ardennian", as a result of low mobility and relative isolation from surrounding groups. This local tradition also seems to have manifested itself in terms of funerary practices: the exclusive use of certain caves for human interment with few or no associated artifacts. The fact that these interments are singular or very few in number may be a reflection of the small size of the local human populations, also reflected by the limited extent of the known residential sites. Clearly a rather marginal area for the adoption of agriculture, the northwestern Ardennes seems to have seen the survival of a small, distinctive and rather isolated Mesolithic population that was only absorbed into the Neolithic system late in time despite the fairly early appearance of LBK on the loess-covered plains of adjacent Middle Belgium. This is a scenario reminiscent of the situation in some of the coastal regions of the Atlantic facade of western Europe (e.g., Zvelebil and Rowley-Conwy 1986).

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