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Perceiving the Women of the Linearbandkeramik Culture (LBK). Contributions and Limits of a Gender Approach in Neolithic Archaeology

Percevoir les femmes de la culture rubanée Apports et limites d'une approche de genre en archéologie néolithique

Anne AUGEREAU

Abstract: The invisibility of women in history and archaeology is frequently emphasised. Studying gender is one of the ways to go beyond this observation as social sciences regularly state that gender systems shape the entire social body. Indeed, roles and gender relations between men and women and social groups are regulated by norms transmitted by educative systems and religious doctrines. These norms and rules permit the functioning of the political systems and are transcribed in institutions and deployed in social organisation. Thus, the study of gender leads to the study of society as a whole. Moreover, the existence of gender is mainly material. The differences between women and men are substantiated by clothing and jewellery, division of labour, places and spaces, bodily postures, technical tools and process, etc. Based on this framework, a methodology is proposed to investigate gender in archaeology and, in particular, Neolithic women from the Linearbandkeramik culture. It consists in defining the aspects of gender perceptible in the archaeological data, then to confront them with the manifestations of gender reported by the social sciences and thus to evaluate the gaps between the “living” gender and the gender as it appears in the archaeological data. The results allow us to highlight several women groups, by comparing with other social groups, notably the group of men with adze. The latter is the most cohesive with its own traits in terms of diet, local origin and roles. Women are more diverse and further study is needed to identify the diversity of the LBK women. In addition, this study shows that archaeology gives only a very incomplete picture of gender. In terms of the division of labour by sex, only a few tasks have been highlighted. Many other aspects, such as sexual rights and lineage systems, the gender of spaces, religion, cult, myths, narratives and cosmogony, which are central elements of gender regimes, will likely remain unknown. However, there is room for improvement as archaeological gender studies are not just a binary study of men and women. In this respect, there is a need to explore the social variability in terms of identity, roles and status of the LBK population as a whole, particularly of groups of women.

Keywords: gender studies, Linearbandkeramik culture, Central Europe, Paris Basin, woman, social identity, division of labour, diet, health, mobility.

Résumé : L'invisibilité des femmes du passé, qu'il soit historique ou archéologique, a été maintes fois soulignée. La mise en œuvre d'une étude du genre est un des moyens de dépasser ce constat. En effet, dans les sciences humaines, les régimes de genre sont parfois considérés comme étant au fondement du corps social. Les rôles et les rapports entre les hommes et les femmes et, plus largement, entre les différents groupes sociaux sont réglés par des normes transmises par les systèmes éducatifs et les doctrines religieuses ; ces normes et ces règles sont transposées dans le système politique, transcrites dans les institutions et déployées dans l'organisation sociale. Étudier le genre, c'est étudier la société dans sa globalité. De plus, le genre a une existence matérielle : il s'exprime dans les vêtements, dans les activités techniques et économiques, dans l'espace, dans les objets et les outils. Il laisse également son empreinte dans les corps. Aussi, si on admet que la démarche archéologique repose sur l'étude de la culture matérielle, c'est-à-dire l'ensemble des objets, techniques et

moyens matériels mis en œuvre et utilisés par un groupe humain, notre discipline est fondée à explorer ce champ. Néanmoins, aborder le genre et la place des femmes durant la Préhistoire reste complexe. Pour ce faire, une méthodologie est ici proposée afin de mettre en évidence les apports et les limites de l'archéologie à la connaissance du genre et des femmes. Elle consiste à définir les aspects du genre perceptibles dans les données archéologiques, puis à les confronter avec les manifestations du genre rapportées dans les sciences sociales. Son objectif est d'évaluer les écarts entre le genre « vivant » et le genre tel qu'il apparaît dans les données archéologiques, notamment pour en apprécier les apports et les limites. Cinq aspects matériels du genre – l'identité de genre ; les rôles de genre ; les différences de genre dans l'alimentation, la santé et la mobilité ; l'acquisition du genre ; le pouvoir – sont abordés à l'aide d'une grille de lecture qui combine différentes données : distribution des biens funéraires selon le sexe et selon l'âge ; iconographies ; éléments du costume pour approcher les identités sociales ; résultats des isotopes stables (strontium, azote et carbone) et autres analyses chimiques pour appréhender la mobilité et l'alimentation ; ostéologie, études des marqueurs osseux d'activité et tracéologie pour restituer les tâches et la santé des individus ; étude des immatures pour apprécier la construction du genre ; valeur des mobiliers dans les tombes pour repérer les élites sociales ; etc.

Appliquée au Rubané occidental, cette grille de lecture permet de mettre en évidence quelques tendances. Tout d'abord, certains hommes, ceux détenant des herminettes dans leur tombe, ressortent facilement des données. Ils se caractérisent en effet par plusieurs aspects qui leur sont propres. D'abord, ils sont tous d'origine locale et, dans certains cas, ils ont une alimentation plus riche en protéines animales que le reste de la population. Ils semblent avoir aussi des rôles et des activités spécifiques. En effet, de récentes études de tracéologie lithique montrent que les herminettes sont impliquées dans le travail du bois et dans des activités de boucherie. La violence interpersonnelle est aussi dans leurs attributions ainsi que, probablement, la chasse au grand gibier.

Les femmes se distinguent surtout par effet de contraste avec ces hommes. Cependant, la population féminine n'est pas homogène. La parure, les éléments des vêtements, les broderies, qui sont les principaux biens funéraires affectés aux femmes, font ressortir plusieurs catégories selon leur présence et leur abondance. De plus, les femmes ont des régimes alimentaires variés et peuvent être d'origine locale ou non locale. Quant à leurs activités, la tracéologie et l'étude des marqueurs d'activités indiquent qu'elles sont impliquées dans le travail des matières souples, comme la peau ou les tissus, dans le filage et peut-être dans la mouture à l'aide de meules dormantes. Cependant, on ignore si des activités spécifiques caractérisent les différents groupes de femmes, celles sans parures, celles avec parures, celles d'origine locale ou extra-locale. Par ailleurs, des individus « déviants » semblent remettre en cause l'équation herminette/homme. En effet, une dizaine de femmes, dont la diagnose sexuelle n'est cependant pas totalement assurée, sont accompagnées d'herminettes. Si elle se confirme, cette donnée montrerait que le genre n'était pas un état stable, acquis une fois pour toutes.

En matière de bilan des connaissances sur le genre et les femmes au Rubané, force est de constater que l'archéologie ne donne qu'une image très parcellaire. En ce qui concerne la division du travail par sexe, seulement quelques tâches ont été identifiées. De nombreuses activités productives – telles que la cueillette, le gardiennage des troupeaux, l'élevage – ne peuvent être attribuées à un groupe. Bien d'autres aspects du genre, en particulier ceux qui ne laissent pas de traces matérielles, sont insaisissables. Si la mobilité des femmes permet d'envisager, au moins partiellement, un schéma matrimonial patrilocal, les droits sexuels et les systèmes lignagers resteront probablement inconnus. Ces aspects sont cependant fondamentaux dans les relations entre les sexes, car ils constituent, selon les anthropologues, l'un des moyens par lesquels les hommes dominent les femmes. Le genre des espaces est également une question irrésolue, ainsi que la religion et le culte, qui sont pourtant des éléments centraux des régimes de genre. De plus, notre compréhension du genre est d'autant plus partielle que nous n'avons pas accès aux mythes, aux récits et à la cosmogonie qui sont le ciment de toutes les sociétés humaines. Cependant, une marge de progression existe, car les études archéologiques sur le genre ne se résument pas à une étude binaire des hommes et des femmes. Il est nécessaire d'explorer la variabilité sociale de la population rubanée dans son ensemble. En particulier, l'étude des femmes rubanées en matière d'identité, de rôles et de statut doit être approfondie.

Mots-clés : étude de genre, Rubané, Europe centrale, Bassin parisien, femme, identité sociale, division du travail, alimentation, santé, mobilité.

INTRODUCTION

The invisibility of women is a commonplace in almost all the human sciences: history, sociology, ethnology, anthropology and of course archaeology.

Gender archaeology is rooted in the feminist critique of archaeology, the starting point of which was the Stavanger Round Table “Were they all men?”, where the relevance of male-dominated archaeology was questioned and the need to bring women and children out of the darkness of the past was affirmed (Bertelsen et al., 1987). Gender archaeology first developed in Anglo-Saxon and Northern European countries with authors such as Margaret Conkey, Jane Spector, Joan Gero and

Marie-Louise Stig Sørensen. In this regard, M. Conkey and J. Spector published an article in 1984 arguing that the archaeological record and interpretation were rooted in androcentric biases – such as the essentialist and binary conception of being male or female – that governed modern social organisation and thought (Conkey and Spector, 1984). They called for the correction of male bias in archaeological studies, the promotion of women archaeologists, the reconstruction of women's prehistory, and the development of methodologies and theories of gender archaeology.

However, emphasizing the activities, roles or status of prehistoric women is not an easy task. One way is to state that certain tasks are female, as they have been observed in recent societies. This is the case for cooking,

grinding, caretaking, pottery making or gathering, which are traditionally carried out by women (Colomer et al., 1998; González-Marcén et al., 2008). However, the ethnographic literature has shown that the division of labour does not always follow this pattern and this issue needs to be examined case by case. For example, following Alain Testart (2014), flint knapping is often considered to be a male activity. In contrast, Caroline Bird detected a great variability in the manufacture and use of stone tools in Australia: men certainly play an essential role, but women participate by transporting raw materials or using men's tools in certain circumstances (Bird, 1993). This example, and many others, shows that gender analysis should not be preconceived. As C. Bird states, “the distribution of economic and social roles by gender should not be assumed, but rather seen as a problem worthy of exploration in its own right” (Bird, 1993, p. 22).

In this paper, we aim to propose a methodology to evidence gender in archaeology data, and in particular Linearbandkeramik (LBK) women. The results will be compared to the multiple dimensions of gender observed in living societies. The aim is to assess the distance between living gender and material gender as it appears in archaeological data, and the capacity of this approach to highlight women. In sum, we seek to appreciate the contributions and limitations of gender as it is perceived in archaeology.

1. FROM GENDER TO GENDER ARCHAEOLOGY: THEORETICAL FRAMEWORK

Academically, gender studies are mainly the study of the relations of power between women and men (Bereni et al., 2020). According to various authors, gender constitutes the foundation of the social body as it produces standardised behaviours by education systems and religious doctrines (Oakley, 1972; Tabet, 1979; Scott, 1988; Auslander et al., 2014; Monjaret, 2014). These behaviours structure the social life of individuals and are both the expression of a social identity and a means of reproducing and maintaining social rules and institutions (Scott, 1988; Héritier, 1996). They govern the division of labour and activities assigned to men, women and children (Oakley, 1972; Tabet, 1979; Testart, 1986). In this respect, the body and bodily attitudes can be impacted by gender norms and activities (Mauss, 1926; Bourdieu, 1972 and 1998) and can have consequences for health and physiology. Finally, gender behaviours are based on relations of domination, particularly by men over women, and can be exercised through physical, social or ideal violence (Mathieu, 1985; Darmangeat, 2012). However, domination is not limited to men and women relations but can be combined with social class, historical context, race, age, sexual orientation, disability, etc. (Crenshaw, 1989; Butler, 1990) and can result in discrimination (Scott, 1988; Mathieu, 1985; Héritier, 1996; Bourdieu,

1998). These include dietary discrimination, sexual and marital rights, differential access to activities and means of production, political power, etc. These behaviours are transcended by systems of representations and values as well as by ideologies, symbols and doctrines and are often established during rites (Bourdieu, 1982; Godelier, 1985; Testart, 1986; Scott, 1988). Finally, these norms, rules and behaviours enable the functioning of the political systems and are transcribed into institutions and deployed in social organization (Scott, 1988). Furthermore, as Judith Butler (1990) states, gender is performative, i.e. in order to be operative, it has to be materialised in clothing, in bodily postures, in social roles and activities, in spaces, in objects and tools, etc. which are, in almost all human societies, assigned in different ways to women, men, children, the elderly.

1.1 Gender archaeology

On this basis, many attempts to theorize gender archaeology have relied on various concepts (for an overview see Bolger, 2013). These include heterarchy and complementarity (Brumfiel, 1995), agency (Dobres, 1995), the Deleuzian “difference-within-itself” (Bickle, 2019), or intersectionality theory, which considers the multiplicity of social relations and leads to a perception of gender diversity.

In concrete terms, funerary data are frequently the starting point of gender archaeology. The treatment of the individual, the position of skeletons, the grave's location, the layout of the tomb, the position of the body, the spatial distribution of the grave goods, all together can be the result of gendered practices (Spector and Whelan, 1989; Sørensen, 2000; Arnold and Wicker, 2001; Arnold, 2006). However, the burial process is not the only gateway to gender. Sørensen defined gender archaeology as the archaeology of differences (Sørensen, 2000 and 2013), in particular material differences: products, productions, costumes, treatments reserved for the living and the dead (food, health, funerary treatments, etc.), all of which can be discerned, for the most part, through various studies of buried individuals. According to her, the diversity in materiality, which is “a medium for gender to operate”, is an opportunity for archaeologists to explore gender differences (Sørensen, 2000, p. 96). These material differences are perceptible through study of the buried individuals and further studies.

1.2 Five material aspects of gender

Five material aspects of gender will be examined in order to highlight the contributions and limitations of archaeology to the knowledge of gender and women in past societies. Gender identity, gender roles, gender differences in food, health, mobility and origin, the acquisition of gender, and power and gender will be addressed using a reading grid (table 1). We have detailed this method in a previous work (Augereau, 2021a and 2022), which is summarised here.

Gender aspects	Material expression	Archaeologically perceptible in:
Gender identities	Clothes, ornaments, jewellery, etc. Body norms Gender attributes	<ul style="list-style-type: none"> • grave goods distribution by age and sex; • iconography: figurines, mural paintings, etc.; • nature of grave goods by sex and age.
Gender roles	Division of labour	<ul style="list-style-type: none"> • levels of know-how by raw material; • tools and utensils distribution by sex, functional analysis; • bone activity markers, pathologies, injuries and trauma; • spatial distribution of activities.
Gender acquisition and construction	Apprenticeship, childhood	<ul style="list-style-type: none"> • tools and utensils distribution by age and sex; • levels of expertise and know-how for a single production.
Gender differences and inequalities	In spaces use and organisation	<ul style="list-style-type: none"> • spatial analysis.
	In diet, commensality, health and mobility	<ul style="list-style-type: none"> • bone stress indicators, dental calculus, stable isotope analysis, sulfur, palaeogenetic data.
	In funerary treatments	<ul style="list-style-type: none"> • funerary treatments by sex and age: burial access; • preparation of the corpse; • location and architecture of the burials, body position, good deposits, etc.
Gender and power	Social elites, symbols and insignias of power	<ul style="list-style-type: none"> • value of the grave goods: scarcity, raw material origin, complexity of the fabrication, etc.; • burial location and architecture, etc.

Table 1 – Materiality of gender and archaeological correspondences.

Tabl. 1 – Matérialité du genre et correspondances archéologiques.

Gender identity is of two types: the subjective identity and the social identity. The first is inaccessible to archaeology and refers to the way in which one perceives oneself. However, archaeology can partially address social identity, which consists of displaying specific attributes in order to be recognised as a gendered individual or as a member of a community. It can be shown in the clothing, fabrics, fastenings and ornaments. Archaeologically, iconography and figurative representations of the human body (figurines, mural painting), can provide information on body canons, jewellery, hairstyles, clothing (Mina, 2008; López-Montalvo, 2018). Pieces of costume and ornaments are also present in graves. It is postulated here that grave goods echo the lives of the buried individuals. Lewis Binford, among other authors, has provided some evidence for this by pointing out that in many traditional sedentary agricultural societies, age, gender, social position and affiliation are marked in mortuary practices, funerary objects, preparation of the corpse, architecture and location of the grave, etc. (Binford, 1971; see also Testart, 2004).

Gender roles and the sexual division of labour are frequently addressed in relation to subsistence activities (fishing, hunting, gathering, animal husbandry, caretaking, etc.) and the production of tools, utensils and objects (ceramics, stone knapping, bone industry, wooden objects, esparto work, etc.). Bone activity markers and bioarchaeological approaches (Agarwal and Glencroos, 2011; Agarwal, 2012; Baker and Agarwal, 2017) provide first information about the task sharing at a general level, but variations in activities over the life course are rarely addressed. The diversity in typology, technique and know-how in craft productions may also indicate produc-

ers differing in age and sex. In this respect, J. Spector, Mary Whelan (1989) and J. Gero (1991) detailed the characteristics to be taken into account in order to perceive gender in craft productions. In the case of lithic industry, these characteristics are the variability of the raw materials, the differential know-how, the degree of retouching of the tools, the contexts of preparation and use (dwelling, workshop, specialised area, funerary sites, etc.). Prehistorians have already identified in lithic assemblages different productions that could be made by different producers: adults, children (Pigeot, 1987). Finally, the distribution of tools by sex and in the use-wear analysis of these objects can give some details on the division of labour (Masclans et al., 2019 and 2021). Here again, it is assumed that funerary objects are manifestations of people's lives. However, in the very well-preserved necropolis at Windover Pond in Florida, the distribution of tools and weapons shows that, while men are involved in hunting large game and women in plant preparations, some tasks, such as fishing or textile manufacture, seem to have been shared by both sexes (Hamlin, 2001). In addition to confirming the relevance of funerary objects as gender markers, this study shows that the sexual division of labour appears to be a nuanced process and argues for the exploration of gender roles with no preconceived schemes.

Like the division of labour, the acquisition of gender can be approached from the perspective of the levels of know-how, in particular in craft productions. As mentioned above, several technical levels for the same production are clues to identify apprenticeship (Pigeot, 1987; Sánchez Romero, 2008; Augereau, 2012; Klaric et al., 2018). The study of grave goods according to age

(and sex when available) is another source of information (Sørensen, 1997 and 2000). Human figurative representations can also shed light on the construction of gender. For example, in the Aegean Neolithic, jewellery and clothing are discernible on female figurines, and on others of “neutral” gender or with less pronounced female forms (Mina, 2008). According to Maria Mina, the degrees of marking of female physical attributes could correspond to different stages of the acquisition of the female gender (Mina, 2007 and 2008).

Gender can manifest itself through differences, inequalities and discriminations that are perceptible in the use of space, food, health, origins and mobility, funerary treatments, etc. Regarding space, Pierre Bourdieu, in his studies of Kabyle ethnology (1972), has clearly shown that space, whether internal or external, has a gendered meaning. For example, the wall of the house where the door is located, which is the least lit, is said to be the “girl’s wall”, or the “wall of darkness” or the “wall of the tomb”. The opposite wall, in full light, is where guests are seated and where the properties of the master of the house are displayed. According to Roberta Gilchrist, the layout, arrangement and components of spaces are metaphors for the social order and “space serves as a stage for gendered performance...” (Gilchrist, 1999, p. 100). In addition, space can also be an instrument of differentiation, discrimination and segregation, such as in the case of the Greek Orthodox Church with women-only spaces, away from the worship leader and the sacred instruments of the liturgy. Archaeologically, spatial analysis identifies the location of natural resources, exchange networks, activity zones, dwellings, specialised spaces, architecture evolution that can reveal important sociological and economic developments (Hastorf, 1991; Tringham, 1991; Coudart, 1998; Robb, 2007; Coudart, 2009). However, while spatial diversity constitutes an essential material trace of social order, the individuals who occupied these places remains unknown and their social relationships are inaccessible.

Food has an undisputable social and ideological dimension (Douglas, 1975; Sørensen, 2000). Indeed, from production to consumption, including the sharing and distribution of foodstuffs, food patterns are potentially difference-making (Sørensen, 2000). Firstly, differential diets and access to certain preparations can characterise individuals and groups. Human bone material can provide information through dental pathologies (caries), markers of dietary stress (*Cribra orbitalia*, enamel hypoplasia, Harris lines, etc.), and DNA analysis of dental calculus (Weyrich et al., 2017). Moreover, stable isotopes analysis evidence the diet of different populations (see for example Rey et al., 2021; Cheung et al., 2021). Furthermore, commensality is often governed by gender constraints, which leads to discrimination and segregation in food consumption. However, even if pottery shapes, decorations, manufacturing methods are linked to eating habits and economic and dietary evolution (Sørensen, 2000), the commensality rules remain archaeologically difficult to perceive.

Health conditions, which are partly related to diet, are one of the most significant markers of gender disparities. In archaeology, osteology and bioarchaeology are the main ways to document, partially, this question (see for example Bickle and Whittle, 2013). The mobility of male and female populations, insofar as it is related to the marriage pattern, and mobility and origin of individuals and groups, must also be examined from a gender perspective. DNA analysis, sulphur analysis and strontium measurement, the latter only indicating a degree of correspondence between the individual analysed and local level measurements, can address this issue (see Price et al., 2001; Zvelebil and Pettitt, 2008; Bentley et al., 2008 and 2012; Bickle and Whittle, 2013; Rasteiro and Chikhi, 2013; Szécsényi-Nagy et al., 2015; Knipper et al., 2017; etc.).

Finally, gender as a manifestation of domination leads to the issue of power. Power is diverse, whether it is coercive, economic, financial, spiritual, religious, social, intellectual, moral, or prestigious. It can be inherited and, in order to maintain it, it must be asserted through speech, violence, ideology, law, myth, wealth, magic, etc. In addition, power must be demonstrated and displayed, including through insignia (Testart, 2004). Powerful individuals can be identified by the wealth of their grave goods, both in quality and quantity. The value of objects is expressed in raw material scarcity and origin, the complexity of their acquisition, and their novelty. This quality is transposed to the individuals who own them or display them. By using an index of wealth, this approach has shown fluctuation in the levels of wealth, possibly in favour of women of the Bronze Age in the Northern-Alpine area (Trémeaud, 2018). Finally, power can be seen in the occupation and organisation of spaces, whether funerary (more or less complex layout of funerary structures, spaces reserved for the elites, etc.), domestic or village (buildings reserved for the elites, shrines, etc.), with the limitations outlined above.

2. APPROACHING LBK WOMEN

Given this framework, what can we learn about women through the archaeology of gender? The example below is the result of a previous work (Augereau, 2021a and 2022) summarised as follows with a focus on women (table 2). Of course, the conclusions presented here are valid only for the LBK culture and other Neolithic cultures may have had different gender systems.

The analysis is based on about 3,000 LBK individuals from cemeteries, isolated burials or small groups of graves (fig. 1; table 3). While left-sided crouched inhumations dominate, right-sided crouched positions, cremations, double antipodal graves, prone and supine positions are present; partial burials, disarticulated bodies, cenotaphs, and corpse manipulations are sometimes documented. Some individuals are buried with relatively diverse grave goods: pottery vessels, dyes, faunal remains,

	Origin /mobility	Productive tasks	Diet	Health	Social roles
Women with numerous ornaments	Local/non-local	Fibre working? Hide working Grinding?	Higher intake of plants and starchy foods, lower rates of animal protein	Higher rates of caries and of nutritional stress indicators?	?
Women with few ornaments	Local/non-local				?
Women with no ornaments	Local/non-local				?
Women with adzes	Local/non-local				?
Men with male equipment including adzes	local	Woodworking, butchery, warfare, hunting	Higher intake of animal protein	Lower rates of caries and of nutritional stress indicators?	Patriarch?
Men with arrows and no adze	Local/non-local	?	?		?
Men with no male equipment	Local/non-local	?	?		?
Children with male equipment including adzes	local	?	Higher intake of animal protein?	?	?
Children with ornaments	local?	?	Higher intake of plants and starchy foods, lower rates of animal protein	?	?
Children with no grave goods	Local/non-local	?		Higher frequency of carries?	?

Table 2 – Main findings on gender in the Western Linearbandkeramik culture. Data on bone activity markers and health after Villotte and Knüsel (2014); Macintosh et al. (2016 and 2017). Stable isotope data after Zvelebil and Pettitt (2008); Richard et al. (2008); Bickle and Whittle (2013); Münster et al. (2017). Use-wear analysis of lithic artefacts after Masclans et al. (2021).

Tabl. 2 – *Principaux résultats sur le genre dans la culture Linearbandkeramik occidentale. Données sur les marqueurs d'activité osseuse et la santé d'après Villotte et Knüsel (2014) ; Macintosh et al. (2016 et 2017). Données sur les isotopes stables d'après Zvelebil et Pettitt (2008) ; Richard et al. (2008) ; Bickle et Whittle (2013) ; Münster et al. (2017). Analyse tracéologique des artefacts lithiques d'après Masclans et al. (2021).*

tools, weapons, clothing and jewelry. Within this general framework, many regional patterns influence the composition of funerary objects (for more details, see Augereau, 2022). The sites are located from the Carpathian Basin to the Paris Basin. However, the methods used for determining sex vary and the entire sample is not sufficiently representative for a relevant gender study that requires reliable sex and age determination. Therefore, the study is based on a reliable dataset of 378 LBK individuals (109 men, 106 women and 163 children) for whom sex and age were determined using the most reliable method (measurements of coxal bones compared to a current population; Bruzek, 2002; Murail et al., 2005). They are located in the Paris Basin, in Alsace and in Germany and notably from the site of Schwetzingen, which accounts for approximately 39% of the data (Gerling, 2012). However, data from other archaeological sites seem to be consistent when looking at the correlation between sex and funerary goods: indeed, this group of hypothetical men and women follows the same pattern as the reliable dataset. In addition, the reliable dataset as well as the entire sample are representative of a well-balanced population, with an equal number of men and women and the proportion of immatures consistent with an archaic population (Crubézy et al., 1997; Thévenet, 2010).

2.1 Identity

For many reasons explained elsewhere, pottery, dyes and fauna are excluded from the analysis of social identity (Augereau, 2021a, 2021b and 2022). Indeed, the status of these objects is not clear from a functional point of view and from an identity perspective. Only goods deposited close to or worn on the body testify to the deceased's identity. These objects are on the one hand jewellery and ornaments, which were a part of the deceased clothing, and on the other hand tools and weapons.

Regarding women, ornaments, items of clothing and embroidery are the main funerary goods. The distribution of ornaments highlights several categories among the 106 female burials from the reliable dataset (table 2). A minority of women (around 4% of the reliable dataset) have three up to eight ornaments such as necklaces, bracelets, embroidered belts and belt buckles, plastrons, embroidered garments, etc. (determination: see Bonnardin, 2009). Other groups, larger than the previous one, comprise of women with one up to three ornaments. However, a large majority of female burials has no ornaments (73%). There are thus various categories of women depending on the presence or abundance of ornaments, although there are temporal and geographical variations.

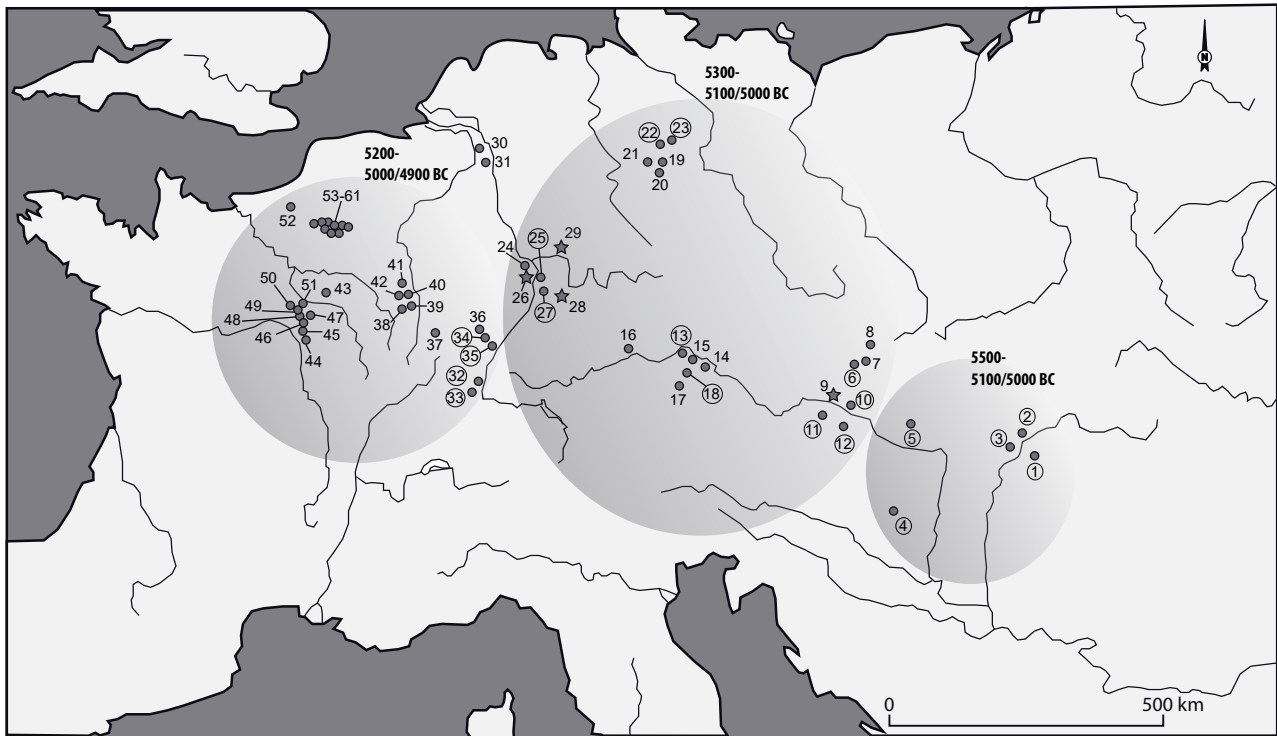


Fig. 1 – Main sites with human bone remains of the Western LBK culture in Europe. Circles: funerary sites (cemeteries, isolated burials, small groups of graves); stars: others sites with human remains (massacres sites and others); in black: selected sites used for the study (reliable determination of sex and age); site numbers with circle: availability of isotopic, osteological or functional (stone tools) data.

For the site names, see table 3 (map: M. Ilett and F. Giligny, UMR 8215 Trajectoires).

Fig. 1 – Principaux sites contenant des restes osseux humains de la culture LBK occidentale en Europe.

Cercles : sites funéraires (cimetières, sépultures isolées, petits groupes de tombes) ; étoiles : autres sites avec restes humains (sites de massacres et autres) ; en noir : sites sélectionnés utilisés pour l'étude (détermination fiable du sexe et de l'âge) ; numéros de sites avec cercle : disponibilité de données isotopiques, ostéologiques ou fonctionnelles (outils en pierre).

Pour les noms des sites, voir le tableau 3 (carte : M. Ilett et F. Giligny, UMR 8215 Trajectoires).

Indeed, women with very embellished dress are specific to Alsace and the Paris Basin, at the end of the LBK culture (fig. 2). In the other regions, women with ornaments are present but their adornments are less spectacular. At this point, it should also be noted that a large majority of these ornaments are also present in the male burials, but in a smaller proportion. Finally, female burials contain everyday tools (flint flake, bone awl or needle, grinding tools).

Weapons and tools are the main funerary goods of men (fig. 3). Like women, several categories of men can be distinguished according to the nature and abundance of these goods. A minority accumulate several types of tools and weapons (6% of the reliable dataset). A majority have none of these items (52%). However, unlike women, men have specific equipment that is totally absent from female contexts. It is made up of adzes and axes, regular blades, arrows, deer antler objects, percussion set lighters (the association of ferrous nodules and flint flakes bearing traces of percussion; Nieszery, 1995). These objects constitute the male equipment and are gender markers (Bickle, 2019; Müller-Scheeßel, 2019). Some of these goods, such as adzes from amphibolite outcrops situated in the Ižera Mountains in the northern Czech Republic (Ramminger, 2009), are likely to be prestige or status goods.

This pattern is recognisable throughout the LBK territory, from Slovakia to Alsace. However, it is worth noting that a dozen burials that are identified as female contain adzes or arrows, in Nitra, Vedrovice, Aiterhofen and Schwetzingen. It is noticeable that the adzes with the female skeletons have a flat or oval section, a type very rarely present in the male graves. The reliability of sex determination can be questioned, but it is insufficient to explain the phenomenon. If the sex of these “deviant” individuals must be verified before any definitive conclusion can be drawn, the possibility of their existence must be taken into account and hypothesis proposed to explain it.

Concerning women, there is no specifically female ornament, as men have almost the same. Furthermore, some of the tools such as grinding stones, bone needles and flint flakes are represented in the graves of both sexes. At this point, two conclusions can be made. The male objects, and in particular the adze, seem to function as markers of the male gender, while there are no specifically female grave goods. Apart from the abundance of ornaments, the female gender is thus not clearly marked in graves. On the other hand, while some men have a very marked funerary identity, numerous others lack the male kit. Likewise, women can be highly adorned, less adorned

N°	Town	Dating	Country	Origin data	Diet data	Osteo. data	Functional data (stone tools)
1	Polgár-Ferenci-hát	Alföld Linear Pottery	Hungary		X	X	
2	Mezőkövesd-Mocsolyás	Alföld Linear Pottery (Early)	Hungary	X			
3	Füzesabony-Gubakút	Alföld Linear Pottery	Hungary	X	X		
4	Balatonszárszó	Transdanubian Linear Pottery	Hungary	X	X		
5	Nitra	Early LBK	Slovakia	X	X	X	X
6	Vedrovice	Early LBK	Czech Republic	X	X	X	X
7	Těšetice-Kyjovice	Early LBK?	Czech Republic				
8	Brno-Starý-Liskovec	Early/Middle LBK?	Czech Republic				
9	Asparn an der Zaya/Schletz	Late/Final LBK	Austria				
10	Kleinhadersdorf	Early/Middle LBK	Austria	X	X		X
11	Rutting	Middle LBK	Austria	X	X	X	
12	Mittendorf	Early/Middle LBK	Austria	X			
13	Aiterhofen	Early/Middle LBK	Germany	X	X	X	X
14	Mangolding	Early/Middle LBK	Germany				
15	Sengkofen	Early LBK	Germany				
16	Dillingen	Early/Middle LBK	Germany				
17	Essenbach-Ammerbreite	Middle/Late LBK	Germany				
18	Otzing	Middle LBK	Germany		X		
19	Sondershausen	Early/Middle LBK	Germany				
20	Bruchstedt	Early/Middle LBK	Germany				
21	Wandersleben-Gotha	Early/Middle LBK?	Germany				
22	Derenburg	Early to Late LBK	Germany		X		
23	Halberstadt	Early to Late LBK	Germany		X		
24	Flomborn	Early LBK	Germany				
25	Schwetzingen	Middle/Late LBK	Germany	X	X	X	X
26	Herxheim	Final LBK	Germany				
27	Stuttgart-Mühlhausen	Middle LBK	Germany			X	
28	Talheim	Final LBK	Germany				
29	Elsloo (Limburg)	Late LBK	Netherlands				
30	Niedermerz (Aldenhoven pl.)	Late LBK	Germany				
31	Schöneck-Kilianstädten	Final LBK	Germany				
32	Ensisheim	Late LBK	France	X	X	X	
33	Mulhouse-est (Rixheim)	Middle LBK	France	X	X	X	
34	Vendenheim	Late LBK	France	X	X		X
35	Souffelweyersheim	Late LBK	France	X		X	
36	Quatzenheim	Late LBK	France				
37	Marainville-sur-Madon	Late LBK	France				
38	Larzacourt	Middle LBK	France				
39	Orconte	Middle LBK	France				
40	Écriennes	Late LBK	France				
41	Plichancourt	Final LBK	France				
42	Vert-la-Gravelle	Final LBK	France				
43	La Saulotte	Final LBK	France				
44	Escolives-Sainte-Camille	Final LBK	France				
45	Charmoy	Final LBK	France				
46	Gron	Final LBK	France				

N°	Town	Dating	Country	Origin data	Diet data	Osteo. data	Functional data (stone tools)																				
47	Vinneuf	Final LBK	France																								
48	Villeneuve-la-Guyard	Final LBK	France																								
49	Barbey	Final LBK	France																								
50	Marolles-sur-Seine	Final LBK	France																								
51	Balloy	Final LBK	France																								
52	Pontpoint	Final LBK	France																								
53	Bucy-le-Long	Final LBK	France																								
54	Missy-sur-Aisne	Final LBK	France																								
55	Pontavert	Final LBK	France																								
56	Berry-au-Bac	Final LBK	France																								
57	Cuiry-les-Chaudardes	Final LBK	France																								
58	Menneville	Final LBK	France </tr <tr> <td>59</td> <td>Chassemy</td> <td>Final LBK</td> <td>France</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>60</td> <td>Cys-la-Commune</td> <td>Final LBK</td> <td>France</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>61</td> <td>Maizy</td> <td>Final LBK</td> <td>France</td> <td></td> <td></td> <td></td> <td></td> </tr>	59	Chassemy	Final LBK	France					60	Cys-la-Commune	Final LBK	France					61	Maizy	Final LBK	France				
59	Chassemy	Final LBK	France																								
60	Cys-la-Commune	Final LBK	France																								
61	Maizy	Final LBK	France																								

Table 3 – List of the main sites with human bone remains in the Western Linearbandkeramik culture.

Tabl. 3 – Liste des principaux sites avec des restes humains dans le Rubané occidental.

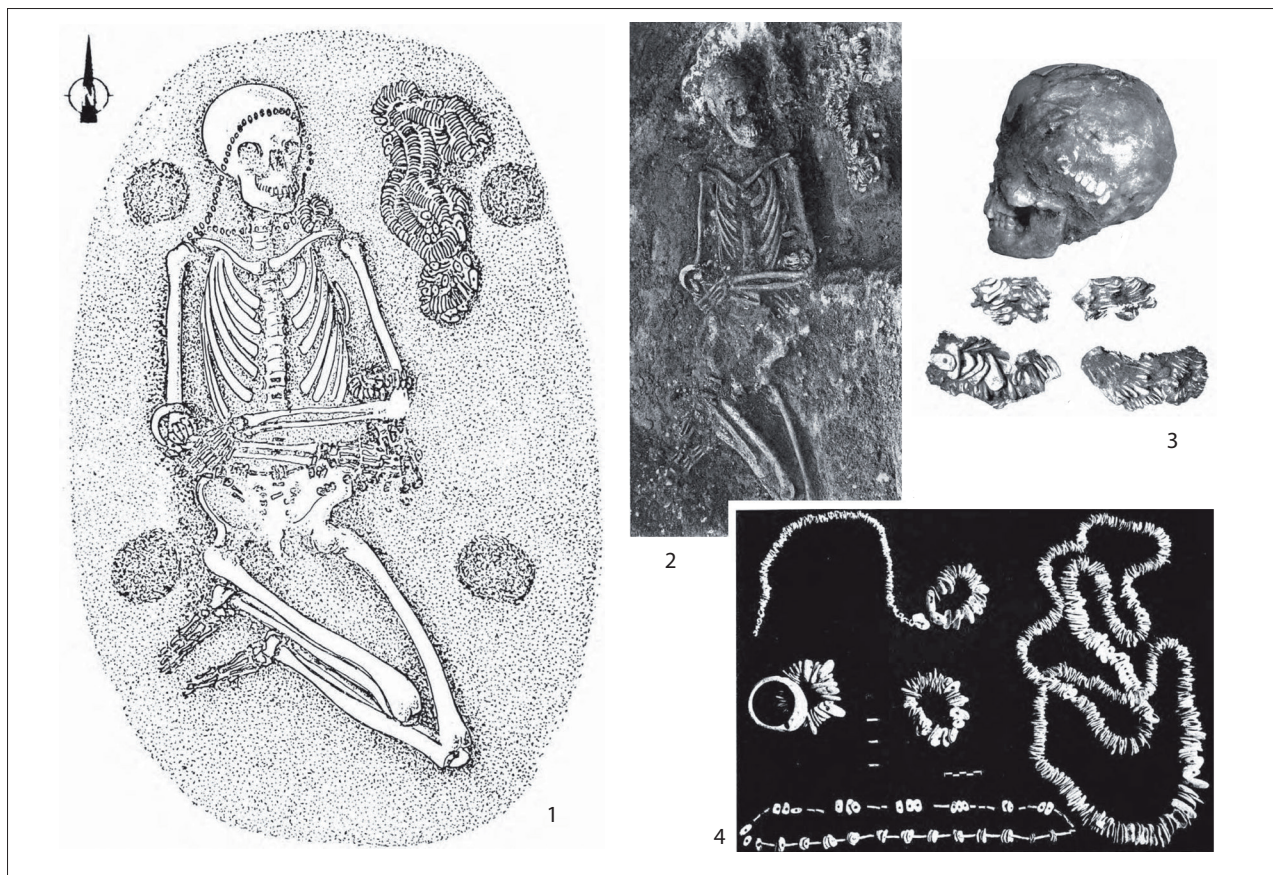


Fig. 2 – Mulhouse-Est (Upper Alsace), burial 14 (female). 1: map of the burial (after Schweitzer and Schweitzer, 1977); 2: excavation photograph; 3: grouping of shell beads to the left of the skull; 4: reconstruction of the grave's ornaments.

Nos. 3 and 4: photos from the musée historique de Mulhouse (photo montage after Bonnardin, 2009).

Fig. 2 – Mulhouse-est (Haut-Rhin) sépulture 14 (femme). 1 : plan de la tombe (d'après Schweitzer et Schweitzer, 1977) ; 2 : cliché de fouille ; 3 : paquets de perles en coquillage à gauche du crâne ; 4 : reconstitutions des parures de la tombe.

Nos 3 et 4 : clichés musée historique de Mulhouse (montage photo d'après Bonnardin, 2009).

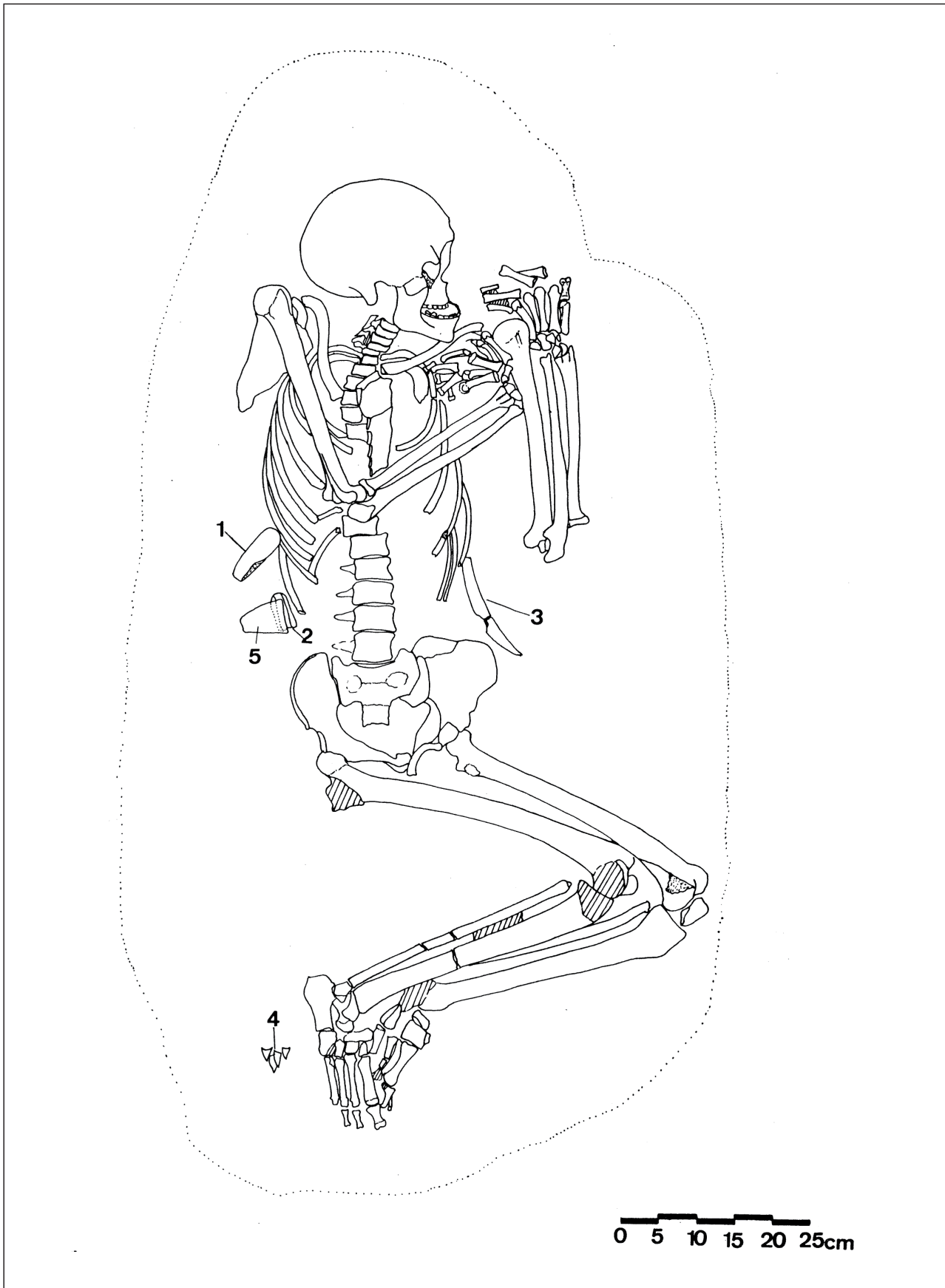


Fig. 3 – Ensisheim/Les Octrois (Haut-Rhin), burial 19 (male). 1: adze; 2: flint scraper; 3: deer antler swab; 4: group of four arrowheads; 5: ceramic sherd (after Jeunesse et al., 1993).

Fig. 3 – Ensisheim/Les Octrois (Haut-Rhin), sépulture 19 (homme). 1 : herminette ; 2 : grattoir en silex ; 3 : andouiller en bois de cerf ; 4 : groupe de quatre armatures de flèches ; 5 : tesson de céramique (d'après Jeunesse et al., 1993).

or without adornment. In the present state of the data, the men with adzes therefore stand out from the other groups in terms of social identity. In addition, other aspects are specific to them.

2.2 Mobility, food and health

Firstly, men with adzes are of local origin. Indeed, in the sites analysed by Penny Bickle and Alasdair Whittle (2013), strontium analysis shows that 96% of individuals with adzes are of local origin, whereas the other groups have a greater proportion of non-locals: 18% amongst individuals bearing only ornaments who are mainly women, 29% of individuals with only arrowheads and 15% of individuals with no specific grave goods. In addition, it can be seen that women with or without ornaments are indifferently of local or non-local origin and that there is therefore no correlation between the quantity of funerary objects deposited in their graves and mobility. Secondly, in many cases, men with adzes also have a diet that differs slightly from that of the rest of the population. In this respect, recent study shows a clear correlation between men with adzes and higher nitrogen levels from the data collected in six cemeteries from Slovakia to Alsace (Nitra, Vedrovice, Kleinhadersdorf, Airtershofen-Ödmühle, Schwetzingen, and Vendenheim; Masclans et al., 2021). This would indicate a higher proportion of animal protein in their diet, in contrast to other categories such as the women. It is also noteworthy that the most adorned woman from Mulhouse had no specific diet. On the large scale, data on oral health, mean stature and body mass, and bone stress indicators emphasize on average poorer female health, a condition may be due to a richer intake of plants and starchy food and a lower rate of animal protein (Bickle and Whittle, 2013; Macintosh et al., 2016).

2.3 Gender roles and the division of labour

In addition, men with adzes seem to have specific activities. Micro-wear studies show that the adzes have been used in woodworking and butchery activities (Masclans et al., 2021). Furthermore, osteological activity markers highlight pathologies of the right elbow specific to men, which can be compatible with the handling of the adze (Villotte and Knüsel, 2014). Adzes were also probably used as weapon as wounds on skulls from the Talheim massacre could attest (Wahl and König, 1987; Wahl and Strien, 2007). Interpersonal violence was also practiced with arrows, as shown by an arrowhead embedded between a man's ribs at Mulhouse in Alsace (Jeunesse et al., 2014). It is likely that arrows were also involved in the hunting of big game, the bone remains of which are represented in small quantities in faunal assemblages of Western LBK villages (Jeunesse and Arbogast, 1997; Arbogast, 2001; Bedault and Hachem, 2008; Hachem, 2011; Bogaard et al., 2016). In sum, interpersonal violence, large game hunting, butchering, woodworking and probably also flint knapping (Augereau, 2019) are male

activities predominantly practiced by men with adzes. Ethnological data indicate that hunting and warfare are prestigious activities in both hunter-gatherer and farmer societies, reserved for men (Tabet, 1979; Godelier, 1985; Testart, 1986 and 2014; Brightman, 1996). Thus, hunting and warfare, or the symbols of these activities in death may have been for this small group of men an expression of power, either political or religious, or linked to social prestige.

As far as women are concerned, data exist on their roles and activities, but it is difficult to go beyond generalities. The study of bones carried out on a significant sample of LBK individuals highlights markers on their upper limbs that are compatible with very repetitive activities such as grinding with dormant querns (Macintosh et al., 2017). However, to date, no evidence of osteoarthritis in the knees and big toes due to kneeling for grinding has been described, but it can be argued that this activity may have been performed on a bench or a table, in sitting or standing position. In the Eastern LBK, at Polgár-Fereci-hát, Vedrovice and Nitra, grooves on the inner surface of the incisors of some women are interpreted as the result of the repeated passage of a thread made of plant material, perhaps as part of spinning activities (Fraye, 2004; Schulting, 2007). Finally, recent use-wear studies show that the working of skins and soft materials was carried out with the tools included in the women's graves (Masclans et al., 2021).

2.4 Gender acquisition

As with the adults, several groups of immatures can be identified according to their funerary goods. Individuals with no specific goods are the most numerous (60% of the total); those characterised on the one hand by ornaments, and on the other hand by equipment goods (adze, arrow, lighter set but no deer antler) are in equal proportion. Age determination shows that the allocation of these attributes takes place before the age of 6. In addition, four bone figurines have been found in three children graves, at Ensisheim and at Berry-au-Bac. The eyes, mouth or nose are represented by pieces of shells. By analogy with African archaeological and ethnological examples, these objects have been interpreted by Isabelle Sidéra and Pierre de Maret as dolls (Sidéra and Maret, 2016). In Africa, they are one of the tools for educating girls through play.

With regard to diet and mobility, there is scarce evidence that children with adzes have higher levels of animal protein in their diet and are of local origin. It is impossible to say, however, whether these individuals are boys, or whether those with ornaments are girls. Nevertheless, Linda Fibiger and P. Bickle observed that *cribra orbitalia* affects women more than men, perhaps due to a gradual dissociation in diet occurring in mid-childhood (Bickle and Fibiger, 2014). Finally, although data are scarce, L. Fibiger believes that injuries due to interpersonal violence are more prevalent between the ages of 8 and 13 up to 17 (Fibiger, 2014). According to this author,

this could be the result of combat training sessions taking place in late childhood. However, child abuse may also explain these injuries.

2.5 Power and domination

The identification of power can be seen as a synthesis of the previous results. In the LBK, the funerary identity of some men is marked by specific goods (polished adzes, antlers, arrows, lighter sets). These men are linked to the territory where they were born and died and their diet includes a higher intake of animal protein. Woodworking, hunting and warfare are part of their activities. In addition, they probably knapped regular blades. It should also be noted that they are often buried in the centre of groups of graves in cemeteries. All these characteristics lead to the hypothesis that they could be dominant men and that a certain amount of inequality characterised the LBK culture (Jeunesse, 1997 and 2018).

3. LBK WOMEN AND GENDER: CONTRIBUTIONS AND LIMITS

Finally, what does this study teach us about Neolithic women and gender in the LBK context? By comparing the results with the reading grid previously exposed, the contributions and limits of this archaeological gender approach will be outlined (table 4).

Firstly, certain men, those with adzes who could be powerful individuals whatever the kind of power, emerge from the data. Indeed, this group of men has the most cohesive pattern in terms of funerary identity, local ori-

gin, diet and activities. Regarding women, they stand out mainly by contrast with the latter, such as other groups. However, it is probably an artifice of the current stage of research, as the female population is not homogeneous: women with or without adornments, with various diet, of local origin or not, etc. There are also chronological and geographical variations, since the women very adorned are specific to the end of the LBK period, in Alsace and in the Paris Basin (Augereau, 2021a and 2022). It is clear that further analysis is needed to identify the diversity of women.

Secondly, clothing, ornaments and tools can be seen as gender attributes. However, this is only a partial identity, because nothing is currently known about subjective identity (that is to say the way a person perceives and feels themselves), which is a central aspect of gender as it can change gender norms and relations. In addition, the perceptible social identity is truncated, as objects made of perishable materials are rarely recognised (feathers, flowers, fabrics, hides and furs, wooden objects, corporal painting, etc.). Furthermore, individuals who deviate from the pattern with men with adze exist. This is the case of some women with adzes or arrows previously evoked, at Nitra, Vedrovice, Aiterhofen and Schwetzingen. Although the determination of sex is not optimal, in particular at Aiterhofen where four anthropologists worked with somewhat different results, these data cannot be completely ignored. As ethnology shows, biological sex may be manipulated and social and funerary identities may not be strictly overlapping. For example, among the Inuit of Canada or the Chumash of California, individuals of either sex sometimes have in their graves objects or tools reserved for the opposite sex in life (Hollimon, 1996; Crass, 2001). In addition, Bernard

Gender aspects	Contributions	Missing/limits/questions
Gender identities	<ul style="list-style-type: none"> Social identity (partially): clothes, ornaments, tools, etc. 	<ul style="list-style-type: none"> Objects in perishable material? Subjective identity?
Gender roles	<ul style="list-style-type: none"> Division of labour (partially) 	<ul style="list-style-type: none"> Other productive activities? Roles of women and men with no grave goods? Political and religious roles?
Gender acquisition and construction	<ul style="list-style-type: none"> Gender attributes in burial from the age of 5 onwards 	<ul style="list-style-type: none"> Passage rites? Ceremonies? Children education activities? Diet and health of girls and boys?
Gender differences/ inequalities	<ul style="list-style-type: none"> Mobility (variable vs men with adze) Diet (protein men with adze vs others) Funerary treatments by sex and age (location, grave goods, etc.) 	<ul style="list-style-type: none"> Mobility, displacements and marriage patterns? Cultural habits or real inequalities? Characterising further diet and health of women and men with no adze Gender in domestic spaces?
Gender and power	<ul style="list-style-type: none"> Dominant men and women in embellished dress 	<ul style="list-style-type: none"> Nature of power: chiefs? Big Men? Segmented/hierarchical society? Role of the women in power? Other domains of power (religion, etc.)?

Table 4 – Contributions and limits of a gender approach on the Western Linearbandkeramik culture.

Tabl. 4 – Apports et limites d'une approche de genre sur le Rubané occidental.

Saladin d'Anglure (2004 and 2006) showed that a male Inuit child can be raised as a girl and inversely, depending on the sex of the ancestor who appeared in the parents' dreams during pregnancy. In certain societies, such as the Nuer of East Africa, children are considered as female until they reach puberty, and marriage between women is legal. In this case, one of the women is seen as a man, and becomes the "husband" of the second woman and the father of her children (Evans-Pritchard, 1968). Social identity in archaeology is therefore truncated, but it can also be distorted. These anthropological examples indicate that gender is not a stable state acquired once and for all, but that it can fluctuate over the course of a lifetime. There is no reason to believe that this phenomenon did not exist in the Neolithic period, especially when the question emerges from concrete data. Further research is therefore needed to better understand these "deviant", maybe female, individuals.

The division of labour is also very partially documented. The little data available indicate that the division of labour between men and women is classical, with certain men hunting, woodworking, fighting and women doing fibre and hide work and possibly grinding. However, it is not yet known whether specific activities characterise the different groups of women, those with no ornaments, those with few ornaments, those of local or extra local origin. Moreover, this finding is not specific to this population group and the same observation can be made for men without the male kit, those with only arrows, and for the cohort of women and men without preserved funerary goods, who are the most numerous. Thus, many questions remain about productive activities such as animal husbandry, cultivation, gathering, other crafts, care, etc. Based on the constants in the division of labour in traditional societies as described by George P. Murdock and Caterina Provost (1973), Paola Tabet (1979) and Alain Testart (2014), we could assign to Neolithic women various activities that have been observed as female tasks: caring for livestock, making pottery, preparing meals, making fabrics and clothes, bringing up children, tending gardens, etc. However, a serious approach to gender must be grounded on archaeological data and observations; on the one hand because it is a scientific approach; on the other hand because gender norms vary across culture and time. The challenge of a gender study is therefore to highlight such variability. Additional studies on bone activity markers correlated with the distribution of grave goods should provide information in the diversity of the roles of LBK women and other groups.

From the perspective of political role, dominant men with adzes could endorse such responsibility, at least on the household level. Many theories have been put forward about hierarchy and social organisation in the LBK culture. On the one hand an egalitarian system (Coudart, 1998 and 2015) is favoured, but seems to be inconsistent with the data. On the other hand hypothesis range from a society with "Big Men" with high prestige, but no power (Pechtl, 2009; Demoule, 2018) to a hierarchical society dominated by men (Jeunesse, 1996, 1997 and 2018;

Gronenborn, 2016; Gronenborn et al., 2018). However, women role in this organisation is rarely discussed. In the cemeteries of Central Europe, the burials of adorned women are never far from the men's burials with the male kit. Do they represent the female equivalent of the dominant men? On the current state of research, nothing seems to differentiate them from the other women. In addition, women from Alsace and the Paris Basin with very elaborate dress indicate a hitherto unknown funerary valorization with a focus on women. Did these particular women have a special role in the exercise of power? Here again, answers are pending, not least because of the difficulty of addressing the issue archaeologically. However, it is a central question and the refined study of the correlation between gender, health data, mobility, diet and costume could provide clues.

Another role that cannot be addressed is that of religion: who performed the religious functions? Were there any consequences to being male or female to perform them? The material traces of religion are difficult to perceive. For the Central European LBK, could the human-shaped figurines (mostly female) or anthropomorphic vessels be an expression of religion? To explain the female figurines, the hypothesis of the Great Goddess in a female-dominated society developed by Marija Gimbutas (Gimbutas, 1989 and 1991) is no longer tenable (Tringham and Conkey, 1998). However, as they come from houses or pits alongside houses, it is likely that they testify to a domestic cult practiced in a corner of the dwelling (Bánffy, 2017). Nevertheless, the material traces of religion and beliefs are not always representative of religion: A. Testart gave the example of the Roman art, which never represents the crucifixion (Testart, 2012). Following A. Testart, there is currently no way to address this issue, which is yet crucial for the maintenance of the social order, as it provides narratives for gender roles and behaviour.

As far as gender acquisition is concerned, gender attributes are introduced in the burials from the age of 5 onwards. Adzes, arrows, ornaments, blades and grinding tools, but also rare bone dolls (Sidéra and Maret, 2016) were either vectors of gender acquisition or marked a future gender. However, as the sex of the children is unknown to date, it is impossible to say whether there was a strict correspondence between gender and grave attributes or whether there was sex manipulation. In addition, we know nothing about passage rites and ceremonies and the children education activities, nor do we know whether combat training or violence against them caused the wounds on their bones. In addition, little is currently known about the diet and health of girls and boys of the LBK culture, knowing that such studies have been successfully conducted on other Neolithic contexts (for example, see Rey et al., 2021). Children, being socially immature, should be an important focus of gender study, even though data on them are scarce. Above all, in a gender perspective, the sex determination of children is necessary and two recent methods (cochlea and teeth peptides analysis, Braga et al., 2019; Rebay-Salisbury

et al., 2022) are promising for this purpose. In addition, dietary practices in childhood can be derived from adult dental calculus, which records previous diets.

From the point of view of differences and inequalities, variable origin characterises a part of the women and other groups, thus contrasting with men with adze. The greater mobility of women and the higher diversity of maternal lineages, consistent with females' mobility, evidenced by strontium data and DNA analysis, led some researchers to propose a patrilocal marriage pattern (Bentley et al., 2002 and 2012; Bickle and Whittle, 2013; Rasteiro and Chikhi, 2013; Szécsényi-Nagy et al., 2015). However, not all women are of extra local origin and some men are also in this situation. Furthermore, sexual rights, i.e. how women have a choice of partners, and marriage rules in terms of matrilineality or patrilineality, which do not leave any material traces, remain unknown. Regarding diet, the variations are slight but constant, with men with adzes showing a more meat-based diet and women with more plant-based foods. However, it is not yet clear if they are the result of cultural habits or real inequalities. In other Neolithic contexts, there is little or no obvious sex-related diet pattern (see for example Rey et al., 2019; Cheung et al., 2021).

Finally, what about gendered spaces in the domestic or outdoor areas? Did women regularly leave the village? Were there female or male spaces, more or less distant from the village, as John Robb believes for the Italian Neolithic (Robb, 2007)? The limitations of spatial analysis outlined above preclude addressing this issue and the sex of the individuals who occupied these places will probably never be accessible. However, the foreign individuals, both women and men, provide evidence that LBK people moved and that local and regional territories need to be better understood in their diversity (Hofmann, 2020).

CONCLUSION

In the LBK culture, we have identified several groups of individuals on the base of their funerary goods. Men with male kit and women in very embellished dress stand out and identity of other groups without these assemblages is unclear. The men with adzes appear to be the most cohesive group, being of local origin, with a diet richer in animal protein and carrying out specific activities. They were probably dominant individuals holding power. Nevertheless, the nature of power is still in debate: were the dominant men "Big Men" or chiefs? In addition, did the women have a role in power? Finally, were there other prestigious functions, for example related to the religious domain? What was the status of individuals without perceptible grave goods?

Regarding the division of labour by sex, a few of tasks have been identified. In addition, information on women's tasks is very general and the roles of individuals without discernible grave goods are indeterminate. Many productive activities, such as harvesting, gathering, care-taking, animal husbandry cannot be attributed to a group. The gendered-sharing of these tasks is therefore not ensured, except by appealing to the regularities observed in sub-actual societies, with the risk of asserting an organisation of labour that is not archaeologically based. Children before the age of 6 follow the same pattern as adults with regard to the allocation of ornaments on the one hand, and tools and weapons on the other. As the sex of the children is currently not available, it is impossible to determine whether this differential allocation is related to their sex. This question is important because some individuals seem to deviate from the male and adze equation. This is the case of women with a polished adze found in several Central European cemeteries.

Many others aspects of gender, in particular those which leave no material traces, remain unknown. While women's mobility makes it possible to envisage a patrilocal marriage pattern, at least partially, sexual rights and lineage systems will probably continue to be unknown for a long time. These aspects are fundamental in gender relations as they are, according to anthropologists, one of the ways in which men dominate women. Gender of the spaces is also an elusive issue, as are religion and cult, all of which are central features of gender regimes. All these pending issues show that the archaeological data from the LBK culture only provide a partial understanding of gender. Furthermore, this understanding is all the more partial because we do not have access to myths, narratives and cosmogony, which are the cement of all human societies. However, there is significant room for improvement as gender archaeological studies are not simply a binary study of men and women. There is a need to explore the social variability of the LBK population as a whole. In particular, the exploration of the variability of LBK women in terms of identity, roles and status requires further exploration. Finally, these results show that in order to highlight gender variability in the Neolithic, it is first necessary to identify gender norms by sex. It is then possible to characterize individuals who do not correspond to the norms, or who present variations, which will allow a better understanding of gender diversity, or even the existence of a third gender, in Neolithic societies.

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