

# Practice and Prestige

An Exploration of Neolithic Warfare,  
Bell Beaker Archery, and Social Stratification  
from an Anthropological Perspective

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# Introduction

The content of this book originates from a PhD dissertation defended in 2021 at the University of Geneva in Switzerland (Ryan-Despraz 2021). This project combined anthropological analyses with an archaeological perspective in order to interpret ‘archer’ burials from the Bell Beaker period in modern-day Central Europe. The primary aim of this project was to apply an anthropological methodology to Bell Beaker skeletons in an attempt to identify a specialized archer occupation. Anthropologically, this involved two primary analyses. The first was at a population level and involved comparing individuals with an archery-related burial context (i.e. Bell Beaker stone wristguards, arrowheads, and bow-shaped pendants) to individuals without archery-related grave goods in order to localize any developmental differences. The second took place at an individual level and included assessments of each ‘suspected archer’ skeleton to determine the likelihood of he or she having been a specialized archer based on bone morphologies linked to biomechanics. In order to contextualize these anthropological results, this project also developed an archaeological framework. The goal of this perspective was to outline, condense, and discuss the various evidence for warfare and archery throughout the Neolithic period in general and the Bell Beaker period in particular. This also included an examination of prehistoric concepts of specialization and social organization, specifically with regard to hierarchy. These perspectives were important because no matter the results of the anthropological analyses, the presence of potentially artisanal and specialized archery-related items in burials denotes the significance of archery during the Bell Beaker period. By focusing on the broader archaeological context of these objects, one may begin to address questions such as: Why archery? What could have been its functions? Who were these ‘archers’? How can modern researchers use this information to better understand Bell Beaker society?

Keeping these questions in mind, this book consists of three main parts. Part 1 presents evidence for warfare and archery throughout the European Neolithic period, with special regard paid to the Bell Beaker period. Part 2 delves into prehistoric conceptions of specialization and social hierarchy and how they could relate to a warrior ideal. Lastly, Part 3 outlines and discusses the project’s broader anthropological results and situates these findings within the archaeological context. Each of these sections allows researchers to look at similar questions from multiple angles, thereby contributing a cross-disciplinary approach to studies of prehistoric daily life.

## Archaeological background

### *Neolithization*

Understanding Neolithization puts into perspective the context for early instances of migration and interactions between peoples. This is then directly relevant to the evolution of warfare and conflict from the Early Neolithic to the Bell Beaker period.

The arrival of agriculture marks the beginning of the Neolithic period, which originated in the Fertile Crescent and began its spread through Europe starting in the southeast during the 7th millennium BC (Mathieson *et al.* 2018). From this point, the two primary theories for diffusion



are the demic diffusion model (DDM) and the culture diffusion model (CDM) (Chikhi *et al.* 2002; Demoule 2017; Guilaine 2017, 2015; Mazurié de Keroualin 2003). The former indicates a spread due to the movement of people and the latter to a movement of ideas. In recent years with the development of DNA analysis research, studies have found the DDM to be the principal cause for the spread of the Neolithic Revolution. Genetic studies tracing the DNA of these first farmers and that of local hunter-gatherer groups supports a Near Eastern origin for agriculture rather than an evolution of local nomadic groups (Bramanti *et al.* 2009; Chikhi *et al.* 2002; Haak *et al.* 2015, 2010; Hofmanová *et al.* 2016; Vanhanen *et al.* 2019). Results also show a population increase of non-local groups in Central Europe at the same time as the introduction of farming to the region, and analyses of mtDNA also demonstrate minimal admixture with local women (Bramanti *et al.* 2009). Haak *et al.* (2015) distinguished two major migrations into Europe: the first farmers arriving from the Near East (different genetic profile from the local hunter-gatherers), and the Yamnaya pastoralists arriving from the steppe during the Late Neolithic. The first migration spread via a Mediterranean and a Danubian route, and by 5600 BC the Neolithic farmers had arrived in the Iberian Peninsula (Guilaine 1994; Mathieson *et al.* 2018). However, it remains undecided to what extent the Neolithization of the Iberian peninsula came from a Mediterranean route or via the Rhone Valley, with two probable waves of expansion (Beau *et al.* 2017; Rivollat *et al.* 2015). Archaeological findings confirm a Mediterranean migration route from the Fertile Crescent, however recent DNA studies have also found Early Neolithic individuals from the Iberian Peninsula with mtDNA haplogroups matching Early Neolithic Central European individuals (Alt *et al.* 2020; Beau *et al.* 2017; Haak *et al.* 2015; Rivollat *et al.* 2015). From these periods, sedentary societies took over and the first food producing culture in Central Europe was the Linear Pottery Culture (also known as LBK from the original German term *Linearbandkeramik*), which performed both animal husbandry (cattle, sheep, pigs) and agriculture (cereals and legumes) (Demoule 2009; Schier 2015). From this period of the Neolithic onward, evidence for warfare becomes prevalent<sup>1</sup>, with signs of conflict continuing to appear throughout the Neolithic up until its confirmed presence during the Early Bronze Age.

### The Early and Middle Neolithic periods

The earliest evidence for farming in Europe appears in the Balkans, specifically Greece, during the 7th millennium BC (Demoule 2009; Dolukhanov *et al.* 2005; Hofmanová *et al.* 2016; Semino *et al.* 2004). The continued expansion of these first Neolithic farmers, such as the Starčevo–Körös–Criş and the Vinča Cultures, into Transdanubia influenced the Linear Pottery Culture (LBK), which was the first Neolithic culture in Central Europe in the second half of the 6th millennium BC (Gronenborn 1999; Oross and Bánffy 2009; Quitta 1960). LBK expansion happened quickly and over a large geographic range, with many sites revealing large percentages of non-local individuals in addition to female exogamy, indicating that the LBK peoples were highly mobile (Bentley *et al.* 2002; Bickle *et al.* 2011; Price 2000). The culture itself is largely recognizable from its homogenous pottery and domestic longhouses, many of which had outer bedding trenches and were close to a water source (Ash *et al.* 2016; Bradley 2001; Gronenborn 1999; Milisauskas and Kruk 1989; Oross and Bánffy 2009; Stäuble 2005). The primary agricultural economy revolved around crops of einkorn, wheat, barley, peas,

<sup>1</sup> This is not to say that warfare did not exist prior to the Neolithic. Indeed, some signs of violence do appear prior to this period, but often times their links to conflict remain questionable.

and lentils as well as animal husbandry (cattle, sheep, goats, and pigs), and these traditions continued into the Middle Neolithic (Ash *et al.* 2016; Çilingiroğlu 2005; Dürrwächter *et al.* 2006; Kreuz *et al.* 2005). Besides the characteristic pottery, this cultural evolution brought about the ‘Neolithic package’, which Çilingiroğlu (2005) classifies the material objects as clay (e.g. figurines and pottery), stone (e.g. amulets, bracelets, and beads), and bone (e.g. polishers and spatulae), many of which were also likely prestige and/or symbolic items. Lastly, funerary rites were largely homogenous, with the majority of burials having been individual inhumations grouped in necropoli, though some were also associated with domestic structures, as well as instances of jar burials in the southeast (Bacvarov 2006; Cauwe *et al.* 2007; Chapman 2000).

Some of the dominant cultures of the Middle Neolithic include the Stroke Ornamented Pottery, Rössen, Lengyel, Polgár, Michelsberg, and Funnel Beaker, many of which display characteristics from the preceding Early Neolithic, such as the use of longhouses (Milisauskas and Kruk 1989). However, the number of surrounding ditches increases and many settlements begin to appear at higher elevations, farther away from water sources, which could be a sign of increased conflict (Howell 1987; Milisauskas and Kruk 1989; Pažinová 2007). Both the farming of cereals and animal husbandry remained important parts of the economy, and horse domestication also likely appeared during this period in the Eurasian steppe (Anthony 2007, 1986; Gaunitz *et al.* 2018; Milisauskas and Kruk 1989; Outram *et al.* 2009). The Middle Neolithic also witnessed the increased use of flint and copper mining, including for use in trading (Willms 1982). One of the more significant cultural changes of the Middle Neolithic involved the funerary traditions. During this time, monumental tombs began to appear in the form of tumuli and dolmens, including long barrow cemeteries often having multiple chambers, with examples of both rich individual and collective burials (Cauwe *et al.* 2007; Chambon and Thomas 2010; Demoule 2009; Przybył 2014).

### **The Pre-Bell Beaker Final Neolithic period**

The Final Neolithic period in Central Europe (the region in question) began with the Corded Ware Culture, which is largely identifiable from its characteristic pottery, burial traditions, polished stone axes, and the appearance of copper (mostly as jewelry found in the East) (Tillman 1990). Like its successor, the Corded Ware Culture covered a large part of Europe, stretching from the Caucasus to Switzerland and from Denmark to the Alps. This relatively large range coincides with the appearance of carriages and wheels in the archaeological record and possibly the local domestication of the horse, all of which would have driven social and economic development (Tillman 1990). The second Neolithic migration of the Yamnaya Culture from the steppe region is responsible for the majority of the DNA profile for the Corded Ware individuals (Haak *et al.* 2015; Sjögren *et al.* 2019). However, there remains a high level of admixture between them and the local Neolithic hunter-gatherers (Allentoft *et al.* 2015). This is interesting to note because the succeeding (in some regions) Bell Beaker and Únětice Cultures exhibit much lower levels of Yamnaya ancestry, indicating an ‘arrival’ of the Bell Beakers rather than a steady ‘evolution’ of a culture.

Some researchers think that changes from preceding periods in both number and distribution of Corded Ware and Bell Beaker settlement sites is an indication for a herding-based rather than an agricultural-based economy (Tillman 1990). Indeed, a large number of the artifacts associated with these cultures come from funerary contexts, including those most relevant

to this work (objects linked to archery and warfare). However, from a global perspective, one should also note the extensive work done on the domestic sphere (Besse 2014a; Gibson 2019). With regard to funerary contexts, the presence of consistent traditions throughout the culture indicates some type of social network. For the Corded Ware individuals, these traditions placed male burials on an East-West axis with the head to the West and facing South (thus buried on the right side) (Besse and Strahm 2001; Bourgeois and Kroon 2017; Kruřová 2003). Female burials were also on an East-West axis and facing South, but lying on their left sides with the head towards the East. A study looking at individual identity and culture networks found that male burials were much more uniform throughout the entire complex than female burials, which were also similar, but only at a more regional level (Besse and Strahm 2001; Kruřová 2003; Bourgeois and Kroon 2017). Normally this would imply a higher level of masculine mobility, however this contradicts isotope analyses that found high levels of female mobility for this period (Kristiansen *et al.* 2017; Sjögren *et al.* 2016). This raises questions pertaining to the discrepancy between the biological profile and the cultural traditions. For this reason, when looking at the network of information, ideas, and culture during the Corded Ware period, it is worth noting links to male migration and exchange. One theory for this involves the movement of bands of male warriors (Bourgeois and Kroon 2017).

Throughout the Neolithic period, there is a steady change in terms of culture, organization, and economics. At the end of the Neolithic, especially in Western Europe, metallurgy plays an important role in these changes, with the copper daggers and stone wristguards of the Bell Beaker Culture replacing the previous polished axes of the Corded Ware Culture (Figure 1). Drinking goblets also become more common, which could be symbolic of the social organization and values of the day. Such items could have been a sign of an emerging social structure along with the dissemination of ideas and knowledge (Guilaine and Zammit 2008).



Figure 1: a. A Corded Ware polished battle ax from near Hijken (Netherlands), from Wentlink (2020: Figure 5.14) (object from the Drent Museum collection in Assen); b. Example Bell Beaker stone wristguards, including a roughout (left), from the Eastern complex, images by Clément Nicolas

### The Bell Beaker period

The name for the Bell Beaker period derives from its characteristic pottery, the bell beaker, which was a ceramic pot in the form of an inverted bell. Geographically speaking, this culture is incredibly vast, spreading from Scotland to North Africa and from Portugal to Poland, with radiocarbon dating placing the beginnings between 2900 and 2700 BC and its conclusion around 2100 or 2000 BC. This makes the traditional cultural ‘bookends’ of this period the beginnings of widespread agriculture and the beginning of the Bronze Age. Therefore, the Bell Beaker period largely acts as a type of transition between the last of the Stone Ages and the first of the Metal Ages. However, this general cultural chronology is not the same as the regional chronologies (Figure 2) (Bailly and Salanova 1999; Lemerrier 2018; Müller and van Willigen 2001). For example, the earliest date appears in Portugal and the latest in Poland, and it does not appear to last more than a few centuries in each region (e.g. the Bell Beaker period in Switzerland took place from about 2450 - 2200 BC) (Besse 2014b). Such a geography-dependent chronology therefore raises questions concerning migration, and whether such a spread was due to the migration of people or rather of ideas. In terms of the bell beakers themselves, these ceramics share similar morphologies throughout both time and space;

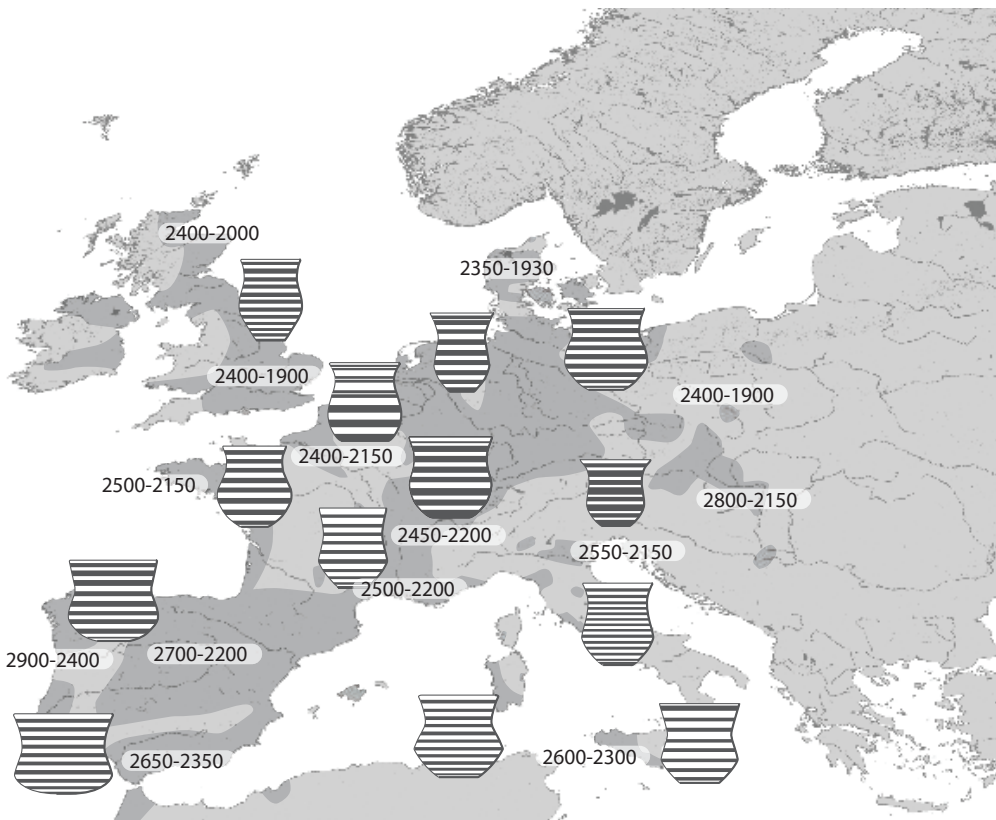


Figure 2: Distribution map of bell beakers throughout Europe, from Besse (2015: Figure 1)

however they also demonstrate regional differences and local productions (Besse 2015, 2014b; Derenne *et al.* 2020). Understanding material and population distributions is therefore critical to understanding not only the peoples of the Bell Beaker Culture, but also their overarching values and how they would have interacted.

While several theories exist, various studies have found a likely origin for the Bell Beaker peoples in the Iberian peninsula, specifically around the central Atlantic coast in Portugal. Kunst (2001) outlines five primary supports for this theory:

1. Similarities between Bell Beaker pottery and earlier pottery from the region
2. Earlier settlements are not drastically different from Bell Beaker settlements
3. Preceding corbelled tomb architecture resembles that of Bell Beaker fortification towers
4. Apparent continuation of pre-Bell Beaker tombs being used primarily during the Bell Beaker period
5. The oldest C14 dates of Bell Beaker assemblages appear in the Portuguese region (Müller and van Willigen 2001)

Exactly how the Bell Beaker Culture continued its northwest spread throughout Europe could have been through migration, ideology, or social interactions (e.g. trade) (Müller and van Willigen 2001). Previous research on the Bell Beaker groups has come up with three primary theories aimed at interpreting these people and their goods. The first looks at ethnicity, seeing the Beaker people as immigrants moving throughout Europe and spreading their material culture. Differences between Bell Beaker burial practices and those of the preceding local cultures supports this idea as do studies looking at cranial and dental morphology (Budziszewski *et al.* 2003; Desideri 2007; Desideri and Besse 2011; Fitzpatrick 2011; Piguet *et al.* 2007). Isotope analyses have also confirmed the mobility of at least a few Bell Beaker individuals (Desideri 2018; Desideri *et al.* 2010; Fitzpatrick 2011; Price *et al.* 2004). However, whereas the preceding Corded Ware peoples arrived in Central Europe due to migration from the East, there is minimal genomic continuity between Bell Beaker individuals from the Iberian Peninsula and those from the East (Olalde *et al.* 2018). This means that the Bell Beaker phenomenon was not completely the result of human migration.

The second theory looks at the fact that Bell Beaker ceramics mainly appear as funerary offerings and hypothesizes that their circulation was uniquely as prestige items for the rich (Shennan 1976; Vander Linden 2015). In this case, Bell Beaker material items serve as an indication for emerging hierarchies and a desire to portray social status (Shennan 1976). The focus of this theory is therefore on object mobility rather than human mobility. However, the more recent findings that most ceramics were made with local materials (Convertini 1996; Derenne *et al.* 2020) requires the modification of this idea to refer to the transfer of techniques and know-how rather than of the physical object.

The third theory concerns the more abstract idea of a Bell Beaker belief system in which the material items represent male drinking rites for certain groups of people (Sherratt 1987). This would mean a transfer or mobility of a belief system. Specifically, the hypothesis speculates that the weapons (e.g. arrows and daggers) were symbolic of hunting, either for the current life or the afterlife, and the beaker was a container for the ritualistic drinking of blood.

However, studies examining beaker residue have found that they contained a diversity of food and liquids (Guerra-Doce 2006), therefore this theory requires some reworking with space for additional nuance.

One overall implication from these theories is that the Bell Beaker Culture was perhaps among the first to contain social distinctions as well as male dominance (Fitzpatrick 2011). However, it is also worth noting that these theories are not mutually exclusive. For this reason, one should further consider the ‘pan-European’ explanation, which focuses on the fact that the Bell Beaker Culture distribution often appears as ‘islands’ throughout the continent (Brodie 2001; Fitzpatrick 2011). The vast majority of raw materials used for bell beakers was local, raising the question as to how products could be both local as well as similar throughout Europe (Convertini 1996; Rehman *et al.* 1992). While the designs are not overly complicated and therefore would not have necessarily required large levels of observation to replicate, technological analyses have come to two main conclusions: the potters were circulating throughout the complex (Vander Linden 2015) and there was a break in fabrication techniques between the Final Neolithic period and the Bell Beaker Culture (Derenne *et al.* 2020). However, many sites in Central Europe also show that the Corded Ware and Bell Beaker Cultures overlapped significantly (e.g. Wädenswil-Vorderau, Dietfurt, Straubing-Alburg, Straubing-Öberau, Weichering, Salzburg-Hellbrunn, Worms-Rädergewann, Komořany) (Heyd 2007). This demonstrates some level of interaction and cooperation between the two groups, though inter group conflict could also be an explanation (Strahm 1998).

One tradition that appears to be consistent throughout the Bell Beaker complex is the funerary ritual, for which there are three primary trends: Central and Northwest Europe (i.e. Britain and the Netherlands), French Atlantic and the Western Mediterranean Basin (‘Western complex’), and Central Europe (‘Eastern complex’). In the North and Northwest, there are mostly barrows with a central grave and then others along the periphery. In the West, there are mainly collective burials reused from previous cultures, and Central Europe sees mostly flat graves in cemeteries (Vander Linden 2015). The burials of the Eastern complex follow three guidelines: men are buried in a crouched position on their left sides and women on their right sides, the grave pits have a north-south orientation, and the deceased faces east (Heyd 2001; Vander Linden 2015). A study by Müller (2001) confirmed this to be the norm, with inconsistencies between biological sex and archaeological sex only 4.6-5.6% of the time. This pattern is interesting because of its contrast to the Corded Ware burials (often an East-West axis with women on their left sides and men on their right sides). Many prominent Bell Beaker sites are funerary and it is very likely that they serve as an indicator of social structure. This is especially true for items of value associated with a single individual. In general in Bohemia and Moravia, more complex burials also contain more valuable objects, for example those seen in Figure 3 (Dvořák 1993).

While the very fact of placing an item in a burial denotes its value, that value is not necessarily artisanal or economic. When looking at these burial contexts, it is essential to differentiate between biological sex and possible representations linked to gender. Common items seen in masculine burials (i.e. the objects most commonly linked to biologically sexed males) include beakers, weapons or weapon-related items (e.g. daggers, wristguards, arrowheads), and bow-shaped pendants (Vander Linden 2015). Feminine burials (i.e. the objects most commonly linked to biologically sexed females) tend to have a larger variety of ceramics

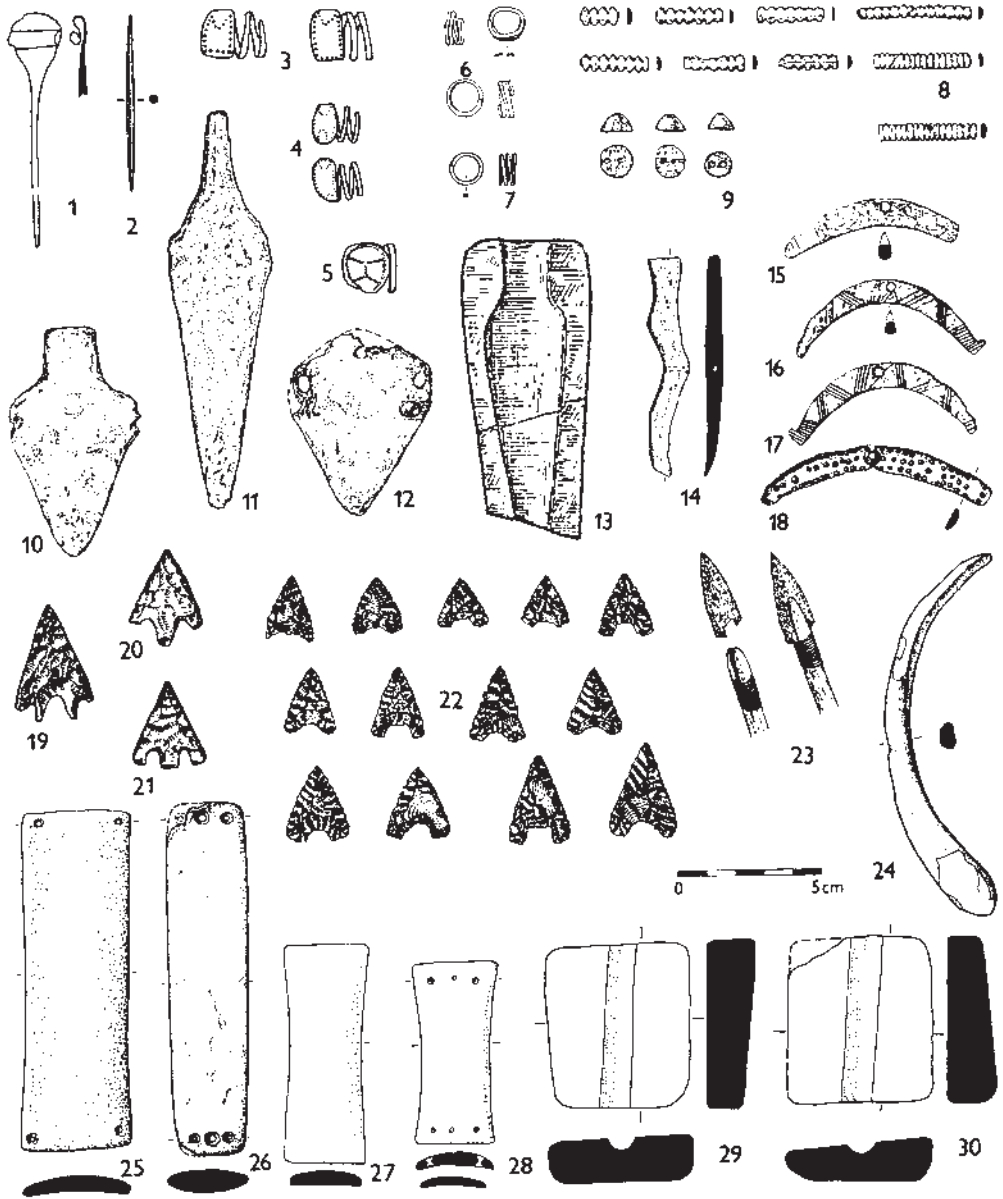


Figure 3: The common Bell Beaker grave goods ensemble in Moravia (Czechia), including metal objects (needles, awls, earrings, hair ornaments), v-shaped buttons, daggers, bow-shaped pendants, arrowheads, stone wristguards, and arrow shaft smoothers, from Dvořák (1993: Figure 144)

along with other ornamentation, v-shaped buttons, and copper awls (Müller 2001; Vander Linden 2015). However, these patterns are much less consistent than the links between grave orientation and sex, with Müller (2001) finding 18% of female burials had a dagger and 10% had a wristguard, but arrowheads and bow-shaped pendants were more linked to males. For the female items, these appeared almost uniquely in female burials – meaning that it was more common for females to adopt ‘male’ items than for males to adopt ‘female’ items. To this end, in an absence of osteological remains, it is more accurate to estimate an individual’s sex based on the burial orientation rather than the grave good context (Müller 2001). Such similarities in funerary culture over a large geographic area pose many questions concerning the relationship between these societies and the glue that binds them together. When looking at funerary and pottery traditions in terms of population mobility, the pottery demonstrates this phenomenon with its similarities in typologies, but differences in some of the finer details. However, the variations in burial technique exhibit not only movement, but also diffusion, creating a shared identity throughout a given region (Vander Linden 2015).

Two new items appear in Bell Beaker burials that did not have a precedent: stone wristguards and bow-shaped pendants.<sup>2</sup> Both items relate to archery, and together with the continued presence of arrowheads, they begin to create what could potentially be an ‘archer’s package’. From an archaeological perspective, researchers commonly label these inhumations as ‘archer’ burials and archery has two primary functions: hunting and warfare (there is no evidence for competition archery during prehistory). However, this interpretation raises two problems. The first is that history and ethnoarchaeology indicate that the majority of hunters and warriors would have been men (Coomaraswamy 1943; Miller *et al.* 1986), which is problematic considering the presence of female and child burials with such items. The second problem concerns the functionality of archery-related goods, specifically stone wristguards. The practicality of wearing a stone wristguard when leather and fiber ones are both easier to make and less cumbersome is debatable.

In archaeology, the presence, quality and quantity, of grave goods usually defines an individual’s wealth and/or social status. For the Bell Beaker period, stone wristguards seem to be especially prestigious, mainly as they are relatively rare. To this end, there tend to be two main assumptions for Bell Beaker burials: 1) any burial with grave goods indicates that the individual had a higher level of prestige or wealth than those without grave goods and 2) those with stone wristguards possibly had an even higher status. This could therefore indicate a link between an archery burial context and the individual’s position within a stratified Bell Beaker society.

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<sup>2</sup> There has been some debate over this association, and this will be discussed later in Part 1. However, this work considers bow-shaped pendants to be archery-related.