Fragmentation patterns revisited

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Contents

Fragmentation patterns revisited: ritual and recycling in Bronze Age depositional practice

Dirk Brandherm

Abstract

In the present contribution we argue for a distinction between two broad categories of fragmentation patterns among metalwork depositions of the European Bronze Age, one stemming from ritual decommissioning for religious purposes, the other from the breaking-up of metal objects for recycling or for use as hackbronze currency. It is further argued that this distinction does not always map neatly onto a dichotomy between the religious and the mundane where the motives behind the subsequent deposition of fragmented metalwork are concerned.

Keywords: Bronze Age, metalwork, hoard, deposition, fragmentation pattern

Résumé

Les formes de fragmentation revisitées: rituel et recyclage dans la pratique des dépôts de l'Âge du Bronze

Dans cet article, nous discutons de la distinction entre deux larges catégories de type de fragmentation des objets métalliques regroupés au sein des dépôts et cachettes de l'Âge du Bronze en Europe. Nous soutenons que le premier type résulte d'une destruction pour des raisons religieuses, tandis que le second type découle du bris des objets métalliques en vue de leur recyclage ou de leur utilisation comme « hackbronze ». Toutefois, cette distinction entre les raisons religieuses et profanes concernant la fragmentation des objets ne correspond pas toujours à la dichotomie entre les motifs religieux des dépôts et profanes des cachettes.

Mots-clés: Âge du Bronze, objet métallique, cachette, pratique des dépôts, forme de fragmentation

Zusammenfassung

Fragmentierungsmuster neu betrachtet: Ritual und Recycling in der bronzezeitlichen Niederlegungspraxis

Der vorliegende Beitrag formuliert Kriterien zur Differenzierung zweier unterschiedlicher Fragmentierungsmuster in Hortfunden der europäischen Bronzezeit, von denen sich das eine mit einer religiös motivierten Votivpraxis, das andere mit dem Portionieren von Metall zu Recyclingzwecken und einer Verwendung als Hackbronzewährung in Verbindung bringen läßt. Diese unterschiedlichen Zerlegungsmotive gehen jedoch keineswegs immer mit einer entsprechenden Unterscheidung zwischen religiösen und profanen Motiven für die letztendliche Deponierung fragmentierter Bronzen einher.

Schlüsselwörter: Bronzezeit, Metall, Hort, Deponierung, Fragmentierungsmuster

Introduction

Ever since the early days of prehistoric archaeology as an academic discipline, the fragmentation of objects in many Bronze Age metalwork hoards has prompted diverse and often seemingly incompatible readings. Hypotheses have varied in accordance with different intellectual traditions and fashions, and for the most part have been linked to conflicting interpretations of the hoarding phenomenon in general as either a purely utilitarian or religiously motivated practice.

As early as 1866, J. J. A. Worsaae advocated a reading of many Bronze Age hoards, and particularly of those assemblages containing intentionally damaged and fragmented objects, as votive offerings (Worsaae 1866: 317–19; 1866/71: 67–8). Especially among northern and central European scholars, this explanation has remained popular ever since, although specific categories of hoards have also been interpreted differently (e.g. Hänsel 1997: 13–15; Hundt 1955: 99–107).

For western Europe, E. Chantre's (1875/76: 68) categorisation of Bronze Age metalwork assemblages according to their perceived function, as either founders' or merchants' hoards, proved seminal and cemented a utilitarian interpretation of metalwork deposition and of intentional object fragmentation that still echoes in the terminologies used in many Romance-language traditions today (e.g. Fernández Rodríguez 2014: 16; Melo 2000: 25–6; Ruiz-Gálvez Priego 1995: 29–32; Silva et al. 1984: 73–4). Through the work of J. Evans (1881: 457–9) Chantre's concepts were introduced into Anglophone archaeology, where his labelling of assemblages containing high percentages of fragmented objects as founder's hoards conditioned a utilitarian reading of much of the hoarding phenomenon until at least the 1980s, when post-processual approaches led to the almost wholesale abandonment of strictly utilitarian explanations, and of the loaded labels introduced by Evans, throughout English-speaking archaeology.

This evidently is not to say that interpretative models remained entirely static and unchangeable prior to the advent of post-processualism. The rise of processual archaeology since the 1960s in particular saw a marked shift away from antiquarian and culture-historical approaches towards a focus on questions of social organisation also in the study of Bronze Age metalwork depositions. However, beyond stereotypical references to wilful destruction and abandonment of accumulated wealth for the presumed purpose of gaining social prestige, this did not entail examining the specific motives behind particular practices of object fragmentation and deposition, generally deemed irrelevant in the larger societal scheme of things (cf. Taylor 1993: 95–104).[1]

[1] One of the most overused and misapplied concepts in this context is probably that of the

A more nuanced understanding of the hoarding phenomenon in general and of the intentional fragmentation of objects in particular over the last thirty years or so has been enabled by essentially two factors: in the first instance by a realisation that the fragmentation of and intentional damage to deposited metalwork rarely are completely random, but tend to follow clear patterns (Rittershofer 1983: 345–7; Sommerfeld 1994: 29–36; *contra* Nebelsick 1997; 2000); secondly, by the recognition that a sharp distinction between the religious and the mundane in a Bronze Age context may not always be entirely appropriate to begin with (Brück 1999: 325–8; Torbrügge 1985: 19 note 30). Especially this second recognition led some authors to call for a wholesale abandonment of these categories when dealing with Bronze Age metalwork deposition (e.g. Ballmer 2010: 129; Bradley 2005: 148; Brück 2001: 157), but while these voices are certainly correct in highlighting the etic character of labels such as 'mundane' or 'religious' when applied to prehistoric practices, and in cautioning against the uncritical use of these categorisations where premodern patterns of thought are concerned, it should be obvious that this does not render them altogether irrelevant.

It is one thing to raise awareness of the limitations of our present terminological apparatus, which are inevitably born from the modern observer's etic perspective; it is an entirely different thing to try and substitute the analytical categories we employ with concepts that aspire to emulate an emic point of view, but in practice remain very much subjectivist in nature and do not really facilitate a better understanding of the multidimensional nature of prehistoric metalwork deposition practice. Acknowledging that this practice may have both utilitarian and non-utilitarian underpinnings, and that these two aspects may even intersect within individual hoard assemblages, cannot mean that the distinction between them should be viewed as immaterial. In an attempt to

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'potlatch', invoked in many studies trying to make sense of the intentional fragmentation of objects in prehistory, and Bronze Age metalwork in particular (Bradley 1982: 118; 1990: 36; Ruiz-Gálvez 1995: 131). It has to be stressed here that ethnographically attested examples of the potlatch practice, apart from being few and far between (Testart 2012: 299; Testart *et al.* 2012: 384–5), are very much characterised by the distinct lack of any notion of material value being offered to a deity or divine power. In all its varied guises, the potlatch at its core remains a ritualised contest of conspicuous consumption that explicitly serves to initiate and maintain patron–client relationships and, in stark contrast to the practice of votive offerings, thus focuses primarily on ritualised gift giving to other members of the relevant social group (Barnett 1938; Rosman and Rubel 1972). The deliberate destruction of material wealth as part of a potlatch might be a striking and powerful performative act, but the gift-giving component is much more central to its purpose. Possible similarities in the ritual expression of both practices, and the spiritual aspects embedded in some ethnographically documented potlatches, should not distract from the fact that the aims of votive offerings on the one hand and of potlatch ceremonies on the other are fundamentally different (cf. Snyder 1975).

address this issue, a number of authors in the past have tried to come up with more explicit and more nuanced classification systems for hoard assemblages containing a significant proportion of fragmented objects (Falkenstein 2011: 73–4; Huth 1997: 149–52; Maraszek 2006: 248–61; Mörtz 2013: 56; Rittershofer 1983: 344–7; Sommerfeld 1994: 21–36; Stein 1976: 22–30), but none of these proposals have managed to gain universal acceptance, not least due to the fact that most of them were based on very specific samples collected at different geographical and chronological scales.

Apart from issues caused by region or period-specific sampling, another problem plaguing much previous work in this field arises from the — for the most part — unquestioned assumption that a utilitarian or non-utilitarian rationale behind the fragmentation of an object is necessarily congruent with the motives behind its deposition. Here we are going to challenge that assumption.[2]

Making sense of fragmentation patterns

First and foremost, it needs to be stressed that when it comes to the intentional fragmentation of objects and their deposition, we are dealing with two quite distinct processes, which in some cases obviously may have occurred in conjunction, but which in others might also have had little to do with each other. It is entirely conceivable that either one of these may have had quite mundane reasons, while the other one could still have been driven by a religious rationale. Therefore, in order to avoid the pitfalls of circular reasoning, the motives behind the fragmentation and the deposition of metalwork objects in the first instance have to be explored independently.

The most common utilitarian rationale for the fragmentation of bronze objects certainly would have been the portioning of metal for remelting as part of the recycling process. That recycling of scrap metal must have formed an integral part of Bronze Age economy is not only dictated by the survival rate of Bronze Age metalwork in the archaeological record (cf. Needham 2001: 282–4), but is also demonstrated by the rare instances of surviving scrap metal assemblages from settlement contexts, such as the recent finds of collected scrap metal from Must Farm in Cambridgeshire (David Gibson, pers. comm.). Evidently only a tiny fraction of the metal circulating in the Bronze Age ever entered the archaeological record for any significant length of time. The overwhelming majority circulated in a more or less continuous recycling loop and was never

[2] The arguments laid out in the following section were first developed in Brandherm (2016: 85–90). Many thanks go to my co-editors for their patience and thorough revision of the original manuscript, and to Muriel Fily for kindly providing the photograph of the Kergaradec 2 hoard shown in our Figure 2.

permanently deposited (Bradley 1988: 253; Bray and Pollard 2012: 856–62; Falkenstein 2011: 74–5 fig. 2; Jockenhövel 1986: 224; Needham 2001: 282–8). There thus can be absolutely no doubt that portioning scrap metal must have been common practice.

There is also evidence to suggest that fragmented bronze objects may have been used as premonetary[3] currency in a system not entirely unlike that of early medieval hacksilber (Brandherm 2004: 368; Brandherm and Moskal-del Hoyo 2014: 35). That we can assume such a function, at least for certain periods and regions within the European Bronze Age, may be inferred from the fact that the spatial distributions of scrap hoards and of standardised ingot forms within individual chronological horizons tend to be mutually exclusive. Although certain forms of ingot money sometimes do also occur in a fragmented state, this does not invalidate the fundamental difference between premonetary currency systems based on fixed denominations on the one hand and exclusively weight-based hackmetal currencies on the other, which both have quite different implications for the economic and social systems within which they operate (cf. Brandherm 2004: 367). Another likely indicator for a probable function of 'hackbronze' as premonetary currency is the almost complete disappearance of previously quite common small bronze scrap items from the agoras of Greek colonies in Sicily, and the substitution of bullion metal by other categories of object as offerings in sanctuaries from Sicily and Latium, following the introduction of coinage in the respective regions (Baitinger forthcoming; Murgan and Kemmers 2016: 279–83).

In stark contrast to these utilitarian explanations for the occurrence of scrap metal in Bronze Age contexts, many scholars have interpreted the intentional fragmentation of metal objects as a religious practice (e.g. Hansen 2016; Nebelsick 1997; 2000). In this case the main objective behind the act of fragmentation is generally assumed to have been aimed at their removal from the sphere of everyday use and at transferring them to the domain of the supernatural or divine. An alternative reading would view religiously motivated fragmentation of metalwork items as the ritual 'killing' of objects perceived as animated beings by Bronze Age people. The former model, focusing on the objects' removal from human use, draws primarily on Greco-Roman sources, whereas the alternative explanation which focuses on the 'killing' of animated objects is inspired more by early medieval tradition

[3] The term 'premonetary' is of course in itself not without its semantic problems and contradictions (cf. Heymans this volume), but is retained here as conventional shorthand for referring to any physical expression of a currency which, while functioning as a medium of exchange and store of value, is not cast into a scaled system of fixed denominations anchored to a standard unit of account.

and by a comparison with modern ethnographic parallels (Brück 2006: 305–10; Hansen 1996; Metzner-Nebelsick 2012; Sommerfeld 1994: 21–36). With some effort one might certainly be able to envisage hypothetical scenarios where both motives work together to drive the intentional fragmentation of metalwork items, but the available analogies from the historical and ethnographic records suggest that in practice we are dealing with two fundamentally different mechanisms which do not really overlap.

This has important implications also for the distinction between religious and mundane elements involved in these mechanisms. Whereas the intentional destruction of metalwork items as part of a votive offering or sacrifice indisputably constitutes a religious act *per se*, the same does not necessarily hold true where objects are being fragmented in order to break the link between their material existence and a life force that is perceived to inhabit them. The perception of objects as animated beings may invariably be rooted in religious belief, but the act of 'killing', i.e. deanimating these objects — even if performed within a ritual framework — does not have to be motivated by religious purpose. The intensive use of force against such an object may simply have played an important part in ritually transforming 'living' matter into 'dead' raw material that was considered safe for recycling (cf. Metzner-Nebelsick 2012: 161–2; Nebelsick 1997: 40–1). This applies especially in those cases where the animate nature of an object may have been viewed as potentially dangerous, a perception frequently attested for weapons in particular, both in medieval literature and in ethnographic sources, and for whose currency in the Bronze Age a case can also be made based on archaeological evidence (Cowen 1966: 294; Pearce 2013: 64–5). We shall return to this issue further below, but first must briefly examine the possible motives behind the deposition of fragmented metalwork.

The most commonly cited likely utilitarian rationale for the deposition of fragmented metal objects is the accumulation and safe storage of material value (e.g. Pauli 1985: 201). For regions and time periods where scrap metal represented a socially recognised medium for accumulating and storing material value, or where it even served as a form of premonetary hackbronze currency, it stands to reason that safekeeping might have been one of the principal motives for the deposition of fragmented metalwork in the ground. This applies not only, but especially in times of war or social upheaval and unrest, when stores of material value are always in danger, due to the suspension of social norms which would otherwise ensure their protection from illegitimate access. Here it is worth remembering, for example, the numerous coin hoards from the time of the Thirty Years' War, and also the caches of religious paraphernalia hidden away by Jewish families and congregations in times of anti-Jewish pogroms, which in

the archaeological record show up as chronologically and geographically well-defined 'hoard horizons' (cf. Randsborg 2002: 416–17).

The most frequently suggested religious motivation behind the deposition of metalwork items is their sacrifice as votive offering (e.g. Hänsel 1997; Hansen 1994; 1996). Such an offering may have been made in expectation of a reciprocal benefit bestowed by the recipient of the sacrifice, or in acknowledgement of a benefit already received. In either case one is dealing with part of a *do ut des* transaction between the party offering the sacrifice and the party receiving it. Needless to say, this mechanism is fundamentally different from the placing of hidden material value under the protection of a deity or divine power for safekeeping.

With votive offerings one also has to keep in mind that the place in which objects were eventually deposited does not have to coincide with the location where the offering originally took place. Greco-Roman sources provide ample testimony of the secondary deposition below ground of votive offerings which previously had been openly on display, not necessarily in exactly the same spot (cf. Mandera 1985: 187–9). In such a case, the fragmentation of votive objects may have occurred only at the time of this secondary deposition, and thus may not represent the original act of sacrifice or the transfer into the possession of its divine recipient.

Objects may also have been deposited in accordance with religious beliefs so they would be available to a deceased person in their afterlife. Such depositions may have been undertaken by the owner himself prior to his/her passing, or by another party following the owner's death. For pagan northern Europe we have written testimony from the early medieval period that this did not necessarily require proximity of the relevant items to the final resting place of the deceased person's mortal remains (Hundt 1955: 108; Lund 2017: 99). Here also, the fragmentation of objects might have formed part of a ritual that served to facilitate their transition into the Otherworld.

Despite the various caveats expressed above, and also despite the fact that in some instances pragmatic considerations might have overruled any original motivation and that priorities may have shifted subsequently to the original act of deposition (Needham 2001: 287–9), a systematic analysis of the siting of metalwork hoards would still appear to provide the most promising avenue for trying to distinguish between these different categories of deposition (Hansen 2012: 39–43; Scholz 2012: 70–81; Soroceanu 1995: 35–46; 2011: 271–8; Taylor 1993: 78–89). However, conducting such an analysis is beyond the remit of the present contribution. Instead, here we are going to focus on what different

fragmentation patterns may tell us about the likely motivation behind the intentional breaking-up of metal objects, and how this might relate to the motives behind their deposition.

Among Bronze Age hoards containing a significant proportion of fragmented items, two main classes of assemblage are generally discernible, differing from each other both in their composition and in the peri-depositional treatment of the deposited objects.

On the one hand we have assemblages composed of items that display evidence of considerable physical force having been used against them, but which show a degree of fragmentation which falls very much short of what one would expect from objects cut up into crucible-sized portions for purposes of recycling (Figure 1).[4] Here we seem to be looking at a distinct process of decommissioning, aimed primarily at putting the items in question beyond any practical use. Normally, the assemblages in this class contain most of the fragments from the deposited objects, although *pars pro toto* elements may also be present, and mostly they comprise objects from only one or two functional categories. In the majority of cases these are weapons or personal ornaments. Specific examples for this class of assemblages are the Duddingston Loch (Coles 1959/60: 117), Ría de Huelva (Ruiz-Gálvez Priego 1995: 185–227) and Wylye (PAS: WILT-038191) hoards.

The second class of assemblages is characterised by a much higher degree of fragmentation, i.e. by the breaking-up of objects into more numerous and proportionally smaller fragments. The incidence of intentional damage not directly related to the fragmentation process among these assemblages is recognisably lower than in the previous class (cf. Boulud and Mélin 2009: 190–

[4] Occasionally the term 'degree of fragmentation' (*Fragmentierungsgrad*) has been employed to refer to the proportion of broken-up bronze objects within a given hoard, or to the proportion of fragmented specimens of a specific object category within different hoard assemblages (Maraszek 2006: 259; Sommerfeld 1994: 31; Vachta 2008: 57). We consider this usage to be misleading and prefer to apply this term solely when referring to the degree of fragmentation of individual objects. The relevant criterion for determining the degree of fragmentation therefore is the number of fragments into which an object has been broken up, rather than the proportion of fragmented objects within a hoard, which would better be termed 'fragmentation index'. Since in most cases not all fragments from a broken-up object will be present in a given assemblage, the exact value for the latter is often difficult to determine through a simple object count. A more reliable and meaningful approach has been suggested by Gabillot (2004: 194–8), who employed the ratio between the median weight of all fragments from a given object type included in a hoard and the median total weight of a complete specimen of the same type as a measure to determine what she referred to as 'indice de métal déposé'. Her study of the Breton hoard record has demonstrated the validity of this approach, both for individual object types represented within specific hoards and for complete hoard assemblages.

Figure 1. Class 1 assemblage from the Ría de Huelva (Huelva), representative selection of objects (photograph Miguel Hermoso Cuesta, Wikimedia Commons CC BY-SA 4.0).

2). In addition to a higher degree of fragmentation of individual objects, these assemblages also tend to include a larger proportion of fragmented items. On the other hand, in this class the majority of fragments from any one object are rarely present in the same assemblage, which is why there are normally far fewer matching fragments per assemblage than in the previous class. Finally, hoards in this second class usually comprise items from multiple object categories, with a higher proportion of tools, casting debris and ingot metal (Figure 2). The hoards of the Boughton-Vénat complex of the Atlantic Late Bronze Age are probably among the most striking examples of this type of assemblage (Brandherm and Moskal-del Hoyo 2014: 32–5), as are the tool-dominated hoards of the Middle Bronze Age in parts of central Europe (Sommerfeld 1994: 103–16) and also some of the Late Bronze Age scrap metal hoards of the central Mediterranean (Giardino 1995: 191–225; Lo Schiavo 1991: 213–14; Ruiz-Gálvez Priego 1986: 12–17).

The distinction between the two classes of assemblage outlined above is not entirely new. Sommerfeld (1994: 31–3 fig. 3) had first observed a differentiation along similar lines within the central European hoard record, and specifically for the weapon hoards of the British Late Bronze Age. Mörtz (2013: 59–60) recently advocated a distinction between different damage and fragmentation

Figure 2. Class 2 assemblage from Kergaradec (Gouesnac'h, Finistère), hoard 2 (photograph Muriel Fily).

patterns that mirror our own observations. Particularly with smaller hoards, attribution to either one of these two classes may not always be unambiguous, but they still constitute two very different types of assemblage and thus should not indiscriminately be labelled as scrap metal or hackbronze. If these terms are to be meaningfully employed at all, their use would appear justified only for the assemblages falling within our second class.

Turning finally to the question of how to interpret these two different types of assemblage, based on the selection and treatment of the objects contained in the relevant hoards, there is a compelling case for interpreting most assemblages included in our first class as the material remains of votive offerings. Since the inclusion of objects here seems to be governed primarily by a symbolic significance derived from their practical function as weapons or ornaments, we shall refer to these as symbolic-value assemblages. The question to what extent their role as symbols in these offerings might relate primarily to the party making the offering, to its addressee or to the event that provided the cause for the sacrifice shall not concern us here, but it is important not to confound their

symbolic significance in the transaction between a sacrificant and a deity or numen with the symbolic significance some of them may hold in the interaction between members of society. While concepts underpinning the former may be modelled on the practice of the latter, both are still fundamentally different in nature.

For metal objects, their symbolic significance in societal interactions, as argued e.g. by Heymans (this volume), may derive at least partially from their inherent material value, as, inversely, bullion metal carries in it the potential to be transformed into objects with different symbolic meanings. In contrast, where the symbolic potency of a votive offering derives primarily from the practical function or physical form of the relevant object, its material value may be of little concern. To illustrate this notion through an example from more recent religious practice: if an *ex voto* limb offered in hope or in grateful recognition of recovery from a physical ailment consists of wood, wax, terracotta or metal is entirely immaterial as far as its religious purpose is concerned. In the social practice of publicly performed sacrifices, an *ex voto* may of course also serve purposes of social display, and consequently at a material level in such cases things may not be quite so clear-cut, but it is an *ex voto*'s symbolic significance at the level of the religious transaction on which we want to focus here, not social practice.

As an alternative to an interpretation as votive offerings, in those instances where we are dealing with the deposition of personal sets of weapons and/or ornaments, and regardless of any damage to or fragmentation of the objects in question, there is of course also the possibility that such assemblages might have been deposited not as a sacrifice to a deity, but for use in a person's afterlife. The practice of equipping oneself for the hereafter through the deposition of personal effects in liminal locations is well attested in early medieval Scandinavian literature, and to distinguish between such 'funerary' depositions and votive offerings directed at a deity may prove difficult in practice, even taking into account criteria such as the siting and concomitant circumstances of a deposition (cf. Hansen 1994: 43–58). In no case does the simple differentiation between 'wet' and 'dry' depositions on its own suffice for distinguishing between the different religious motives that may underpin metalwork depositions, a caveat that is supported by the identical treatment of multi-piece sword depositions from 'wet' and 'dry' contexts across large parts of Late Bronze Age Europe (Brandherm and Horn 2012: 124; Torbrügge 1970/71: 87–8). Overall, however, clearly identifiable personal sets of items that might qualify as 'funerary' hoards only constitute a relatively small minority among metalwork assemblages comprising fragmented objects. The bulk of this class, then, is still best understood as votive offerings to a deity.

For the assemblages in the second class, i.e. scrap metal or hackbronze assemblages *sensu stricto*, the question of how to interpret them is a more complex one. The presence in these assemblages of objects from a broad range of different functional categories and the high degree of fragmentation observed among them are still best explained in terms of the utilitarian mechanisms underpinning metal supply management and raw material recycling. The fact that objects from this second class of assemblages may also show signs of intentional damage which clearly exceed what one would expect as a consequence of portioning in and by itself does not preclude a mundane motivation for the deposition of such assemblages. As already highlighted above, if the use of excessive violence against objects perceived as animate indeed served the purpose of depriving them of any remaining life force, it might only be expected that such a treatment would have formed part of normal recycling practice, particularly where this life force may have been viewed as potentially dangerous. However, the relatively systematic fragmentation of objects and the small fragment size that can be observed among the assemblages from our second class clearly contradicts the idea that they were subjected to unpremeditated, haphazard violence during fits of ecstatic frenzy (Brandherm 2004: 368). For different reasons, Mörtz (2013: 63) dismissed this notion of haphazard violence also for the assemblages in our first class.

Consequently, some types of damage observed on objects circulating as raw material, and potentially deposited for entirely mundane reasons, may have been caused by a type of violent treatment which from a modern secular perspective we would not readily recognise as utilitarian, but which — from a Bronze Age health-and-safety point of view — may have had a very practical background, even if ultimately rooted in religious beliefs. However, the degree of damage and fragmentation observed in objects subjected to such 'ritual' treatment as part of the recycling process statistically should be readily distinguishable from fragmentation patterns found among assemblages where both the fragmentation process and the eventual deposition were driven by votive or funerary purposes.

On the other hand, even if metal objects displaying a high degree of fragmentation may be interpreted as mundane recycling stock, this does not imply that their deposition necessarily also occurred due to mundane motives. Where hackbronze functioned as a socially accepted means for storing material wealth, or even as premonetary currency, it evidently could also have been used as a medium for votive offerings, as in the case of the bullion metal depositions from Sicilian and Latian Iron Age sanctuaries (Murgan and Kemmers 2016: 279–83). In contrast to those votive offerings whose potency relied primarily

on their agency as symbols, here it would have been their material value which informed the potency of the sacrifice. The practice of sacrificing 'abstract' material value for votive purposes is well attested in monetary and also in some developed premonetary economies (cf. Gates 1987: 266–74; Hansen 1996: 264 note 38).[5]

In order better to distinguish between these two different categories of votive offerings (Figure 3), we will formally refer to the first as symbolic-value votive offerings (SVVOs) and to the latter as material-value votive offerings (MVVOs). This distinction does not imply that the composition of MVVO assemblages invariably is entirely random, and that no criteria other than their bullion value may have influenced the selection of metalwork items included in such assemblages. In practice, some overlap might well exist between these categories, and even if we accept a function of hackbonze as premonetary currency, the inclusion of certain categories of object in material-value votive offerings, or exclusion from them, may still be significant. That said, in such cases one might expect any symbolic connotations involved in the selection process to differ from those found with express symbolic-value votive offerings (cf. Brandherm and Moskal-del Hoyo 2014: 40–1).

In contrast to the category of hoards interpreted here as SVVOs, whose deposition invariably would have been driven by religious beliefs, for hackbronze depositions, apart from their potential role as religiously motivated MVVOs, one cannot dismiss out of hand that at least part of them might simply represent accumulated material wealth hidden for very mundane reasons. In order to determine if a specific hackbronze assemblage was deposited as a votive offering or if it was removed from circulation out of more practical considerations, further criteria need to be employed. Both individually and at a regional level, the composition of such assemblages needs to be tested for patterns that cannot be explained as arising from utilitarian portioning or the inherent mechanisms of a metal economy. Location and siting characteristics likewise need to be examined and cross-checked with other types of deposition at a regional level. The fact that only a minute percentage of hackbronze assemblages has been retrieved from 'wet' locations seems to indicate very different priorities in the siting of these depositions compared to those governing the siting of many SVVOs, but this particular criterion on its own does not provide conclusive evidence for assigning either a religious or utilitarian character to this category as a whole.

[5] It could of course be argued that the concept of quantifiable material value, and even more so that of a currency, premonetary or otherwise, very much depends on the use of symbols, but the symbolism involved in this does operate on a very different semiotic level from the one involved in what here we have chosen to label as symbolic-value votive offerings (cf. Ingham 2004: 15–19).

Symbolic-value votive offerings	Material-value votive offerings
– typically comprising one or two object categories	– typically comprising multiple object categories
– low degree of fragmentation	– high degree of fragmentation
– majority of fragments from individual objects present	– majority of fragments from individual objects missing
– damage and fragmentation targeted at rendering objects unusable	– damage and fragmentation targeted at portioning of metal

Figure 3. Criteria for distinguishing between symbolic-value votive offerings (SVVOs) and material-value votive offerings (MVVOs).

Conclusions

Close scrutiny of fragmentation and damage patterns in Bronze Age metalwork deposited as part of hoard assemblages provides clear evidence that the fragmentation of metal objects on the one hand and the deposition of broken-up metal items on the other in many cases may have been occasioned by largely unrelated motives. Two main classes of assemblages containing fragmented metalwork can be distinguished based on fragmentation and selection patterns. The first of these is consistent with religiously motivated decommissioning of objects for votive or funerary purposes. The second class of assemblage is better explained as resulting from utilitarian scrapping, and in some instances seems to indicate the use of hackbronze as a socially accepted means for storing material wealth, potentially functioning as premonetary currency. The ritual infliction of excessive damage to some scrapped metalwork items can possibly be explained as an attempt to convert animate objects into non-animate raw material that was considered safe to recycle.

It is important to note that the two aforementioned classes of assemblage do not strictly correspond to religious and utilitarian categories of deposition. While hoards comprising assemblages from our first class may be interpreted as votive depositions carrying a distinct symbolic significance that is intimately related to the function of the deposited object types, hoard assemblages from our second class may constitute either utilitarian depositions or religiously motivated votive offerings of abstract material value, with no or little symbolic links between the original function of the scrapped items and the purpose or the recipient of the offering. In other words, the mundane or religious

rationale driving the fragmentation of an object particularly in our second class of assemblages does not by itself imply a corresponding background for its ultimate deposition.

This realisation also serves to underline the multidimensional nature of the Bronze Age hoarding phenomenon. One of the main arguments for assigning Bronze Age metalwork hoards to the religious sphere wholesale has generally been that a significant proportion of them, as far as the rationale for their deposition was concerned, is of an undisputably religious nature, and that the assumption that both religiously motivated votive deposits and hoards assembled and hidden for mundane purposes should disappear from the archaeological record coevally around the time of the Bronze Age/Iron Age transition was implausible. If, however, the general restructuring of the metal economy which followed this transition means that hackbronze lost its function as a socially accepted medium for the storage and exchange of material value, it is not only plausible, but entirely logical that it should cease to be deposited both as a mundane store of temporarily hidden material value and as material-value-based votive offering. It really is the widespread, although not ubiquitous disappearance of symbolic-value votive deposits during the Early Iron Age which is more challenging to explain.

Finally, the insights gained from distinguishing between different types of fragmentation patterns and from disentangling votive offerings based on symbolic value from those based on material value serve as a reminder that calls to simply abandon the distinction between categories such as 'religious' and 'mundane' are unhelpful and ultimately hinder a better understanding of Bronze Age economics and value systems. It is of course a truism that modern labels carry connotations shaped by the modern world, and it is certainly important to remember that some of these connotations may be potentially misleading when examining prehistoric practices and value systems. However, the labels used by prehistoric societies per definition are irretrievably lost to us, and the categorisations behind these labels are accessible to us only through indirect means, which inevitably require an analysis that has to employ our own analytical categories.

Postscript

Only after this contribution had been submitted, Wiseman (2018) published a highly relevant study in which he examines the composition of Bronze Age scrap hoards in England and Wales on a statistical basis. The results from his work corroborate some of the points also made here: fragmentation in hackbronze assemblages was driven primarily by the utilitarian necessities of

metal recycling, and the content of these assemblages constitutes a more or less representative cross-section of bronze objects from the total pool of metal available for recycling, with no real evidence of purposeful selection. However, Wiseman's study also challenges the interpretation of any significant proportion of hackbronze assemblages as material-value votive offerings, as it suggests that the bulk of these would have been deposited with the explicit intention of retrieval. The study's findings do not necessarily have to be considered final, and more detailed statistical work that includes further parameters needs to be undertaken. In any case, it serves as a welcome reality check for some of the more philosophical interpretations of the hoarding phenomenon.

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