INTRODUCTION

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Creativity is an integral part of human history. Yet the study of creativity usually focuses on the modern era, leaving unresolved questions about the formative role it has played in the longue durée. Creativity is closely related to changes in material culture, to how it sits behind innovations directing responses to the new and unfamiliar, and to how it results in changes to familiar things and practices. Creativity thus underwrites archaeological notions of cultural entities and periodisation, whether or not this is acknowledged. In this volume we aim to explore this connection taking the European Bronze Age as our focus. During the Bronze Age key shifts in the nature of society and in its material expressions can be seen. This includes innovations such as the development of full metallurgy and the emergence of woollen textiles. It is also an era characterised by intense networks of contacts and long-distance trade (Kristiansen and Larsson 2005), substantial changes in ritual life, and strong indications of the formalisation of cosmology (Kaul 2004a): all shifts which may have inspired people to search for new material expressions. These key changes were accompanied by a remarkable flowering of craft activities with a distinctive emphasis on a pleasing aesthetic through intricately elaborated objects and decorations, but also, apparently, with a singular focus on a few materials, in particular metal as well as textiles and ceramics. These changes have previously been analysed primarily in social or economic terms; here we

argue that to approach the newness and novelty of the material world of the Bronze Age without reference to creativity is to neutralise its complexity.

A focus on creativity allows us to explore a range of human actions, practices, perceptions, expressions, and motivations that sit behind the changes in *what* kind of things are made and *how* they are made. During the Early Bronze Age new materials came into use and new procedures were developed for making things. As they became established parts of the cultural repertoire they were further utilised, resulting in the range of new forms and changed practices seen through the Middle and Late Bronze Age. In particular, the emergence of woolly sheep through breeding resulted in a novel raw material for textiles, which soon provided a basis for new forms and practices. Similarly, after standardised recipes for copper alloys and more efficient casting methods had been invented, the basis for the making of bronze objects was altered and we see an explosion of forms. Within these two materials we observe innovations as well as subsequent adjustment of practices. Other materials, such as pottery, which already had a long history, continued to be used. Their exploration is therefore not linked to innovations and changes of practices but seems rather to reflect experimentation and novelties that arose from local or regional explorations of the craft, at times showing the importance of imitations and influences between materials and groups. In addition, many objects from the Bronze Age also reveal substantial attention towards their appearance, as seen in the exploration of shape, colour, pattern, texture, and motifs. The surfaces of objects were frequently used as canvasses for elaborate designs suggesting that the appearance of things mattered and that creativity may take place both at the scale of the invention of new forms and procedures, and at the level of the development of new design principles. It is, however, important to note that this does not refer to all objects and that there were also regional differences in terms of not just how, but also whether, objects were decorated at all. The extensive use of decoration on Middle Bronze Age pottery in the Carpathian Basin contrasts, for example, with the plain ware used at the same time in northern Europe. Such observations suggest that creativity may at any time be guided towards certain materials, expressions, and forms, rather than simply being a highly individualistic expression. We shall return to this question of the relationship between the individual and the collective in terms of creativity below.

Responding to these broad issues, this volume explores the nature of creativity in the Bronze Age by looking at three themes. The first is the exploitation of, and reactions to, the potentials and limitations imposed by bronze, textile fibres, and clay. The second is the production processes for objects made of these materials. The third considers the range of effects that could

be reached through manipulation of the surface appearance of the finished objects. Creativity is often, and most easily, linked to the phenomenon of innovation. These two notions are, however, by no means synonymous. Innovations are recognised through outcomes that change existing conditions and norms. They represent a leap in how things are conceptualised and made. This is familiar archaeological territory. But creativity is a wider phenomenon than innovation. It encompasses the novel exploration, reconfiguration, and development of established expressions and practices; it is these that we wish to focus on.

FRAMEWORKS FOR UNDERSTANDING CREATIVITY

The exploration of creativity in the European Bronze Age is a challenging task, not least because there is no single theoretical understanding of creativity that can be readily applied. In this volume we explore and argue for creativity as a particular quality associated with the making of objects and the outcome of this making. The quality that we refer to is intimately linked to, indeed we argue it arises from, a particular kind of entanglement of people and objects. It is, however, an entanglement that involves ideas and knowledge with the latter being accumulated through experiences and experimentation as well as comparisons as makers draw their inspiration from the world around them.

Creativity takes its inspiration from a number of fields as well as materials, including religious ideas, notions of the cosmos, and reflections of life, but it is also based in the everyday and may arise from attempts at problem solving (Runco 1994). Creativity is the realisation of ideas or ambitions through a particular material in the form of a specific set of practical actions. The form of creativity we are interested in is, moreover, related to change – whether through new forms or through elaborations and alterations of existing objects. Understood like this, creativity is a quality rather than simply a condition. It has frequently been regarded as intangible, although its results are tangible – it goes beyond language and seems to be neither a verb nor a noun, or even an adjective, but a combination of these. Through the discussions and essays in this volume we therefore aim to focus closer on these aspects, attempting to capture them. We explore the conditions for creativity and how is it constituted. We suggest we should be satisfied with this rather open understanding instead of attempting a restricted and deterministic definition of creativity. The position we take is close to some of the main approaches currently argued within debates on creativity, but differs from others.

We differ, for instance, from approaches to creativity that see it as something magical, astonishing or god-like (Boden 1990, 1998; Goldenberg and

Mazursky 2002). While creativity itself may seem intangible, its articulation and outcomes are material – otherwise we should not experience creativity. Our philosophical standpoint is that a thing cannot be separated from the actions that made it. We argue throughout the volume for a praxis-orientated exploration of creativity. Moreover, rather than accepting creativity as part of some mystical process we focus on the creative practices involved in reaching outcomes. The underlying premise of this volume is therefore that *creativity is an outcome as well as an intention and a process*.

This focus on making processes raises questions about the relationship between the individual and the collective, a topic debated within different disciplines. Creative actions have traditionally often been linked to the existence of creative individuals (Csikszentmihalyi 1996; Jeanes 2006) assuming such individuals have special innate abilities or particular personalities. This assumption is often reproduced to explain differences in people's performances. Insights from philosophy may be helpful here, as it has debated what range of human practices should be included within the term 'creativity'. It has asked whether creativity is solely about artistic expressions, and if so which ones – poetry, music, art? Or does it refer to a quality that can be found within a wider range of activities? This question was intensely debated around the turn of the twentieth century when arguments about creativity being expressed within the sciences, as well as in nature, were made. Irving Singer represents a contemporary take on this topic as he argues that creativity is not limited to any single aspect of human existence. It inheres not only in art and the aesthetic but also in science, technology, moral practice, as well as ordinary daily experience (Singer 2013). Likewise, the physicist David Bohm (1996) has argued that creativity is a central feature of all aspects of human enquiry. Such views are useful in expanding the discussion of creativity beyond artistic endeavour. They suggest that creativity can exist in a range of material practices including those found in societies that existed before the development of the state and urbanism and before 'art' became recognised as a distinct sphere of activity, as in the Bronze Age.

Singer's emphasis on praxis and the notion that creativity inheres in ordinary daily experiences raises the question of whether creativity is nonetheless something distinct or whether all practices are in some way creative. These questions also arise from the social anthropologist Tim Ingold's reflections on creativity. He argues that human action is productive and thus a creative practice. He bases this on the proposition that the skills required to successfully engage with a tradition demand a process of self-development or ontogeny, so that making things is also a process of learning and therefore of human growth. The latter, he argues, is itself creative since it involves the continual

making of the person (Ingold 2010, 2013). This is an interesting position insofar as it moves away from more traditional understandings in which creativity is situated solely in the mind and instead places it in a framework of human actions and relations. Creativity is not, therefore, a matter of imposing form onto matter (a hylomorphic model of creation); rather he argues that it is generated within life-processes (Ingold 2013). This argument offers a means of connecting people and objects, but in suggesting that creativity is a process that living beings undergo as they make their ways through the world (Ingold and Hallam 2007: 11), and thus a constant feature of human life, the ability to identify creativity as a particular kind of practice and as a specific quality is lost. Creativity becomes inevitable and universally occurring. This, however, does not match human experience as the outcomes of human practices are felt to be qualitatively different. In other words, some creations – in our analyses some objects – stand out.

The qualities that sit behind this shared acknowledgement of difference are hard to pin down, but that does not mean that we should not embrace the challenge of trying to comprehend how the world is constituted. Moreover, Ingold's argument provokes questions about whether there are qualitative differences between making an object and making a person. We suggest caution about the automatic equation between production and creativity as that appears to ignore the very different forms that production may take, ranging from mechanical production to individual creations.

By contrast, creativity has also been viewed as a means to an end (Mayes 2012). In such approaches it is considered something that can be captured and taught, and it is assumed it will take the form of an appropriate solution to a problem or a task (Howard *et al.* 2008). It follows that creativity tends to be considered in terms of the value of outcomes and economic contribution (NACCCE 1999; Thrift 2000). Such perspectives, with their focus on a capitalist notion of value, at first glance seem to place the study of creativity in the past out of reach. Yet, they also offer a productive challenge in terms of how to think through the relationship between objects, value, and creativity in the Bronze Age. Another understanding of value has been argued from within history of art and some types of design studies, as they propose that creativity and cultural products are valuable in themselves (Norman 2004). In terms of the specification of what that value is about, it is often argued that such products play a critical role within their social context, as they challenge established norms and provide alternative interpretations and ways of understanding the world. Similar to the approaches outlined above, such arguments raise questions about how the value of creativity is established, the extent to which it is socially and politically defined, or whether it is something that can

exist outside such boundaries. In this volume, such questions of value are not our main focus. The resolution of Bronze Age data is not sufficient to consider such questions in further depth. It should, however, be acknowledged that we tend to assume that there are some connections between our sensitivities towards objects and their various qualities, and that we make assumptions about how they were appreciated when first made and used. Thus, in this volume we assume that *some* of the things humans make have inherent value, and that *certain* perceptive qualities may be widely shared (Bohm 1996).

The outcomes of creativity are always both cultural and material. We hold that creativity is not merely about an individual mind or body imposing upon materials but rather the outcome of a more complex dynamic. We find that creativity, in the form of new solutions, may be actively pursued, but also that this is not the case at all times and in all contexts. This is why we feel that the important question is no longer about the individual versus the collective, but rather about the relationship between people and materials and of understanding the contexts and conditions under which creativity flourishes.

MATERIAL ENTANGLEMENT AND THE CONDITIONS OF CREATIVITY

Complementing our focus on practice, the idea of material entanglement is also central to our approach. This should neither be understood as material determinism nor in terms of a simplistic reference to a symmetry between humans and materials. Rather, we see material engagement as a kind of human exploration and engagement with latent properties of different materials. This is therefore a question of a dialectic, of an almost hermeneutic and phenomenological experience of engagement through which sensations are amassed and responses formed (Birgerstam 2000). This, however, is not a simple relationship as materials and humans are existentially different and play different roles when interacting. One may say that the material awaits exploration, it resists and restricts certain actions and allows others, but it does not determine actions. This is why concepts of attentiveness, rules, mimesis, and risks are helpful for understanding how creativity may take place as these concepts reconfigure the material–human relationship to include an understanding of human action in relation to materials.

Attentiveness has been argued to be an important aspect of creativity. In a study on attentiveness, the philosopher Bengt Molander (2013) recounts the Swedish guitar maker Georg Bolin's description of listening to wood as hard work, something that took him a lifetime to learn. This reference to craftspeople 'listening' to the material they work with should not be misunderstood to mean that the material tells them what to do; rather the material informs them

about what can be done and how. Molander views Bolin's attentive listening as a capacity that guides him in his selection of wood and as a necessary precursor to striving to make the best possible instrument. Molander argues that attentiveness, and the notion of 'what leads to the best' are important aspects of the link between knowledge and creativity. In this, 'listening' is a metaphor and a skill, a way of knowing things as well as knowing how to listen.

The ability to see and express connections and relationships where others have not has also been seen as a key element of creativity (Jeanes 2006; Liep 2001). If creativity is not solely about a moment of individual originality or brilliance, but more commonly emerging from alteration of existing ideas or forms, then its comprehension invites consideration of the relationship between the existing and the new in the creative process. A particular feature of creativity that we want to point to is, therefore, how it may arise in response to existing cultural forms. Typically this takes place either through breaking existing rules or different forms of mimesis. Both of these also require attentiveness.

The subversion of rules is clearly associated with creativity, with the ability to go beyond the known and familiar and to explore things from different, at times disallowed, angles and approaches. More fundamentally, this points to a constructive tension between freedom of action and the subjection of action to rules. This theme has been discussed since Antiquity. It has been argued that, 'To the ancient Greeks, the concept of a creator and of creativity implied freedom of action, whereas the Greeks' concept of art involved subjection to laws and rules' (Tatarkiewicz 1980: 244). At stake in this relationship are the roles of individual imagination and inspiration in creativity, as well as the articulation of these in relation to external constraints including social expectations. In other words, creativity becomes connected to how people explore borders and boundaries. This emphasis on the negotiation of rules has also been explored by Molander (1996, 2013). Drawing on the works of Donald Schön (1987) he uses the example of a cello masterclass to emphasise attentiveness as an important aspect of the relationship between necessity and freedom, between discipline and creativity. The student practises by imitating the master, but along with this there are discussions of technique, reflections on how something was done, what other possibilities existed, and perhaps the sketching of further possibilities. Molander focuses on these additional features of learning, arguing that they serve to acquire a 'language' of rules and through that also a means of going beyond them. Discussions of creativity taking a similar position emphasise that creativity is not a matter of freedom and liberation from constraint but is rather about the way that worlds are produced and expressed within

the bounds of content and communication (Friedman 2001: 60). In a rule-bound society such as might have existed in the Bronze Age, such a framework might offer a way of thinking through the ways that people made objects that were both novel but could simultaneously be integrated into the existing social milieu (c.f. Sofaer and Sørensen 2002).

Another way of responding to familiar objects is through mimesis. In this process creative responses are located in the space between the original and reproduction. This link was famously discussed by the writer and philosopher Walter Benjamin, who in turn was heavily influenced by nineteenth-century anthropological accounts of sympathetic magic (Benjamin 1933). To Benjamin, mimesis was a matter of evocation rather than of imitation and it thus becomes a basis of creativity. He, for example, suggested that material forms can mirror the structure of the cosmos in a process of 'non-sensuous similarity' (Stafford 2007: 81), where relationships can be creatively expressed not just between things that resemble each other but in similarities between things that are materially different, animate and inanimate, the microcosm and macrocosm. Such arguments have obvious relevance to the aspirations of this volume with regard to the ways that forms, techniques, and motifs in one material may have inspired developments in others. Archaeological discussions of skeumorphs (objects manufactured in one material imitating those produced in another) readily offer the potential to engage with this notion of creativity, as does the materialisation of cosmological narratives (e.g. Kaul 1998, 2004a and b). Here too it is necessary to exercise attentiveness to the original in order to reconfigure it in new ways.

Recent anthropological work has also explored the relationship between creativity and imitation, challenging the long-standing assumption that these are oppositions. It has, for instance, been argued that copying or imitation is not a simple process of replication or running off duplicates from a template (Ingold and Hallam 2007). Rather it involves 'a complex and ongoing alignment of observation of the model with action in the world' (Ingold and Hallam 2007: 5). This alignment, they argue, requires improvisation, which is a creative process distinct from the formal resemblance between copy and model that is an outcome of that process. In this view tradition has to be worked at to be maintained or 'carried on' (Ingold and Hallam 2007: 6). It is a matter of continual problem solving, and creativity can never fully escape social constraints if it is not to tip over into madness (Hastrup 2007). This perspective, which sees creativity as relational, offers a provocation in terms of whether or not there is a sliding scale of creativity, or whether some aspects of creativity are qualitatively and quantitatively different to others. It also leaves open the role of materials, their potential, or resistance.

In addition to rules and mimesis, risk also plays an interesting role in terms of creative practice. Pushing the boundaries or breaking rules may entail risks. The results of this may be fruitful and invigorating but it may also be disastrous or wasteful. Flirting with risk means that the outcome is not guaranteed but also that aspirations go beyond the known and familiar, beyond the standard. This pushing of boundaries takes place at many different levels from the production of single objects to a broader kind of experimentation with materials themselves, and it may therefore be identified as a mainstay of creativity at the everyday level. This kind of creative risk is illustrated by the comments made by a modern-day potter when confronted with a copy of the Skarpsalling vessel, usually considered the most beautiful and outstanding Neolithic vessel found in Denmark. In describing the vessel's qualities she said its shape was 'vibrating'. Asked to specify what she meant, she explained that the Neolithic potter had pushed the shape to its upmost, to just before it would collapse.[1] Risks may also be taken in relation to social choices. The acceptability and social integration of new objects is not guaranteed, as the patent books containing many 'failed' inventions testify (Anderson 1994). The production of new objects therefore runs a risk of rejection, or in other words, of social failure when rules are broken or bent too far (Sofaer 2015).

So far, we have mainly tried to establish where, through what kind of encounters, and through what kind of responses creativity is found. These questions could appear to imply that creativity is a momentary reaction. It is therefore useful to briefly consider arguments that place creativity within processes, and thus re-emphasise that creativity is located in praxis.

One such argument is found, for instance, in the work of psychologist Pirjo Birgerstam (2000), who has tried to identify stages within 'the creative process'. She describes this in terms of a hermeneutic spiral in which 'the artist' alternates between intuitive and rational modes of work (see Bender Jørgensen 2013a). Birgerstam argues that routines, such as a break or a contemplative rest, are applied to facilitate the release of creativity. She calls this 'incubation', and describes creativity as resulting from the incubation of an overall idea (Birgerstam 2000: 58–63). Such an approach, however, raises the question as to how creativity can be explored outside so-called artistic endeavour and whether it is more widely applicable. Nonetheless, Molander (2008) gives similar examples of (seemingly irrelevant) routines that allow meteorologists time to build up an 'inner weather picture' by looking at maps, talking to colleagues who had been working for some time, and even sitting down to have coffee. Likewise he recounts how a boat-builder appeared to be ambling aimlessly round his workshop, rummaging among his timbers, looking at irrelevant objects, lighting a cigarette and stubbing it out, in order to build up

concentration before a critical stage in the construction of a boat. This model offers a provocation to prevailing archaeological notions of the *chaîne opératoire* in terms of underlying assumptions about the logicality, inevitability, and timing of stages in the production of objects. It instates the potential importance of a pause or breaks between or within stages in the making process where decisions may take place, rather than focusing entirely upon action itself.

Recent sociological work has also focused on creative processes, in particular the connections that they generate and express. Here, the making of things is a matter of connecting existing materials and ideas to make something new. Such creative acts usually involve a social dimension, connecting people together (Gauntlett 2011). This perspective refutes what it identifies as a previous over-emphasis on end products and their classification as creative, insisting instead on the importance of creativity as a process in which thinking and making are not separate activities. It sees creativity in making things as a kind of practice-based enquiry in which people may mess around with materials, play, experiment, rearrange, discard, or manipulate the thing in question until it communicates meanings in a satisfying manner (Gauntlett 2007, 2011; see also Ingold 2013). Creativity exists as part of a wider 'making and doing culture' (Gauntlett 2011: 11) which is not limited to elites or 'creative types' or requires external verification. Creativity can be high-level and high-impact but it can also be low-level and everyday (Gauntlett 2011). In other words, not all creativity is the same.

The anthropologist James Leach goes further in pursuing a social rather than a psychological perspective. He has attempted to use a comparative approach in order to move between contexts, compare processes between them, and the conceptual worlds they express (Leach 2004). On this basis he has defined a series of elements that make up creativity. These include combination (arguing that creativity can be recognised where new combinations of ideas or things are apparent), that such combinations are deliberate and directed, and that there is novelty in form or outcome (Leach 2004). How these elements operate in different social settings is also a focus of his enquiry. He further demonstrates that notions of creativity are not universal (Leach 2004; Hirsch 2004).

An attempt to locate the origins of any particular creative output singularly within an individual may thus be unhelpful. Creativity need not be attributed to a particular person. Richard Sennett (2009) points out the importance of understanding the social context for how notions of creativity are distributed. To show this he contrasts modern injunctions for even the lowliest worker to work creatively, with the social dynamic in the Renaissance workshop that required a different set of social relations between master and assistants. Such points may be useful to bear in mind in a more general sense, rather than