Contradicting Context: Understanding Early Bronze Age Axes from the Perspective of Production

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Chapter published in BAR S2771 Forging Identities. The Mobility of Culture in Bronze Age Europe: Volume 1, Edited by Paulina Suchowska-Ducke, Samantha Scott Reiter, Helle Vandkilde. British Archaeological Reports Ltd; 9781407314334; £48; 2015. Order Online: www.barpublishing.com

Contradicting Context: Understanding Early Bronze Axes from the Perspective of Production

Maikel H. G. Kuijpers

Abstract: This article's polemic argument is that context – in its current definition – may be overestimated as a guide for archaeological interpretation. Although the importance of context is not in doubt, I argue that, as context is increasingly understood as the last place in which an object was used, over-emphasising this context might lead to skewed interpretations of the past. In this paper, I advocate for the plurality of contexts by analytically separating production, use, and deposition as different contexts in order to widen our understanding of material. As an example, five Early Bronze Age axes are discussed in order to show the potential of understanding a specific kind of object in the context of other, similar objects as well as from the perspective of production instead of consumption. On the basis of these five exemplary axes, it is tentatively suggested that we might be able to identify intentionality or the 'ideal types' of Early Bronze age craftspeople and to understand this as the 'context of production'.

Keywords: Context, Early Bronze Age, axes, chaîne opératoire, metalworking craftsmanship

Introduction

Taking the metaphor literally, whether the glass is half full or half empty would for many archaeologists be dependent on the context of the glass. Is it found on a table in a bar at 02:30 in the morning or is it found at a readymade breakfast table with the milk standing next to it? Although this 'find context' would indeed be very telling, I have no doubt that the reader is able to come up with alternative stories to the common-sense interpretations which derive from this consumption perspective. In this paper I therefore argue that we should make interpretation dependent on whether the proverbial glass was in the process of being filled or emptied, *i.e.* how it was 'produced' rather than where it was consumed.

As argued by Fontijn (2013) there is 'a shared view on what should be the normative *right* beginning' for particular objects in contrast to the *right ending* for which views are less clear. Focussing on the beginning or production of objects might thus lead to novel and perhaps more clear-cut interpretations of archaeological objects in terms of their *intended* itineraries, thereby allowing us to consider whether they align with their actual use and especially the find context from which interpretations of the object are generally drawn.

Why do we need more than find context?

Aside from the fact that find context is unknown for a large amount of Bronze Age objects, for those that do have a find context it is difficult to argue that intentionally is necessarily involved. Finds such as a single bronze axe problematize not only the concept of 'hoard' (*Einzelstückhort)*, but also the idea of intentionality (*i.e.* how to differentiate intentional deposition from ordinary loss or discard?). Even the finds that strongly suggest intentionality such as structured depositions may not be as meaningful as archaeologists have hitherto assumed (Garrow 2012). With regards to bronzes, while there is little argument that find context is meaningful for our understanding of prehistoric *practices* with objects, if we wish to understand the object *itself*, we might primarily have to look at production, not consumption. As aptly stated by Fontijn (2013: 121), 'there is more to the object's life than just deposition'. As such, we should be careful not to overstate the meaningfulness of find context and to consider more critically what it is that it is informing us about.

From the perspective of where axes were last used (consumed), we may infer that they were a (prestigious) weapon or tool in the case of the grave-context. The hoard-context is far more ambiguous and continues to be a matter of debate (*e.g.* Fontijn 2002; Garrow 2012). Given the high amount of bronze objects from hoards[1], generally speaking, bronzes are interpreted as highly valued objects – even these axes. The burden of proof thus seems to rest on those who advocate for a more 'ordinary' function, such as bronze axes as what were first and foremost widely available tools (*e.g.* Kienlin 2008). But not only do the practices of deliberate deposition, both in graves as well as hoards, inherently create an archaeological bias in contrast to recycling (Kuijpers 2008: 55), we also only see what the object meant at the end of its itinerary in which it *became* an object to be deposited. From this perspective, it is difficult to surmise what an object's function might have been or what it might have meant during its prehistoric use-life. Furthermore, we can hardly account for absence. Absence, however, may point to re-cycling, a process which severely skewed our view of the amount of copper in circulation at any particular point in time. The recycling argument has

[1] Around one-third of the axes studied for this research are from hoards.

been around for a long time (Needham *et al.* 1989), although it recently gained considerable weight as it is now being shown empirically (Bray and Pollard 2012). Ending up in a hoard may not have been the intended purpose for an axe, but rather the exception. Furthermore, although the intended purpose (viz. 'ideal' function) of a sword is as a weapon it can always be *used* as an ingot, as it is also inherently a store of (raw) metal (Kuijpers 2008). In the same vein, a simple tool may become a (grave) gift when deposited, subsequently biasing our view of the Bronze Age if we focus our attention on the deposited axe as gift but not a tool, given its final use. The point I wish to make here is that find context may elucidate very little about the *intended* purpose of objects during their use-life and only show what they meant at the end of it.

Intended purpose

To bring to the fore the concept of intended purpose, five Early Bronze Age axes will be discussed from the perspective of their production context. With regards to these axes Kienlin (2010: 175) argues that a clear separation between 'weapons' and 'tools' does not reflect prehistoric reality. Indeed a tool may always be used as a weapon. In like fashion, a weapon with a sharp blade may be used to fell a small tree. I agree that we should be careful about making (modern) categorisations, but we should also not deny prehistoric people the capability of conceptually categorising and separating tools from weapons, a concern which in essence takes us back to the question of intentionality. When the craftsperson started making an axe, surely s/he had both an idea 'axe' in mind as well as what kind of axe; i.e. the intended use-life of the axe that they wanted to fashion. An axe can acquire the meaning and function of a tool, ingot, weapon, gift or prestige item and these groups are by no means mutually exclusive. But depending on whether an axe was *intended* to fell trees, split open a skull or reflect the status of a powerful person surely influenced the decisions made as to how the axe was conceptualised and produced. Thus, instead of speculating about the function and meaning of an object by means of its find context, its intentional purpose may be better addressed through a *chaîne opératoire* which can show whether different deliberate production steps were taken in relation to a specific idea about the object's intended purpose. Although there is no certainty that an object will also have been used in accordance with its original intention as well as the fact that some objects may circulate for a long time during which their meaning and function may change, the intended purpose of an object, or what Fontijn refers to as the 'normative right beginning' (2013) will be reflected in its form.

Data

A large group of 300+ Early Bronze Age axes from the northern Alpine has been studied by the author, of which five exemplary cases have been selected for this paper (Figure 2, 3, 4). These axes were selected as I believe they closely resemble prehistoric 'ideal types' (see below).

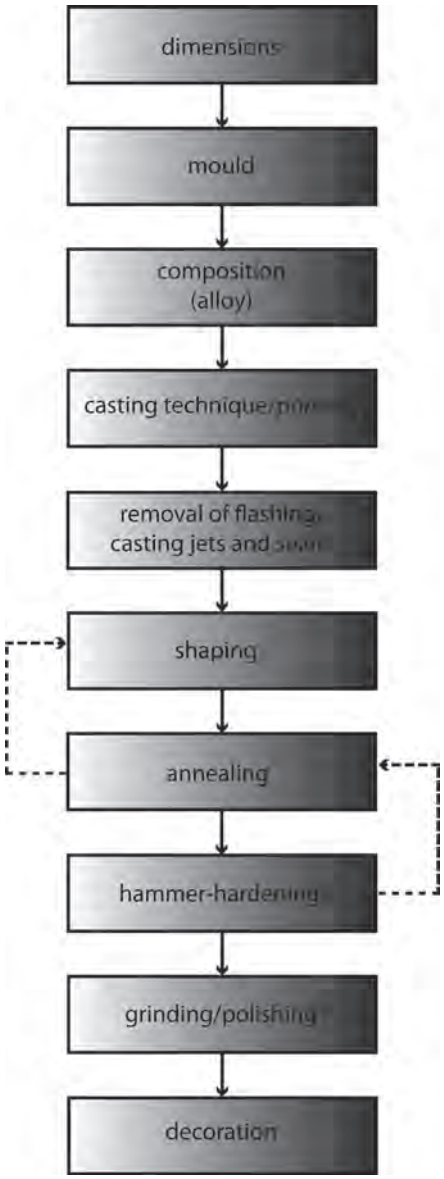


Figure 1: Diagram of the chaîne opératoire *involved in Early Bronze Age axe production.*

These axes are compared below both in terms of appearance as well as their *chaîne opératoire*. Of these, four were sampled by Kienlin (2008, 2010) whose detailed metallographic analyses are invaluable to this research. This data has been re-interpreted and supplemented with a macroscopic examination of the axes in order to produce a *chaîne opératoire* focussed on the details of the deliberate decisions that were taken during their production. Due to limited space, I cannot go into details as to how Kienlin's data has been re-interpreted. It suffices to say that only the data that might have been a matter of concern to the prehistoric metalworker is addressed and that this data has been grouped according to the possible sensual perception of it because prehistoric craftspeople made their decision entirely on the basis of the sensory perception of the material. This is obviously less exact than modern scientific measurements (Kuijpers 2013, 2014). For instance, the

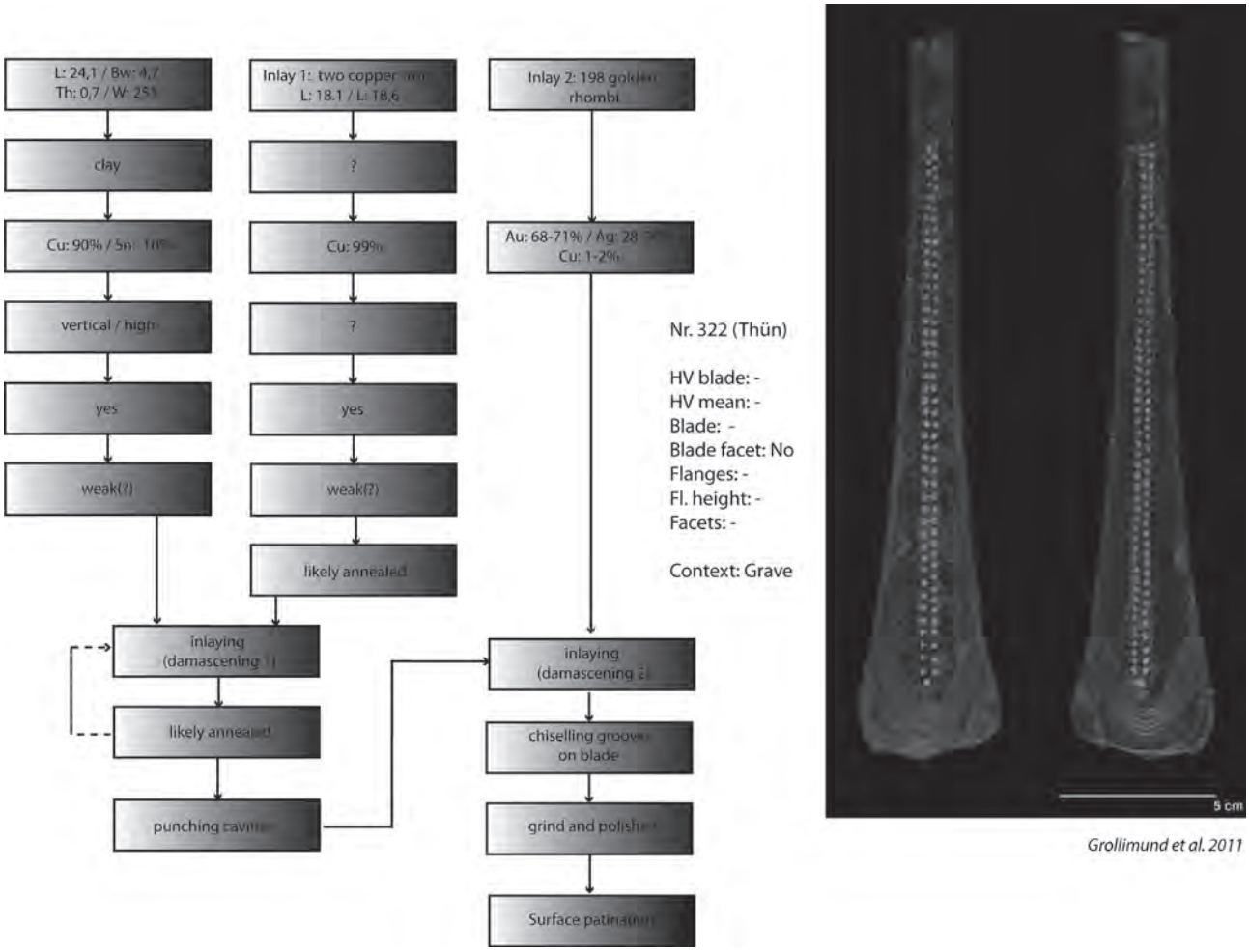


Figure 2: Early Bronze Age axe from Thun-Renzenbühl (Switzerland).

amount of hammering is categorised as either: (1) none, (2) weak, (3) moderate or (4) strong instead of using the exact reduction percentage.

All five axes share the single most vital step in their production: they were all cast (probably in a closed mould of either stone or clay). Subsequently, all but two followed the common production steps of metal which include the cleaning and shaping of the cast through hammering and annealing to allow for subsequent hammering before a final round of hammering in order to harden the metal (see Figure 1 for a general *chaîne opératoire*). I distinguish between hammering with the intent of shaping and hammering as an operation to produce hardening in spite of the fact that any kind of hammering (and even the use of an axe) will lead to a hardening of the metal. If done, grinding, polishing and decorating take place in order to give the axe a proper finish. In terms of this analysis, this stage was recorded through a distinction between 1) no finish, 2) basic/functional finish and 3) perfect/aesthetic finish.

The further one moves down the line of the *chaîne opératoire*, the more pronounced are the differences between the five axes, both in terms of what was done to them, but also with regard to the extent to which it was done. For instance, there is not only a difference in whether an axe was hammer-hardened, but also the amount of hammering used in order to obtain the hardened effect. If mechanical properties matter (*i.e.* the hardness of the blade), the main interest of the craftsperson would naturally have been in hammer-hardening said part of the weapon. If aesthetics were more important, hammering was mostly a shaping operation.

Nr. 322, axe- prestige[2]

The first example is the well-known Thun-Renzenbühl axe (Figure 2). Several other axes of a similar shape and measurements are known as type Rümlang (Abels, 1972: Taf. 11–12) hence its morphological characteristics are not exclusive. It is, therefore, not a unique object as it references the shape of a well-known type. The axe is, however, unique in decoration, as is explained below.

[2] The numbers refer to my database.

The material used for the casting of the axe is a typical tin-bronze (10% Sn). The concentration of oxide inclusions (casting voids) in the neck suggests a vertical casting position (Berger *et al.* 2013). The very porous structure of the bronze as well as the large void volumes reveal a casting that may be interpreted as rather poor. Upon further working of the axe this would have surely been noticed as the structure of the metal is considerably weakened insofar as there is a great risk of breakage when hammered too strongly. Whether or not the axe has seen one or more rounds of shaping and annealing followed by a final hardening is unclear, as no samples have been taken which could clarify this point. That being said, the slightly elongated voids at the end of the blade and near the flanges show that some hammering did, in fact, take place, probably in the course of the shaping phase (Grolimund *et al.* 2011: 1016). Although this also hardened the metal, the limited nature of the deformation to the voids show that the hardening most likely did not take place as a specific step aimed at hardening the blade. The above-mentioned poor casting quality strengthens this interpretation as it would have considerably impeded the hammering and use of the axe.

Three curved grooves are present on the blade of the axe. These grooves were chiselled after casting; *i.e.* they were not part of the mould. This can be deduced from the fact that they are irregular and show several locations at which the craftsperson set new punches. Furthermore, the traces are very characteristic of chasing with a chisel-like punch (pers. comm; D.Berger, March 2012). A similar decoration can be seen on several axes of the same type as well as on other types (*e.g.* typ Lausanne, Abels 1972: Taf 11). In its first part of production, this axe did not significantly diverge from that of any other flanged axe.

After these first 'normal' production steps, themselves part of the normal production path for most Early Bronze Age axes, the Thun-Renzenbühl axe was worked with a decorative technique rarely witnessed on Bronze Age objects[3]; it has two types of inlays. Firstly, on both sides and along the whole length of the blade are two copper strips which have been worked into the bronze. Secondly, these copper bands were subsequently inlayed with gold rhombi (Grolimund *et al.* 2011; Figure 2). This is referred to as a 'double-damascening technique' by Berger *et al.* (2013).[4] I will not go into detail regarding this technique (see Berger 2011), but will nonetheless mention some of essential steps which were taken.

The strip into which the copper was inlayed (3 mm deep and 7 mm wide) was not cut; it was cast. Hence, it was part of the mould as a positive. This can be surmised from the small blowholes present directly at the interface of the cut (Grolimund *et al.* 2011: 1015) which would have been deformed if the cut had been chiselled. Concomitantly this is a possible argument in favour of a clay mould[5] as it is much easier to manufacture a 3 mm upstanding band in clay than it is in stone. Furthermore, it reveals the intention of the craftsperson as it shows that from its very first conceptualisation (when the mould was made), the axe was intended to hold inlays.

The next step in the *chaîne opératoire* of the axe was the inlaying of the copper into the strip. Since this was not accomplished by means of pouring molten copper (Grolimund *et al.* 2011: 1016) into the required form, a piece of copper must have been produced separately in a mould of its own and (possibly) hammered into the appropriate shape. Subsequently, annealing would have been necessary in order for the copper to be properly set into the axe (via hammering). Although no undercut is visible in the axe, the plastic deformation of the copper yielding lateral pressing against the bronze boundary was enough to hold the copper in place (Grolimund *et al.* 2011). At this point in the procedure, annealing might have been needed to soften the hammered (and therefore hardened) copper in order to ease the punching of cavities for the second inlay. However, this can not be proven.

By means of a small hammer and a punch with a rhombic profile, 198 small cavities were punched in the copper band at both sides of the axe (92 on one side and 106 on the other). The punched cavities were subsequently filled with small pieces of gold (the second inlay). Curiously, another single gold inlay was set into the side of the axe (Berger *et al.* 2013, 30). A piece of cylindrical gold wire may have been used, cut to length and hammered into the cavities. The cylindrical shape of the lower half of the inlays is suggestive of such a production step. The top half of the inlays is clearly rhombic and has taken the form of the cavity. Furthermore, the presence of a distinctively flared rim suggests the localized impact of punctual hammering (Grolimund *et al.* 2011: 1017). Given the ductility of gold, the inlay easily took the shape of the cavity.

After the unconventional techniques applied to the manufacturing of the Thun axe, its finishing was, once again, very similar to many other axes. Grinding removed any jaggedness or other traces of manufacturing. This was most likely followed by polishing in order to bring out the colours of the metal and to produce a shiny surface rather than the more dull 'as-cast' bronze state. Traces of grinding and/or polishing can be seen on the gold rhombi (Berger *et al.* 2013).

The visual qualities of metal were an entirely new phenomenon in the Early Bronze Age and the axe from Thun deliberately appears to have aimed at producing polychrome effects created through the combination of several

[3] From the Early Bronze Age only six other objects are known from the Noth-Alpine region up to Denmark (Berger, 2011).

[4] Type IId (double-inlay decoration) (Berger, 2011: 27–28; Taf. 6)

[5] Possibly a lost-wax casting mould, which means the axe was first modelled in wax.

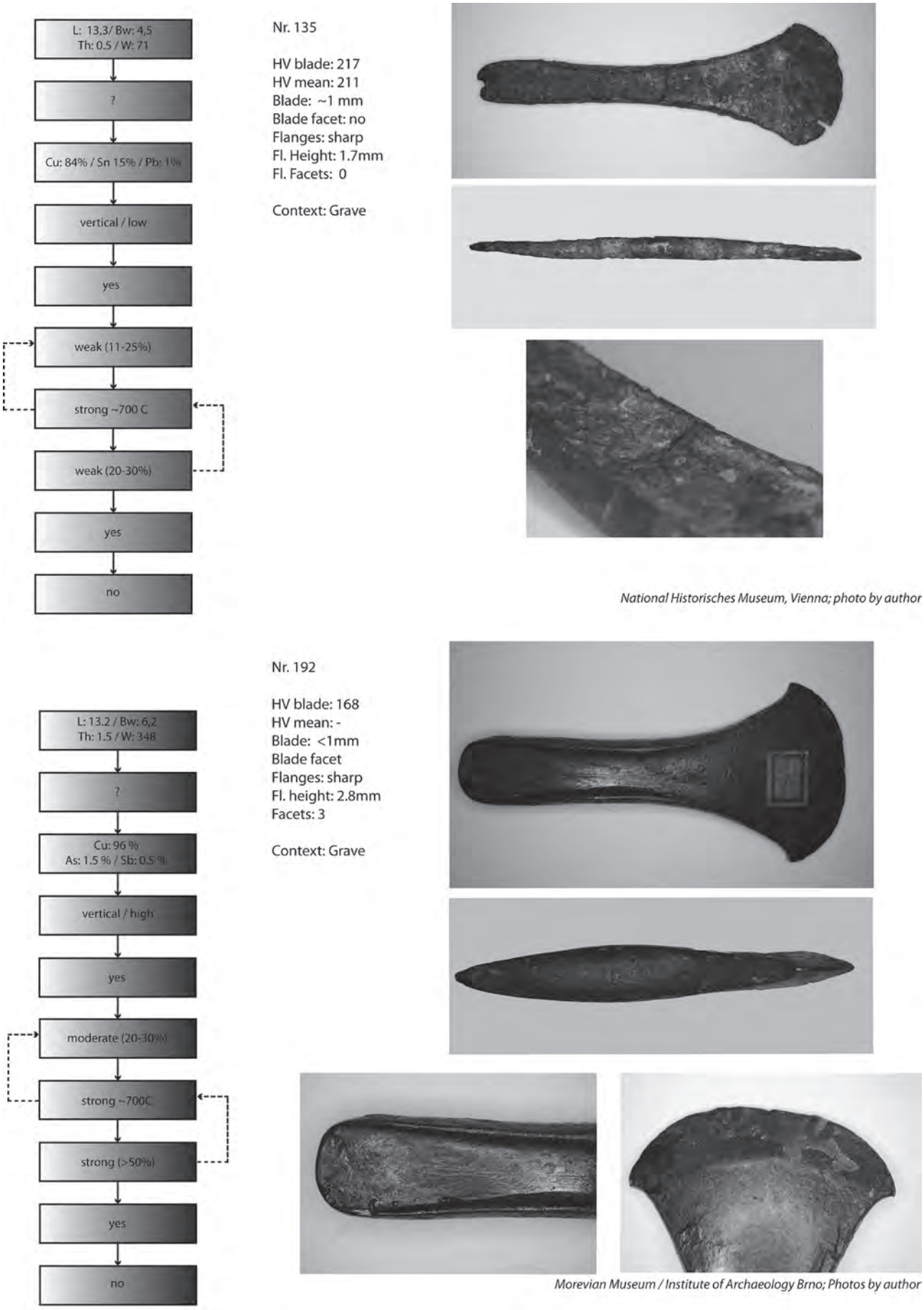


Figure 3: Exemplary axes from the Early Bronze Age, discussed in the text.

metals. It has been hypothesised that these aesthetics may even have been strengthened through the use of anthropogenic patination (Grolimund *et al.*, 2011: 1022). Nowadays, patination is a very common colouring technique for bronzes and many different chemical combinations are known and used to create different colouration effects (eg. Hughes and Rowe, 1991). However, as shown by Berger (2011), patination is also possible through the use of naturally-available acidic fluids (like urine). His research tries to determine whether corrosion layers hold any information on patination, though unfortunately this appears to be a difficult line of research (Berger 2011, 242).

Although the *technical* casting quality was poor, this does not necessarily indicate a lack of skill on behalf of the craftsperson. Given the complexity of the axe (and assuming that it was made by a single person), it is more likely that the shape of the axe was a matter of concern to the craftsperson instead of the casting quality in terms of workability and hardness. Hence, whether or not s/he saw the casting as a success may have been more dependent on the visual properties of this axe rather than its technical properties. The different metal inlays and the polychrome effects thereby created also point toward an axe that was produced to work in the realm of the visual rather than the practical.

Nr. 135; axe-weapon

An axe thought to be of the Langquiad I type (variant Linz-St. Peter; see Mayer 1977: 92, nr. 268) was found in a grave in Gemeinlebarn. Unfortunately, the axe was broken (in recent times) and was clumsily mended by means of a metal strip. The low level of porosity of the object shows that it was a technically good casting of a high tin bronze (15%). Subsequently it was shaped, annealed and hardened. In comparison with other similar axes, this axe was only weakly hammered during the first shaping operations and was also once again weakly hammered in the final round. It is likely that this has to do with the relative thinness (0.5 cm) and light weight (71 gr.) of the axe as well as its composition. High-tin bronzes (>12%) start cracking when hammered into a reduction of over 30% (Wang and Ottaway 2004: 66). Concerning this particular axe, however, the hammering employed in its production was enough to get the hardness of the blade up to HV 217, a fact very much tied into it having been cast from tin-bronze. Although the blade is 'sharpish' (~1mm), no blade facet can be discerned. Both may be due to the bad preservation and heavy corrosion of the axe. Flanges are pronounced and 1.7 mm high. No facets show on the flanges. All this evinces a perfect finish (see Figure. 3).

Nr. 192; axe-tool

Made from a fairly pure copper and categorised as a Saxon type (Ríhovský 1992: 85), this axe represents the most common group of axes, namely those used as all-purpose tools. The casting quality is moderate as there is a fair amount of porosity present. Subsequently moderate shaping of the blade and flanges took place, followed by a strong annealing of the axe which led to full recrystallization and homogenisation (Kienlin 2010: 142, sample nr. 151). The final round of hammering was strong and was clearly intended to considerably harden the axe. The total reduction of the blade is well over 70-80%, implying that the craftsperson making this axe was interested in the mechanical properties of the axe. If shape alone was the important factor, this could have been attained with far less hammering. The resulting hardness value is 168 HV, well within the standard of the time.[6] A blade facet has been hammered, but the asymmetrical blade also points to use and re-sharpening of the axe. A functional finish is also evident on the flanges (see Figure 3). At 348 grams, this objects weighs in as a heavy axe. The mechanical properties of this axe seem to have been the principle goal of the craftsperson who fashioned it. A hardened and workable blade is, thus, the most important feature (*cf.* Kienlin 2008; 2010).

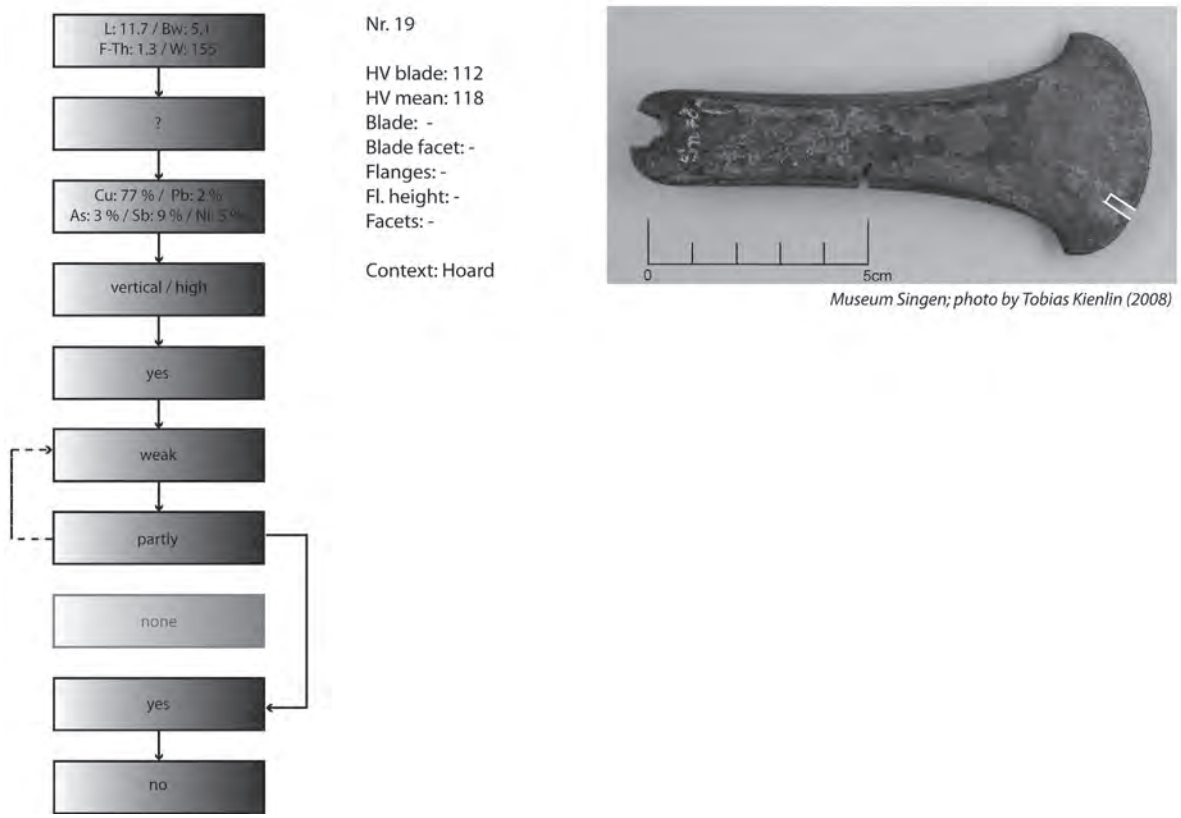
Nr. 44; axe-unfinished / ingot

This axe was cast from a fairly pure copper. Given the high porosity, casting quality is low. The blade is dull (> 1,5mm) and has no hammered facet. In like fashion, the sides have no facets and one can hardly speak of flanges, as the edges exhibit only a very slight thickening (Fig. 4). All this demonstrates an axe that received only a basic finish: the removal of flashing and casting seams and a light grinding of the surface. Indeed, a metallographic sample shows that the axe did not see any shaping or hardening by hammering; the hardness value is, therefore, low (HV 92). Annealing was thus also not necessary and, as such, little has been done to the axe apart from its initial casting (Kienlin 2008: 546). Nonetheless, the axe has been categorised as being of the Saxon type (Mayer 1977: 78 Nr. 245) in spite of the fact that it hardly adheres to this type morphologically and stands out completely from other (Saxon type) axes insofar as it remained unworked.

Axe nr. 44 is used as example of those axes that might be seen as 'unfinished', meaning they are rough-outs for an axe that was for some reason not worked further. One such reason could be that the intended purpose of the axe was as store of raw material, or perhaps more formally, as some sort of 'axe-money' (Pearce 2007). Both interpretations can be seen as ingots. However, the latter carries more symbolic value while the first refers only to the intrinsic value of the metal. As the intended purpose of these axes was to either be finished or re-melted, little evidence of them is to be expected. If their pre-supposed itinerary has been fulfilled, it means that evidence for this practice is to be found in their absence.

[6] Average hardness value for this period is around 149 HV; (Kuijpers 2014).

National Historisches Museum, Vienna; photos by author



Museum Singen; photo by Tobias Kienlin (2008)

Figure 4: Exemplary axes from the Early Bronze Age, discussed in the text.

Nr. 19; axe-gift

Axe 19 is a very peculiar axe which consists of only 77% copper and high amounts of other elements (Ni 5 %; As 3%; Sb 9% and Pb 2%) which undoubtedly influenced the properties of the material both in workability as well as appearance (Kienlin 2010: 155; Kuijpers 2014). For instance, the frequent intermetallic phases would lead both to high as-cast hardness as well as embrittlement, making it difficult to work these axes (Kienlin *et al.* 2006: 459–60). Due to the high level of porosity, the casting quality is low. The axe was weakly hammered, which may be interpreted as a shaping operation. Subsequently, it was then weakly annealed as evinced by the remnants of its dendritic (*i.e.* as-cast) structure. The blade did not see a final cold-hammering which speaks against the idea that the craftsperson was trying to create as hard a blade as was possible. This is strengthened by the fact that a second sample taken from the flange received fairly strong hammering, albeit only superficially. Not only does it show that this kind of copper, despite it brittleness, was not impossible to hammer, it also marks a large difference in hardness values. Whereas the blade has a hardness value of HV 112, the flange has a value of HV 172 (Kienlin 2008: 490-93). It appears that with a little extra hammering, the blade of this axe could have been considerably harder, yet this was not done. According to Kienlin *et al.* (2006: 460), 'the effort of deformation was reduced' by the craftsperson because the as-cast hardness of this axe was already high. Thus, it would have functioned well as weapon or tool. However, I find his argument unconvincing. *If* the mechanical properties of axes were the main concern of the craftsperson involved, as Kienlin argues elsewhere (2008; 2010), we would expect them to at least hammer-harden the blade to some extent, as was shown, for instance, by axe nr. 192 and axe nr. 135. This axe (nr. 19), however, seems to have been produced to look like a fine axe and its flanges show an almost perfect finish, yet its *chaîne opératoire* demonstrates that the hammering that was done was mostly a shaping operation and no final hardening of the blade took place (Figure 4). Furthermore, during its use the blade of an axe also becomes hardened. The lack of any hardening (either through hammering or use) together with the fact that the axe shows no traces of re-sharpening (no asymmetrical blade) point toward the feasibility of an alternative interpretation than that of a work- or weapon-axe. Given that nr. 19 ended up in a hoard, it is, therefore, tempting to interpret this axe as something which had been specifically made to be deposited as a gift. This shall be discussed further below.

Ideal types?

From the five exemplary axes described above I will draw interpretations regarding their intended purpose. In doing so I assume that the craftsperson not only had a conceptual idea in mind, but that this idea was structured towards the intended use of the axe. The following thus tentatively argues that we might be able to discern the 'ideal types' that prehistoric craftspeople were aiming for.

The ideal type for prestige axes (nr. 322) appears to be the creation of a visually attractive object which obviously not only communicated material prowess but also skilled material mastery (Helms 1993). This type exhibits little concern with the mechanical properties as the intended purpose appears to have been conceptual function (*e.g.* symbolism and the communication of power and meaning) rather than practicalities like said object's usefulness in felling a tree. As such, I argue that for this type of axe aesthetics took precedence over practicality. Following, it may be questioned whether we are still dealing with an 'axe' proper. The presence of prestige or ritual 'axes' is a phenomenon already known in the TRB and explored by, for instance, Wentink (2006). However, given the obvious reference of the form to the shape of an axe, I have discussed it as such. It is for this same reason that the object actually stands out, as it is part of a wider context of other axes. This wider context is often taken for granted rather than being actively questioned in the research. It is used as an out of focus background in order to draw attention to the single object in question. The following four axes belong to a far more ordinary group of axes which are themselves part of this wider context.

Given its weight and thickness, the axe-weapon (nr. 135) discussed above would be an unusual choice of axe to use as a tool for heavy duty tasks like felling trees. The intended purpose of this axe might therefore have been to become a weapon foremost. The ideal could potentially be described as a thin, lightweight, but hardened and sharpened axe. Given that a weapon is practical, but at the same time communicative (prestige), a perfect finish is to be expected. The intimate connections of weapons with the people who wield them make it likely that they end up in graves, although other uses such a re-cycling or depositing cannot be excluded.

Axes with an intended purpose as tools represent a large group. The ideal type of these axe-tools (nr. 192) revolves around the pragmatic idea to have a tool that does the job. As such, there is little interest in getting a perfect form or finish. Hardness, however, matters, and the blade is hammer-hardened to a substantial degree. Furthermore, attention is given to the flanges for hafting purposes, but these flanges are not necessarily polished to a smooth surface. Small working traces, as long as they do not impede the functionality of the axe, may be left on the axe. As they are mainly tools which were supposed to *do* rather than *show* something (as with the weapons or prestige axes), they are practical objects which are used and re-used. At the end of their use-life, many of these axes may thus end up being re-cycled.

One can hardly speak of an 'ideal type' for an ingot; any metal object at any point in time is inherently also a store of 'raw' material and is, thus, essentially an ingot (Kuijpers 2008: 73-77). However, when being produced solely to act as a rough-out or ingot, no further working besides casting is required. The axe may be cleaned of its casting

traces, though even this is not necessary. No care is taken to produce an axe-proper; the blade is blunt, they hardly show flanges and there is only a very basic or no finish at all.

As with the axe-ingots it might overplay the data to speak of an ideal axe-gift *chaîne opératoire*. However, there does appear to be a group of axes that shows an equally divergent sequence of production steps as described for axe nr. 19 (Kuijpers 2014). The marked difference with the other groups discussed above might show the presence of axes which were produced specifically for deposition. They had to look like functional axes, but not necessarily function as such. They have a perfect finish, the blade is sharp and they appear to have been unused. A lot of effort went into them, *except* for a final step (hammering) aimed at hardening the blade. As such, we should ponder the possibility that these axes were produced with the intended purpose of laying them to rest in a deposition.

Discussion

The above interpretations are not a novel way of looking at these axes. In fact, several of them have been previously proposed such as axe nr. 135 (of the Lanquid I type) being a weapon (Mayer 1977: 94). The difference, however, is that by employing detailed data concerning the production of these axes we may now strengthen, or even call into question some of the interpretations that were previously built on context and morphological aspects alone. The five axes discussed in this paper are used as examples to tentatively suggest structured 'recipes' employed by the craftsperson in order to execute his/her specific idea. These 'recipes' may in fact transcend typological categorisation.

Although I do not doubt that the prehistoric craftsperson had a clear ideal in mind of what s/he was going to produce, there are several reasons why this ideal might be hard to read from the archaeological material. Depending on the skill of the craftsperson, a *chaîne opératoire* may vary, as he or she might not have been able to translate his or her idea to the material. Craftsmanship is always a dialogue with the material and one can only make what your hands and the material allow for, not what you, ideally, have in mind.[7] Furthermore, the groups discussed above resemble the 'perfect' example. Hence, these 'recipes' should be understood as resembling a kind of Platonic ideal types rather than an unbendable laws of production. 'On the ground', employing Aristotle's empiricism, we clearly see these groups merging.

With nothing at hand the axe-tool will equally well function as a weapon; the axe-weapon is not only a practical object but it also lends the carrier a certain power and prestige; and the prestige axe, although unlikely, could potentially be re-melted and thus act as an ingot. It is exactly because of this pragmatic use of objects that we should not overestimate the find context of objects, which essentially only shows what the object was used for or meant at that specific last phase in its use-life. As an alternative – and thus a good way of reflecting upon consumption studies with an emphasis on find context – analytically separating the production, use, and deposition of objects may not only open up new interpretational grounds, but also allows for interpretations to be compared and weighted against each other.

[7] As many craftspeople will tell, one of the essential skills of making things is to be to able to have your hands reproduce the idea of the object that you want to make. However, this "does not always work, you have an idea and then the hands do not follow" (pers. comm. Noémie Viaud, a luthier).

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