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FROM THE EDITOR

I would like to thank all of the contributors to this issue who responded to my plea for more articles and reports for *Mesolithic Miscellany*. This is a full and exciting issue and it is my hope that this pattern will continue in the future. I would like to urge everyone to send in a note about their work this summer and to prepare other materials for the newsletter. If you enjoy reading about the work of others, there is a good chance that they would enjoy reading about your work. The deadline for the November issue is 31 October. *Mesolithic Miscellany* publishes research reports, book reviews, national synopses of recent excavations, statements for debate, conference summaries, important radiocarbon determinations, announcements, and summaries or abstracts of recent publications to inform readers of current developments in the field. Recent publications are particularly difficult to keep up to date - reprints or simple citations of your work would be most useful. Please prepare a brief abstract of the article or publication if one is not included in the text.

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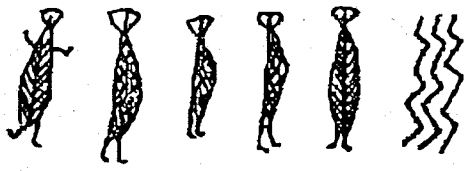

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MESOLITHIC MISCELLANY

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Research Reports

The Argus Site — Examination of a Mesolithic Settlement 4 - 6 m Below Present Sea Level

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Introduction

The Argus settlement lies between the islands of Lolland and Falster in southeastern Denmark at a depth of 4-6 m below the present sea level. It dates from the time when the ocean transgressed the Danish Belts and the Baltic (Fig. 1). Typologically the site belongs to the early Kongemose culture - i.e., 5 ^{14}C analyses date the settlement to ca. 4900 B.C. (conventional ^{14}C years). Finds recovered from the settlement include tools of flint, bone, and antler, food refuse such as split bone and cracked hazelnut shells, and skeletal remains of the inhabitants themselves - dogs as well as human beings.

The Discovery and Excavation of the Site

The greater part of the material from Argus came to light as a result of industrial dredging for gravel and stone around 1956. A closer examination of the site by scuba-divers was carried out in 1984 under the auspices of the National Conservation Agency (*Fredningsstyrelsen*) in connection with the ongoing recording and protection of Stone Age settlements on the Danish sea floor. In 1985 the site was mapped in greater detail and the habitation surface (now buried as much as 2 m below the sea floor) was reconstructed on the basis of seismic surveying.

In this Issue . . . .

Diving operations revealed that artifacts could be found across an area of about 100 x 50 m, largely visible in old dredging pits. Cultural layers seemed to be covered by marine sediments of varying thickness throughout most of the area. On the west side of the bank there was seen what appeared to be an alluvial deposit with artifacts of flint and antler as well as waste products of bone, wood, and bark. This deposit was about 0.75 m deep in the sea bed, and 5.5 to 6 m below the surface of the sea.

In another spot, at a depth of a little more than 5 m, a stone-paved hearth was excavated (Fig. 2). This feature contained charcoal, hazelnuts, bones, and some flint artifacts, including a white-burnt broad trapeze microlith. Examination of the charcoal by Claus Malmros has given detailed information regarding the vegetation around the site and on the way in which firewood was procured. Close to the fireplace was a workshop for the production of trapeze points, documented by the presence of waste products such as microburins and large numbers of very small retouch chips.

Flint Technology

The flint artifacts from the Argus settlements bear witness to the abundance of this raw material. For instance, the manufacture of the many large and elegant blades exclusively utilized flint nodules of the highest quality -

Figure 1. Looking for the submerged home of his childhood - reconstructed situation from the early Kongemose culture.

i.e., homogeneous, glass-like, brittle "senonian" flint. Furthermore, many of the blade cores were discarded while still large enough to remove several hundered grams of blades and flakes.

The Argus blades can be described as some of the best examples of flint craftsmanship in the Danish Mesolithic. The blades are up to six times longer than they are broad and measure as much as 14 cm in length. They have even, almost straight side edges and dorsal ridges. Their platforms are narrow, elliptical, and without compression rings. They have a bulb of percussion with a pronounced lip along the platform edge, and the side edges splay markedly outwards from the platform. The production technique followed a set pattern. First, the blade core was worked into a cone shape with a hammerstone. Next, a ridge was often made down the front of the core by unifacial or bifacial flaking. Lips and projections along the platform edge of the core were likewise removed with a hammerstone in order to insure a predictable path for each detachment. A relatively soft instrument was used for detaching blades, most likely the slightly modified tine of a stag antler - many examples of this kind of tool have been recovered from the site.

Flint axes are the most common implements at Argus (n=134). In most cases they are made from flint nodules which were smaller in size and poorer in quality than those used for the production of blades. Unlike the blades, the axes are remarkably unstandardized in shape and made by the simplest technique - direct blows from a hammerstone.

The Topographic Position of the Settlement

A number of observations indicate that the settlement on the Argus bank was situated directly adjacent to open water. During the habitation period the sea was probably 5.5 to 6 m below present level. The maps of the Danish sea floor document clearly that only the ocean could have formed a shoreline on this contour.

The absence of distinctly salt-water fish among the finds of fish bone is an indication that the salinity of the waters around the Argus settlement was low. This however is hardly surprising considering the location of the settlement in the inner reaches of a long, shallow fjord, into which freshwater would have drained from miles around.

The species of fish found at Argus correspond by and large with what can be caught today in similar narrow fjords in southeast Denmark. Now-a-days pound nets are usually

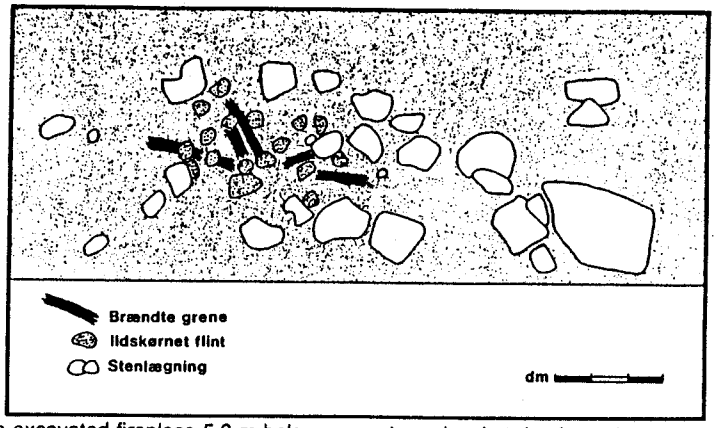

Figure 2. The excavated fireplace 5.2 m below present sea level at the Argus bank. Charcoal (black) and white-burnt flint (shaded) were found apparently undisturbed on a stone pavement (white).

employed for commercial fishing in coastal waters such as these. The predecessors of this kind of equipment were in use during the period of the settlement at Argus - i.e., brushwood traps. Most probably the settlement was established there because the topography provided ideal possibilities for this sort of fishing.

The Internal Organization of the Site

The present observations convey the impression that the size and infrastructure of the Argus settlement was comparable to that of the coastal settlements of the subsequent Ertebølle culture. The shallow waters close to the shore have been used as dumps for the remains of food and tools, while hearths and activity areas, e.g., arrow point workshops, were located in more elevated portions of the site.

A cemetery should probably be added to this picture of the settlement as 23 human bones have been firmly identified from the site. According to the examination carried out by Pia Bennike (this issue), these bones likely represent the remains of four individuals: a fully grown man, a young woman, and two children - two and four years of age. None of the bones shows signs of cannibalism. Violence on the other hand is indicated by a healed would - probably from the blow of an axe - in the skull of the male. The human skeletal remains are likely the remnants of graves destroyed by the earlier dredging activities. If that is the case then we may have here the earliest evidence for a cemetery discovered to date in Denmark.

Nutrition, Season of Occupation, and Group Size

What we know about the nutrition of the inhabitants of the Argus settlement is based primarily on the food refuse found at the site. Most of the many animal bones are of large game from the forest. Ulrik Møhl's examination reveals, for example, that red deer, roe deer, and wild boar amount to 59%, 13%, and 20% respectively of the total of 757 bones identified at the species level. Among the smaller animals number beaver, otter, harp seal, and grey seal. Avifauna represented include black stork, shelduck, mallard, merganser, crane, and white-tailed eagle. Of the abundant fish bone, only 29 have been identified as to species. They come from pike, bream, perch, and pike-perch.

The impression conveyed by the finds is that the primary source of food for the inhabitants of Argus was large game. This, however, was probably not the case. For example, judging by eye witness accounts from the crew of the dredger, plant foods (in the form of hazelnuts) may have been of more than just marginal importance in the diet. Fish, however, has undoubtedly been of the greatest significance. This is indicated by examination of the topographic position of the settlement itself. In addition it is supported by the carbon isotope composition of one of the human bones. The analysis conducted by Henrik Tauber of the National Museum indicated that the diet of this individual was derived largely from the sea. Food remains such as bones and hazelnuts bear witness to the habitation of the Argus settlement at all times of the year. This could be the result of repeated temporary occupation by small family or specific task groups at different seasons. However, the suggestion of activity areas, which seemingly fit into one common pattern for the whole site, is most probably the consequence of a single large and continual inhabitation. Considering as well the seasonal indicators in the floral and faunal material, as well as the huge quantities of cultural debris that are present, the settlement may well have been occupied more or less permanently by a large group of people for a number of years or decades.

Reference

Fischer, Anders, et al. 1987. **The Argus Site - A Submerged Settlement from the Mesolithic Period.** Copenhagen: Skov- og Naturstyrelsen.

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Human Remains from the Argus Bank

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A few decades ago the skeletal remains from both the mesolithic and the early neolithic were few in number and could be counted on the fingers of one hand. Today the materials from both periods has increased dramatically. The mesolithic materials come first and foremost from new excavations, but a number of skeletons have also been brought up from the sea bed within the past few years. The finds of human bones from the Argus Bank have aroused interest, especially after the ^{14}C determinations established age from the mesolithic period (Fischer, this issue).
In all, the material comprised 23 bones of bone fragments which could be positively identified as human. About half of the bones come from the limbs, and the rest of the skull, scapulae, clavicullae, costae, and vertebrae (Fig. 1). No teeth were recovered.

The 23 bones come from at least four individuals, two of whom are children age 2 and 4. Some bones are fairly slender in appearance which suggests that they are the bones of a woman. In addition, they seem to be from a rather young adult (16-20 years). Other bones are from a heavily built adult, possibly a male. A tibia fragment may be from a third adult. The slender person was approximately 146 cm in height, and the heavier person was about 158 cm. These measurements are calculated *ad modum* Trotter and Gleser (1952, 1958) on the basis of the right humerus (♀), and a reconstruction of the left femur (♂).

There is little evidence of pathological conditions or traces of injury in the bones from the Argus Bank. All that has been established is an oblong, partly healed, wound (20 x 15 mm in size) on the left side of the frontal bone, probably belonging to a strongly built male. On a small fragment of femur, impossible to identify more closely, are two small traces of blows. These are only a few mm apart, yet they lack characteristic splintering, and it is hard to say whether they are the result of human action.

There are two almost intact humeri, probably from the same person, namely the young slender person (♀?). Furthermore, it can be seen from various bones and bone fragments that they are not simply random elements which have rolled about on the sea floor, but rather that several of them have come from the same individual. This might suggest that there was a mesolithic cemetery at the site.

Most of the Danish mesolithic skeletal material has been summarized (Newell, Constandse-Westermann, and Meiklejohn 1979) but new finds are added continuously, like the bones from the Argus Bank and from new ^{14}C determinations. The number of skeletons from the early neolithic is also increasing, largely due to new ^{14}C datings.

A study comparing this new unpublished material from the early neolithic period to the mesolithic skeletons is in progress.

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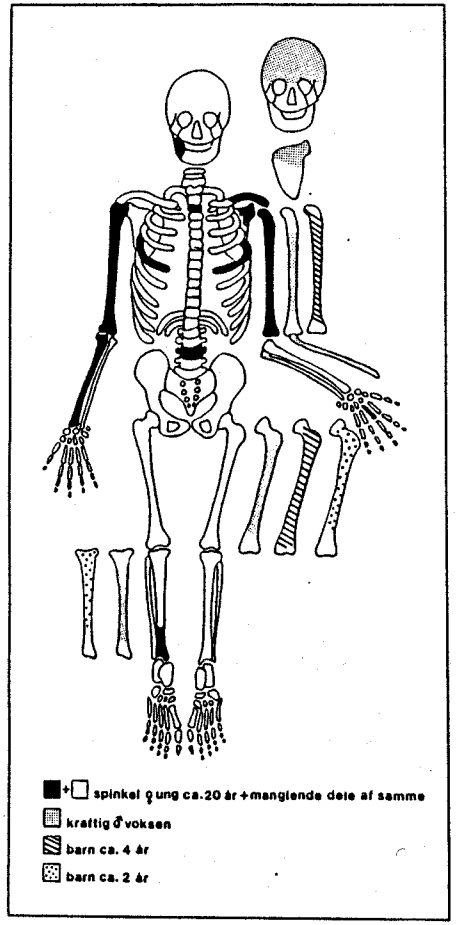

Figure 1. Human skeletal remains from the Argus Bank. Black: slender, female, age 16-20 years. White: missing parts of same person. Shaded: heavy, adult, possibly male. Hatched: child, age ca. 4 years. Dotted: child, age ca. 2 years.

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The Mesolithic Peatbog Site of Pobiel 10, Lower Silesia, Poland

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The site of Pobiel 10 (Woic. Leszno, Southwestern Poland) is one of the more interesting of the Polish Mesolithic. At the site, material remains are partially preserved in a fossil bed the River Orla, which contains two levels wit. Mesolithic organic remains. The river bed surrounds an island-like Pleistocene terrace of the older river bed (Fig. 1). The Mesolithic settlement is situated on this terrace, which covers an area of approximately 20,000 m². The settlement area itself has a surface of ca. 6000 m².

Excavations at Pobiel 10 were conducted in seven campaigns (1967-68, 1971, 1978, 1983-85); both the terrace and the adjacent river bed were investigated. On the terrace only flint artifacts were found; they amounted to 32,000 pieces and included ca. 900 retouched tools and some 500 cores. In the two Mesolithic levels of the river bed, both stone artifacts and numerous bone, antler, and several wooden objects were found.

River Bed Stratigraphy

The fossil river bed of the Orla is filled both with fluvial sediments (sand and gravel) as well as five layers of peat, with a total thickness of 2.5 m (Fig. 2). In the upper layer of the peat (Peat I) Iron Age and Medieval pottery was found, along with several Mesolithic artifacts. Obviously the latter have been eroded from the terrace. Peat layer II has filled up the complete river bed between the banks. Samples from the lower portion of this layer, just above the same, are radiocarbon dated to 8320±90 BP (GrN-10543) and 7920±80 BP (GrN-13856), while the sand layer above Peat II is dated to 6180±70 BP (GrN-13855). On the edge of the bank next to the settlement were two layers of

peat (Peat IIa and IIb), which are dated to 4820±45 BP (IIa, GrN-13854), and 7550±190 BP (IIb, Gd-345). Peat III, with a depth of ca. 4 m, occurs only near the bottom of the central portion of the river bed. At its lowest level Peat III is dated to 8450±50 BP (GrN-13857). Organic remains from the Mesolithic were found in Peat II and III, with the majority from Peat III.

Peat III developed in the oldest river bed, while the sediments and peat above it originated from alternating active and fossil river beds with higher and wider water levels. Near the settlement on the terrace, in the bank of the oldest river bed, two pointed wooden piles were found, ca. 1 m long and placed vertically in the sand (Fig. 2: f). Their function is unknown; perhaps they were part of a structure as yet undefined, or perhaps a sheet piling to prevent the erosion of the bank. Another possibility is the find of a complete skull of a wisent or aurochs, close to the wooden piles, with a hole in it which fits on the end of the piles. Peat layers II, IIa, and IIb, did contain many more acorns and hazelnuts than

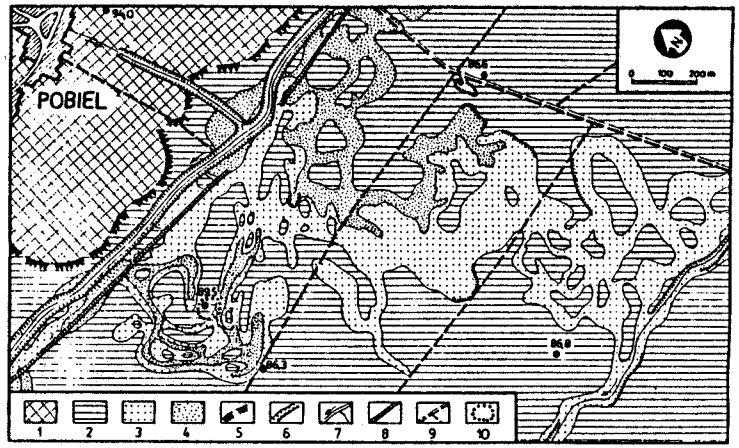


Figure 1. Geomorphology of the surroundings of Pobiel 10: (1) Moraine plain, (2) accumulation of the Baltic terrace, (3) accumulation of the older river bed, (4) accumulation of the younger river bed, (5) edges of the Baltic moraines, (6) river beds, (7) current rivers, (8) dikes, (9) roads, (10) the site of Pobiel 10.

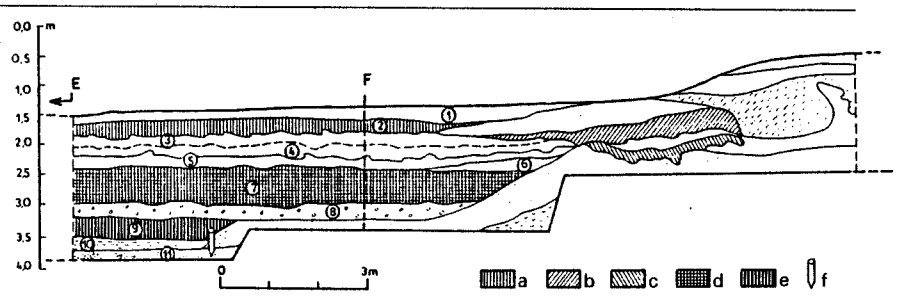
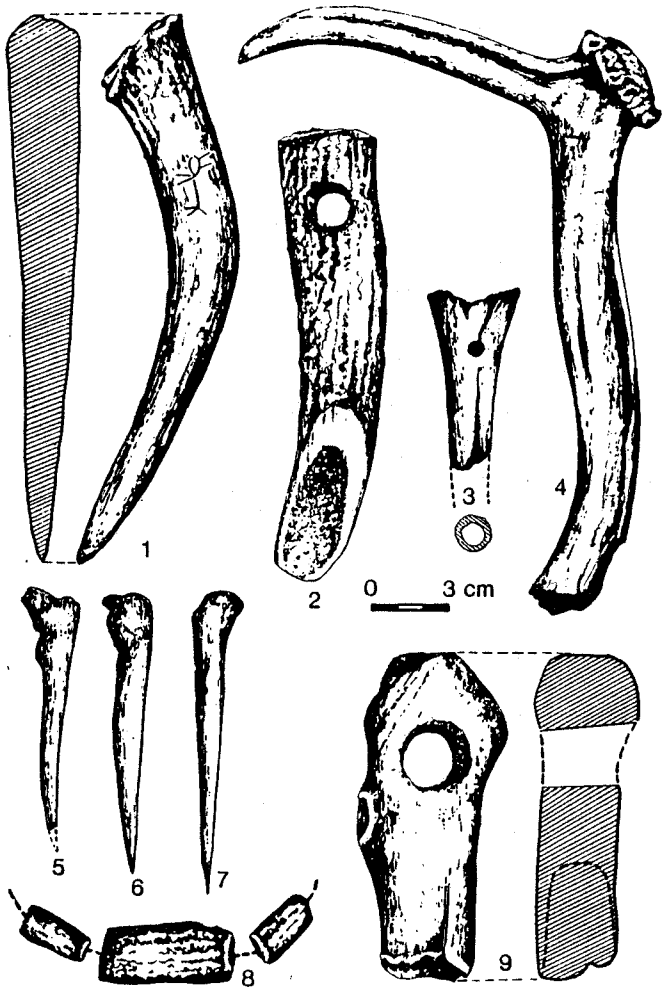


Figure 2. Stratigraphy of the older river bed: (a) Peat I, (b) Peat IIa, (c) Peat IIb, (d) Peat III, (e) Peat III, (f) wooden pile.

Figure 3. Some bone and antler artifacts from Pobiel 10: (1) antler dagger with engraving, (2) antler hoe, (3) bone flute, (4) antler club or pick, (5-7) bone awls, (8) antler ornaments, (9) antler core axe socket.



Peat III, but Peat III was the only layer with pine cones. As is true for Peat I, the Mesolithic remains in Peat IIa and IIb have been eroded from the terrace.

Geomorphological research in the surroundings of Pobiel 10 has indicated that the river bed originated in the early Holocene. During the Preboreal and early Boreal the river bed adjacent to the settlement was most probably still part of an active river system. In later periods, however, the river filled with sediments and peat. Particularly in Peat II, but also at lower levels, a number of tree trunks were found - primarily oak, several with roots. They must have played a role in damming up the river bed. Within the excavated part of the river bed two layers with tree trunks were found, indicating at least two large floods, when lower stretches of the forest along the Orla were swept away by strong currents. At higher water levels the terrace with the settlement was periodically an island, as is indicated by traces of erosion on the banks of the terrace.

Mesolithic Remains from the River Bed

In the river bed a wide range of Mesolithic materials were found. They included finished objects of stone, antler, and bone, as well as numerous antler and bone with traces of intentional working such as sawing, notching, grooving, polishing, and splitting. In addition to the worked pieces, many unworked bones were also recovered. Species from both levels include horse (*Equus caballus*), elk (*Alces alces*), wisent (*Bison pricus*), aurochs (*Bos primigenius*), red deer (*Cervus elaphus*), boar (*Sus scrofa*), wolf (*Canis lupus*), otter (*Lutra lutra*), fox (*Vulpes vulpes*), duck (*Anas platyrhynchus*), and goat (*Capra capra*). In Peat III numerous fish bones were found including pike (Esox lucius) and tench (*Tinca tinca*). Additionally, Peat III produced two large human skull fragments (*os parietale* and *os occipitale*) belonging to the same individual, an older child (*Infans II*).

Stone artifacts from the peat layers include flint points, burins, and cores. Triangular points typical of the Kormornica culture are numerous. In addition to flint artifacts, objects of ground stone and stone mortars were also found, made from boulders and cobbles available in the local moraine. Among the bone tools were borers, awls (Fig. 3: 5-7), daggers and handles are common. A rare object was a fragment of a bone flute (Fig. 3: 3). Artifacts made from antler are numerous and include finished tools, parts of tools, ornamented objects, and ornaments (Fig. 3: 8). The most common antler tools are daggers, points, hoes (Fig. 3: 2, 4), and core axe sockets (Fig. 3: 9). Some antler objects are ornamented, largely with zig-zag designs. On one antler dagger (Fig. 3: 1) an animal, possibly a goat, has been engraved.

Conclusion

Excavations at Pobiel 10 and preliminary analyses of the recovered materials indicate at least three phases of settlement, which can be dated to the end of the Boreal period, the Boreal/Atlantic transition, and the first half of the Atlantic. The first two settlements belong to the Kormornica culture, as is indicated by a number of characteristic flint tools, and the third occupation belongs to the Kormornica culture with elements of the Chojnice- Pienki culture. The material remains from Pobiel 10 are currently being analyzed and the results will be published in a special volume. Work by various specialists to be incorporated in the final volume will certainly provide further interpretation and understanding.

Translated by Nico Arts

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Excavations at Arma dello Stefanin (Val Pennavaira - Albenga, Northern Italy): 1982-1986

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The cave of Arma dello Stefanin opens in a very narrow gorge of the Pennavaira Valley (Liguria), on the right bank of a river bearing the same name, some 22 km from the actual sea shore, at an altitude of 440 m. Excavations were carried out in 1952-1962 by M. Leale Anfossi (1972) and revealed a sequence some 5 m thick, extending from the Late Paleolithic Gravettian culture up to the beginning of the Neolithic.

During the 1982-84 campaigns, a 4 x 4 m trench was opened which reached a depth of 2.5 m. This part of the cave produced evidence of occupation layers of the Early Neolithic Impressed Ware Culture (layer 2) and Final Epigravettian tradition (layers 4-6a), separated by a thick layer of stalagmite levels (layer 3). T lower most layers excavated thus far exclusive., gave pieces of *Pinus cf. sylvestris* charcoal. In layer 5 we were able to observe a strong increase in thermophylous vegetation with the appearance of *Quercus* (deciduous) and *Alnus* indicating a humid temperate episode. Layer 4 yielded the more recent Final Epigravettian assemblage with microlithic backed blades and points. Conifirae disappear in this layer which shows a strong increase in thermophylous species possibly indicating the Bølling oscillation. The stalagmite levels of layer 3 should belong to the Preboreal, Boreal, and the very beginning of the Atlantic climatic periods. A very few charcoal pieces from these levels indicate a temperate climate with *Querus cf. pubescens* and Ostrya becoming progressively more humid with the appearance of *Fagus sylvatica*. Layer 2 which provided the first traces of Early Neolithic human activity was characterized by *Quercus* (deciduous), *Fraxinus, Corylus,* and *Alnus.*

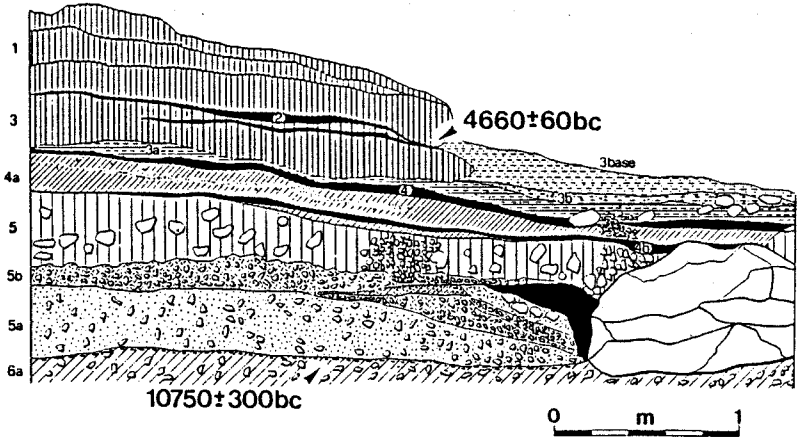
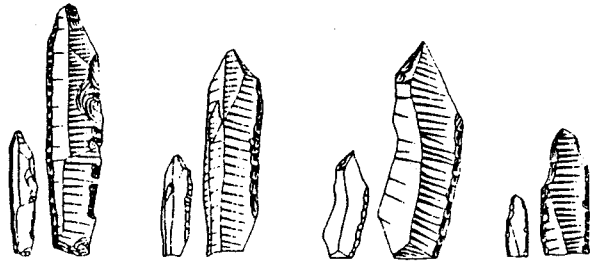


Figure 1. Arma dello Stefanin. Section through the deposits excavated in 1982-1984 with the location of the new ^{14}C determinations.

Previous research produced a very different picture of the woodland cover of the area (Vernot 1970, 1974). Also the ^{14}C dates from layers IV, Va, and Vb of Leale Anfossi's excavations are considered unacceptable to the present authors, belonging to the VII millennium B.C: 6150±300 B.C. (R-143) in the Boreal period (Alession et al. 1969). These dates led some authors to think that final Epigravettian hunters survived in Liguria until the end of the VII millinium B.C. (Palma di Cesnola 1974, 1983, Broglio 1981: 23). Recent research attests that Mesolithic hunter-gatherer camps were present from Preboreal to Early Atlantic times all over the region, both along the coasts and at medium/high elevations in the Apennines (Biagi and Maggi 1983, Biagi et al. in press). A new radiocarbon date from layers 6/6a of the cave gave a result of 10750±300 (HAR-6915) (Otlet personal communication 1986), while a charcoal sample from the Early Neolithic Impressed Ware layer 2 was dated to 4660±60 B.C. (Bln-3276) (Quitta personal communication 1986). Most of the scarce faunal remains seem to be attributable to ovicaprids as already observed by previous authors.

Figure 2. Arma dello Stefanin. 1982-1986 excavations. Microlithic tools from layers 6/6a (1: 1/2: 1).



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Megalithic Mesolithics: The Tomb of Roc del Migdia

E.I. Yll, G. Wünsch, and C. Guillamon. 1986. Metodologia instrumental per a l'estudi de sepultures mesolítiques (Roc del Migdia, Vilanova de Sau, Osona). **Cota Zero. Revista d'Arqueologia i Ciència** 2: 14-19. (Vic, Spain).

A summary by

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A publication has at last appeared concerning this Mesolithic grave; but since it is in a new Catalan journal which is not yet well known, it seems worthwhile giving a brief résume here. Near Vilanova de Sau, in upland Spanish Catalonia, there are a series of rockshelters along the foot of a cliff at about 600 m elevation, near the only easy route from the high plateau of Savassona to the valleys below. One of these shelters, the Castell Sa Sala, was occupied in the Upper Paleolithic by people exploiting large herbivores, primarily horse. The small shelter of Cingle Vermell, recently published (Vila et al. 1985), has a number of hearth structures and an industry of very small tools, mostly of flint. The site, dated to 9760±160 b.p. (UGRA-68) (Estévez 1980), is notable for its preservation of plant material - acorns, walnuts and pine nuts, as well as seeds cherry and plum stones, and even wood and leaves. Its fauna is varied, with rabbit dominating in numbers and ibex in meat weight.

Only 100 m further along the cliff is the long shelter of Roc del Migdia which was occupied in the late Magdalenian (11,520±220 b.p. - UGRA-117) and the Epipaleolithic. Its lithic industry is dominated by quartz (80%) and the faunal assemblage is comprised of red deer, ibex, and boar; acorns, hazelnuts and snail shells have also been recovered. The site is particularly remarkable for its 'megalithic' grave against the back wall of the shelter. The single burial lies in a rectangular structure of large, upright slabs surrounded by large hearths (Fig. 1). Analysis of the bones by Daniel Turbón has revealed that they come from a lady about 51 years old, 155 cm high, and of gracile protomediterranean type.

What makes the burial particularly striking is than an almost identical one was found not too far away in France some years ago in an Epipaleolithic layer at the Abri Cornille (Bouches-du-Rhone): the abri Salauze, at the north end of the shelter contained a burial against the back wall, enclosed by upright, large stones (Escalon & Onoratini 1976: 222-224; Bouvil' et al. 1983). Further detailed comparison of the two sites should prove extremely interesting, and any information on similar sites would be most welcome.

*With thanks to A. Vila, C. Meiklejohn, and T.S. Constandse-Westermann

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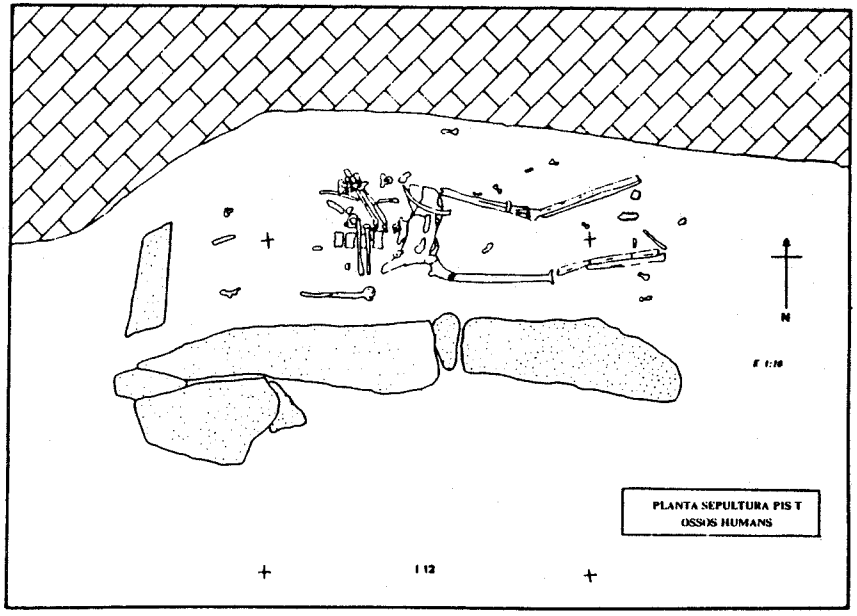

Figure 1. Plan of the 'megalithic' tomb at Roc del Migdia.

Eight People in One Grave - The Mesolithic Record?

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Forhistorisk-Arkæologisk Institut
University of Copenhagen

Last summer when enlarging the fishpond in her garden at Engvangvej 52 in Strøby Egede, Stevns, Sjælland, the proprietress discovered a number of human bones. She immediately notified the local authorities, and a rescue excavation was accordingly organized by the Køge Museum. As, however, four of the skeletons had eventually been found together with various Mesolithic objects and some red ochre, the museum obviously considered the whole matter to be too complicated and turned to the national Museum and to the Institute for help. Having had some previous experience in exhuming Mesolithic burials - at Dragsholm as well as at Vedbæk - the author joined the excavation, and a further four skeletons were discovered.

The site, now a garden among other gardens, but at that time a large Mesolithic coastal habitation site, lies on the right bank of the estuary of the small river Tryggevælde at the bottom of the bay of Køge to the south of Copenhagen. Actually, this is the Danish Mesolithic burial that is nearest in distance to the Scanian ones at Skateholm, Sweden.

Preliminary chronological assessment places the site and according the burials within the final part of the Ertebølle period. Furthermore, there are indications that many more burials were present at this particular location, but unfortunately no record exists of them. The first scientific excavations in 1949 did not reveal burials, nor did the most recent work in 1969. Of course none of these projects were explicitly looking for burials! However, it must be concluded that Engvansvej 52 belongs to the group of dwelling sites-cum-burials like Henriksholm-Bøgebaken and the three cemetaries from Skateholm.

All eight persons in the grave pit must have been buried at the same time. The fema' were apparently placed in the southern e while the males took up the other end. There are three newborn infants, a five to six year-old boy, a nine to ten year-old girl, an eighteen year-old female, a ca. thirty year-old man, and finally, the oldest individual in the grave, a female around fifty years of age. All information about the age and sex of the burials must, of course, be regarded as preliminary.

The red ochre was most conspicuous around the skeletons of the infants. The young girl as well as the young woman both had pendants made of red deer teeth around their hips. The same young woman also wore bone point in her coiffure. It is further interesting to note that both adult females carried a flint knife while two of the boys, including an infant, had two flint knives each. However, the adult man carried no less than five flint knives plus an antler axe and a bone spatula.

A tooth pendant of wild boar adorns the skulls of two of the infants while - as just revealed by X-rays, more tooth pendants a situated beneath one of these two skulls. addition, hoofs from a roe deer are located on top of another skull.

The excavation and preservation of this unique burial continues in the basement of the National Museum, as the grave unit was cut free and transported *en bloc* to Copenhagen. Having witnessed the success of the Mesolithic museum at Vedbæk where four of the best preserved burials from Henriksholm-Bøgebaken are on display, the Køge Museum also wants to exhibit an important burial. Therefore, for the time being there is a certain conflict of interest between the demands for a rigorously scientific investigation or for those of a truly accurate exhibit. At the moment this conflict is being thoroughly discussed among the participants in this particular enterprise.

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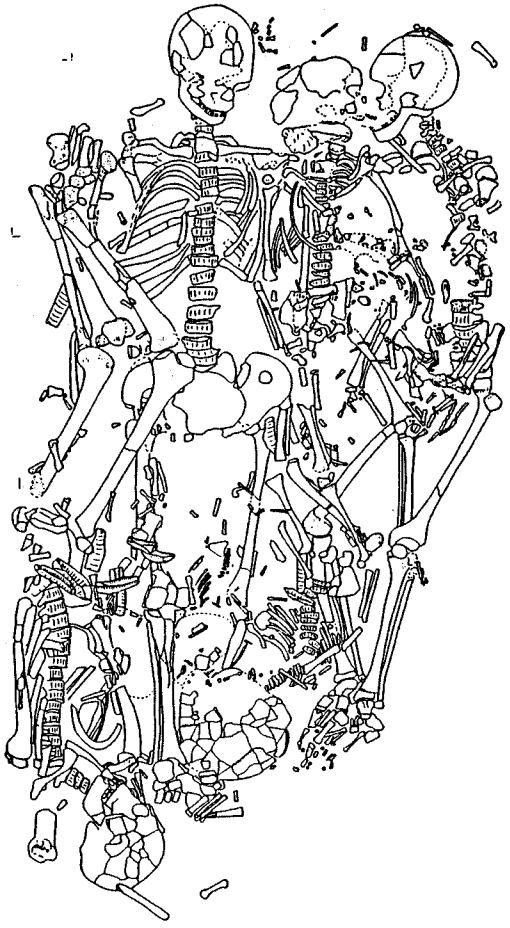

Fig. 1. The mass grave of eight individuals at Strøby Egede, Stevns, Sjælland, Denmark.

A Maglemose Wood Structure from Lavringe Mose, Zealand, Denmark

Søren A. Sørensen
Roskilde Museum

A Maglemosian wooden structure was exposed beneath an inland Ertebølle site in the early spring of 1986, during excavations by the Roskilde Museum. The structure was found below the Ertebølle refuse layer, separated from it by a sterile layer of freshwater mussel shells. The hut was placed on the bank of a former lake shore (Fig. 1), now a peat bog. The structure was made out of wooden posts, 5-10 cm in diameter, all of pine. None of the posts were pointed in the lower end, but simply hammered into the soft ground, which consisted of peat and gyttja.

The shape of the structure was trapezoidal (Fig. 3). Inside was a rather fragmented bark layer, likely a bark floor. The shape of the structure, combined with the presence of the bark floor, leads to the conclusion that we must be dealing with a mesolithic hut. Compared with the previously described Maglemose huts, all described as rectangular, the Lavringe hut has a different shape. In this regard, it must be mentioned that the shapes of the earlier Maglemose huts were reconstructed from very fragmented pieces of the bark floor. With the Lavringe Mose hut for the first time the shape of the hut is documented by wall posts showing the position of all the walls.

The poor condition of the bark floor in the Lavringe hut can be explained by the lake transgression of the shoreline which must have taken place shortly after the hut was abandoned. No hearth was found inside the hut, but the former presence of one can not be excluded. The fireplaces of the Maglemose culture were often made of sand only, and could easily have been washed away when the hut was transgressed.

This hut also differs from the general picture with regard to the distribution of contemporaneous finds. Normally, the majority of flint tools and waste material are found inside the hut and in the refuse layer in front of it. This is not the case here, where only five microliths - scalene triangles (Fig. 2) - and an unspecified flint tool were found in close association with the hut. A few fragmented microliths and a handful of debitage were scattered around the structure. In addition, a flint core axe, a bone club made of an aurochs bone, and two finely barbed leister prongs were found outside the hut. The distribution of animal bones is similar with only a few inside the hut and a few more outside, especially on the side facing open water.

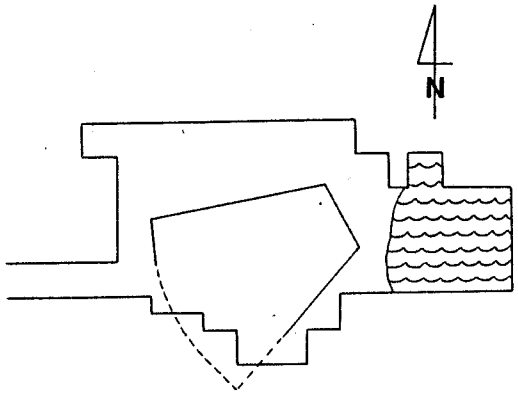

Figure 1. The trapezoidal structure in relation to the shoreline.

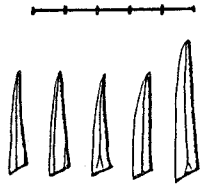

Figure 2. The five scalene triangles found in association with the hut.

The absolute date of the hut has been determined through a series of ^{14}C datings from three of the wooden posts - 6740 + 120 BC, 6750 + 120 BC and 7090 + 125 BC -in the early part of the Maglemose culture. There is good agreement between the ^{14}C dates and the typological position of leister prongs. Generally, however, the scalene triangular microliths are found a little later in the Maglemose sequence.

This hut from the peat bog of Lavringe provides a glimpse of a very short stay by a single family on the shore of a lake some 8700 years ago. After the brief sojourn the family went away in search of new hunting grounds, abandoning the hut, and leaving behind them only a few tools and a small amount of debitage.

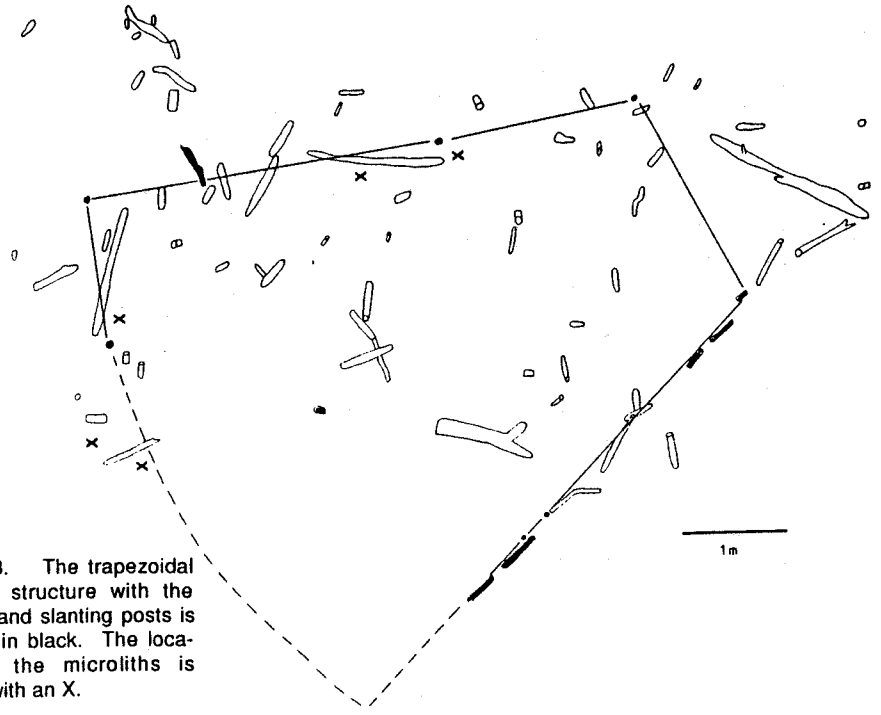

Figure 3. The trapezoidal wooden structure with the vertical and slanting posts is marked in black. The location of the microliths is shown with an X.

Reconstruction of the Social Structure of the Maglemose Culture of Southern Scandinavia and Northern Germany

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Since May 1985 I have been conducting a research project aimed at a reconstruction of the social structure and the group structure of the Maglemose culture. The project is funded by the Danish Research Council for the Humanities. Since by now essential results have been achieved, the time seems ripe for a short review.

The basis assumption was that the group structure of this 8000 year-old hunter-gatherer culture could be reconstructed from the distribution of artifacts in the dwellings. Since with apparently all hunter-gatherer cultures there are rules concerning who is to sit where, it was natural to expect that this was also the case with the Maglemose culture. The hut remains of bark floors, and in two cases preserved lower portions of stakes probably representing a wall line, provided a good opportunity to study the location of different activities in the dwellings.

Two rather distinct patterns were found to repeat themselves. One is connected to the units measuring 10-15 m^2 and containing one little concentration of microliths and one fireplace - these two activity areas being located less than one meter from each other and on a line parallel to the shore. Another is connected to the rectangular units measuring approximately 4 x 6 m (24 m^2) and containing two little microlith concentrations, the centers of which are two meters apart. Quite close to these and in the direction of the shore, the hearth zone is found. In four cases, two separate hearths could be distinguished, apparently each connected to one of the microlithic concentrations. These four activity centers make up two "sets" like the one found with the first pattern but now each on a line perpendicular to the shore. Thus the "double pattern" cannot be explained as a result of two overlapping "single patterns" (Fig. 1). Out of 18 concentrations of material analyzed because it appeared likely that they represented the remains of undisturbed dwellings, seven conformed to the former and seven to the latter pattern. On th basis of general tendencies in the ethnographic record and information on human spatial behavior deriving from experimental social psychology it is argued that the patterns represent one and two family dwellings - the microliths representing the activities of the males and the fireplaces the activities of females. A more detailed picture of the groups inhabiting the dwellings - location of boys and girls, grandparents, etc., has not been possible to obtain at present. With regard to settlement organization it looks as if the summer settlements consisted of three to five dwellings placed along the shore at intervals of 40 m, only 3 to 5 m from the water. One "double pattern" is interpreted as an isolated winter house, probably a log cabin. It is 20 m from the contemporary shore which is much more that we know from the summer dwellings. Its size (7 x 8 m) is double of what we know from summer dwellings with the same internal organization. With many hunter-gatherers actually the winter dwellings have more space per person than the summer dwellings (space - demanding activities that in summer are carried out outside in winter are carried out inside). The exceptional amount of axes found at the site (125) according to microwear analysis carried out by Nicole Symens, Leuven, have been used not for chipping but for planning a mixture of wood and bark - likely for debarking tree trunks. Furthermore, the site is located in an optimal position to avoid wind directions prevailing in the winter at that time. On the basis of this, a pattern is postulated where winter camps consist of quite a few families living in larger wooden houses, spring/summer/autumn camps consist of three to five dwellings forty meters apart containing something like five to six families. Larger gatherings are postulated in November/December.

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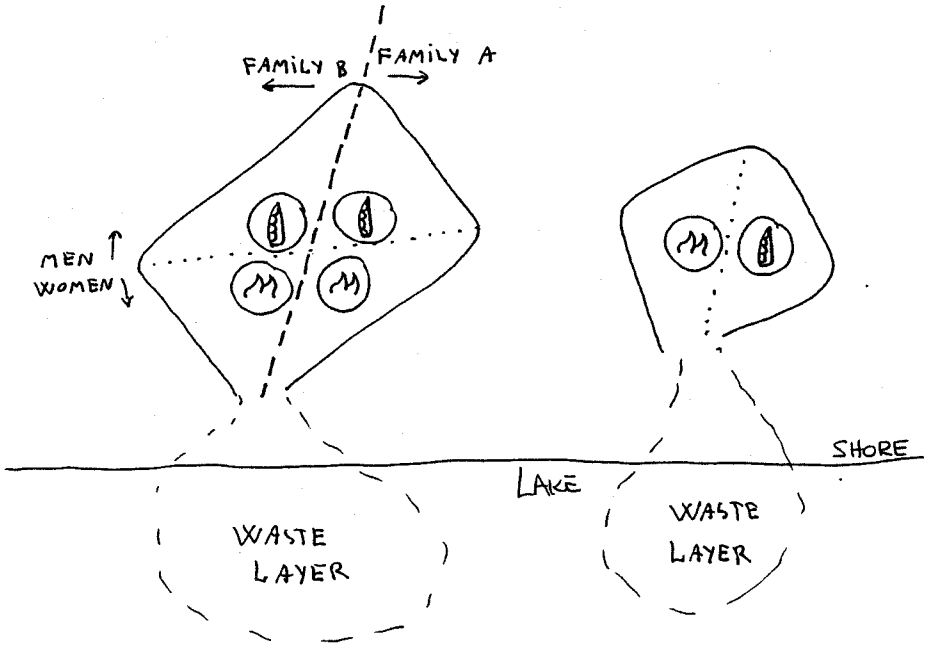


Figure 1: Patterns of Distributions in Maglemose Hut Sites.

Some preliminary notes on the barbed bone points from Europoort, the Netherlands

L.B.M. Verhart
Rijksmuseum van Oudheden
Leiden

In 1971 and 1972 a dozen barbed points were discovered on a land-reclamation project, the Maasvlakte in Europoort, west of Rotterdam. These points date from the Pre-Boreal/ Boreal (Louwe Kooijmans 1971). Since 1981 barbed bone points have been collected by local amateurs on the west side of the Maasvlakte, along the present beach. As of now about 450 points have been recovered. Although these are stray finds, the character and the composition of this group is exceptional and warrants a closer examination. The first preliminary results of this study are presented below.

The sand used to build the Maasvlakte originates from a relatively small area about 10 km to the east in the Calland Canal. The size of this provenance area is estimated as less than 5 km^2. Geological observations at the Europoort have made it clear that the deposits, suitable for the conservation of these artifacts and exposed during the dredging in the canal can be dated from the Younger Dryas to the Early Atlantic. These deposits at a depth of approximately 15-25 m below sea level, indicate an environment that originally was wet with a great variety of plant and animal life, very well suited for gathering, hunting, and fishing.

The artifacts found in the Maasvlakte comprise, apart from the above mentioned barbed points, a biserially barbed point, two fish hooks, two antler axe hafts, and a decorated piece of bone. Furthermore, a lot of ma[illegible] has been collected from various other periods: animal bones from the Pleistocene and Holocene, and artifacts from the Bronze and Iron ages, Roman times, the Middle Ages and recent times. It is very remarkable that no flint artifacts at all have been recovered from the Late Paleolithic/Early Mesolithic, despite the enormous amount of flint collected by the amateurs.

The homogeneity of the finds has been investigaged technologically and morphologically, using 400 barbed points, with the exception of the biserially barbed point. This investigation shows no distinction is possible based on raw material, working techniques, the number of barbs, or the presence or absence of a notch for attaching a cord. However, there are differences in the length of the points, the form of the

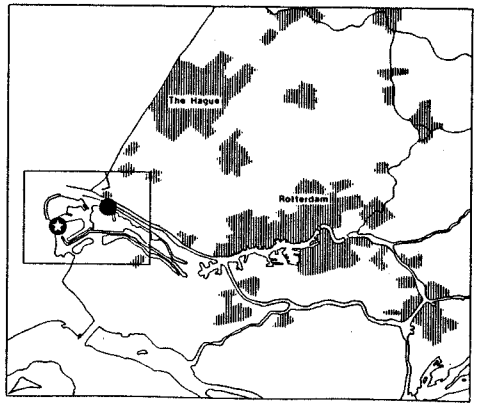
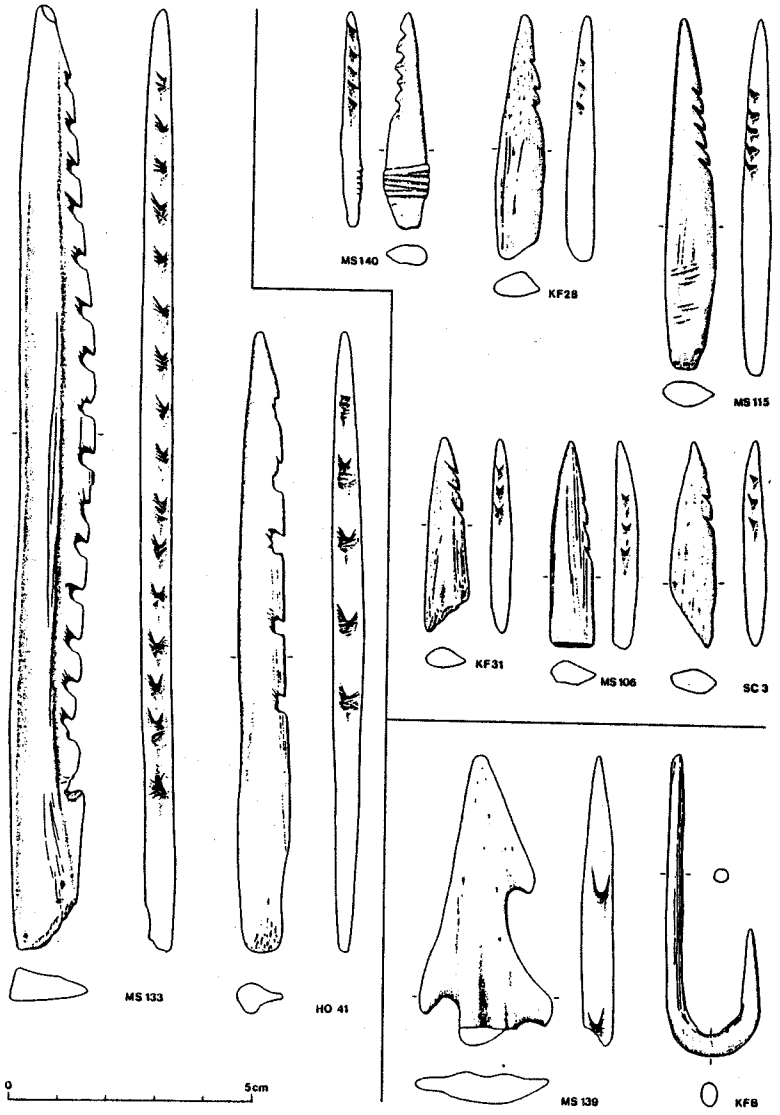


Figure 1. The Netherlands, location of the site (star in circle), and area from which the finds originate (black circle).

Figure 2. Selection of the Europoort finds. Small barbed points (1, type group 03.01), large barbed points (2, type group 03.02), biserially barbed point (type group 06.03) and a fish hook. Impressions of the bindings are visible at MS 140 and MS 115, selective weathering at the tip of KF 28.



barbs, and the cross-section of the objects. K-means cluster analysis was used to distinguish two major groups.

The first group consists of small points (Fig. 3), with a length <85 mm, with small barbs made primarily with techniques 1, 2, 4, and 5, and with a simple cross-section [A]. The second group is made up of large points (Fig. 3), with a length >94 cm, large barbs made primarily with techniques 3, 6, 7, and 8, and with a sophisticated cross section [B]. Possible explanations for this distinction range from differences in purpose and use or preservation to a different production process, chronological differentiation, or use by different cultural groups. A detailed analysis of these possibilities will be given elsewhere (Verhart in prep. a). There it will become obvious that a functional interpretation is favored.

Due to the lack of stone artifacts associated with the existence of settlements, this assemblage seems mainly concerned with hunting and fishing. A further indication for this idea is provided by the fact that a number of barbed points show signs of selective weathering: positive and negative impressions of bindings (Fig. 2). These impressions can be related to lost hunting gear, comparable to examples from the Danish Åmosen (Andersen 1978: 6; 1983: figs. 24, 25, 27, 28, 30). Fishing on the Maasvlakte is documented by two fish hooks which can be dated to the Mesolithic by a typological comparison.

The small points I would interpret as arrowheads for hunting small fast animals, primarily birds and fish. In this context the adhesive properties of these points should not be underestimated, especially for hunting birds. Arrows with flint microliths will cleanly perforate a bird, risking loss of both the arrow and the prey. However, if the arrow sticks in the body or wing of the bird, this greatly enhances the hunter's success and limits the potential for arrow loss. If this view is correct, then the use of arrow[illegible]h barbed points made of bone and antler may explain the lack of flint microliths. The large points will have been used as lance- or spearheads and related to the hunt for bigger mammals and for fishing.

The provenience conditions for the Europoort artifacts are not at all unique in northwestern Europe. Although context and artifact composition differ slightly, the location conditions show a close resemblance to comparable situations in the Åmosen in Denmark and to the Havel area in East Germany. There, too, considerable numbers of points have been found outside direct settlement context and linked with hunting and fishing activities. However, in both these areas settlement remains have also been discovered (Andersen 1978, 1983; Gramsch 1973).

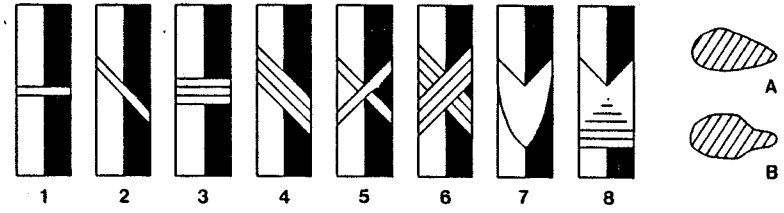


Figure 3. Schematic impression of the barb-making technology from a simple carving to a combination of cross-hatched carvings and cuttings that eventually shaped the barbs. At the right, the cross-sections for the small points (A) and the large points (B).

As noted above, the finds cannot be dated geologically and we have to rely on a typo-chronological approach. The majority of the barbed points from Europoort belong to Clark's Kunda type (Clark 1936: 116, Fig. 41: 6). A more detailed typological classification is possible based on the morphology and position of the barbs (Verhart in prep. b).

According to this approach we can distinguish in Europoort finds a group with more or less [illegible]oothly blending barbs (Fig. 2, type 03.01) and a group with spaced barbs (Fig. 2, type 03.02). A number of sites yielding the above-mentioned types have been dated with radiocarbon or indirectly by pollen analysis. The most striking barbed point, type 03.02 can be dated between approximately 11,000 and 9000 b.p. [Sproughton: OXA-517 8960±160 b.c. (Gowlett et al. 1986); Dinslaken: Hv-1414 8840±105 b.c. (Stampfuss and Schütrumpg 1970; Lanting and Moork 1977); Star Carr: C-14 7607±210 b.c., C-353 7538±350 b.c. (Clark 1954; Mellars 1973)].

The biserially barbed point found in the Europoort is probably similar to Clarks type 12B. These biserially worked points can be dated between approximately 11,000 and 10,000 b.p. [Stellmoor: Y-159-2 8370±250 b.c. (Lanting and Mook 1977); Skaftelev: Younger Dryas (Clark 1975); Lachmirowice, Younger Dryas (Clark 1975)].

A spatial analysis of more than 700 sites with bone and antler points, distributed over northern/northwestern Europe, of various types and dating from the end of the Late Paleolithic to the Late Mesolithic yields an interesting pattern: group 03.01 and especially group 03.02 show a somewhat clustered distribution in the western part of Europe (Fig. 4). The group of biserial points on the other hand is concentrated in the central part of northern Europe (Fig. 5). The differences in the spatial distribution and the increasing differentiation of distribution patterns favor an interpretation of these clusters as the archaeological record of previous social territories (Verhart in prep. b).

Based on these data the preliminary conclusion is justified that the Europoort finds must be dated from the end of the Late Paleolithic to the Early Mesolithic, approximately 11,000 to 9,000 b.p. The barbed points were used primarily for hunting and fishing: the smaller points as arrowheads, the larger ones as spear points. The distribution pattern of the various point types shows striking distinct spatial clusters that might indicate the existence of large social territories in the Late Paleolithic/Early Mesolithic.

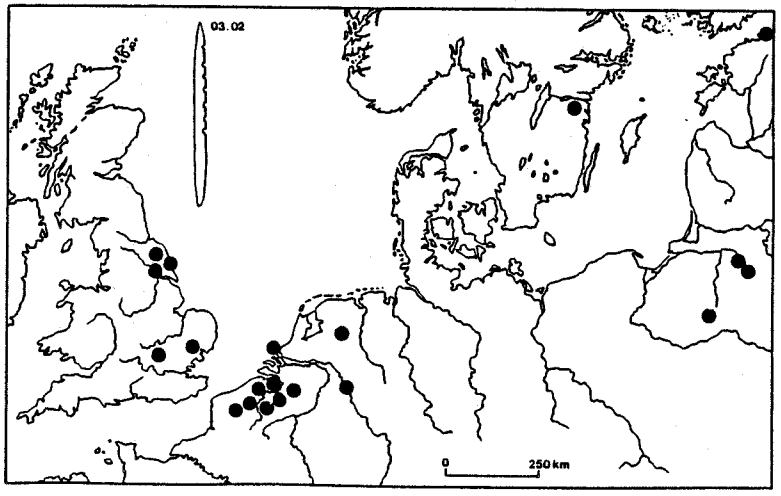


Figure 4. Distribution of point type 03.02 in northwestern Europe.

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Verhart, L.B.M. **In prep. b.** A territorial approach to Stone Age points of bone and antler from northwestern Europe.

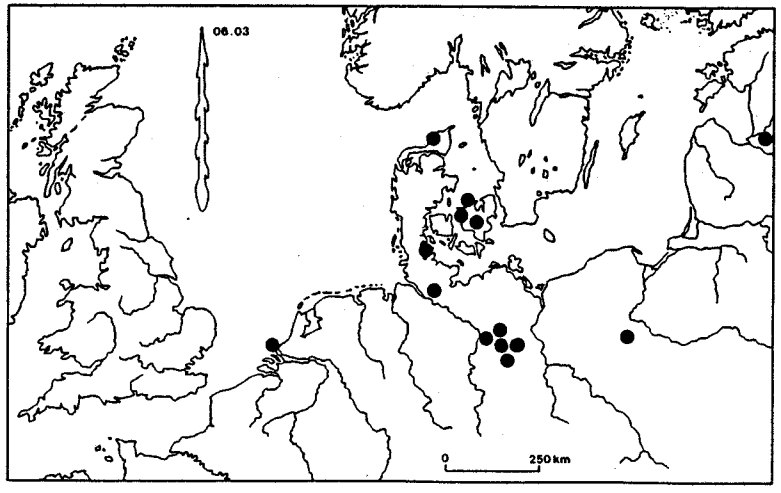

Figure 5. Distribution of point type 06.03 in northwestern Europe.

Conference Announcements

Second Symposium on Upper Palæolithic, Mesolithic and Neolithic Populations of Europe and the Mediterranean Basin

Tel Aviv, September 6-10, 1987

Some 35 scientists from a wide range of disciplines have already expressed their interest in actively participating in the 2nd Symposium on Upper Palæolithic, Mesolithic and Neolithic Populations of Europe and the Mediterranean Basin. According to this list, we have drawn up a preliminary scientific program which includes the following topics:

Sunday 6 September
- 09:00-10:00 Opening of Symposium
- 10:00-12:00 Skeletal remains from the Mesolithic (Epipalæolithic): research results and implications
- 14:00-17:00 Changes in subsistence and dietary patterns from Epipalæolithic to Neolithic times

Monday 7 September
- 09:00-12:00 Changes in social organization during Mesolithic times: archaeological (cultural) and biological evidence
- 14:00-17:00 Cult of the ancestors and other symbolic behavior according to archaeological and skeletal evidence

Tuesday 8 September
- All day field trip to prehistoric sites in Israel, including field discussions

Wednesday 9 September
- 09:00-12:00 Role of isotopes in the reconstruction of prehistoric human diet
- 14:00-17:00 Archaeological and biological connections between circum-Mediterranean and European populations

Thursday 10 September
- 09:00-12:00 Cultural and biological continuity and change from the Epi-palæolithic to Neolithic times
- 14:00-17:00 Man and his environment, including zoological and botanical evidence: impact on culture and biology

The "official" languages of the symposium will be English and French. All sessions will be held at the Sackler School of Medicine, Tel Aviv University.

Abstracts

Abstracts should be submitted either in English or French by 30 May, 1987. They should be informative, containing titles, name of author, objective of the paper, a brief statement of materials and methods, and a brief summary of results and conclusions. Abstracts will be retyped by our staff and therefore format sheets are not required.

Registration

The registration fee for participation in the Symposium is $45. This should be paid in US dollars by a bank draft or money order to "2nd Symposium" and should be mailed no later than 30 May, 1987, to:

Erich Friedman, Treasurer
Israel Prehistoric Society
P.O. Box 10661
Ramat Gan 52006
Israel

Registration will be acknowledged in writing with a receipt for fees paid. Registration fees include entrance to all scientific sessions, and expenses for the one-day trip (including meals) to prehistoric sites. Registered participants will receive their conference documents at the registration desk in the Sackler Faculty of Medicine, Tel Aviv, University, on the first day of the Symposium. Scholars and students who would like to participate in prehistoric excavations before the Symposium, or to study our anthropological collections, are asked to notify us as soon as possible of their interest so, if at all feasible, the necessary arrangements can be made. General information on climate, visas, airport transportation, foreign exchange, housing, optional tours, etc., will be sent to you by March 1987.

Baruch Arensburg
President

Israel Hershkovitz
Secretary

Social Space:
An Interdisciplinary Conference on Human Spatial Behavior
in Dwellings and Settlements

Aarhus University, October 19-21, 1987

An international conference devoted to the study of social space in archaeology, anthropology, social psychology, architecture, and history will be held. Recent ethnoarchaeological research has proved the validity of focusing on spatial behavior within the dwellings and settlements of prehistoric cultures. In this way we may gain a better understanding of their specific social structure than has so far been possible from the generalized anthropological models which are difficult to relate directly to archaeological material. Specifically with hunter-gatherers this approach has been successful.

Feeling the need for a thorough discussion of human spatial behavior in all its aspects, the Scandinavia Study Group of Social Space has decided to arrange an interdisciplinary conference on the subject. Especially it is our hope that the conference can help to clarify which features of human spatial behavior are culturally specific and which can be regarded as general rules of human spatial behavior. Among others the following papers are planned:

David Canter (social psychologist, UK): The rules of place: a social psychological basis for human spatial behavior
Adrian Tanner (anthropologist, Canada): paper on the use of social space in dwellings of the Mistassini Cree or on Figi
Christopher Evans (archaeologist, UK): paper on analysis of activity patterns in and around the dwellings at an English Iron Age settlement

Sveinung Bang-Andersen (archaeologist, Norway): The archaeological carpet on an early Mesolithic south Norwegian site floor
Rob Shields (architect/sociologist, UK): Social space seen as a materially formed cultural product which influences the possibilities for social action and even thought
LL Therkorn (archaeologist, Holland): Social groups and spatial dimensions: an analysis of Roman Iron Age farmsteads
Ask Elklit (psychologist, Denmark): The function of symbolic borders in social space. A study of social psychological phenomenon in dwellings
Herman W Konrad (anthropologist, Canada): Seating, sex, and spatial preferences in the western Canadian university (undergraduate) classroom
Lene Rold (archaeologist, Denmark): The high seat in the Viking and Middle Ages: conception, reality, or both
Bror Westman (anthropologist, Denmark): The house as shelter and home. A study of concepts as place, movement and of the houses as a dwelling of the soul
Ole Grøn (archaeologist, Denmark): Study of social structure in prehistoric societies. Method and examples of practical application
Lucyna Domanska (archaeologist, Poland): The different models of spatial behavior within the late Mesolithic settlements of the Polish lowlands

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New Publications

Arts, Nico. 1987. Vroegmesolithische nederzettingssporen en twee versierde hertshoornen artefakten uit het Maaskangebeid bei 'S-Hertogenbosch. **Brabants Heem** 39(2):22. (Early Mesolithic settlement remains and two engraved antler artifacts from the Meuse Valley near S-Hertogenbosch. In Dutch.)

The more than 1000 known Terminal Paleolithic and Mesolithic sites in the southern Netherlands are generally characterized by the occurrence of mainly flint artifacts, and they are predominantly found on the cover sands. Hence, the impression exists that these deposits were the favorite areas for settlement location. However, the possible use of other environments is generally unknown; this is especially true for currently covered river valleys. True a few probable Terminal Paleolithic and/or Mesolithic antler and bone artifacts are known from the Dutch river valleys, but the site context has always been unknown.

It can be stated that in some respects there are two types of Terminal Paleolithic and Mesolithic sites in the Netherlands. First, there are sites yielding mainly inorganic artifacts. Generally these sites are interpreted as settlements and are known primarily from cover sands. Second, there are sites yielding only organic artifacts, the function of the sites is unknown, and they are found only in the river valleys.

Recently both types of sites were found in the Meuse valley north of 'S-Hertogenbosch. The first site is one with Mesolithic flint artifacts, which were found on a small sand dune in the river valley, 1 km from a cover sand area. Its location is exceptional because the site is in a river valley. From the second site, 800 m west of the Mesolithic one, only three antler artifacts are known which were dregged up from a peat layer 5.5 m below the surface. Both sites are situated close to buried river meanders of the Meuse which were still active during the Mesolithic. There is no reason to suppose a functional or even a chronological relationship between the two sites. It is suggested that there are more sites with preserved organic artifacts in this part of the Meuse Valley.

The material remains from the Mesolithic site, partly collected during a limited test excavation in November 1985, and the antler artifacts, are described and discussed. It appears that the 797 artifacts can be typologically dated to the Early Mesolithic. Charcoal from Dutch and Belgian sites is usually dated between 9400 and 8200 b.p. Two of the three antler artifacts are ornamented. A part of the beam of a reindeer antler has an ornamentation pointillé on one side consisting of three lines of shallow holes (Fig. 1). The other antler piece is a brow tine of a large red deer antler which has a series of fifty scratches and a long line ending as a V with four lines crossing it (Fig. 2). The third artifact is only worked, not decorated. Their antiquity is unknown as the motifs are not unique to the Mesolithic. It is presumed that the reindeer antler is of Paleolithic age, because reindeer were extinct in the Netherlands by the beginning of the Holocene. It is suggested that these artifacts were either used as digging sticks or as hafts for stone tools.

Bang-Andersen, Sveinung. 1985. Utgravd – tapt – gjenfunnet. Analyse av steinartefakttapet ved boplassundersøkelser. **AmS-Skrifter** 11: 5-23. Stavanger. (Excavated - lost - recovered. Analysis of the stone artifact material lost during excavation of dwelling sites. In Norwegian with English summary.)

A great deal of turbidness seems to be connected to the question of the representativeness of the lithic material excavated on Stone Age sites in Norway. Crucial questions concerning the *real loss of lithic artifacts* during "traditional" trowel excavations, the *causes for the loss*, and the interpretative *consequences of the loss* are inadequately known. Nor have any serious attempts to compare different methods of loss-control during such field investigations seen publication.

In this paper the above mentioned problems are taken under consideration, based on wet-sieving experiments carried out from 1978 to 1980 on three southern Norwegian Stone Age dwelling sites which had previously been excavated by hand trowelling. The test sites are: Locality 1 in Hå municipality, Locality 7 in Suldal municipality, and Locality 17n in Bykle municipality. The sieving experiments included all excavated earth on these localities. The earth was evenly spread into sieving frames with a screen mesh size of 4 x 4 mm, submerged and disolved in water, and rinsed by buckets of water. Finally all lithic artifacts were sorted out and stored.

The sieving revealed that respectively 42, 63, and 54 - or on the average about 50% of the material - was lost during the earlier excavations. The size distribution of the recovered material clearly shows that the excavation loss particularly affects artifacts with the largest dimension up to ≤20 mm but even artifacts with dimensions up to 59 mm and plane area up to 11 1/2 cm^2 escaped attention during excavation. As the lithic size fractions ≤20 mm yield information about the technological level of the site inhabitants, and also include many tool fragments, the documented excavation loss has to be considered as serious. Arrowheads prove to be systematically under represented in the excavated materials as compared with scrapers for example. This is most clearly demonstrated at Locality 17n where all arrowheads were first found in the sieving screen. Also the relative proportion of distinct arrowheads found during excavation may be biased.

Accordingly, only stone artifact inventories from totally excavated and completely sieved dwelling sites should ideally be used for statistical and typological intra-site comparisons. When these presuppositions can not be fulfilled, the lithic material has to be treated with the greatest caution.

The following factors are considered as crucial for understanding the causes of excavation loss: (1) size distribution and color of the lithic material, (2) soil conditions and character of the cultural layer on the site, (3) weather conditions during the excavation, (4) time (and funds) available for excavation, and (5) knowledge and technical skill of the excavation staff. A tentative evaluation indicates a clear correlation between the total effect of the postulated background factors and the actual artifactual loss during excavation.

Bang-Andersen, Sveinung. 1986. Veden de fant – bålene de brant. Vedanatomianalyse som metode til reconstrucksjon av nærmiljøet rundt steinalderboplasser i højfjellet. **Viking** 1985/86: 15-29. Oslo. (Charcoal in Mesolithic hearths as palæobotanical evidence. In Norwegian with English summary.)

The scarcity of well suited sedimentation basins, as well as interpretational problems due to distant transport of pollen, seriously hinder the reconstruction of former local vegetation around the considerable number of Mesolithic open- air sites which have been located in the South Norwegian highlands during the last 25 years. Macrofossils (twigs, roots, trunks) found in bogs may – when radiocarbon dated - yield important information about the former timber line and prevailing climatic conditions, but seem, nevertheless, to

be of limited value as indicators within more restricted geographical areas, as e.g. the local environment around dwelling places.

The lack of reliable evidence as to whether the Mesolithic catchement localities in the highlands were situated in open or wooded areas, along with the absence of osteological material, tends to give cultural-historical interpretations a highly hypothetical character.

In the author's opinion, much of this confusion may be eliminated by focusing on the wood anatomy of the charcoals found in the hearths at these sites which, on the whole, offer a broadly representative selection of the former local vegetation of trees and shrubs. A number of results from recent investigations of nine Mesolithic dwelling sites in the Lake Storvatn/Gybatn area in the Setesdal mountains of southwest Norway are presented as a case study inorder to substantiate this point of view.

The sites, which all included one or more hearths with charred remains, have been ocarbon dated to the period 7020-5670 (uncalibrated) years B.P. Wood anatomy analyses of a total of 342 charcoal fragments indicate a former vegetation dominated by birch and juniper, with more sporadic occurrences of rowan, pine and willow. It would seem however that there were certain local variations with the northern and southern parts of the area. After a detailed investigation of the wood species found at the largest site (Locality 17), a "firewood collection territory" for this particular site is postulated. Finally, the representativeness of the charcoal material is discussed. The use of fuel imported from other (lower-lying and more densely vegetated) areas, and the selective collection of particular kinds of "high-energy" firewood, is not considered likely. On the other hand, broken wooden artifacts such as arrowshafts, bows, and paddles may occasionally have been used as fuel.

In summary, wood anatomy analyses seem to support the hypothesis that the environment around the Mesolithic sites closely resembled the open arctic-alpine landscapes of today, with specialized reindeer hunting being the major procurement activity.

Bokelmann, Klaus. 1986. Rast unter Bäumen. Ein ephemerer Mesolithischer Lagerplatz aus dem Duvenseer Moor. **Offa** 1986: 149-172. (In German with English summary.)

Discoveries of archaeological settlement remains are often due to large accumulatoins of rubbish, the amount of which corresponds closely to intense activities in a limited area. Excavations tend to be focused on such concentrations of prehistoric activity, which are often the result of multiple occupations and disturbance. However, the discovery of a short-term, limited activity, single-person living floor throws a different light on the settlement activity of Mesolithic people - behavior which is certainly conditioned by the season of the year.

Thanks to favorable conditions of preservation in peat, such a site (designated at Wohnplatz 13) has been recovered in northern Germany. Located near the Boreal lakeshore of the former Duvensee, this small site was excavated over the last few years. Pollen analysis and radiocarbon dating indicate that Wohnplatz 13 may be slightly younger than Wohnplatz 6.

In spite of the small size and limited nature of the site, the following activities could be recognized:

1) A mat of birch bark had been cut in a single strip from a tree the diameter of which must have been at least 0.28 m. The mat itself measured 1.3 m in length and 0.88 m in width.

2) In front of the mat was a small fireplace consisting of two pine trunks placed opposite one another in a position typical of recent hunter-gatherer hearths.

3) Uncharred hazelnut shells - just a snack - lay between the mat and the fireplace. There seems to be a functional connection with an anvil, presumably a former hammerstone used for the preparation of flint nodules.

4) Some unretouched flint artifacts lay on and beside the birch bark mat. The flakes on the mat are very small indicating the location of manufacture.

5) Several stumps of pine and birch trees were present, some undoubtedly the remains of contemporary trees.

If the mat was used as a sleeping place, it is argued on the basis of the size of the mat that a flexed position - also seen in Mesolithic graves - is the normal outdoor sleeping posture, serving as a means to reduce the loss of body heat.

For the moment it does not seem impossible that the ephemeral resting place at Duvensee can be related to a large, short-term hearth located nearer the shoreline some 17 m away. In this respect, an important question concerns whether there were more single-person sleeping mats in the area. This seems likely and thus the larger hearth near the lakeshore may represent a communal area of activity.

Bonsall, Clive, Donald Sutherland, Richard Tipping, and Jim Cherry. 1986. The Eskmeals Project 1981-1985: an interim report. **Northern Archaeology** 7(1): 3-30. Newcastle-upon-Tyne: Northumberland Archaeological Group.

Cziesla, Erwin. 1985. Ausgrabungen im Weidental bei Wilgartswiessen. **Pfälzer Heimat** 3: 97-102.

Cziesla, Erwin. 1987. Zur Besiedlungeschichte des Weidentales bei Wilgartswiessen, Pfälzerwald. **Karst und Höhle** 1986/87:141-147.

Until recently the region of the Pfälzerwald was ignored as unoccupied during the Stone Age. The numerous natural abris and caves seemed not to be shelters for hunter-gatherers. For the first time settlement remains were recorded in the sandstone (Lower Triassic) formation near Wilgartswiessen located east of Pirmasens in a narrow valley called Weidental. The most important site is Weidental Cave. An undisturbed settlement horizon consisting of some 2000 objects was excavated. The typical stone artifacts are elongated triangles with a concave retouch. These implements belong to the terminal phase of the Early Mesolithic (late Boreal - beginning Atlantic, ca. 7900 b.p.) in southern Germany. An intact fireplace below the ledge of the cave and a bone fragment were also found. The excavations will be continued.

Cziesla, Erwin, and Andreas Tillmann. 1984. Mesolithische Funde der Freilandfundstelle "auf'm Benneberg" in Burgalben/Waldfischbach, Kreis Pirmasens. **Mitteilungen des Historischen Vereins Der Pfalz.** 82: 69-110.

Larsson, Mats. 1986. Bredasten - an Early Ertebølle site with a dwelling structure in south Scania. **Meddelanden från Lunds universitets historiska museum 1985-86 (Papers of the Archaeological Institute of the University of Lund)** New Series, 6: 25-51.

The registration of field monuments for the project entitled 'Kulturlandskapet under 6000-år' caused the discovery of a settlement from the early part of the Ertebølle culture. This was considered to be of such great interest that a large scale excavation was carried out during the summer and autumn of 1984. The settlement lay on a sandy, hardly visible ridge oriented roughly east-west. The height above sea level was up to 3.5 m with a slight lowering of the ground surface in the northwest and southeast where the height above seal level did not exceed 2 m.

Altogether 96 m^2 of the settlement were excavated, likely the greater part of the original inhabited area. Parts of it had probably been destroyed by the construction of the Ystad-Simrishamn railway which touched the settlement itself. Two layers were excavated. The upper can be described as a topsoil layer, while the lower was an occupation layer 5-30 cm in thickness.

Twenty-three feetures were discovered, two of which were hearths and one of w has been interpreted as a dwelling. This latter was 6 x 6 m in size and almost oval in shape. The area enclosed within the ditches was ca. 20 m^2. A number of post-discolorations were associated with the dwelling.

There were many finds, ca. 200 kg of flint in all, and much bone. Transverse arrowheads, scrapers and flake axes were the predominant types present. Small transverse arrowheads of the Trylleskov phase were the most common, but there were also transverse arrowheads with a straight edge (Stationsvej phase). Bones of wild boar were predominant with only small proportions of red deer and other species. The bones, plus the presence of hazel nuts, suggest that the site should be interpreted as an autumn/winter settlement which formed part of a system of larger and smaller settlements around the marine bay of Öja-Herrestad. The archaeological evidence and the shore displacement curve together suggest that Bredasten should be ascribed to the interval 4500-4000 b.c.

Lawson, Tim, and Clive Bonsall. 1986. Early settlement in Scotland: the evidence from Reindeer Cave, Assynt. **Quaternary Newsletter** 49(June): 1-7.

Macchiarelli, R., and L Bondioli. 1986. Post-Pleistocene reductions in human dental structure: a reappraisal in terms of increasing population density. **Human Evolution** 1: 405-418.

This paper discusses the well-documented acceleration in the reduction of human dental structure which occured during the post-Pleistocene. It suggests that the process can be explained in terms of different but related factors inherent in a transition from late-Pleistocene hunting and gathering conditions to ones involving a sedentary life in larger groups. It is postulated that directional selective forces acting during the Upper Paleo' ic to maintain large tooth size had only a poor influence and that new techniques in t preparation had little or no effect. The phenomenon is seen as a possible side-effect of a more complex overall reduction in body size, of which dental reduction only represents a small but demonstrable part. It is also suggested that stresses may have played an important role in producing a transitory reduced dimensional expression of the genetic background. An interaction between the variables directly or indirectly affecting body mass is shown in the model proposed which relates to post-Pleistocene. An increase in population density is indicated as being the most decisive biological factor in determining the acceleartion in the trend toward reduction.

Newell, Raymond R. and Trinette S. Constandse-Westermann. 1986. Testing an ethnographic analogue of Mesolithic social structure and the archaeological resolution of Mesolithic ethnic groups and breeding populations. **Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen**, Series B, Human Paleontology, Volume 89(3): 243-310.

This paper presents work designed to provide insights into the spatial, demographic, and proxemic parameters of Mesolithic ethnic groups. The co-operative research can best be described as an interrelated two-pronged pincer attack. It consists of a biological (physical anthrological) project and two projects in Mesolithic ethnicity.

The biological project consists of the integration of the following elements and goals:

1. Skeletal analysis for the establishment of the biological variability in the Mesolithic populations inorder to approach (a) the population genetic structure and population dynamic process, (b) their sex ratios, (c) their age at death and life expectancy, (d) the occurrence of pathology and trauma for the assessment of the causes of death and the level of interpersonal. inter-societal violence, and (e) diet and possible nutritional stress.
2. The contact or immediately post-contact demographies of 256 pedestrian hunter-fisher-gatherer Indians societies in North America. This explicitely analogue part is aimed a providing data resolution for the band, tribe, and language family units of social structure.
3. The social context in which the biological and demographic mechanisms are operating.

The main thrust of the biological investigation is to provide a satisfactory answer to the question of closed marriage networks and as they might coincide with recognizable archaeological time and space units. Preliminary analysis of the greater part of the skeletal population has indicated that such networks cannot be recognized.

In lieu of that final study it is possible to reject the original Valloisian 'type' approach and results. If the final analysis confirms our preliminary results, the absence of closed breeding networks has significant social implications, which must be examined in terms of extant theories of social structure and social organization as they best fit the Mesolithic data base.

The second part of the analysis consists of the following elements and goals:

1. The analysis of the temporal and spatial covariation of Mesolithic decorative elements in terms of extant theories of social structure and ethnicity in the post-glacial hunter-fisher-gatherer populations of western Europe.
2. Enquiries into the social dimensions of Mesolithic mortuary practices and their resolution of the level of social organization within the represented societies.

We will demonstrate that each element of our analogous social structure model has spatial, compositional, and temporal parameters, which vary according to the level of social organization of the constituent societies and we explore the relation between these social parameters and their generative biological processes. We will argue that there is a social and biological feed-back system which has implications for the conduct and thrust of both physical anthropological and archaeological investigations.

Olausson, Deborah. 1986. Intrasite spatial analysis in Scandinavian Stone Age research. A discussion of theory. **Meddelanden från Lunds universitets historiska museum 1985-86 (Papers of the Archaeological Institute of the University of Lund)** New Series, 6:5-24.

This paper is a discussion of theory and method used in intrasite spatial analysis - the analysis of "living floors". Processes in the formation of the archaeological record such as abandonment, discard, loss, and caching, are discussed. There is also some investigation into factors which may disturb or obscure patterning on an occupation site. Examples to illustrate the discussion are taken from analyses of settlement sites which date from the Mesolithic and Neolithic in primarily Denmark and Sweden.

Schadla-Hall, R.T., and E.W. Cloutman. 1985. 'One cannot dig at random in a peat bog' The eastern Vale of Pickering and the archaeology of a buried landscape. In **Archaeology from the Ploughsoil**, edited by C. Haselgrove, M. Millet, and I. Smith, pp. 77-86.

Smith, Chistopher, and Clive Bonsall. 1985. Museum Note: a Red Deer antler mattock from Willington Quay, Wallsend. **Archaeologia Aeliana**, Fifth Series, 13:203-211. The Society of Antiquaries, Newcastle Upon Tyne.

Straus, Lawrence G., and Geoffrey A. Clark. 1986. **La Riera Cave. Stone Age Hunter-Gatherer Adaptations in Northern Spain.** Arizona State University, Anthropological Research Papers 36. (xvii + 499 pp, 258 figures, 34 plates, 218 tables. $28.50. Department of Anthropology, Tempe, Arizona, USA, 85287. European clients should add $4.00 to cover postage and handling (surface mail) or $12.50 if they wish to receive the book by air (AO Book Rate). ARP regrets that payment must be made in U.S. dollars. Arizona State University has no convertible accounts).

Strömberg, Märta. 1986. Signs of Mesolithic occupation in south-east Scania. **Meddelanden från Lunds universitets historiska museum 1985-86 (Papers of the Archaeological Institute of the University of Lund)** New Series, 6: 52-83.

The aim of the Hagestad project is to elucidate settlement development in a coastal region over a long period of time and to seek to explain stability or change in its social, economic, and cultural pattern. The investigation has largely concentrated on agrarian settlement from the Neolithic period to the Middle Ages, but we have also employed various methods to locate numerous traces of Mesolithic occupation, both in Hagestad and in other parts of south-east Scania. The forays which we have made outside the basic area indicate that intensified fieldwork can appreciably increase the number of sites. But it must be noted that in many cases these are small areas with few artifacts. The remains of small huts have been excavated on three sites. Other sites have revealed occupation layers, hearths and sometimes objects directly on old ground surfaces, including surface finds These hunter-gatherer settlements are mostly small and grouped near, but not alway direct proximity to, watercourses.

The small social units which we are probably dealing with formed a network of local contacts; but they must also have been related to a larger social unit in Scania, through which they gained access to raw material in the form of flint of higher quality than that normally found in south-east Scania. The small excavations on hunter-gatherer settlements which have been carried out outside Hagestad show that they lay both near the coast and further inland, reflecting different sources of livelihood, in some cases being temporary rest camps.

Zvelebil, Marek (editor). 1986. **Hunters in Transition. Mesolithic Societies of Temperate Eurasia and Their Transition to Farming.** Cambridge University Press. 204 pp, 1 plate, 13 tables, 47 diagrams. $49.50.

This book analyzes one of the crucial events in human cultural evolution: the emergence of postglacial hunter-gatherer communities and the develop- ment of farming. Traditionally, the advantages of settled agriculture have been viewed in terms of the simple dispersal of early farming communities northwards across Europe. The contributors to this volume, however, adopt a fresh, more subtle approach. From a hunter-gatherer perspective settled farming implies both advantages and disadvantages, and certainly involves organizational disruption during the period of transition and far-reaching social consequences for the existing way of life.

The hunter-gatherer economy and farming in fact shared a common objective: a guaranteed food supply in a changing natural and social environment. Drawing extensively on research in eastern Europe and temperate Asia, the book argues persuasively for the essential unity of all postglacial adaptations, whether leading to the dispersal of farming or the retention and elaboration of existing hunter-gatherer strategies.

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