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# EXCAVATIONS AT GELEEN-JANSKAMPERVELD 1990/1991

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# 7 On the neolithic pottery from the site

Pieter van de Velde

*In the present chapter the analysis of 13,707 ceramic sherds deriving from 3609 neolithic 'sherd families' (roughly equivalent to pots) is recounted. Four categories are recognized: decorated fine ware, undecorated coarse ware, undecorated fine ware, and decorated coarse ware, of which the first two constitute nearly 98% of the inventory. Mainly on the basis of the tempering of the clay bodies, 1649 pots are supposed to have functioned as service or table ware, 1299 pots for cooking, and 609 vessels for storage purposes. When distributed over space and time every household possessed resp. 3, 4, and 3 pots in these categories at any moment. The decoration on the service ware betrayed affiliation to matrilinear moieties. Additionally, mixed with the regular (local) LBK pottery, there is a highly differentiated set of 57 sherd families of non-local origins, partially attributable to the Limburg Group; a likely mechanism of its entry into the LBK settlement is discussed.*

## 7.1 Introduction

From the beginning of Bandkeramik studies, neolithic pottery has been separated into two distinct classes, decorated and coarse ware — a heuristic rather than methodical distinction. The decoration class has profited from most attention, albeit only to the decoration itself and not to its container aspect (of which I have been guilty too: Van de Velde 1979). Klopfleisch, the first to define Bandkeramik as a separate archaeological entity, true to his art historic education only referred to the main decorative motifs on the fine ware: Bandkeramik is pottery with strip decoration in wave or spiral forms (and associated finds) (Klopfleisch 1883, 92). More than half a century later and notwithstanding the clear differences between the two wares, Buttler included the coarse pottery accompanying the decorated sherds in his definition of this pottery; he is however vague about their relationship apart from their regular empirical association (Buttler/Haberey 1936, 109). Most pages of that important study were devoted to descriptions of the decoration and their choro- and chronological implications. More recent literature has generally followed Buttler's pragmatics, perhaps best put into words in Ingo Gabriel's reworked doctoral thesis:

> *The first thing is the differentiation of fine and coarse ware. As long as no exact definition can be given, experience is used regarding structure, tempering, surface treatment, size of the vessel, thickness of the walls and when appropriate the way of decorating. — Apart from that it can be stated that normally the fine ware has been compactly kneaded with layered looks on fracture, whereas the coarse ware often is characterised by its porous substance. — The raw material of the fine ware has usually been well refined. Coarse impurities hardly occur. Whenever temper has been added the size of the particles is less than 0.3 mm. In coarse ware typically more additives are included, even particles larger than 0.5 mm. — The surface of the fine ware is generally well smoothed or burnished. Macroscopic determination of inclusions is therefore only possible on the fractures or on heavily weathered surfaces. Coarse ware on the contrary has been slightly smoothed at best. In most cases its surface finishing through wiping with straw or similar material, or rubbing with the hand has resulted in a more or less even roughness or striations. [...] As regards size, the coarse vessels are generally considerably larger than the fine pots...* Gabriel 1979, 14-15 (my transl., PvdV)

Whenever attention is paid to the 'coarse ware' it is by morphological analysis of the geometric properties of the vessels' outlines, generally including those of the 'decorated' ware (*e.g.* Pavlů 2000, 101-148; Stehli/Zimmermann 1980), followed by a rapid turn of attention to the decoration (again, Pavlů 2000, 149-186; his' is perhaps the most balanced treatment of the subject to date).

Admittedly, the decoration is much easier to 'read' than the other characteristics of the pottery, especially if we are interested in its chronological possibilities. In the present chapter, however, the emphasis will be on functional distinctions within the artefact group of pottery considered as a whole, similar to the analysis of the flints in their different chapters. Accordingly, the next section will deal with macro characteristics of pottery like tempering and thickness of the walls, resulting in a definition of three classes (service ware, kitchen ware, and storage for short), followed by a section on two as yet unnamed but logically implied classes (undecorated fine ware and decorated coarse ware). A separate section will deal with another, probably non-LBK type of pottery, the rare but ubiquitous Limburg ware found in small quantities in most Northwestern Bandkeramik settlement sites as well as on the Janskamperveld. Finally

I shall venture into some more social implications that can be squeezed from the decorated pottery.

## 7.2 Bandkeramik pottery: description of basics

The excavation at the Janskamperveld has yielded 13,707 Early Neolithic sherds from 334 features. They have been grouped to at least 3609, perhaps even 3629 'sherd families' (more or less equivalent to pots; Orton *et al*. 1993). No attempt has been made to compare and group like sherds from different features; from other LBK excavations it is known that less than 2% of the sherds of the same pot landed in more than one feature (Drew 1988, 544; Kloos 1997, 155, 163). The number of sherds per feature range from 1 to 178 (mean 26.8), of the pots from 1 to 43[1] (mean 7.4). The thickness of the sherds ranges from 4.1 to 10.6 mm (maximum 20.4 mm), with a median value of 6.9 mm (interquartile range 5.4 - 8.5 mm); the mean thickness is 7.0 mm (standard deviation 2.2 mm); these values correspond to the thickest belly sherd of every pot. Thicknesses of the sherds are graphically represented in fig. 7-1, where the clearly bi-modal distribution is broken down into the two regularly acknowledged ware types: fine and coarse with averages of 5.5 and 8.3 mm, respectively. For a small number of pots represented by over twenty sherds, all sherds have been measured. In this latter sample (n = 7) the median thickness of the sherds ranges from 5.8 to 14.0 mm per vessel, with interquartile spans of 1.1 to 2.7 mm, suggesting that the general parameters are within one millimetre of the original values. Coarse pots have left 5.0 sherds on average, more than twice as many as fine ware pots did (2.4 sherds/pot), an advantage of size and thickness: fine ware is more prone to fracture from thermal stress and handling than are vessels made from coarse heterogeneous pastes (Sinopoli 1991, 14).

The materials from which the pots have been made may very well have come from pits near the houses, where especially the deeper levels contained excellent clays.

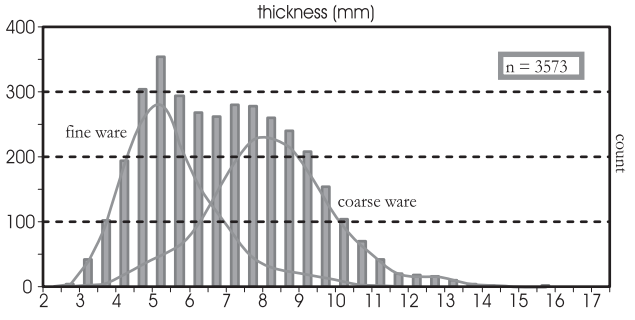


fig. 7-1 the distribution of wall thicknesses of Bandkeramik pottery at the Janskamperveld settlement

Neither coarse ware pots nor decorated vessels have left sherds with clear indications of the construction technique of the vessels except that they have not been wheel-thrown. Alternatives such as building the pots either through coiling or from slabs (Shepard 1954, 54-60) would perhaps show up through regular breaking on the joints, with Z- or S-shaped sherd sides and more or less similar widths; hardly any have been observed though, suggesting either careful finishing through smoothing the joints and/or another method of building. Modelling from a single lump of clay by pounding (also known as 'thumb pots') would presumably result in irregularly shaped and sized sherds — a fitting description of the present corpus. Also, the use of paddle and anvil to make the walls of the pots thinner often used in conjunction with coiling as well as with modelling, obviates scraping of the vessel's walls to the required thickness and evenness; evidence of internal scraping has been found on about one tenth of the coarse-walled pots only. It therefore seems that the Janskamperveld potters built their pottery from lumps of clay in the modelling technique, perhaps using a paddle and anvil. It is interesting to note here that Pavlů reports slab formation as well as coiling at LBK Bylany (Pavlů 2000, 105), though in earlier descriptions of that site's pottery the production technique was described as unobservable (Franklin 1998, 8).

As extensively spelled out by Gabriel, contrary to the fine ware sherds with their well-sieved pastes, in the bodies of the coarse ware tempering is almost ubiquitous: nearly all thick-walled pots from the Janskamperveld settlement have one or more generally ill-sorted additions to the matrix paste, visible with a simple magnifying glass (table 7-1 provides a summary). Among the thick-walled ware, only 9.7% (192 pots) show hardly or no apparent tempering; 39.5% (784 vessels) were tempered sparsely, 12.0% moderately (238), and 38.8% heavily (771 pots). Over half of the coarse ware (63.1%, or 1252) were treated with one kind of temper only, the remainder with different additions. Tempering materials differ appreciably, though over three quarters of the coarse ware pots (78.5%, 1557 pieces) have clay pellets

| i\ii | none | pellets | sand | chalk | bone | vegetal | sum |
|---|---|---|---|---|---|---|---|
| none | 34 | – | – | – | – | – | 34 |
| pellets | 664 | 237 | 359 | 8 | 1 | 20 | 1289 |
| sand | 283 | 254 | 77 | – | 2 | 6 | 622 |
| chalk | 9 | 5 | 5 | 1 | – | – | 20 |
| bone | 1 | 1 | 2 | – | 1 | – | 5 |
| vegetal | 3 | 8 | 3 | – | – | – | 14 |
| sum | 994 | 505 | 446 | 9 | 4 | 26 | 1984 |

table 7-1 tempering of coarse ware pots
rows: major or primary temper; columns: secondary additions

as additives and half of them (49.9%, or in 991 vessels) have silt, sand, or quartz. Regarding the often reported grog (*i.e.*, crushed pottery) in Bandkeramik coarse ware, neither its presence nor its absence in the Janskamperveld material could be established, as the pottery pastes contain many grains of siltstone (often reddish from its iron oxide-constituents) and/or clumps of silt, which are 'rather difficult to differentiate' from grains of grog[2] (also *cf.* Franklin 1998). Much less frequent are organic additions (vegetal 2.0% of the coarse ware, or 40 pots, animal 0.4%, or 8 pieces) and fine chalk (1.4%, representing 28 vessels).

It should be noted, though, that many if not all of these tempers may have been accidental, *i.e.* were already present in the clay when this was dug up. For instance, sand and quartz occur naturally in the lower layers of the loess on this site, as does chalk, and may have been consciously sought for to be incorporated in the paste because of the properties these additives would have on the finished pots. Vegetal matter may simply have been lying around when the pots were built, only animal bone will have been consciously added (bone temper was regularly incorporated into contemporaneous non-Bandkeramik pottery; *cf.* that section, below). The 'clay pellets' may derive from the preparation process of the clay itself: once the clay has been dug up and subsequently dried, it will have to be crushed through pounding to detect and remove unwanted impurities; to render the clay workable, water is added afterwards. However, it seems to be very difficult to achieve a homogeneously fine clay body by pounding and milling on a stone, and without sieving the result will consist of 'ill-sorted' particles in every size between micrometres and millimetres — which will carry over into the paste of the pots (Franklin 1998, 5). Only when working with wet clay which has not been dried but was mined shortly earlier is a more homogeneous paste attainable, and this may be the origin of the fine-walled pottery which has hardly or no additives to its paste. The quantities of both fine and coarse paste pots testify to a conscious choice between the two modes of clay preparation, probably led by the intended function of the pots.

Accordingly, little or no systematization of the recipes for the clay mixes is apparent, and consequently the fabrics seem not very standardized. This suggests a small-scale production, if not individual preparation of materials. However, there is a different aspect to it in that clay pellets, grog and organic matter are reported to bolster the resistance of the vessels to thermal stress, while sand and silt probably weaken the clay body yet prolong the life expectancy outside the kitchen fire (Orton *et al.* 1993, 221; Shepard 1954, 27; Sinopoli 1991, 15). It may be tentatively inferred that the Bandkeramians prepared the pastes of their pots with an eye to the intended functions (and here is the ground for my merging the two wares traditionally separated): service vessels with little or no tempering (the 1649 pieces of fine ware plus 34 coarse pots are 1683 pots, or approximately 46% of the ceramic inventory), cooking pots tempered primarily with clay pellets, organic matter and/or grog (part of the coarse ware, numbering 1328 vessels, 37% of all pots), and storage containers strengthened with sand or quartz kernels (the remaining 624 pots of the coarse ware, 17% of all pots). Of coarse, intended function — as possibly manifest in the clay temper — does not always square with actual function, so the numbers reported should be taken as indication only.

One tenth of the coarse ware vessels —to stick with the traditional division into classes— show traces of thinning on their insides; the remainder has been smoothed or even polished, though another tenth of the pots are quite rough because of the sandy or quartz temper protruding from the surface. As for the (subjectively scored) colours of the sherd surfaces of the coarse ware, the majority (55%) shows a reddish to buff outer surface, the remainder is greyish or blackish. Of the inner surfaces, a large majority (75%) had a greyish or blackish look instead (approximately 1953 individual pots counted; *cf.* table 7-2). Reportedly, iron oxides, the carriers of reddish colours in pottery, are gradually dissolved in ground water; therefore a larger part of the vessels than indicated here had originally a lighter appearance (Franklin 1998, 5). Even so, the presently

| | outer surface | % | on break | % | inner surface | % | on break | % |
|---|---|---|---|---|---|---|---|---|
| reddish | 22 | 1.1 | 17 | 0.9 | 4 | 0.2 | 5 | 0.3 |
| orange | 54 | 2.7 | 49 | 2.6 | 9 | 0.5 | 11 | 0.6 |
| buff | 576 | 29.0 | 369 | 19.8 | 190 | 9.8 | 139 | 7.5 |
| brownish | 449 | 22.7 | 412 | 22.2 | 279 | 14.3 | 381 | 20.5 |
| greyish | 731 | 36.8 | 795 | 42.8 | 1190 | 60.9 | 982 | 53.1 |
| blackish | 152 | 7.7 | 216 | 11.6 | 281 | 14.4 | 335 | 18.1 |
| | 1984 | | 1858 | | 1953 | | 1853 | |

table 7-2 surface and interior colours of wall sherds of coarse ware
colours 'on break' refer to the outer and innermost layers, respectively

observable colours suggest that in all likelihood the pots were fired upside down, so that on the inside a more or less reductive atmosphere existed while on their outside rather more oxygen was available. Approximately 45% (864 vessels among 1960 counted coarse pots) have a homogeneous appearance on the breaks, 25% (482) show two zones and 30% (614) three colour zones, indicative of changing or uneven conditions during the firing process. In experiments at the Department of Pottery Technology, it was established that on average the firing temperature of the pottery was at slightly over $600^0$ centigrade; in some cases the ceramic conversion had not even been fully achieved. From this may be derived that the pots were 'cooked' in open fires, or at best in pits (of which no evidence has been found in this settlement).

There is one complicating factor here, as a substantial number of coarse ware pots will have been used domestically over a kitchen fire, changing the original colours of especially the outer surfaces. Temperatures in the (open) kitchen fires will have been in the same range as those in the (open) 'kiln' fires. Indeed, colour differences between the outer surfaces of the pots and the colours on the break are not negligible: as can be read from tables 2 and 3, against 55.5% of the outer surfaces, only 22.2% of the homogeneously fired pots have a bright colour on their breaks. For the layered or discontinuously fired pots the figures are not very different with 64.3% bright outer layers for the two-colour fabrics and 59.6% for the three-layer sherds. We can also read from that table that the three-quarters darker inner surfaces of the pots are symptomatic of dark layers inside: 77.8% for the simple breaks, 73.6% for the double-layered, and 60.7% for the treble-layered breaks. Not unexpectedly, the influence of the kitchen fires on the inside of the pots has been tempered by the broth. While at first sight this might suggest lack of control of the firing process, it may be observed that the fine ware is generally homogeneously coloured on the breaks, so Bandkeramians apparently knew how to control the fire when finishing their pots and they also knew the properties of the pastes. With more than half the coarse ware showing evidence of discontinuities in the firing process, we could ask whether they had special objectives in mind, or simply didn't care. The rather better finishing of the service ware which contrasts with the rougher look of the kitchen pots and of the storage vessels suggests a dining practice more open to the lookers-on, and a kitchen conduct more hidden (cp. the few instances where a hearth has been ascertained in Bandkeramik houses: in the centre of the central part of the house) —public mealing, private cooking — which will have fed back into pot production.

Although nearly two thousand coarse ware pots could be identified, only 614 (30.9%) had rim fragments among the sherds; from the more than sixteen hundred fine ware pots, only 544 (34.4%) rims survived. The rim diameters of the latter were not registered as not even a handful was of sufficient size; diameters of the coarse ware pots varied considerably, as far as could be estimated (63.7% of these sherds are too small for this purpose): from a minimum orifice of 6 cm for a small cup up to a bowl-like opening of 35 cm (fig. 7-2). Not all sizes however were equally well represented, as can be derived from that multi-modal graph, where only a very weak tendency towards diameters of about 15 cms is apparent. Therefore, an average diameter computed at 17.3 centimetres has no meaning at all, especially since no differentiation to pot shape has been nor could be made because of the small size of the sherds.

Among the coarse ware inventories, flat bases have been observed on 51 pots (of course, round bottom sherds (*Wackelböden* in German, 'wobbly bases') go completely

| | single | double | | treble | | |
|---|---|---|---|---|---|---|
| reddish | 0.4 | 1.7 | 0.2 | 1.0 | 0.5 | 0.2 |
| orange | 0.7 | 5.0 | 0.2 | 3.2 | 0.3 | 0.8 |
| buff | 3.0 | 28.5 | 5.6 | 33.7 | 0.6 | 14.5 |
| brownish | 18.1 | 29.1 | 20.4 | 21.7 | 18.2 | 23.8 |
| greyish | 54.6 | 30.8 | 47.8 | 37.8 | 57.5 | 55.0 |
| blackish | 23.2 | 5.0 | 25.8 | 2.6 | 22.9 | 5.7 |
| reference: | 758 | 484 | | 617 | | |

table 7-3 distribution of coloured layers on sherd breaks, percentages
'single': homogeneously coloured; 'doulble': two layers/colours visible; 'treble': three layers visible
outer layer to the left, etc.

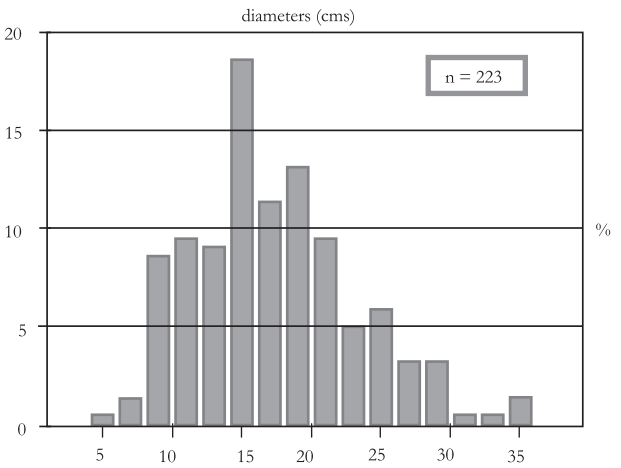


fig. 7-2 rim diameters of coarse ware from the Janskamperveld LBK settlement
classes of two centimetres wide

unnoticed as they cannot be distinguished from sherds of the sides of the pots). That number is certainly not in any proportion to the original number of flat-based pots ever present on the Janskamperveld. Rather, the figure is much too small, for bottoms make up only a small proportion of the pot's surface (perhaps in the order of one to ten) and thus only a minority of the pots with such a flat feature will be recognized in the archaeological record. This kind of bases does not occur in the Bandkeramik repertoire after the Flomborn period, and so they constitute yet another confirmation of the relatively early date of this settlement. Their later disappearance may be related to the smaller resistance to thermal stress of flat bases compared to round-bottomed pots (Orton *et al*. 1993, 220; Sinopoli 1991, 84).

On 34.7% (689) of the coarse ware pots and on 2.3% (37) of the fine ware pots knobs, lugs, handles or ears were present (fig. 7-3): 146 + 5 pots, respectively, carried strip ears made of rolls of clay leaving an opening to ply rope through (type A); 179 + 3 pots had flat slabs (type B) in the horizontal direction; the remainder had smaller or larger round or nipple-like knobs (182 + 18 type C, and 51 + 2 type D) to ease handling, while 8 + 2 pots had protuberances on their rims (type E, in fig. 7-3); there were also 12 + 7 pots with pierced ears. Two exceptional A-type lugs are illustrated in fig. 7-4. Combinations on the (putatively) same pots did occur, albeit rarely: round knobs and horizontal slabs (seven cases), strip ears and round knobs (four) or with slabs (thrice). As indicated by these figures both wares do show lugs, although considerably fewer such features were applied to the fine ware than to the coarse ware: correcting for the total number of vessels and also for the smaller set of sherds per pot, one would expect about 249 fine ware pots with archaeologically visible handles, which is more than six times the observed frequency — if the thin-walled vessels would be equipped similarly to the coarse pots. If the knobs have any functional meaning (and who would doubt this?), these figures testify to substantial differences between the two wares, and it seems likely that the majority of the fine pots had no handles at all.

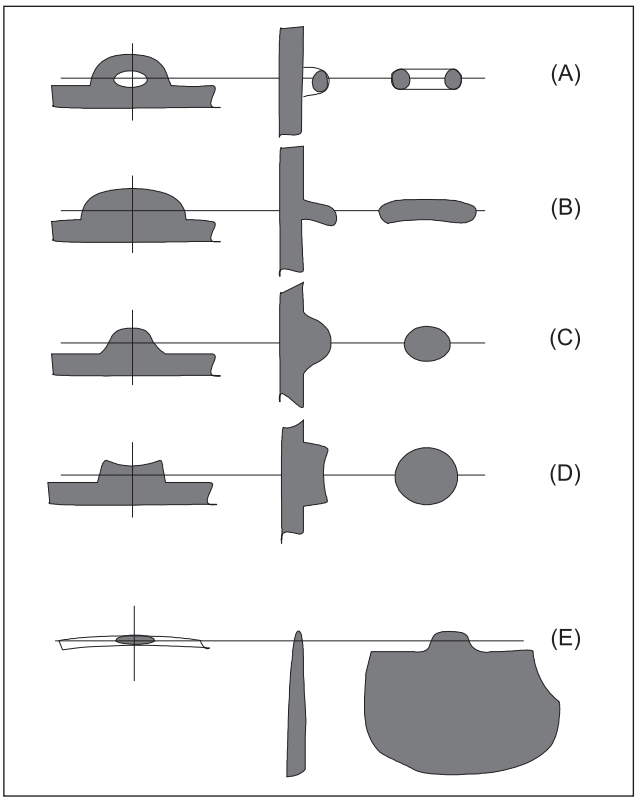


fig. 7-3 types of pot handles mentioned in text: top, side and front views
(A) band ear; (B) slab ear; (C) knob; (D) nipple knob; (E) rim ear

Among the rarer features of the pottery recorded, the remains of seven fine ware pots and ten coarse pots with applied bands should be mentioned; several of these will be discussed in the section on decorated pottery. Among the coarse-walled vessels, eight pots had ear-like protuberances on their rims, one had a thickened, and four had wavy brims — considering the survival percentage of rims in relation to the number of pots, these numbers should be trebled to obtain a more realistic estimate for this site. Four coarse pots and one fine pot had been repaired prior to their final rejection, as indicated by small drilled holes, again a number to be multiplied by at least ten or so to obtain a better estimate of the original frequency of repair.

While most pots were too fragmented to reconstruct their form, it could be established that the outer surfaces of the coarse ware pots have been smoothed or burnished in more than 70% of the cases, as shown by table 7-4. Sandy surfaces (from sandy or gritty additions to the paste) and roughened exteriors almost equally make up the remainder. Interestingly, also on the inside more than three-quarters of the pots have been smoothed or burnished; again the remainder is almost equally divided between roughened and sandy looks and feels. Smoothing and burnishing is done to seal the surface and thus to prevent percolation of liquids and increase heating efficiency, from which may be concluded that one of the main functions of the pots is in the realm of cooking. For water storage, a rather porous surface ('roughened', 'sandy') is generally considered more appropriate, as the leakage results in a cooling of the liquid when it evaporates. Amazingly, only 3.5% of the pots had visible signs of food processing; three-quarters of these with organic residues clinging to their insides, one quarter also or only to their outsides.

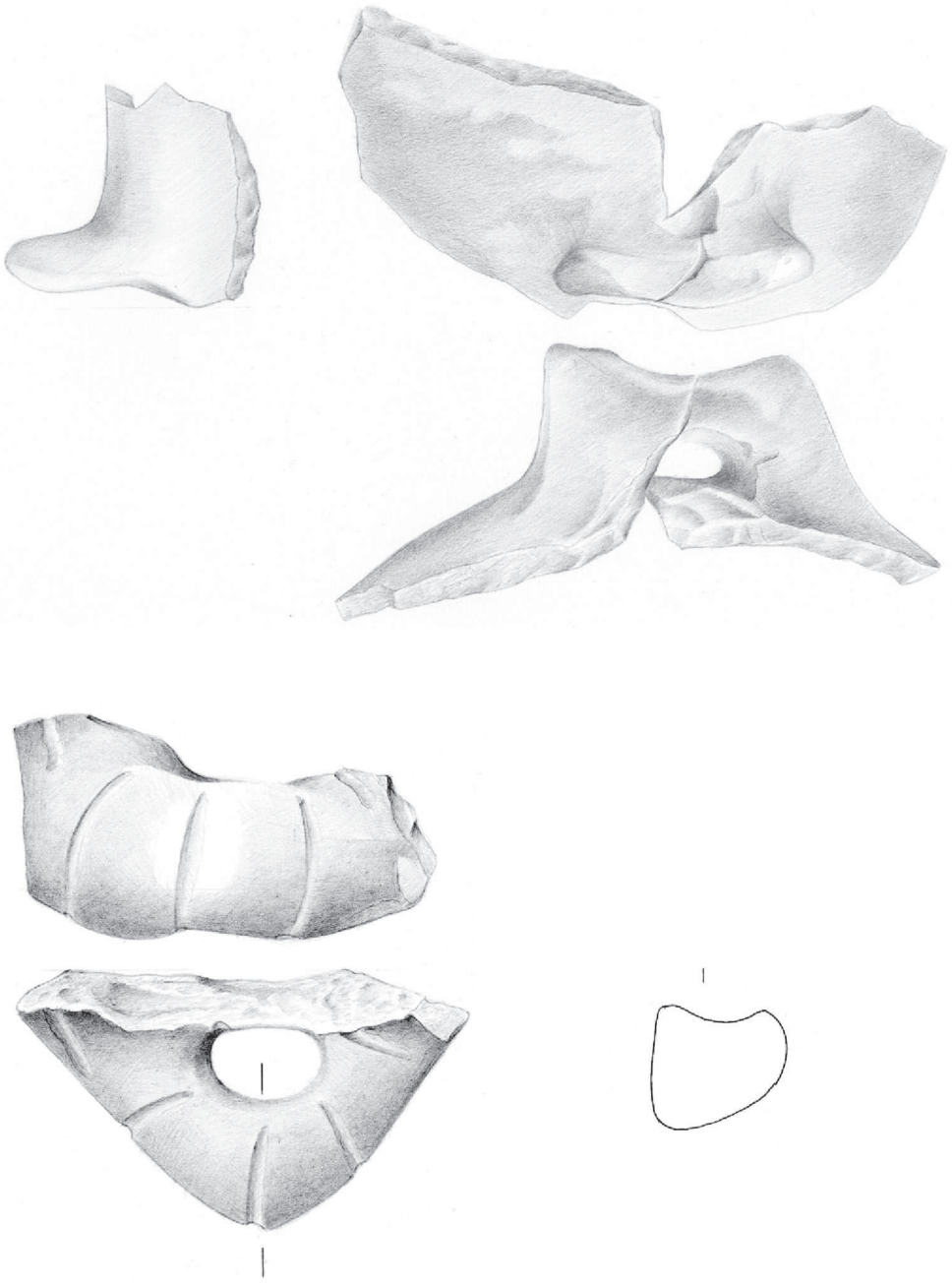

fig. 7-4 two exceptional lugs (scale 1:1)
Drawn by Erik van Driel

| | outside | inside | same treatment |
|---|---|---|---|
| polished | 15.1% | 25.9% | 15.1% |
| smoothed | 56.9% | 55.1% | 67.3% |
| roughened | 13.8% | 9.6% | 6.6% |
| sandy/gritty | 14.2% | 9.4% | 11.1% |
| 100% equals | 1840 | 1800 | 1036 |

table 7-4 surface treatment of coarse ware vessels

## 7.3 BANDKERAMIK POTTERY: DIFFERENT YET SIMILAR

In the opening section of this chapter I alluded to ceramic vessels that do not fit neatly into the customary categories of *decorated* ware and *coarse* ware. With the notable exception of the amateur archaeologists' report by Beckers/Beckers (1940, 38), in earlier writings these awkwardly exceptional pots have simply been neglected, as far as I could ascertain. Logically however, 'decorated' implies the existence of an 'undecorated' or 'plain' category, just as 'coarse' implicitly assumes a 'fine' category. Not unexpectedly, therefore, *undecorated fine ware* as well as *decorated coarse ware* have turned up in the present excavation (table 7-5), though the small numbers of both groups (together only 2.6% of all pots) may indicate that the early Bandkeramians had as many problems with these extraordinary pots as modern archaeologists. The problem is whether or not these few pots represented different categories for the Neolithic people, the answer suggested here can be no more than a reasoned guess, though.

The statistical properties of both small groups can be compared to those of the larger classes to weigh mutual differences and similarities — not a definitive answer to the problem of the previous paragraph, of course, but rather one of the possible approaches open to us. It turns out that the plain fine ware is distinct from the decorated fine ware only in its lack of decoration: thicknesses and colours of the sherds are the same or very similar, as is the average number of sherds per pot in the excavation (2.35 decorated fine sherds/pot, 3.0 undecorated fine ware). The decorated coarse ware has metrical parameters which are a little larger than those of the plain coarse ware, at least regarding the average number of sherds per pot (6.6 for the decorated coarse vessels, 5.02 for the undecorated coarse ware). However, the number of decorated coarse pots (25) is statistically too low to allow firm conclusions; moreover, partial decoration results in under-representation in a sherded sample.

If these figures have any meaning outside contemporary archaeological discourse it must be that undecorated fine ware is nothing but fine ware, though undecorated, and that decorated coarse ware is just coarse ware, albeit slightly embellished. After all, the decoration of the latter is decidedly different from that on fine ware: finger impressions in small fields, nail pinches and coarse spatula strokes in single strips, all vaguely reminiscent of pre-Flomborn practice (Pavúk 2004), and none of which occur on the 'true' decorated, i.e., fine, ware. Thus, for the time being the undecorated fine ware should be seen as a sub-category of the fine ware, and the decorated coarse ware as a sub-category of the coarse ware; not all decoration on the pots is distinctive, apparently — just as has been done implicitly by Buttler and his heirs (Buttler/Haberey 1936, 109).

Another approach to the specialness or commonness of this ware may perhaps be found in its distribution and associations in the settlement. The plain fine ware has a very distinctive presence as of the 67 pots, ten occur in pairs, two three-folds are on record, one four-fold, one five-fold, and even one group of nine pots occurs in features of this excavation, all associated with other types of vessels; the remainder, 33 undecorated fine ware pots occur singly per pit, of which 29 are associated with other pots as well. From the thin-walled and undecorated pots, 50 can be assigned to houses; of these, fifteen occur singly, seven pairs are found each associated with a different house, another house is associated with three such vessels and one with four such pots, and two other houses even had nine undecorated fine ware pots each.

The other exceptional category, decorated yet thick-walled ware is represented by 25 pots distributed over 14 features. This pottery is not evenly spread either: 23 of these pots occur with regular coarse ware, and 17 (in 6 features) together with undecorated fine ware (as well as with coarse ware vessels). Only two decorated thick-walled pots occur singly (as far as their own category is concerned), and there are features with one, two, four and eight of these pots each. Nine sets of decorated coarse pots are associated with one house each (six of which also go with undecorated fine ware). Statistics are dangerous, and most of its results difficult to explain, especially when small numbers are involved as in this case. Additionally, it should be noted that the number of decorated coarse ware pots is probably several times larger than reported here, the decoration being generally sparse and very partial: the larger part of the pot's surface is devoid of embellishments and therefore the number of sherds with decoration is small. On the other hand undecorated fine ware is probably hardly under-represented, for on fine ware pots if decorated this decoration usually covers almost the whole surface, hence undecorated sherds would hardly result from their breakage. The two deviant types occur together in six

| | coarse ware | | fine ware | | totals | |
|---|---|---|---|---|---|---|
| | vessels | sherds | vessels | sherds | vessels | sherds |
| decorated | 25 | 164 | 1582 | 3723 | 1607 | 3887 |
| undecorated | 1878 | 9431 | 67 | 198 | 1945 | 9629 |
| totals | 1903 | 9595 | 1649 | 3921 | 3552 | 13516 |

table 7-5 numbers of Bandkeramik sherds and vessels at Janskamperveld

pits, which is close to the expected number of 5.0 given random dispersal[3] and therefore suggestive of independent deposition. As has been noted, given the small number of undecorated coarse ware pots, no weight should be given to this latter conclusion.

Regarding their chronological position, the exceptional wares are just as unexceptional: they are quite evenly spread over the generations, as far as can be established on the basis of the associated regular decorated fine ware.

### 7.4 Non-Bandkeramik (or so) pottery: unity in diversity, or diversity in unity?

Another exceptional item in the excavation's pottery record is a distinct, non-LBK pottery, presently known as "Limburg Ware", popping up a number of times among regular LBK finds.[4] Probably representative of relationships with groups outside the Bandkeramik world, the how, what and why are elusive (*e.g.*, Brounen 1999; Jeunesse 2001; Verhart 2000). With its orange, reddish or brownish looks among the generally grey or black LBK ware, with its herringbone or dragon's teeth decoration entirely outside the Bandkeramik decoration canon, it must have been as visible to them as it is to us. As already recognized by Buttler, Limburg ware occurs in every major Northwestern Bandkeramik settlement (Buttler/Haberey 1936, 106), as we now know starting in the Flomborn period and vanishing with the demise of the LBK-proper (Constantin 1985; Lüning *et al*. 1989). In other words, its presence in the Janskamperveld settlement is nothing special; but these finds do have to be shown and described.

To start with the discipline's context of this ware, it was first recognized as a coherent, stylistically different group by Buttler, and as such described in an early short report on the Köln-Lindenthal excavations (Buttler 1932). Later, in the final publication of that excavation this pottery was labelled *Import Gruppe 1* (Buttler/Haberey 1936, 106-107), defined as being made from 'badly mixed and fired black clay', often covered with a reddish or yellowish slip; in the Lindenthal sample about a quarter of the rims of this ware had been made thicker. The pots show different patterns of decoration, although triangles are almost always present, either filled in with hatching or with impressed small dots; the decoration on the outside is generally organized in vertical metopes around the pot. More often than not, the clay has been tempered with small kernels of ground potsherds or grog, and an estimated 50% has a tempering of crushed and burned bone which sometimes show up as tiny white particles, sometimes as black specks in the paste. Also, a minority of perhaps 10% of the pots has sand added to its paste. Buttler's description of "badly mixed... clay" is suggestive of a substantial proportion of clay pellets in the pot's paste, as described above for the majority of the Janskamperveld Bandkeramik coarse ware pots. Its name in Buttler's account, *Import Group*, derived from a mineralogical analysis which indicated non-local origins of the Lindenthal Limburg ware — which has been contested by Constantin, even for the very Lindenthal sherds (Constantin 1985(I), 139). Yet, a chemical analysis of this type of sherds from an early excavation at Elsloo-Koolweg similarly revealed non-local origins (Beckers/Beckers 1940, 135-137). Later, Modderman was to rename this ware *Limburger Keramik*, after the Dutch province where the first sherds had been excavated outside a Bandkeramik context in 1964 (Modderman 1965; 1970, 141-143; and 1974). In the meantime some more of such independent sites have been found in the Rhineland, Belgium and France (Cahen *et al*. 1981, 159).

Already Buttler (Buttler 1932; Buttler/Haberey 1936) pointed to the diversity of the decoration on this ware; in 1932 he illustrated part of the same spectrum for Lindenthal as has now been excavated on the Janskamperveld. Thus, dragon's teeth, herringbone and ladder motifs mainly in rectilinear structures, are found together on the same vessels but also on different sherds; this could be labelled *classical Limburg decoration* or *Limburg ware sensu stricto* (Modderman 1974). Apart from that, there are other types of decoration (with *Furchenstich-ähnliche* or stab-and-drag-like lines, in curvilinear or even chaotic arrangements) which are very dissimilar to the previous group, though they do figure on pots made to a similar fabric recipe. Also in both the Lindenthal and Janskamperveld settlements (and doubtless in many others as well; *e.g*. Claßen 2006, 250-251), Limburg decoration has been found on pots of otherwise Bandkeramik complexion, although the reverse has not been described as yet. Now the paste of the Limburg pottery is generally certainly distinct from the Bandkeramik ware, whether coarse or fine pottery are considered: "badly mixed and fired" (Buttler) or "little compacted" (Constantin) cannot be said of the latter, and the red to bright yellow surfaces are just as distinctive for the former. But then again, there is Limburg-like decoration on "Bandkeramik" pots, according to Buttler a *Mischgruppe* (Buttler/Haberey 1936, 107), and Limburg-like tempering, too (Constantin 1985(I), 108) to which I shall come back later.

I would now like to turn to the subject of this ware in the excavation. Sticking to the old Klopfleisch definition of the Bandkeramik of wave and spiral motifs on the fine ware, and associating these with a fairly distinct coarse ware, on the Janskamperveld site 175 sherds (deriving from probably 57 pots) have been recognized as deviating from this standard in at least one important attribute, and are therefore strictly speaking of 'non-Bandkeramik' antecedent: it concerns 36 decorated pots, and at the very minimum 21 undecorated ones. By applying different criteria, different counts of "Limburg ware" result:

based on the *decoration*, 28 vessels qualify, apart from the 21 undecorated pots;

based on their *shapes*, only fourteen vessels can be properly grouped with this ware for their thickened rims (11) or ridges (3); in addition there are ten pots with thin rims, which may have a Bandkeramik look but also occur among "Limburg" pots; there is one vessel with an applied strip which seems a clear Bandkeramik characteristic; and 32 otherwise exceptional vessels are indistinctive or not recognizable on this score;

when the way of *firing* is taken as a guide twenty-two decorated and twenty undecorated pots show the distinctive three-layer pattern with a pitch-dark interior on the fractures;

and based on the *tempering* perhaps only nine pots (among which four undecorated) should be labelled "Limburg" for their white particles of crushed bones or chalk (if that is a valid criterion); however, grog, sand and clay pellets also occur as tempers in otherwise "Limburg" ware, according to the literature; in Janskamperveld 6, 12, and 9 pots, respectively, with one or more non-LBK characteristics have been collected.

Apparently the different categories are very much overlapping in this set of finds. All pots incorporated above are deviating from 'true' Bandkeramik characteristics in at least one respect. On the other hand, none of the definitional Limburg characteristics is exhaustive according to the literature, for pots not tempered with bone, and/or with non-thickened rims regularly occur together with Limburg-decoration and are nevertheless also considered elements of this ceramic group, too (*e.g.*, Cahen *et al.* 1981). In the accompanying drawings, the sherds have been grouped according to their decoration: herringbones (figs. 7-5-d, e), triangles (figs. 7-6-b, d, e, 7), dragon's teeth (figs. 7-6-a, f) and ladders (fig. 7-8) constituting the classical variety, and coarse stab-and-drag with oblique fringes (fig. 7-9) a deviant one. The find numbers and major characteristics of these sherds (temper, shape, firing, decoration) have been collected in the table in the Appendix to this chapter.

The decorative diversity is obvious: some pots have been carefully ornamented, whereas some others have very awkwardly executed tracery, arguing for different artisans. Not unexpectedly, several pieces cannot meet the standards of the definitions above. Although temperings with bone do occur in the Janskamperveld material, their frequency (2 decorated and 2 undecorated pots) is well below the 35% indicated by Constantin for this region (Constantin 1985(I), 88); note however that bone tempering is also extremely rare[5] in the Graetheide LBK. Among the sherds, there are several much like those reported from the Omalien site of

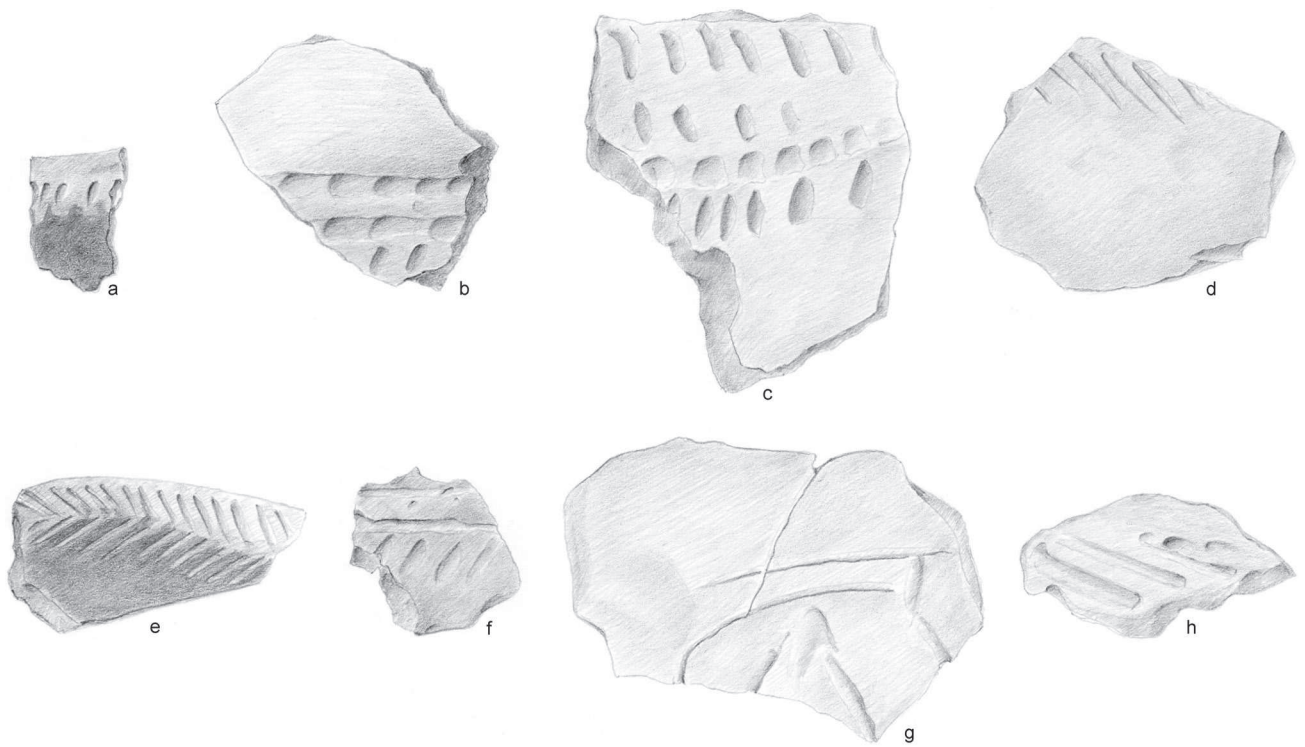


fig. 7-5 non-local LBK sherds from features (a) 94052; (b) 26090; (c) 19087; (d) 91124; (e) 31075; (f) 31075; (g) 33025; (h) 22019 (scale 1:1) drawn by Erik van Driel

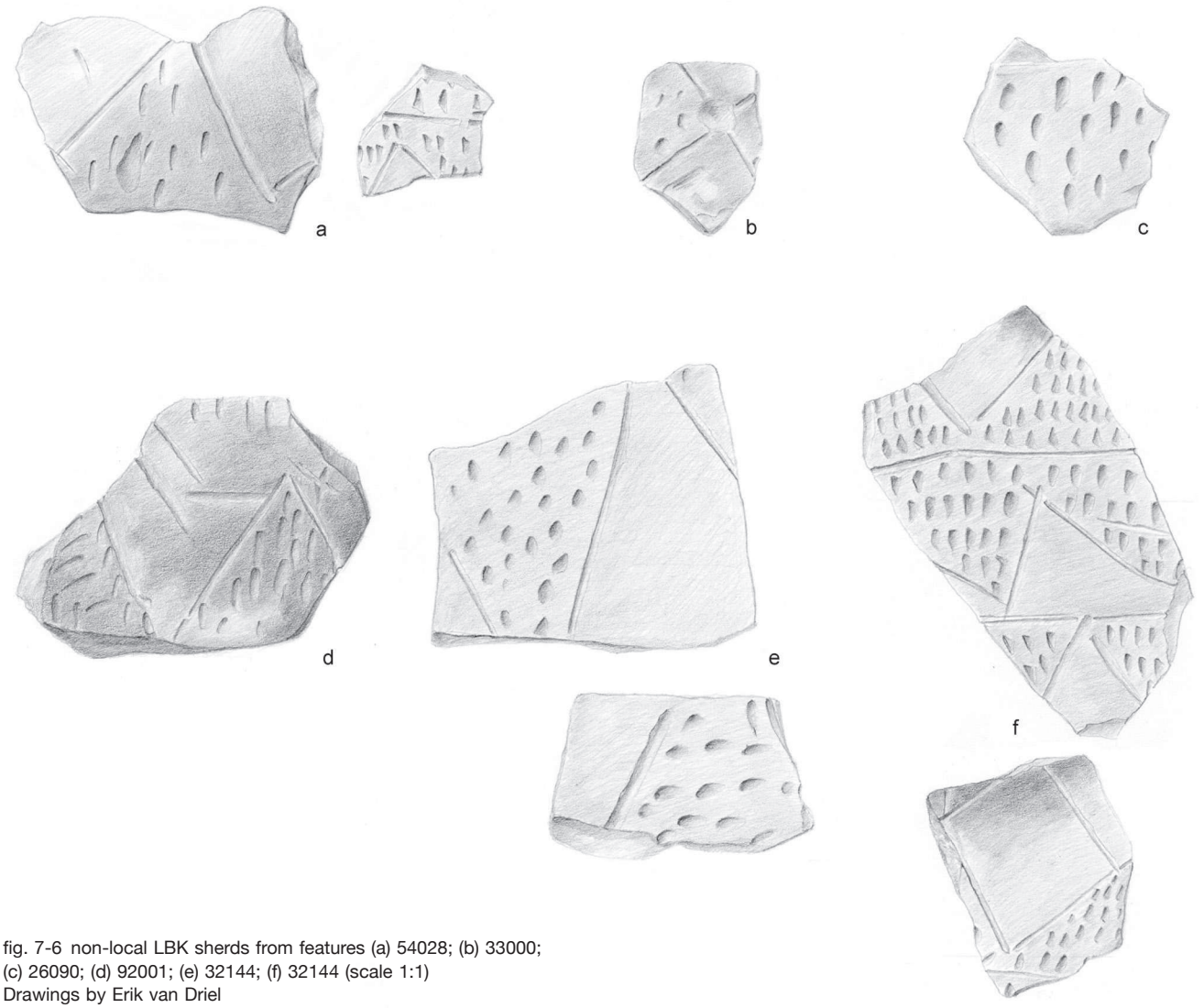


fig. 7-6 non-local LBK sherds from features (a) 54028; (b) 33000; (c) 26090; (d) 92001; (e) 32144; (f) 32144 (scale 1:1)
Drawings by Erik van Driel

Rosmeer in Belgium (in the Hesbaye, on the other side of the Meuse River, 24 km southwest of the Janskamperveld village) (figs. 7-5-c / e, 9-a / f; cf. Cahen *et al.* 1981 figs. 8-10), whereas others are similar to pieces found elsewhere in Dutch Limburg (figs. 7-8-b; cf. Cahen *et al.* 1981, figs. 1-3, or Van de Velde/Bakels 2002, afb. 16). The stab-and-drag-like decoration on 4 pots executed with a single-dented spatula is even reminiscent of the La Hoguette group (compare figs. 7-9-g with Lüning *et al.* 1989, esp. figs. 9 no. 7, 15 no. 8, or Van Berg 1990, 10A "*réattribution à la Céramique de La Hoguette*"), although I shall not insist on this similarity. Nor shall I spell out the different cultural attributions of the same or very similar decoration by different authors, such as for instance the sherds in fig. 7-9-f: according to Cahen *et al.* (1981, fig. 9-10) to be grouped with Limburg ware and "reattributed" to Blicquy by Van Berg (1990, fig. 7-3).

Among these fifty-seven purported "Limburg" or rather "non-LBK" pots from the Janskamperveld site, 38 pots from fifteen finds have dependable chronological status, while 19 pots from seventeen features have to make do with informed guesses. The chronological attributions span the whole occupation of the village, testifying to regular visits from the makers of these vessels (table 7-6).

The explanation of the presence of Limburg ware in LBK settlements is generally sought in the sphere of allochthonous

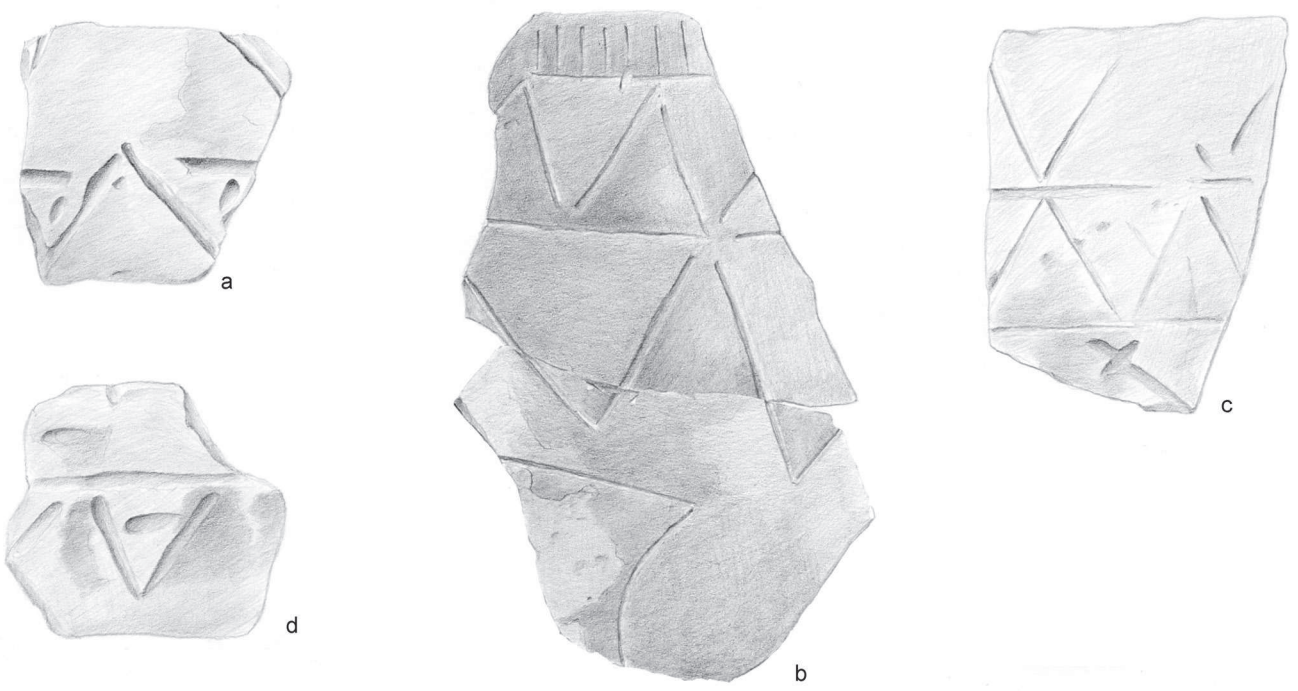


fig. 7-7 non-local LBK sherds from features (a) 26090; (b) 44012; (c) 91124; (d) 31075 (scale 1:1)
Drawings by Erik van Driel

| H Generation | I-1 | I-2 | I-3 | I-4 | II |
|---|---|---|---|---|---|
| no of features | 3/11 | 2/- | 4/3 | 5/- | 1/3 |

table 7-6 the number of features with Limburg/non-LBK ware per house generation
$w \geq 3$ / all finds with Limburg ware in this phase

contacts, although a functional differentiation *within* the LBK has also been proposed (Constantin 1985; Verhart 2000, 229), especially since nothing else with an apparent non-LBK signature has been found in the local archaeological record. Because of the considerable differences between the two wares, other scholars support the idea that Limburg ware is made by a (hypothetical) group of herders or hunters in the area to the west of the Northwestern Bandkeramik territory (Van Berg 1990, 163; Jeunesse 2001; Lüning in Lüning *et al*. 1989, 357; Modderman in Cahen *et al*. 1981, 140), and therefore occasional exchanges of meat or grain would be the mechanism of acquisition. While this may be an option, there will have been more to it than food exchange alone. In my opinion at least two issues are not addressed here: the substantial variability of "Limburg" decoration, and the occurrence of "Limburg"/"non-LBK" decoration on "Bandkeramik " pots. The first problem may be solved by the introduction of yet another hypothetical herders' or hunters' group, similarly of the "non-digging" class (Modderman in Cahen *et al*. 1981, 159; Modderman 1985, 118), which is, given the mosaic of Late Mesolithic and Early Neolithic cultures of those days, not really a daring proposal (*cf*. Brounen 1999; Jeunesse 1994). The second problem of Limburg-like characteristics on otherwise Bandkeramik pots and *vice versa* are neither addressed nor explained in the literature but probably tacitly included under the label "LBK" (*e.g*., Gabriel 1979).

As noted above, most archaeologists seem to be pretty certain of what it is that makes a pot "Limburg" or "Bandkeramik " thus negating any problem here[6] — sometimes just as tacitly justified through the notion of "*polythetic distribution of characteristics*" (*cf*. Clarke 1968, 37-38). Though a choice between shape, temper, and firing as *the ultimate razor* cannot reasonably be made, only decoration if any defines LBK pottery (by definition; also *cf*. next section). Therefore, a grey zone where one scholar will say "LBK" and another "LB" (or "Blicquy", or "La Hoguette", as the case may be), both with justifiable confidence, will necessarily continue to exist. On the assumption that these non-LBK pots were made by people not versed in the LBK canon — I am very much aware of the dangers of the pots-and-people-problem — this extracanonical ware can be explained as a product of

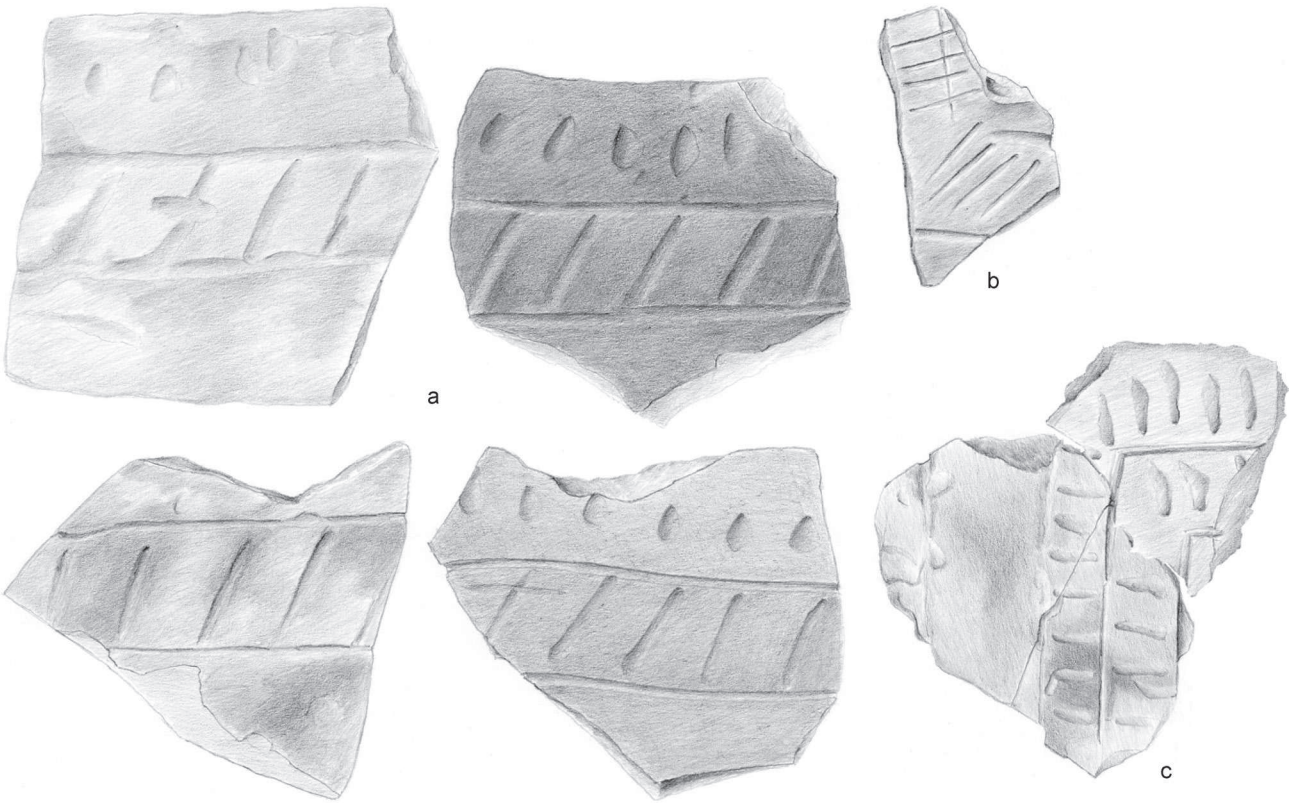


fig. 7-8 non-local LBK sherds from features (a) 46004; (b) 44028; (c) 31075 (scale 1:1)
Drawings Erik van Driel

acculturation. Acculturation that is, or (re-)socialization of non-Bandkeramian or non-local LBK immigrants in the Bandkeramik world: occasionally a female from beyond the Frontier will have entered a Bandkeramik village, as marriage partner, an element of the symbiotic relationships across that border (Brounen 1999; Verhart 2000, 18, 40). At first she will have continued to use the foreign pot(s) she brought with her as part of her identity, only to replace them after breakage with decreasingly non-conformist ware, gradually losing her native, extra-territorial "practical knowledge" (Giddens 1984, 49-50), first as regards clay preparation and firing, second in the area of pottery decoration. Probably, the making and firing of the paste is the first thing to do when joining the Joneses, since finding, mining, selecting and preparing the clay will have been done jointly with the neighbours, resulting in Bandkeramik-like ware, or fabric of the pots. Decorating, though probably done in company as well, has more of an individual pursuit, regulated rather by private and innate custom or habitus than by conscious persuasion — to be lost only with the passing of the years but until then resulting in Bandkeramik ware pots with some lingering non-local characteristics. It should be borne in mind that the other members of the potters' circle also understood pottery decoration as part of their own family identity (*cf.* section on social implications, below). And certainly, where several of these non-LBK pots occur together near a house, different stages of "Bandkeramization" are represented.

Moreover, some confirmation of this mechanism can be found in the diminutive amount of such non-LBK ware in the archaeological record of the Janskamperveld settlement: 99 sherds deriving from 36 pots (or 175 sherds for 57 pots, when the undecorated pots are also incorporated) in a corpus of over 1500 decorated pots, and more than 3600 pots when the coarse ware is included. This is not even two percent of the total, and therefore testimony to something special, in the order of only a few allogenic immigrants in a full one hundred years. Even when considered per house, this type of ware is not very common: fifteen houses (among a total of 69 houses excavated) can be associated with altogether 45 non-LBK vessels, eight houses being accompanied by only one single pot (table 7-7).

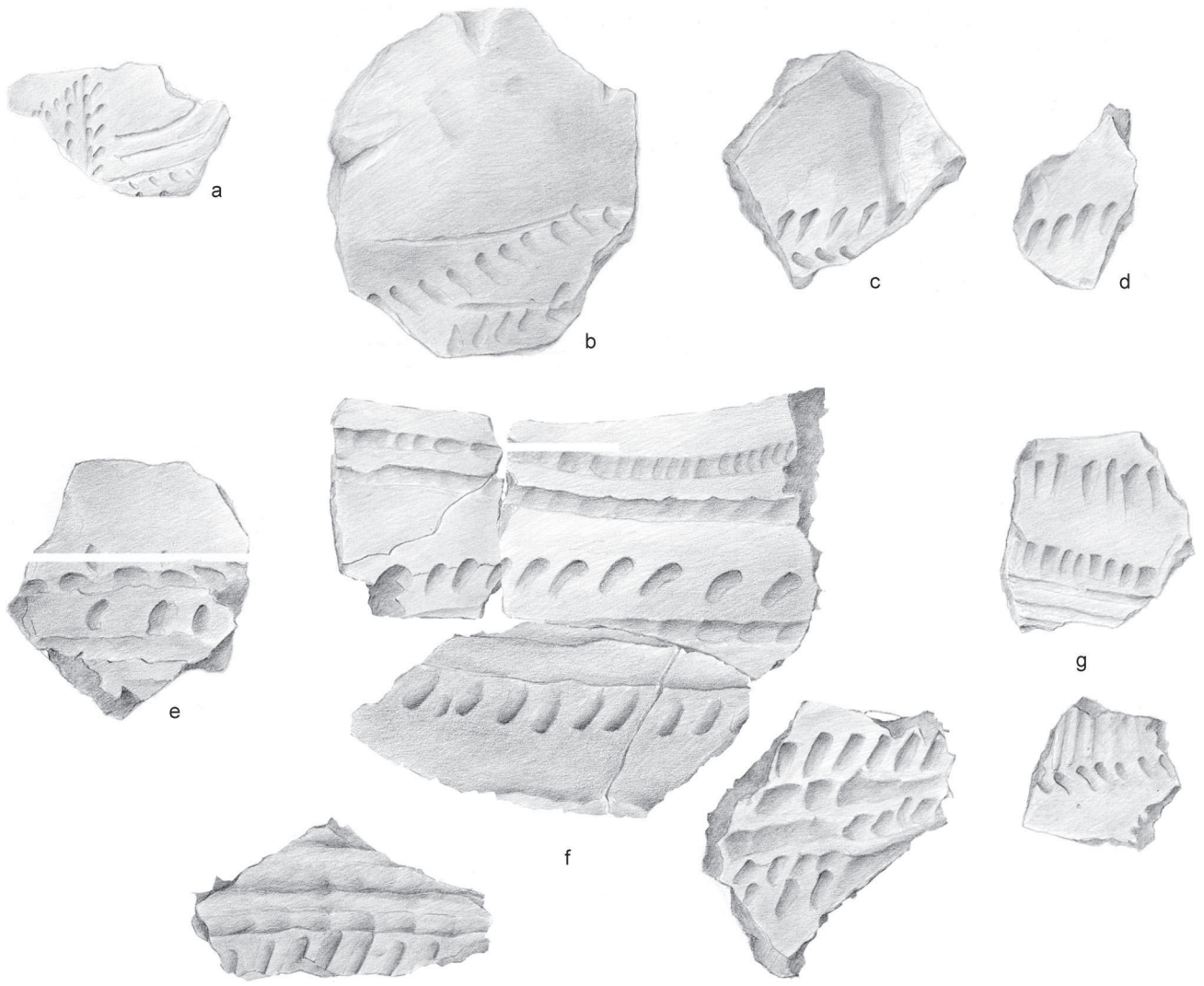


fig. 7-9 non-local LBK sherds from features (a) 57020; (b) 91124; (c) 91124; (d) 91124; (e) 19087; (f) 26090; (g) 91002 (scale 1:1)
Drawings Erik van Driel

## 7.5 Pottery decoration, some examples from the village, and general observations

From 193 find numbers or features, 3723 decorated Bandkeramik sherds have been collected, probably deriving from 1582 pots. Thicknesses ranged from 2.7 to 13.3 millimetres (fig. 7-1). The average thickness is 5.6 mm with a standard deviation of 1.4 mm, and a median value of 5.4 mm with an interquartile range of 4.7-6.4 mm. Comparable measures from other areas are: in German Hessen (right bank of the Middle Rhine) the average thickness of the fine ware is 4.9 mm, and in Bylany 5.9 mm (respectively Kneipp 1998, 60; and Pavlů 2000, 139). Although I have no quantified data on the other settlements on the Dutch Graetheide, the run of the decorated pots from the Janskamperveld settlement does not distinguish itself from that in the other Dutch sites, given comparable age: made from finely ground clay in which tempering of the paste is rarely if at all visible; grey to dark grey on fractures; with well-polished surfaces; more often than not with dark grey to black outer surfaces. Also, the decoration is not exceptional for a Bandkeramik repertoire; only the non-LBK, Limburg and Limburg-like pottery stands out in these respects, as discussed in the previous section. On average, per pot only 2.4 sherds have survived; since an average decorated pot seems to fall apart into about 10 to

| House no | H Gen | no of pots | feature nos |
|---|---|---|---|
| 02 | 3 | 1 | 91002 |
| 03 | 1 | 3 | 91124 |
| 04 | 3 | 1 | 92001 |
| 05 | (1) | 1 | 95050 |
| 13 | 4 | 4 | 31075 |
| 14 | 4 | 3 | 44012 |
| 19 | 3 | 3 | 54028,54029 |
| 23 | 4 | 3 | 49015,49016 |
| 35 | (II) | 1 | *32100* |
| 36 | (3) | 1 | 10032 |
| 37 | 1 | 1 | 22019 |
| 41 | 4 | 1 | 57020 |
| 53 | 1-3 | 17 | 19087,19088,26090 |
| 58 | 2,4 | 4 | *10038,10040* |
| 68 | (1) | 1 | *19043* |

table 7-7 houses associated with Limburg/non-LBK ware
*italicised*: association uncertain

20 sherds in this excavation (as can be inferred from the distribution of sherd numbers), the survival rate of these sherds is in the order of one in four to one in eight. There is a tight correlation of the number of pots with the number of sherds (r = 0.95) which is indicative of the weight to be accorded to this survival figure.

Notwithstanding the regular and unobtrusive similarity of the pottery from this site with that from nearby settlements, I shall illustrate those few decorated pots of which the decoration can be partially or wholly reconstructed; again, most of the time not because of any specialty, but only to give an impression. In addition, in the chapter on relative chronology, examples of assemblages from each of the ceramic phases are presented. The first pot to be shown is easily the most conspicuous piece of earthenware from this settlement (find no. 19078; fig. 7-10). Unfortunately its lower part is missing entirely so nothing can be said of the bottom; the remaining height is 22 cms. The profile, though, suggests a steeply-walled beaker, which by its rim diameter of 25 cms is among the largest known (J. Lüning, pers. comm.).
The wall sherds have thicknesses of around 8.4 mm, while the applied strip adds almost a centimetre to the outside. The decoration is incised with approximately one millimetre wide grooves with a U-profile, administered when the smoothed surface was still wet as shown by the sharp edges of the grooves. The organization of the decoration is different from regular Bandkeramik practice though its details remain within the canon: wave-like motifs occur in the zone above

fig. 7-10 beaker from feature 19078 (scale 1:2)
Drwan by Erik van Driel

the band of this pot, whereas normally they are restricted to the belly zone exclusively; also, the vertical stripes below the band are hardly ever seen on this culture's fine ware (coarse ware, though, occasionally shows vertical striping). On the one hand, the unique, anomalous decoration may qualify this vessel as non-Bandkeramik, while the technique with which it has been executed seems to allude to early Flomborn practice. On the other hand, the colour of the surface is dark grey, internally and externally; on fractures a lighter yellowish grey is shown; temper is not perceptible (and certainly not organic temper): regular LBK fine ware therefore. The context in which this pot was found is an all-out Bandkeramik pit, datable to an early ceramic phase 2 of the settlement. Feature 19078 was positioned along a type 1c house (H 59) with a Y-configuration of its central posts, and another pit also associated with this house was even dated to the first phase (house generation) indirectly confirming this early occurrence.

Clay strips around pots are comparatively rare in North-western Bandkeramik inventories, although not entirely unknown, especially with coarse ware (*e.g.*, in feature nos 10032, 32142, 49080, 52051, 58016, 91002, 91003, 91124 and 92023 from the present settlement excavation; also on fine ware, some appliqué bands have been ascertained in find nos 32144 and 57020; both a coarse and a fine ware pot derive from feature nos 19078 and 28079). Steeply-walled beakers figure in several publications, and here only a small and uneven selection will be referred. Initially Stehli included these vessels as *"Exceptional form 2: steeply-walled beaker with flat bottom"* (Stehli 1973, 63-64) but their rarity has led to their exclusion from his' and others' relative chronological schemes. From the Graetheide I know of one other example, excavated by Modderman in Sittard next to a type 2 house dated to phase LBK-1d/2a of the Dutch chronology (find no. Sd 208; Modderman 1959, Abb. 69). Ironically, this latter one has a missing *upper* part, while the Janskamperveld specimen lacks a *lower* part. From the Königshoven *Siedlungskammer* with its 14 or 15 small settlements, two such beakers are reported (Claßen 2006, 252), and on the other side of the Rhine river, in the Soester Borde, a few more of these vessels have been excavated: from Soest (Nicolai Kapelle), Werl (Salinenring) and Nideruff; complete as well as fragmented pieces are illustrated by Gabriel (1979, TT. 28/102, 29/102, 33/105, 40/478). None of these Soester beakers shows an appliqué band, chronologically they are divided up over the LBK II-V phases (German LBK-chronology).

The next pot (fig. 7-11) comes from the richest feature in the excavation where 543 decorated sherds, representing at least 207 vessels, have been secured; additionally there were nine sherds (3 pots) with non-LBK type decoration (find no 91124). This assemblage is securely dated to the first phase/house generation of this settlement (LBK 1b in the Dutch chronology), House 03 (type 1b) is directly associated. The bowl in the figure has a rim diameter of 15 cm, the thickness of its wall is 4.6 to 6.2 mm. The surface colours

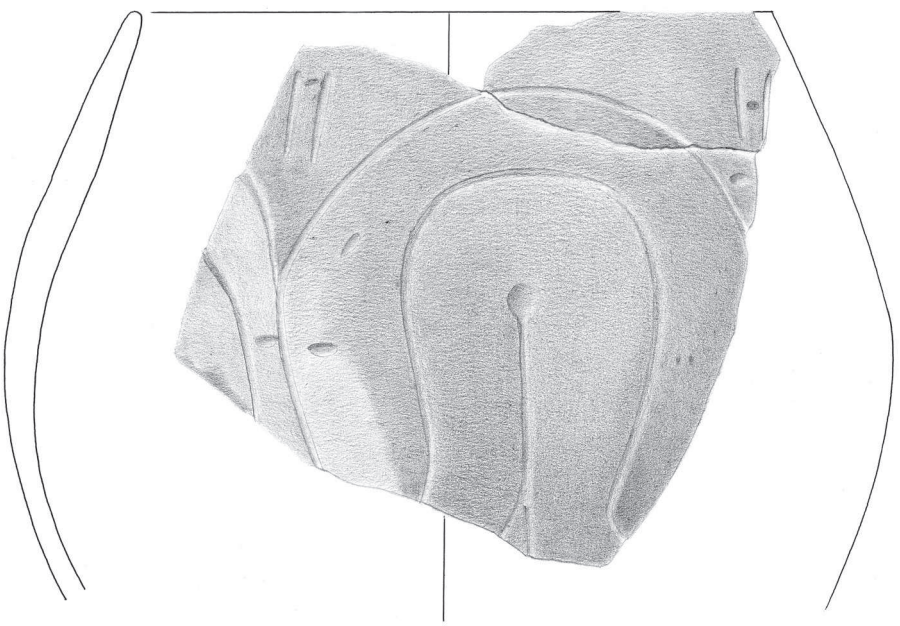

fig. 7-11 bowl from feature 91124 (scale 1:1)
drawing Erik van Driel

are dark grey to greyish black on the outside, and dark grey on the inside; on fractures a homogeneous dark grey colour is shown. The paste of fine-grained clay has either been tempered with silt or did contain already some slightly larger particles which produce a tinkling glitter in the sunlight. The outer surface has been rubbed to lustre, whereas the inside is just smooth. The competently incised motif is not complete, and its original outline cannot be specified.

The small bowl in the next drawing (fig. 7-12) was found in a pit which held a.o. another 12 decorated sherds from seven vessels (feature no. 55003) — this pit belongs to the large type 1b House 03 (as also feature no. 91124 previously mentioned), and is dated to the second house generation. The pot's rim diameter is 11 cm, the walls have thicknesses of 4.5 mm. The surface colours are brown to dark brown on the outside, and a greyish brown on the inside, on fractures homogeneous yellow grey. The clay has been tempered with some silt, if this was not already present in the parent mineral. The outer surface has been burnished, the inside simply smoothed. The spiral motifs of the decoration suggestive of rolling waves were applied with a fairly broad utensil when the clay was almost leather dry (which is contrary to normal LBK practice): the traces of this utensil are quite superficial, and one gets the impression that the embellishment was hastily executed, perhaps only as an afterthought.

Also decorated by a spiral motif (though here possibly in a reflected composition) is the bowl depicted in fig. 7-13. Deriving from one of the *Längsgruben* (feature no. 59007) associated with the barely recognizable House 44 (possibly, type 3), it is dated to the third house generation. The rim diameter of this bowl is 16 cm, the walls measure 5.9 to 6.6 mm. The surface colours are yellowish brown to grey on the outside, and grey on the inside of the vessel; on fractures dark grey. As with the previously described vessels, this one has also been tempered with silt. Outer and inner surfaces have been carefully smoothed such that the outside shows a thin yellow brown layer like a skin. The rim decoration of this bowl is quite bizarre with its (pseudo-) music notes[7] on an incised line parallel to the rim, with a second music line positioned below it between the vertical lines which subdivide the belly zone into equal panels.

The sherds of the small bowl illustrated in fig. 7-14 have been found together with a.o. 47 decorated sherds (22 vessels incl.; feature no. 52017). The pit from which these finds have been collected is the northeastern *Längsgrube* of House 17, a house of type 3 with a degenerated Y configuration in its central part. The decoration on the sherds from this pit indicates a positing in the third house generation, final LBK 1b or early 1c in the Dutch chronology. The decoration on the bowl is quite unusual, or atypical, although it cannot be fully specified. It seems that four oblique incisions constitute an X, the four outside sectors of which are alternatively filled with short, irregularly placed incisions (top and bottom), and with disparate impressions of a spatula (left and right). The bowl has a rim diameter of only 8 cm, and its walls measure 5.0 mm. Colours are grey to yellowish grey on the outside, yellowish grey on the inside, and brownish grey on fractures. The paste has been tempered with tiny brown clay pellets, as well as with silt; both surfaces have been smoothed.

Seven sherds remain of a nicely formed and ably decorated bowl (fig. 7-15; feature no. 40073), the only decorated pot in this small assemblage. They came from the southwesterly *Längsgrube* of House 08, of 1b type and with a regular central post configuration; this house is one of the few on this site that cuts through an earlier building, H 06 in this case. The rim is approximately 22 cm wide, sherd thickness ranges from 3.5 to 5.7 mm. Both outer and inner surfaces show a brownish colour, on fractures a homogeneous dark grey. The tempering of the paste consists of silt and some tiny black clay pellets. The decoration of the belly zone consists of a wide zigzag strip, bordered with neatly drawn

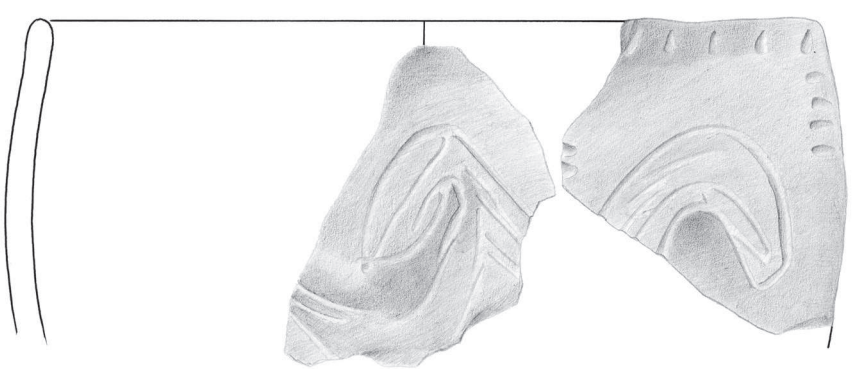

fig. 7-12 bowl from feature 55003 (scale 1:1)
Drawing Erik van Driel

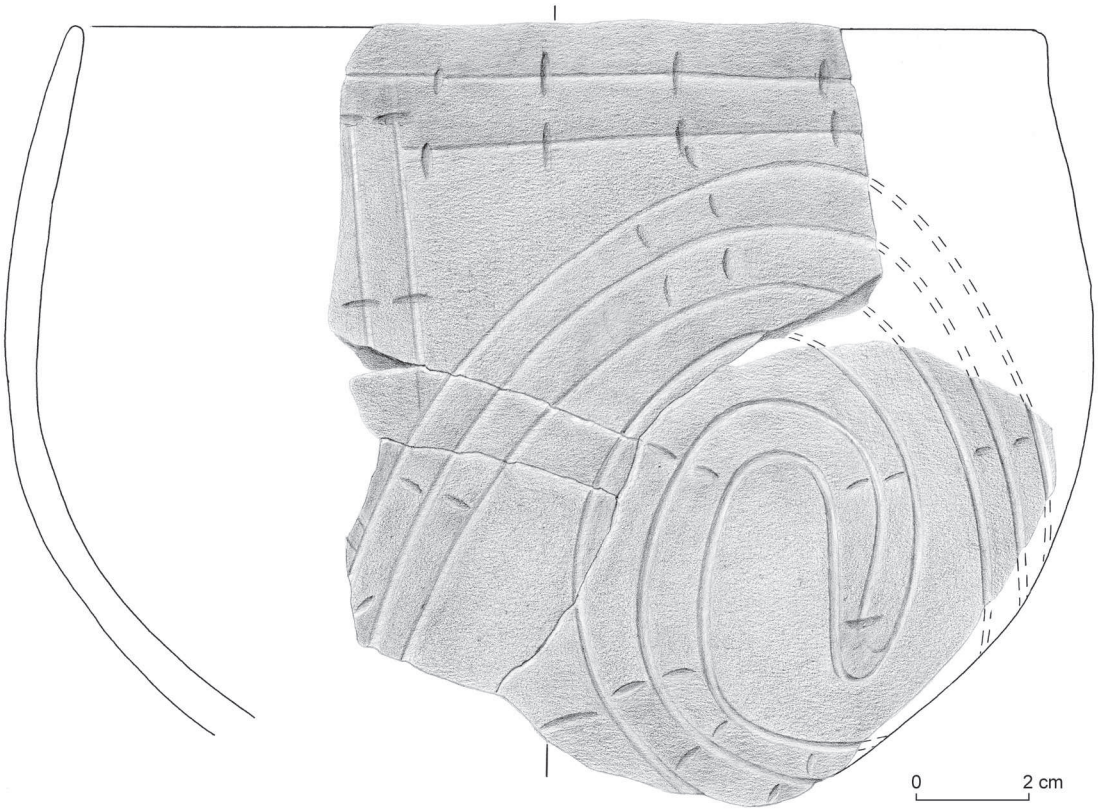


fig. 7-13 bowl from feature 59007 (scale 1:1)
Drawing Erik van Driel

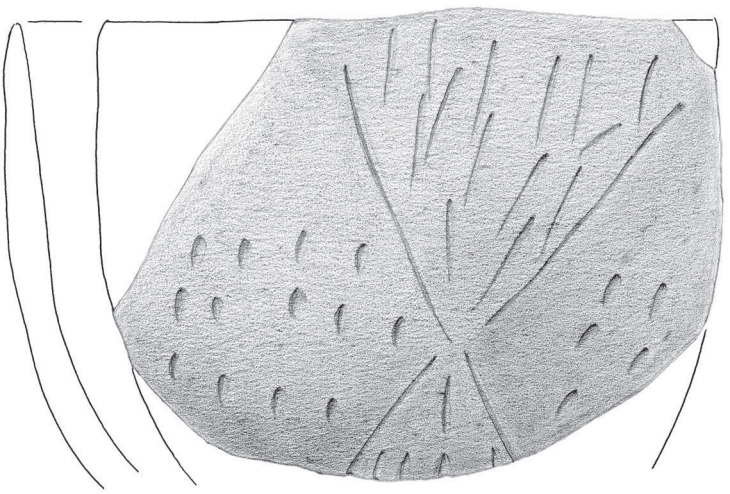

fig. 7-14 small bowl from feature 52017 (scale 1:1)
Drawing Erik van Driel

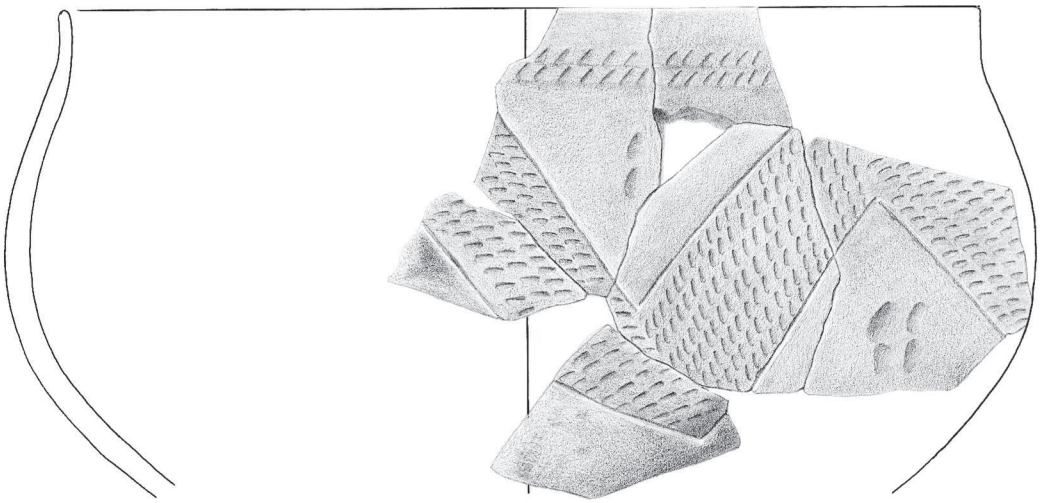

fig. 7-15 small bowl from feature 40073 (scale 1:1)
Drawing Erik van Direl

incisions and filled with rows of very regularly placed impressions of a spatula, obliquely to the axis. The top zone has been decorated with equally regular, obliquely placed spatula impressions, in two rows parallel to the rim. The outer surface had been burnished before the decoration was applied; the inner surface has been simply smoothed. Judging by its decoration the vessel should have been made during the second Bandkeramik habitation of the site (LBK-2c); however, as nothing datable was found along with it, this attribution is hardly better than a guess, although both the stratigraphic position and the central construction of the house to which this pot probably belongs are definitely not contradictive.

The remaining well over three thousand decorated Bandkeramik sherds from the Janskamperveld excavation are generally too small to reconstruct their motifs reliably, and therefore they are not illustrated here. In table 14-1 of the chapter on chronology counts of decoration features are presented relative to the number of pits; substituting this latter number by the number of pots (approximately 1582) the fragmented nature of the decoration becomes clear. For instance, only 544 pots (not even one third of the total on record) allow recognition of a subdivision of the surface into a neck zone and a belly zone. The small average number of 2.4 sherds per pot, already alluded to above, should underscore this once more.

I shall now turn to a discussion of the various classificatory schemes that have been devised to describe Bandkeramik decorated pottery, partially reiterating, partially elaborating on points made in the chapter on chronology. There, I have written about the 'Rhineland Model' of pottery decoration classification, which has as its main objective a seriation of the finds over time. A 'type variety method of typology', that Model has as its major characteristic "an emphasis on creating a regional framework for ceramic description" by way of a listing of all observed decorative details on the pots in a region (quote from Sinopoli 1991, 53). Therefore, transportability of the scheme is very low: to everyone familiar with Bandkeramik decorated pottery it is clear that regions differ in their repertoire — there are even differences between the neighbouring Belgian Omalien decorative practice and those from the Dutch Graetheide. Such differences should be incorporated in the Rhineland Model if it is to be used on a trans-regional scale; however, apart from one attempt in this direction by Stehli (1994) I have not seen any others as yet (*e.g.*, Constantin 1985; Kneipp 1998). While this problem is of a methodological nature, a serious practical problem with the Model is its immense extent: originally starting out with some thirty "types" (Stehli 1973, 60), it has grown into a bewildering mass of characteristics (as in, *e.g.*, Kneipp 1998, where 792 attributes of decoration are defined; in Claßen's study, however, the chronology is based "only" on those 67 bandtypes common to the Aldenhovener Platte and the Königshoven areas; Claßen 2006, 145). One will neither know whether all possibilities in the data at hand have been exhausted nor that all observables have indeed been coded. Taken to its logical extremes, there should be as many characteristics as there are pots in the study for they have all been handmade, and therefore each and every pot is different. Moreover, as recognized by Stehli in his early work, in settlement debris only a few characteristics are observable on a regular and repetitive basis (Stehli 1973, 60;

also, *cf.* the previous paragraphs). Notwithstanding these practical and methodological drawbacks, the Model has been very successfully applied to the relative chronology of the Aldenhoven *Siedlungskammer*, as with it the individual house generations could (almost) be recognised (Stehli 1988).

Much simpler to use is the Buttler-Modderman scheme (Modderman 1970, 121-140, 192-201), which is purely a differentiation of 18 types of strip fillings, based on Buttler's work in Köln-Lindenthal and amended for the excavations on the Dutch Graetheide. This typology, though initially intended as merely an aid to description of the pottery, became popular (that is, among archaeologists working on the Early Neolithic of NW Europe) as a chronological index, differentiating two periods with seven phases in the Northwestern Bandkeramik. There are some problems with this scheme too (Van de Velde 1979, 8), primarily because its classes were also drawn up inductively based on research experience in the Northwestern Bandkeramik area, and thus do not incorporate ways of decoration current in other Bandkeramik areas, such as the Aisne Valley or Central Europe. On the other hand, its simplicity has much to recommend it, and this has led to wide acceptance of this classification by those working in the Northwestern Bandkeramik.

In my Ph.D. thesis, in which I had to work on material from two markedly different style regions, German Bavaria and the Dutch Graetheide, the deficiencies of the models just mentioned soon became apparent. As a remedy, I developed a classification based on simple analytical categories which allowed the description of *all* Bandkeramik decoration, wherever found (Van de Velde 1976). These categories were designed with an eye to quantification and statistical analysis — included were techniques of decoration, the bare components that made up the decoration, the structures of the motifs such as zoning of the pots and recti- and curvilinearity, and the basic and developed motifs (waves and spirals, algebraically developed through reflection, gliding, and rotation), plus some auxiliary variables (see below). Here, I shall not enter into a full discussion of this scheme; the reader is referred to earlier publications (Van de Velde 1976, 1979, 1987), as well as to the chapter on chronology in the present publication. Also in the chronology chapter a hybrid classificatory scheme by Pavlů is alluded to, a system which combines a few characteristics of the Rhineland Model with a number of features more reminiscent of my own model. It is interesting to note that Pavlů's work is aimed at the social structure of the Bandkeramik Bylany settlement (Pavlů 2000, 1-3).

Whatever the merits and demerits of the respective classificatory schemes, they were designed as means to an end: the Buttler-Modderman scheme and the Rhineland Model mainly or even exclusively as an aid to chronological differentiation[8], the Pavlů and author's classifications to allow social inferences (including relative chronology, of course a derivative of changing social habits). Obviously, pottery decoration is not the only possibility of social analysis — houses and settlement plans are at least as instructive — but it should not be neglected as a source of understanding. It is to this dimension that I shall now turn.

### 7.6 Decorated pottery, and social implications for the Janskamperveld village

A major research concern is the social relationships between the groups that occupy the houses of the settlement. In the ethnographic literature there is often mention of house (or lineage, or clan) emblems, either in house decoration, on shields, or clothing — sometimes on a purely individual level, but more often involving larger groups like our own family names. Within local groups, identities are played out; related to other identities, they constitute the social structure of the group. To participants, the emblems are visible signs of belonging or not belonging, observable for everybody. When these signs consist of relatively non-perishable material, they may even be visible to archaeologists.

Therefore, if the designs on LBK pottery have any meaning, they will be related to group identities, however small or large those groups are defined in the local society. Trivially, Bandkeramik decorative motifs differ conspicuously from those on Limburg pottery, marking out the locals from the foreigners. Obviously, differences within the local group should be readily perceptible, at least to the initiated, although perhaps on a more subtle scale than those between the larger traditions. Just as a starting hypothesis, I suggest that the choice and execution of the main motifs on the decorated pottery has social sign value (*cf.* Sinopoli 1991, 124-125; Krahn 2003, 516). Frirdich notes that some strip types (the 'main motifs' in the Rhineland Model) are restricted to individual yards (*Wohnplätze*; Frirdich 1994, 254). Pavlů writes about rectilinear and curvilinear designs being markers of the two local groups ("lineages") at Bylany (Pavlů 2000, 167), and in my dealings with the Elsloo cemetery the same distinction could be interpreted as a token of matrilineal kinship (Van de Velde 1979, 112-113). Also, the remarkably uniform mix of this variable over the houses of the LBK village of Elsloo could be explained by virilocal marriage arrangements. In that same text I had to admit though, that the patterning of the distribution of the main motifs (wave, spiral) remained obscure to me.

There were 193 features with LBK decorated pottery sherds from the excavation in the Janskamperveld village, remains of almost sixteen hundred sherd families. A general principal components analysis to analyse the associations and oppositions among the variables and attributes showed, apart from the chronologically relevant variables (further elaborated in the chapter on chronology), three sets of

opposed attributes. The first set consisted of the presence and absence of fillings of the strips; it was strongly aligned with the chronological component (in that analysis, 41.9% of the variance); my reason for not incorporating this set into the computations of the temporal sequence was its low frequency in the data. A second set consisted of recti- and curvilinear motifs, mainly associated with the second component (accounting for 18.4% of the variance in the data), almost perpendicularly positioned relative to the time axis in the component plot; this is neatly illustrated by the lower plot in fig. 7-16 which is perpendicular to the top one (by definition: principal components are mutually independent, *i.e.*, geometrically at right angles). The third set, associated more or less with the third component (accounting for 15.0% of the variance), opposed presence and absence of auxiliary lines.

To begin with the third set of attributes, auxiliary lines, these are probably best considered as indicators of the skill with which the decoration has been applied to the pot surface. In order to draw three or four motifs on a pot belly or any other surface, an initial subdivision of that surface is required for these motifs to come out evenly. People with a feeling for decorative arts are aware of this, and they will begin with setting out some markers (in my terminology: 'auxiliary lines'; cf. fig. 7-17), where the intended motifs have to go, later adding finer subdivisions. In a way, this component is quite personal or individual: because of it, the better drawn motifs can be selected among the finds, and hence those potters from among whom the 'Geleen-painter' would eventually emerge — to be entered in an art historical anthology.

Not being an art historian, I shall leave the third component, and turn to the second one which opposes rectilinear and curvilinear motifs. In earlier publications these structural variants of the motifs have been related to a division of Dutch Bandkeramik society into matrilineal moieties, female burials always being associated with either one but never both, and male graves generally with the two together (especially Van de Velde 1979, 112, and Van de Velde 1995). Apparently, the males became associated with both societal halves, one through their mother by birth, and the other one through their wife, by marrying out[9], an ethnographically well-known arrangement. The ratio of the two alternatives was shown to be approximately equal in all houses in the settlement of Elsloo (a few kilometres to the west of Janskamperveld, and in its initial phase contemporaneous), a result to be expected from such a grouping. For, if the selection of rectilinear or curvilinear decoration would have been according to individual whims, then not an *equal* but instead a *random* selection should be observed, resulting in a more or less even distribution of all ratios instead of a peaked one. I inferred that curvi- and rectilinearity served as badges for the two (matri-)moieties, which through virilocal house recruitment had been spread all over the place — only recently confirmed by isotope analysis of bones from LBK graveyards (Price *et al.* 2001). It is not farfetched to expect a similar division of society in the Janskamperveld settlement. In fig. 7-16 it is shown that this component is 'bipolar', with the attributes (*L*, and *M*) diametrically and maximally opposed. There are no other contributors to this dimension in this set of variables, and therefore the scores of

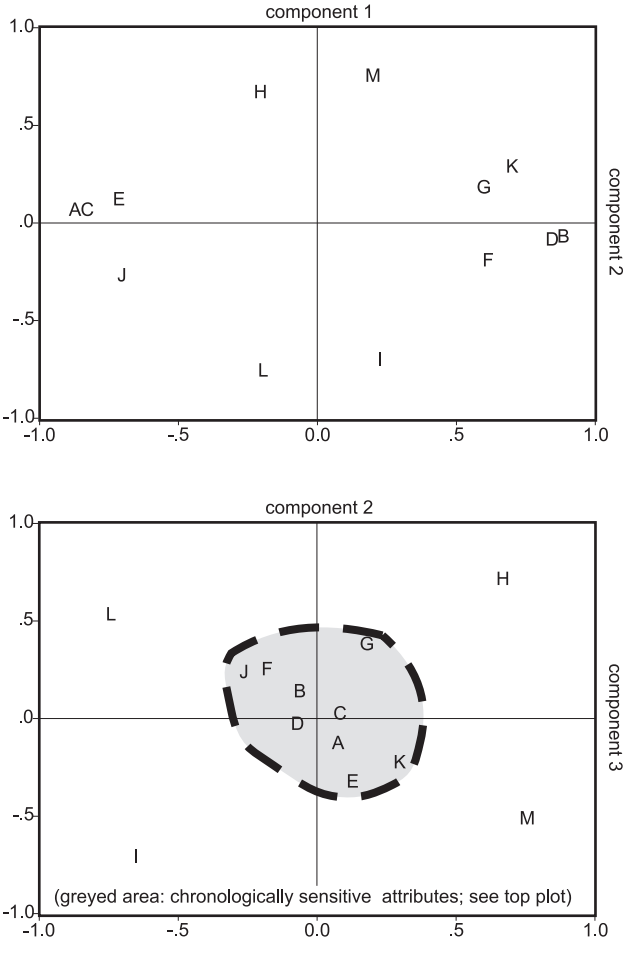


fig. 7-16 plots of first three principal components of pottery decoration at Geleen-Janskamperveld
greyed area: chronologically sensitive atrributes (see top plot)

the finds can be directly read from the proportions with which rectilinearity and curvilinearity are represented.

Fig. 7-18 and table 7-8 show the proportions of the curvilinear structures in the finds from the Janskamperveld. It is clear that the distributions of curvilinearity for the individual features as well as for the amalgamated finds per house are centred around a value of 0.65 (at Elsloo the frequencies were reversed). Probably at least part of the deviation from the expected 50/50 ratio is due to a bias of observation on small sherds, although it should be noted that among the large sherds shown in the previous section, curvilinearity is also slightly dominant. It is clear that extreme values do occur — mainly but not exclusively for the smaller finds, with less than six structures observed. Indeed, among the 54 finds with at least six structures counted, only one has an 'extreme' value (over 90%, and less than 10% for the opposite attribute), while some ten or eleven might be expected when no selective preferences were involved. In other words, the earlier observations at Elsloo are duplicated at this settlement, pointing to a non-random distribution of the structures dimension too. Meanwhile this phenomenon has been observed elsewhere, too: in the generally much smaller Königshoven settlements the ratio varied between 0.2 and 0.6, averaging 0.5 for the whole group (Claßen 2006, 243). That is, when the earlier interpretation of matrilineal kin associations of this variable is correct, then that very phenomenon is found at Janskamperveld as well as at other Northwestern Bandkeramik sites. Note that matri*linearity* not matri*locality* is suggested: in the latter case part of the settlement would have shown curvilinearity only, and the other part rectilinearity by relative exclusion.

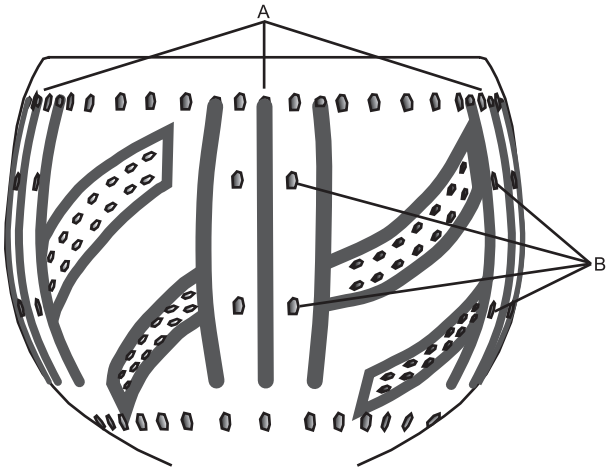


fig. 7-17 an example of auxiliary lines (pot from feature no 31021) A: vertical incision lines to subdivide circumference into four equal panels B: spatula marks subdividing height to position the arms of the motifs

Among the houses of the settlement accompanied by sufficient decorated pottery, the distribution of the structures shows the same tendency: the ratios of curvilinearity to all structures range from 0.5 to 0.8 with two exceptions provided by H 16 and H 56 (9, and 11 decorative structures observed, respectively). In the chapter on the history of the Bandkeramik settlement I shall come back to the structures of the pottery decoration in relation to social life.

Meanwhile a few words should be said on the (different) topic of the main motifs on the pots. Three generations ago, Buttler wrote:

*Spirals and waves, the most original and fundamental decorative motifs of the Bandkeramik surely have had a special meaning to the Danubian people, perhaps even a religious one.*

Buttler 1938, 25 (my transl., PvdV)

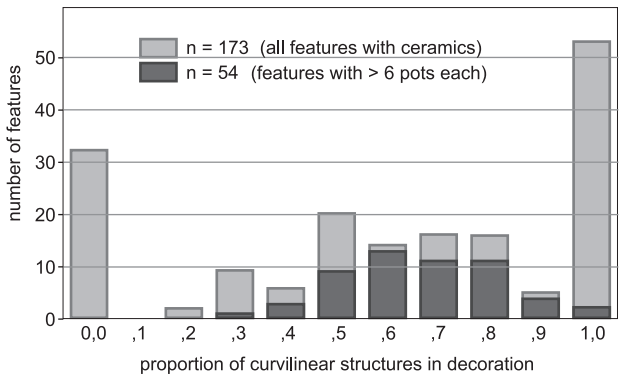


fig. 7-18 the proportions per feature of curvi- and rectilinear decorative structures

| ratio | pits | houses |
|---|---|---|
| 0.0 | – | – |
| 0.1 | – | – |
| 0.2 | – | – |
| 0.3 | 1 | – |
| 0.4 | 3 | – |
| 0.5 | 9 | 6 |
| 0.6 | 13 | 6 |
| 0.7 | 11 | 6 |
| 0.8 | 11 | 5 |
| 0.9 | 4 | 1 |
| 1.0 | 2 | 1 |
| total | 54 | 25 |

table 7-8 the proportion of curvilinear structures in complexes with more than 6 structures

Knowing that also the recti- and curvilinear structuring of the motifs is indicative of a basic distinction in this Bandkeramik society, one cannot but concur with him. However, in settlement debris spirals and waves can only seldomly be discerned, and even in the cemetery of Elsloo with its mostly complete pots I was not able to infer the reason behind the totally disjunctive distribution of the two basic motifs in the decoration (Van de Velde 1979, 115). Simply the fact that the two are never found together (in a grave, that is) is already strong evidence of one or another important principle governing their assignment[10]. The Janskamperveld settlement pots are too fragmented for the distribution of the main motifs to be studied there.

### 7.7 One step up: pottery and the Bandkeramik households

Pots do not exist for the sole benefit of archaeologists, but rather to assist in keeping the ancient households going by their contribution to in the preparation and storage of food. Two related questions can be formulated: is there anything recoverable from the different functions of the vessels, and how many pots were needed for the running of a Janskamperveld Bandkeramik household. To begin with the last question as to the number of pots per house. Altogether in the excavation there were 334 pits/features which held fine and/or coarse ceramics; 170 of these pits could not be associated with any of the houses, yet they contained the remains of 551 coarse and 364 fine ware "sherd families" (Orton *et al*. 1993, 56, 172), and also 11 pieces of non-LBK ware, together 5.5 pots on average. Those 164 pits that could plausibly be assigned to houses yielded 2680 pots (1349 coarse fabrics and 1285 fine ware, 46 non-LBK), with a mean of 16.3 vessels per pit. The number of pits per house varied between zero and six, the number of pots per house between zero and 320. Although there is a basic relationship between pits and pots — after all, no pits, no pots: in Bandkeramik excavations nearly all mobile finds are from pits — there is no relationship beyond that qualitative one. At first sight it might be supposed that when the larger houses are accompanied by more pits, they would therefore end up with more ceramics. However, although the number of pits is indeed tied with the size of the houses, the number of pots (equally coupled to house size) shows apparently no relationship to the pattern of the pits. Strikingly, thick-walled sherds were dumped everywhere, in contrast to the fine ware: 160 pits among the 164 associated with houses, and 156 features among 170 elsewhere contained coarse ware pots; the corresponding figures for the fine ware are 140 and 96 pits, respectively. Perhaps this 'preferential' distribution of the decorated pots can be interpreted as a confirmation of the identity aspect of the fine ware as spelled out in the previous section. Yet the ratios of fine ware to coarse pots do not differ very much, either near or away from houses, although their counts differ by a factor of about three in the two contexts. Thus, near the houses averages are 8.6 coarse and 7.5 fine ware pots per feature, away from the houses 3.3 and 2.0, respectively.

With this a beginning of an answer to the question of the number of pots per household in this settlement can be formulated. Roughly, the equivalent of *c*. 60 (complete) houses have been excavated, and the number of pots should be referred to this figure. Thus, 1945 coarse and 1607 fine pots (not counting the non-LBK ones) amount to 32, respectively 27 pots per house — assuming equal distribution over the different types (more on this in the Settlement chapter) — figures which are better manageable than the overall ones. However none of the pots will have been in use as long as the house in which it served would have existed. In this context specialist texts on archaeological pottery generally make a threefold distinction according to function: cooking pots, service vessels and storage containers (*e.g*., Sinopoli 1991, 84). As these three categories go through different *chaînes opératoires*, they tend to have different life expectancies, with considerable variation caused by the general availability of the pottery. Thus when vessels are relatively easy to obtain, such as when there are workshop industries (sometimes household industries too; Van der Leeuw 1984, 748-757), average use life for all three categories tends to be 0.8-1.5 years, whereas with true household production (*i.e*., every household produces its own pots, when need arises) more economical and caring handling results in considerably more durability: for cooking pots 3-5 years, service ware 2 years, and containers 5 or more years (Sinopoli 1991, 88). Notwithstanding rumours of specialist potters — "household industry", in Van der Leeuw's terminology — in LBK society (recently, Jadin *et al*. 2003, 290), household production is the most likely general way of potting there, in my opinion, every woman building and firing pots whenever the number of vessels available to her drops below the threshold of functionality. Thus, to estimate the vessel spectrum per house, a guess as to the different functions will have to be made, the first question for this section.

The fine ware, almost always decorated, is considered service or table ware (although I have not come across a suggestion of the existence of tables in Bandkeramik society). This attribution is quite plausible, for two reasons. Firstly, the fabric is very fine and homogeneous and therefore has little resistance to thermal stress which would cause cracks to start as the vessel is put on a fire for cooking purposes; and the conduction of heat across the wall is relatively slow/inefficient (Sinopoli 1991, 14). This leaves the functions of storage and service. Secondly, the decoration serves as an emblem of the user/owner/house for all to see when the pot

is handled — aimed at the others expressly, as there is never decoration on the inside of the containers. This makes a storage function less likely: pots in a dark corner have little advertising appeal. This leaves the service function for this ware.

The coarse ware comes in many varieties, as described in a previous section. There are varieties of surface finishing, varieties of fabrics. Clay tempered with coarse granules has generally a fair resistance to thermal stress, as developing cracks are stopped by these particles. However, this is only the case when the expansion coefficients of the clay body and the particles are similar; considerable dissimilarity (as with sand or quartz tempers) increases the likelihood of cracking (Sinopoli 1991, 14-15). Smoothed inner surfaces are a slightly less porous and so the liquid contents percolate out at a slower rate than with rough and more porous finishes (also, Franklin 1998, 5). Roughened outer surfaces may be more efficient over a fire than smoothed or burnished surfaces.

Weak though these functional associations may appear (and probably they are no better than tendencies in any real life situation), they may serve to differentiate the coarse ware vessels into cooking and storage functions on an approximate basis. Earlier in this chapter, table 7-1 provided a summary of the tempers encountered in the sherds as visible through a simple magnifying glass, and divided into major and minor components. *E.g.*, on a total of 1921 vessels that have been scored on this property, 13 vessels did not show any tempering of the clay body. Following the reasoning for fine ware, these pots may have served a similar purpose. 609 pots had predominant sandy or quartz tempering, and therefore these were (at least in principle) less likely to have functioned as cooking ware. The remaining 1299 pots may then be considered cooking vessels; especially so as with rare exceptions these pots were tempered with 'pellets' — clay kernels and grog or pounded sherds — which have very similar if not identical properties to the clay matrix in which they are embedded. Being quite hypothetical, or rather very approximate attributions, the functional attributions should not be given too much weight. Yet, as an indication to approximately estimate the number of pots per household it may hold some water.

Thus, and now I am getting very speculative, the vessel counts of table 7-1 added to the 1649 fine ware pots assembled in table 7-5 can be divided into service vessels (1649 fine ware, plus 13 coarse pots), cooking pots (1299) and storage vessels (609). These pots refer to about 60 households (the 69 partially incomplete house plans in the excavation are equivalent to approximately 60 complete house plans), and thus the number of pots per function should be divided by that figure to obtain an average household inventory. Then, multiplying these counts by 2 years for the service, 3 for the cooking, and 5 for the storage vessels, in accordance with the life expectancies in years for the pots as derived from the literature on the subject, the pot-years per average household are obtained. These figures should have some relation to the number of pots available to the inhabitants of the houses summed over the years that the houses stood. If this latter period is set to between 20 and 15 years, then it would result in an average household in the Janskamperveld settlement having about three service vessels, four cooking pots and three storage containers available at any moment.

Though highly speculative, these figures present some food for thought. It is truly remarkable that (contrary to archaeologists' first impressions) so few ceramic pots were in use at any one moment: only three service vessels, four cooking pots and a similar number for storage purposes. Comparing these numbers with those obtained for other places, the Janskamperveld households were considerably less endowed with ceramic ware than elsewhere: in the Dutch village approximately 3600 sherd families/pots have to be shared by 60 full house equivalents; with households lasting about 20 years, the average renewal rate can be computed at three pots per house per year. Reckoning along the same lines, in the Langweiler 9 village about 6.5 pots had to be fired per house per year, and in Bruchenbrücken an estimated 7.8 vessels (Stehli 1977, 122; Kloos 1988, 174-176). No doubt, containers made of perishable material were also in use — the bark bucket and the wooden bowl from the well at Kückhoven are only mentioned as a reminder (Weiner 1993). Similarly skins and/or bladders, and wicker-work baskets will have been used as containerss making up for additionally required functionality, perhaps more in this village than in the other, though these all have disappeared from the archaeological record of course. The problem is that in order to improve on these dismally low figures, a huge loss percentage is to be assumed: putting the minimum set of fine ware at four pieces per household (which seems a bold *under*estimate) half the number of vessels should have disappeared without leaving any archaeological trace — yet, from a simulation study it appears that after a loss of approximately 90% of the initial sherds, an astonishing 88 (± 3%) of the original pots are still represented in the debris (cf. the chapter on this simulation). Therefore, the assumption of substantially more vessels per household does not seem very realistic.

However that may be, conceptionally expanding the Janskamperveld vessel inventories does not alter the numerical relationships suggested above, as the size of the sample we do have in hand is sufficiently large to warrant reliable inferences in this respect. Not everybody will become a good potter, but with some trial and error most people will achieve at least sufficient competence in building and firing pots to replenish the set after breakage.

## 7.8 Some afterthoughts, by way of conclusion

One of the topics that has not been discussed in this chapter is that the sherds of the decorated fine ware may have been used secondarily as lids or covers after the breaking of the pot until they too fell apart, while coarse ware sherds are assumed to have been dumped immediately after the collapse of the pot. Perhaps so, for initially the larger decorated sherds had still recognizable tags, and thus may have retained some value as service ware. Also, Neolithic society may have been less inclined to dispose of things than our culture (but that would also pertain to the undecorated, thick sherds). Yet from the dissimilar distributions of the two wares over the settlement area — decorated sherds relatively concentrated around the houses, coarse sherds evenly spread — dissimilar valuations apparently did prevail.

I also skipped over possible links of pits through sherd joins. The reason is that with this quantity of sherds any attempt at checking for sherd joins is a very time-consuming (and frustrating) business. What has been done in this direction is that for the larger pits (especially the *Längsgruben*) which all have been excavated in sections, the sherds from the different sections have been mutually compared, and allocated to 'sherd families' (*i.e.*, equated with pots) on the basis of their fabric and/or decoration. As to the easier to memorize decoration on the fine ware, I have not come across any possible links between different pits, except for a few Limburg sherds which have been reported in the appropriate section of this chapter. This is not to deny the existence of links (and thus smaller totals of pots), only to signal the problem and minimize its importance.

Several houses have been excavated that could not be associated with sherd-holding features; they have been incorporated into the computations of the averages on the assumption that all Bandkeramik houses were occupied by more or less independent households. Also, being more or less independent, no household can do without cooking, storage and service ware. Hopefully the majority of their broken pottery was also tossed into pits next to the houses which in this case have subsequently disappeared due to post-depositional processes like erosion, levelling and excavation.

When referring to storage containers in this chaper, I would like to point out that the arguments pertain to ceramic vessels only. From a sociological perspective, the underground silos dug by the Bandkeramians in their villages are certainly just as interesting if not more so. Also missing are the containers of perishable material that undoubtedly have played their roles: why should we assume comparability of life expectancies for 'ethnographic' pots and 'archaeological' pots and not accept non-ceramic containers ethnographically current but archeologically invisible. I mention these caveats to put into perspective the weight of the above discussions and inferences: an archaeologically important category like ceramics need not have been equally important from a prehistoric point of view, and the non-ceramic 'ware' may very well have made up fully for the differences noted and elaborated here.

One of the sections of this chapter was about the Neolithic fine ware excavated in the Janskamperveld settlement, 3921 sherds representing 1649 pots. The decorations on these pots were positioned as common in the Flomborn and Middle phases of the Northwestern Bandkeramik ; those few pots that could be reconstructed have been described and illustrated, with a steeply-walled beaker as its most notable item. Regarding the pottery decoration, another section went into the classificatory schemes in use for its analysis: first the Rhineland Model, non-transportable and very unwieldy, and then the Buttler-Modderman scheme, temptingly simple but only regionally applicable, followed by my own classificatory scheme, less simple but generally applicable in all of Bandkeramia. And finally some words on the classification employed by Pavlů on the Bylany pottery, a hybrid of Rhineland and my definitions. The aims of the classifications have been said to differ: Stehli's Rhineland Model, and Buttler-Modderman were either developed as an aid to or exclusively used for (chronological) seriation; the other two schemes were aiming at social structural dimensions, fundamentally noting that change as a measure of time is nothing but social change. Application resulted in the recognition of the effects on the pottery decoration of a matrilineal moiety system: curvilinearity and rectilinearity of the designs serving as badges of the two societal halves.

Several sections dealt with the coarse ware from this excavation: 9595 sherds from 1903 vessels. They were analysed regarding their tempers: less than 2% of these pots had no temper, sand was added to 30% of the bodies, and nearly 80% had pellets or grog in their fabrics; organic tempering of any kind was extremely rare. Of some three-quarters of the pots the surfaces had been smoothed or polished; the remaining pots had sandy or roughened surfaces.

A very different topic was analysed in the discussion on customary terms for Bandkeramik ceramics. On the one hand, decoration is generally taken as defining for a class of their pottery, on the other hand coarseness or thickness of the sherds. Logically the first dimension presupposes also a class of undecorated pots, the second dimension implicitly assumes a fine ware. Crossed, the two dimensions yield four classes: undecorated fine, decorated fine, undecorated coarse, and decorated coarse ware — indeed these were all found in the archaeological record of the Janskamperveld (and presumably elsewhere, too, although they have not been discussed, to my knowledge). Together, members of the deviant or undiscussed classes (undecorated fine, decorated coarse) constitute only a meagre 2% of the ceramic total.

Their patterns of distribution conform to those of the fine/coarse distinction. Another under-theorized class of pottery is generally referred to as Limburg Group ware although certainly in the present context 'non-local' would be a better label. It is common to all larger Bandkeramik sites in limited quantities. It was shown in discussion and illustration that (at least here on the Janskamperveld) along with the regular, clearly non-Bandkeramik Limburg ware (distinct in fabric, firing, form and decoration), are also found pots with LBK-fabric and Limburg-like decoration and *vice versa*, as well as undecorated pots with fabrics analogue to Limburg ware. The occurrence of the non-Limburg yet non-Bandkeramik potsherds was tentatively linked to marrying-in and acculturating Limburg (and other non-local or aboriginal) women.

The final section considered the distribution of pottery over the households; by converting average pot counts per house to pot years and then to the number of pots available, it was found that households possessed relatively few ceramic containers at any one time, with a mean of ten vessels per house — three for service, four for cooking, and three for storage.

## Notes

1 These figures represent the 95-percentile values: outliers have not been included.

2 As observed by L. Jacobs, potter at the Department of Pottery Technology at Leiden University, in a report on a controlling experiment. His findings have been incorporated in the present paragraph.

3 There are N = 334 relevant features in the excavation; and 67 plain fine ware pots, and 25 decorated coarse ware pots. Co-occurrence of the two types of pots is to be expected in [p(F).p(C)].N = [(67/334).(25/334)].334 = 5.0 features.

4 I gratefully acknowledge the ample discussions on the present topic with Luc Amkreutz, Fred Brounen, Leendert Louwe Kooijmans and Leo Verhart; they may not agree with every statement but then the text is mine. Substantially similar is Van de Velde 2007, set into the context of a symposium on all kinds of Early Neolithic pottery in the wider region.

5 This will *not* be due to the soil characteristics in this area: although all untreated animal and human bones have dissolved completely, burnt bones have survived comparatively well, as instanced by the 40+ cremations from the Elsloo cemetery.

6 "We have deliberately grouped these vessels with the Bandkeramik pottery because of their shapes" (Constantin 1985: 108, *à propos* undecorated ware tempered with calcinated bone.)

7 True music notes are found on Bandkeramik pottery from Poland; an occasional pot with such decoration has made it to the Northwestern Bandkeramik area, but the dates are always fairly late in the sequence, surely later than the abandonment of the Janskamperveld village.

8 Recently, analyses by means of secondary motifs (*Zwickelmotive*) of pottery decoration —defined according to the Rhineland fashion— have been aimed at social relationships within and between settlements; with partial success: Krahn 2003, Claßen 2006: 352-359, etc.

9 To avoid incest, they *had to* marry into the other moiety —just like we do not marry into our family of birth.

10 Perhaps yet stronger evidence is that as soon as the prehistoric potters started to use other motifs than precisely these two, we talk about Hinkelstein, Grossgartach, Rössen, VSG etc. cultures, noting that in these successors many things (not only pot decoration) had changed considerably with respect to the Bandkeramik.

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| feature no | temper | shape | firing | decoration | House | H Gen'n | fig. 7-no | parallels |
|---|---|---|---|---|---|---|---|---|
| 10032 | 2 | 3 | 5 | none | 36 | 3? | – | |
| 10038 | 2 | 4 | 1 | none | 58? | 2 | – | |
| 10038 | 2 | 4 | 4 | none | 58? | | – | |
| 10040 | 3 | x | 5 | none | 58? | | | |
| 10040 | 2 | x | 4 | none | 58? | 4 | – | |
| 11025 | 3 | 1 | 6 | none | – | II | – | |
| 12001 | 5 | 1 | 4 | none | – | 1? | – | |
| 19043 | 3 | x | 4 | none | 68? | 1? | | |
| 19087 | 1 | 1 | 4 | stab-and-drag, fringe | 57 | | 10-b | A-fig.7-3<br>B-fig. 9-10<br>E-Abb. 9-7 |
| 19087 | 5 | x | 5 | ladder | 57 | | 14-e- | A-fig.10-2 |
| 19087 | 5 | x | 5 | oblique hatches | 57 | | – | A-fig. 15-1; D |
| 19087 | 5 | x | 1 | curvilin. incision | 57 | | – | |
| 19087 | 3 | 4 | 5 | none | 57 | | – | |
| 19087 | x | 4 | 4 | none | 57 | 1 | | |
| 19087 | 5 | x | 5 | none | 57 | | | |
| 19087 | 5 | x | 5 | none | 57 | | | |
| 19087 | 5 | x | 4 | none | 57 | | – | |
| 19087 | 5 | x | 4 | none | 57 | | – | |
| 19087 | 5 | x | 4 | none | 57 | | – | |
| 19088 | 5 | x | 4 | none | 57 | 1 | – | |
| 19088 | 5 | 4 | 4 | none | 57 | | – | |
| 19088 | 3 | x | 4 | none | 57 | | – | |
| 22019 | 4 | x | 4 | fishbone | 37 | 1 | 10-h | A-fig. 12-10 |
| 26090 | 1 | 1 | 4 | stab-and-drag, fringe | 57 | 3 | 14-f | A-fig. 7-3<br>B-fig. 9-10 |
| 26090 | 3 | 1 | 5 | stab-and-drag, fringe | 57 | | 10-b | A-fig. 7-3<br>B-fig. 9-2 |
| 26090 | 0 | x | 2 | triangle, pointlets | 57 | | 11-c,<br>12-a | A-fig. 17-1(?) |
| 31075 | 4 | x | 4 | double ladder; incrustrated | 13 | | 13-c | ? |
| 31075 | 5 | x | 4 | stab-and-drag, fringe | 13 | | 10-f | A-fig. 7-3<br>B-fig. 9-10 |
| 31075 | 0 | 1 | 4 | fishbone | 13 | 4 | 10-e | A-fig. 12-1<br>B-fig. 9-5 |
| 31075 | 0 | 4 | 4 | triangles, pointlets | 13 | | 12-d | A-fig. 15-4, 5 |
| 32100 | 5 | 2 | 4 | 2 deep incisions parallel to ridge | 35? | II? | – | |
| 32144 | 3 | 1 | 1 | triangle, pointlets | – | II | 11-e | A-fig. 17-1 |
| 33000 | 3 | x | 4 | triangle, pointlets | – | II? | 11-b | A-fig. 15-4, 5 |
| 33025 | 4 | 1 | 4 | curvilin.wave | – | 1? | 10-g | |
| 44012 | 5 | 1 | 2 | traingle, fringe; pointlets parallel to rim | 14 | | – | |
| 44012 | 4 | x | 6 | triangles; oblique hatched strip | 14 | 4 | 12-b | |
| 44012 | 5 | 2 | 6 | none | 14 | | – | |
| 44028 | x | x | 4 | oblique hatched strip (2-t. spatula?) | – | 1? | 13-b | A-fig. 10-2 |
| 46004 | 5 | 4 | 1 | oblique ladder; row pointlets | – | 1? | 13-a | |
| 49015 | 5 | x | 1 | small triangles | 23 | 4 | – | |

| feature no | temper | shape | firing | decoration | House | H Gen'n | fig. 7-no | parallels |
|---|---|---|---|---|---|---|---|---|
| 49015 | 5 | 4 | 1 | triangle, pointlets | 23 | | – | A-fig. 17-1 |
| 49016 | 1 | x | 1 | parallel incisions | 23 | 3? | – | |
| 49050 | 5 | 2 | 4 | curved fishbone | – | 1? | – | A-fig. 14-3 |
| 49080 | 5 | x | 2 | triangle, pointlets | – | 3? | – | A-fig. 17-1 |
| 49104 | 4 | x | 5 | fishbone-like | – | 1? | – | A-fig. 12-10, 13-1 |
| 49105 | 1 | x | 4 | parallel lines? | – | 1? | – | |
| 54028 | 5 | x | 1 | dragon's teeth | 19 | 3 | 11-a | |
| 54028 | 5 | x | 1 | dragon's teeth | 19 | | 11-a | |
| 54029 | 5 | x | 1 | dragon's teeth | 19 | 1? | 11-f | |
| 57020 | 0 | 1 | 4 | stab-and-drag, fringe | 41 | 4 | 14-a | A-fig. 7-3<br>B-fig. 9-10 |
| 91002 | 0 | x | 5 | cross-hatched strip, fringe | 02 | 3 | 14-g | A-fig. 10-1 |
| 91124 | 2 | x | 6 | pseudo-fishbone | 03 | 1 | 14-b/d | |
| 91124 | 2 | x | 6 | fishbone | 03 | | – | B-fig. 9-5 |
| 91124 | 0 | 4 | 1 | double triangles | 03 | | 12-c | A-fig. 15-4, 5 |
| 92001 | 4 | 4 | 1 | triangle, pointlets | 04 | 3 | 11-d | A-fig. 17-1<br>C-t. 33-101 |
| 94052 | 3 | 1 | 6 | 2 rows pointlets | – | 2 | 10-a | |
| 95050 | 0 | x | 6 | parallel lines, fringe | 05 | 1? | – | B-fig. 8-4, 10-1 |

table 7-9 overview of the Limburg and non-LBK pottery
legend:
*find no*: find number in excavation
*composition*: temper in clay body (0: none apparent; 1: organic; 2: bone fragments; 3: clay pellets; 4: crushed pottery; 5: sand/silt; x: not determined)
shape: shape of pot (1: thickened rims; 2: ridge; 3: applied band; 4: straight rims; x: not visible)
*firing*: as per sherd fracture (1: light heart; 2: id. & fair skins; 3: id. & grey surfaces; 4: dark heart; 5: id. & fair skin; 6: id. & dark surfaces; x: indeterminate)
*H Gen'n*: House Generation
*parallels*: A: vanBerg 1990; B: Cahen *et al*. 1981; C: Constantin 1985; D: Jeunesse 1994; E: Lüning & Kloos 1989