From potters' hands to settlement dynamics in the Early Neolithic site of Cuiry-lès-Chaudardes (Picardy, France)

Od rukou hrnčířů po sídlištní dynamiku v časně neolitické lokalitě Cuiry-lès-Chaudardes (Pikardie, Francie)

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The paper follows on from a joint research project on the ceramics from the late LBK settlement of Cuiry-lès-Chaudardes, Picardy region, north-eastern France. In the course of this project, studies on raw materials, manufacturing sequences and decoration techniques have revealed a wide variety of technical practices throughout the occupation of the site. Most recently, analysis of variations in raw materials and tempers in relation to manufacturing sequences revealed that production was mostly carried out at house level, with the producers in each house implementing their own clay recipe and pot-forming method. Here we extend this research by comparing data on pot-forming and decoration at Cuiry-lès-Chaudardes. In this new study, no obvious relationships could be observed between pottery manufacturing sequences and decoration. However, comparison of the various house assemblages indicates a possible link between atypical decoration (i.e. non-local LBK styles) and exogenous pot-forming methods. Although requiring validation on a larger sample of ceramic assemblages from other sites, these preliminary observations provide some new insights into the complex dynamics at play in LBK settlements.

LBK – ceramics – technology – manufacturing – decoration – socio-economic function – mobility

Článek vychází ze společného výzkumného projektu zaměřeného na keramický soubor ze sídliště LBK Cuiry-lès-Chaudardes (Pikardie, severovýchodní Francie). V rámci tohoto projektu byly studovány různé kroky výroby keramiky na úrovni domácnosti: komplexní průzkum surovin, výrobních postupů a výzdobných technik odhalil vysokou variabilitu technických praktik v průběhu osídlení lokality. Nedávno jsme analyzovali také rozdíly v použitých surovinách a ostřivech v závislosti na výrobních postupech. Tato první křížová analýza odhalila, že výroba se odehrávala převážně na úrovni domácnosti, tj. že hrnčíři v jednotlivých domech používali své vlastní složení keramického těsta a techniku stavby nádoby. Výzkum jsme rozšířili srovnáním postupů výroby keramiky s odchylkami ve výzdobě. Na základě syntézy výsledků různých studií, které naše výzkumná skupina uskutečnila dříve, předkládáme předběžnou analýzu propojující údaje o výzdobě a stavbě nádoby. Tento výzkum ukazuje možnou souvislost mezi atypickou výzdobou (např. exogenní nebo nestandardní LBK výzdoba) a způsoby tváření nádob, které byly označeny jako patrně exogenní. Tyto postřehy, které je teprve nutno statisticky ověřit na větším množství keramických souborů, poskytují nový vhled do složité sídelní dynamiky zemědělců LBK.

LBK – keramika – technologie – výroba – výzdoba – socio-ekonomická funkce – mobilita

1. Introduction

In this article, we compare variation in pottery decoration and pottery-manufacturing sequences at the Early Neolithic site of Cuiry-lès-Chaudardes (Picardy region, north-eastern France). Extensively excavated from the 1970s to the 1990s, the site contains thirty-three houseplans associated with lateral pits, and covers a surface area of just over 6 hectares.

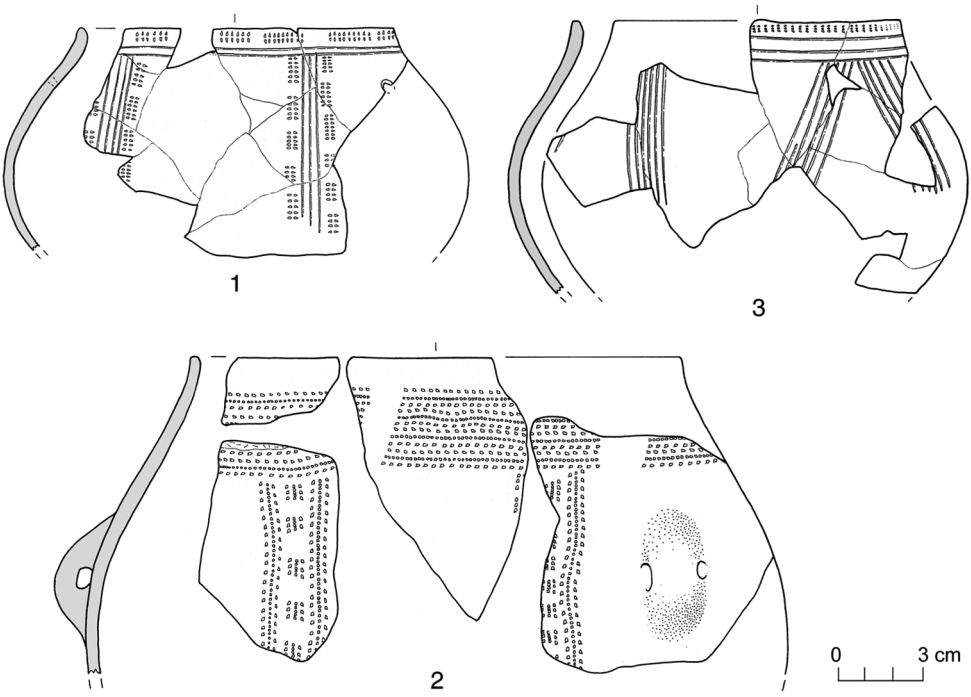

Fig. 1. Typical pottery decoration styles at Cuiry-lès-Chaudardes, showing examples of vertical and oblique themes. 1: pit 556, house 570; 2: pits 240, 241, house 225; 3: pit 378, house 380.

The pits produced large amounts of archaeological finds attributed to the late stage of the Linear Pottery culture (LBK), dated to around 5000 cal BC. Finds have been studied over many years by a research group working in synergy (*Allard 2005*; *Bakels 1995*; *1999*; *Bonnardin 2009*; *Chartier 1991*; *Constantin 1985*; *Coudart 1998*; *Dubouloz 2003*; *Gomart 2014*; *Gomart et al. 2015*; *Hachem 1996*; *2000*; *2011*; *Hachem – Hamon 2014*; *Ilett 1989*; *2012*; *Ilett et al. 1986*; *Ilett – Hachem 2001*; *Hamon 2006*; *Ilett – Constantin 2010*; *Sidéra 1989*; *2012*). As (i) no overlapping was observed between buildings and (ii) many ceramic refits have been found between the pits located along the same house, we assert that the lateral pits of each house form part of its domestic space (*Allard et al. 2013*; *Gomart et al. 2015*). Therefore, the archaeological remains from the lateral pits reflect at least some of the activities carried out within the house.

Based on this assumption, comprehensive studies of the large ceramic assemblage from the lateral pits bordering each house were carried out (50,000 sherds, from which 2090 vessels could be recognized). These studies focused on pottery morphology and decoration (*Ilett – Constantin 2010*), raw materials (*Constantin 1985*; *Ilett – Constantin 2010*) and manufacturing processes (*Gomart 2014*). The various analyses carried out separately during individual and collective research projects revealed a significant technical variety at different steps of the production process: two sources of clay materials, two types of temper, four main manufacturing sequences and, for the fine-ware, eight principal types of comb-impressed and incised decoration.

In order to gain a better understanding of the structure of pottery production, we recently implemented an integrated approach on ceramic paste recipes and manufacturing processes at the house level (*Gomart et al. 2017*). This cross analysis revealed a production mostly carried out at the domestic scale. It offered a complex picture of the interactions between production entities, shedding light on knowledge exchanges between groups of producers. The spatial and temporal variations of the forming processes relative to the distribution of the paste recipes showed that within the same apprenticeship network, producers maintain their habitual practices regarding vessel forming, but may change or adjust their paste recipes depending on the production site. While actions associated with pot-forming seem stable over time, the stages of paste preparation appear to vary depending on the interactions between producers.

Here we present a follow-up to this work, with the aim of investigating whether pot-building processes and decoration are related. These two steps of the production sequence are often disconnected from each other when studying an archaeological ceramic assemblage: decoration is traditionally examined in order to build relative chronologies, while pot-building processes are reconstructed in order to identify technical traditions and know-how. But what is the range of options regarding decoration within one technical tradition? Are some decorative techniques and/or motifs specific to a given technical tradition? In this paper, we summarize the main results of each analysis and then present the preliminary tests conducted in order to integrate pot-building and decoration, constituting a first attempt to address these questions.

2. Pottery decoration at Cuiry-lès-Chaudardes

Pottery decoration was systematically described and the main features of fine-ware decoration can be summarized as follows. Vessels are decorated with incised and impressed motifs. The impressions are made with narrow combs (mostly 1.5 to 8 mm in width), classified according to the number of teeth. These range from two to five, although most decoration is made with either two- or three-toothed combs. More rarely, a single-pointed instrument (termed here a point) is used to make impressed decoration. With the exception of the two-toothed combs, most comb impressions are applied with a pivoting movement. Combs are hardly ever used to make incised decoration. Typical rim and main decoration motifs consist of various combinations of incised lines and comb impressions. Decoration themes are mostly horizontal bands for rim decoration and either vertical or oblique bands for the main decoration on the body of the vessel (*fig. 1*). In fact, these vertical and oblique themes account for 94 % of the vessels on the site with an identifiable main decoration pattern. Furthermore, there is no major chronological variation in the relative frequency of these two themes. Motifs composing the oblique theme mostly consist of more or less parallel incised lines. Rather less frequently, this theme is made by single bands of comb impressions. Secondary or intermediate motifs can sometimes be identified on the vessels. Despite the apparent uniformity of decoration outlined above, there are very few truly identical vessels, since a wide range of different combinations are observed, both in the rim and main decoration. However, one noticeable feature is the fact that, on any given vessel with impressed decoration, the same instrument is used to make all the impressions, whether these form part of the rim, main or intermediate decoration.

Seriation of decorated ceramic assemblages from the lateral pits associated with individual houses was used to construct a relative chronology of the settlement occupation. Eight houses were not included in the seriation as the numbers of decorated vessels were too low. The most relevant factor for the periodization is quantitative change in decoration techniques, in particular the varieties of comb-impressed decoration (*Blouet et al. 2013a*; *Ilett 2012*; *Ilett – Constantin 2010*). Based on this evidence, the development of the settlement appears continuous but can be divided into three ceramic phases (Aisne 1, 2 and 3). Majority use of two-toothed combs characterizes the first phase. The second phase sees a rise in the frequency of three-toothed combs. In the last phase, combs with four or five teeth are more frequently used, although the three-toothed comb still dominates the assemblages. Also, some new decorative themes such as garlands appear in the last phase. As a working hypothesis, it will be considered here that each phase represents a group of contemporary or near-contemporary houses and that each phase lasted an estimated 25–50 years. The internal settlement chronology ties in both with the regional sequence (*Ilett – Plateaux 1995*; *Constantin – Ilett 1997*) and with the much longer ceramic chronologies now available for Lorraine and Alsace (*Blouet et al. 2013a*; *2013b*).

3. The pottery manufacturing sequences at Cuiry-lès-Chaudardes

Research on pottery manufacturing relies on behavioural studies showing a direct relationship between the sequence of technical gestures implemented during the construction of a vessel and its producer identity (*Dietler – Herbich 1994*). It has been shown that during learning, the producers acquire motor habits that they will embody and will have difficulties in modifying afterwards (*Roux 2010*). This cognitive mechanism, which involves systematically a tutor and an apprentice who are related socially, leads to the transmission from generation to generation of "ways of doing" within apprenticeship networks, whose perimeter outlines the spread of a given community of practice (*Gosselain 2002*; *Roux 2010*). As a result, the reconstruction of the ceramic manufacturing sequences in archaeological contexts enables the identification and differentiation of groups of producers and can act as a powerful indicator of the spatial and temporal trajectories of these groups (*Mayor 2011*).

The recognition of the building gestures used to make an archaeological vessel is based on material studies which showed that the type of pressure applied on the clay material during pot-forming directly affects the spatial organisation of the pores and the mineral inclusions contained in the clay (*Pierret et al. 1996*). In line with these observations, several experimental and ethno-historical studies showed that given technical gestures implemented during the production sequence resulted in specific micro- and macrotraces visible on the ceramics surfaces and cross-sections (e.g. *Gelbert 2003*; *Livingstone-Smith 2001*; *Rye 1981*; *Shepard 1956*). The interpretation of the technical traces visible on the vessels from Cuiry-lès-Chaudardes relied on these reference works. The ceramic assemblage was examined macroscopically with a focus on the spatial organisation of the porous system and the mineral inclusions in the radial and the equatorial planes, the discontinuities occurring in the tangential plane, as well as the fracture networks: 1767 vessels exhibited diagnostic macrotraces, among which 1145 could be associated with a manufacturing sequence.

The analysis revealed a diversity of pottery technical practices throughout the settlement occupation, independent of morpho-dimensional pottery types (*Gomart 2014*; *Gomart et al. 2017*): twelve forming methods could be identified, among which four prevail (*tab. 1*). The first prevailing method (CCF1) is defined by a roughing of the base using thin superimposed coils and a shaping by hand pressure against a concave support. The body, the neck and the rim are then roughed using thick elongated coils or slabs showing oblique alternate overlapping, and shaped with discontinuous finger pressure. The second method (CCF2) comprises vessels entirely built with thin superimposed coils, which were deformed slightly or not during their placement. The vessels associated with the third method (CCF7) have no base preserved. Their body is also built with thin non-deformed coils, but their rim was formed using a largely folded band of clay. The fourth prevailing method (CCF12) also includes pots without preserved bases. The vessels show macrotraces indicating that the body and the rim were formed by superposition of thin coils, and then shaped using the beating technique (for a detailed account of the technical traces associated with these four methods, see *Gomart 2014*).

As three of these four forming methods were identified in houses attributed to two or three successive chronological phases of the settlement (forming methods CCF1, CCF2, CCF7), we assume that they were transmitted from one generation to another in the village. The fourth forming method (CCF12) was identified on a substantial number of ceramics in two houses attributed to the third chronological phase. As a result, we proposed that ceramic production at Cuiry-lès-Chaudardes was handled by four learning networks, mirroring four distinct groups of producers. The other seven identified forming methods (CCF3, CCF4, CCF5, CCF6, CCF8, CCF9, CCF10, CCF11) cannot be attributed to local learning networks, as they may reflect (i) individual variability within the settlement; or (ii) imports of vessels from other LBK settlements located in the Aisne valley, where the available clay resources are particularly homogeneous (*Gomart et al. 2017*; *Ilett – Constantin 2010*).

In a single chronological phase, several houses can be defined by the same prevailing forming method (*tab. 1*). However, these houses do not necessarily use the same clay material nor the same temper (*Gomart et al. 2017*). This observation implies a manufacturing organization at the domestic scale, where the producer (or group of producers) inhabiting each house possess their own clay recipe associated with a specific sequence of technical gestures to build their vessels. Nevertheless, we did not exclude forms of cooperation between houses, as a part of the assemblage of some houses provided vessels manufactured with a clay recipe and a forming method prevailing in other contemporary houses (*Gomart et al. 2017*).

Accepting the hypothesis of production mostly implemented at the domestic scale, we then examined the distribution of the four forming methods at the house level, in order to understand the dynamics of the pottery production throughout the settlement occupation. This provided precious information on the processes operating within the settlement, involving in particular differences between the larger and the smaller houses (*Gomart et al. 2015*).

During the first chronological phase, a high uniformity of technical practices was identified both at settlement and house levels, suggesting the foundation of the village by a single group of migrants. Two to four pot-forming methods have been identified for each house (*tab. 1*). Method CCF1 clearly prevails in five houses out of six (Houses 45, 390, 640,

	House 45		House 90		House 126		House 390		House 640		House 112	
Forming method	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total
CCF1	16	80.0%	13	37.1%	17	68.0%	18	90.0%	28	84.8%	10	71.4%
CCF2	2	10.0%	18	51.4%	6	24.0%	1	5.0%	3	9.1%	4	28.6%
CCF3	2	10.0%	–	–	–	–	1	5.0%	–	–	–	–
CCF4	–	–	2	5.7%	–	–	–	–	–	–	–	–
CCF5	–	–	2	5.7%	1	4.0%	–	–	–	–	–	–
CCF10	–	–	–	–	1	4.0%	–	–	2	6.1%	–	–
Total	20	100%	35	100%	25	100%	20	100%	33	100%	14	100%

	House 89		House 380		House 400		House 330		House 425		House 570		House 580		House 440	
Forming method	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total
CCF1	2	6.7%	37	22.4%	27	75.0%	36	85.7%	11	24.4%	2	4.5%	6	26.1%	35	48.6%
CCF2	7	23.3%	36	21.8%	4	11.1%	3	7.1%	26	57.8%	28	63.6%	16	69.6%	26	36.1%
CCF3	–	–	2	1.2%	1	2.8%	1	2.4%	–	–	–	–	–	–	1	1.4%
CCF4	–	–	3	1.8%	–	–	–	–	–	–	–	–	1	4.3%	1	1.4%
CCF5	4	13.3%	21	12.7%	2	5.6%	–	–	1	2.2%	1	2.3%	–	–	–	–
CCF6	–	–	–	–	1	2.8%	–	–	1	2.2%	1	2.3%	–	–	–	–
CCF7	14	46.7%	44	26.7%	–	–	1	2.4%	5	11.1%	7	15.9%	–	–	–	–
CCF8	–	–	9	5.5%	–	–	–	–	–	–	–	–	–	–	–	–
CCF9	2	6.7%	2	1.2%	1	2.8%	–	–	–	–	–	–	–	–	6	8.3%
CCF10	–	–	11	6.7%	–	–	1	2.4%	1	2.2%	1	2.3%	–	–	3	4.2%
CCF11	–	–	–	–	–	–	–	–	–	–	1	2.3%	–	–	–	–
CCF12	1	3.3%	–	–	–	–	–	–	–	–	3	6.8%	–	–	–	–
Total	30	100%	165	100%	36	100%	42	100%	45	100%	44	100%	23	100%	72	100%

	House 225		House 245		House 280		House 360		House 530		House 420		House 690		House 500	House 520
Forming method	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total	N total	% total
CCF1	19	28.4%	8	9.1%	4	9.1%	10	10.6%	5	12.5%	19	18.4%	6	25.0%	5	5
CCF2	31	46.3%	58	65.9%	29	65.9%	53	56.4%	29	72.5%	34	33.0%	7	29.2%	2	–
CCF3	2	3.0%	–	–	–	–	1	1.1%	1	2.5%	–	–	1	4.2%	–	–
CCF4	–	–	1	1.1%	–	–	6	6.4%	–	–	2	1.9%	1	4.2%	–	–
CCF5	7	10.4%	3	3.4%	1	2.3%	1	1.1%	2	5.0%	4	3.9%	1	4.2%	–	1
CCF6	–	–	1	1.1%	1	2.3%	1	1.1%	–	–	1	1.0%	–	–	–	–
CCF7	2	3.0%	9	10.2%	5	11.4%	11	11.7%	1	2.5%	14	13.6%	1	4.2%	–	–
CCF8	–	–	1	1.1%	–	–	2	2.1%	–	–	2	1.9%	1	4.2%	–	–
CCF9	1	1.5%	2	2.3%	1	2.3%	–	–	–	–	1	1.0%	–	–	–	–
CCF10	1	1.5%	–	–	–	–	5	5.3%	1	2.5%	4	3.9%	–	–	–	–
CCF11	3	4.5%	3	3.4%	–	–	1	1.1%	–	–	1	1.0%	–	–	–	–
CCF12	1	1.5%	2	2.3%	3	6.8%	3	3.2%	1	2.5%	21	20.4%	6	25.0%	–	–
Total	67	100%	88	100%	44	100%	94	100%	40	100%	103	100%	24	100%	7	6

Tab. 1. The forming methods identified for each house at Cuiry-lès-Chaudardes. The houses are grouped according to the three chronological phases (top: phase 1; middle: phase 2; bottom: phase 3).

112, 126). Method CCF2, which predominates in the assemblage from one small house (House 90), evokes the presence in the village of a producer (or a group of producers) from a different learning network, which might have arrived concomitantly or shortly after the group bearing Method CCF1.

During the second chronological phase, Method CCF1 still predominates in two houses out of seven (Houses 330, 400), which indicates a transmission of the technical practices

from the first to the second phase. This suggests that the group which founded the settlement is still present in the second phase of the village's development. Moreover, Method CCF2 now dominates the assemblages from three out of seven houses (Houses 570, 580, 425), indicating an assimilation in the village of the group identified only in House 90 during the first chronological phase. Lastly, Method CCF7 appears in the settlement in significant proportions: it dominates the assemblage from a small house (House 89) located in the south-eastern part of the settlement. As the appearance of Method CCF7 is a relatively sudden phenomenon, we suggested that it reflects an arrival in the village of population from another LBK settlement (*Gomart 2014*). During this chronological phase, one can note a diversification of the technical practices both at settlement and house levels: the number of forming methods identified for each house varies from three to nine (*tab. 1*). This increase in the number of pot-forming methods in each house could indicate an intensification of exchange between households or with other nearby LBK villages.

The diversity that defines this second chronological phase is especially apparent in House 380, which is located in the core of the settlement and is the largest house in the phase. It produced a particularly large refuse assemblage, with the highest amounts of flint and bone tools on the site, as well as the largest quantity of aurochs bones (*Hachem 2011*). From the ceramic point of view, House 380 is unlike any other: it is the only one that combines the three pot-forming methods prevailing in the second chronological phase (CCF1, CCF2 and CCF7), in almost equivalent proportions (*tab. 1*). The other houses of this phase are all characterized by the predominance of one or two of these methods. This observation suggests that during the second chronological phase, House 380 may have benefited from occasional or regular inputs of pottery from the various contemporary houses. This hypothesis is reinforced by the observation made by *Hachem* (*2011*) on the aurochs bones associated with this house. She showed that aurochs bones are present in almost all the other houses of the phase, but always in very small amounts. This led her to suppose a redistribution of aurochs meat, probably consumed in a communal context, from House 380 to the other houses in the village. Ultimately, the size, the central position, the particularity of the refuse assemblage and the possible input of pottery from several houses enabled us to propose a communal function for this building (*Gomart 2014*; *Gomart et al. 2015*).

During the third chronological phase, technical practices become more uniform across the settlement. One can note a further increase of Method CCF2, which is now dominant in most houses of the settlement (Houses 225, 245, 280, 360, 530, four of which are large houses). This phenomenon evokes a further consolidation of the group using this method in the village, mostly in the larger houses. Meanwhile, the proportion of vessels manufactured with Methods CCF1 and CCF7 has largely decreased and they no longer predominate in any house, which may suggest that the bearers of these technical practices are no longer present in the village. However, a new method, Method CCF12, appears in large proportions in the assemblages from two smaller houses located in the northern part of the settlement (Houses 690 and 420). This new addition possibly implies a fresh arrival of population in the village. This method, defined by use of the beating technique, is rare in the Paris basin, Alsace and Belgium, but dominant in the Lorraine region. Its appearance during the last chronological phase may thus indicate that producers from this region moved into these houses (*Gomart 2014*). During this third phase, while a homogenisation of technical practices occurs at settlement level, an increase in the number of pot-forming methods is observed

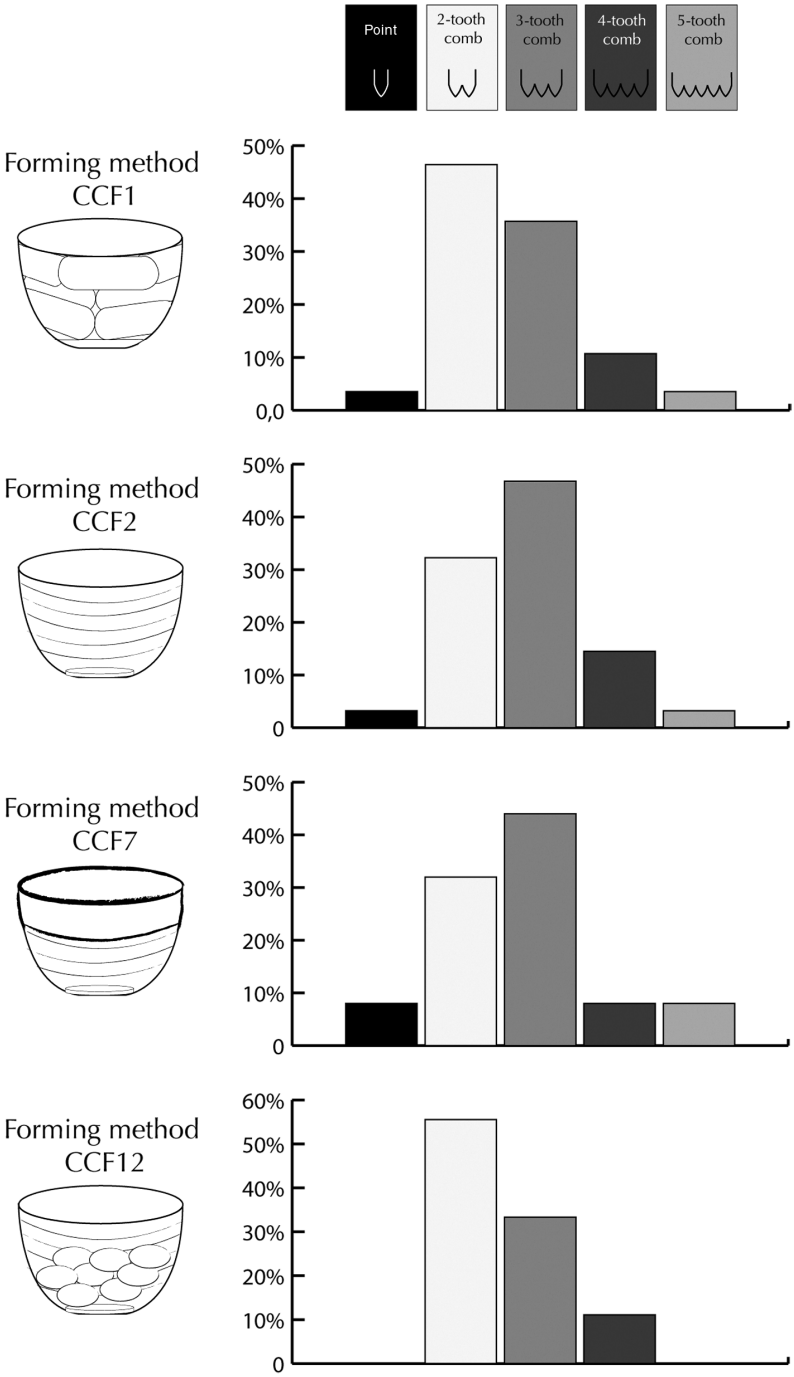

Fig. 2. Comparison between the four prevailing forming methods and the five different instruments used for impressed decoration (i.e. points and combs with two to five teeth) at Cuiry-lès-Chaudardes.

at house level: 8 to 11 are identified for each house (*tab. 1*). This suggests further intensification of exchange between households or with other nearby LBK villages towards the end of the settlement occupation.

Ultimately, the spatial distribution of the four prevailing forming methods for each chronological phase at Cuiry-lès-Chaudardes shows complex settlement dynamics and outlines differences between the larger and the smaller houses throughout the occupation (*Gomart et al. 2015*):

The larger houses (3 back units) are mostly dominated by one of the forming methods that prevail in the chronological phase (Method CCF1 during the first phase, Methods CCF1 and CCF2 during the second and third phases). Therefore, these houses are mostly characterized by homogeneity of pottery technical practices, except House 380 for which a specific communal function was proposed. Moreover, the larger houses attributed to the second and the third phases are systematically characterized by forming methods already identified in the previous chronological phase. These houses thus reflect a continuity (and consequently a transmission) of technical know-how over generations within the settlement (*Gomart et al. 2015*).

The smaller houses (1 or 2 back units) are often characterized by forming methods which are less represented in the various chronological phases (first phase: CCF2 defining only House 90; second phase: CCF7 defining only House 89; third phase: CCF12 defining only Houses 690 and 420). In these houses the pottery built with these less represented forming methods is often associated with vessels made with forming methods prevailing in the larger contemporary houses (*Gomart et al. 2017*). This observation leads us to suppose that the smaller houses received some pots from the larger houses. Besides, in three of these smaller houses attributed to the second phase (House 89) and third phase (Houses 690 and 420) we noted the emergence of a new forming method, which was absent in the previous chronological phase. We assert that these major changes in technical practices reflect arrivals of new populations in the village. While Method CCF7 cannot be directly connected to another site in the current state of analysis, Method CCF12 is dominant on LBK sites in the Moselle region.

House 380 in the second chronological phase is the only large house (3 back units) dominated by three distinct forming methods. The particularities of its refuse assemblage suggest that this building had a communal function.

4. Are forming techniques and decoration related?

4.1. Decoration techniques, instruments and motifs

The reconstruction of pot-forming methods at Cuiry-lès-Chaudardes reveals several learning networks implementing their production at house level. But do these different producer groups have the same standards and techniques when decorating their pots? To address this question, we conducted an analysis to compare pot-forming methods with decoration instruments (*tab. 2*), decoration techniques (*tab. 3*) and main decoration motifs (*tab. 4*). As the number of decorated vessels associated with a pot-forming method is particularly low for each house, we conducted the tests for each chronological phase. This first investigation

		Decoration instrument											
	Forming method	Point		2-tooth comb		3-tooth comb		4-tooth comb		5-tooth comb		Total	
		Nb	%	Nb	%	Nb	%	Nb	%	Nb	%	Nb	%
Aisne 1	CCF1	–	–	1	–	1	–	1	–	–	–	3	–
	CCF2	–	–	3	–	–	–	–	–	–	–	3	–
	CCF3	–	–	2	–	–	–	–	–	–	–	2	–
	CCF5	–	–	–	–	–	–	–	–	–	–	–	–
	Total Aisne 1	***–***	***–***	***6***	***–***	***1***	***–***	***1***	***–***	***–***	***–***	***8***	***–***
Aisne 2	CCF1	1	5.3%	7	36.8%	8	42.1%	2	10.5%	1	5.3%	19	100%
	CCF2	–	–	6	35.3%	9	52.9%	2	11.8%	–	–	17	100%
	CCF3	1	–	–	–	1	–	–	–	–	–	2	–
	CCF5	–	–	–	–	–	–	–	–	–	–	–	–
	CCF7	1	5.6%	8	44.4%	6	33.3%	1	5.6%	2	11.1%	18	100%
	CCF8	–	–	–	–	1	–	–	–	–	–	1	–
	CCF9	1	–	2	–	–	–	1	–	1	–	5	–
	CCF10	–	–	2	–	1	–	–	–	–	–	3	–
	CCF11	–	–	–	–	1	–	–	–	–	–	1	–
	CCF12	–	–	1	–		–	–	–	–	–	1	–
	Total Aisne 2	***4***	***6.0%***	***26***	***38.8%***	***27***	***40.3%***	***6***	***9.0%***	***4***	***6.0%***	***67***	***100%***
Aisne 3	CCF1	–	–	5	–	1	–	–	–	–	–	6	–
	CCF2	2	6.3%	10	31.3%	14	43.8%	6	18.8%	–	–	32	100%
	CCF3	–	–	1	–	–	–	–	–	–	–	1	–
	CCF4	–	–	–	–	1	–	–	–	–	–	1	–
	CCF5	–	–	–	–	1	–	1	–	1	–	3	–
	CCF6	–	–	1	–	–	–	1	–	–	–	2	–
	CCF7	1	–	–	–	2	–	–	–	–	–	3	–
	CCF9	–	–	1	–	–	–	–	–	–	–	1	–
	CCF10	–	–	1	–	–	–	–	–	–	–	1	–
	CCF11	–	–	–		–	–	–	–	–	–	–	–
	CCF12	–	–	2	–	-	-	1	-	-	-	3	-
	Total Aisne 3	***3***	***5.7%***	***21***	***39.6%***	***19***	***35.8%***	***9***	***17.0%***	***1***	***1.9%***	***53***	***100%***

Tab. 2. Relationship between pot-forming methods and decoration instruments (point, 2-tooth comb, 3-tooth comb, 4-tooth comb and 5-tooth comb) at Cuiry-lès-Chaudardes, for each of the three chronological phases. Percentages are not calculated for numbers under 20.

did not reveal a clear correlation between forming and decorating. Figure 2 shows an example of another analysis, in which we compared the four prevailing forming methods with the various instruments used for decorating (points and combs with two to five teeth) for the whole settlement occupation. The slight differences between the forming methods CCF1 and CCF2 regarding the use of two-toothed combs and three-toothed combs appear to be related to chronology. In fact, the first chronological phase is mostly characterized by use of two-toothed combs, but also by the forming method CCF1, which is dominant in five houses out of seven. Furthermore, the second chronological phase is mostly defined by use of three-toothed combs, but also by an increase of the forming method CCF2. Ultimately, we did not find any obvious connection between a given manufacturing sequence and a specific decoration instrument, technique or main motif. Overall, the tests performed suggested that the producers from the four learning networks identified at Cuiry-lès-Chaudardes share common ideas on the decoration of their vessels. This suggests that forming and decorating were associated with different mechanisms, as has already been outlined in many ethno-historical contexts (e.g. *Gelbert 2003*; *Gosselain 2002*).

		Decoration technique							
	Forming method	Pivoted impression		Separate impression		Comb incisions		Total	
		Nb	%	Nb	%	Nb	%	Nb	%
Aisne 1	CCF1	3	–	–	–	–	–	3	–
	CCF2	1	–	2	–	–	–	3	–
	CCF3	1	–	1	–	–	–	2	–
	CCF5	0	–	–	–	–	–	–	–
	Total Aisne 1	***5***	**–**	***3***	**–**	**–**	**–**	***8***	**–**
Aisne 2	CCF1	16	84.2%	3	15.8%	–	–	19	100%
	CCF2	15	88.2%	2	11.8%	–	–	17	100%
	CCF3	1	–	1	–	–	–	2	–
	CCF5	–	–	–	–	–	–	–	–
	CCF7	12	66.7%	6	33.3%	–	–	18	100%
	CCF8	1	–	–	–	–	–	1	–
	CCF9	2	–	3	–	–	–	5	–
	CCF10	2	–	1	–	–	–	3	–
	CCF11	1	–	–	–	–	–	1	–
	CCF12	–	–	1	–	–	–	1	–
	Total Aisne 2	***50***	***74.6%***	***17***	***25.4%***	**–**	**–**	***67***	***100%***
Aisne 3	CCF1	4	–	2	–	–	–	6	–
	CCF2	25	78.1%	5	15.6%	2	6.3%	32	100%
	CCF3	1	–	–	–	–	–	1	–
	CCF4	–	–	1	–	–	–	1	–
	CCF5	3	–	–	–	–	–	3	–
	CCF6	2	–	–	–	–	–	2	–
	CCF7	2	–	1	–	–	–	3	–
	CCF9	1	–	–	–	–	–	1	–
	CCF10	1	–	–	–	–	–	1	–
	CCF11		–	–	–	–	–	–	–
	CCF12	3	–	–	–	–	–	3	–
	Total Aisne 3	***42***	***79.2%***	***9***	***17.0%***	***2***	***3.8%***	***53***	***100%***

Tab. 3. Relationship between pot-forming methods and decoration techniques (pivoted impression, separate impression and comb incisions) at Cuiry-lès-Chaudardes, for each of the three chronological phases. Percentages are not calculated for numbers under 20.

4.2. Atypical decoration

The variation we observed between houses in pot-forming practices led us to extend our investigation to the decoration that appears to differ from the local decorative standards. Thus, as a second step, we tracked the vessels characterized by what can be termed *atypical* decoration and examined how they were spatially and chronologically distributed within the settlement. Atypical decoration is defined here as main decoration motifs and themes that are different from the predominant local styles but similar to decoration found in other LBK settlement regions (*fig. 3*). Six regions are relevant here, covering most of the Rhine basin and ranging from the Rhine-Meuse area in the north to upper Alsace in the south (*tab. 5*). Vessels with atypical main decoration represent around 8 % of the whole decorated fine-ware assemblage at Cuiry-lès-Chaudardes. Most of this exogenous decoration is comparable to styles typical of the Moselle region, notably Lorraine. A recent review of the evidence mentions eight types of main decoration that can be attributed to stylistic traditions from the Moselle (*Blouet et al. 2013b*). The most commonly represented theme is a chevron pattern consisting of comb-impressed bands, occasionally combined with an incised line (*fig. 3: 1, 2*;

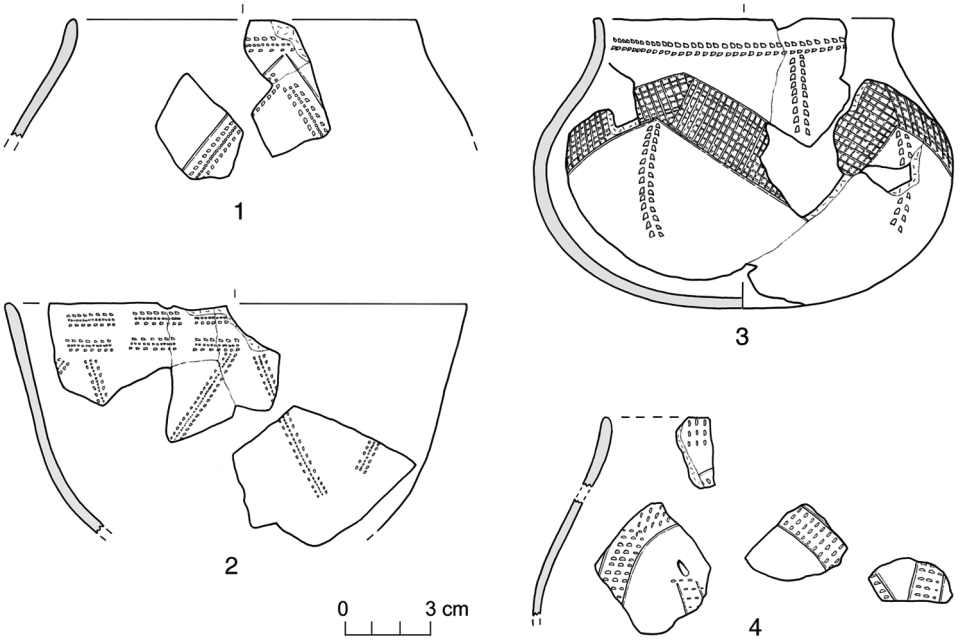

Fig. 3. Examples of atypical pottery decoration in Moselle style at Cuiry-lès-Chaudardes. 1: pit 233, house 225; 2: pit 556, house 570; 3: pit 295, house 280; 4: pit 358, house 360.

Blouet et al. 2013a, figs. 59 and 63). Rarer motifs include incised bands filled-in with either crossed incised lines (*fig. 3: 3*; *Blouet et al. 2013a*, figs. 56 and 58) or comb impressions (*fig 3: 4*; *Blouet et al. 2013a*, fig. 57).

It is important to note that at Cuiry-lès-Chaudardes, atypical decoration occurs on vessels made with local raw materials, suggesting they were produced in the settlement or in other nearby settlements in the Aisne valley with broadly similar clay resources. Therefore, this atypical decoration does not seem to involve vessels imported from the actual regions where the exogenous decoration styles are supposed to originate. It must be underlined that many of the vessels with atypical decoration are represented by small sherds that cannot be easily attributed to a pot-forming method. For this reason, the approach adopted here is to examine the distribution of atypical decoration in the various houses assigned to the three chronological phases and compare this evidence with the prevalent pot-forming methods in each of these houses (*tab. 5*).

This analysis enables us to make several observations:

– First, the area of origin of the atypical decoration varies through the occupation sequence of the settlement, with the exception of the 'Moselle' styles, present from beginning to end. 'Upper Alsace' decoration only occurs in the first phase. 'Rhine-Meuse' motifs are also attested from the beginning of the sequence, but continue into the second phase. 'Middle Rhine' decoration is present from the second chronological phase onwards. In the third phase, the 'Rhine-Meuse' motifs disappear, and 'lower Alsace' and the 'Main-Weser' motifs appear for the first time.

		Main decoration motif															
	Forming method	B		BLB		L		RB		LB		RL		T		Total	
		Nb	%	Nb	%	Nb	%	Nb	%	Nb	%	Nb	%	Nb	%	Nb	%
Aisne 1	CCF1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–
	CCF2	2	–	1	–	1	–	–	–	–	–	–	–	–	–	4	–
	CCF3	1	–	–	–	1	–	–	–	–	–	–	–	–	–	2	–
	CCF5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
	Total Aisne 1	***5***	***–***	***1***	***–***	***2***	***–***	***–***	***–***	***–***	***–***	***–***	***–***	***–***	***–***	***8***	***–***
Aisne 2	CCF1	8	80.0%	1	10.0%	1	10.0%	–	–	–	–	–	–	–	–	10	
	CCF2	8	80.0%	1	10.0%	1	10.0%	–	–	–	–	–	–	–	–	10	100%
	CCF3	2	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–
	CCF5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–
	CCF7	6	40.0%	6	40.0%	2	13.3%	–	–	–	–	1	6.7%	–	–	15	100%
	CCF8	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
	CCF9	1	–	1	–	–	–	–	–	1	–	–	–	–	–	3	–
	CCF10	1	–	1	–	–	–	–	–	–	–	–	–	–	–	2	–
	CCF11	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
	CCF12	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–
	Total Aisne 2	***28***	***62.2%***	***10***	***22.2%***	***5***	***11.1%***	***–***	***–***	***1***	***2.2%***	***1***	***2.2%***	***–***	***–***	***45***	***100%***
Aisne 3	CCF1	2	–	1	–	1	–	–	–	–	–	–	–	1	–	5	–
	CCF2	13	56.5%	4	17.4%	4	17.4%	–	–	–	–	2	8.7%	–	–	23	100%
	CCF3	–	–	1	–	2	–	–	–	–	–	–	–	–	–	3	–
	CCF4	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–
	CCF5	1	–	1	–	1	–	–	–	–	–	–	–	–	–	3	–
	CCF6	–	–	–	–	1	–	–	–	–	–	1	–	–	–	2	–
	CCF7	1	–	–	–	–	–	–	–	–	–	1	–	–	–	2	–
	CCF9	–	–	–	–	2	–	–	–	–	–	–	–	–	–	2	–
	CCF10	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
	CCF11	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–
	CCF12	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
	Total Aisne 3	***19***	***43.2%***	***7***	***15.9%***	***12***	***27.3%***	***1***	***2.3%***	***–***	***–***	***4***	***9.1%***	***1***	***2.3%***	***44***	***100%***

Tab. 4. Relationship between pot-forming methods and main motifs at Cuiry-lès-Chaudardes, for each of the three chronological phases. B: band(s) of impressions; BLB: incised line(s) bordered on both sides by band of impressions; L: incised lines; RB: incised band filled with impressions; LB: incised line(s) bordered on one side by band of impressions; RL: incised band filled with incised lines; T: incised triangle. Percentages are not calculated for numbers under 20.

– Second, atypical decorations tend to increase over time at the settlement. During the first chronological phase, 8 vessels show atypical decoration; during the second phase, 21 decorated vessels can be defined as atypical; during the third phase, 26 atypical decorated vessels were identified. This trend is less marked in terms of relative frequency (ratio atypical vessels/all decorated vessels), but the third phase still shows a slightly higher proportion of atypical vessels.

– Third, all the houses characterized by less common or exogenous forming methods comprise at least one atypical decoration, even during the first chronological phase, where atypical decoration occurs in only three houses out of six. This is also the case during the second and third phases, where there are larger numbers of vessels with atypical decoration, with House 89 (CCF7, phase 2) and with Houses 420 and 690 (CCF12, phase 3).

– Lastly, House 380, interpreted as a communal building, is associated with a higher number of atypically decorated vessels than other houses dated to the second chronological phase.

				Atypical decoration							
House n°	Phase n°	N rear bays	Prevailing pot-forming methods	upper Alsace	Rhine-Meuse	Moselle	middle Rhine	lower Alsace	Main-Weser	Total atypical (vessels)	Total decorated vessels
45	*1*	3	CCF1	1	1	2				4	21
90	*1*	1	CCF2/CCF1			2				2	22
112	*1*	1	CCF1/CCF2								9
126	*1*	1	CCF1/CCF2								18
390	*1*	1	CCF1								13
640	*1*	?	CCF1			2				2	19
11	*2*	3	ND			1				1	11
89	*2*	1	CCF7/CCF2				1			1	12
330	*2*	1	CCF1				1			1	29
380	*2*	3	CCF1/CCF2/CCF7		2	4	1			7	86
400	*2*	1	CCF1		1	1				2	19
410	*2*	1	ND								9
425	*2*	1	CCF1/CCF2		1					1	20
440	*2*	1	CCF1/CCF2		2	2				4	44
570	*2*	1	CCF2			3				3	29
580	*2*	1	CCF1/CCF2			1				1	22
225	*3*	3	CCF2			2	2	2	1	7	83
245	*3*	3	CCF2			1	1	1	1	4	42
280	*3*	2	CCF2			4				4	21
360	*3*	2	CCF2			5	2			7	58
420	*3*	2	CCF1/CCF2/CCF12			1				1	13
500	*3*	3	ND			1				1	9
530	*3*	2	CCF2			1				1	27
690	*3*	1	CCF1/CCF2/CCF12			1				1	16
Total	–	–	–	**1**	**7**	**34**	**8**	**3**	**2**	***55***	***652***

Tab. 5. Atypical main decoration (in numbers of vessels) for dated house assemblages at Cuiry-lès-Chaudardes, in relation to probable regions of stylistic influence. N rear bays: number of bays after the rear corridor, given as an indication of house size (after *Gomart et al. 2015*, fig. 3). ND: no data.

5. Discussion

At Cuiry-lès-Chaudardes, no obvious relationship can be observed between pottery manufacturing sequences and decoration. However, a qualitative analysis of the evidence both for decoration differing from local standards and for the prevalent pot-forming methods in each house shows some spatial and chronological trends, enabling us to formulate new working hypotheses.

An important point is the congruence, throughout the occupation sequence at Cuiry-lès-Chaudardes, between the appearance of new pot-forming methods, the increase in the number of pot-forming methods for each house and the increase in vessels with atypical decoration. We interpreted the appearance of new pot-forming methods as an indicator of successive arrivals of population in the settlement and the increasing number of pot-forming methods attested for houses as an intensification of exchange and contact between houses or with other LBK villages. The spatial and chronological distribution of atypical decoration tends to reinforce these hypotheses. In fact, it is tempting to assume that the incoming producers would not have suddenly abandoned their own decorative standards. Rather, we can suppose that they first implemented their own standards, and would then have

gradually started using the local decorative norms. This hypothesis could not only explain the systematic occurrence of locally-made vessels showing atypical decoration in the smaller houses dominated by exogenous forming methods, but also the increasing number of atypically decorated vessels through the whole occupation sequence of the settlement. Following this transitional process, the newcomers would have fully adopted the local decorative standards, but would have kept their own manufacturing methods. This process could explain the occurrence in the same houses of vessels made with exogenous forming methods, but decorated in local style. Before offering any definitive interpretation, the relation between atypical decoration and specific technical know-how needs to be addressed through comprehensive statistical analyses on a larger sample of assemblages, integrating the ceramic evidence from all LBK sites in the Aisne region.

Tracking the exogenous decorations on a larger pottery sample may enable us to pursue these hypotheses further. The evidence outlined above for atypically decorated vessels at Cuiry-lès-Chaudardes suggests some chronological variation in the various regions of influence (lower Alsace, Rhine-Meuse etc.). Further work is required here, and it remains to be seen whether this is a specific feature related to this site or whether this is a general trend affecting all the Aisne valley settlements. This investigation, associated with the comprehensive reconstruction of pot-forming methods, could enable us to trace the trajectories of specific producer groups and to draw the perimeter of interaction networks within the LBK sphere with an unprecedented resolution.

This investigation at Cuiry-lès-Chaudardes also raises the question of the status of the locally-made vessels with atypical decoration, and in turn of their producers. As we have seen, House 380, interpreted as a place for communal gatherings that probably involved consumption of aurochs, comprises the highest number of atypically decorated vessels for the second chronological phase. Future studies will now be orientated towards a thorough examination of the specificities of houses that seem more closely associated with atypical decoration.

6. Conclusion

Throughout its occupation, the settlement of Cuiry-lès-Chaudardes comprises two groups of houses, which may reflect two types of socio-economic functioning (*Gomart et al. 2015*). With the larger houses, the conservatism of ceramic forming processes suggests a transmission of technical know-how over the long term in the settlement. With the smaller houses, substantially different behaviour can be assumed: the emergence of new ceramic forming methods, which were absent in previous chronological phases, could indicate incoming people from other LBK settlements or other LBK settlement areas. In this study, we have confronted this evidence with the data on pottery decoration. While decoration techniques, instruments and motifs did not show a direct relationship with manufacturing processes, the examination of locally-made vessels with atypical decoration enabled us to formulate new hypotheses. The preliminary results we obtained on atypical decoration tend to reinforce and refine the image of a community in constant interaction within the village, but also widely connected to other regions. At Cuiry-lès-Chaudardes, there could well be a relationship between the occurrence of exogenous forming methods in the second and

third chronological phases and higher numbers of atypical decorations. These observations remain anecdotal as they currently rely on a limited body of data. However, bearing in mind that producers from other LBK villages or other LBK settlement regions may have moved in to Cuiry-lès-Chaudardes throughout the occupation of the settlement, these observations raise the question of the newcomers' behaviour concerning local decoration standards. Overall, this first test, that has yet to be statistically confirmed, raises the crucial question of the assimilation of individuals in the LBK village communities and provides food for thought about the social dynamics involved in Early Neolithic mobility.

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References

Allard, P. 2005: L'industrie lithique des populations rubanées du Nord-Est de la France et de la Belgique. Rahden/Westf.: Verlag Marie Leidorf.

Allard, P. – Hamon, C. – Bonnardin, S. – Cayol, N. – Chartier, M. – Coudart, A. – Dubouloz, J. – Gomart, L. – Hachem, L. – Ilett, M. – Meunier, K. – Monchablon, C. – Thevenet, C. 2013: Linear Pottery domestic space: taphonomy, distribution of finds and economy in the Aisne valley settlements. In: C. Hamon – P. Allard – M. Ilett eds., The Domestic Space in LBK Settlements, Rahden/Westf.: Verlag Marie Leidorf, 9–28.

Bakels, C. 1995: Late Glacial Holocene pollen records from the Aisne and Vesle valleys, Northern France: the pollen diagrams from Maizy-Cuiry and Bazoches. In: G. F. Herngreen – L. van der Valk eds., Neogene and Quaternary geology of North-West Europe. Mededelingen Rijks Geologische Dienst 52, Haarlem: Rijks Geologische Dienst, 223–234.

Bakels, C. 1999: Archaeobotanical investigations in the Aisne valley, northern France, from the Neolithic up to the early Middle Ages. Vegetation History and Archaeobotany 8, 71–77.

Blouet, V. – Klag, T. – Petitdidier, M.-P. – Thomashausen, L. 2013a: Le Néolithique ancien en Lorraine. Volume 1: Étude typochronologique de la céramique. Mémoire 55. Paris: Société Préhistorique Française.

Blouet, V. – Klag, T. – Petitdidier, M.-P. – Thomashausen, L. (avec la collaboration de Ilett, M., Constantin, C.) 2013b: Synchronisation des séquences du Rubané de Lorraine et du Bassin parisien. In: K. Meunier – M. Ilett eds., Chronologie du Rubané dans le Bassin parisien. Bulletin de la Société Préhistorique Française 110, 513–537.

Bonnardin, S. 2009: La parure funéraire au Néolithique ancien dans les Bassins parisien et rhénan : Rubané, Hinkelstein et Villeneuve-Saint-Germain. Mémoire 49. Paris: Société Préhistorique Française.

Chartier, M. 1991: Etude des paléoenvironnements de la vallée de l'Aisne à l'Holocène. Thèse de doctorat en géographie physique de l'Université Paris VII.

Constantin, C. 1985: Fin du Rubané, céramique du Limbourg et post-rubané. Le néolithique le plus ancien en Hainaut et en Bassin parisien. BAR International Series 273. Oxford: Archaeopress.

Constantin, C. – Ilett, M. 1997: Une étape finale dans le Rubané Récent du Bassin parisien. In: C. Jeunesse ed., Le Néolithique danubien et ses marges entre Rhin et Seine. Supplément aux Cahiers de l'Association pour la Promotion de la Recherche Archéologique en Alsace, Zimmersheim: Association pour la Promotion de la Recherche Archéologique en Alsace, 281–300.

Coudart, A. 1998: Architecture et société néolithique : l'unité et la variance de la maison danubienne. Documents d'archéologie française 67. Paris: Editions de la Maison des sciences de l'Homme.

Dietler, M. – Herbich, I. 1994: Ceramics and ethnic identity: ethnoarchaeological observations on the distribution of pottery styles and the relationship between the social contexts of production and consumption. In: D. Binder – J. Courtin eds., Terre cuite et société. La céramique, document technique,

économique, culturel. Actes des XIVes Rencontres internationales d'archéologie et d'histoire d'Antibes, 21–23 octobre 1993, Juan-les-Pins: Éditions APCDA, 459–472.

Dubouloz, J. 2003: Datation absolue du premier Néolithique du Bassin parisien: complément et relecture des données RRBP et VSG. Bulletin de la Société Préhistorique Française 100, 671–689.

Gelbert, A. 2003: Traditions céramiques et emprunts techniques dans la vallée du fleuve Sénégal. Paris: Éditions de la Maison des sciences de l'homme/Éditions Epistèmes.

Gomart, L. 2014: Traditions techniques et production céramique au Néolithique ancien. Étude de huit sites rubanés du nord est de la France et de Belgique. Leiden: Sidestone Press.

Gomart, L. – Constantin, C. – Burnez-Lanotte, L. 2017: Ceramic production and village communities during the Early Neolithic in France and Belgium: issues regarding tempers and pot-forming processes. In: L. Burnez-Lanotte ed., Matières à Penser: sélection et traitement des matières premières dans les productions potières du Néolithique ancien. Séance 11 de la Société Préhistorique Française, Namur, 29–30 mai 2015, Paris: Société Préhistorique Française, 133–156.

Gomart, L. – Hachem, L. – Hamon, C. – Giligny, F. – Ilett, M. 2015: Household integration within Neolithic villages: a new model for the Linear Pottery Culture in west-central Europe. Journal of Anthropological Archaeology 40, 230–249.

Gosselain, O. 2002: Poteries du Cameroun méridional: styles techniques et rapports à l'identité. Monographie du CRA 26. Paris: CNRS Editions.

Hachem, L. 1995: La représentation de la chasse dans les espaces villageois rubanés de la vallée de l'Aisne (France). In: Actes du 5e Colloque International de l'Homme et l'Animal. Société de Recherche Interdisciplinaire, Genève, nov. 1994, Antropozoologica 21, 197–205.

Hachem, L. 2000: New observations on the Bandkeramik house and social organization. Antiquity 74, 308–312.

Hachem, L. 2011: Le site néolithique de Cuiry-lès-Chaudardes – I. De l'analyse de la faune à la structuration sociale. Rahden/Westf.: Verlag Marie Leidorf.

Hachem, L. – Hamon, C. 2014: Linear Pottery culture household organisation: an economic model. In: A. Whittle – P. Bickle eds., Early Farmers: The View from Archaeology and Science. Proceedings of the British Academy 198, 159–180.

Hamon, C. 2006: Broyage et abrasion au Néolithique ancien. Caractérisation technique et fonctionnelle des outillages en grès du Bassin parisien. BAR International Series 1551. Oxford: Archaeopress.

Ilett, M. 1989: Variation in neolithic decorated ceramics at Cuiry-lès-Chaudardes (Aisne, France). In: J. Rulf ed., Bylany Seminar 1987. Collected papers, Praha: Archeologický ústav, 99–106.

Ilett, M. 2012: Linear Pottery and Blicquy/Villeneuve-Saint-Germain settlement in the Aisne valley and its environs. An overview. In: R. Smolnik ed., Siedlungsstruktur und Kulturwandel in der Bandkeramik. Beiträge der internationalen Tagung "Neue Fragen zur Bandkeramik oder alles beim Alten?!", Leipzig 23. bis 24. September 2010, Dresden: Landesamt für Archäologie, 69–79.

Ilett, M. – Constantin, C. 2010: La production céramique du Rubané de la vallée de l'Aisne : état des lieux. In: C. Manen – F. Convertini – D. Binder – I. Sénépart, eds., Premières sociétés paysannes de Méditerranée occidentale : structures des productions céramiques. Séance de la Société Préhistorique Française, Toulouse, 11–12 mai 2007. Mémoire 51, Paris: Société Préhistorique Française, 239–248.

Ilett, M. – Hachem, L. 2001: Le village néolithique de Cuiry-lès-Chaudardes (Aisne). In: J. Guilaine ed., Communautés villageoises du Proche-Orient à l'Atlantique, 8000–2000 avant notre ère. Séminaire du Collège de France, Paris: Errances, Collection des Hespérides, 171–184.

Ilett, M. – Plateaux, M. eds. 1995: Le site néolithique de Berry-au-Bac "le Chemin de la Pêcherie" (Aisne). Monographie du CRA 15. Paris: Editions du CNRS.

Ilett, M. – Plateaux, M. – Coudart, A. 1986: Analyse spatiale des habitats du Rubané récent : problèmes actuels. In: J.-P. Demoule – J. Guilaine eds., Le Néolithique de la France, Paris: Picard, 131–140.

Livingstone Smith, A. 2001: Chaîne opératoire de la poterie : références ethnographiques, analyses et reconstitution. Thèse de Doctorat en Philosophie et Lettres de l'Université libre, Faculté de Philosophie et Lettres, Bruxelles.

Mayor, A. 2011: Traditions céramiques dans la boucle du Niger: Ethnoarchéologie et Histoire du peuplement au temps des empires précoloniaux. Journal of African Archaeology, Monograph series 7. Human population and paleoenvironment in West Africa 2. Frankfurt am Main: Africa magna Verlag.

Pierret, A. – Moran, C. J. – Bresson, L.-M. 1996: Calibration and Visualization of Wall-Thickness and Porosity Distributions of Ceramics Using X-Radiography and Image Processing. Journal of Archaeological Science 23, 419–428.

Roux, V. 2010: Lecture anthropologique des assemblages céramiques : fondements et mise en œuvre de l'analyse technologique. In: F. Giligny – S. Mery eds., Approches de la chaîne opératoire de la céramique : le façonnage. Les nouvelles de l'Archéologie 119, Paris: Maison des Sciences de l'Homme, 4–9.
Rye, O. S. 1981: Pottery Technology: Principles and Reconstruction. Washington DC: Taraxacum.
Shepard, A. O. 1956: Ceramics for the archaeologist. Washington: Carnegie Institution of Washington.
Sidéra, I. 1989: Un complément des données sur les sociétés rubanées : l'industrie osseuse à Cuiry-lès-Chaudardes. BAR International series 520. Oxford: Archaeopress.
Sidéra, I. 2012: Nouveau regard sur la néolithisation. Collection Travaux de la Maison René-Ginouvès 15. Paris: Éditions De Boccard.

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