Research Article

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A Quantitative Study of the Linear Pottery Culture Cemetery “Aiterhofen-Ödmühle”

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Abstract: This article emphasises on the results of the master’s thesis “Burials in Bytes. A Quantitative Study of Linear Pottery Cemeteries in Austria, Bohemia, Moravia and Southern Germany” and further elaborates on interpretations of identified patterns at Early Neolithic cemeteries. The focus will lie on the Lower Bavarian site “Aiterhofen-Ödmühle.” Although the cemetery was subject to different analyses and interdisciplinary research in the past, there are still unsolved issues regarding chronology, structure, meaning of the local mortuary rites and rules, and its significance in the superregional context. The study utilised data acquisition via the Montelius image database and quantitative methods performed through the softwares WinSerion and Google Mapper. These data consisted of various typologies and classifications, while several variations of correspondence analysis, seriation, Analysis N Next Neighbours, and the creation of distribution maps have been involved in the process of evaluation. The results of the evaluations of Aiterhofen-Ödmühle favour a chronological south–north progression. Inhumations and cremations differ in grave good equipment, potentially representing contrasts in gender distribution. Spatial groupings are distinguishable through their properties – open to various ways of interpretation and comparable to clusters of other cemeteries. Differences regarding age and sex were also highlighted. Overall, Aiterhofen-Ödmühle stands out among Early Neolithic cemeteries through region-specific grave goods and death gesture, local peculiarities, variation of burial types, and its site structure. Similarities to other sites include characteristic Linear Pottery traits, although less obvious connections can also be recognised through the quantitative evaluations. Instead of rigid funerary rules, dynamic and flexible rites are suggested.

Keywords: linear pottery culture, cemeteries, burials, quantitative methods, mortuary archaeology

1 Introduction

The Linear Pottery Culture, which developed around 5650 BC and ended – depending on the region – around 5000 or 4900 BC (Lenneis & Stadler, 1995; Stadler & Kotova, 2019), represents the Early Neolithic of Central Europe. As evidenced through genetic investigations, these early farmers originated from the Starčevo-Criş-complex and further from the Anatolian Neolithic, with small intermixtures with local hunter-gatherers (Bramanti et al., 2009; Lipson et al., 2017; Mathieson et al., 2018; Nikitin et al., 2019; Shennan, 2018). A relative cultural homogeneity, visible in its subsistence, architecture, settlement forms, location and landscape choices, and mortuary practices, contrasts distinct regional and chronological
developments as well as territorial specialisation and variation within settlement structure and funerary rites. This mixture of diversity and uniformity defines the Linear Pottery Culture and is particularly emphasised and discussed by modern research (Amkreutz, Haack & Wijk, 2013; Bickle & Whittle, 2013; Moderner, 1988).

The later developed phases of the Early Neolithic cover an extensive expansion beyond the borders of Central Europe, even reaching the Paris Basin and eastern Ukraine in the process. These periods involve the emergence of the first Linear Pottery cemeteries, which play an important role in exploring cultural diversity and social structure. As cemeteries offer significantly more data to evaluate than settlement burials, with currently around 80 known sites including nearly 3,000 graves, they have been a major focus of research. Although contemporary research involved numerous interdisciplinary studies of cemeteries (Bickle & Whittle, 2013; Zvelebil & Pettitt, 2008), attempts to analyse such extensive amounts of data have been rare so far. This certainly roots in the large-scale distribution of the Early Neolithic, leading to potential evaluations being time-consuming and difficult for individual archaeologists and small teams of scientists. Further issues are the incomplete publication status of already excavated sites and the partial or absolute destruction of others through erosion due to agriculture as well as construction work, while the suspiciously small number of Linear Pottery burials in contrast to the far higher calculated quantity of inhabitants (Nieszery, 1995, pp. 13–18) and the lack of cemeteries in some regions also represent reoccurring concerns.

As the twenty-first century saw significant technological advancements through the rise of more powerful computers and the internet, mathematic-statistical approaches and databases consequently increased in importance and digital tools such as “Serion Ltd.” were developed to provide solutions and new opportunities to complicated research issues. The Serion Ltd. program package includes the archaeological image database “Montelius,” the software for quantitative methods “WinSerion,” and other useful applications and has been utilised within the master’s thesis “Burial and Bytes. A Quantitative Study of Linear Pottery Cemeteries in Austria, Bohemia, Moravia and Southern Germany” to analyse Early Neolithic cemeteries in selected regions (Hahnekamp, 2020). The subjects were grave goods, death gesture and pit orientation, burial types, site structure, and anthropological information, which were transformed into typologies. These types underwent different quantitative methods such as seriation, correspondence analysis, and Analysis N Next Neighbours. In total, 13 cemeteries with nearly 900 archaeological features were evaluated, resulting in detailed insights into Linear Pottery funerary rites. Furthermore, this thesis only acted as a pilot study, with the long-term goal being the evaluation of all published cemeteries as part of a consecutive dissertation.

2 The Case Study of Aiterhofen-Ödmühle

The Lower Bavarian site “Aiterhofen-Ödmühle” occupied an area at the right bank of the Danube side stream Aiterbach, which flows into the main river approximately 4 km north of the cemetery (Nieszery, 1995). Following the discovery of several graves during construction work in 1978, multiannual excavation campaigns uncovered 157 single and three double inhumations as well as 56 single and nine potential double cremations. Isolated bones of further nine individuals raise the number to 240 deceased. Another inhumation, three cremations, and one double cremation possibly are affiliated to the Middle Neolithic. A few burials might remain undiscovered in the south-eastern and north-western corners, while others could have been destroyed through construction work and erosion or by Middle, Late, and Final Neolithic, Hallstatt, and La Téne features (Hanöffner & Siftar, 2007). Linear Pottery settlement traces emphasise the southern area of the site and comprise pits and pit complexes, including 21 potential empty graves, as well as uncertain house remains and parts of a ditch. A 25 m long stretch of this ditch runs east–west between the cemetery and the settlement and could have been used to delimit the burial ground, although graves lying south of the ditch indicate otherwise. A second ditch included an abundance of Linear Pottery sherds and was cut by grave 30, suggested to be of Middle Neolithic origin but not certainly datable, leaving the question of when the ditch was established.
Since its discovery, Aiterhofen-Ödmühle received a variety of archaeological and interdisciplinary studies, one of the most recent being the impressive and important “Lifeways” project (Bickle & Whittle, 2013), which focused on isotopes and their correlation to archaeological data. However, many research issues remain unsolved or only partially answered. It is debated if the burial ground was shared among several communities or whether the nearby settlements, which were revealed through field surveys – with only the site “Aiterhofen B20” being excavated – represent the same village (Hofmann et al., 2013, p. 219; Nieszery, 1995, p. 56, 209). Radiocarbon and genetical investigations are yet to be performed, and previous relative chronological examinations resulted in conflicting or uncertain outcomes. Ceramic seriations, in particular, faced difficulties due to the small number of suitable vessels and chronologically diagnostic motifs (Farruggia, 2002; Hofmann et al., 2013, p. 219). While Nieszery (1995, pp. 188–191) argued for an earliest southern area based on spondylus distribution, (Hofmann, 2006, p. 708; Hofmann et al., 2013, p. 2019) used Nieszery’s system of pottery diagnosis to identify the earliest graves near the centre and in the north-west. Pechtl (2009, p. 94) and Hofmann et al. (2013, p. 220) arranged six pottery-rich burials to his chronological scheme for southern Bavaria for inter-regional comparisons, which does not suffice for completely uncovering the development of the cemetery. An initial division of the site into several spatial clusters relied on empty spaces separating groupings of burials (Nieszery, 1995, p. 64), although these gaps possibly represent later destruction of graves instead of intentional social structures. This is especially true for the heavily disturbed southern area, and until the overdue publication of all excavated features and thus encroachments, any interpretation of spatial groupings should be taken with a grain of salt. Despite these challenges, the amount of data available for Aiterhofen-Ödmühle still fulfill the requirements for insightful quantitative investigations.

3 Methods

The task of evaluating Early Neolithic cemeteries requires the right tools. This choice was made in favour of the program package “Serion Ltd.,” including the archaeological image database “Montelius” and the software for quantitative methods “WinSerion” among other programs. There is also the “GoogleMapper,” which enables the creation of superregional distribution maps linked to GoogleMaps and thus highly detailed satellite images.

The Montelius database obtains its information from pictures in scientific publications and currently contains data of around 98,000 archaeological sites in Central Europe, with approximately 200,000 pictures depicting Linear Pottery objects (P. Stadler, personal communication, June 3, 2020). By working with the “MonteliusEntry” input screen (Figure 1), these pictures are cut out and assigned to various descriptions and classifications (e.g. author, figure number, typology). The datum is then saved to an excel sheet. With the “MonteliusEditor” tool (Figure 2), researchers can change this datum easily and quickly to suit their research issues. Using this “dynamic typologies” approach, Montelius helps to efficiently create and adjust typologies, which subsequently can be used for quantitative evaluations. This possibility was utilised to establish classifications of grave goods, death gesture and pit orientation, burial types, and anthropological data.

WinSerion offers a variety of methods, the most basic one being the creation of simple distribution maps of types at sites based on AutoCAD drawings. These drawings are also essential for Analyses N Next Neighbours, a unique feature of WinSerion, representing different forms of cluster analysis, which divides archaeological features into spatial groupings on the basis of selected properties (age, sex, grave goods, etc.), distance to each other, and the chosen algorithm. Consequently, differences and similarities between sites and spatial groups are highlighted and social structures thus more easily recognisable. Seriation is a mathematical-statistical method used to order objects in matrices to research the chronological progression of archaeological finds and features, according to the reciprocal averaging algorithm and the unimodal model. The latter describes the trend of elements increasing in number and then becoming less common after reaching maximum frequency until they vanish entirely from the archaeological record. Another method of evaluating the relations between elements is the correspondence analysis, a more complex variant of the seriation. Selected objects are displayed on frequency tables in such a way that similar elements (e.g. graves with similar grave good equipment) assemble or intersect, while dissimilar ones
become segregated. Both seriation and correspondence analysis potentially accommodate to research questions concerning chronology, regional dissimilarities, social indifferences between the sexes, and others, depending on the evaluated data.

For the local evaluations of Aiterhofen-Ödmühle, distribution maps of types as well as two variations of Analysis N Next Neighbours, one utilizing grave goods combined with burial types and the other including death gesture and pit orientation, have been applied. The abundance of finds at the site allowed for a seriation of grave goods, while a superregional correspondence analysis underlined the regional characteristics of Bavarian cemeteries.

4 Results and Discussion

As an extensive examination of the results is represented in the master’s thesis, only the key points will be highlighted here and those relevant to the conclusive discussion below.

4.1 Google Mapper

The superregional satellite map of Linear Pottery cemeteries (Figure 3.) includes the position of around 80 known sites, not claiming to be an exhaustive list of every grave field ever excavated. Nevertheless, it still
Figure 2: MonteliusEditor, typology of bone combs after being saved to the database via MonteliusEntry. This typology can be adjusted by Drag’n Drop the pictures into other type folders, renaming the types, multiply pictures if different typologies are needed, and many other functions.

Figure 3: Superregional distribution map of Linear Pottery cemeteries, created with the GoogleMapper function of Serion Ltd. (Hahnekamp, 2020, p. 307, Figure App. 1).
provides an insightful picture of Early Neolithic funerary patterns. One might notice that many cemeteries seem to follow certain routes such as rivers or surrounding high-altitude areas (Bohemian Massif, Bavarian Woods, etc.), while also being limited to lowlands. A lacking state of research can only be partially made responsible for this situation, as the far more numerous settlement sites do not share these restrictions (Figure 4). Specific gaps in both settlement and cemetery distribution such as the vicinity of the Bohemian Massif in Poland and segments of the Danube river path certainly reflect the current research state and should thus enjoy more thorough archaeological activity. There is also a lack of Linear Pottery Culture sites in parts of the Bavarian Woods and the Bohemian Massif which instead harbour Mesolithic finds and features (Stadler, 2019, p. 434). These are indicators of hunter-gatherer territories, maintained either by force, peacefully coexisting with farmers, or other means, although further evidence other than distribution maps remains absent. The north-western limits of the Early Neolithic, in Belgium, around Cologne, and the Netherlands, represent a regional transition to the Mesolithic and go further north than the distribution of most Linear Pottery cemeteries, although the discovery of grave fields in these areas can be expected for the future. This might be also true for Hungary, where cemeteries are remarkably absent.

Consequently, the distribution of Early Neolithic cemeteries offers a variety of possible interpretations, which do not necessarily exclude each other. They could have functioned as territorial markers in the face of the potential threat of nearby hunter-gatherers. The placement at certain paths might also follow the main routes of communication, trade, and expansion. Such a strategic position would allow cemeteries to act as easily accessible social meeting areas where different communities participated in funerary events, which, as mentioned above, has been suggested for Aiterhofen-Ödmühle. To regularly renew social bonds between villages was possibly required in a period of rising tensions between farmers, evidenced by massacre sites such as Talheim as well as fortifications around settlements (Wild et al., 2004). However, as there are significant differences between cemeteries, with every larger site having unique traits and distinct structures, whether one is shared by numerous or rather single communities should be assessed individually.
4.2 General Trends

Aiterhofen-Ödmühle associates to the Bavarian distribution region of the Linear Pottery Culture. The main orientation of graves is E–W, while in Austria, Czechia, and Slovakia, burials primarily show a SE–NW-alignment (Neugebauer-Maresch & Lenneis, 2015; Pavúk, 1972; Podborský, 2002); however, at the cemetery Schwetzingen in Baden-Württemberg, NE–SW-positioned pits followed by the antipodal SW–NE-orientation predominate (Gerling, 2012). A preliminary superregional correspondence analysis (Figure 5) orders most of the grave good types into a cluster in the middle of the frequency table, meaning they are commonly found in the same graves. Other types are placed in branches outside this cluster, which seemingly represent region-specific grave goods. The upper branch contains items almost exclusively excavated in parts of the south-eastern distribution area of the Linear Pottery Culture (Austria, Slovakia, Czech Republic), while the lower branch holds gifts from mostly Baden-Württemberg and Bavaria. Within the left branch, bone combs, modified theodoxius danubialis shells, stone beads of nephrite, soapstone and limestone, fox mandibles, protula beads, and some others occur as characteristically Bavarian grave goods, although some of these types also appear in smaller amounts in other regions.

Around 61% of all burials excluding empty graves – 64% of the inhumations and 54% of the cremations – received preserved grave goods or dress accessories, which is a relatively high percentage of furnished graves when compared to other sites (e.g. Nitra, Schwetzingen). Concerning anthropological data, there are 33 women and 16 uncertainly female individuals as well as 33 men and 30 uncertainly male individuals, while the more difficult to identify cremations divide into 15 each of potential men and women, with the remaining deceased at Aiterhofen-Ödmühle being unsexed. As expected for Linear Pottery burials,
certain types of artefacts display sex-related patterns: Adzes, V-shaped spondylus belt buckles, arm rings, fox mandibles, pyrite nodules, red chalk, and others were primarily gifted to men, while women inherited grave goods such as round spondylus belt buckles or querns. Female deceased generally received lower varieties of gifts and were slightly more often unfurnished than men (Hofmann et al., 2013, p. 230). Age-related patterns show only rare inclusions of infants under 6 years, although this could at least be partially influenced by erosion destroying their shallow graves. Younger individuals were also more likely to receive no grave goods, while older men – along with some women – inherited the most extensive equipment, which almost exclusively contributed to the southern part of the site. In the northern two thirds, fewer complex ensembles and nearly all cremations allocate. Cremated individuals rarely obtained more than two grave goods and are generally less often furnished than inhumations; however, the latter received polished stone tools relatively less frequently; 24 of 37 furnished cremations (ca. 65%) and 43 of 103 furnished inhumations (ca. 42%) were gifted with adzes or perforated wedges. This could be interpreted as a relatively large proportion of men within cremations; although concerning the high number of unsexed burials and some females having received typically “male” gifts (e.g. graves 158, 159), further bioarchaeological investigations should be awaited before coming to such conclusions.

The outcome of the isotope analyses for Aiterhofen-Ödmühle suggests several exploitation strategies probably practised at the same time and further differences between north and south (Hofmann et al., 2013, p. 239). Men subdivide into two arrays seemingly having existed throughout the occupation period of the site, with one group showing a higher strontium ratio from childhood diets. The possession of more than two adzes or wedges correlates with higher Nitrogen values and thus with loess-based food and less mobility. This can also be observed for other cemeteries and implies a connection between a higher social standing and the distribution of polished stone. Indifferent isotope values with no overall patterning for women indicate several food sources during childhood, suggesting various origins and later immigration to Aiterhofen-Ödmühle. Women sampled from the northern half of the cemetery might have sourced their food from an exceptionally broad spectrum of environments in the years before their death.

4.3 Seriation

As Aiterhofen-Ödmühle offered high quantities of burials and findings, all requirements for a local seriation of grave goods and burial types were met. Thus, a seriation containing grave goods as well as the burial types “cremation” and “inhumation” was created (Figure 6). Within this sequence, most of the types show a somewhat chaotic order and thus cannot be assigned to specific phases. However, other gifts indeed imply social structure or chronological progression. Shell ornaments assemble at the right lower corner of the seriation, where also most of the spondylus objects tend to be, although some of the latter also reach the middle part of the table. Around the middle of the table, a long and nearly uninterrupted line represents the type “inhumation.” As inhumed bodies represent the majority of the graves, this placement seems natural. At the left upper end, a significant amount of triangular chert arrowheads and shoe-last adzes, the perforated wedges, as well as the cremations, remains. This does not necessarily represent a chronological progression, but might instead reflect spatial structures; spondylus and ornaments mainly contribute to the southern area, while triangular arrowheads and cremations remain in the northern half of the cemetery. All perforated wedges correlate with cremated human remains, but shoe-last adzes were found throughout the site occupation and within both inhumations and cremations. On the other hand, cremations and perforated wedges are generally associated with later chronological phases, with Nieszery (1995, p. 89) having suggested even Middle Neolithic origins for at least some of these graves. As the seriation and previous sequences of pottery ornamentation remain insufficient for uncovering chronological developments, further radiocarbon and genetical investigations are hereby recommended.
Figure 6: Seriation of the data set of grave goods combined with burial types of Alterhofen-Ödmühle (Hahnekamp, 2020, p. 386, Figure App. 80).
4.4 Spatial Clusters

Based on the Analyses N Next Neighbours and the distribution maps of types, the burials at Aiterhofen-Ödmühle were subdivided into spatial groupings (Figure 7), which are described as follows. Before continuing, it should be considered that the recommended clusters do not necessarily represent distinct groups clearly separable by their traits, as properties overlap in some cases. As there is also the issue of erosion and chronologically later features disturbing the picture, these zones should rather be viewed as assemblies of similarities and peculiarities, with various possibilities of interpretation.

Area A represents the southernmost area, which is the most heavily disturbed part of the site. It is characterised by relatively uniform grave pit orientations, stone and mollusc ornaments such as spondylus belt buckles and theodoxius beads, and large amounts of extensive grave good ensembles. The subgroup A2 differs by the predominance of the ESE–WNW-orientation instead of E–W and the absence of spondylus, although other ornaments typical for the south were still present. There is also a numerical imbalance between the sexes in favour of women. The subarea A3 consists of burials gifted without or small amounts of grave goods, contrasting the otherwise extensive ensembles of zone A. These burials have been interpreted as indicators for social differentiation or hierarchies within the same clan (Nieszery, 1995, p. 209). Additionally, this situation is comparable to the north-western part of the Linear Pottery cemetery Schwetzingen, where a grouping of “poor” graves similarly neighbours on the “rich” cluster, also lacking clear spatial distinctions through empty gaps. The better-equipped burials mark the earliest part of Schwetzingen – although the oldest grave lied more centrally – according to pottery analysis (Gerling, 2012, p. 117), which could be argued for a similar chronological placement of southern Aiterhofen-Ödmühle.

Figure 7: Spatial clusters as recommended for Aiterhofen-Ödmühle (Hahnekamp, 2020, p. 197, Figure 52, after Nieszery, 1995, p. 54, Abb. 19).
The easternmost zone B is primarily defined by the abundance of ESE–WNW-alignments and more intense crouches than within the adjacent area D as well as an almost absence of subadults and cremations. The properties of the subarea B1, including graves with multiple adzes, spondylus and protula ornaments, and E–W-orientations, indicate affiliations to area A, with the sole reason of spatial disconnection possibly being the previously mentioned disturbances. Pottery is slightly more frequent in the central zone B2, where some mature individuals lied, often gifted with adzes. Three unfurnished burials are allocated to the western rim. A single grave (48) inherited spondylus and two adzes, which is more typical for B1. The northernmost subarea B3 lacks mature deceased, spondylus, adzes, and other types, while graphite was significantly more common than in B1 and B2.

The north-eastern cluster C shares an almost absence of subadults with B, although the dominance of E–W-orientation differs from the latter. The cremations at the eastern rim might associate with area D rather than C. Bomb-shaped or bulbous vessels without or with marginally pronounced neck (so-called “Kümpfe”) appear more often than in other zones. The inhumation grave 102 represents one of the few burials of the site with three adzes, while the cremation 185 further stands out by including even four polished stones. The subarea C2 contains higher quantities of unfurnished burials, mature individuals, and triangular arrowheads, with the deceased having slightly more diverse lines of sight and different crouch intensity than C1, while the latter accommodates more pottery.

Zone D refers to the central to western parts of Aiterhofen-Ödmühle and is characterised by its large amount of cremations, which appeared only scarcely – if any at all – in other clusters. D1 includes a significant number of inhumations with E–W-orientations, a relative moderate crouch intensity, and an absence of spondylus, which distinguishes it from the clusters A and B. However, the inhumation grave 33 in the southernmost corner inherited a bottle-shaped vessel containing nephrite and theodoxius bells along with graphite, resulting in an uncertain affiliation. The northern half of the subarea held more adzes and bottles as well as a significant number of subadults. D2 includes only a few inhumations and, similarly to D1, subadults in its northern part, which could be argued for further differentiations within these two subareas. D3 almost entirely comprises cremations, with most of them being unfurnished or gifted with adzes. Generally, the progression from high quantities of inhumations in the east to their decline in the west in favour of cremations could be seen as chronological development, although this remains speculation until further investigated.

In the north-western area E, inhumations once again dominate. Grave pit orientation shows more variation than other zones, with WSW–ENE- and ESE–WNW-alignments being the most common. Right crouches and unfurnished burials occur relatively often. The only identified subadults were a group of infants assembling on the northern edge and one about 7–8-months old foetus carried by a pregnant mature woman in grave 116 at the southern rim. Two female individuals in the neighbouring graves 158 and 159 received polished stone, with the latter additionally including arrowheads, thus having inherited several “male” grave goods.

5 Discussion

The funerary rites in Bavaria involve distinct characteristics regarding pit orientation and grave goods, while still having typical Linear Pottery Culture traits such as the domination of the “sleeping” arm gesture and the left crouch, or high strontium values for men with adzes. Large cemeteries are generally vastly different in site structure and grave good distribution and often contain unique finds. This is also the case for Aiterhofen-Ödmühle, which stands out with its mixture between inhumations, a great number of cremations, and even some empty graves and peculiarities such as the gifting of fox mandibles or the high number of polished stone goods in some graves.

The chronology of the site remains uncertain even after being evaluated by seriation, although the latter, as well as specific factors, indicates an early southern area. Shell or stone ornaments in the south contrast triangular arrowheads in the north, but this might reflect spatial order rather than chronological progression. Cremations, generally thought to be a younger phenomenon, almost exclusively occur in the
northern half. Structural similarities are shared with the site Schwetzingen in Baden-Württemberg, with both the latter and Aiterhofen-Ödmühle having a cluster of burials with the most extensive ensembles near a group of less-equipped graves, without clear spatial distinctions. This can be argued for an early south at Aiterhofen-Ödmühle, as the relative chronology of Schwetzingen marks the “rich” area as the oldest zone. However, it should be mentioned that Schwetzingen does not reach the quantities of graves’ goods of Aiterhofen-Ödmühle and further contrasts the latter with its scarcity of spondylus, which might have been due to less accessibility to the spondylus trade routes at the time of the cemetery occupation (Gerling, 2012, p. 108). Hofmann et al. (2013, p. 239) view the isotope differences between the northern and southern parts of Aiterhofen-Ödmühle as an indicator for a progressive opening in the landscape from north to south, from more simple grave good ensembles to more complex ones. This interpretation fits the model suggested by Jeunesse (1997) and Farruggia (2002). However, this is only one of the explanations offered by the Lifeways project. Alternatively, diverse dietary strategies and grave good preferences might have coexisted since the founding of the site, as the two distinct male arrays existed throughout the cemetery occupation. Consequently, radiocarbon investigations are urgently needed to establish a suitable chronology for Aiterhofen-Ödmühle.

Despite erosion and other disturbances distorting the overall picture, certain social structure or funerary rules are recognisable through the spatial groupings as recommended according to the Analyses N Next Neighbours and type distribution maps. Unbalanced sex and age distribution at certain areas imply these groupings to represent other entities than families, while differences in grave good equipment (or absence thereof) display potential hierarchical or social order. This can also be observed with other cemeteries such as Vedrovice “Siroká u lesa” (Podborský, 2002), where the north-western area only consists of women. If these clusters comprised families or households, then it must be asked what defined those, and if or how they were influenced by factors such as espousal, adoption, migration, and so on. Some interpretations also allude to clans (Nieszery, 1995, p. 209), but these might have been synonymous to households and families, or even inhabitants of different rooms in longhouses (house-sharing communities), similarly impacted by the factors just mentioned. Then there are peculiarities such as the pair of female burials with typically “male” grave goods (graves 158, 159).

All these aspects – also concerning the dissimilarities between cemeteries and their unique traits – indicate dynamic and flexible funerary rites and rules instead of rigid structures, affected by historical processes (e.g. expansion, conflict), political organisation and social structures (hierarchies, notions of sex, age, family, etc.), economic factors (production and exchange, access to resources and trade routes), religious beliefs, and also by individual life- or deathways and personal preferences of the deceased or their survivors, and other potential factors. Additionally, more than one community might have been involved in the occupation of Aiterhofen-Ödmühle, although this remains highly speculative, only implied by the existence of multiple potential settlements near the cemetery and the strategically favourable position of the site near possible communication and trade routes. Considering all these factors, notions of spatial clusters representing clans, families, or households are insufficient for explaining the complexity of Linear Pottery Culture funerary rites.

The quantitative evaluations of Aiterhofen-Ödmühle highlight distinctive aspects of the Linear Pottery Culture while giving detailed insights into its funerary rites and social structure, although they merely add to the debate instead of solving the issues surrounding the interpretation of the site. As the master’s thesis only acted as a preliminary study for a potential dissertation, which would expand on the data set and include a greater variety of typologies and methods and regarding ongoing promising projects such as “Counter Culture” (Bickle et al., 2019), our understanding of the Linear Pottery Culture awaits certain improvement in the near future.

Abbreviations

Abb. Abbildung (Illustration)
Figure App. Figure appendix
E–W East to west
ESE–WNB East-southeast to west-northwest
NE–SW Northeast to southwest
SE–NW Southeast to northwest
SW–NE Southwest to northeast
WSW–ENE West-southwest to east-northeast

Conflict of interest: Authors state no conflict of interest.

Data availability statement: The Montelius data sets generated during and/or analysed during the current study are available from the corresponding author on reasonable request and with the permission of Peter Stadler. The master’s thesis is available online on academia.edu.

References


