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THE LATE BANDKERAMIK OF THE AISNE VALLEY: ENVIRONMENT AND SPATIAL ORGANISATION

M. ILETT, C. CONSTANTIN, A. COUDART AND J.P. DEMOULE

The river valleys of the Paris Basin provide a rather different geological and topographical context for settlement than the loess regions typically occupied by the Bandkeramik Culture in central and west-central Europe (Modderman 1958/1959; Sielmann 1972; Kruk 1973; Kuper and Lüning 1975; Bakels 1978a). In the Aisne valley (fig. 1) a relatively complete picture of Bandkeramik settlement has emerged as a result of a series of rescue excavations in the 1960s (Boureux and Coudart 1978) and the current Paris University/C.N.R.S. project, founded by the late Bohumil Soudsky shortly after his arrival to teach in Paris in 1971 (F.P.V.A. 1973-1981). This article is mainly concerned with the relationship between the sites and the local environment, and with their distribution along the valley. A preliminary account will also be given of work in progress on the internal organisation of the settlements.

Cultural and chronological background

In view of the special nature of settlement distribution in the valley and its relative isolation from centres of Bandkeramik population in the Low Countries and Germany, it is important to underline the originality of the material culture of the Aisne Late Bandkeramik. This introductory section summarises the main characteristics of the ceramics, the lithic industry, and the houseplans. Bone and antler artifacts have yet to be studied in detail.

The excavations at Cuiry-lès-Chaudardes have provided by far the greatest quantity of pottery. Almost all this material occurs as rubbish in the construction pits flanking longhouses. The pottery can be divided into three basic categories; decorated fine ware, undecorated fine ware, and larger, more coarsely made pots. In terms of minimum numbers of identifiable vessels, the three categories appear to exist in more or less equal proportions. The originality of the assemblage is most clearly seen in the decorated fine ware. The overwhelming majority of these vessels are decorated with comb impressions, often combined with incised lines (Ilett and Plateaux in press). Two- and three-toothed combs are the most frequent; four- and

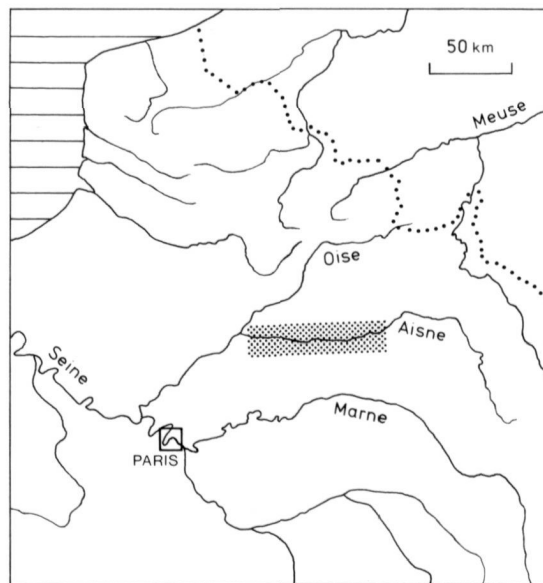


Fig. 1. North-east France and part of Belgium. The shaded area represents fig. 3.

five-toothed instruments are relatively uncommon. The comb was almost always pivoted across the damp surface of the clay. Rim and neck decoration includes various combinations of horizontal comb impressed bands and incised

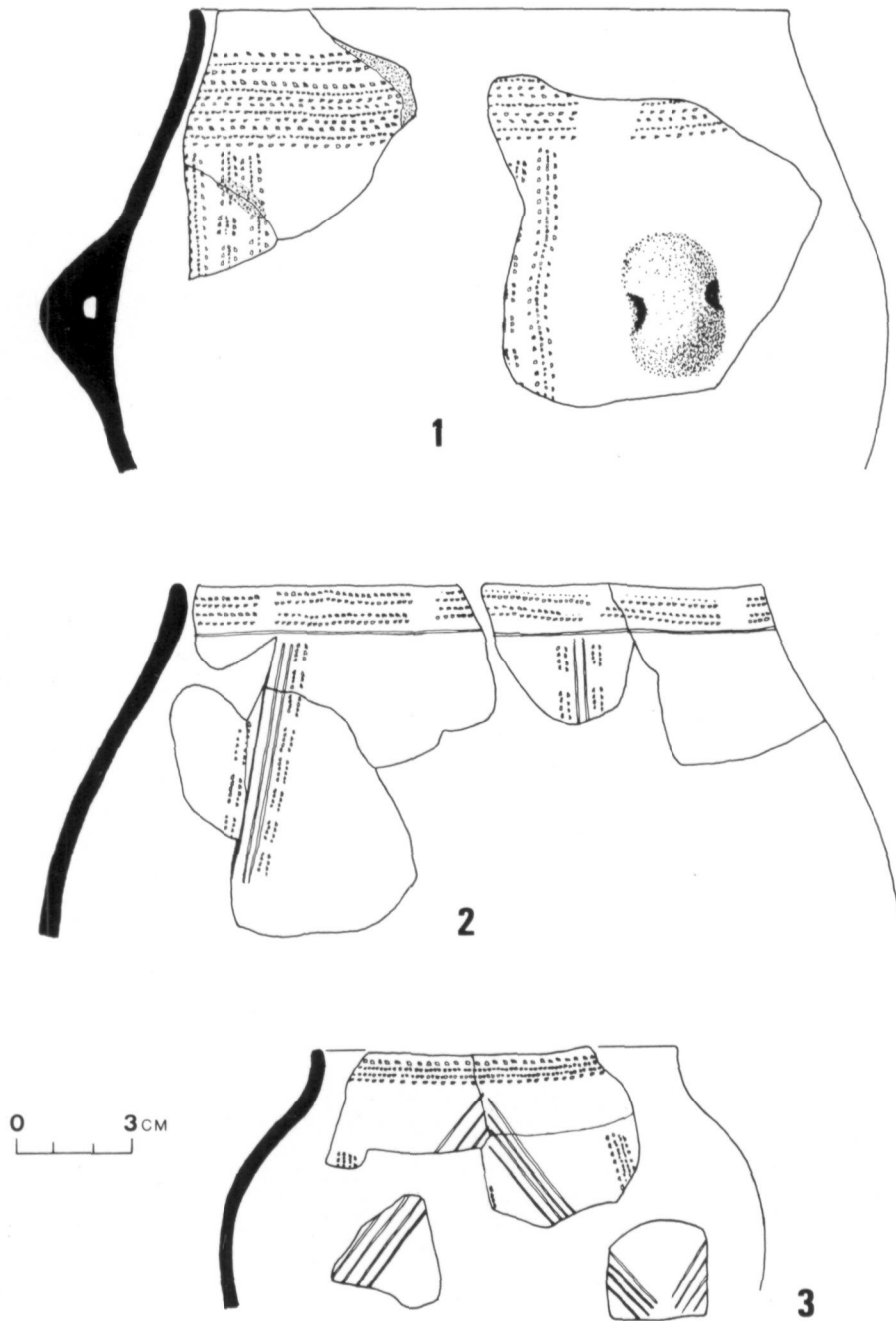


Fig. 2. Characteristic decorated fine ware from Cuiry-lès-Chaudardes. Decoration technique: 1. pivoted three-toothed comb 2. pivoted two-toothed comb and incised lines 3. incised lines and pivoted four-toothed comb. All three pots are from pits belonging to house 225.

lines. The main decoration on the body of the pot is characteristically composed of either vertical bands of comb impressions, vertical bands of comb impressions on either side of incised lines, or oblique incised lines forming an inverted "V" pattern (fig. 2). These three motifs account for almost 80% of the decorated vessels at Cuiry-lès-Chaudardes, and their relative frequency seems to depend on a chronological factor (see page 57 below). Vertical band motifs are always in the majority, however, and it is this feature, together with the predominance of the pivoted comb decoration technique, that clearly distinguishes the Aisne valley assemblages from the Late Bandkeramik of the Low Countries, the Rhineland and Alsace.

Sherds of "Limburg pottery" have been found in almost all the pits at Cuiry-lès-Chaudardes. On average there is about one Limburg vessel for every thirteen ordinary decorated pots. The Limburg pottery stands out by its bone temper, open shapes with thickened rims, and distinctive grooved decoration (Constantin et al. 1981).

In general terms the flint industry closely resembles that of the Late Bandkeramik elsewhere (Plateaux 1982). However, blades with silica gloss include obliquely retouched or truncated forms that only occur in Rössen contexts in the Rhineland (Fiedler 1979). Another original feature of the flint industry is the relatively high proportion of both burins, rarely reported from Bandkeramik sites elsewhere, and arrowheads. Out of a total of over three hundred and fifty retouched tools from Cuiry-lès-Chaudardes there are only four Tardenoisien artifacts.

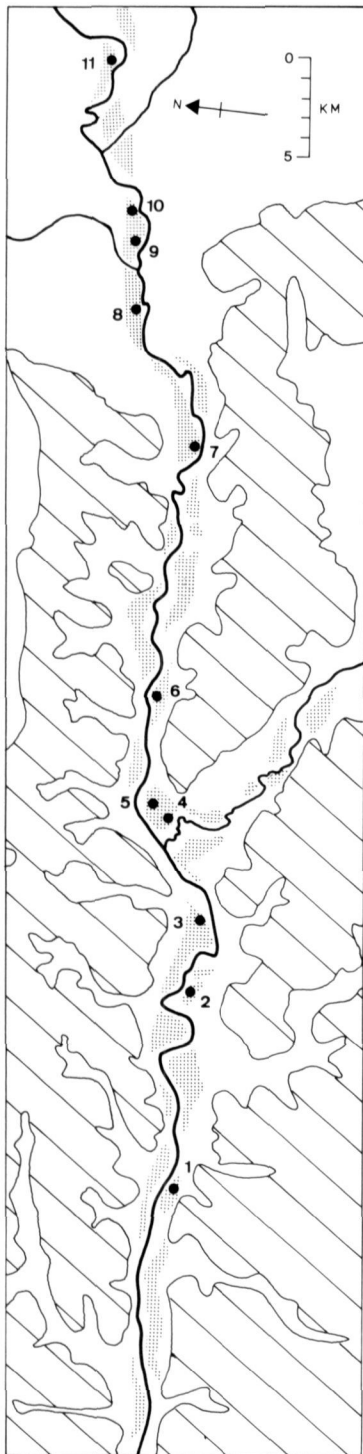
The same site has so far only produced three fragments of two polished stone adzes. A study has yet to be made of the raw materials used for these flint and stone artifacts. We will return to the question of the production and distribution of flint tools within the settlement at Cuiry-lès-Chaudardes at the end of this article.

Houseplans from the Aisne valley clearly fall within the Bandkeramik tradition (Coudart 1982). The buildings are orientated east-west with the west end pointing slightly towards the north. Most houses are between 10 and 30 m

long; the maximum length is 39 m (house 225, Cuiry-lès-Chaudardes). Many of the groundplans are slightly trapezoidal. At Cuiry-lès-Chaudardes the lay-out of the internal, load-bearing posts conforms to a remarkably uniform pattern. With few exceptions each houseplan includes two pairs of closely set transverse post rows. One pair occurs at the eastern, entrance end of the house; the other pair is located at about two-thirds the length of the building, separating the central and western part (fig. 6).

The immediate post-Bandkeramik sequence in the Aisne valley, as elsewhere in the Paris Basin, is still very unclear. No settlements of this date have been extensively excavated, and ceramic groups are being redefined (Constantin and Demoule 1982). The term "Culture de l'Aisne" (F.P.V.A. 1974-1977; Boureux and Coudart 1978) has been abandoned.

Analysis of the large assemblages of decorated pottery that have recently become available from Cuiry-lès-Chaudardes, together with the recognition of Limburg pottery on the same site, have shown that it is unrealistic to separate the material originally used to define the "Culture de l'Aisne" from the Late Bandkeramik (F.P.V.A. 1981). Radiocarbon dates on bone collagen appear to confirm the relatively late position of the Aisne Bandkeramik within the west European sequence. Nine out of twelve dates with acceptable standard deviations from Cuiry-lès-Chaudardes fall between 4050 and 3850 bc (Evin, in press). The decorated pottery from this site is broadly representative of the Paris Basin material attributed by Bailloud (1964; 1971) to the Late Bandkeramik. Rather earlier Bandkeramik material has recently been found in the south-east of the Marne département (Chertier 1980; Chertier and Tappret 1982). Nevertheless, in the Aisne valley the major research gap in terms of both absolute dating and the clarity of the ceramic sequence, falls between c. 3800 and 3400 bc, when settlements belonging to the epi-Rössen horizon appear (Dubouloz et al 1982). The following discussion of settlement includes all the sites in the Aisne valley which have produced Bandke-



ramik-type houseplans and/or Late Bandkeramik pottery.

Environmental background

The sector of the Aisne valley under study stretches from the small town of Neufchâtel in the east to the confluence with the Oise, about 80 km to the west. For about three-quarters of this distance the valley cuts through Tertiary limestone plateaux, forming a flat-bottomed corridor of an average width of 3 km. In the east, relief is less marked as the river flows through the rolling chalk landscape of northern Champagne.

Simplifying geology, relief, and hydrology, the major part of the valley can be divided into three landscape units; 1. the limestone plateaux and slopes, 2. the gravel terraces, and 3. the river and its flood-plain.

1. The limestone plateaux are about 100 m above the valley floor. The plateaux edges on both sides of the river are characterised by heavily dissected relief, with numerous small side valleys and slopes of varying steepness. There is very little open water on the plateaux and the water table is low; present-day agriculture can be seriously affected by drought. The absence of water explains why, even today, there is comparatively little settlement on the plateaux. Many of the spurs overlooking the valley, however, have revealed evidence of earlier 3rd millennium bc and Iron Age occupation. Loess deposits of varying extent occur on the plateaux, particularly to the south of the river Aisne. Deep colluvial deposits are located at the foot of the slopes.

Fig. 3. Distribution of Late Bandkeramik settlements in the Aisne valley. Oblique lines indicate limestone plateaux; shading indicates gravel terraces. 1. Pernant 2. Villeneuve-Saint-Germain (suburb of Soissons) 3. Missy-sur-Aisne 4. Chassemy 5. Vailly 6. Cys-la-Commune 7. Cuiry-lès-Chaudardes 8. Pontavert 9. Berry-au-Bac "Le Chemin de la Pêcherie" 10. Berry-au-Bac "La Croix Maigret" 11. Menneville.

2. The Pleistocene gravel terraces of the Aisne cover extensive parts of the valley floor and were the focus of settlement from the Neolithic through to the earlier Middle Ages, when much settlement shifted to the foot of the valley sides. The terraces lie about 5 m above the level of the river. Today, the calcareous brown earths on the gravel terraces provide some of the most fertile agricultural land in the region. It is clear that a considerable degree of erosion and substantial changes in the soil profile have taken place over the last six thousand years (Boureaux and Coudart 1978, 343). Neolithic features have normally only survived when they are cut into the gravel or flood loam C horizon. Bandkeramik features are characterised by a very dark fill, presumably reflecting the colour of the original Atlantic forest soil. Preservation of bone is excellent.

3. The river Aisne now flows in a permanent channel between 30 and 50 m wide. The river and its flood-plain must nevertheless have presented a rather different aspect in later prehistory. While the Atlantic flood-plain landscape is masked beneath recent alluvial deposits, it is unlikely that its horizontal limits, as defined by the edge of the first gravel terrace and the valley sides, have changed to any significant extent since the Neolithic.

The present day climate of the Aisne valley, as of much of Picardie, indicates an interplay of continental and oceanic influences. Mean annual rainfall varies between 650 and 750 mm. The prevailing and strongest winds blow from west to east along the valley, a factor that is reflected in the orientation of the Bandkeramik longhouses.

Location and distribution of Bandkeramik settlements

It is against the background of these three landscape units that the distribution of Late Bandkeramik settlements along the valley can be examined. The distribution map (fig. 3) currently shows eleven sites, located on or near the edge

of the first gravel terrace. Before looking more closely at these sites, two important questions must be raised. Firstly, to what extent are the terrace edge locations, to the exclusion of other possible locations in and around the valley, representative of the original settlement pattern? Secondly, to what extent does the surviving sample of sites reflect the original settlement density? Whilst neither question can be very satisfactorily answered in the present state of research, a number of factors relating to the discovery of sites must be considered.

With very few exceptions, the sites have been found through the surveillance of gravel pits; the sites were unknown before gravel extraction started. The exceptional sites were either discovered through aerial survey during the drought of 1976 or through the excavation of later features. On this evidence it could be argued that the distribution map is very biased and reflects the location of gravel pits rather than Neolithic settlements. Furthermore, extensive gravel-working has in the past destroyed large areas of terrace in certain parts of the valley. There was little archaeological surveillance and sites may have disappeared without trace. This is particularly the case with two of the largest blanks on the distribution map, between Soissons and the Oise confluence, and between Cuiry-lès-Chaudardes and Cys-la-Commune. Other settlements may of course have disappeared beneath modern villages and towns. Soissons, for example, covers a large area of gravel terrace.

A programme of field-walking has only recently been instigated on the terraces that are still largely intact. It is too early to expect spectacular results, but for the moment no new Bandkeramik sites have been discovered by this means. Deep-ploughing is infrequent, and the considerable density of natural flints in the top-soil hinders the recognition of artifacts during field-walking. Survey is thus a great deal more difficult than on loess-based soils. Neither the limestone plateaux, nor the side valleys and slopes, nor the banks of tributaries flowing across the flatter chalk landscape, have been systema-

tically surveyed in the course of the current project. As has already been indicated, there is very little surface water on the plateaux, and relief is quite dissected. Both factors may well have rendered this landscape unit unsuitable for Bandkeramik settlement (Bakels 1978a, 131). Parts of the plateaux have been walked by local collectors, but none of the flint scatters listed by Parent (1971) include Bandkeramik artifacts; most of these sites seem to date to the 3rd millennium bc. The only Mesolithic flint scatter to have been discovered in the Aisne valley is located on the plateaux slopes across the valley from Cys-la-Commune.

Taking all these factors into consideration, and bearing in mind the possibly biased nature of the available sample, the evidence for Bandkeramik settlement distribution can be summarised as follows. All the sites are located on or near the edge of the first gravel terrace, just out of reach of today's worst flooding. The maximum distance to the present-day river channel is 500 m; usually this distance is substantially less. Several settlements occupy locations where a bend in the river brings the water close to the terrace edge, but which at the same time are adjacent to the larger expanses of flood-plain. The sites at Cuiry-lès-Chaudardes and Berry-au-Bac "La Croix-Maigret" are good examples of such locations. The ease of accessibility to water would have been important in livestock management, and it also seems likely that the rich plant and animal resources of the flood-plain would have exerted a pull on the location of the settlements.

Another important feature of the site locations are the bands of Pleistocene flood-loam overlying the gravel terrace. It is possible that the flood-loam originally covered more extensive areas, and that only the thicker deposits have survived erosion. At Cuiry-lès-Chaudardes the maximum depth of the band of flood-loam that crosses the settlement is about 50 cm. This rather silty deposit would have replicated many of the qualities of loess as an enhancer of soil fertility, as well as providing material for daub. It is worth mentioning that contractors

operating without archaeological supervision always remove the layer of flood-loam with the topsoil prior to opening a gravel pit. This practice can have a disastrous effect on the preservation of Bandkeramik features, which often barely penetrate beneath the flood-loam.

Turning from site locations to the spatial relationships between settlements, two major difficulties arise. As we have already seen, the distributional evidence is possibly very incomplete, and, partly because of the varied scale and circumstances of excavation, it is very difficult to demonstrate on the basis of the ceramics which settlements were in operation at any one period of time. The distance between sites varies from 1 to 13 km. The average distance is 5.7 km, but this would be rather less if we were to suppose that sites have been lost in the parts of the valley where substantial areas of gravel terrace have been destroyed. As far as can be judged from the decorated sherds, all four of the sites that have produced sufficiently large assemblages were probably contemporary, or at least partially overlapped in time (Menneville, Berry-au-Bac "La Croix-Maigret", Cuiry-lès-Chaudardes, Cys-la-Commune). In architectural terms the houseplans at Missy-sur-Aisne (F.P.V.A. 1978, fig. 124) and Pontavert (Boueux and Coudart 1978, fig. 12) possibly belong to a relatively late stage in the sequence. Both excavations were very limited in extent. A few Bandkeramik sherds have recently been found in secondary contexts about 2 km to the west of Pontavert, on the same gravel terrace. In site territorial terms, all the settlements are potentially contemporary, but at present the data are insufficient to test this hypothesis.

How can the study of these sites contribute to the current debate on Bandkeramik settlement patterns and agricultural systems? Whilst a great many more sites are available for study in the loess regions outside the Paris Basin, analysis of settlement distribution in such regions is not without difficulty. A major problem is caused by the tendency for sites to build up through time towards the upper end of a drainage network, resulting in very dense concentra-

tions in certain areas. To take the well-surveyed examples of the Merzbach and Bylanka micro-regions (Kuper and Lüning 1975; Pavlu 1977, fig. 1), settlement features can cover several tens of hectares, representing around five hundred years of continuous occupation. Such sites pose obvious excavational problems, and the complex space-time variables hinder analysis of settlement structure.

One advantage of the situation in the Aisne valley is that space-time variables are less complex. Although it is unclear exactly how long the Bandkeramik farming system lasted, it is certain that the valley did not undergo the long occupation of, say, the Rhineland. There was less opportunity for settlement sites to build up in the chosen gravel terrace locations. The most extensively excavated settlement, Cuiry-lès-Chaudardes, has revealed a low density of houseplans (see below). Of equal importance to this chronological constraint on the distribution of settlements are the various spatial constraints caused by the valley landscape. These constraints operate at two levels. At the widest level, the Aisne valley is separated from similar settlement micro-regions, by up to 60 km of dry, dissected plateaux which were probably unsuitable for Bandkeramik occupation. The Aisne and Oise micro-regions do, of course, blend together at the rivers' confluence, but this does not detract from the general observation that the available areas for settlement are distributed in a very different manner to those of the "classic" loess landscapes occupied by the Bandkeramik Culture elsewhere. Such landscapes are regularly networked by small streams and rivers, and although it is possible to isolate clusters of settlements separated by "empty" but potentially exploitable areas, the clusters are generally quite close together and the whole settlement region can cover several hundred square kilometres (Kruk 1973, map 4; Pavlu and Zapotocka 1979, fig. 1; Dohrn-Ihmig 1979, 269).

The second level of spatial constraints involves the size and distribution of the gravel terraces on which the sites are located. The terraces are

defined by the meandering river and its floodplain, by the slopes of the valley sides, and by small tributaries flowing at more or less right angles into the Aisne. In the sector of the valley under study, the terraces thus form a linear series of seventeen discrete, if irregularly shaped units (Boureux and Coudart 1978, 344). These units can be contrasted, for example, with the more continuous second gravel terrace of the wide Rhine valley. The latter terrace is covered by loess deposits and networked by small streams (Sielmann 1972, Abb. 12). The Aisne terraces therefore introduce a potentially quantifiable element into the analysis of Bandkeramik settlement systems (Ilett 1980).

Several theories have recently been advanced about the relative spacing of Bandkeramik sites and the quantities of agricultural land required by each settlement. Kruk (1973) noted the tendency for sites to occur in clusters up to 12 km apart in Little Poland. He assumed that most of the sites in the clusters were inhabited at the same time, and that they represented major and ancillary settlements functioning together as an economic unit. The excavators of Bylany have introduced the concept of the settlement "microarea", defined as "the minimum space where a community could live and lived permanently" (Soudsky 1973, 198). The microarea thus combined the village itself, the surrounding agricultural land, and whatever land was needed for pasture and the provision of building materials. 30 ha of loess-based soils were considered to provide enough cereals per year for a community of one hundred and fifty people.

The model proposed by Soudsky involved three discontinuously occupied settlement locations, with additional systems of field rotation, resulting in a microarea of about 200 ha for the Bylany community. The members of the Aldenhovener Platte project have put forward a rather different hypothesis about the nature of the settlements. They envisage a scattered series of single houses, or small groups of houses, along the 1.3 km stretch of the Merzbach that was fully investigated (Kuper and Lüning 1975; Lüning, this volume). It is suggested that the

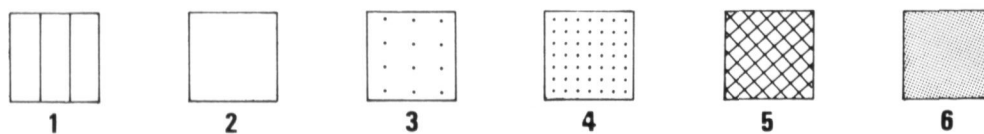
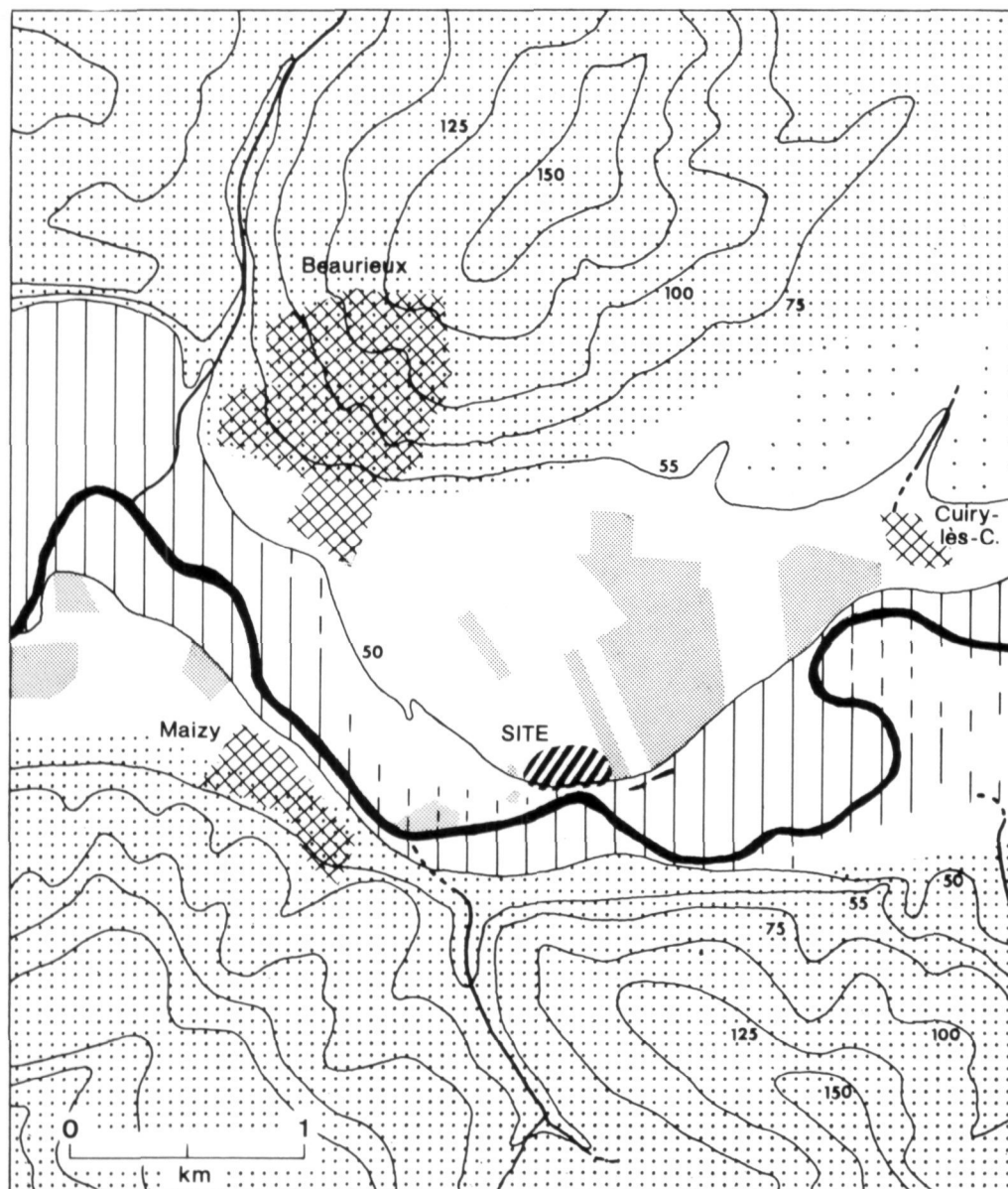


Fig. 4. Location of the settlement at Cuiry-lès-Chaudardes. 1. flood-plain 2. first gravel terrace 3. second gravel terrace 4. limestone plateaux and valley sides 5. modern village 6. gravel pit.

economic territory (*Wirtschaftsgebiet*) of the Merzbach "settlement" covered about 300 ha. Finally, Bakels has studied the location and distribution of Bandkeramik sites in Dutch Limburg and on loess covered terraces of the Danube near Hienheim in Bavaria. In the latter district, the average distance between sites is c. 1 km. Combining this observation with the relative spacing of the Dutch sites, probable cereal yields and dietary requirements, it was suggested that the "site territory" of a Bandkeramik settlement would have covered a maximum of 100-200 ha (Bakels 1978a, 146, and this volume).

The Aisne valley offers an opportunity, in our opinion, to test the parameters of these models. The terrace units are generally less than 2 km wide and 4 km long. The surface area of the majority varies between 110 and 300 ha. It has been put forward as a working hypothesis that each unit corresponds to the microarea, or site territory, of a village community (Boureaux and Coudart 1978, 344). If this hypothesis were correct, we would not expect there to have been more than one settlement functioning at any one time on each unit, with the possible exception of the largest units. Whilst a complete reconstruction of the Bandkeramik settlement pattern along the valley is impossible, it is nevertheless interesting to comment upon the available evidence and in particular the terrace units where survey and excavation are still a possibility.

Nine of the terrace units contain Bandkeramik settlements (fig. 3). At present only two units provide clear evidence of more than one settlement. The site at Cuiry-lès-Chaudardes is located on the edge of one of the better surveyed terraces (fig. 4). Bandkeramik features extend over about 6 ha, while the terrace unit covers c. 220 ha. The latter figure does not include the narrow strip of terrace to the east of the modern village of Cuiry-lès-Chaudardes, as this is over 2 km from the site and thus unlikely to have been exploited on a permanent basis, if at all. The whole terrace unit consists of flat, fertile land which the site is optimally located to

exploit. It is obviously important to be able to demonstrate whether or not this really is the only settlement on the unit. No finds of Neolithic date were reported when large areas along the edge of the terrace were destroyed in the 1960s, a period when archaeological surveillance was already taking place. No traces of Bandkeramik occupation came to light in extensive rescue excavations in advance of gravel extraction immediately to the east of the site. A gravel pit has recently opened at a potential settlement location just to the west of the modern village. Several hectares have been stripped of topsoil, but no Bandkeramik features were noticed. Elsewhere on the terrace, fieldwalking has so far failed to produce new sites. Combining all this evidence, it seems that we are not dealing with a scatter of buildings, or groups of buildings, along large areas of the terrace edge. Although over 3,5 km of terrace edge were available for settlement, the evidence points to a single, tightly delimited village site.

The example of Cuiry-lès-Chaudardes illustrates the potential offered by the Aisne valley for the analysis of the territories of Late Bandkeramik settlements. As more excavation and survey take place in the valley, it may eventually be possible to define the minimum area of terrace necessary for a single settlement. The Villeneuve-Saint-Germain unit is the smallest with evidence for settlement; its surface area is about 90 ha. At the moment nothing is known about size variation between the settlements. Only one of the sites has produced a ditched enclosure of Late Bandkeramik date. The enclosure at Menneville extends over about 6 ha, to judge from the aerial photographs. A very small percentage of this area has been investigated, and the chronological relationship between the Bandkeramik houses and the ditch system is unclear (F.P.V.A. 1976; 1977; 1978).

To end this discussion of settlement pattern in the Aisne valley, it is worth summarising the evidence for both the vegetation in the vicinity of the Late Bandkeramik sites and the plants and animals exploited by their inhabitants.

There are unfortunately no suitable stratified

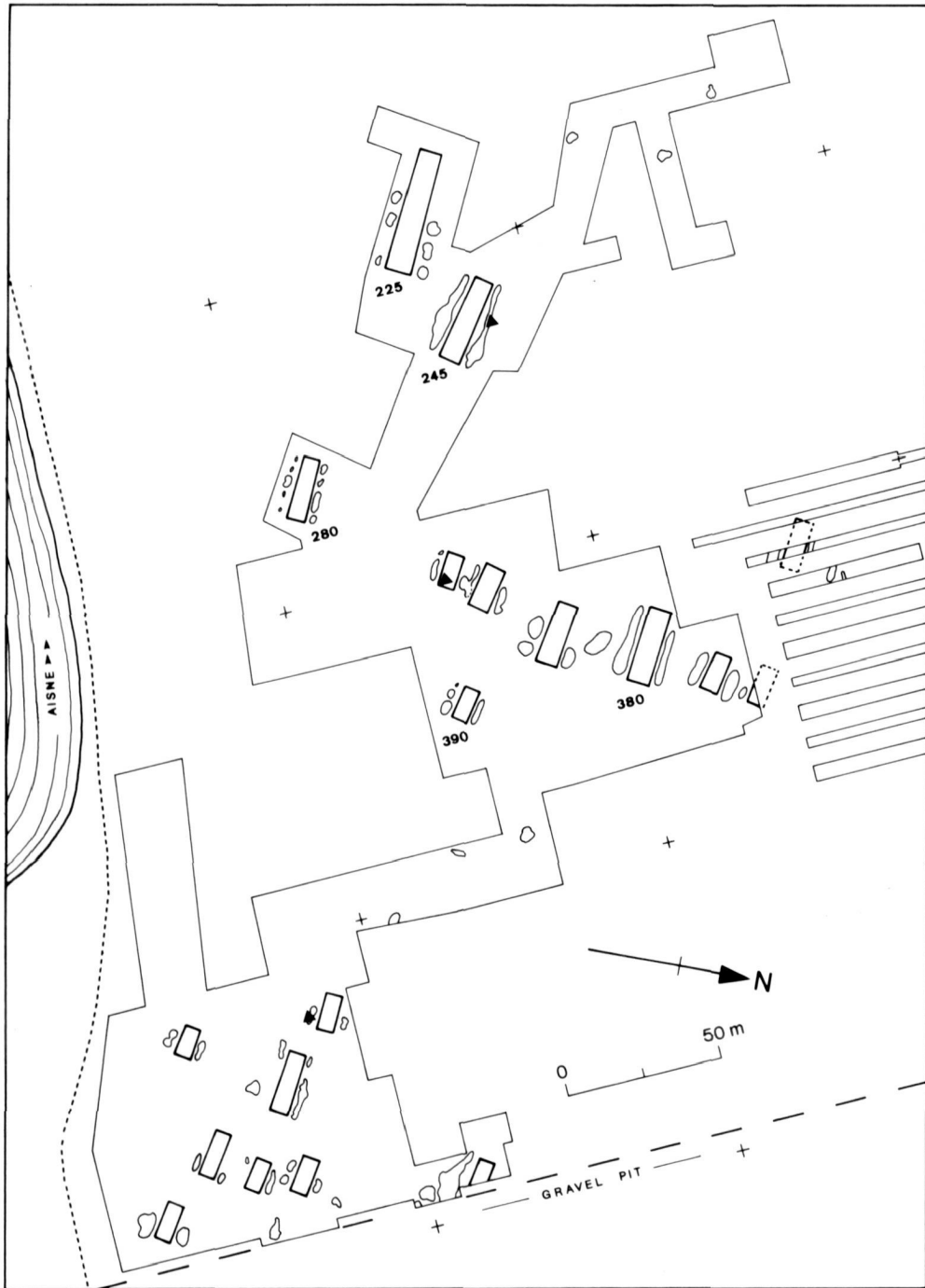


Fig. 5. Schematic plan of Late Bandkeramik features at Cuiry-lès-Chaudardes (1972-1981 excavations). Black triangles indicate child burials. The dotted line represents the edge of the gravel terrace.

peat deposits near the settlements. However, pollen and sub-fossil snails are well preserved in the fill of pits, and several analyses have already been carried out. Single pollen samples from five construction pits at Cuiry-lès-Chaudardes, Menneville, and Villeneuve-Saint-Germain each contained less than 24% tree pollen (Firmin 1976; 1977). The tree pollen reflects a mixed oak forest dominated by lime. The non-arboreal pollen occasionally includes grains from cereals and aquatic plants, but the majority are from *Compositae*. The snail assemblages from Cuiry-lès-Chaudardes also reflect a relatively open environment (Puissegur 1976), but, as is the case with the pollen, all the samples were taken from pits within the settlement.

Soil samples from construction pits have so far produced very little carbonised plant material. Emmer, naked barley, and possibly pea have been identified at Menneville (Bakels 1978b). Hazel nut shells were also found. The presence of barley is noteworthy, as this cereal is very rare in western Bandkeramik contexts. In the Rhineland, for example, carbonised barley has only been found on Rössen sites (Knörzer 1971).

The main palaeoeconomic interest of the Aisne valley settlements stems from the excellent preservation of animal bones. The 621 identifiable bones from the 1972-1973 excavations at Cuiry-lès-Chaudardes (Desse 1976) can be divided into 80,7% domestic species (cattle, ovicaprids, pig), 13,7% large wild species (red and roe deer, aurochs, pig), and 4,5% small wild species (wolf, beaver etc.). Fish bones are also present.

Cattle bones predominate in the domestic category. In so far as such data can be taken to accurately reflect the animal-based economy of the site, hunting appears to have played a relatively important role in comparison with Müdersheim, where the sample of bones is smaller (Clason 1972, Table III). It must be stressed, however, that these figures are based on a very small number of the bones now available from Cuiry-lès-Chaudardes. Judging from the proportion of identifiable bones from the 1972-1973

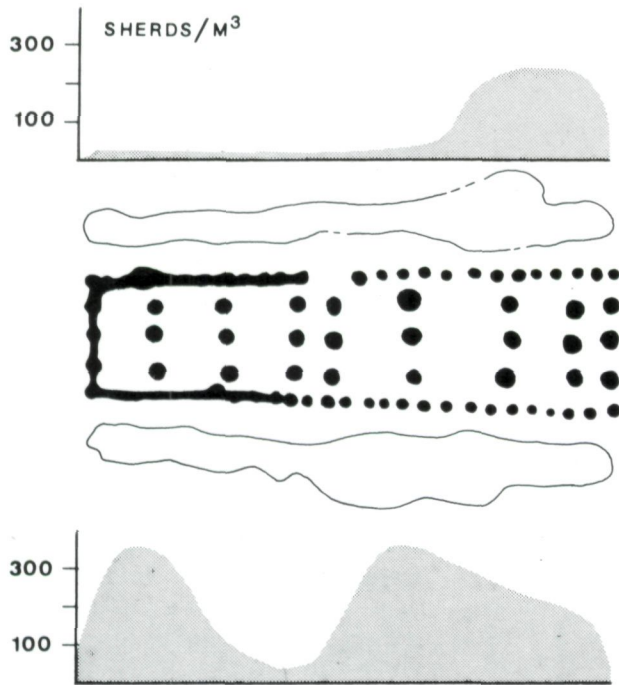
excavations, the total number of identifiable bones now stands at around eight thousand. With such data we can expect a whole range of detailed information about the animals that were herded or hunted by the inhabitants of the village.

Internal settlement organisation

The final section of this article presents some preliminary results of research into the internal organisation of the settlement at Cuiry-lès-Chaudardes.

About half of this 6 ha site has been investigated, but as the excavations cover the complete length and width of the settlement, it is reasonable to assume that we are dealing with a representative sample. The density of buildings is quite low; one house per 1600 m² excavated (fig. 5). So far nineteen houseplans have been uncovered (1972-1981). The minimum distance between houses is 5,5 m, although the vast majority are over 8 m apart. In only one case do the construction pits of two houses touch; no stratigraphy was visible. The low density of features must reflect the short duration of the settlement in comparison with many Bandkeramik sites outside the Paris Basin. While the absence of overlapping houses and pits has certain disadvantages for the chronological ordering of the site, the risk of mixed assemblages is reduced. For example, decorated sherds which evidently belong to the same vessel are often distributed along the pits on both sides of a house, but only two examples have been identified of such sherds occurring as "intrusions" in the construction pits of neighbouring houses. In both cases the distance involved was about 20 m. All this has important implications both for the chronological analysis of the finds and for the identification of possible activity areas within the settlement.

Another characteristic of the site plan is the rarity of isolated pits. The plan consists almost entirely of longhouses and their associated construction pits. The virtual absence of large, iso-



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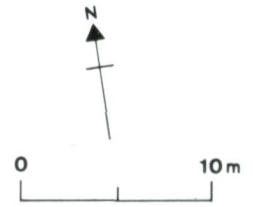
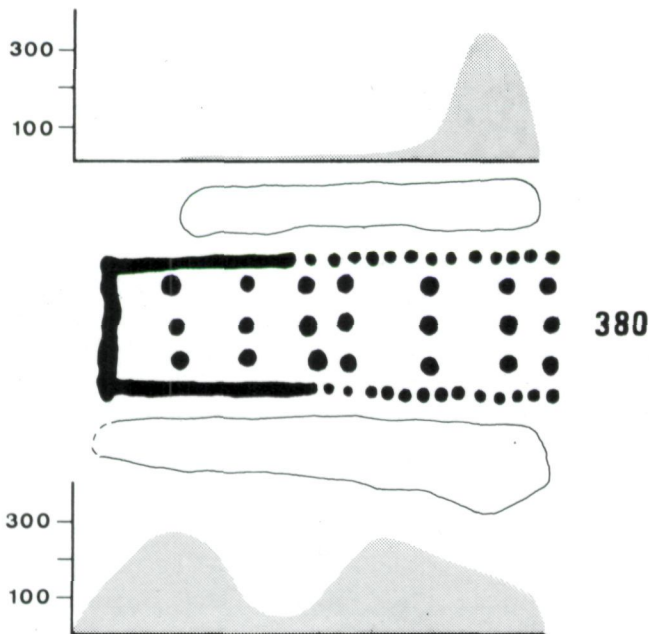
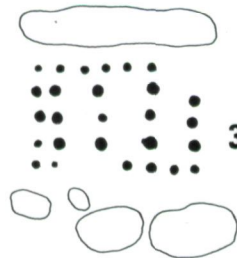


Fig. 6. Density of sherds per cubic metre of pit fill alongside three houses from Cuiry-lès-Chaudardes.



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lated pits is possibly related to the nature of the subsoil, and it is noticeable that the few isolated pits that have been found are located on the band of flood-loam which crosses the site on its east-west axis. These pits contain few finds. All the dateable storage pits belong to the later Michelsberg settlement. The situation contrasts markedly with most Bandkeramik settlements on loess subsoils, where large pits are quite frequent outside the immediate vicinity of the buildings. In some cases it is these pits that contain the greatest concentrations of settlement débris (e.g. Farruggia et al. 1973; Kuper et al. 1977). If most of the pits were originally dug to provide daub for the houses, it is perhaps surprising that pits were dug, occasionally to depths of over 50 cm, into the gravel subsoil at Cuiry-lès-Chaudardes and elsewhere in the Aisne valley. The experimental reconstruction of a longhouse demonstrated, however, that the construction pits serve an extremely useful role in the preparation of daub (F.P.V.A. 1977). They provide conveniently large mixing basins adjacent to the walls of the houses.

An understanding of the chronological development of the site is obviously essential to the analysis of its spatial organisation, and the key to chronological structure lies in the assemblages of decorated pottery. There are on average about twenty-five decorated vessels per house. Four houses are each associated with over forty vessels. A preliminary seriation of the "richest" houses, largely based on the percentage occurrences of the three main motifs described above (page 45), has been attempted (Ilett and Plateaux, in press). This sequence is independently supported by non-ceramic chronological traits - the presence of typologically late sickle blades in certain of the pits and the most trapezoidal groundplans. The ceramic assemblages of the "early" houses are characterised by high percentages of vessels with vertical band decoration (comb impressions with or without incised lines), and the "later" houses by relatively high frequencies of incised, inverted "V" decoration.

An interesting outcome of the seriation is the apparent succession of the three largest houses

in the western sector of the site (380-245-225). Houses 380 and 225 are widely separated in the seriation, and in view of their proximity and relative positions, houses 245 and 225 are unlikely to have been contemporary. It is tempting to suggest that we are seeing the repetition, throughout the site's duration, of a particular type of village structure, with a large house at the head of a group of smaller houses. Some of the Bylany phases show this type of structure very clearly (Soudsky and Pavlu 1972, fig. 2). The three buildings at Cuiry-lès-Chaudardes become successively longer, and they suggest a gradual movement of the village in a westerly direction. On the basis of its architectural properties and its ceramics, the smaller trapezoidal house 280 belongs, with house 225, to the final phase of the settlement. Both groundplans indicate a slight shift in orientation towards the south. There are several incomplete lengths of post-hole palisade on the site, but it is not clear how these relate to the development of the settlement. They are possibly of Michelsberg date. There is no evidence to suggest that the Late Bandkeramik occupation was discontinuous, and although it is not yet possible to estimate how many houses were standing at any one time, the number was probably quite small.

Child burials are associated with three of the buildings (fig. 5). Two occur in construction pits and the third is located inside a house, towards the east end. One burial contained perforated shells and shell beads (F.P.V.A. 1974, 85), another no grave goods (F.P.V.A. 1977, 25), and the third a bone point. All the graves were ochred. No adult burials have been discovered within the settlement at Cuiry-lès-Chaudardes, although there are isolated examples from other settlements in the Aisne valley (Agache 1968, fig. 3; F.P.V.A. 1981).

Unlike the child burials, the adult graves cannot be directly associated with particular houseplans. Both an adult and a child burial were found in the Late Bandkeramik ditch at Menneville.

One of the main research objectives at Cuiry-lès-Chaudardes is the spatial analysis of material

both within the construction pits, and between the various houses of the settlement. Perhaps the simplest approach is to study the density of finds in the pits. The identification of preferred rubbish disposal areas can provide important information about the buildings and the behaviour of their occupants. At a more complex level the various interrelationships of flint and bone artifacts, and flint and bone waste, can be investigated. Although the rubbish in the pits is not in a primary context, it may eventually be possible to isolate particular activity areas within the settlement, and to identify functional differences between the buildings. Research into these aspects is still in a very preliminary stage, but a brief account can be given here of work that has just begun on sherd density within the construction pits and on the distribution of flint tools and waste produce within the settlement.

To deal with sherd density first, three buildings with more or less continuous construction pits along both walls have been examined (fig. 6). Houses 390, 380, and 245 are respectively 11, 24, and 28 m long. The pits of house 380 were dug into flood-loam; the other pits were dug into terrace gravel with superficial patches of flood-loam. Six hundred sherds were found in the pits alongside house 390; houses 380 and 245 are associated with about four thousand sherds each. When sherd density per cubic metre is plotted along the construction pits, the three houses display a very similar pattern. Most of the material in the northern pits is concentrated at their east ends, nearest the presumed entrances of the buildings; west of this point the quantity of sherds falls off abruptly. Considerably more sherds are found in the pits along the southern side of the houses, and there are two main concentrations. The first occurs at about one third the length of the house (counting from the east end) and the second is located towards the west end of the building. It is unclear whether this bimodal pattern reflects preferred rubbish disposal areas, a predominance of outdoor activities on the warmer, south side of the houses, or some form of opening in the south wall near the west end. The lay-out

of posts in the south wall does not suggest a doorway at the west end, and in any case the pits would have hindered access to and from the building.

Analysis of the distribution of flint tools and waste products poses more complex problems, despite the uniform depositional context of the material. For example, it is perhaps unreasonable to assume that the few tools lost or discarded in construction pits will be representative of activities carried out in and around a house that was probably occupied for a minimum of twenty-five years. An additional complicating factor is the unknown effect of erosion on the former contents of the pits. Nevertheless, an initial study of the lithic material associated with fifteen of the buildings at Cuiry-lès-Chaudardes has been completed, and two interesting points emerge from this research (Plateaux 1982).

Firstly, the large house 380 is distinguished by the sheer quantity of waste products in its pits. The two long pits contain over half the waste flakes and blades, and over half the cores of the whole site. The house also has an exceptionally low ratio of tools to waste products. Houses 245 and 225, dating to later phases of the proposed settlement sequence, produced similar quantities of ceramics to house 380, but a great deal less lithic material.

The second point is that the principal tool types do not appear to be randomly distributed either within or between the house assemblages. Two possible "tool kits" have emerged from a preliminary statistical analysis of the six main tool types in the eleven houses associated with more than eight tools. The first "tool kit" consists of arrowheads and borers; scarred flake tools (*pièces esquillées*) and burins constitute the second. Finally, two groups of houses can be separated on the basis of their associations with the "tool kits".

Conclusions

1. Although various biases may have affected the discovery of Late Bandkeramik sites in the Aisne valley, all the present evidence points to a standardised type of site location, on or near the edge of the first gravel terrace overlooking the river and flood-plain.
2. The currently available data suggest that these sites represent small villages, optimally located for agricultural purposes and for the exploitation of the natural resources of the valley floor. The relatively short duration of Bandkeramik occupation simplifies the analysis of settlement pattern, and the river terrace topography presents a valuable opportunity for the study of site territories. It is unclear whether or not all the potential settlement areas along the valley were exploited during the Late Bandkeramik.
3. Only one site, Cuiry-lès-Chaudardes, has been excavated on a large enough scale to provide adequate information about internal settlement organisation. There is some evidence to suggest that each settlement phase consisted of a small group of houses, accompanied by a rather larger house at the western edge of the village. Work is in progress on the analysis of rubbish density in the pits alongside buildings. Preliminary results of the study of the distribution of flint tools and waste products seem to indicate some degree of functional variation within the settlement. It is hoped that a clearer picture of this variation will emerge when processing of the large quantities of faunal remains, bone artifacts and manufacturing waste has been completed.

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