Archaeologia Polona vol. 63: 2025, 127–152
PL ISSN 066-5924
DOI: 10.23858/APa63.2025.4107

Corded Ware Burial of the Thuringian Basin – Evidence for Social Differentiation and Inequality?

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This study examines 401 Corded Ware Culture (CWC) burials from the Thuringian Basin using exploratory and principal component analyses within Bourdieu's framework of habitus and capital. Results reveal a marked gender dichotomy: male graves emphasise weapons and bone tools, while female graves highlight ornaments and different bowls. At the same time, amphorae, beakers, and flint artefacts occur across sexes and ages, reflecting communal practices of feasting, exchange, and symbolic consumption. Age-based differentiation follows a life-course model: subadults were modestly furnished, while adults – especially mature individuals – received increasingly elaborate goods. Women gained recognition earlier through kinship and ritual roles, whereas men accrued status gradually through achievement and material display. Exceptional burials with rare or abundant objects signal inequality, framed within a shared habitus of burial practices. The Thuringian evidence thus portrays CWC society as gender-differentiated and hierarchically stratified, yet unified by common ritual traditions and cross-cutting practices of community life.

KEY-WORDS: Corded Ware Culture, Thuringian Basin, grave goods distribution, social differentiation, social inequality

INTRODUCTION

The Corded Ware Culture (CWC), a major phenomenon of the late 3rd millennium BCE, spanned from the Low Countries and Scandinavia to the Pontic steppe. Characterised by a mixed subsistence strategy encompassing agriculture, herding, and gathering, it is generally considered a relatively mobile society (Lechterbeck *et al.*, 2013; Sjögren *et al.*, 2016; Heyd 2021) that emphasised individual and nuclear family units

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Received 10 April 2025; Received in revised form 19 September 2025; Accepted 14 October 2025

more than earlier farming communities (Harrison and Heyd 2007; Kristiansen *et al.*, 2017: 343).

Ancient genomic studies indicate a substantial, male-driven migration from the Pontic–Caspian steppe into Central and Northern Europe during the early 3rd millennium BCE (Linderholm *et al.*, 2020; Papac *et al.*, 2021; Scorrano *et al.*, 2021), potentially linked to demographic expansion driven by intensified steppe herding and secondary animal products in the late 4th millennium BCE (Wilkin *et al.*, 2021). These populations appear to have been predominantly patrilineal and practised female exogamy (Mittnik *et al.*, 2019; Sjögren *et al.*, 2020; Papac *et al.*, 2021), consistent with reconstructed Indo-European kinship systems (Olsen 2019; Sjögren *et al.*, 2020). A decline in Y-haplogroup diversity from early to late CWC phases, observed in Bohemia and elsewhere, may reflect competition among male lineages or highly restrictive marriage networks (Zeng *et al.*, 2018; Papac *et al.*, 2021).

Within the research, two main positions dominate: one suggests strong genetic links between Corded Ware and Yamnaya individuals (Allentoft *et al.*, 2015; Haak *et al.*, 2015; Olalde *et al.*, 2018), supporting the idea of massive migration into Europe (Kristiansen *et al.*, 2017). In contrast, others highlight local variability and critique invasion models, arguing instead for the role of individual mobility (Vander Linden 2004; 2016; Furholt 2014; 2018; 2019; Heyd 2017).

Recent research integrating stratigraphic, typological, and absolute dating evidence suggests an initial CWC phase around 2900 BCE, accompanied by a gradual population increase (Großmann-Klabunde 2025). After 2500 BCE, significant stylistic shifts in pottery occur (Müller 1999; Furholt 2003; Ullrich 2008; Großmann 2016), and the subsequent expansion of the Bell Beaker phenomenon appears to displace Corded Ware populations, contributing to a decline in the latter by 2300 BCE, with further cultural transition towards the Early Bronze Age Únětice culture after 2250 BCE (Großmann 2016).

The CWC is most clearly defined by its highly uniform burial ritual, found across regions such as the Netherlands, Denmark, Poland and Central Germany (Furholt 2014; Kristiansen *et al.*, 2017). This uniformity rests on three elements: funerary architecture, body position, and grave goods. Burials typically consist of single-person burial pits, sometimes covered by barrows with surrounding palisades, a practice shared across the Corded Ware distribution (Hübner 2005; Šmejda ed. 2006; Bourgeois 2013; Pospieszny *et al.*, 2015; Großmann 2016; Bourgeois and Kroon 2017; 2023). The deceased were interred in semi-flexed positions with a marked gender dichotomy: men usually on their right side, head westward, women on their left side, head eastward, both facing south (Furholt 2014; Turek 2016). Finally, grave goods belong to a restricted yet widespread set, including flint and battle axes, beakers, amphorae, ceramic

vessels, flint blades or daggers, amber beads, copper, shell and animal teeth ornaments (Furholt 2014; Bourgeois and Kroon 2017).

The shared idea of dressing the dead embodied transmitted information that circulated and transformed across regions. Burials are particularly suited to trace this process (Sørensen 2015; Wentink 2020): they are discrete, ritualised events rooted in worldviews and emotionally charged acts (Barraud and Platenkamp 1990; Metcalf and Huntington 2005; Oestigaard and Goldhahn 2006). Similarity in burial practice thus reflects shared conceptual frameworks rather than identical meanings. Furthermore, Bourgeois *et al.* could prove that long-range similarities of right-flexed (mostly male) graves, contrasted with the rather regionality of left-flexed (mostly female) burials, highlight the role of gender in mortuary conventions (Bourgeois and Kroon 2023).

CORDED WARE CULTURE – CENTRAL GERMANY

Research on the Corded Ware Culture in Central Germany has a long tradition, beginning with Klopfleisch's 1884 identification of cord decoration on pottery and his distinction between Linear Pottery and Corded Ware (Hein 1987). Systematic descriptions of ornamentation, vessel types, and burial practices were later provided by Götze (1891; 1909) recognizing the CWC as a supra-regional European phenomenon. Mid-20th-century studies by Ulrich Fischer refined the typology and chronology of the CWC, distinguishing early, mixed, and late phases and exploring social relationships (Fischer 1951; 1956; 1958). Large-scale catalogues and typological studies (Loewe 1959; Matthias 1968; 1974; 1982; 1987; Bach and Bach 1975; Beier ed. 1994) established a detailed empirical foundation.

In terms of grave goods, items such as shell and animal tooth jewellery (primarily found in adult and mature female graves) and boar tusks (primarily found in adult and mature male graves) were generally considered to be status symbols in Thuringia and central Germany (Gessner 2005; Menke *et al.*, 2017; Küßner 2022; Schmalfuß and Conrad 2022).

Subsequent studies by Stock (Stock 1998) and, in particular, the ^{14}C dating compiled by J. Müller (1999) expanded the chronological theories. In the post-war period, urban development measures also resulted in an increase in the number of finds. Moreover, in the aftermath of Germans reunification, a substantial number of finds have been unearthed in the Thuringian Basin and the Leipzig Lowland Bay. This phenomenon can be attributed to the construction of routes for gas pipelines, motorways (A38, A71), federal highways (B6n) and bypasses (Meller ed. 2006; Meller

and Dresely eds 2006; Meller and Friederich eds 2011). These studies have resulted in a substantial corpus of ^{14}C data, particularly in Saxony-Anhalt, which has facilitated the chronological localisation of corded ware pottery (Schwarz 2015; Großmann-Klabunde 2025). In Central Germany, continuity in material culture since the Western Globular Amphora Culture and temporal overlap with the Bell Beaker phenomenon are evident (Beran 1992; Woidich 2014; Großmann 2016; Müller 2023).

Settlement evidence in Central Germany, including trapezoidal houses up to 20 m long at Brachwitz and Wennungen, highlights the domestic dimension of CWC communities (Friederich 2019; Küßner 2019). Nevertheless, in Thuringia, most data derive from burial grounds and isolated finds, necessitating careful contextual interpretation.

CORDED WARE CULTURE – SOCIAL INEQUALITY AND DIFFERENTIATION

Previous social analyses suggest that the CWC burials reflect hierarchical differentiation. Strahm interprets frequent status symbols as indicative of elite burials, with distinctions by age and family structure, often organised around lineages or clans and central figures such as a "big man" (Strahm 2002). Status is defined as a formal, recognised position of an individual within a society, and is often linked to kinship and origin. In contrast, the term "prestige" refers to the reputation of an individual or group that is widely known and often viewed as a sign of success or achievement. Prestige can be defined as the social respect or admiration a person earns through their skills, achievements, or valued possessions, which may exist independently of formal status (Díaz-Andreu 2005; Dornheim *et al.*, 2005). Kolář emphasises gendered and age-based social structures, highlighting idealised expressions of masculinity and femininity, and distinguishing skill-based "big men" from hereditary "great men" (Kolář 2018). Wiermann's studies in Bohemia further show the selective distribution of status objects, with economically active individuals receiving elaborated burials, while infants and the elderly often lacked grave goods (Wiermann 1996; 2002). Wentink frames grave goods as collective social representations, linking living communities to deceased ancestors (Wentink 2020). Ralph Großmann demonstrated that the Lauda-Königshofen burial ground exhibited gender-specific differences in terms of orientation and grave goods. Furthermore, he showed that the quantity and quality of grave goods varied according to age. Furthermore, he proved that the calculated value of the grave goods increased with age (Großmann 2021a).

In interpreting the Corded Ware burial record, it is important to distinguish between social differentiation and social inequality. Social differentiation refers to

distinctions in identity and role, such as the clear gendered patterning of grave goods or age-specific treatment of the dead. These horizontal differences do not necessarily imply ranking but rather mark social categories within the community. By contrast, social inequality involves hierarchical relationships and unequal access to resources, prestige, or symbolic value (cf., Beck and Quinn 2022).

BOURDIEU'S THEORETICAL MODEL AS FRAME

This study builds upon these empirical and theoretical foundations, employing Bourdieu's framework of habitus and capital to interpret burial practices. Bourdieu conceptualises social positions through the distribution of economic, cultural, social, and symbolic capital, shaping durable dispositions (habitus) that influence practices (Bourdieu and Schwibs 1984).

By dividing the concept of capital into these different forms, he provides a useful theoretical framework that can also be applied to the categorisation of archaeological material (Kadrow and Müller 2019).

Economic capital encompasses all forms of material wealth (e.g., income, movable assets, land ownership; Bourdieu 1986: 17–21). In archaeological contexts, this might be reflected in the accumulation of artefacts, grave goods, or evidence of surplus production.

Social capital consists of social networks (Bourdieu 1986). These networks can structure the collective ownership of resources, which presupposes a willingness to cooperate. Archaeologically, such cooperation may be visible in activities like communal house-building or the construction of graves.

Cultural capital, according to Bourdieu (1986), exists in three forms: embodied, objectified, and institutionalised.

Embodied cultural capital is ingrained in individuals – it is acquired through upbringing and education, and manifests in taste, knowledge, or personal behaviour.

Objectified cultural capital is expressed through cultural goods. In archaeology, this might correspond to artefacts, especially everyday items such as pottery or flint tools.

Institutionalised cultural capital refers to formal titles or qualifications acquired during one's life. In prehistory, this could be understood as social roles linked to decision-making or the regulation of resource distribution.

Finally, symbolic capital denotes an individual's standing within society, which in prehistoric contexts may not always have been strictly hierarchical. It could be expressed through prestige goods, symbolic representations, or differential burial practices, such as the distinction between those granted special graves and those who were not.

AIM OF THE PROJECT

The objective of this study is to examine whether the patterns observed in grave goods, body position and orientation in Thuringian Corded Ware Culture burials reflect a socially diverse yet egalitarian community or a hierarchical one. The objective of this study is to ascertain the extent to which biological sex, social gender and age are responsible for the observed patterns of burial orientations/positions and grave goods distribution. The following question is posited: how ought this distribution to be interpreted? The subsequent analysis of the results is undertaken with reference to Bourdieu's concept of habitus and capital forms. This study makes a significant contribution to our understanding of the complexity of third-millennium BCE societies in Europe by situating local burial patterns within a broader research framework on CWC mobility, demography, and social organisation.

METHOD AND MATERIAL

The present study employs exploratory data analysis, which utilises visual and statistical techniques to identify patterns, correlations, outliers and significance, with the assistance of descriptive statistics and univariate analysis. The study employs principal component analysis (PCA) on 401 Corded Ware Culture burials from the Thuringian Basin. Principal component analysis (PCA) serves as a multivariate ordering procedure, visualising relationships between variables and individual burials. PCA serves to visualise complex facts and can be classified as a structure-discovering method. PCA condenses all the variation in a dataset into a number of dimensions (or principal components, PCs) ranked by how much of the variation (inertia) in the data they account for (termed "inertia", defined by eigenvalues). Usually, only the first two or three PCs (dimensions) are used. I showed PCA as a biplot of both the variables (as arrows) and the individual graves (as dots), where the x-axis represents PC1 (the most important), and the y-axis represents PC2 (the second most important). Thus, the PCA represents a multidimensional "grave distribution space" showing the position of each grave in the overall space, and how they correlate with each other. Additionally, where available, the sex/gender and age of the individual are highlighted (Baxter 2003: 73ff; Backhaus 2008; Nørtoft 2024). While such multivariate methods are standard exploratory tools, their interpretation requires careful methodological consideration.

The PCA was implemented using PAST 5 (https://www.nhm.uio.no/english/research/resources/past/) I also used boxplots for univariate data to show the interquartile

range (the middle 50% of the data) for a variable. In this context, Mann-Whitney post hoc tests were performed to reveal age- and gender-specific trends in the accumulation of grave goods.

In this study, distribution results are not treated as chronological sequences; rather, clusters are interpreted as contemporaneous groupings reflecting social practice. This approach is based on two considerations: (1) Chronological subdivision of the dataset was deemed unnecessary. Burial practices have remained stable for centuries. Analysed object categories were used throughout the Corded Ware period, and changes occurred only in the design and decoration of the objects, not in their composition (Großmann 2016; 2021b). (2) the recurrence of similar clusters in other CWC contexts with independent chronological control (Großmann 2021a; Bourgeois and Kroon 2023; Nørtoft 2024). Consequently, the analysis emphasises horizontal social variation rather than diachronic change.

The selection of Thuringia as the region under investigation was predicated on the existence of already compiled data relating to a separate issue (Großmann 2016), in addition to the presence of a high density of well-documented burials within the specified area. The database draws primarily on catalogues and publications by Waldemar Matthias, Gudrun Loewe, and others (Loewe 1959; Feustel *et al.*, 1966; Matthias 1974; 1987; Bach and Bach 1975; Bücke *et al.*, 1989) from the Central German Thuringia region. Recorded data include grave goods, burial orientation and position, and anthropologically determined sex and age.

The analysis covered the burial orientation and all types of grave goods. References to additional "grave construction" elements or installations were also included in the analysis. However, no distinction was made between different types of structures, e.g., stone packs, stone chambers, burial huts, stone cists, or wooden structures. As the mound has often been destroyed or not recorded, this burial element could not be included in the analysis.

To reduce data complexity and enhance interpretive value, individual object types were consolidated. For example, "bowl-shaped vessel" encompasses bowls, small dishes, and footed bowls, while all flint artefacts – blades, flakes, and scrapers – were grouped under "flint". Object frequency was considered for most categories, except for shell and animal teeth jewellery, which were recorded as present/absent due to potentially high quantities in a single grave. Individual decorative elements were also grouped together. The shell, bone and amber jewellery, for example, includes various pierced and non-pierced discs, beads and buttons.

Multiple burials, particularly in mounds or chambers, were excluded because artefacts could not be reliably assigned to individual interments. Of the 402 burials analysed, anthropological sex was recorded in only 70 cases: 30 (7%) were identified

as anthropological female and 40 (10%) as male. The remaining 334 burials (82%) lack reliable bioanthropological sex information. Based on the results of the principal component analyses, individuals for whom no anthropological assignments are available are assigned as gender female or male. Gender is considered to be socially created and culturally specific, and distinct from the fixed biological categories of sex (Gilchrist 2012).

All data are available online at: https://www.uni-kiel.de/en/jma/research-infrastructure/research-data/data-exchange-platform *(Das dialektische Verhältnis von Schnurkeramik und Glockenbecher zwischen Rhein und Saale)* and can be filtered using the ID_Individuum (ID_no.).

The results should be interpreted with caution when considering taphonomic processes, including natural decay and human-caused disturbances such as ploughing and careless removal, as well as the limitations of archaeological documentation from the 20th century.

RESULTS

Principal component analysis (PCA)

Examination of the PCA reveals a clear biplot arrangement of variables and objects (see Fig. 1). Most variables are situated on the positive side of the first component, whereas only a subset, such as body position information and the "no grave goods" variable, appear on the negative side. The loading on the first component clearly shows that amphorae, beakers and flint, which are often found as grave goods, have the highest positive correlation impact, whereas the "no grave goods" variable has the highest correlation impact on the negative side.

Individuals differentiated by anthropological sex are distinctly separated along the second component, indicating the existence of clear gender-specific burial practices. This also means that anthropologically non-determined individuals align with a particular gender category. Loadings (Fig. 2) clearly show that female-associated graves cluster in the negative area of the second component and are characterised by amber, shell, animal teeth and copper/bronze jewellery, amphora, beaker and bowls. In particular, the grave orientation and position (east-west, left flexed position) and jewellery categories have a significant impact on the correlation. Male-associated graves occupy the positive side of the second component and feature axes, hatchets, bone chisels and special grave constructions. The orientation (west-east, right flexed position), weapons (axe, hatchet), flint tools, as well as bone chisel have the highest correlation impact.

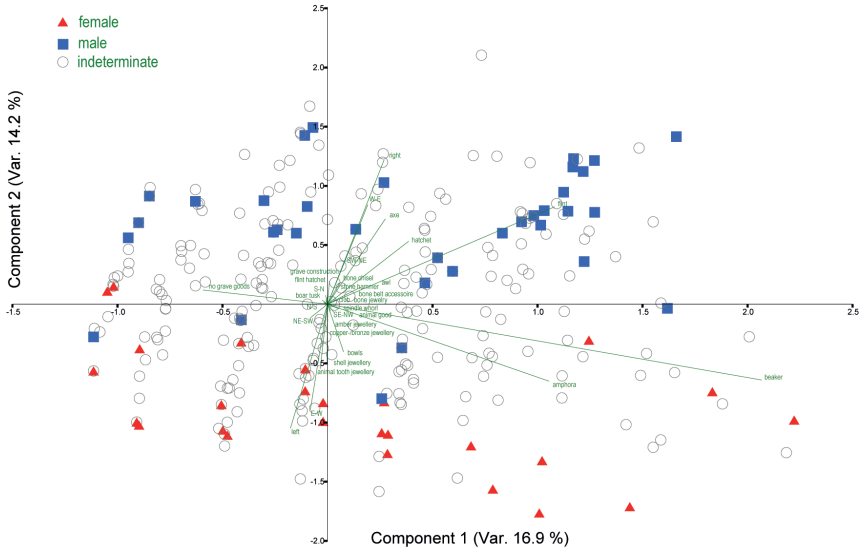

Fig. 1. PCA biplot of Corded Ware graves from Thuringia. The variables are presented as grave goods and burial orientation. Anthropologically determined female graves (red triangles) contrast with male graves (blue squares).

These results support gender-specific burial customs regarding grave goods and body position. However, objects such as beakers, amphorae and flint are positioned far along the positive end of the first component, emphasising their importance across gender and ages.

Anthropological data on age were added to the same PCA. This includes infants (0.5 to 14 years), juveniles (14 to 20 years), adults (21 to 40 years), mature adults (41 to 60 years) and seniles (> 60 years). When contextualised by anthropological age, the first principal component particularly differentiates infants from mature and elderly individuals (Fig. 3). Most mature individuals appear on the positive side of the first component, while most infants cluster on the negative side, closely associated with the "no grave goods" variable. Strong loading on the positive side demonstrates amphora, beaker and flint artefacts (Fig. 4). Interestingly, many infants are located on the negative second component, i.e., in the female-associated area. Additionally, a smaller number are in positions corresponding to female-equipped graves along the positive first component. Very few infants appear in the mature male-associated area (the first and second positive components).

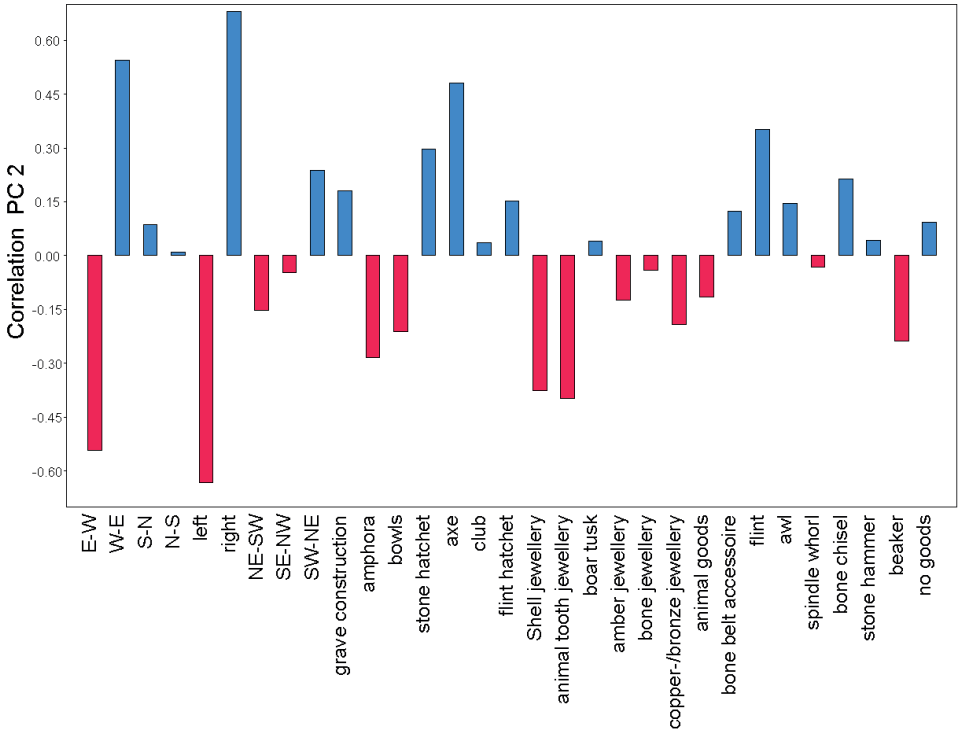

Fig. 2. PCA loadings of the second axis: Positive values stand for male-associated grave goods and grave orientation. Negative values stand for female-associated grave goods and burial orientation.

Comparison Between Adult and Subadult Burials

The following section distinguishes between adult and mature individual burials, and subadult burials (i.e., infant and juvenile), in terms of grave goods composition. Adult incl. mature graves contain a wide variety of utilitarian and symbolic items. The most common items are amphorae (19.4%) and beakers (18%), followed by flint tools (14.7%) and stone hatchets (6.5%). Further object categories include jewellery made from shells (4.6%), animal teeth (3.7%), bone awls (3.2%), stone axes (2.8%), bone chisels (2.3%), and bone jewellery (2.3%). Around 6.5% of adult graves contain no goods. A relatively high percentage of objects categorised as "other" are found in adult burials. This category includes items such as clubs (0.9%), flint hatchets (0.5%), copper jewellery (1.4%), amber jewellery (0.5%), and bone belts (0.5%). None of these objects is found in subadult graves (Fig. 5:a).

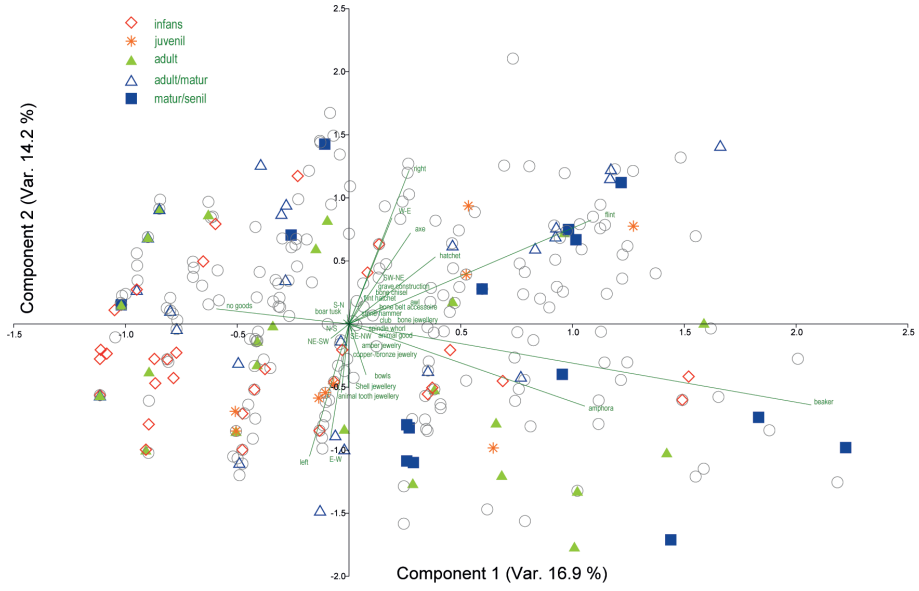

Fig. 3. PCA biplot of Corded Ware graves from Thuringia. The variables are presented as grave goods and burial orientation. The figure shows individuals for whom anthropological age data is available.

Subadult graves emphasise ceramics and ornamental items. Beakers (22.6%) and amphorae (17.9%) account for over 40% of the objects found, while bowls account for a further 11.9%. Jewellery, particularly that made from shells (10.7%) and animal teeth (7.1%), is more prevalent than in adult graves. Prominent objects such as hatchets, axes and bone awls are absent from subadult burials. Around 10.7% of subadult graves contain no grave goods, compared to 6.4% of adult graves. Objects such as bone chisels and boar tusks are present in adult/mature burials and in small numbers in subadult graves (both 1.2%; Fig. 5:b).

Focusing on subadult graves in the CWC of the Thuringian Basin, these graves are typically modest and exhibit distinct patterns in terms of the type of grave goods and gender-specific attributes. Infant female graves often contain jewellery made of shell and animal teeth. They may also contain bowls or bowl-shaped vessels, reflecting attributes similar to those seen in the burials of adult women.

Subadult graves fall into distinct categories: jewellery-only, beaker-only, bowl or vessel burials, or burials without any grave goods. This pattern highlights early gender differentiation, with female infants receiving items, such as jewellery, associated with femininity, while subadult males are almost excluded from grave goods associated

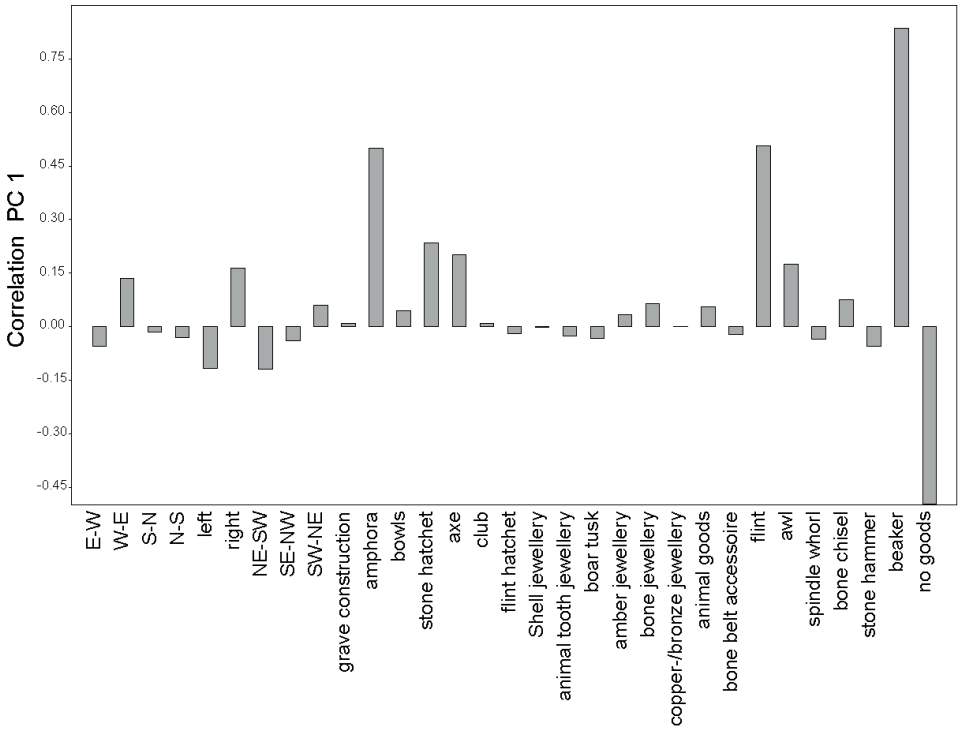

Fig. 4. PCA loadings of the first axis: Positive values stand for grave goods and grave orientation associated with maturity. Negative values correspond to infant-associated grave goods and burial orientation.

with male artefacts. Objects, such as weapons and certain male status symbols like clubs, boar tusks and bone belts, were reserved for adults or mature individuals.

These contrasts suggest that adults were buried with objects reflecting productive, craft-related, labour-related and in the male case, warrior-related roles, whereas subadults were associated with ceramics and ornamental items, which may have symbolised nourishment, communal feasting, or rites of passage. Exceptions include, for example, the infant burial from Großbrembach, Sömmerda district (ID 1649; Bach and Bach 1975: 44). The burial contains two beakers, an amphora, shell jewellery, and a flint object and the infant burial from Berlstedt (Küßner 2022) contains a beaker, boar tusks, and bone jewellery. The elevated grave goods ensemble of the infant burial from Berlstedt is indicative of high status derived from kinship.

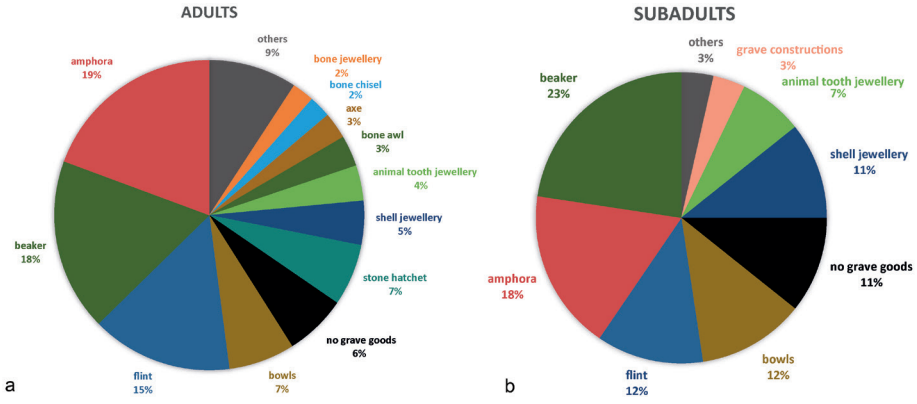

Fig. 5. This pie chart shows the percentages of grave goods found in adult (a, left) and subadult (b, right) graves, as determined by anthropological analysis.

Gendered Patterns in Corded Ware Grave Goods

The distribution of grave goods within CWC burials in Thuringia shows distinct patterns between female and male interments, reflecting both shared cultural practices and gender-specific roles. For female burials (Fig. 6:a), the most frequent grave goods are amphorae (21.3%) and beakers (17.2%), followed by flint artefacts (11.8%), animal tooth jewellery (9.5%), and shell jewellery (9.1%). Other items, such as bowls (7.8%), copper/bronze jewellery (2.7%), and bone awls (2.4%), occur less frequently. A small percentage (6.8%) of female burials contain no goods at all. The prominence of ceramic vessels, particularly amphorae and beakers, suggests a strong association between women and practices related to feasting, food storage, and possibly ritualised consumption. The relatively high proportion of ornaments, such as jewellery and animal goods, further indicates an emphasis on personal adornment and symbolic expression of identity.

In male burials (Fig. 6:b), the most common items are beakers (19.2%), amphorae (18.7%), and flint artefacts (18.1%), followed by axes (8.8%) and stone hatchets (7.7%). Compared to female graves, male assemblages feature a greater diversity of tools and weapons, including flint hatchets (1.1%), bone chisels (2.5%), and boar tusks (1.4%). Jewellery occurs less frequently among men (shell 1.9%, animal tooth 1.1%, bone 1.6%) than among women. Notably, a smaller proportion of male burials (5.2%) lack grave goods, suggesting a more consistent association of men with material culture in funerary contexts.

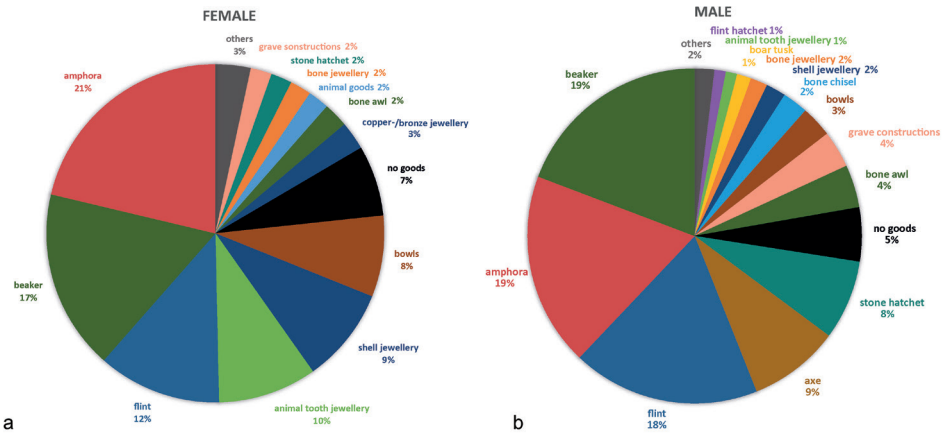

Fig. 6. This pie chart shows the percentages of grave goods found in female graves (a, left) and male graves (b, right), as determined by anthropological and archaeological analysis.

Despite these differences, many burials contain only beakers, amphorae, and flint, or combinations thereof. These objects appear as cross-gender or gender-neutral grave goods, perhaps signifying shared community values or baseline burial traditions. By contrast, the presence of weapons or jewellery in only a minority of graves underscores that explicitly gendered markers were reserved for specific individuals. Such differentiation likely reflects variations in prestige, social identity, or ritual significance within the broader community.

Age- and sex-specific patterns in the number of grave goods

Furthermore, questions arise about how the objects are distributed by gender and age, and whether access to them differs across age categories. Boxplots (Fig. 7) demonstrate the sum of grave goods in each grave, correlated with age and gender categories, and reveal an age-based unequal distribution of grave goods. Where no anthropological information regarding sex was available, the orientation and position of the graves were used as proven markers for gender (Bourgeois and Kroon 2017). In addition to the adult and mature age categories, an adult/mature category was introduced. This category is intended for individuals who have not been clearly identified as either adult or mature in the literature.

Analysis of the Thuringia CWC graves reveals significant variation in the quantity of grave goods across age and gender categories. Infants and juveniles consistently

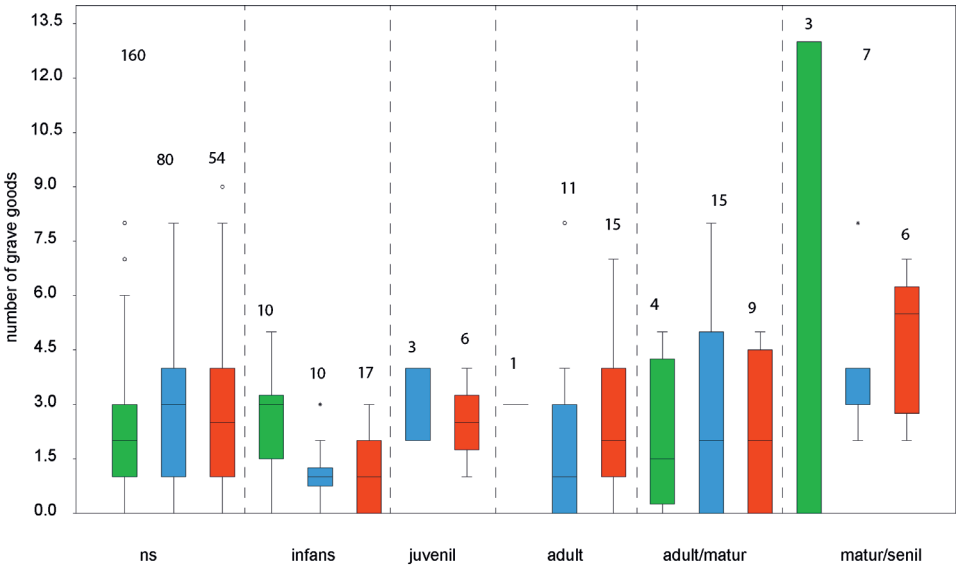

Fig. 7. Boxplot of the number of grave goods (y-axis) in the context of anthropologically determined ages and gender determined archaeologically. The number of burials is noted above the box plots.

have fewer grave goods. Male infants have an average of 1.1 items, and female infants have an average of 0.9 items. Juveniles exhibit slightly higher averages (2.6 for males and 2.5 for females), yet these remain below adult levels. Adult females have an average of 2.6 grave goods, significantly higher than the 1.9 for adult males. Within the adult/mature category, males have an average of 2.6 grave goods, slightly higher than the average for females (2.3), suggesting a shift in prestige with age. The mature/senile categories include particularly high numbers of grave goods. Mature males have an average of 4.0 grave goods, while mature females have an average of 4.8. Thus, mature and senile individuals have gained greater recognition in burial rites linked to social achievements, leadership, or culturally valued roles.

A high proportion of graves lack information on gender or age (n = 160), and a large number lack age information (male = 80; female = 54). However, it should be noted that significant social inequalities exist within the respective age cohorts regarding the distribution of grave goods. This is clearly illustrated by the inequality within the adult age cohort, for example. An adult male burial in Freienbessingen, Kyffhäuser district (ID no. 1706, Bücke *et al.*, 1989: 48), contained eight grave goods, whereas many other burials contained none. Similarly, an adult female burial

in Erfurt-Gispersleben (ID no. 1681, Bücke *et al.*, 1989: 39) contained seven grave goods, while many other adult female burials contained none.

Richly furnished adult or mature female graves are typically characterised by a combination of jewellery, vessels, flint tools or bone awls. The jewellery is often made of shell and animal teeth. Ornaments made of amber, copper or bronze are rarer. Commonly found vessels in these graves include bowls, beakers and amphorae, with some graves containing multiple vessels of different types. These graves generally do not include weapons, which distinguishes them from male burials. The richness of a female grave is often indicated by the number and variety of jewellery and vessels found in it.

Opulently furnished adult female graves from the CWC include the Apfelstädt grave (ID no. 2240, Küßner 2006; Fig. 8:a), which contained five vessels: one beaker, one amphora, and three different bowls. Additionally, it contained tools (a bone awl and a flint tool) and animal and shell jewellery. This grave stands out for the quantity and variety of vessels and jewellery, indicating it is a high-status adult female burial. The mature female grave from Abtbessing (ID no. 1677, Bücke *et al.*, 1989) contained two amphorae, two beakers, animal bones and two flint tools.

Richly furnished graves of adult or mature males in the CWC typically contain a combination of weapons (frequently a stone hatchet) and flint tools, occasionally alongside rare or exceptional grave goods. Rare items include stone and flint axes, often accompanied by tools such as bone awls and bone chisels. Some graves contain very rare and exclusive items, such as clubs, boar tusks or bone belt plates, which suggest a higher social standing.

Several notable examples of richly furnished adult male graves in the CWC have been found. For example, Grave 3 from barrow 1/64 in Freienbessingen (ID no. 1706, Bücke *et al.*, 1989: 48) contained a copper ring, four pierced boar tusks, a club, a flint hatchet, a flint blade, an axe, an amphora, and a beaker. The number and diversity of the grave goods indicate an exceptional status. The Apfelstädt grave contains a beaker, an amphora, two hatchets, tools made of flint and a bone awl. The burial had a burial hut, a special construction element (Küßner 2006; Fig. 8:b).

Other notable male graves containing bone chisels include Erfurt pit 11 (ID no. 1703, Bücke *et al.*, 1989: 45) and Blankenburg mound II/1967 (ID no. 1679, Bücke *et al.*, 1989). These burials combined bone chisels with beakers, amphorae, axes, stone hatchets and flint flakes or blades, and sometimes additional tools. These graves frequently contain multiple weapons of the same type, suggesting an overabundance and display of social prominence. Special grave constructions or installations are also commonly associated with male burials and further signal elevated prestige. Such graves may also include pottery (beakers and amphorae), flint blades

Fig. 8. Richly-equipped female (a, left) and male (b, right) graves from Apfelstädt (see Küßner 2006; © B. Stefan, Thüringer Landesamt für Denkmalpflege und Archäologie, Weimar).

and rare items such as boar tusks, clubs or bone chisels. The heterogeneity and richness of grave goods, the presence of rare items, and the construction of graves mark these mature male burials as high-ranking and sometimes reflect specific roles, such as those of a craftsman or a socially prominent individual.

These patterns clearly demonstrate the significant influence of age and gender on burial practices. While adults and mature individuals generally received the most grave goods, infants and juveniles usually received the fewest. However, there was also inequality in access to grave goods within each age category.

POST-HOC ANALYSIS

Mann–Whitney post-hoc tests confirm distinct trajectories of burial elaboration between males and females. For males, significant differences occur mainly at the transition to maturity. Mature men received significantly more goods than adults ($p = 0.027$) and infants ($p = 0.0013$). This pattern suggests that male social recognition increased sharply later in life, reflecting achievements, leadership, or accumulated prestige.

For females, the decisive threshold lies between infants and older categories. Infants were buried with significantly fewer goods than adults ($p = 0.026$), juveniles

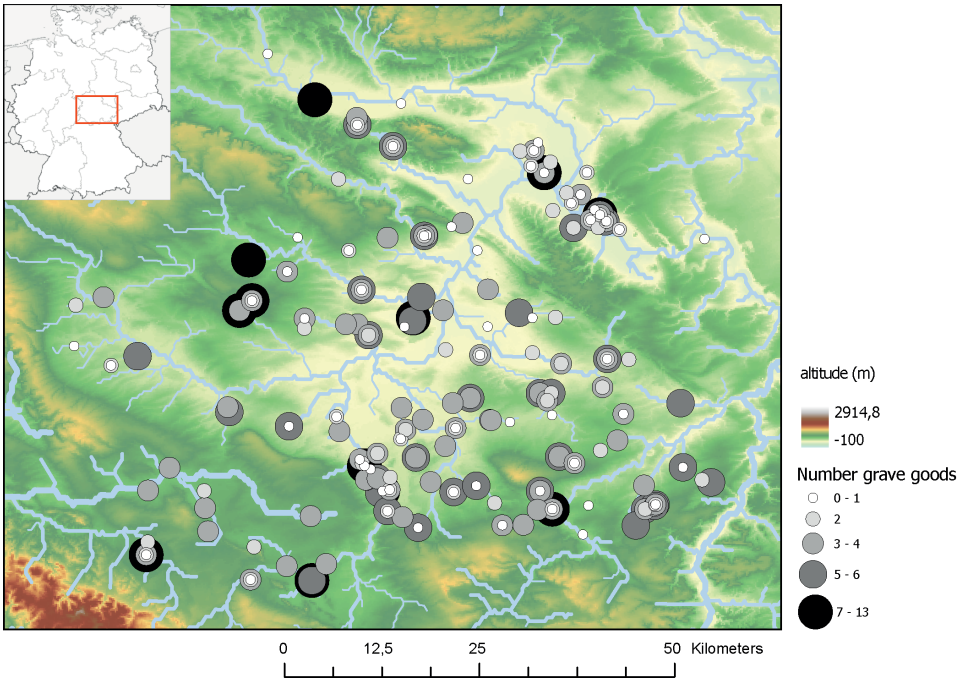

Fig. 9. Distribution of the CWC graves within the Thuringia region.

(p = 0.0091), and mature/senile women (p = 0.00074). However, differences among juveniles, adults, and mature females were not statistically significant. This indicates that female social status was established relatively early and maintained throughout life, likely reflecting kinship ties, ritual roles, or gendered identities recognised from childhood onward. Males experienced a delayed accumulation of funerary wealth, linked to achievements over the life course.

DISTRIBUTION OF CWC BURIALS

Figure 9 illustrates the distribution of CWC graves in Thuringia. Categorising graves according to the number of grave goods does not reveal any particularly striking patterns. However, graves containing the greatest number of grave goods are concentrated in the northern and southern peripheral areas at higher altitudes. There are no

graves with the highest number of grave goods in the Thuringian Basin itself (the flat regions shown in light green here).

DISCUSSION

The analysis of CW burials in the Thuringian Basin highlights a pronounced age- and gender-specific differentiation in mortuary practice, while also underscoring the central role of a limited set of cross-gender grave goods. These results deepen our understanding of how CWC communities organized social life and how these structures were materially expressed in funerary contexts.

The PCA results show a clear dichotomy between male and female burials. Male graves are primarily associated with weapons (axes, stone hatchets), flint tools, and special grave constructions, whereas female graves are marked by ornamentation (shell and animal-tooth jewellery, bone ornaments, copper/bronze objects) and ceramic bowls. These distinctions confirm long-recognised gendered patterns in CWC burial customs across Europe (Furholt 2014; Kristiansen *et al.*, 2017; Bourgeois and Kroon 2023).

Within Bourdieu's framework, they can be interpreted as expressions of symbolic capital: male burials emphasise martial, productive, and tool-based identities, while female burials highlight adornment, ritualised consumption, and relational roles tied to kinship and household spheres. At the same time, amphorae, beakers, and flint artefacts appear in both male and female graves, suggesting a category of gender-neutral goods linked to shared practices such as food preparation, feasting, and exchange. These items likely reflect activities central to community life irrespective of gender or age. Burials furnished solely with such objects may represent individuals of lower prestige, excluded from the gender-specific roles emphasised in more elaborate graves.

The distribution of grave goods across age categories suggests that burial elaboration intensified in adulthood and peaked in maturity. Subadult burials, though occasionally furnished with ornaments or ceramics, rarely contain weapons or tools, reflecting a life-course model of social capital accumulation. Infants and juveniles appear excluded from productive or martial identities, whereas mature adults were commemorated with items that marked accrued achievement and social recognition.

The trajectories of male and female diverge in striking ways. Male graves show a strong increase in elaboration only later in life, suggesting that male status was closely tied to cumulative achievements and possibly competitive dynamics within lineages. Female graves, in contrast, already display elevated recognition in adulthood, with richly furnished burials attesting to stable symbolic roles rooted in kinship

and ritual life. This pattern aligns with models of patrilineal exogamy, where women gained recognition not through individual accumulation but through their central role in alliance-building and maintaining domestic and ritual continuity (Mittnik *et al.*, 2019; Papac *et al.*, 2021).

The CWC is characterised by pronounced social capital, reflected in uniform burial practices across vast regions (Wentink 2020). The social capital of individual members, particularly women, is evident in the form of jewellery elements from beyond the local area, such as animal teeth. These demonstrate the extensive networks of the Corded Ware culture, which were based on exogamous marriage customs and patrilineal systems. This has also been proven by aDNA analyses (Linderholm *et al.*, 2020; Papac *et al.*, 2021).

While many graves are modest or unfurnished, a few stand out through their exceptional richness – multiple vessels, abundant jewellery, or rare objects such as boar tusks, clubs, or bone chisels. These exceptional burials likely mark individuals of elevated standing, whose status was expressed through economic capital in the form of numerous grave goods and many different vessels indicating a surplus, as well as symbolic capital in the form of special grave constructions such as burial huts, and a variety of jewellery and boar tusks. Thus, social inequality in the Thuringian Basin is evident not only in gender and age distinctions but also in the uneven distribution of economic and symbolic resources. Nonetheless, the recurrence of similar clusters of grave goods across gender and ages points to a shared habitus: a set of durable dispositions shaping burial practice in socially recognisable ways. The uniformity of orientation and body position reinforces this impression. Social differentiation and inequality were thus expressed not through radically different funerary traditions but through variations in the quantity, exclusivity, and combination of broadly shared categories of goods.

Placed in the broader CWC context, the Thuringian evidence both confirms and nuances prevailing models. The gendered dichotomy mirrors patterns from Central Germany, Bohemia, and Scandinavia, where male graves tend to foreground weaponry while female graves emphasise ornamentation and vessels (Wiermann 2002; Bourgeois and Kroon 2023; Nørtoft 2024). However, the unusually high proportion of gender-neutral goods in Thuringia suggests that communal practices such as feasting and exchange were particularly important in structuring mortuary display. Moreover, the concentration of richly furnished graves along the basin's peripheries hints at regional dynamics of prestige, possibly linked to inter-community competition, lineage-based differentiation, or the symbolic marking of territorial boundaries.

Taken together, the evidence portrays CW society in Thuringia as both gender-differentiated and hierarchically stratified, but within a flexible framework. The shared habitus of burial practice provided cohesion, while differential access

to capital – economic, social, cultural, and symbolic – was distributed according to gender, age, and life-course achievements. Women attained recognition earlier through relational and symbolic roles, while men accumulated prestige gradually through achievements and material display. Subadults remained marginal, though their modest burials already reflected gendered expectations. This interplay between shared habitus and unequal access to capital demonstrates the utility of Bourdieu's framework for prehistoric societies. The Thuringian CWC burials do not reflect a simple binary of egalitarian versus hierarchical order; rather, they reveal a status-conscious community where gender, age, and achievement intersected to structure social memory and the material commemoration of the dead.

CONCLUSION

Analysing Corded Ware burials in Central Germany, Thuringia highlights the complexity of social organisation in the late 3rd millennium BCE. Mortuary practices reveal a society structured by age and gender, as well as by unequal access to symbolic and material resources. While women gained recognition early on through their roles in kinship and ritual spheres, men accrued status later in life through achievement and the competitive accumulation of prestigious goods. Subadult burials, modestly furnished yet already gendered, highlight the early transmission of social expectations.

Concurrently, the recurrence of cross-gender grave goods, such as amphorae, beakers and flint artefacts, indicates shared practices that anchored community identity. The uniformity of burial positions and orientations reflects a consistent habitus that structured differentiation within a shared cosmological framework. Rather than being expressed through radically divergent traditions, inequality was expressed through the quantity, exclusivity, and symbolic weight of goods within this shared repertoire.

Situated within the broader European context, the Thuringian evidence both aligns with and complicates prevailing models of CWC society. While it mirrors the pan-European gendered dichotomy of weapons versus ornamentation, the unusually strong presence of gender-neutral goods suggests a particular emphasis on communal feasting and exchange. Furthermore, the clustering of richly furnished graves along the basin's edges hints at regional dynamics of prestige and territorial display.

Ultimately, this study demonstrates that CWC society in Thuringia was status-conscious, flexible, and deeply embedded in shared ritual practices, but neither fully egalitarian nor rigidly stratified. Bourdieu's framework highlights how habitus and differential access to capital intersect to determine and accompany life in the Corded Ware culture.

ACKNOWLEDGEMENT

The author would like to thank Piotr Włodarczak (Institute of Archaeology and Ethnology, Polish Academy of Sciences) for making this article possible, Mario Küßner for his advice on the literature, and the patient reviewers who provided valuable feedback. I would like to thank the Thüringer Landesamt für Denkmalpflege und Archäologie (State Office for Heritage Preservation and Archaeology of Thuringia) for granting me permission to use images of the Apfelstädt burials. This research was carried out and funded by the German Research Foundation's Graduate School Project GSC 208, titled "Human Development in Landscapes", by Kiel's Collaborative Research Centre 1266, "Scales of Transformation – Human-Environmental Interaction in Prehistoric and Archaic Societies" (project number 290391021-SFB 1266, German Research Foundation), and by XSCAPE (ERC-SyG-2020 951631).

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