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15 The Bandkeramik settlement

Pieter van de Velde

*The Janskamperveld LBK excavation has uncovered 2.7 of the 4.5 ha of the LBK village. Although considerable quantitative differences exist between the pottery inventories of the houses, on this score no evidence could be found of substantial prehistoric differences beyond household size; differential erosion being just as likely. The village is divided into two wards by a central space; the NE ward has been excavated in its entirety, the SW ward not so. The NE ward was made up of either a type 1a or 1b house, with another 6 houses of the lesser types in every House Generation; the SW ward probably held two such groups or "lineages" (*houses*, in recent anthropology). Thus, the village consisted of about 20-25 houses at any moment during its occupation. The type 1a houses were found to switch from generation to generation between the two wards; an explanation is sought in virilocal residence rules crossed with matrilinear heritage of titles (of which major aspects of the pottery decoration are evidence). Comparison of the earliest pottery from several sites reveals that Elsloo, Geleen-De Kluis and JKV have been founded at about the same date in history, together with, e.g., the first House Generation at Langweiler-8 on the Aldenhovener Platte. The chapter ends with a critique of Modderman's subdivision of the LBK period in the Netherlands.*

15.1 Introduction: from archaeological site to neolithic village

This section repeats some general statistics from earlier chapters on the excavations on the Janskamperveld in 1990 and 1991 as a step towards a social and historical reconstruction of the village in later sections.

Approximately 61% of the surface area of the Janskamperveld LBK settlement (2.7 ha out of 4.5 ha) has been investigated. The southwestern rim has been excavated only partially. And right in the centre of the present excavated area, clay pits and a hollow road both of medieval provenance have disturbed the neolithic archaeological record.

From the number of 69 houses that appeared partially or wholly in the excavation trenches, the total in the settlement can be provisionally estimated as 98 houses. This estimate is probably off the mark as it is foremost dependent upon the assumption that the unexcavated part of the settlement has similar characteristics as the uncovered area. For instance, apart from the post holes that can be associated with and thus define recognized houses, there are many other post holes on the plans. When in lines and at regular distances they have been interpreted as 'fences'. Even so, about 375 post holes in the excavation plans are unaccounted for – based on their soil colour they should pertain to the Bandkeramik, their function(s) is (are) unclear, but some might as well derive from unrecognized houses. If so, the settlement would have been larger, of course.

The (numbers of the different) house types – which will play a role further on in this chapter – are based on the different constituent parts which are more or less standard constructions as far as seen in the excavated remains (Modderman 1970, 100-120; Von Brandt 1988, 40-41; Coudart 1998, 27). Because of this early standardization, determination of the number of partitions in the houses is relatively easy (the first criterium of the typology). This is less easy for the wall types (the second root), as these have been dug less deep, and are therefore more liable to vanish and with it the specification of the house types. Counting only those houses that can be relatively securely recognized (with overall *w*-index values of 3 or 4, to a count of 38), the number of three-part houses is larger than that of single- and two-part houses combined (as has been observed long ago for settlements from the older phases of the LBK: Modderman 1970, 112): there are 23 houses of type 1 (the three-part houses), against eight of type 2 (or two-part buildings) and seven of type 3 (the single-part constructions). However, turning to the lower index values ($w \leq 2$), the distribution of the figures is radically different, with a marked preponderance for the smaller types instead. Whether this difference is real or apparent only has been a point of extended discussion in the chapter on the houses. The unexcavated 29 houses from the previous paragraph (98 – 69 = 29) would probably be inversely distributed over the types, but even so, the tripartite buildings would still account for half the number of houses. A similar outcome is obtained in one of the sections below, but then based upon the distribution over the settlement of each of the various types and their combinations.

15.2 The settlement over time: house generations and house groups

In 2003, the excavators Louwe Kooijmans and Kamermans, and the present author published a text on the Janskamperveld excavation with a first analysis of the LBK village (Louwe Kooijmans *et al*. 2003). Unavoidably major differences have come up between then and now, for two obvious reasons: (1) the further elaboration of the old Modderman scheme of 1a, 1b, 2, and 3-types of houses toward a classification based on the number of partitions crossed with the nature of the walls, in {1,2,3} × {a,b,c} types; and (2) revision and re-interpretation of the excavation plan and section drawings. Differences are summarized in table 15-1. Re-classification is quite apparent from that table, and a relatively important number of houses has been up- or downgraded with 21 promotions and 4 demotions. More precisely, five *Kleinbauten* (type 3 houses) were promoted to the *Bauten* class (type 2; HH 29, 42, 45, 55, 56) and ten to *Großbauten* (types 1b, 1c, 1x; HH 14, 15, 19, 21, 25, 33, 37, 44, 46, 52); also five *Bauten* were reclassified as *Großbauten* (HH 02, 06, 22, 23, 58); even one *Großbau 1b* was now entered as a type 1a house (H 39), although doubts linger. Downgraded were one *Großbau* to type 2b (H 30) and three *Bauten* to type 3 (HH 26, 38, 48). The present classification (summarized in fig. 15-1) results in a more gradual or less discontinuous distribution of the sizes of the houses as demonstrated by fig. 4-4 (in the chapter on houses), with type 1c being quantitatively most prominent, and type 1a least so.

There are no important differences between the identifications of the central post configurations of the houses in the two texts concerned (fig. 15-2). Hence the diachronological implications of the evolution of this construction remain as they were. We posited a duration of the settlement of four or five house generations of approximately 25 years each, and this was then translated to the Dutch phases LBK-1b, -1c, and the beginning of -1d on the basis of Modderman's equations of type of configuration with chronological phase – cf. the section on periodization below, now scaled down to four house generations, covering at best one hundred years, three generations in LBK-1b and the fourth in LBK-1c. There is also a later, less intensive LBK occupation of the same site to be dated to LBK-2c and -2d; this second period was neglected in the 2003 text.

Before I turn to the development of the settlement over time, a methodological point should be discussed bearing on the assignment of especially the houses to a chronological phase (the same implications can be attached to any other type of find complex). For even working with decorated ceramics alone, different (putatively diachrononical) sequences are found, depending on the units employed in the computations. Although in itself this does not lead to questioning the basic method, it does pose the problem of choosing the 'right' series (cf. Claßen 2006, 151-154). In the chapter on Chronology, I used a sequence based on the weighted average of the phase attributions of the different finds (as described in the chapter on Pottery) associated with each house. In the Chronology chapter I compared the central post configurations of the houses with the same figures (esp. tables 4 and 5 of that Chapter); for the present Chapter the associated finds in one series have all been summed, and in another series the earliest of the different finds along each house have been used – all series with different (though not contradictory) outcomes. It has been known for some time now that the pottery contents of pits from which fitting sherds were excavated may differ by as much as two or more house generations (e.g., Kloos 1997, 166-167). The data sets are representative of probably different situations, and a choice between these sequences should be based upon the research context. The average of the individual finds is thought to be related to the terminal use of the pots in or near the house and so with habitation; the finds summed over each house have a similar interpretation, though the larger quantities per unit should offer more reliable results than the former approach; and the (smaller number of) earliest finds in each house may be relatively near the first use of

type	*2003*	*2007*	*late*
1a	*4*	*5*	*.*
1b, 1c, 1x	*12*	*26*	*4*
2b, 2c, 2x	*13*	*11*	*7*
3c, 3x	*26*	*14*	*1*
exceptional	*2*	*1*	*.*
sum	*57*	*57*	*12*

table 15-1 different attributions of houses to types in 2003 and present texts
'late': houses not entered in 2003 analyses

	1	*2*	*3*	*4*
1	–			
2	*0,58*	–		
3	*0,51*	*0,58*	–	
4	*0,78*	*0,93*	*0,61*	–

table 15-2 correlations between chronology of the houses computed from
1: central post configuration
2: weighted average of separate finds associated with each house
3: all associated finds summed
4: for each house the earliest of the associated finds

fig. 15-1 all houses per type

the house, its founding date. As a check the evolution of the central post configuration was used, which is very much tied to the foundation date of the house. However, different central post configurations occurred together at any one moment, as did different combinations of ceramic decoration attributes, each combination yielding a different and not necessarily adjacent position on the time scale. Table 15-2 lists the correlations between the different series. Clearly, the earliest finds align considerably better with the central post configurations than the other variables. My present objective being to define House Generations, the oldest associated find is indeed the best approximation and below I shall therefore use that sequence. From this table also a justification can perhaps be read for the common practice to first group finds from features around a house on the basis of their correlation and then join them (e.g., Claßen 2005, 114; Lüning 2005, 55). However, a computation of the relative position of a house *vis à vis* the other houses in a settlement should not be done without a consideration of the problem laid out here. As Stehli noted:

Also the association of pits with houses should be checked with a new, [settlement-] internal chronology, as the presently available one is unsatisfactory because of the wide scatter of the datable pits of a house. Stehli 1994, 127 (my transl.)

The ceramic phases derived in the chapter on chronology cannot be translated directly into calendar years or house generations as no *a priori* conversion parameters exist. For example, ceramic phase 3, with only four houses attributed to it, seems too narrowly defined when the total number of houses on the site is considered and a steady building programme assumed, while ceramic phase 1 with seven houses in the excavation seems better in line with expectations. In other words, the ceramic phases are only obliquely relevant to the establishment of house generations. A rather more direct attempt departs from the probability that only one type 1a house was standing in the settlement at any one moment (Van de Velde 1979, 141, 152; Van de Velde 1990; Modderman 1985, 82). If so, their ceramic dates (if available) should provide a series ranking them relatively between early and late. There are five such constructions[1] (HH 07, 24, 35, 36, and 39). H 39 is ceramically assigned to phase 6, i.e., the second occupation (moreover, its 1a status is doubtful), H 36 poses a problem as its factor score on which the sequence depends is just on the limit between phases five and six so it is either the latest of the first habitation, or the earliest in the re-occupation of the site; post-depositional factors have erased its central post configuration, hence no clue. This leaves three or four such houses of this type for the first settlement on the Janskamperveld, presumably to be equated with three or four house generations[2].

Another approach to an estimate of the number of house generations starts from the assumption that the people who have built and inhabited the houses had a more or less constant group structure (recently, Louwe Kooijmans *et al*. 2003, 380). In other words., every generation inhabited about the same number of houses and set of house types. The counts of each of the various house types should then show a least common denominator equal to the number of house generations. The counts of houses per type (plus those 24 that could not be classified re-distributed over the various categories) in the excavation[3] are presented in table 15-3 – all restricted to the first inhabitation period, equivalent to ceramic phases 1 to 5.

However, if this Least Common Denominator principle is to be applied, the distribution of the numbers of the various types for the entire village should be taken into account, not just those in the excavation. One observation running against an easy extrapolation from excavation to village is the differential distribution of the various house types over the excavated area. As has been described elsewhere, the NW, NE and SE limits of the excavation almost or fully coincide with the limits of the settlement, whereas towards the SW a not-negligible slice of the site has not been investigated, although 'prehistoric traces' have been reported there by constructors. Importantly, the 1a and 1b types seem to cluster in the south-western half of the excavation; 1c type houses are rather evenly spread over the excavation; type 2 and even more so type 3 houses occur predominantly in eccentric positions (fig. 15-1). Assuming a more or less symmetrical layout of the village, this would suggest that the majority of the houses of 1a and 1b types have been uncovered by the excavation; that the number of type 1c houses should have been somewhat larger than within the excavated area; and that types 2 and 3 houses should have been present in quite larger numbers than a simple blow-up would suggest. With these considerations in mind the column 'village' in the table has been drawn up.

While in that table in the 'count' column the common denominator appears to be three, the 'corrected' column wavers between three and four, and the 'village' column

type	*count*	*corrected*	*village*
1a	*3 or 4*	*3 or 4*	*4*
1b	*6*	*7*	*8*
1c,1	*14*	*23*	*24-30*
2b,2c,2	*8*	*15*	*18-24*
3c,3	*5*	*13*	*15-24*
sum	*36-37*	*61-62*	*69-90*

table 15-3 counts of the houses per type for the first habitation period
'count': houses that could be recognised as to their type
'corrected': unrecognisable houses added
'village': estimate for the entire village area of 4.5 ha (see text)

even tends to four as common factor. It is provisionally deduced that either of the two should equate with the number of house generations in the first habitation period, if the assumption of a constant format of the settlement over a restricted period of time is about correct; the number of 1a-houses points in the same direction.

An additional problem of the estimate of the number of house generations may lie in a possibly different use-life of the several house types: it has been suggested that the *Großbauten* stood for about 30-40 years, and the *Kleinbauten* for perhaps 20-30 years (Louwe Kooijmans *et al*. 2003, 381). The argument is strictly a functionalist one as it is ultimately based on the possibly different liability to dilapidation of the house constructions. Taking the depths of the post holes as an index of construction solidity, these have been computed as 11 dms on average for type 1a houses, ca. 8.5 dms for other *Großbauten* and type 2 houses, and 7.5 dms for type 3 *Kleinbauten* (reduced to approximate neolithic floor level) which in this respect render differences between *Großbauten* and *Kleinbauten* less impressive. Moreover, given the experiences with the reconstructed LBK houses in open air museums (a.o., Cuiry-les-Chaudardes, Asparn an der Zaya), insect attack and rotting of the posts are much less than abandonment of the structure might justify (Bakels 1978, 86, Coudart 1998, Ch. 3). In other words, if the concept House Generation has any ground, it is a *social* not a *functional* one causing new constructions to be erected every 20 to 25 years[4] (also, Lüning 2005, 70). Of course, this is not the definitive answer to the question of the *use* life of the different house types, although the set of undatable type 2 and 3 houses rebuilt in virtually the same spot (e.g., HH 26, 27, 28) is not incongruent with a four generations scenario including elimination of the houses, while much else points to a similar conclusion.

If the estimate of the number of house generations is set at four[5], the next problem is which houses belonged to which generation. Only a meagre 34 houses have been *ceramically* dated to the first habitation, plus five to the second (early finds series); 30 houses are without sufficient decorated pottery to allow a reasonable relative chronological ranking. Fortunately, among the non-pottery houses, several provide an additional index for chronology through their central post configuration. As table 15-4 shows, among the houses with decorated ceramics most houses with a Y-centre belong to the first ceramic phases (and I now tend to incorporate the iY- and iYi-houses with the Y-central constructions); those with degenerate post configurations (i.e., dY, Yi, and J) occur from the second ceramic phase through to the fifth; and the houses with regular central DPRs appear for the first time in ceramic phase 3, and continue to the end of the occupation.

An initial four-generation division of the houses of the first habitation can be made by keeping the first and second ceramic phases as first and second generations, merging the third and fourth phases to a new third generation, and relabel the fifth phase as fourth generation; the second period of habitation equals the original sixth ceramic phase. This way the number of datable houses per phase / generation runs a normal course, counting 7, 11, 10, and 7 respectively in the first habitation period, and 5 houses in the second. To these sets several of the non-dated houses can be added as in the previous paragraph: both Y-type centrally configured houses (HH 22, 38) can be assigned to the first generation of the first habitation (fig. 15-2), as they do not turn up in the other phases. The central configuration of the undated iY house (H 35) is restricted to the first habitation; it has been entered on the plan of the settlement's first phase or generation (fig. 15-2). Based on table 15-3, five houses with so-called degenerated Y central configurations (HH 28, 31, 48, 53, 54) should not occur in either the first phase of the first habitation, or in the second habitation; accordingly, they have been entered as grey images on the plans for the second, third, and fourth generations of the settlement (respectively figs. 15-3, -4, -5). R-type central configurations have as yet not been observed in the first two generations; those four that are without phase indicator (HH 15, 26, 27, 40) have been drawn in on the other plans with a grey signature: they either pertain to the second habitation (fig. 15-6), or to the later generations of the first period of the settlement. The remaining 17 houses with no clues as to date or type, clog up the plans of every generation; like jokers, they can be thrown in in every interpretation of any site plan. The plans of the various phases have been re-oriented to the average direction of the houses, with their fronts towards the lower edge as well as toward the Geleenbeek; this is probably the way the inhabitants experienced their hamlet.

Continuing with the reconstruction of the format of the early settlement, the 2003 text proposed two different interpretations: one had 4 *clusters* (consisting of types 1 and 2 houses), plus two special areas (comprising the type 3 structures); the other postulated two wards (each grouping all types). In both views a central open space was included

phase	**Y**	**iY, iYi**	**dY, Yi, J**	**R**	x	*row sums*
1	5	.	.	.	2	*7*
2	3	1	2	1	4	*11*
3	.	1	2	1	.	*4*
4	.	.	.	3	3	*6*
5	.	1	1	2	2	*6*
6	.	.	.	4	1	*5*
x	2	1	5	5	17	*30*
totals:	*10*	*4*	*10*	*16*	*29*	*69*

table 15-4 central configuration types *vs* ceramic phases

fig. 15-2 the houses of the first habitation, first phase/house generation

fig. 15-3 the houses of the first habitation, second phase/house generation

fig. 15-4 the houses of the first habitation, third phase/house generation

fig. 15-5 the houses of the first habitation, fourth and last phase/house generation

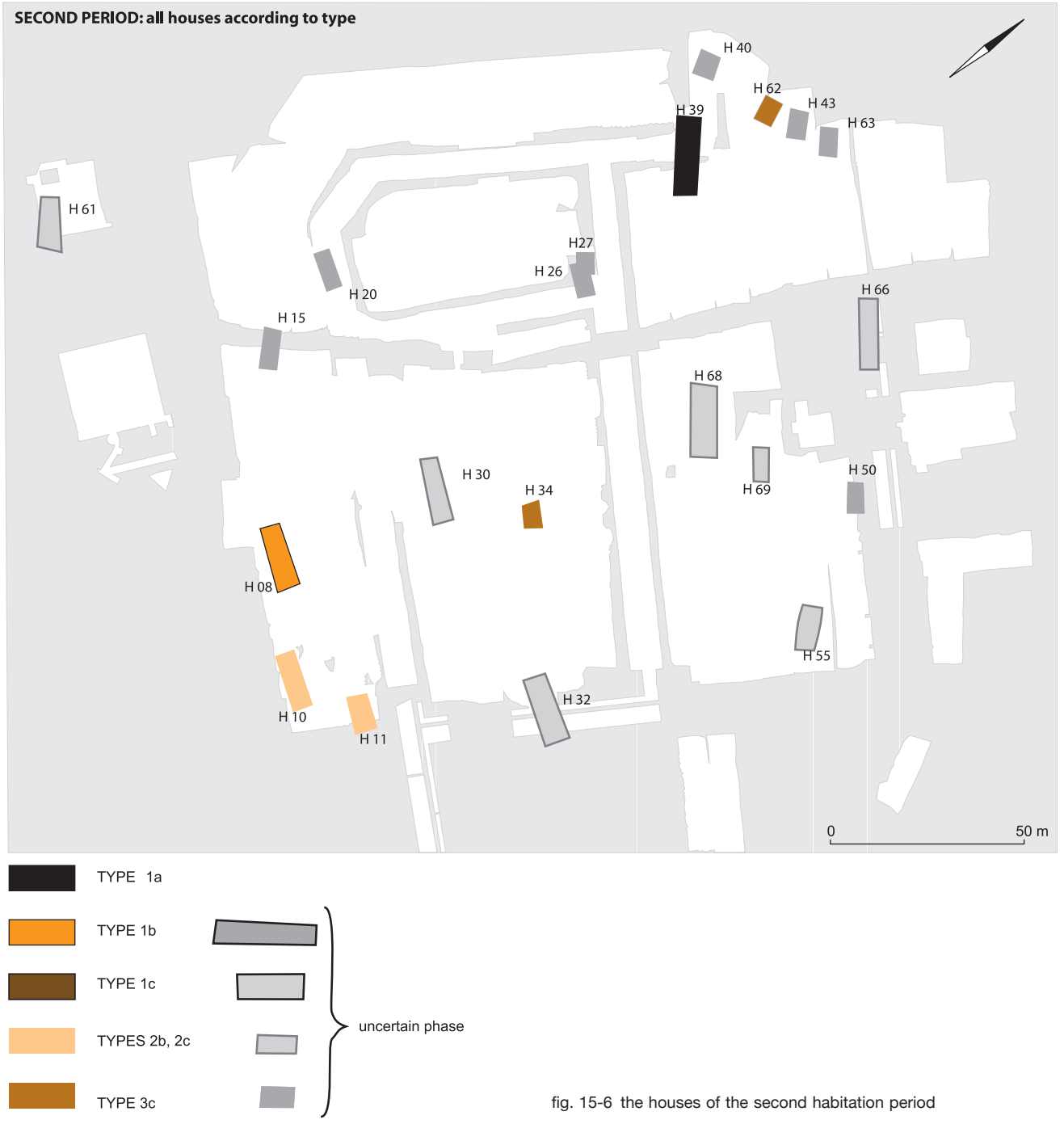

fig. 15-6 the houses of the second habitation period

(Louwe Kooijmans *et al*. 2003). The central, though in the excavation off-centre, open space and the consequent division of the settlement site into two sub-areas or wards still seems reasonable. However, one may wonder whether this separation is to the North or to the South, to the right or to the left of H 37/38 in phase 1; the subsequent phase discloses a layout which answers the question with 'left'. But in that same second phase the same question arises as regards H 24, and again the answer is provided by the third phase: 'left', simultaneously repeating the question, now with reference to H 25, and again the next phase shows the answer to be 'to the left'. If the succeeding phase/generation had not been there in each case, the situation would have been ambiguous, which it is not now. At the same time, the constant and rather stable separation argues for an intended prehistoric division of the hamlet; the two neighbourhoods have been labelled 'wards' in the 2003 text, and I shall stay with that word below.

Turning to the format of the wards, the right hand one (in the NE) should be nearly complete on the plans: the limits of the excavation coincide approximately with the bounds of the settlement debris in this area. Averaging the house counts per type, it is partly possible to bypass the problem posed by the undated houses: on the assumption of 4 house generations, the NE ward consisted of a 1a or a 1b house, two houses of each of the types 1c, 2 and 3. When comparing these figures with the plans, a number of differences appear, an important one being the absence of either a 1a- or a 1b-type house in the first generation. On the other hand, the 1b-type H 53 with no date attached, right in the densest part of this ward, would fit nicely in the third generation. The other undated houses, however, are not so easily assigned to a phase: there are simply too many of them.

In the southwestern ward, the situation is even less clear-cut because of the unexcavated area of the settlement to the SW. Yet, a count of the houses per type results in two houses of type 1a, six of type 1b, fourteen of type 1c (assuming that two *undated* 1c-type houses belong to the first habitation period, because none of the *dated* houses of that type occurred in the second period of the settlement), only five of type 2 and two houses of type 3. Both largest house types (1a and 1b) summed yields eight, or twice the number of generations which is the basis of the present discussion. Similarly, the fourteen houses of type 1c also point to a much larger ward than that across the empty space to the NE – if two such houses could be found outside the excavation, this figure would also double the number postulated for the NE ward. Obviously, even more type 2 and type 3 houses will have to be supposed there to bring their numbers to double of those in the NE ward; which, although speculative, is not really unlikely. Very cautiously, I tend to see the SW ward as composed of two house groups each of a similar format as the northeastern ward. That is, the NE ward consisted of one house group, the SW ward of two such groups.

Returning attention to the SW ward, the succession of the houses on the plans is not as smooth as it 'should' be. The major inconsistency is posed by the six houses of type 1c in the third generation (fig. 15-4); they all have been directly and securely 'dated' by associated decorated pottery so there is no responsible way to dispose of at least one, if not two of these houses. One possible exception: H 06 is set in ceramic phase 4 (i.e., the third generation) through its *likely* association with find no. 93008 (which has a *w*-index score of 4, indicative of sufficient data); *likely*, because this pit may also wholly or partially belong to H 07, although this latter association is *unlikely* given the very pronounced Y central post configuration of that house. The *Längsgrube* to the right of H 06 no. 28101 held very few pottery, and was dated to the fifth ceramic phase (fourth house generation) with a *w*-index of only 1. Add to this that the oldest associated find is thought to be closest to the founding date of the house and it is clear that H 06 is set in the proper time slice. A second problem lies in the small distance of hardly more than four metres between houses 07 and 03 (types 1a and 1b, respectively) with the rear gable of H 07 right in front of the façade of H 03, a rather improbable configuration. However, H 03 seems quite firmly dated to the first ceramic phase by its right-hand side pit 91124 (with the largest set of finds in the excavation); H 07 comes with four very small finds, all with a *w*-index of 0, all from possibly (rather: 'guessed') the first phase; moreover, both houses feature very similar central post configurations (pure Y's) from which no differentiating argument can be drawn therefore. Because of their joint configuration, the 1b-type H 03 is likely to have been earlier, and abandoned when the 1a-type H 07 was built.

With this, the size of the settlement in the first habitation period can be calculated as some 20 to 25 houses per house generation, made up of one house of type 1a, two of type 1b, six of type 1c, about six of type 2, and also six of type 3; which roughly translates to seventy five inhabitants (if buildings of type 3 served other purposes than habitation quarters). Of course, the first house generation was smaller than subsequent generations, as reasoned above; consequently the other generations will have been a little larger than this figure.

I would have much preferred to present a neater picture of successive house generations, if possible something like that available for the Aldenhovener Platte settlements. Yet figs 15-3 to -6 do show a weak coherence only. More than a division into two parts does not emerge, not even individual yards can be teased out. In some plans several houses do seem to cluster, with the other houses dispersed around them, but neither in the previous nor in the following house generation is that format predicted or retained. Even the two house groups in the southwesterly ward cannot be

circumscribed but for their central, i.e., largest, house. Apparently the Janskamperveld LBK-village consisted of three *bunches* of houses in two wards, the groups not lined up internally but rather strewn haphazardly (*"habitat en grappe"*, instead of *"aire d'habitat"* or *"Hofplätze"*, Hauzeur 2006, 161). As a comparison, the considerably smaller Langweiler 8 settlement had its eight neat yards grouped into two wards as well (Schwerdtner 2007).

The second LBK occupation of the site (ceramic phase 6; LBK-2c in general terms) can be estimated to around 10 houses: five (out of 39, or one eighth) have been positively dated to that phase. In addition, 16 houses with regular DPRs (among 40 with identifiable central structure) will not all belong to this re-settlement. Indeed, seven have earlier ceramic associations, as against four with the final phase which suggests that 6-7 houses with a still identifiable R central configuration plus a few from the unidentified buildings belong to this second occupation. However, the major part of the settlement in that period should be sought nearby, namely to the southeast in the Haesselderveld site; unexcavated, built over, and presently lost to all archaeological purposes. It is remarkable that notwithstanding the in all likelihood marginal position of these late houses as regards the Haesselderveld village, a type 1a house (H39) has been excavated and dated to this phase by the associated finds (fig. 15-6). However, this house is also interpreted as of type 1b, as the trench on its front side is possibly later, and therefore does not belong to the building.

15.3 *À propos* the pottery, the Bandkeramik households

The chapter on the pottery from this settlement should have made clear that there are considerable differences between the finds, essentially quantitative. Differences in details over time (listed in the chapter on chronology) resulted in a relative chronology of six ceramic phases, the last of which was disjunctive from the earlier five by an interval of probably one hundred-plus years. Much less has been written about the spatial relations between the finds, the subject of the present section. To this end the first thing is to group the finds according to their association with the houses of the settlement: it is assumed that the contents of the pits near the houses in one way or another reflect practices in the houses when inhabited. To recall, 335 pits or features had remnants of 3607 pots; of these, 185 features with remains of 2910 vessels may possibly be associated with 58 houses, and 161 pits with sherds of 2278 pots are reasonably securely associated with 56 houses – that is, 13 houses are possibly without pottery, and 11 definitely do. Differences in the LBK evaluation of the pottery can be inferred from the distribution of the two major classes of pottery – table 15-5 summarizes the pertinent data. There, features (finds) associated with houses are separated off from the features that are located elsewhere, away from the houses; the two groups are almost equal in size (column 'sum'). Features with course ware are proportionally represented along the houses and elsewhere; but fine ware is found far more often than commensurate along the houses than away from them. Apparently, the latter was deployed preferentially in or near the houses, a corroboration of its function as an identity index (as described in relation to the spatial distribution of characteristics of the structure of the pottery decoration in the chapter on pottery).

		pits with		
		course ware	*fine ware*	*sum*
pits	*assoc.*	*160*	*140*	*164*
	not assoc.	*156*	*96*	*170*
sum		*316*	*236*	

table 15-5 the association of pits with fine and/or coarse ware with houses

A search for more detailed patterns shows that decorated ware is vastly under-represented near the smaller houses (types 2 and 3) than with the *Großbauten*: only eight houses of type 3 (among 15) have decorated pottery; similarly, eleven type 2 houses (numbering 18 in the excavation) are accompanied by this pottery variety. As regards undecorated or coarse ware, the contrast is less dramatic, as respectively ten and thirteen houses of said types go with pottery. Almost all bigger houses feature both types of pottery, in an invitation to suspect early social inequalities. Table 15-6 presents some more details on this matter.

Although this pattern is sufficiently clear, it must be asked whether the differences are indicators of past LBK situations or merely the result of differential preservation due to erosion and other post-depositional factors – after all, the majority of the houses with no or little pottery only occur in the northeastern part of the site where most erosion has taken place[6]. The question can only be answered through an internal check: comparison with other, even similar, settlements is methodologically unwarranted as the post-depositional factors for the different sites cannot be detailed, let alone quantified. Therefore, I divided the finds associated with the houses (henceforth 'houses' for short) in three sets: seven houses with more than 100 pots each, 29 with between 10 and 100 pots, and 23 with less than ten pots per house. While all counts are subject to accidental variations these will have relatively more effect on small numbers, and so the small number group will be left out. The rich set should provide a standard against which the modal group can be checked, as the random fluctuations will have had least weight for

the former. Table 15-7 lists a set of figures relevant to this comparison. Not unexpectedly large differences appear between the two samples when the average counts are compared; for instance, there are 73 undecorated pots per house in the wealthy group, against only 19 such pots in the modal houses, similarly so with the decorated ware with 60 *versus* 15 vessels. The quantitative differences, however, are entirely qualified by the qualitative similarities between the two sets: the ratio of undecorated to decorated ware, the relative presence of the several functional groups of pottery, the curvilinearity index, and the degree of fragmentation are virtually identical for both samples, although the spreads (as indicated by the standard deviations) are substantially larger in the regular sample than among the 'fat' houses. The implication is that post-depositional factors have affected both groups in the same way; but still the question remains whether or not they were affected to a different degree, so that *quantitative* differences between house types do not reflect original LBK differences but rather different degrees of preservation.

If the relative values do not differ when rich and moderate complexes are compared as in table 15-7, they still may hide qualitative differences between the house types; table 15-8 was compiled to check that possibility. There it appears that there are differences between the house types (at least where the ceramics are concerned), especially when the counts and the averages based on them are compared, yet the mutual relationships, such as percentage of decorated vessels, proportion of kitchen ware, the number of sherds remaining per vessel, and the "matrilinearity index" differ only marginally, as before. Again, the message seems to be that there are no important qualitative differences between the inventories of the house types (and neither therefore, between the individual houses). Whatever differences there are

house type	*all pots*	*undec'd*	*dec'd*	*Limburg*	*n(H) (all)*	*all/H*	*undec/H*	*dec'd/H*	*LB/H*	*house type*
1a	*80*	*47*	*32*	*1*	*3 (5)*	*26.7*	*15.7*	*10.7*	*0.3*	*1a*
1b	*224*	*114*	*106*	*4*	*6 (8)*	*37.3*	*19.0*	*17.7*	*0.7*	*1b*
1c	*1161*	*665*	*485*	*11*	*19 (23)*	*61.1*	*35.0*	*25.5*	*0.6*	*1c*
2	*338*	*182*	*148*	*8*	*11 (18)*	*30.7*	*16.5*	*13.5*	*0.7*	*2*
3	*160*	*81*	*78*	*1*	*8 (15)*	*20.0*	*10.1*	*9.8*	*0.1*	*3*
sums	*1998*	*1109*	*864*	*25*	*47 (69)*	*42.5*	*23.6*	*18.4*	*0.5*	*general*

table 15-6 numbers of (house associated) pots *versus* house types

	undec'd	*dec'd*	*ratio ud/d*	*%(T)*	*%(K)*	*%(O)*	*%(x)*	*c/(c+r)*	*fragmentation*
n = 7	*73*	*60*	*1.2±0.71*	*47*	*32*	*11*	*10*	*0.61±0.10*	*4.01±0.49*
n = 29	*19*	*15*	*1.3±2.24*	*46*	*26*	*13*	*15*	*0.67±0.11*	*4.04±1.26*

table 15-7 numerical comparison of central values of ceramic inventories of houses with more than 100 pots, and with 10 to 100 pots
undec'd, ud: undecorated ware; dec'd, d: decorated ware
T: table ware; K: kitchen ware; O: storage pots; x: function unknown
c, r: curvilinear, rectilinear decoration
fragmentation: average number of sherds per pot

	n(pp)	*n(H)*	*pp/H*	*%dec'd*	*%(T)*	*%(K)*	*%(O)*	*c/(c+r)*	*fragm.*
1a	*144*	*5*	*28*	*43*	*50*	*38*	*12*	*57*	*3.23*
1b	*322*	*8*	*40*	*50*	*65*	*24*	*11*	*69*	*3.29*
1c	*1196*	*20*	*60*	*42*	*49*	*38*	*13*	*60*	*4.37*
2	*371*	*13*	*29*	*44*	*58*	*23*	*19*	*69*	*3.82*
3	*248*	*10*	*25*	*49*	*61*	*25*	*14*	*72*	*4.21*
all	*2278*	*56*	*41*	*45*	*54*	*33*	*14*	*64*	*4.04*

table 15-8 numerical comparison of central values of ceramic inventories of houses per house type
pp: ceramic vessels; H: houses
dec'd: decorated; T: table ware; K: kitchen ware; O: storage ware
c, r: curvi-, rectilinear decoration; fragm: average number of sherds per pot

between the ceramic associations of the house types, they are of a quantitative character only.

It seems difficult, perhaps impossible, to decide between the two alternatives of post-depositional, quantitative and non-selective erosion of the original ceramic inventories on the one hand, and quantitative differences between the households in LBK times on the other. Yet, usually analyses proceed as if present proportions and distributions reflect prehistoric ones, and I will do so too, at least as far as the houses with pottery are concerned. To this an additional argument can be contributed, namely the results of the simulations reported in a separate chapter. There, it is shown that there are two important parameters, the average number of sherds per pot (which is independent of the number of pots involved, and is calculated from the excavated data), and the distribution of the numbers of sherds per pot (also an empirical datum). From the first figure the rate of decay of the finds is read, from which the original number of pots can be inferred – here, 4.03 sherds per pot, 88% decay of the sherd population, still 90% of the pots represented; this is confirmed by comparing the simulated distribution of the sherds per pot counts with the observed distribution which is almost identical[7]. That is, the simulation approves of the common archaeological practice (with an allowance of about ten percent), observed distributions and proportions *generally* reflect prehistoric distributions and proportions, at least on the Janskamperveld. However, the simulation does pronounce *only on the houses accompanied by sherds*; it is strictly bound to the relations between sherd counts and original pots, and says nothing about the distribution of pots over the houses in the settlement. Thus, especially the houses presently without ceramics have lost their possible inventories beyond repair because of post-depositional processes: as ever, absence of evidence is not evidence of absence; see the chapter 'Sherds and Pots'.

Before embarking on an interpretation of table 15-8, it should be noted that it presents averages, calculated across the houses of each type: considerable variations are dampened this way. For instance, on the one hand there are three type 1c houses without any sherds, and five type 2 and five type 3 houses with the same defect. On the other hand, of the seven houses that compose the set with more than 100 pots each in table 15-7, five pertain to the 1c type and one to types 2 and 3 each. In fact, the distributions within each of these types are different: the type 1c houses (n = 23) all have a fair number of pots except for seven houses with less than ten pots or none at all; three type 1b houses (n = 8) have more than 70 vessels associated, the other five have less than 20 pots; for the type 1a houses (n = 5) there is an even spread of the number of pots around the average; one house of type2 (n = 18) has more than 100 pots, and all the other houses have less than 50; and finally, among the type 3 houses (n = 15) two are accompanied by over 60 pots, the other houses by less than 20. As table 15-9 shows there is only a marginal relation between the visibility of the houses and the quantity of associated pottery; in other words, the table seems to demonstrate that the quantitative differences between the houses are indeed reflective of past differences. When ceramics are evidence of inhabitation of the houses then the least one can say about it is that they have had very different histories, all of them: on the assumption of a constant number of pots per individual, some seem to have been occupied by larger households and/or for a longer time than most others. Roughly 20 pots in the excavation associated with a house (representing 21 or 22 vessels originally) equate with a use life of about 20 years, assuming 2 service vessels, 3 cooking pots and 2 storage jars (being the average inventory of a LBK house in this village) in use[8] at any time; and visible to us as ten sets of fine ware sherds plus another ten or twelve groups of coarse ware sherds. Larger inventories, larger families, up to five times as large in houses H 13, H 57, and H 17; and still larger, up to even nine times in HH 02, 04, and 23. And similarly, smaller ceramic inventories, fewer occupants of the associated houses – or, perhaps, more ephemeral use? At any rate, this set of data does not allow the conclusion that houses of type 3 (or even type 2) have not served as dwellings, several show traces of intensive and/or full-time occupation, whereas others (about half the type 2 houses, about three quarters of the type 3 houses) seem to have been inhabited less than full-time and used for other miscellaneous purposes, if a similar lifetime for these constructions can be assumed as for the larger ones.

Going down from the general level of house types to the level of the wards, the next factor to be investigated is whether there are important differences in ceramic contents between the two local groups, the wards of the previous section. If so, this might point to cultural, social, or material differences between the two groups which are reflected in the pottery. The numbers of houses in the two groups are quite similar: 25 in the northeastern ward, 22 in the southwestern group (here, I included all houses with ceramics not explicitly from the 6th ceramic phase). There is a slight difference in

w \ pots	*°›100*	*15-100*	*1-14*	*0*
4	2	11	3	1
3	34	-	6	2
2	21	9	4	2
1	-	9	5	7
0	-	-	2	1
n(H)	*7*	*29*	*20*	*13*

table 15-9 *w*-index of houses *vs* pottery counts per house

the fragmentation of the pottery between the two wards: all in all 4.23 sherds remain on average per pot in the north-eastern ward, while 4.00 in the southwestern zone, yet the difference is not even half the standard deviation of that figure (table 15-7) and thus of no consequence. Similarly so with the presumed functions of the vessels: the presence of the numerically most important group (table ware, accounting for 46% of all pottery) differs by 5% only between the two wards, the other functions 3% each. Also, the matrilinearity or curvilinearity index is nearly identical for the two groups (0.63, and 0.66 respectively, well within the bounds of the variation). Finally, there is one important disparity, as the average number of pots per house is 54.8 in the southwestern *vs*. 38.5 in the northeastern companion. As averages per house they seem to convey a message which probably reads: fewer inhabitants per house in the northeastern ward than in the southwestern group, probably compounded by more post-depositional decay. To differentiate between the two alternatives, a comparison can be made of the pot type spectra of the groups: household size will perhaps be reflected in the (relative) numbers of fine ware (service ware, also serving as identity badges). Indeed, the numbers of thin-walled pots are 22.6 and 14.1 per house respectively, or 46% and 41% of the ceramic contents of the two wards, suggesting that "household size" is mainly responsible for the difference.

15.4 A social inference of the major patterns

Another subject to look into is the nature of the early settlement, the initial occupation. From the analysis of the botanical remains, it appears that the first harvests were reaped from newly laid-out fields in the virgin forest (Bakels, this volume). Given what is ethnographically and historically known about primary colonization (e.g., Graves/Addison 1995; Melo Bento 1994; also cf. Frirdich 2005), these harvests will have been preceded by an intensive reconnoitring of the Graetheide area first, probably by a few able-bodied people only, who after ringing forest trees at choice locations returned to their homeland. The next or the second year a larger group brought seed, cut trees, and sowed the first fields in the new world, to return to kith and kin in the southeast again, perhaps leaving some guardians, well-hidden in the forest. Then just before harvest time, the pioneers will have gone with their families and cattle the two or three weeks walk to settle definitively, first in the guardians' shacks while building sturdier houses[9] – needless to say that their group was of sufficient size to ward off attacks by outraged autochthonous hunters. With plenty of spare time left after agricultural work, a first house generation will not have taken many years to complete, labour is not a scarce resource in tribal society (on average, only 2 hours a day are sufficient for agricultural production; Sahlins 1972, Ch. 2 —such an average means that there are major idle periods per year).

The exact number of earliest houses will remain a matter of speculation, although clearly there should have been several from the onset. If the total number of houses is proportional to the ratio of site area to excavation, then those ten that have been ceramically relegated to the first phase, have to be converted to $100/61 \times 10 \approx 16$ in the complete set; also, 10 central post configurations are recognizably of the "pure" Y-type, which yields a similar number of early houses. Both estimates may be too high: above I have argued that houses are *not* evenly distributed in the excavation, and also half the number of Y-configured houses has the second generation attached to the associated finds. Thus I arrive at about six to twelve houses (all types included) for the first generation, a number which would have sheltered about 15 to 25 able-bodied men plus a similar number of women, almost certainly a task force sufficient for any building endeavour and for countering inimical raids. As is said of the easterly neighbours on the Aldenhovener Platte:

> *Pioneer settlements like Langweiler 8 opened up the landscape for a few kilometres along smaller or larger streamlets. They rapidly expanded to a size of seven to ten houses.* Claßen 2005, 120

Previously I have deduced a matrilineal moiety system (emphatically *moieties*, not *clans*; Eisenhauer 2003; see Van de Velde 1979, 108, 133, 148) in the Elsloo village's social structure which was the cause of carefully mixed characteristics of the pottery decoration; the chapter on pottery in the present study confirmed that inference for the Janskamperveld LBK settlement (now also established elsewhere in Bandkeramia as well: in the Königshoven group in the Rhineland, on the Aldenhovener Platte, and in Württemberg; resp. Claßen 2006, Krahn 2003, Strien 2000). One of the more relevant facts also bearing on this issue is the shift of the 1a-type houses from one ward to the other and back: when a matri*lineal* definition of some important function is applied to a non-matri*local* practice, its location will of necessity shift through the village as the titular heiress has to marry someone in a house different from that of her birth and her mother's (this is simply a consequence of exogamy and incest avoidance, a universal marriage arrangement). In earlier analyses I deduced patri- or rather virilocal marriage rules, which together with matriliny would do the trick very well; in the meantime, Eisenhauer established virilocality through molecular analysis of the skeletal remains from Talheim (Eisenhauer 2003), as had been done shortly before for the cemeteries of Flomborn and Schwetzingen in the Rhine-Main area (Price *et al*. 2001). As inferred in a previous section, the spatial division between the two wards is crossed in every house generation by the 1a type houses; such a house exists first in the southwesterly ward (H 35), then in the northeasterly ward (H 24), after which the central open space is merely crossed to the southwesterly ward (H 07), to

return again to the northeasterly part of the village (H 36) in the fourth house generation. This house type is outstanding based on probably important characteristics like size and construction of the walls; in this latter aspect it is the only Bandkeramik house type with wooden boards all around and therefore a different function than of the other houses is indicated – not necessarily by exclusion but rather by addition on the basis of the associated pottery which is not really different from that with the other house types. The different function of this house type is accentuated by their having been burnt down, all of them, in contrast to the other LBK houses on the site which only rarely show traces of a fiery ending and thus generally seem to have met a less violent fate.

A social interpretation of the *wards* as moieties begs the question of the status of the three house groups or *yards* that emerged from the analysis of the site plans. 'Ward': the word is used here to indicate a small (part of a) hamlet, a tiny neighbourhood, a *barrio*, a group of houses which are nearer to each other than to the nearest similar group; its social equivalent being a (localized) moiety. 'Yard' indicates a house's premises, being groupings of a house plus its appurtenances like the houses of dependents, hay stacks, stables, manure heaps, dumping areas and storage pits, and its grounds[10]. Thus, in the Janskamperveld case the northeastern ward is coincident with a yard, while the other ward comprises two yards. These spatial sub-divisions of LBK-villages have also been noted elsewhere; they have been accorded a lineage status (Van de Velde 1979, 141-149); the two halves of Langweiler 8 also come to mind (Schwerdtner 2007). More generally, Coudart writes "When looking at LBK sites with not too high a density of buildings, groupings or alignments of houses are apparent, which recall the spatial lineage or clan divisions (*"division spatiale lignagère"*) existing in very many tribal societies" (Coudart 1998, 107; my transl.). Given the repetitive composition of the yards (as especially visible in LBK settlements which last longer than this village), they each probably represent the accommodation of a House (or lineage) *sensu Lévi-Strauss*[11]. In the loose description of Stone:

> *…. persons are grouped into corporate estates, or 'houses' that perpetuate themselves through the transmission of their names, titles, privileges, and wealth through real or imagined lines of descent . . . Actual membership in houses can follow simultaneously any number of different paths — descent (matrilineal or patrilineal), marriage (endogamous or exogamous), through fictive kinship, adoption, or other means of incorporating assorted persons.*
>
> (Stone 2004, 247)

Certainly, the name "house" is confusing, as in LBK contexts every single excavated house plan is customarily designated "house", while the Lévi-Straussian concept "house" embodies an estate grouping a number of persons which may or may not inhabit several distinct buildings. The word *yard* has been introduced precisely to refer to the archaeological deposit of the group that once made up such a sociological House. The main house of a yard (in LBK contexts, either the 1a or the 1b type) has already been labelled *lineage house* to indicate its importance to the whole group beyond simple dwelling place.

15.5 Second thoughts on the chronological situation

Probably, house generations on the Graetheide will not have differed much in length from those on the Aldenhovener Platte, especially in the Older or Flomborn LBK phases when the common cultural background was not yet completely swamped by diverging histories (Stehli 1989, 58; Lüning/Stehli 1989; Lüning 2005). The equation of Dutch LBK-Ib with house generations ('HG') I-III on the Aldenhovener Platte, of Ic with HG IV-VI, and of Id with HG VII-VIII (ibid.) does not solve the problem of positioning the HGs on the Janskamperveld relative to those in the east. Closerby, a comparison of the earliest Janskamperveld pottery decoration with that from other early sites on the Graetheide produces no differences between the sets. Thus, if the illustrations represent all finds from Geleen-De Kluis, then only four out of 67 rim sherds (6%) there show independent rim decoration (Waterbolk 1959, 143-155). At Elsloo I counted six decorated rims on 62 fine ware pots (10%; phases 0 and 1 summed), similar to the Janskamperveld village with ten among 102 pots (10%; first house generation). If pottery decoration can be trusted with respect to chronological positioning, the only conclusion can be that the colonization of these Graetheide villages has been simultaneous. Mainly because of the quite early, mutually reinforcing ^{14}C-datings obtained for the earliest phase of the Janskamperveld settlement, my *impression* is that the first house generation there was approximately contemporaneous with the first one on the Aldenhovener Platte (indeed Stehli equated Geleen-De Kluis with the Aldenhovener HG I-VI; Stehli 1994, 125). Since the characteristics of the pottery decoration do not go beyond phase LBK-1c[12], this would imply four, at most five house generations based on the pottery alone. If this all be true, then the first occupation on the Janskamperveld would altogether account for no more than 60 or 80 ± 10 years, setting one HG equal to 15 years. Note that the number of house generations deduced from the distribution of the houses in a previous section was also four.

There are some minor problems with this quite low estimate, the most important of which is the chronological placement of the first Janskamperveld habitation period. Because, on the Aldenhovener Platte, the nearest LBK *Siedlungskammer*, the first three house generations have been equated with the Dutch LBK-1b phase, whereas here on the

Janskamperveld the ceramics from the fifth ceramic phase (*i.e.*, the end of the first habitation period, and equated with the fourth house generation) show LBK-1c characteristics like filled strips and decorated rims, while several of the associated houses also appear to have regular DPR central configurations – allegedly a post-Flomborn element. On the other hand, the early ^{14}C-datings from the *Längsgruben* do suggest an early colonization, probably before 5200BCE, quite early in the Flomborn sequence, in line with the Lanting and Van der Plicht estimate from wiggle matching and dendrochronology of Aldenhovener Platte datings (Lanting and Van der Plicht 2002, 45). This may suggest either a shorter Flomborn period with a rapid evolution towards post-Flomborn characteristics of pottery decoration and house construction (at least on the Graetheide), or a beginning in the Rhineland of the Flomborn phase later than the commonly assumed beginnings of the 53rd century (e.g., Lüning 2005, 71).

15.6 On the periodization of the Dutch Bandkeramik, a critique

The periodization of the Dutch Early Neolithic was originally defined by Modderman in the wake of his excavations in Elsloo and Stein (and, more implicitly, his earlier ones in Sittard, too; Modderman 1970, 195-198). Although the backbone of that scheme is uncontested, the finds from Geleen-Janskamperveld pose serious problems for the definition of the Older period, comprising LBK phases Ib, Ic, and Id. As an introduction to these problems an extensive quote of the relevant Modderman text may serve:

No plausible arguments can be put forward against the assumption of an oldest phase of the LBK which is characterized by the use of organic temper in the pottery. … So far, this oldest pottery has definitely not been found in Dutch Limburg. We therefore wanted to keep a place for this pottery in our chronological scheme, for which we have reserved a Phase Ia. The . . . oldest LBK finds from the Netherlands clearly do not fit into this first phase. We relegate these to Phase Ib . . . Furthermore, phase Ib is distinguished by buildings with a Y-construction of the Pure Geleen Type, the lack of rim decoration on the pots and the presence of the strip types BI, DI and BII alongside AI. Apparently our phase Ib corresponds with Meier-Arendt's Phase II (Meier-Arendt 1966, 23).
Characteristic of the next phase of the Older LBK (Ic) is a different arrangement of the roof supporting posts in the central part of the buildings. The Degenerated Geleen Type replaces the Pure Geleen Type. Indeed two variants of this type exist, of which it is not clear whether they were contemporaneous or one after the other. Apart from this change in the plans [of the houses] we now find simple decoration on the rims of the pottery. The characteristics of Phase Ib can also still be found in this phase.
Just like the third phase of the Older LBK, the youngest one (Id) was also recognized in Sittard. This phase has to be seen as … really transitional to the Younger LBK. Apart from the transitional form of the Geleen type in the buildings the rare occurrence of strip type DII in the pottery decoration as well as the first application of rim decoration consisting of two rows of pointlets … are characteristic of this last phase of the Older LBK. … Our distinction of phases Ic and Id is first and foremost based on the changes in the plans of the buildings. The simultaneous changes in the pottery decoration are much less outspoken. The latter is the reason why investigations dealing exclusively with ceramics have not established further subdivisions, according to us.
The first phase of the Younger LBK (IIa) is as much of a transitional nature as is the preceding one. Many characteristics of the Older LBK have disappeared altogether, as has the Y construction. … Lack of rim decoration is a rare exception.

(Modderman 1970, 195-198; my transl,)

In the above text, primarily house construction and characteristics of pot decoration define the phases. Thus, phase Ib is defined by buildings of the Pure Geleen Type (= houses with a Y-configuration of posts in their central part) and the complete absence of rim decoration on the pots; phase Ic by the Degenerated Geleen Type (in the present text, houses with a dY-configuration of central posts) and some simple rim decoration on the pots; phase Id by houses of a Transitional Geleen Type (similar to the iY and J-types described for the Janskamperveld settlement) and on the pots by a rim decoration made up of two rows; and finally, phase II by the Elsloo Type of Houses (i.e., with regular central DPRs, here the R-type). In the accompanying table 15-10, the contrasting findings from the Janskamperveld excavation are summarized.

Clearly, in this settlement Y-configured central parts do not occur solely with pots without rim decoration; in fact, there is only one such house where exclusively pots without rim decoration have been found – but a total of three rims seems hardly convincing. This means that at least for this settlement the Modderman definition of Dutch LBK-1b cannot be

central config.	*no of houses with pottery*	*A*	*B*	*C*	*D*	*E*	*F*
Y	*10*	*61*	*79*	*11*	*64*	*131*	*49*
dY	*4*	*23*	*61*	*9*	*87*	*47*	*57*
Yi, J	*7*	*127*	*84*	*15*	*87*	*228*	*46*
Rn	*14*	*131*	*60*	*48*	*85*	*252*	*53*
x	*19*	*87*	*64*	*29*	*62*	*177*	*49*
	54	*429*	*71*	*112*	*78*	*835*	*50*

table 15-10 Geleen-Janskamperveld: types of central configurations ***vs.*** some characteristics of pot decoration
A: number of associated pot rims; B: percentage of rims with no decoration;
C: number of pots with rim decoration; D: percentage of of rims with simple decoration;
E: strips in belly decoration of pots; F: percentage of strips with fillings

upheld. Similar implications can be drawn regarding the definition of phase Ic through the first occurrence of simple rim decoration and the Degenerated Geleen Type (or dY, in the table), as well as for that of the Id phase by Transitional central post configurations (iY, J) and the filling of the strips in the belly decoration of the pots (approximately equivalent to Modderman's type DII strips). Then, if the Younger LBK is characterized by the paucity of undecorated pot rims together with exclusive occurrence of Regular DPRs in the central parts of the buildings, the 60% of pot rims that go undecorated in association with R-type houses seem to also put this stipulation into perspective.

When anomalous evolution of the Janskamperveld houses' constructive details and/or the pottery decoration is ruled out as explanation, a search for rather more rational factors behind the discrepancies is called for. In table 15-10 as in Modderman's definitions, the central configuration of the house posts is set up as an independent variable, against which the other developments (in this case the pottery decoration) are checked. Of course, this procedure can be turned around and the evolution of the pottery decoration taken as the independent variable. A major advantage of the latter procedure is that in itself the pottery decoration is a composite of potentially independent variables which may all run their own historical trajectory, and thus together provide a more secure framework for diachronological comparisons – after all, with this same concept Modderman gave different combinations of strip types as being characteristic for each phase. In the chapter on chronology, six ceramic phases have been defined on the basis of changing frequencies of chronologically sensitive variables. In table 15-4 (above) these are presented as the independent variable for ordering the houses' central post configurations on the assumption that the finds in the *Längsgruben* along the houses are contemporary with their use and therefore only one, at most two decades later than the building of the house[13]. Restricting the discussion to the first period of the settlement, and therefore leaving the sixth ceramic phase aside, it should be emphasized that the relationship between ceramic phases and the Dutch chronological system (or with the absolute chronology, for that matter) is by no means a straightforward one. Still, both sequences are running in the same direction: 'earlier' and 'later' in the one will translate to 'earlier' and 'later' in the other, etc. Furthermore, the number of ceramic phases has been determined by the amount of change on the defining characteristics jointly, an essentially arbitrary criterion.

With these provisos, table 15-4 paints a quite different picture than table 15-10, in that types of central configuration occur in different (generally contiguous) phases. Not unexpectedly, the Y-type is earliest in the scheme, whereas the Degenerative and Transitional types (dY, and iY, respectively), and of course also the Regular DPR constructions are successively later. More importantly, there are chronological overlaps between the different configurations, corroboration and extension of Modderman's observation that there are two alternative "degenerative" sub-types of which it is not possible to say whether they were contemporaneous or sequential (quoted above). Apparently, they are both and they are not restricted to the Degenerated types. Perhaps the most remarkable entry in table 15-4 is the relatively early occurrence of the Regular or Elsloo Type central post configuration, doubly remarkable for the fact that they all occur in type 1c houses (the smallest of the *Großbauten*); for this early appearance I have as yet no parallels.

Above I have contrasted Modderman's chronological scheme with a developmental picture. In his scheme, a classification with distinct classes (of central configurations, of pottery decoration) was presented which through the necessarily disjunctive nature of the classes suggested sudden changes. Here however, development was taken to be graded, and therefore differences were only gradual, both in pottery decoration and in house construction. The different methodologies aside, there are important differences between the outcomes: Y-configured houses were seen to be accompanied by pots with rim decoration (almost a quarter of all associated pots), and Regular DPRs in the central parts turned out to be much earlier than supposed by Modderman.

15.7 Some further thoughts

As extensively discussed in the chapter on chronology, neither the original Modderman scheme, nor Stehli's decoration analyses could do without the configuration of the central posts of the houses to get anywhere near the specification of the earliest Flomborn developments in the settlements. Already in earlier publications (Van de Velde 1976, 1979), I have levelled critiques at the heterogeneity of these approaches, which conflate methodologically and historically distinct data streams, with therefore coarse and uncontrollable results. With the classification system of pottery decoration proposed instead, an attempt was voiced that could effectively get at the development of that decoration over time (and space, but that is not the issue here), even in the Flomborn phase until then assumed to be immune to analysis. The results of an application of that system to data from the Elsloo settlement have never been contested to my knowledge, not even those concerning the oldest phases there (Flomborn period); that village spanned the entire LBK period in the Southern Netherlands. In the meantime, in her doctoral thesis at Cologne, Ulla Münch has redone Stehli's analyses, differentiating into variants two of the strip types considered early, with the result that now the earliest house generations of the Aldenhovener Platte can be directly (relatively) dated through the pottery decoration, without recourse to considerations of spatial distribution etc. (Münch 1999). The Münch thesis has

not been published, although in texts by other researchers several references to it exist; as far as I know the only public statement from her hand is a poster in the jacket at the end of the Brauweiler book (Münch 2005). As from that poster, the nine variants are still combinations of elements at different levels of analysis, involving mainly (in my terms) the components pointlets and lines and continuous or discontinuous strip fillings; they have been presented here as chronologically relevant in the appropriate chapter, too. The nicely coherent succession of houses following from her study provides a validation of Münch's analysis. Using my own classificatory system in the present study (especially the chapters on pottery, on chronology, and on the settlement) the Flomborn phase at the Janskamperveld LBK village has been divided into five ceramic phases, which could (also successfully) be checked against the independent variable of the development of the central post configuration of the houses. It should be emphasized that the five plus one ceramic phases reported here are relevant to the Janskamperveld LBK village only; it is to be expected that even in neighbouring Sittard or Geleen-De Kluis different subdivisions will emerge when the finds there are subjected to analysis of pottery decoration. The major pattern of the evolution of the pottery decoration, however, will be quite similar throughout the Graetheide region, going from simple to complex but all the while restricted to only two main motifs, executed either in a recti- or curvilinear fashion.

Another question is, why did they give up this location after less than one hundred years? The answer is that they did not really give up the site: on the one hand in the southward adjoining Haesselderveld lower on the valley slope a settlement was established at about that time (Vromen, pers. comm.); on the other hand, the site itself was converted into a garden area, if my inferences about the fences in the chapter on features hold water. A translation to a more downslope area a little nearer to the Geleenbeek brought an easier and shorter access to running water; perhaps also the threat of attacks by hunters had proven less imminent than expected when the first location was chosen. At any rate, their knowledge of potentials of the human, geographical, and biological environment was certainly much better than on their first arrival. Other villages shifted over the landscape as well: the yards in Elsloo moved over a considerable area (e.g., Van de Velde 1979), the house plots in Schwanfeld (e.g., Lüning 2005), in Langweiler 8 on the Aldenhovener Platte, and elsewhere in the Rhineland moved to and fro (e.g., Claßen 2005). That is, the LBK habitus of constructing new houses every twenty years or so, allowed every new generation to go for (momentarily more) convenient locations, convenience being a mix of a thousand considerations. In the same vein the second occupation of the site, much later in the LBK sequence, can be "explained".

15.8 Comparable excavated sites in Dutch territory

As far as our present knowledge goes, there are three, perhaps four early LBK settlements in the Graetheide *Siedlungskammer*. They may have been founded simultaneously (together with Maastricht-Klinkers and -Christoffelplein in the Heeserwater area[14] to the southwest, and Langweiler 8 in the Aldenhovener Platte *Kammer* to the east; resp. Theunissen 1990, Dijkman 2000, and Stehli 1989) in one single colonization enterprise emanating from the Middle Rhineland. Apart from Geleen-Janskamperveld, these settlements are: Elsloo-Koolweg, Geleen-De Kluis, and probably Sittard-Thien Bunder as well. A short summary is offered as comparison.

After the Janskamperveld settlement, the most extensive excavations have been at Elsloo Koolweg, approximately 6 km southwest of the former site; large-scale investigations by Modderman in 1957-1959, 1963, and 1966, with small but important additional excavations by Van Wijk and Van Hoof in 2006 and 2008. Based on surface finds the extent of the site is *c*. 12 ha of which 3½ ha or 25% has been excavated. Contrary to the Janskamperveld's short occupation, Elsloo-Koolweg is dated to the entire LBK sequence in this region (LBK II-V, in Meier-Arendt's German LBK periodization). Altogether, an estimated 200-plus houses have stood there (101 in excavations, of which at least 15 can be assigned to the LBK Ib phase). Also the village graveyard of approximately 120 internments was found (113 in excavation, dated to LBK 2c/d). Apart from several specialist texts, main publications are: Modderman 1970; Bakels 1978; Van de Velde 1979; Van Wijk and Van Hoof in prep..

Another 1.5 km south of the Janskamperveld establishment, a small part of the settlement at Geleen De Kluis was excavated by Waterbolk in 1955-1956. The extent of the site is unknown because of its being situated in a built-up area, but might amount to 6-10 ha; the excavation uncovered 1.3 ha or 15%. Similarily to Elsloo-Koolweg, surface finds date this settlement to the full LBK sequence, but in the excavated part mainly LBK 1b material has been uncovered; in fact, Geleen-De Kluis has long been considered the oldest LBK settlement in the Netherlands. Eight house plans were found but no estimate of the total number of houses is available. The main publication is Waterbolk 1959.

Roughly in the same period Sittard Thien Bunder (2 km north of the Janskamperveld settlement) has been excavated by Modderman (1953-1954, 1956), with several small additions by Van Wijk in 2000. The extent of the settlement is unknown, but is probably (much?) larger than 10 ha; the excavated area measured *c*. 3 ha; the occupation is dated to the full LBK sequence in this region. No estimates of the house count have been made, though 56 house plans, among which a few probably from the older LBK (or 1b) phase,

were recorded in the excavation. The main publications are Modderman 1959; Van Wijk 2001.

Thus, if at the beginning of the 53rd century the large region between Tongres and Cologne was virtually empty but for an odd band of hunters, at the end of that century a constellation of farming villages had been established by people with a very similar cultural background, seedlings of what was to become in the next few centuries a relatively densely populated area differentiated into three recognizably different societies. The Janskamperveld settlement, one of the pioneers, had long been abandoned by then.

Notes

1 Here, H18 has been classified as type 1b, which should be read as "tripartite house, different from 1a-types."

2 Strictly speaking, 'house generation' refers to one single house: when '(farm-)yard' designates the grounds around a house, including the pits, manure heaps etc. pertaining to that house, then a 'house generation' is the temporal extension of a yard (Claßen 2005). The meaning of the term as used here is the average time between the construction of two successive houses or farms (summed over time and space). It does definitely not imply the immediate abandonment of the earlier house nor simultaneous construction of new houses all over the village.

3 Again, H18 has been entered as type 1b.

4 In the lakeside villages of the Late Neolithic of SW Germany and Switzerland the houses were scrapped and rebuilt at intervals of 20-25 years, as could be established by dendro-analyses (e.g. Billamboz 1990: 193; Capitani *et al*. 2002: 20). Moreover, nearer to the present situation, as described in the chapter on the hard stones from this village (Ch. 13, by Verbaas & Van Gijn), querns were sometimes also destroyed without apparently being at the end of their use life; there, too, cultural idiosyncrasies have decisively interfered with functional considerations.

5 I have also worked through a three-house-generations solution, but that led to more inconsistencies.

6 Neither the number of individual pits nor the number of *Längsgruben* has much relation with the number of pots recovered; correlations are less than .45, which means that less than 20% of the variation in the data is related to these variables.

7 For Schwanfeld a decay rate of 95.7% has been computed from the weight of the excavated sherds in relation to the estimated weight of the original pots (Kloos 1997: 171); no allowance has been made for completely vanished pots, however.

8 As described and referenced in the chapter on pottery: a use life of 2 years for a service vessel, 3 years for a cooking pot, and (over) 5 years for a storage vessel.

9 In my opinion, cattle is required to move the trunks from the forest to the houses under construction.

10 Note that in the German literature a yard (*'Hofplatz'*) is conceived of as the area around every single building / house, usually extending 15 metres to the front and the back, and 20 metres to either side (Boelicke 1982; Claßen 2006: 148). In other regions, different arrangements may have obtained (e.g., Hauzeur 2006; the present text).

11 The original French text runs: [La maison est] une seule et même institution: personne morale détentrice d'un domaine composé à la fois de biens matériels et immatériels, qui se perpétue par la transmission de son nom, de sa fortune et de ses titres en ligne réelle ou fictive, tenue pour légitime à la seule condition que cette continuité puisse s'exprimer dans le langage de la parenté ou de l'alliance, et, le plus souvent, des deux ensemble. (Lévi-Strauss 1979: 151-152)

12 Here, I am leaving aside the final ceramic phase (6), as being irrelevant to the present argument.

13 When among the finds from a house's side pits different ceramic 'dates' were derived, I have accepted the oldest reliable one as being closest to the house's foundation. In other chapters, the averages of the assignments have been used.

14 The Heeserwater area comprises a set of settlements along the middle reaches of the Jeker and the Hees brooks flowing into the Meuse in Maastricht. The few easternmost LBK settlements are on Dutch territory, the majority of the settlements in this group is situated in Belgium; cf. map in Dijkman 2000.

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