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# MESOLITHIC PALETHNOGRAPHY

RESEARCH ON OPEN-AIR SITES  
BETWEEN LOIRE AND NECKAR

PROCEEDINGS FROM THE INTERNATIONAL ROUND-TABLE MEETING  
IN PARIS (NOVEMBER 26–27, 2010)

as part of sessions organised by the Société préhistorique française

Published under the direction of

**Boris VALENTIN, Bénédicte SOUFFI, Thierry DUCROCQ,  
Jean-Pierre FAGNART, Frédéric SÉARA, and Christian VERJUX**



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*Mesolithic Palethnography*  
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## Tiny stones in the mud.

# The Mesolithic sites of Siebenlinden (Rottenburg, Baden-Württemberg, South West Germany)

Claus Joachim KIND

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**Abstract:** The Mesolithic sites of Siebenlinden were excavated between 1990 and 2004. Several areas were investigated which belong to a large Mesolithic landscape. The site of Siebenlinden 3-5 covers an area of about 480 m<sup>2</sup>. Three Mesolithic layers were identified. The uppermost layer belongs to the Late Mesolithic while the two lower ones can be assigned to the Beuronian. The three different layers show different aspects. The uppermost layer II is the product of a residential camp which was occupied for a medium length of time of about one or two weeks. Layer III also clearly shows features of a residential camp site which seems to have been occupied for a longer period of several weeks. The internal organization of layer III differs remarkably from the organization of layer II. This may be due to a change in social behaviour. Finally, the smaller find concentrations in layer IV seem to represent brief field camps which were occupied during the acquisition of resources such as game and hazelnuts.

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### GENERAL CONTEXT

**D**URING the last two decades several excavation campaigns were conducted on Mesolithic open-air sites at Siebenlinden on the outskirts of Rottenburg. The town of Rottenburg is situated on the banks of the Neckar River in the southwestern part of Germany in Baden-Württemberg, some 50 km from Stuttgart and about 10 km southwest of Tübingen (fig. 1).

All activities at Siebenlinden have been rescue excavations which were organized and carried out by the Office for the Protection of Monuments in Baden-Württemberg. The fieldwork started in 1990 at the site of Siebenlinden 1 (Hahn et al., 1993). It was continued in 1991 at Siebenlinden 2 (Kieselbach et al., 2000) and from 1993 to 1995 at Siebenlinden 3 (Kind, 2003 and 2006). Between 2001 and 2004, Siebenlinden 4 and 5 were discovered and excavated (Kind, 2011). In total, an area of nearly 580 m<sup>2</sup> was investigated (fig. 2). The different sites at Siebenlinden can no longer be interpreted as isolated find spots. They form one large Mesolithic landscape on the banks of the Neckar River.

All the sites were situated on a small peninsula along the Neckar River which remained dry during a high flood. This geographical situation on a peninsula is very similar to Mesolithic sites on the shores of small lakes in South-west Germany (Jochim, 1998) and Switzerland (Nielsen, 2009).

### STRATIGRAPHIC SETTING

**T**he sites of Siebenlinden 3, 4 and 5 together cover an area of about 480 m<sup>2</sup>. The finds were deposited in loamy alluvial sediments and were relatively quickly covered in a low energy environment (fig. 3). These alluvial sediments overlay Lateglacial gravels, their sedimentation started during the Preboreal and continued during the Boreal and Atlantic periods. Three Mesolithic layers could be distinguished. The uppermost layer II can be dated to the Late Mesolithic, while the deeper layers III and IV both can be assigned to the Middle Mesolithic (Beuronian B and C; Taute, 1973-1974). This is confirmed by the typology of the microliths (fig. 4). Finally, layer I is a mixture of material from the Neolithic and the La Tène period.

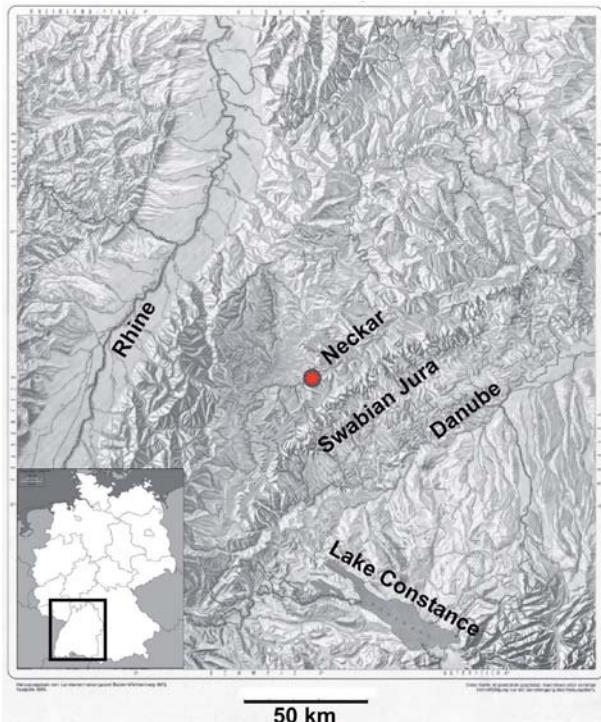


Fig. 1 – Siebenlinden. Geographical Position in Southwest Germany.



Fig. 2 – Siebenlinden. Excavated areas.

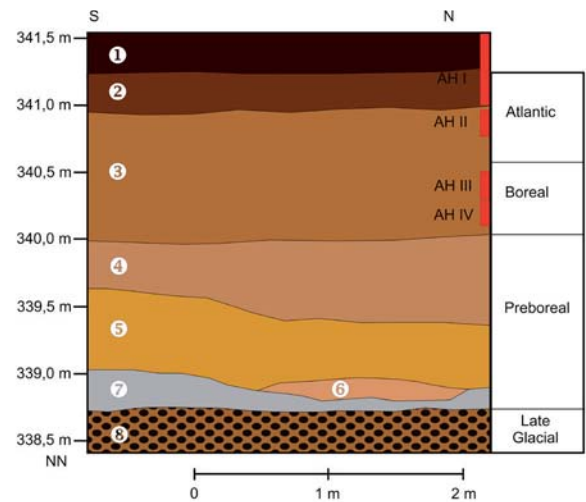


Fig. 3 – Siebenlinden. Stratigraphy.

### SIEBENLINDEN 3-5, LAYER II

The uppermost Layer II belongs to the Late Mesolithic. Several radiocarbon dates put the occupation to a period between 6100 and 6500 cal. BC during the Atlantic period. Typologically, the lithic artefacts are characterized by very regular bladelets and rectangular microliths like trapezes. This is diagnostic for the southwest German Late Mesolithic. The faunal material is dominated by roe deer, followed by red deer and wild boar. One antler axe is also present (fig. 5).

Layer II yielded several hundred chipped lithic artefacts. The principal *chaîne opératoire* is complete with artefacts from the primary decortification and preparation well represented. The raw material was imported as whole nodules. Some of the lithics were retouched into endscrapers and truncations; microliths are also common. The faunal elements are numerous with bones representing complete carcasses of roe deer, red deer and wild boar. Some of the bones are pieces of debitage connected to the production of bone artefacts while the end products (chisels and points) are missing. The assemblage shows several different activities and domestic ones are very common. Layer II seems to be the product of a more or less intense occupation which in any case lasted longer than a few days, possibly for one or two weeks (table 1).

Horizontal artefact distribution is sometimes more or less random, but occasionally objects were found in clearly limited accumulations (fig. 6). Five could be identified.

For example, Locus II/1 shows a concentration of lithic artefacts in the vicinity of three hearths. At the periphery of this concentration, bone fragments and burnt stones were found.

The unit is quite large and covers an area of about 150 m<sup>2</sup>. It seems to be an area where different activities such as the production of lithic artefacts, hafting and retooling microliths (Keeley, 1982), the use of scrapers



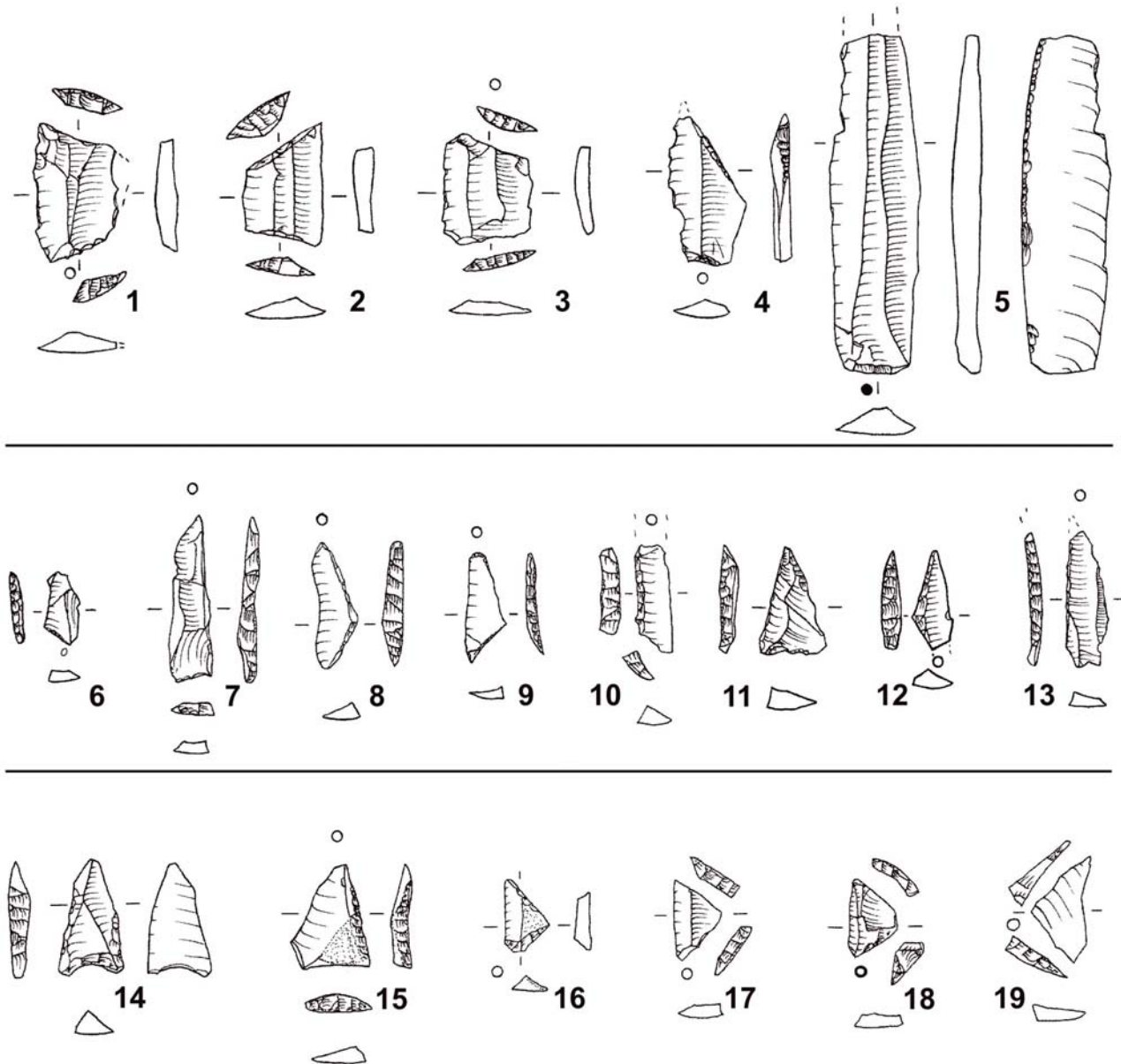


Fig. 4 – Siebenlinden. Lithic artefacts. 1-5: layer II, Late Mesolithic; 6-13: layer III, Beuronien C; 14-19: layer IV, Beuronien B.

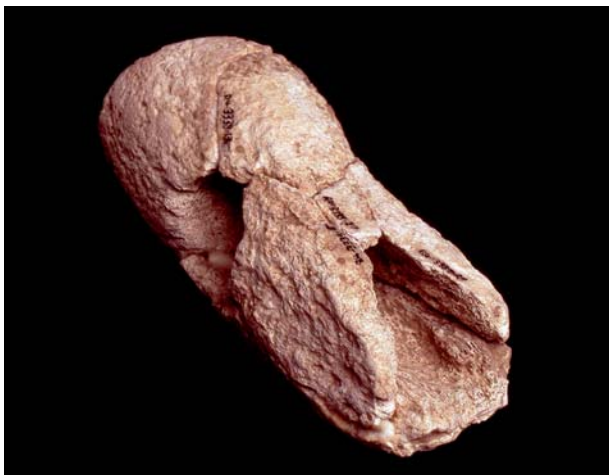


Fig. 5 – Siebenlinden. Layer II, Late Mesolithic: antler axe.

- Numerous lithic artefacts
  - complete *chaîne opératoire*
  - import of complete nodules
  - tools of the fonds commun
  - microliths
- Numerous bone fragments
  - complete carcasses (*sus*, *capreolus* and *cervus*)
  - bone/antler tools and waste of production
- several different activities
- medium duration of occupation

Table 1 – Siebenlinden. Layer II, Late Mesolithic: general characterization.

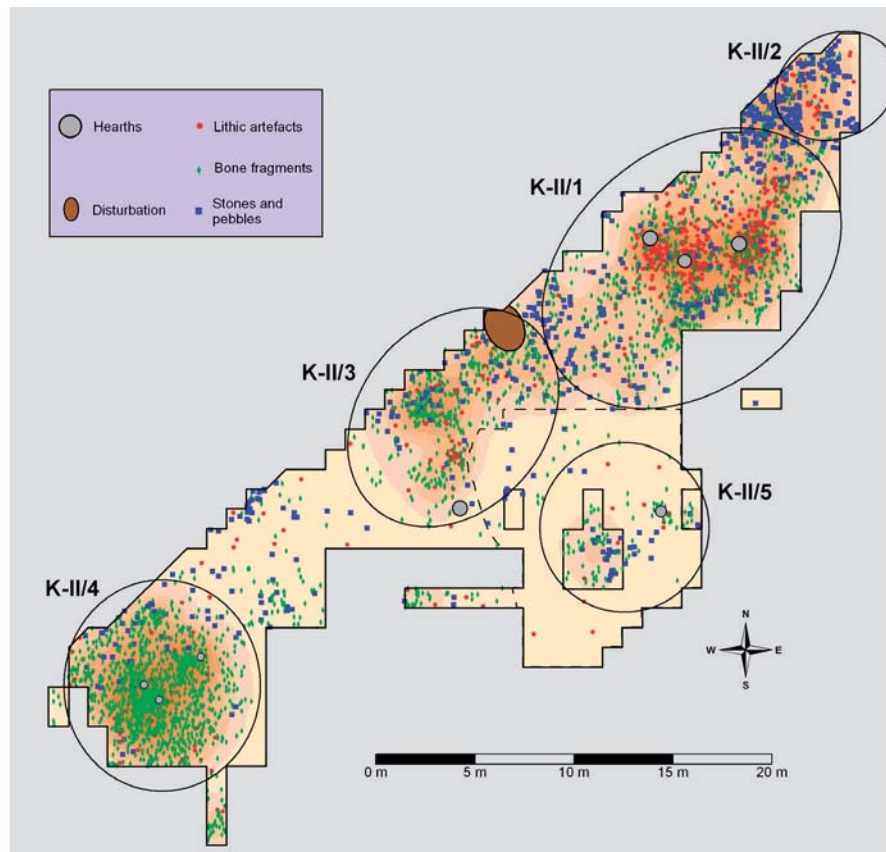


Fig. 6 – Siebenlinden. Layer II, Late Mesolithic: horizontal distribution of finds.

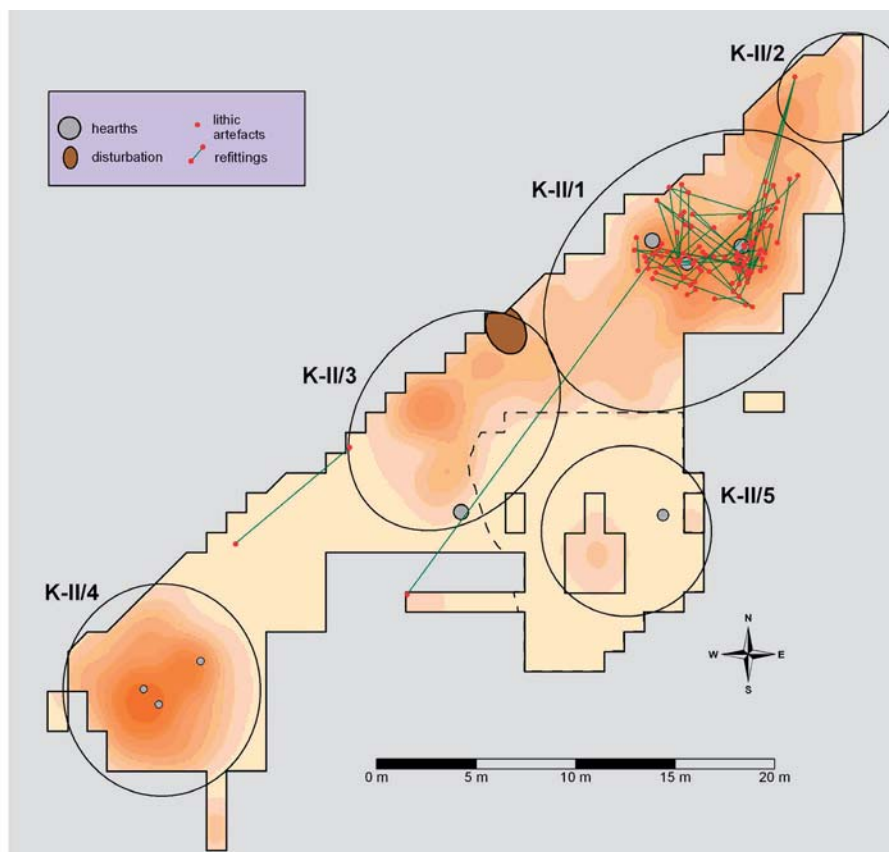


Fig. 7 – Siebenlinden. Layer II, Late Mesolithic: horizontal distribution of refitted lithic artefacts.

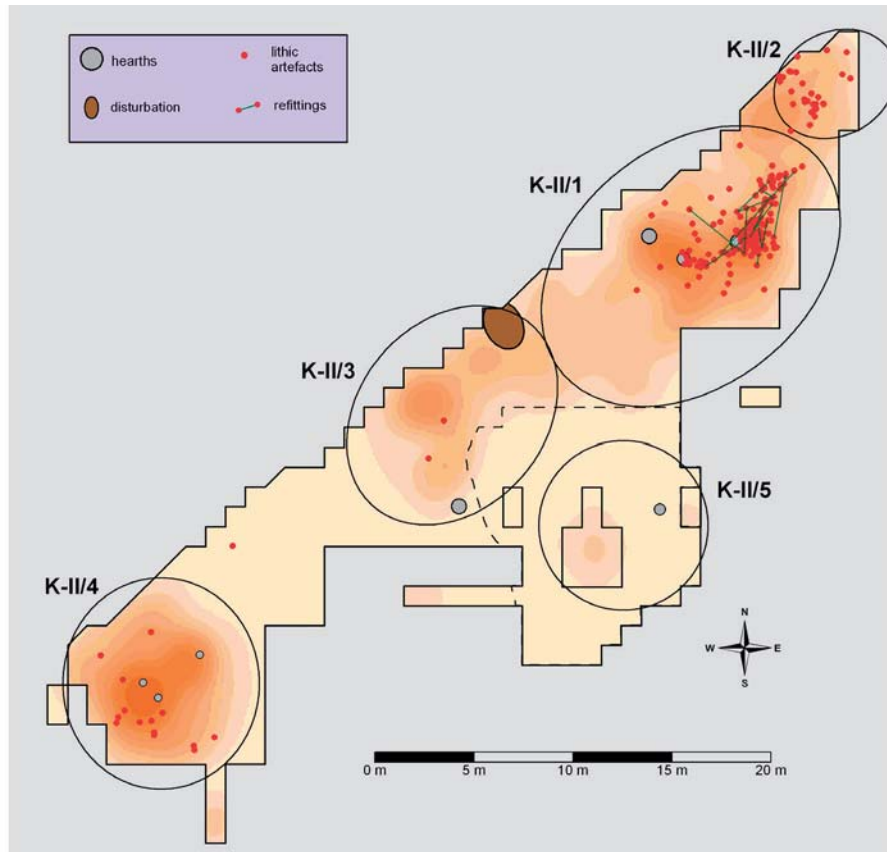


Fig. 8 – Siebenlinden. Layer II, Late Mesolithic: horizontal distribution of lithic artefacts, nodule KN 1.

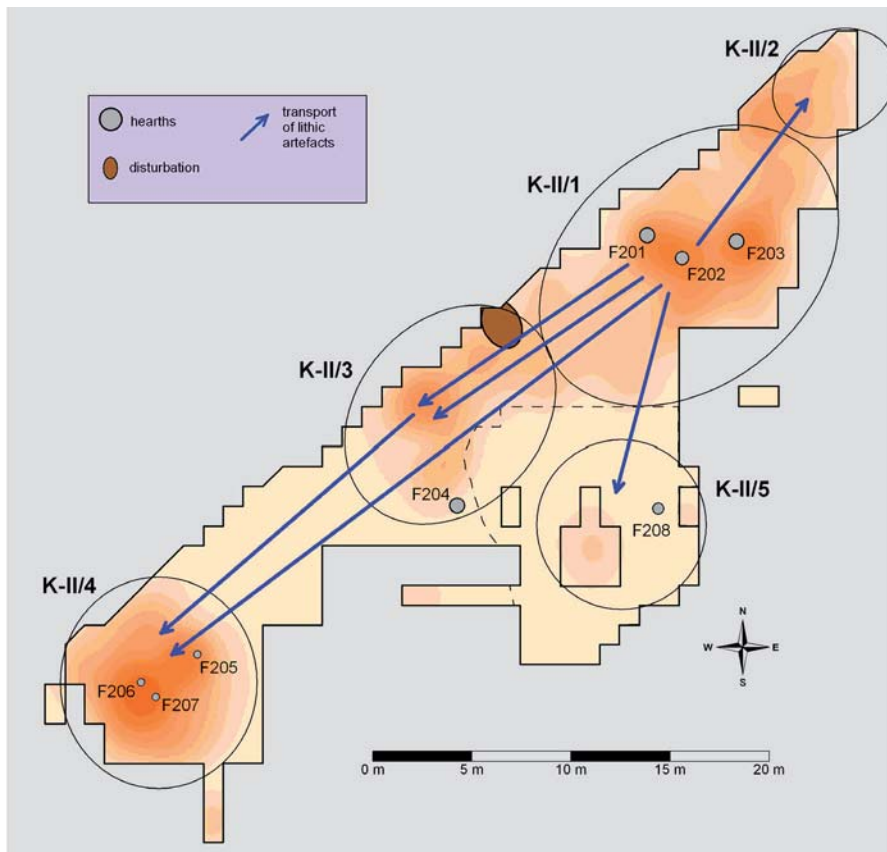


Fig. 9 – Siebenlinden. Layer II, Late Mesolithic: general transport of lithic artefacts.

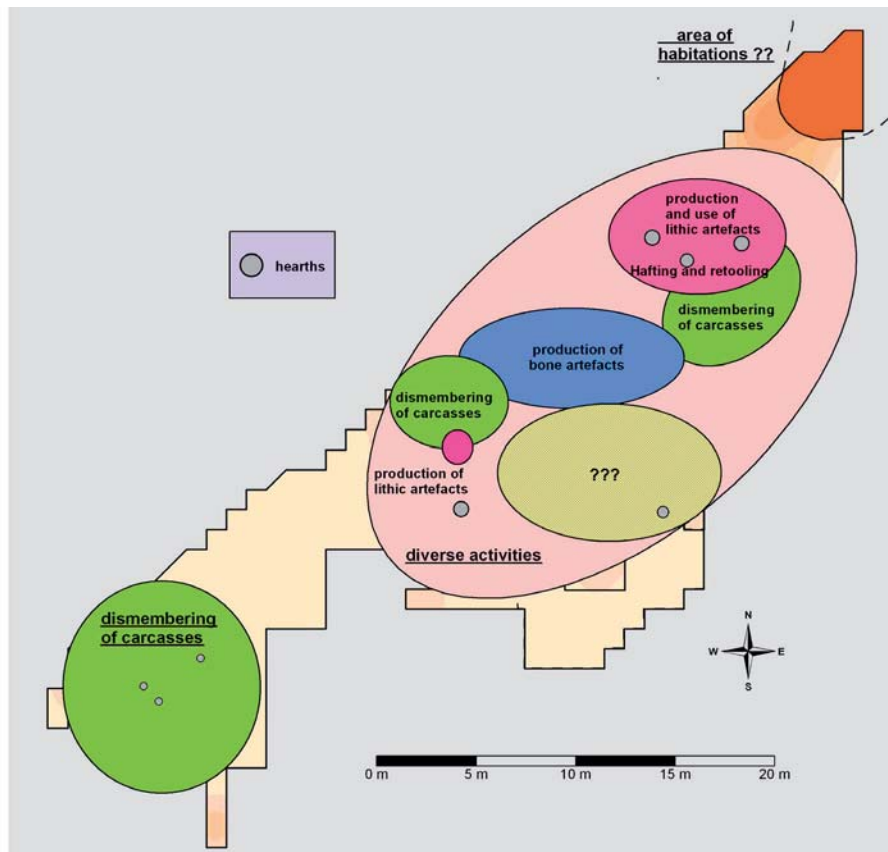


Fig. 10 – Siebenlinden. Layer II, Late Mesolithic: localisation of activities.

and knives and the production of bone tools all took place. As another example, Locus II/4 is characterized by a significant quantity of bone fragments. They were again found in the vicinity of three small hearths. Lithic artefacts are very rare. The unit again covers a large area of 90 m<sup>2</sup> and seems to be the product of butchering game.

The distribution of refitted lithic artefacts clearly shows that all of the three hearths in locus II/1 were used contemporaneously (fig. 7). However, there are also connections between the units II/1 and II/2, as well as between II/1 and the periphery of II/3.

A special kind of analysis is the attempt to assign artefacts to individual nodules on the basis of raw material specificities. Artefacts from one nodule are seen as belonging to one worked piece. Twelve nodules belonging to layer II were identified. The distribution of artefacts coming from these nodules gives further information about the use of space. Some examples show that artefacts which were produced in locus II/1 were afterwards transported to units II/2, II/3 and II/4 (fig. 8).

If all connections on the basis of refits *and* raw material specificities are drawn on one map it becomes clear that the whole site is covered by a network of transport activities (fig. 9). This demonstrates a dynamic system of occupation and proves that all units belong to one large settlement.

It is possible to characterize the different units of this settlement (fig. 10). Loci II/1, II/3 and II/5 belong to one large area with different activities. These include

the production of lithic artefacts, use of tools, hafting and retooling of arrowheads as well as the dismembering of carcasses and the production of bone artefacts. In contrast, locus II/4 can be seen as a large area where animals were butchered. Finally, unit II/2 possibly belongs to a habitation area. If the assumption is right that large areas of activity are used by a large number of individuals it becomes clear that all the members of the group were doing the same things, but at the same places.

### SIEBENLINDEN 3-5, LAYER III

In Layer III several thousand chipped lithic artefacts were found. Among the microliths there are extremely scalene triangular pieces. These are typical of the late Middle Mesolithic which is called Beuronian C. More than 30 radiocarbon dates put the occupation of layer III in the late Boreal period between 7100 and 7400 cal. BC. Additionally, artefacts made on pebbles (hammer and grinding stones, fig. 11) and bone artefacts (points and chisels, fig. 12) were found as well as waste from the production of these bone artefacts (fig. 13). The fauna again is dominated by roe deer, red deer and wild boar.

The principal *chaîne opératoire* of the production of lithic artefacts is once again complete. Artefacts from decortication and primary preparation are well represented. Raw material was imported mainly as complete



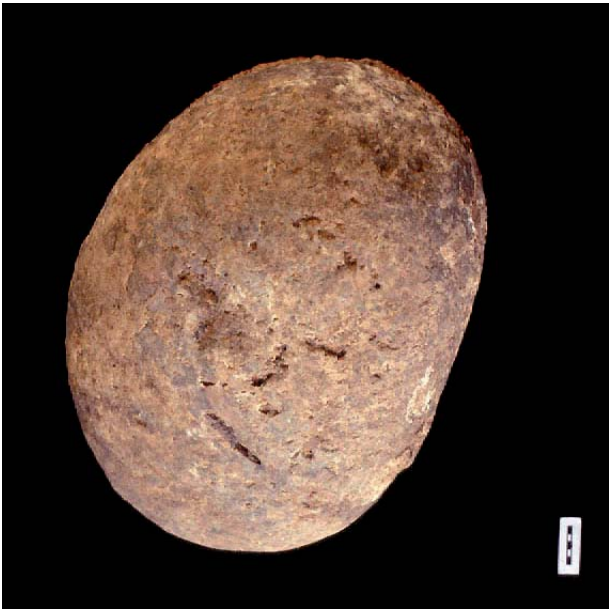


Fig. 11 – Siebenlinden. Layer III, Beuronien C: hammer stone.



Fig. 12 – Siebenlinden. Layer III, Beuronien C. Left: bone point. Right: bone chisel.



Fig. 13 – Siebenlinden. Layer III, Beuronien C: waste of production of bone tools (design E. David).

nodules. Among the lithic artefacts there are several end-scrapers, truncations and burins; microliths and microburins are also represented. Complete carcasses of roe deer and wild boar were imported, while the bones of red deer mainly represent meat-rich parts of the bodies. Significant numbers of bone fragments—mainly from metapodiams—show traces of the production of bone artefacts. Several bone points and bone chisels were also found. In sum the assemblage again demonstrates several differ-

ent activities and again domestic activities are very common. Layer III also clearly seems to be the product of an intense occupation which possibly lasted for several weeks (table 2).

Horizontal artefact distribution in layer III define 18 find units which often are accompanied by hearths (fig. 14). In several aspects this distribution resembles the situation in Mesolithic settlements like Choisey and Ruffey-sur-Seille (Séara et al., 2002).



- Numerous lithic artefacts
  - complete *chaîne opératoire*
  - import of complete nodules
  - tools of the fonds commun
  - microliths and microburins
- Numerous bone fragments
  - complete carcasses (*sus* and *capreolus*)
  - partial carcasses (*cervus*)
  - bone/antler tools and waste of production
- Artefacts made of pebbles and stone slabs
- Numerous different activities
- Long duration of occupation

**Table 2 – Siebenlinden. Layer III, Beuronien C: general characterization.**

There seem to be different types of concentrations. Units III/1, III/3, III/6, III/13 and III/14 are areas where numerous burnt pebbles and stones were found. With the exception of unit III/3, lithic artefacts and bone fragments are rare. Paved hearths are very common inside these concentrations. Most of these units show a clear border effect (Stapert, 1989) and it seems possible that they represent sheltered structures like habitations. The paved hearths

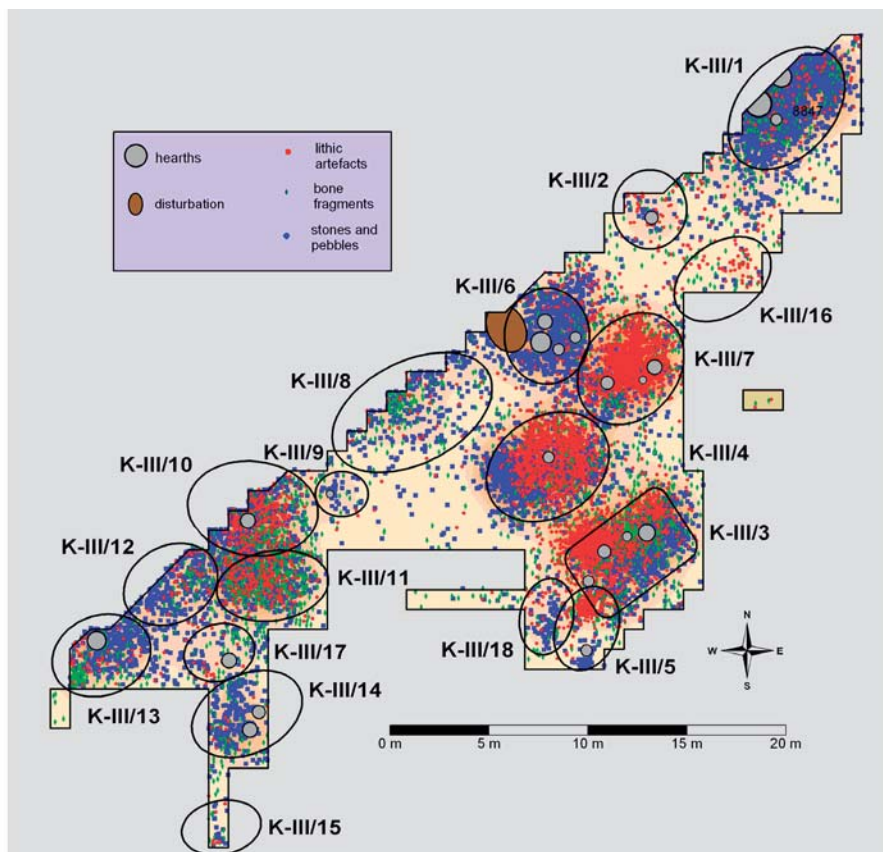
are mostly associated with shallow pits (fig. 15). They are similar to features in several other Mesolithic sites (Gob and Jaques, 1985, p. 169; Rozoy, 1978, p. 1096; Paulet-Locard, 1989; Rozoy and Slachmuylder, 1990; Spier, 1994, p. 89; Foucher et al., 2000; Svoboda et al., 2000, p. 293; Svoboda, 2003, p.169, 209, 245; Séara et al., 2002; Ghesquière and Marchand, 2010, p. 103, 115). Possibly they were used as cooking pits (Fretheim, 2009) or as constructions for roasting meat.

Loci III/4, III/7 and III/10 belong to another type of concentration. They are dominated by lithic artefacts and bone fragments; waste from producing bone artefacts is also sometimes present. Only simple hearths were found inside these units.

Finally loci III/2, III/8, III/12, III/16, III/17 and III/18 are small concentrations with variable content. Sometimes there are some lithic artefacts inside, sometimes some bone fragments. The hearths in these units are only simple ones.

A couple of pebbles and stones were refitted (fig. 16). The refitted fragments were usually found close together but sometimes they show connections between different units.

A similar interpretation can be drawn by the refitting of lithic artefacts (fig. 17). Usually the pieces involved were found close together but again some refitted objects were found further away in different units.



**Fig. 14 – Siebenlinden. Layer III, Beuronien C: horizontal distribution of finds.**

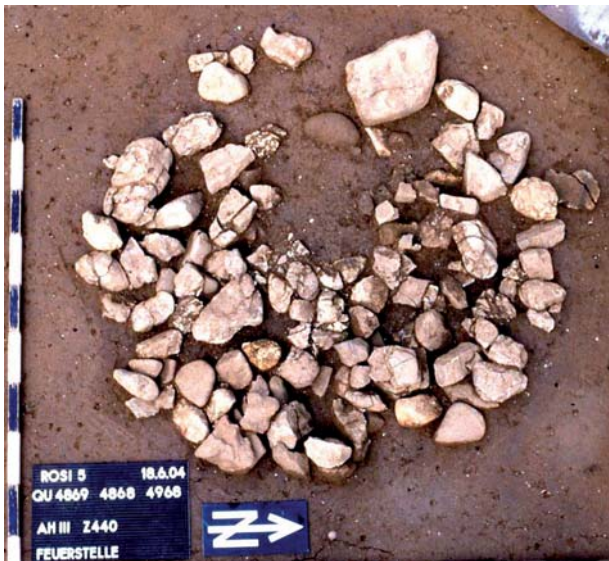


Fig. 15 – Siebenlinden. Layer III, Beuronien C: paved hearth.

Most of the artefacts can be assigned to worked nodules on the basis of raw material specificities. About 80 nodules belonging to layer III were identified. Some of them demonstrate that artefacts were transported from one unit to another (fig. 18).

If all the indications for transports of lithic artefacts are combined—in this case the transport of cores—a complex network of movements becomes visible (fig. 19). This again demonstrates a dynamic system of occupation and proves that most of the units in layer III may belong to one large settlement.

Usually units with different activities are linked together (fig. 20). In three cases transports originate in units which are dominated by lithic artefacts and bone fragments. Those units can be seen as areas where a number of different activities took place. From these primary activity units, artefacts were brought to areas which were dominated by burnt pebbles and stones and because of the border effect possibly represent dwelling areas. From the primary activity areas artefacts also were transported to the small units with variable content. These can be seen as areas for diverse activities which were sometimes accompanied by satellite hearths. Sometimes lithics were exchanged between different primary activity units.

This interpretation demonstrates that a primary activity unit, a dwelling unit and several satellite units define a housing area. It gives us an initial idea how such a Mesolithic domestic area was organized (fig. 21). It seems to be divided into places of working, of habitation and of special activities. The single units are smaller than the large units in layer II. Therefore a smaller group of inhab-

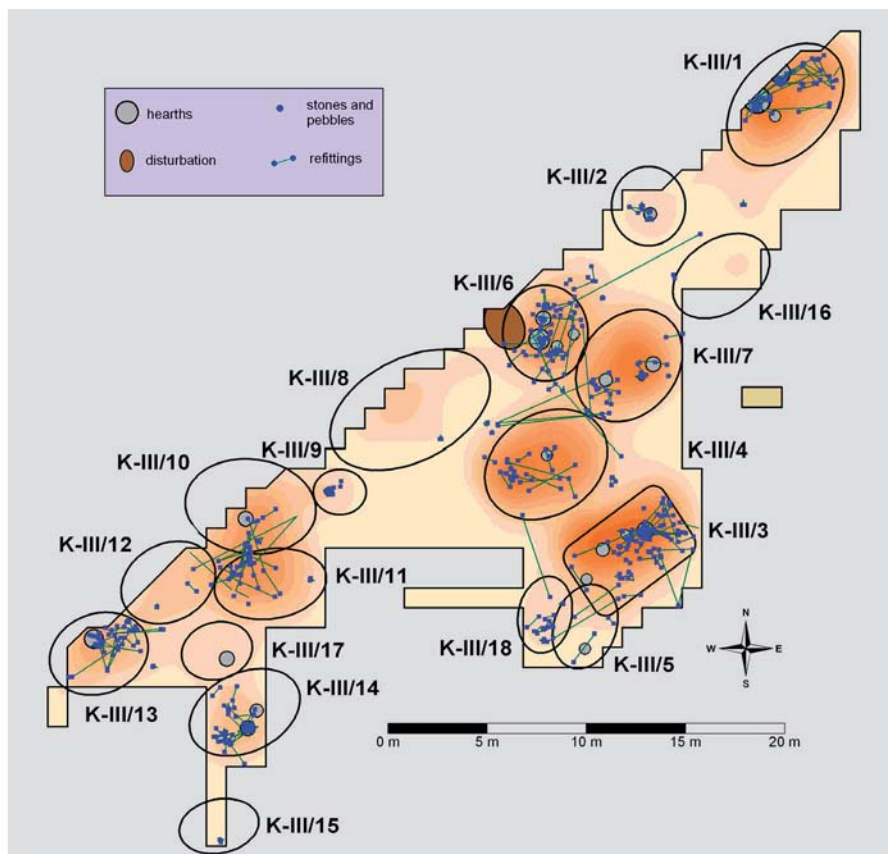


Fig. 16 – Siebenlinden. Layer III, Beuronien C: horizontal distribution of refitted stones and pebbles.

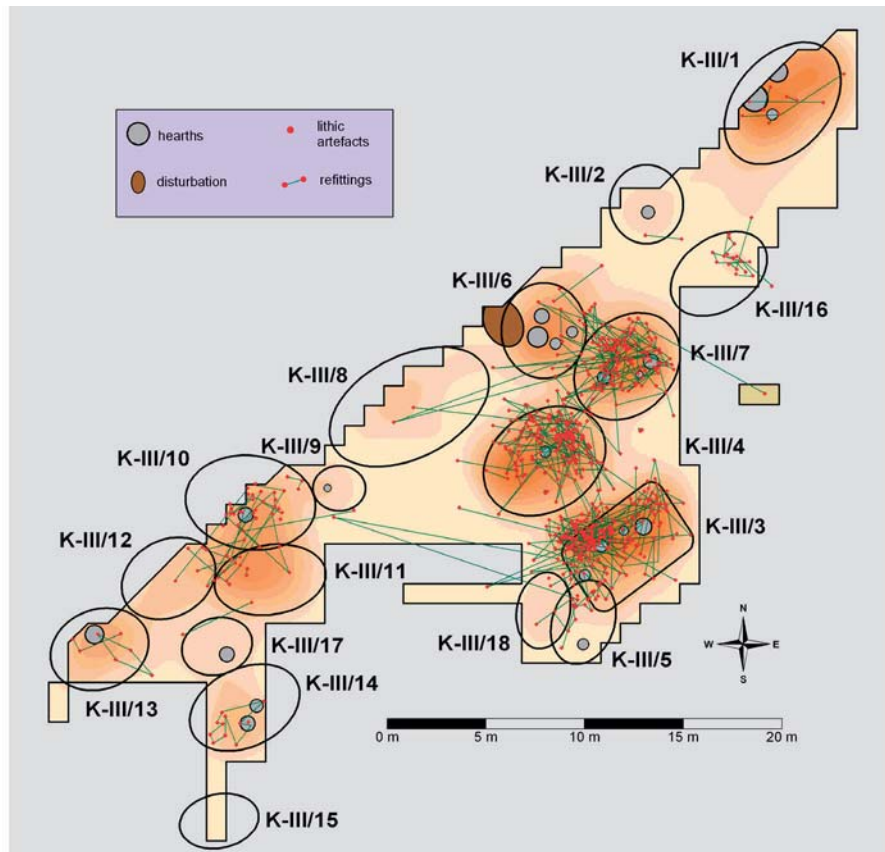


Fig. 17 – Siebenlinden. Layer III Beuronien C: horizontal distribution of refitted lithic artefacts.

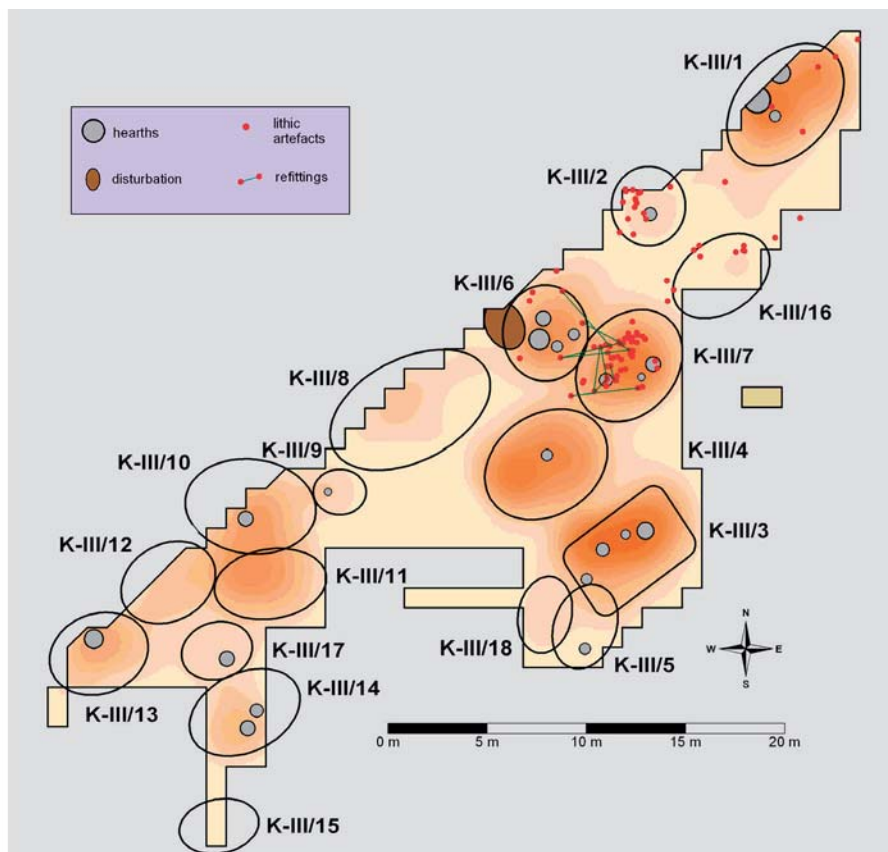


Fig. 18 – Siebenlinden. Layer III, Beuronien C: horizontal distribution of lithic artefacts, nodule J 7.



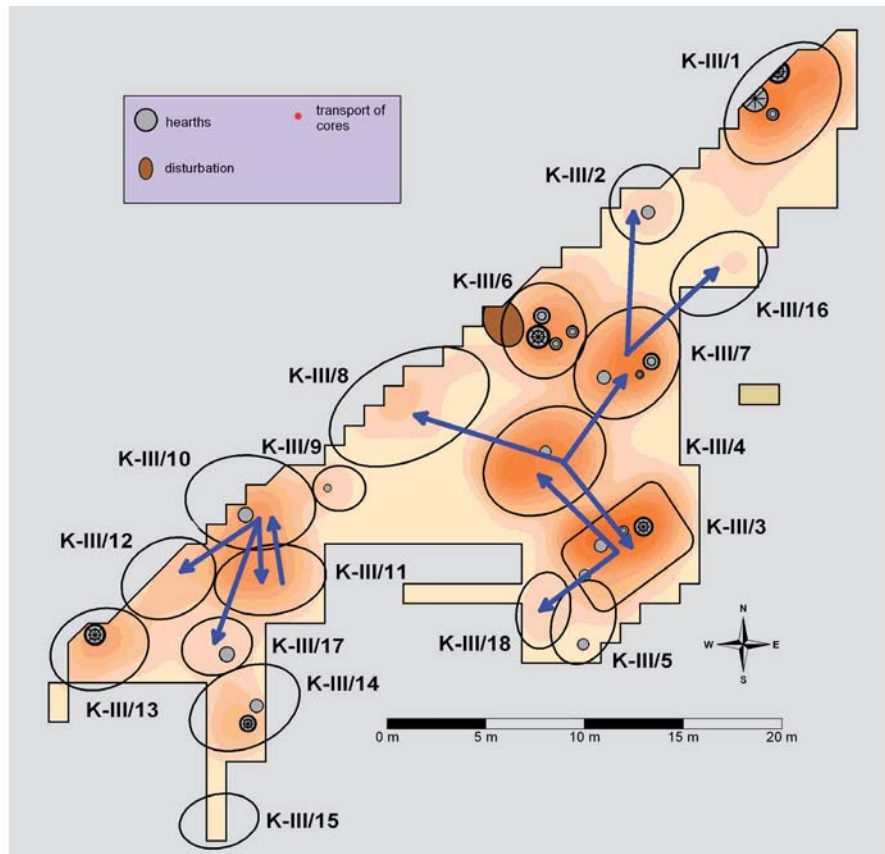


Fig. 19 – Siebenlinden. Layer III, Beuronien C: general transport of lithic artefacts.

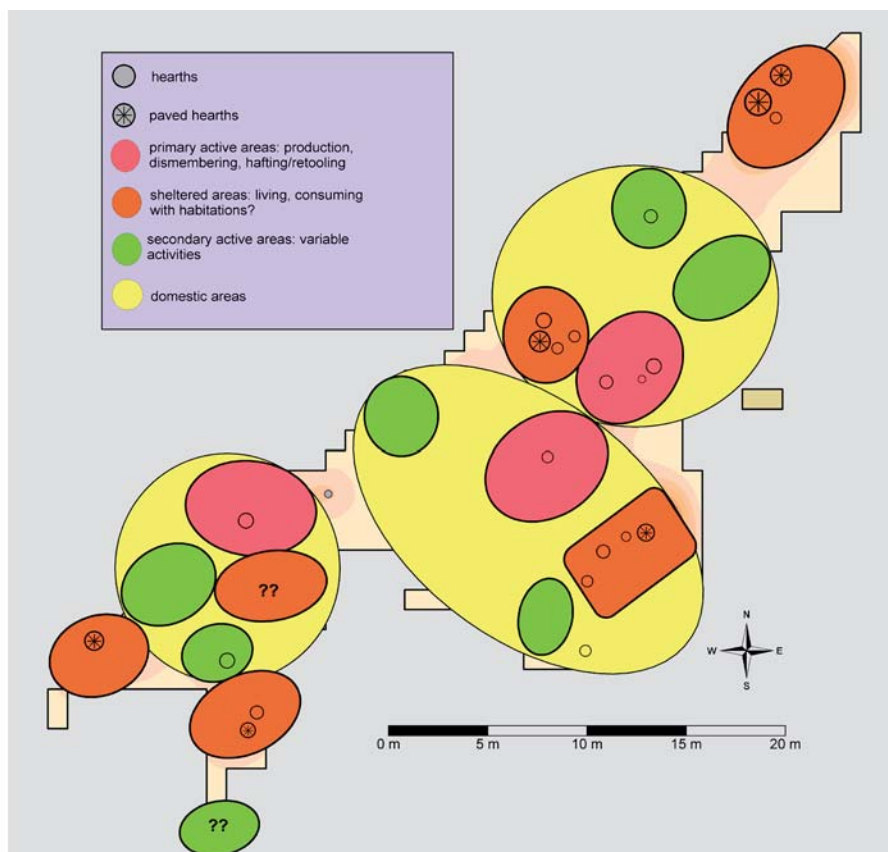


Fig. 20 – Siebenlinden. Layer III, Beuronien C: localisation of activities and domestic units.

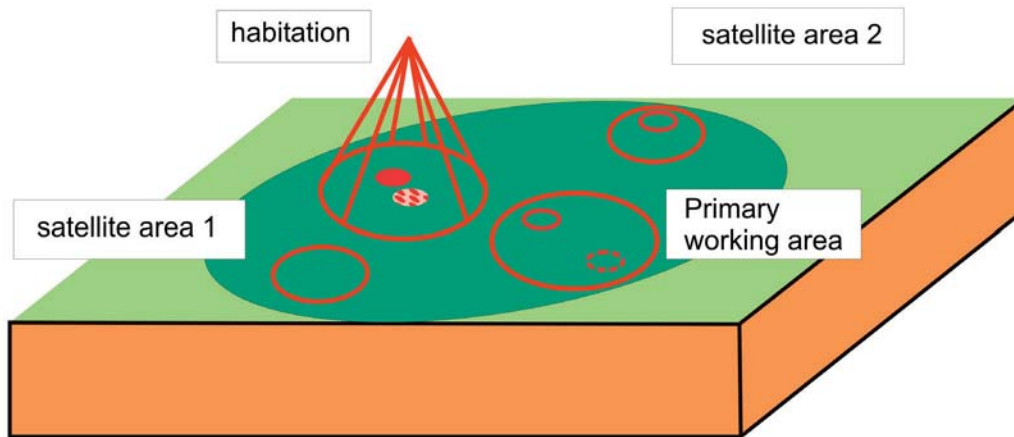


Fig. 21 – Siebenlinden. Layer III, Beuronien C: model of a Mesolithic domestic unit.

itants—possibly a family—lived inside these domestic areas. It was assumed that in layer II all inhabitants did the same things in the same places. In layer III, each of these smaller family groups was self-sufficient and carried out their activities in their own housing area. However, the different housing areas of the different families were connected by transported items.

### SIEBENLINDEN 3-5, LAYER IV

Layer IV is dated to between 7700 and 8100 cal. BC in the early Boreal period. Among the microliths there are larger isosceles triangles and triangular points with bifacially retouched bases. These are diagnostic of the Middle Mesolithic which is called Beuronian B. The faunal remains are dominated by bones from aurochs and beaver. Also hundreds of burnt hazelnut shells were found.

The number of lithic artefacts is limited. The *chaîne opératoire* of the lithics is incomplete and artefacts from primary preparation and decortification are very rare. Raw material seems to be imported as active cores from which the artefacts found on the site were knapped. Endscrapers are missing. Microliths and microburins are present, but not very numerous. The bone fragments are sometimes very small and do not represent complete carcasses. Bones from meat-rich parts are often missing. Hundreds of burnt shells around a burning pit indicate the roasting of hazelnuts. Hazelnuts were an important part of the diet during Mesolithic times (Holst, 2010).

The layer seems to be the product of quite short occupations mainly connected to the acquisition of food resources (table 3).

The horizontal distribution of artefacts in layer IV shows six distinct small concentrations (fig. 22). Three of them (units IV/1, IV/3 and IV/4) yielded some lithic artefacts and some bone fragments in the vicinity of a simple hearth. A pit for roasting hazelnuts was also discovered in unit IV/3. Two other units (IV/2 and IV/6) are dominated

- Several lithic artefacts
  - incomplete *chaîne opératoire*
  - import of active cores
  - no tools of the fonds commun
  - few microliths and microburins
- Several bone fragments
  - incomplete carcasses
  - no bone/antler tools
  - few waste of production
- Numerous burnt hazelnut shells
- Few different activities
- Acquisition of food resources
- Short duration of occupation

Table 3 – Siebenlinden. Layer IV, Beuronien B: general characterization.

by bone fragments while lithic artefacts are very rare or even missing.

Lithic refits, as well as the analysis of the worked nodules demonstrate that units IV/3 and IV/4, as well as units IV/1 and IV/2, are linked together (fig. 23). Stratigraphic observations, as well as available radiocarbon dates seem to indicate that the northern occupations in IV/1 and IV/2 are possibly slightly younger than the southern occupations in IV/3 and IV/4. This shows that layer IV is a palimpsest, the product of different occupations.

The network of connections demonstrates the transport of lithics between the contemporaneous units (fig. 24). It also becomes clear that a wider space outside the primary units was used during the occupations and therefore areas for off-site activities may be identified.

In sum, it can be demonstrated that the main find spots in layer IV only cover a limited area and were quite small (fig. 25). Sometimes two units are contemporaneous. The range of activities is also clearly limited. This fits with the interpretation of these units as being products of short occupations in several quite small camp sites.



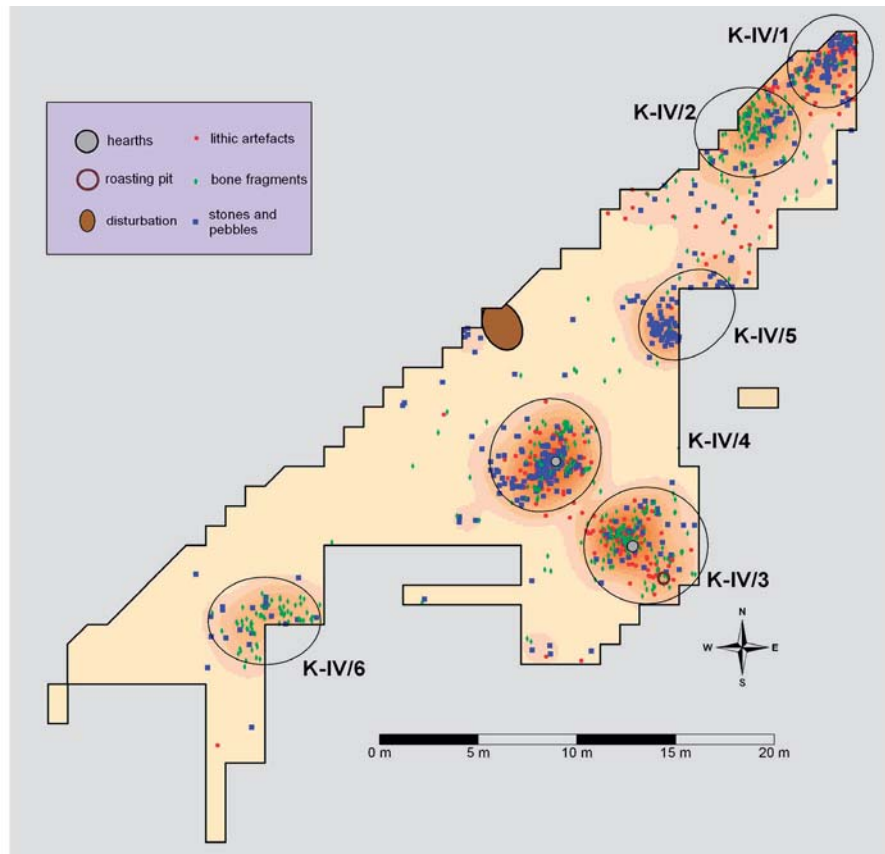


Fig. 22 – Siebenlinden. Layer IV, Beuronien B: horizontal distribution of finds.

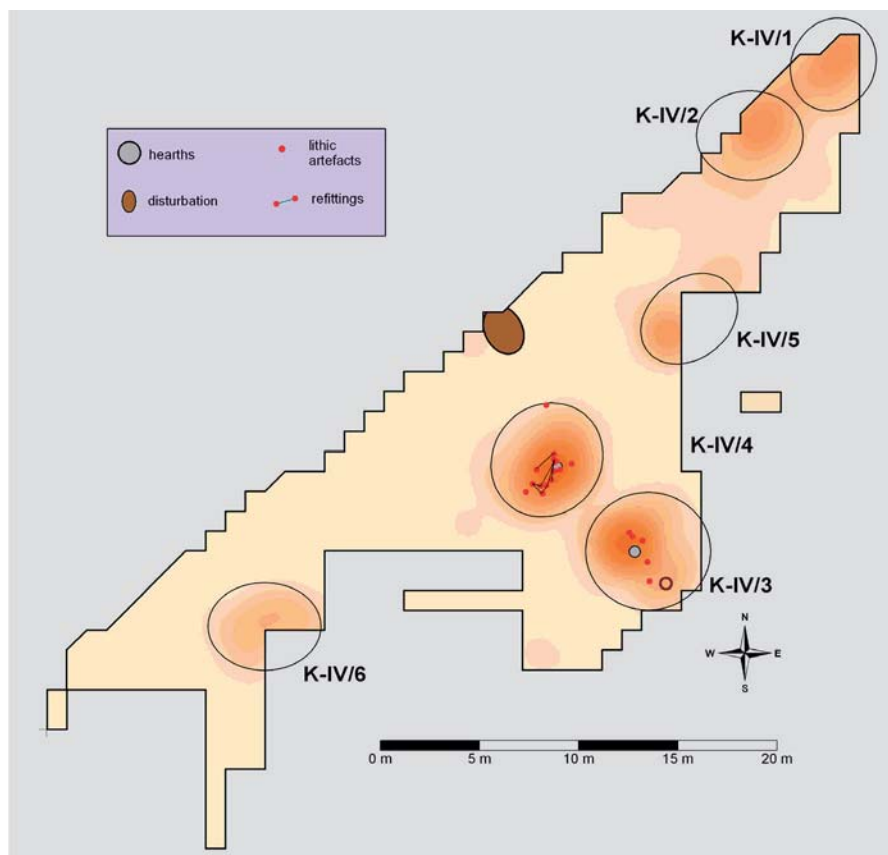


Fig. 23 – Siebenlinden. Layer IV, Beuronien B: horizontal distribution of lithic artefacts, nodule GH 1.

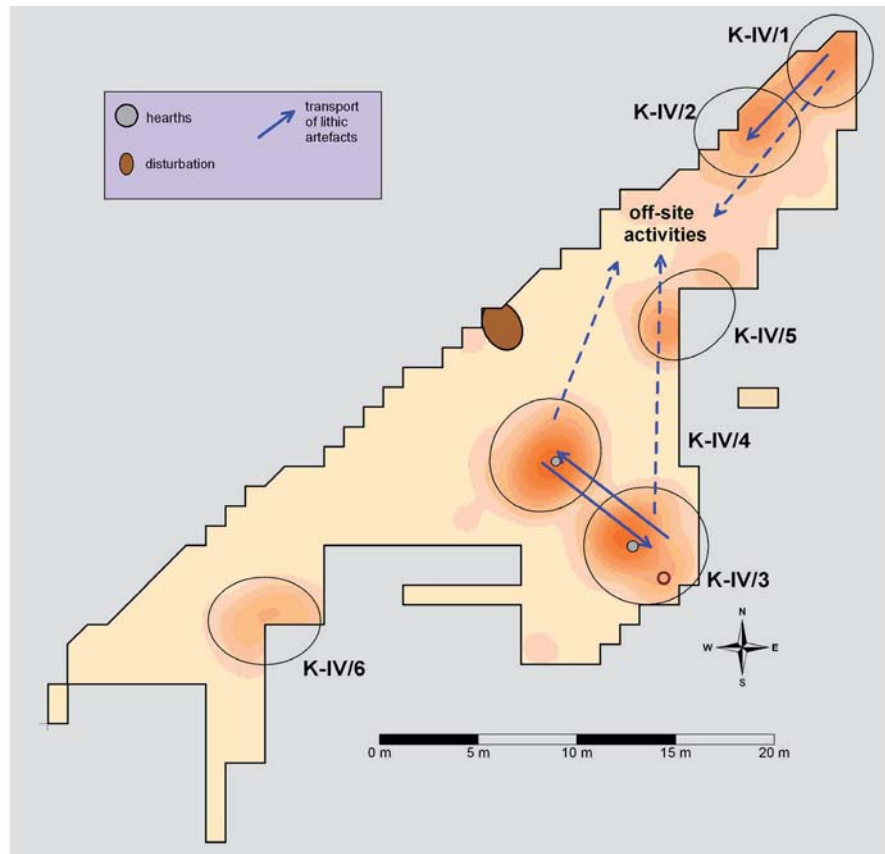


Fig. 24 – Siebenlinden. Layer IV, Beuronien B: general transport of lithic artefacts.

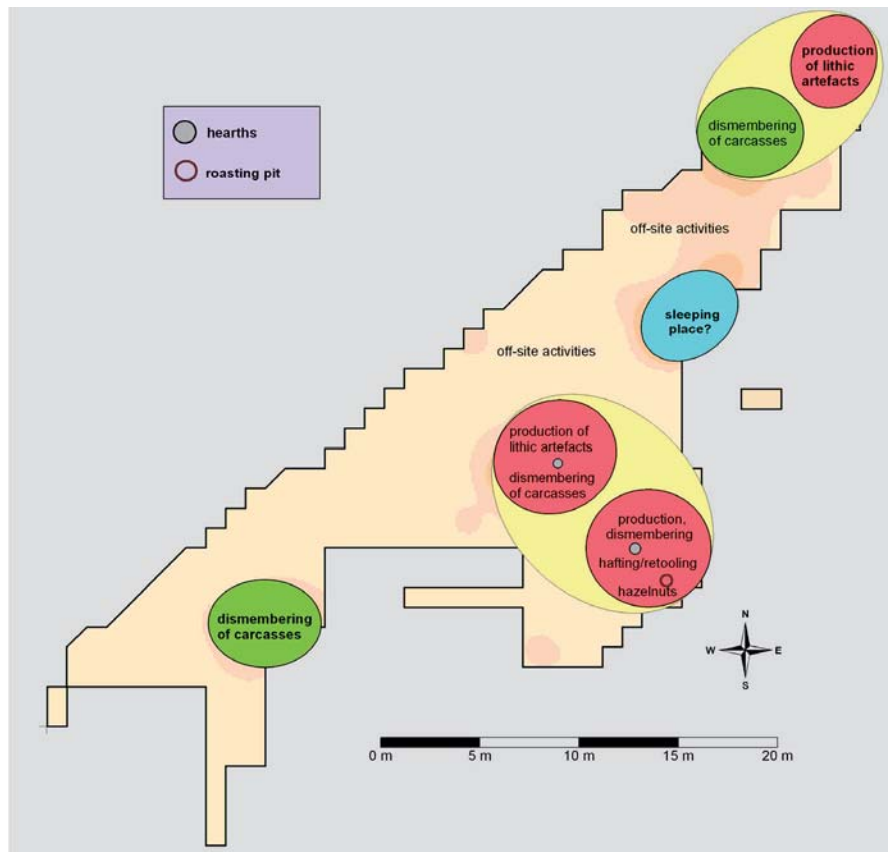


Fig. 25 – Siebenlinden. Layer IV, Beuronien B: localisation of activities.

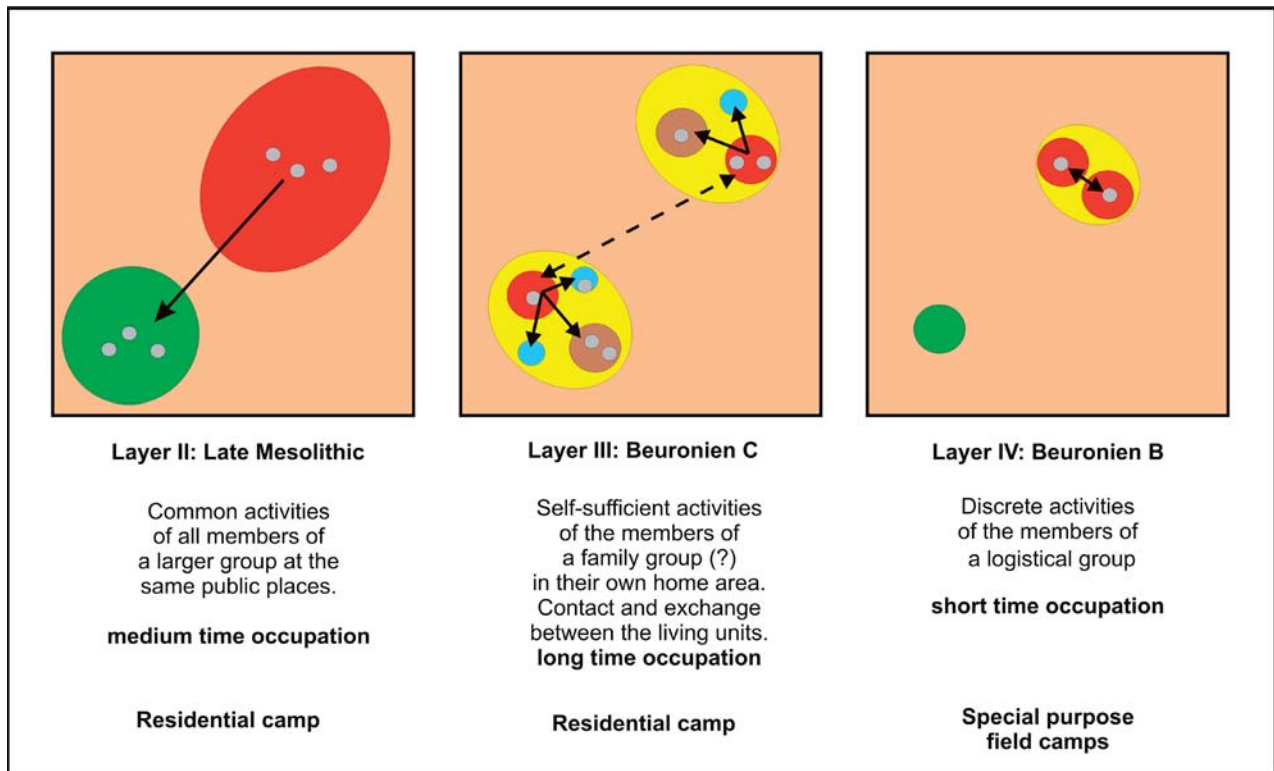


Fig. 26 – Siebenlinden. Organization of camp sites.

## FINAL INTERPRETATION

In all three layers at Siebenlinden there are several indications of the season of occupation. All layers are the product of warm season occupations. Layer II and layer IV may be dated to occupations at the transition between summer and autumn while layer III is the product of a summer camp.

Finally, there are three different organizations of camp sites in three different layers (fig. 26). Layer II shows a limited number of quite large find concentrations with a quite large number of objects. One shows evidence of a range of different activities, while another one is mainly characterized by butchery activities and the dismembering of carcasses. Both concentrations are linked by the transport of lithic artefacts. Members of a larger group were obviously living together in a large camp site. All individuals of the group worked together at the same areas, thus these areas functioned as public places. The duration of the stay seems to be of a medium length.

Layer III shows a different organization. It is characterized by smaller concentrations, again with a large number of objects. Units having evidence for the production of lithic artefacts and dismembering carcasses are linked to possible dwelling units, as well as to satellite units. These three types of units define domestic structures which are connected to each other by transport activities. It seems that once again the members of a larger group were living together in a large camp site. However, the different fami-

lies had a mostly self-sufficient supply of resources and were living and working in separate domestic structures. The duration of the stay seems to be long.

Finally, layer IV is characterized by smaller concentrations with a small number of objects. Units are sometimes connected by the transport of items. It seems that members of small groups of people were living in the different areas at different times. They carried out limited and discrete activities which can be defined as provisioning with food. The duration of these stays seems to be quite short.

The differences between layer IV on one hand and layers II and III on the other seem to relate to different statuses within the subsistence-settlement-system. The small units of layer IV may mostly represent what has been called a ‘field camp’ (Binford 1980)—a small task camp in a logistical system for the acquisition of resources.

On the other hand, layer II and III both represent larger camp sites which can be interpreted as base or residential camps (Binford, 1980; Newell, 2009, p. 59). They clearly show different organizations. Both camps were occupied in a similar season and in a similar environment with differences not connected to a different status in the subsistence-settlement-system. They therefore must be the product of a change in social behaviour between the Middle and Late Mesolithic.

Thus, a detailed analysis of archaeological layers allows us to not only answer typological or technological questions, but also helps us to identify different kinds of camp sites and even social systems.

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# MESOLITHIC PALETHNOGRAPHY

RESEARCH ON OPEN-AIR SITES BETWEEN LOIRE AND NECKAR

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Published under the direction of

**Boris VALENTIN, Bénédicte SOUFFI, Thierry DUCROCQ,  
Jean-Pierre FAGNART, Frédéric SÉARA, Christian VERJUX**

‘Mesolithic Palethnography...’: part of this volume’s title represents a sort of methodological and theoretical mission statement designed to convey the idea that research concerning the last hunter-collectors is today in desperate need of this type of insight. Since the beginning of the 1990s, a spectacular crop of occasionally vast open-air sites has emerged, one of the notable contributions of preventive archaeology. Several long-term excavations have also added to this exponentially increasing body of information that has now come to include a growing number of well-preserved sites that have allowed us to address palethnographic questions. This volume represents a first step towards revitalising Mesolithic research. Here we have focused on occupations from the 8th millennium cal BC, currently the best documented periods, and limited the scope to Northern France and certain neighbouring regions. The first part contains several preludes to monographs highlighting potential future studies as well as various patterns in the structuring of space and the location of camps. These, as well as other complementary discoveries, provide material for the second part of the volume dedicated to new data concerning the functional dynamics of Mesolithic camps.



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