Images in the making

Art, process, archaeology

Ing-Marie Back Danielsson
and Andrew Meirion Jones (eds)

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Manchester University Press

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Egyptian hippopotamus figure ('William'), c. 1961–1878 BC.
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Preface

This book is concerned with images and art, but it also addresses wider themes such as stasis and movement, and the distinction between processes of making and the idea of completion associated with the finished product.

Images and art are topics that both editors have been devoted to for a number of years. We wanted to explore new ways to engage with this kind of material culture together with researchers from different countries and different academic disciplines. This edited volume therefore contains contributions from invited archaeologists, anthropologists, artists and an Egyptologist who share our interest in advancing new research on images and art, both theoretically and empirically.

The book is also a confirmation in our belief in the importance of international research collaboration. The positive synergy effects international and interdisciplinary research collaboration has on a variety of levels in society, and above all, in academia, is well attested. Granting bodies, such as EU's Horizon 2020 programme, and specifically Marie Skłodowska Curie Action, also recognise and strive to achieve these effects. In fact, it was an EU programme that enabled for one of the editors a two-year research period away from her home institution (Uppsala University, Sweden) at the Department of Archaeology, University of Southampton, UK, home institution of the other editor.

The current volume was compiled also because we believe edited volumes are important as they draw together a group of researchers concerned with a common problem at a moment in time; as documents relating the 'state of the art' for a particular subject. In this respect we thus see research as a process of intellectual development as opposed to

a process directed towards the completion of a predefined academic product.

For our study of images and art then, as for our approach to research, we argue for focusing on play, experimentation and process over pre-determined output, and an understanding of making over the analysis of the final product. We therefore invite the reader to experiment and play with the ideas contained in the volume; who knows what the outcome may be!

Acknowledgements

Edited volumes are often complex things to put together. Overall, this edited volume has been a delight to edit, though of course it has had its ups and downs. We would like to thank all the contributors to the volume who (more or less) stuck to our imposed deadlines, and particularly to our three commentators who have managed to compile comments from quite differing chapters rapidly and with great concision, verve and intellect. Our thanks also go to the peer-reviewers, whose valuable comments sharpened the arguments forwarded by the contributors. We are equally grateful to the anonymous reviewer who read the whole book, and gave valuable comments that improved it. A special thanks is also in place for Hannah Sackett, for the last-minute production of illustrations for Chapter 8.

We would like to acknowledge the help, enthusiasm and patience of Meredith Carroll and Alun Richards at Manchester University Press. We are also especially grateful to the Metropolitan Museum, New York (the 'Met') for their permission to reproduce their mascot 'William' the faience hippo on the cover of this volume under a Creative Commons License. Images are, of course, alive and because of this we would also like to thank William himself for gracing us with his presence on the book cover.

We thanked the contributors for their efforts, but we would like to pay tribute to two outstanding contributions. The first was from Joana Valdez-Tullett who completed her contribution only a week late after having given birth to her second child, Einar. The second contribution was from Chantal Conneller, one of our commentators, who completed her comments only a week after the deadline after having nursed three

generations of her family through a virus that saw some of them hos-pitalised. These two demonstrations of grit and determination, and belief in the book project, have humbled us. We are tremendously grateful to both Joana and Chantal for their efforts.

1

Introduction

Ing-Marie Back Danielsson and Andrew Meirion Jones

In this introduction we address and challenge long-held assumptions concerning archaeological art and images, and offer new ways to approach and understand them. Specifically, we argue that art and images continuously emerge in processes of making and engagement, both in the past and in the present. As a consequence, art and images are always in motion, multiple and unfolding. Our argument and point of departure throughout this volume contrast vividly to the traditional view of images as representations or symbols, as static entities whose most 'salient attribute seem to be their ability to carry meaning' (Creese 2017: 643). We challenge such assumptions by considering the ontology of images in more depth. In doing so we also take seriously anthropologists Martin Holbraad and Morten Axel Pedersen's (2017: x) recent 'injunction to keep constitutively open the question of what any given object of … investigation might be and, therefore, how existing concepts and theories have to be modulated in order to "better articulate it"'. What are images, then?

Holbraad and Pedersen's injunction was developed to confront ethnographic data, as a way of critically addressing what the objects of anthropological enquiry might become (Holbraad and Pedersen 2017: x). In a similar fashion, as archaeologists we wish to reconsider what our object of archaeological enquiry might be. We do so from a recognition that traditional (i.e. representational) approaches to imagery are inadequate to the task of understanding the manifold material and visual character of the images excavated and studied by archaeologists, and the images produced in contemporary art practice. Instead we develop approaches that enable us to follow images in their making, their unfolding, their transformation, their multiplicity. How should we understand images, given that they appear to be in constant motion?

Let us start by asking why it is problematic to assume that images are simply vehicles for meaning. One of the underlying assumptions of the tacit view of the image-as-representation is that images are static. This is powerfully evoked in a recent collection of interviews between the American sculptor Richard Serra and the art historian Hal Foster (2018: 77). Serra explains that early on in his career he gave up painting and film as practices, because both practices were constrained by the act of framing. In Serra's words: 'Framing is always secondary. It leads to image-making' (Serra and Foster 2018: 77). Images are created by practices of framing; the act of framing captures the image in stasis. Serra eschewed these practices of framing for a sculptural practice that instead emphasised phenomenological experience and movement. We will also pursue the image beyond the frame to consider how we might engage with images otherwise.

One of the signal points we wish to emphasise is that images are multiple; images might be made to be representational, but they do much more than represent. The rich literature on media theory teaches us that images can represent only because an apparatus exists (a frame, a medium, a practice, a technology; Cubitt 2014; Parikka 2012) that holds the image in stasis, allowing it to convey meaning. But images may escape these constraints. This book looks at images in motion and considers how our analysis of images alter (as archaeologists, as anthropologists, as artists) when we consider the image not as a static entity, but in-the-making. In that sense, we agree with Gosden and Malafouris's (2015) plea for a focus on process in archaeological analysis. Our focus on process here is more modest than Gosden and Malafouris's expansive prospectus and we mainly pursue art and images as they emerge in practices of making and engagement in the past, and through practices of analysis in the present.

The Australian artist and theorist Barbara Bolt (2004: 13–14) draws our attention to further problems with the concept of representation. Drawing on Martin Heidegger's argument that the philosophy of Descartes ushered in an epoch of representation, she points out that representation is a consequence of a more pervasive structure she describes as representationalism. That we take representations as vehicles for meaning, as representations of meaning, is possible only because of a set of underlying assumptions that we might call representationalism. If we trust Heidegger's assessment of this, then the framework of representationalism has been with us only since Descartes, writing in the seventeenth century CE. Cogently, Bolt (2004: 14) asks:

> what happened before representation? We know people made images and looked at them before Descartes, so how did they apprehend them

if not as representations? What did the maker of these images think they
were doing? And what of cultures not under the sway of Cartesiansim,
for example pre-Socratic or Indigenous Australian cultures?

These are critical questions, particularly when we are considering
images produced and engaged with in prehistory, but also for those
of us, such as anthropologists and artists, wishing to understand how
images may be engaged with in fresh ways in a contemporary setting.
Rather than *assuming* that images are representations, taking an ontologi-
cally open approach to the problem, we instead need to *demonstrate*
how images become representations, as there may be a number of
different historically or anthropologically relevant ways to approach
images.

Images as ongoing processes

Rather than understanding images as outcomes (or representations), we
argue that we are better comprehending images as ongoing events or
processes. Our cue here comes from the philosophers Gilles Deleuze and
Félix Guattari's (1987: 13) discussion of tracing and mapping. They
remark that: 'The map has to do with performance, whereas the tracing
always involved an alleged "competence"'.

We could consider representations as kinds of tracings, in which the
formal resemblance between a prototype is rendered with more or less
fidelity in another form. This is a reasonable definition of what occurs
during image making, but it overlooks the importance of gesture, skill
and experimentation. By contrast, if we consider the image as a condition
of possibility then images might be better considered as mapping the
world. Mapping involves probing forwards, exploring the world, gesturally
establishing possible connections, intersections and relationalities. This
characterisation resonates with both Jacques Derrida's (1993) and John
Berger's (2005) discussion of drawing and mark making. Derrida points
out the essentially blind character of the act of drawing. Decisions
regarding the outcome of the mark are taken the moment the mark
maker encounters the surface on which they draw, and these outcomes
are the unforeseeable result of this encounter. John Berger (2005: 3)
echoes this point by bluntly stating 'for the artist drawing is discovery'.
He qualifies this by noting that whether one is drawing from life or
drawing from memory both acts involve dissecting the object in the
mind's eye and putting it together again. He puts it another way: 'each
mark you make on the paper is a stepping stone from which you proceed
to the next, until you have crossed your subject as though it were a
river' (Berger 2005: 3).

There are some useful points to draw out of Berger's analysis of the process of drawing. Firstly, drawing is not simply a process of rendering what is in the mind's eye on to the page, there is a constant interplay between eye, hand and drawing materials. Secondly, rather than simply rendering or tracing an object, drawing involves an active process of confirmation and denial in the object itself or in the memory of it (Berger 2005: 3). The process of drawing is then a process of becoming in which the finished drawing resonates more or less closely with the object (see Taussig 2009). We find commonalities here with Erin Manning's (2016: 47 emphasis in original) declaration that art is a *way*: 'art as *way* is not yet about an object, about a form, or a content. It is still on its way'.

This discussion of drawing and mark making offers some useful lessons for our understanding of images. We should be wary of drawing too sharp a distinction between images as representations or tracings, and images as mappings. As Berger's foregoing discussion suggests, representation is enfolded and closely intertwined with processes of mapping; the two modalities cannot easily be divided. Borrowing from the terminology of the digital domain, we prefer to discuss image making as an active process we describe as *imaging* (or more cumbersomely, as images-in-the-making). *Imaging* in our definition understands images as conditions of possibility, as a 'feeling-forth of future potential' (Manning 2016: 47), of assembling, drawing together or relating components of the world (both cognitive and material), of providing the conditions to make these meaningful relationships visible. *Imaging* can be thought of as gestural marks produced from 'the middling of experience felt where futurity and presentness coincide, to invoke the memory not of what was, but of what will be' (Manning, 2016: 47). *Imaging* can also be considered a cousin of Karen Barad's (2007: 3) term 'mattering' in which the material world and its meaning are co-constituted by reiterative practices. *Imaging* is both performative and productive.

Imaging and unfolding images

We have discussed *imaging* as an ongoing and emergent process, bound up with the processes of mark making, of making images visible. However, we should emphasise that, if we understand *imaging* as a process of assemblage making, subsequent processes of viewing and intra-action are also components of the continuous process of *imaging*.

The unfolding image is an image that alters and changes because of continuous intra-action. We can think of viewing and touching (and viewing as touching) as modes of intra-action. Mary Weismantel (2015) discusses the quite different process of intra-active viewing in the fabulous

and grotesque imagery of Chavín de Huántar, Peru. As Weismantel (2015: 28) remarks: 'we are accustomed to sitting still watching "moving pictures", at Chavín, the stationary statues move us' as the carved stones pull the viewer close to the design, and then push them away to bring part or whole into focus (Weismantel 2015: 33). Viewing is an active process then, involving not only eyesight but also your whole, moving body. We want to develop Weismantel's insight to consider how images and viewer unfold and enfold. In order to consider images and *imaging* as a continuous series of unfolding and enfolding events or processes, we draw on an unusual source: the affective ecology of plants.

Carla Hustak and Natasha Myers (2012) discuss the way in which insect pollinators and plants, particularly orchids, are mutually entangled. Drawing on Darwin's early work on bee pollination amongst orchids, Hustak and Myers argue against Neo-Darwinian 'sexual deception' hypotheses: the idea that visually and chemically orchids lure bees to them in order to disperse pollen by deceptive mimicry. As they note, these accounts are unable to 'admit play, pleasure or improvisation within or among species' (Hustak and Myers 2012: 77). Reading against the grain of the mechanistic models of Neo-Darwinists, Hustak and Myers instead argue for an involutionary mode of attention, an affective ecology shaped by experimentation and play (Hustak and Myers 2012: 77–8). Discussing Darwin's attempts to force his orchid specimens to yield pollen, Hustak and Myers (2012: 93) emphasise the importance of mimesis, and recall Michael Taussig's (1993) account of mimesis as a 'sensuous moment of knowing that includes a yielding and mirroring of the knower in the unknown' (Taussig 1993: 45). They describe the mimetic intra-action between plant and insect as a form of 'involutionary momentum' (Hustak and Myers, 2012: 97; original emphasis):

> we use the concept of *momentum* less in the sense supplied by Newtonian physics and more in the sense of what dancers may feel as they lean into and follow through on a movement: that is, as an 'impetus' and as the 'continuing vigour resulting from an initial effect or expenditure of energy' (OED). Involutionary momentum helps us to get a feel for affective push and pull among bodies, including the affinities, ruptures, enmeshments, and repulsions among organisms constantly inventing new ways to live with and alongside one another.

The description of involutionary momentum offered by Hustak and Myers as an understanding of plant–insect co-involvement seems to perfectly capture the sense in which material or visual images unfold to momentarily enfold and attract and enmesh the viewer. What we particularly appreciate about Hustak and Myers's account is its sense of entanglement, ongoing-ness and experimental play. We might envisage

MORE
worked and reworked surfaces

LESS
polish,
shininess,
sheen,
colour

MORE
polish,
shininess,
sheen,
colour

Gold foil figures

Faience hippo

La Candelaria pots

Iron Age swords and shields

Atlantic rock art

Schematic rock art

Carved stone balls

Scandinavian BA rock art

Balkan stamps

LESS
worked and reworked surfaces
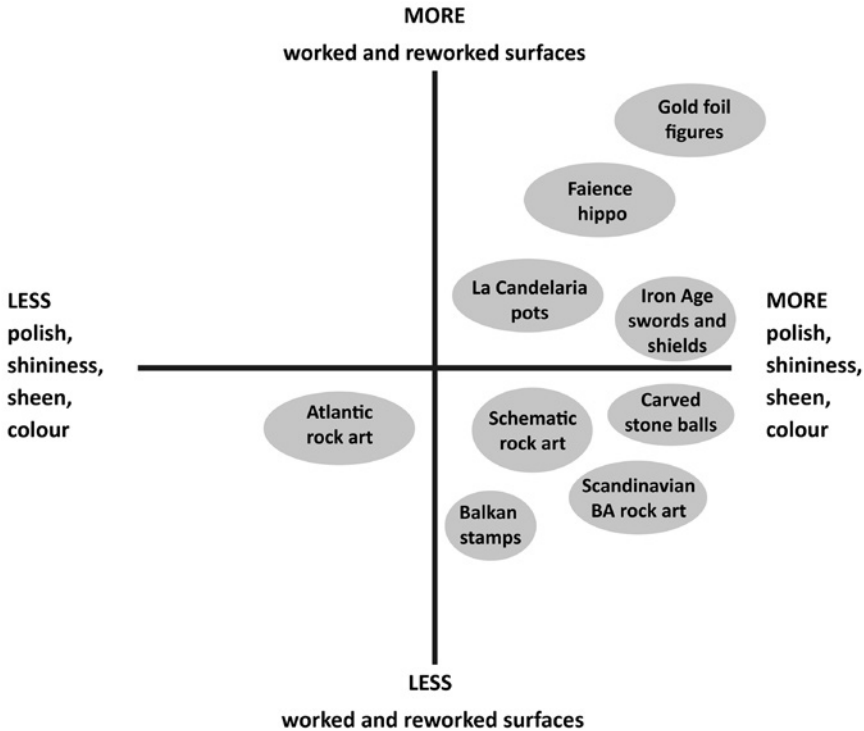
1.1 Visual enmeshment of images.

the act of looking as a kind of haptic visuality (Sand 2014), in which vision involves 'touching with one's mind' (Deleuze and Guattari 1987: 545). Adopting Deleuze and Guattari's distinction between smooth and striated space (1987: 523–51), or space in which the eye is able to roam freely (smooth space) or is constrained by prior traces of mark making activities (striated space) we can consider different qualities of intra-active attractiveness and enmeshment with images, operating on a series of axes between materials with either high polish, shininess or colour and those of a duller polish, sheen or colour and between complex worked, reworked surfaces and those with minimal marks (see Fig. 1.1). How the viewer is attracted to images, and the extent to which they are enmeshed in images, will depend on a series of intersecting axes, including complexity of design, complexity of surface repetition of reworking and attractiveness of materials worked. The attraction will also depend on the viewer's situated and embodied capacities. Viewers will become momentarily enfolded with images as images themselves unfold and change.

Visual enmeshment, scale and responsiveness

One of the special circumstances in which visual or material images will enmesh the viewer is through the impact of scale. At a simple level miniature images have the ability to attract and draw in the viewer, and the enmeshed spectator might oscillate between occupying the place of the miniature, and occupying their own scale (Bailey 2005: 42). However, scales need not only be measured against the human body. In a series of papers Benjamin Alberti (2012, 2013a, 2013b) discusses the miniature La Candelaria pottery of first-millennium CE Argentina (see also Alberti, Chapter 3 below). Alberti is influenced by the perspectivism of Eduardo Viveiros de Castro (e.g. 1998, 2012, 2017), and in perspectivist accounts the human body is not limited to a single scale. Oscillations in scale occur and spirits may be experienced as diminutive and brilliantly decorated or as huge and grotesque (Alberti 2013a). For the miniature pots of the La Candelaria size is not the measure of scale, instead the intensity of decoration offers a measure of scale. Alberti's analysis is similar to Ing-Marie Back Danielsson's (2012, 2013) discussion of the miniature gold foil figures of Late Iron Age Scandinavia. However, she stresses that the mere concept miniature is delimiting in the sense that it reinforces representationalism, since a miniature is commonly thought of as a representation of something in a much smaller scale. She instead argues that the figures need to be approached as objects in their own right, and that their size is just one of their many affectual qualities. To describe the gold foil figures simply as miniature is to delimit them, equally establishing a distance of specific relation between figure and viewer. Their at times manifold manipulations further mark them out not as being static, but as being 'in flux, fickle and distinctive' (Back Danielsson 2012: 46). In these two cases – the La Candelaria pottery and gold foil figures – scale is not something we can take for granted, it is a potential and the decoration of pottery and modification of figures resonate with relationships of varying intensity. This recalls Mary Weismantel's (2015) discussion of the gigantic carved stelae of Chavín de Huántar in which the decorated stelae alternately bring the viewer close and push them away (Weismantel 2015: 33). Again, we gain a sense of the way in which images and viewer are mimetically responsive to each other. Images resonate with the viewer, as the viewer resonates with images in a kind of mimetic intra-action. This responsiveness and responsibility is neatly captured in Karen Barad's claim that 'Responsibility is not a calculation to be performed. It is a relation always already integral to the world's ongoing intra-active becoming and not-becoming' (Barad 2010: 265). Visual entanglement and disentanglement amongst viewer and image is then part of an ongoing process of becoming.

Imaging: encompassing and realising affects

Our argument is that images are best understood as events or processes, and as such they are always in motion. *Imaging*, the continuous making and emerging of images, also encompasses and realises affects. In the discussion above we drew on Carla Hustak and Natasha Myers's (2012) argument of the affective ecology of plants as a way of describing the co-involvement between image and viewer. Developing this point, we argue that images are components of immanent communicative events (see also Murphie 2018), which both encompass and realise affects. Affects arise in the midst of inbetween-ness, in the capacities to act and be acted upon (Seigworth and Gregg 2010: 1). Affects are found in the intensities that pass between bodies (in our case images and viewer), and in the resonances that circulate about and between and adhere to bodies. Affect describes the capacities of images to communicate sensations to viewers. One analysis of the way in which images affect us is Roland Barthes's (2000 [1980]: 25) description of photographs as being composed of the *studium* and *punctum*. The *studium* defines the commitment or general attractiveness of photographs for the viewer, while the *punctum* defines the ability of certain elements of the photograph to 'prick', to affect, to catch the attention, of the viewer. Both terms describe different kinds of affective relationships in which the photographic image holds the viewers' attention (though this need not always be the case as James Elkins (2011) explains; sometimes photographs are simply dull, lifeless and unattractive). Another view of the way images affect us is presented by Brian Massumi (2002: 24). He speaks of the 'primacy of the affective in image reception', and underlines that an image's meaning (if there is one) may not correspond to the effect it has. He argues that the moment in which an image is viewed or experienced, in Massumi's terminology 'the event of image reception', is multilevelled or at least bilevelled (1995: 85). He speaks of the two levels 'intensity' and 'quality'. Intensity corresponds to the strength or duration of the image's effect. Quality on the other hand is formed through the indexing of meaning by the viewer, involving a conscious involvement.

By discussing affect in this manner, we are arguing that images and viewers are relationally positioned in 'affective fields'. In their discussion of affective fields Oliver Harris and Tim Flohr Sørensen (2010: 150) remark that 'affective fields are thus networks of relation that are produced through, and are themselves the product of, practice'. Affective communication is a relational process then. To recall Taussig's (1993: 45) phrase we might describe this affective relationship as one in which the 'sensuous moment of knowing includes a yielding and mirroring of the knower in the unknown'. A kind of mimesis. Brian Massumi (2002: 95;

original emphasis) develops this argument in his discussion of the relationship between perceiving body and perceived thing or object (or, in our case, image):

> What is a perceiving body apart from the sum of its perceivings, actual and possible? What is a perceived thing apart from the sum of its being-perceiveds, actual and potential? Separately, each is no action, no analysis, no anticipation, no thing, no body. The thing *is* its being-perceiveds. A body *is* its perceivings. 'Body' and 'thing' and, by extension, 'body' and 'object' exist only as implicated in each other.

The body and the image are therefore implicated in each other; they are reciprocal and relational and meet in what Massumi (2002: 96) describes as the 'reciprocity of perception'. As relational and ongoing events then, we argue that images offer capacities for the experience of sensations and the elicitation of meaning. Recalling Karen Barad's (2007) point on mattering, our concept *imaging* refers to a reiterative practice in which meaning and world are co-constituted.

Conclusion: from the image to *imaging* / images-in the-making

In this introductory chapter we have argued against accounts of images that treat 'the image' as a singular or transcendental entity; we do not believe that always everywhere the image need be assumed to be a representation. Of course, in some circumstances, images may act as representations, but this is not a given. Instead we have stressed the multiple and complex ontologies of images. In particular we have pursued images in their formation and have argued for the importance of understanding how humans intra-act with images in their making. We define this as images-in-the-making or simply *imaging*. We also stressed the point that *imaging* is an ongoing process which does not end once images are produced. The process of intra-acting with images will continue as images unfold over time. We have then shifted from a view of images as one- or two- dimensional entities to consider *imaging* as a four-dimensional process.

A four-dimensional understanding of images is particularly important for disciplines like archaeology that seek to understand historical change. However, we need to distinguish between the approach we propose here and the approaches of art history. Art historians are generally concerned with situating the artwork in its historical context as a means of 'framing' the artwork. Equally archaeological attempts to chart images historically involve charting images over deep time (e.g. McDonald and Veth 2006; Robb 2015; Sanders 1968). Each of these approaches treats the image

as a finished entity sutured from the processes of its production, and from ongoing processes of intra-action. The approach we advocate here recognises that images are both complete and incomplete (Ingold (2013: 96) notes that works are never 'finished' except in the eyes of art curators and purchasers who require artworks to be finished commodities). Because images are alive they continue to be involved in ongoing intra-active processes of becoming. Indeed, we would argue that archaeological surveys to map and discover new rock art imagery, or museum-based studies of archaeological imagery, are simply a component of this ongoing process of becoming as archaeologists intra-act with and produce images afresh.

Archaeology has persisted in the search for the origins of art and images, assuming that the search for the earliest symbol was indicative of a representational logic associated with a leap in cognitive development (e.g. Lewis-Williams 2004; Mithen 1996). Recently that search has been pushed further, and the roots of the first symbol have been sought amongst Neanderthals (Pike *et al*. 2012). The arguments we have advanced in this introductory chapter suggest that seeking the symbolic and representational as a specialised and distinctive mode of expression situated at a remove from the lived world is mistaken. Instead we have developed the argument that images are made and unfold as components of humans' ongoing intra-actions with the world. In short, images unfold with humans' lives and should be sought amongst that life, not in a separate sphere marked 'the symbolic' or 'cognition'. Archaeologists have been looking for the significance of ancient images in the wrong places.

Imaging and images-in-the-making: the outline of this book

The case studies presented in this volume support and validate the key arguments that have been forwarded in this Introduction; that art and images emerge through processes of making, that they are multiple, in motion and unfolding. Several of the case studies also reveal how images, as ongoing events, encompass and realise affects and equally the significance of experimental play in processes of making. The open-ended character of art and images is demonstrated and explored in the case studies through analyses of material processes. Such material focus is not only of importance to archaeologists, anthropologists and others devoted to studying matter or materials, but can also be said to be a productive theoretical direction in itself.

We have divided the book into three sections or parts, which offer very loose divisions for the volume, since each contribution transversally intersects with themes developed elsewhere in the book. Each of the three sections ends with a short commentary. The section *Emergent*

images is commented upon by the anthropologist Tim Ingold, *Images as process* by the archaeologist Chantal Conneller and finally *Unfolding images* by the artist Louisa Minkin.

Emergent images

The first section accounts for three divergent ways in which images are emergent through processes of making; in Middle Kingdom ancient Egypt (Rune Nyord), through an upping of the ontological ante of Gell's anthropology of art (Benjamin Alberti) and finally through experimenting with the digital imaging technique known as RTI (Ian Dawson).

In Rune Nyord's account of Egyptian faience figurines of hippopotami, the process of firing the figurine is simultaneously a process of emergence, as the colouring of the hippopotamus and the subsequent surface decoration of the hippo with Nile plant life enables the figures to emphasise their connection with the Nile; these relationships are not pre-given, they emerge during production (Chapter 2).

Benjamin Alberti's contribution usefully redeploys Gell's formal analysis, particularly his analysis of Marquesan carving and tattooing (Gell 1998: 155–215), as a way of understanding how making links images to ontological concepts (Chapter 3).

Another example of the process of imaging, meaning a process of assembling, reassembling and reimagining the world, comes from Ian Dawson's discussion of the digital RTI technique. Dawson redeploys the technique, originally developed to reproduce archaeological artefacts with fidelity, in a fine-art context. By deliberately diffracting and revising the established practices for making digital images Dawson invents a process he describes as 'Dirty RTI', producing a novel suite of digital images (Chapter 4). The key point here is that playing with, and subverting, conventional practices produced a new kind of image: Dawson is imaging the world, by subverting established practices as he goes along, he is making a new kind of image visible and possible.

Images as process

In the second part of the book, prehistoric imaging in stone is accounted for through discussions of Bronze Age Iberian stelae (Marta Díaz-Guardamino), Neolithic carved stone balls of North-east Scotland (Andrew Meirion Jones) and finally through a discussion of the making and connectivity of Atlantic Rock Art (Joana Valdez-Tullett). A processual account of image making is also presented in this part's last chapter, devoted to Neolithic and Copper Age stamps in the Balkans (Agni Prijatelj).

Marta Díaz-Guardamino discusses imaging departing from an analysis of four carved Late Bronze Age stelae from the Guadalquivir valley, Spain (Chapter 5). The four stelae are from quite different geological sources, and her analysis, incorporating digital imaging techniques, petrographic analysis and experimental work, reveals the complex work of assemblage involved in carving the stone. This is assemblage in which tradition, ways of working and the behaviour of distinct lithologies and geologies dynamically intersect. Her analysis usefully highlights the experimental character of image making. As Díaz-Guardamino notes, images are in a state of flux.

That images can be understood as ongoing processes is particularly clear in Jones's analysis of making the carved stone balls of North-east Scotland, as the design of the ball is not pre-given but emerges through practices of working materials (Chapter 6; Jones and Díaz-Guardamino 2019). The process of working produces knowledge of novel ways of working stone, which in turn generate new connections between communities across Neolithic Scotland, Ireland and England.

Valdez-Tullett (Chapter 7) argues that the carving of motifs on rocks was a connective activity, which established relational connections with carvings in other parts of particular landscapes. She employs this insight at a greater scale of analysis as she uses a computational method known as Social Network Analysis (SNA) as a means of establishing the relational connections between motifs in different regions across Britain, Ireland, Spain and Portugal.

Agni Prijatelj (Chapter 8) also highlights, like Díaz-Guardamino, that images are in a state of flux. Prijatelj discusses the ceramic stamps of the Neolithic and Copper Age Balkans, and argues that stamps were iterative objects utilised to mark out and establish connections between substances. This resonates with Joana Valdez-Tullett's analysis of the rock art of Atlantic Europe.

Unfolding images

Unfolding images is the final theme of the volume, discussing as diverse topics as repairs of Iron Age shields, swords and chariots from East Yorkshire (Helen Chittock), the act of creating prehistoric rock art (Lara Bacelar Alves), the (un)folding of Scandinavian Late Iron Age gold foil figures in the past and the present (Ing-Marie Back Danielsson) and finally an exploration of how the partial and the vague were a visual mode in Bronze Age rock art (Fredrik Fahlander).

Helen Chittock's analysis of decorated artefacts from Iron Age East Yorkshire, northern England, questions the significance of 'repair' as a material practice. Diffracting her analysis of these Iron Age artefacts through the Japanese concept of kintsugi (to repair with gold), Chittock's

analysis of shields, swords and chariots highlights the way in which patina becomes a component of the patterning and design of these artefacts (Chapter 9). Again, images are not fixed, but constantly undergo change and transformation, and unfold.

The generative character of mark making is discussed in Lara Bacelar Alves's analysis of the role of gesture in the Neolithic and Bronze Age rock art traditions of northern Portugal. Bacelar Alves (Chapter 10) discusses how simple gestural marks, such as dots and lines, unfold and connect across different northern Iberian rock art traditions (Atlantic rock art and Schematic rock art). Bacelar Alves's analysis places emphasis on the ongoing and unfolding character of images and imaging.

That processes of viewing and intra-action are also components of the continuous process of imaging is evidently clear in Ing-Marie Back Danielsson's analysis of the minuscule gold foil figures of the Scandinavian Late Iron Age. Gold foil figures are clearly much more than representations as they may undergo considerable transformation after production, being pierced, cut, crumpled, folded, unfolded and/or bent (Chapter 11); the process of imaging is ongoing. What constitutes an image undergoes constant revision and reworking as the figures are viewed and reviewed; images unfold.

The experimental character of image making is finally highlighted by Fredrik Fahlander in his analysis of the Bronze Age rock art at Boglösa, Sweden. Fahlander discusses the difficulty we face in the analysis of fragmentary or partial images. He argues that partial images do not only act as a 'punctum', or focus in the Barthesian sense, but are also generative, stuttering to evoke completed images to come (Chapter 12).

Acknowledgements

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Part I

Emergent images

The Nile in the hippopotamus: being and becoming in faience figurines of Middle Kingdom ancient Egypt

Rune Nyord

Traditional approaches to ancient Egyptian funerary practices are strongly shaped by Victorian ideas of a universal human quest for immortality, of which Egypt was thought to provide a paradigmatic example (Nyord 2018). Correspondingly, grave goods are generally interpreted as finished objects of immediate use to the deceased in his or her personal afterlife, and, where this for one reason or another appears intuitively unlikely, the objects are interpreted to tell us something about the exotic nature of the Egyptian afterlife. In this chapter I discuss a particularly iconic category of grave goods, showing both how a new, broader understanding can emerge when an object is approached as an 'image in the making' and how such a new reading fits with ancient Egyptian ontology more widely. At the same time, I also address one of the recurring challenges in recent work on object ontologies (see e.g. the recent review in Caraher 2016), namely how concrete design features of an object, such as choice of material and use of specific decorative patterns, can be linked to the much more abstract considerations of different modes of being (cf. Robb 2015). It also exemplifies the particular possibilities offered by studying such questions in historical societies, where traditionally the main question has been whether there are written sources that inform us about what beliefs the makers of an object attached to it (e.g. van Walsem 2017: 252). By reframing the overall question in an ontological key, the range of relevant sources becomes at once both wider and narrower, since we may also be interested in broader patterns of thinking about the nature of the world, which are not necessarily directly translatable into a concrete 'belief' about a specific thing (cf. Nyord 2014).

Hippopotamus figurines from the Late Middle Kingdom

Hippopotamus figurines of Egyptian faience (see volume cover) are among the most characteristic products of the late Middle Kingdom of ancient Egypt (c. 1850–1650 BCE). Ranging in length in most cases from 10 to 20 cm, the figurines show a lone hippopotamus in one of a small range of characteristic poses (e.g. Friedman 1998: 238). With very few exceptions (e.g. British Museum EA36346; Hall 1927: 57; Brooklyn 36.120, Fig. 2.1 below), the surface of the animal is covered with painted designs depicting a variety of water plants and more rarely fauna such as birds, frogs and butterflies (Keimer 1929), all depicted against a brilliant blue background recalling water (blue being the colour most frequently associated with water in ancient Egyptian images). Across individual examples, the patterns of decoration follow certain general principles, especially for decorating the head and rump of the animal, with more room for individuality on the mid-section which is where animals, birds and insects tend to be represented. In terms of their motif and material, the hippo figurines can be connected to a larger group of contemporary faience figurines of animals and plants (e.g. Bourriau 1988: 116–18; Friedman 1998: 238–9; Miniaci 2014: 115–19), from which the hippos are set apart, however, by the characteristic surface decoration.

Egyptian faience is a non-clay glazed ceramic technology used widely across the Mediterranean, the Near East and Europe. The main material consists of a paste made from water added to the main ingredients of silica, soda and lime. This paste is modelled or moulded into shape, glazed and fired. Glazing by the time of the Middle Kingdom made use of three different technologies, which could also be combined on occasion (Vandiver 1982). The most frequent (Nicholson 2009: 5) is the method of efflorescence, where the faience paste is mixed wet with the colouring material. As the object dries, the salts migrate to the surface, and when fired this layer melts and fuses to the object leaving a glaze (Nicholson and Peltenburg 2000: 189). The second method, cementation, involves burying the object in glazing powder inside a vessel. When the vessel is heated, the powder melts and becomes fused to the object, creating the glaze (Nicholson and Peltenburg 2000: 190). The third and last method, application, involves the coating of the object with slurry, by dipping or applying with a brush (Nicholson and Peltenburg 2000: 191).

Very few hippo figurines have been the subject of the kind of detailed scientific analysis necessary to narrow down the precise glazing method, but the data available generally confirm the expectation that because of their size and the combination with painted patterns, the efflorescence method would be preferred, possibly supplemented with application.[1] For

this reason, my discussion here will focus on the conceptual affordances of efflorescence facture. The two other methods involve the colouring agent being applied from the outside rather than emerging from inside the object, and in this sense implicate a somewhat different type of transformation deserving a more detailed analysis in its own right. However, the main points developed below concerning the ambiguity of the surface of figurines as boundaries between the inside and the outside would be applicable to objects employing the other two methods of glazing as well.

For the most part the main ingredients for faience production would have been readily available (Patch 1998: 33; Hammerle 2012: 30–3; Miniaci 2018). Silica could be obtained from desert sand or ground quartz, soda from plant ash or natron, and lime from limestone, chalk or shells – or possibly was simply added as an impurity in sand or plant ash. The small quantities of copper used for colouring might have come from a variety of sources, for example scrap metal from other industries.

Most of the known hippopotamus figurines have no recorded archaeological context, and those that do generally suffer from the documentation standards of the late nineteenth and early twentieth century. Most examples with a known provenance come from tombs, though more exceptionally faience figurines were deposited on temple grounds outside of Egypt (Pinch 2003: 444f), and examples retrieved by Flinders Petrie at Lahun may originate from the settlement rather than the necropolis at that site (Miniaci and Quirke 2009: 347f), indicating a wider use of the objects than the predominant funerary one.

In the vast majority of documented finds, it is possible at best to ascribe the objects to a particular tomb and associated assemblage, which can be helpful for dating purposes, but offers little clue to the precise manner and place of deposition. In a few instances, however, a more detailed description of the find circumstances has been published. This is the case on the one hand with the detailed description of the pit tomb of Renseneb (no. 25) in the Middle Kingdom cemetery at Asasif on the Theban west bank excavated by Lord Carnarvon and Howard Carter in 1910–11. As part of the detailed description of the grave goods, the excavators note that a blue faience hippopotamus was 'embedded in the [mummy] wrappings at the small of the back' (Carnarvon and Carter, 1912: 55). A deposition in close proximity to the mummy, though not apparently within the bandages, is documented in the much earlier publication by Auguste Mariette (1872: 7) who notes in passing that in two cases at Dra-Abu-el-Naga, also on the west bank of Thebes, hippopotamus figurines were found inside the coffin placed under the feet of the deceased. A number of extant hippopotamus figurines have broken, and sometimes missing, legs (Fig. 2.1), and this is generally understood as a sign of a specific practice of use or deposition where the objects were deliberately

2.1 Hippopotamus figurine with all four legs broken off, revealing the contrast between the blue glaze and the whitish core.

broken (e.g. Friedman 1998: 238), although for this question as well the lack of documentation poses a challenge to interpretation.

Judging from the information available, the faience hippos seem generally to occur alone, but more exceptional, and more problematically documented, examples are known where they occur in a pair (Kamal 1911: 17f, cf. Miniaci and Quirke 2009: 347f) or as part of a larger assemblage of other faience figurines of animals, humans and plants (tomb 416 at Abydos, with less secure examples known only through antiquities dealers, and thus providing no guarantee that they really come from a single burial, from the sites of el-Matariya and possibly Lisht, cf. Kemp and Merrillees 1980: 105–66).

What can a faience hippo do?

Traditional interpretations of the objects have been formed by the prevailing Egyptological understanding of grave goods as objects of use to the deceased in the afterlife. As Egyptian sources tend to stress the dangerous nature of the hippopotamus (Säve-Söderbergh 1953; Behrmann 1989–96), this has generally led to two competing explanations (e.g. Friedman

1998: 238; Miniaci 2014: 117–19). Either the hippopotamus offers a victim for the deceased to hunt and kill in a gesture symbolising the defeat of chaos by the forces of order, or the strength of the hippo was meant to be harnessed so that it could offer the deceased protection from hostile forces. The peculiar nature of the surface decoration is not generally considered in this connection, or is simply noted as a representation of the natural habitat of the animal (or the place where the putative hunt takes place, e.g. Bourriau 1988: 120). However, I will argue that this incongruous element is precisely the key to understanding the ontology of the figurine. In doing so, I am drawing on the idea expressed by the editors of the influential 2007 volume *Thinking through Things* (Henare *et al.* 2007) according to which the material characteristics of objects should be allowed to set the terms of their analysis – seeking basically to subvert the intuitive distinction between concept and thing.

In a concrete sense, the surface of the finished Egyptian faience object can be said to be located inside the paste whence it emerges during drying and firing. Thinking about this process not in modern chemical terms but instead within an 'alchemical' framework of the sort recently proposed by Tim Ingold (2013: 28–30), efflorescence can be seen as a powerful model in tune with Egyptian thought about creation as emergence from an undifferentiated primeval substance – we could say that, prior to its firing, the prospective surface resides in a purely potential form distributed evenly throughout the moulded mixture. Regarded in this manner, the process of efflorescence would not so much be symbolic of creation or rebirth, but would instead be an instantiation of ontological vectors of creative differentiation also found elsewhere, most notably in the annual flooding of the river Nile with the subsequent re-emergence of the fertilised soil, which played a crucial role in Egyptian agriculture.

However, by overtly identifying the surface of the figurine with the Nile environment through the painted patterns, this idea gains a more precise articulation. As the painted patterns are applied before glazing, they can be understood, along with the shaping of the faience paste into a hippopotamus form, as ways of drawing out the hidden potentials inherent in the faience paste, as indicated most tangibly by the efflorescence of colouring agents resulting in the hippo-shaped object with a glazed, patterned surface.

In ordinary parlance, of course, the hippo is *within* and *part of* the aquatic environment depicted on the surface, and this is perhaps the most straightforward way to understand the decoration when simply viewing the figurine as a finished product. However, the figurine already resists this reading to some extent by the fact that the environment is not around but *on* the animal – a point to which we shall return presently – but, when keeping in mind the process of emergence of the surface from inside

the material of the figurine during production, the relation between the animal and the environment becomes decidedly ambiguous.

Thus, in addition to the notion of the hippo in the Nile, we have the complementary idea of the Nile inside the hippo. This corresponds to two fundamental types of internality as formulated by Viveiros de Castro (2015: 118), one mereological – a part–whole relation – where the outside encompasses the inside (as the hippo in the Nile), and one ontological – relations constitutive of a mode of being – where the outside is immanent to the inside, 'like the ocean swimming inside the fish, making it a figure of (and not just in) the ocean'.

In this terminology, the process of moulding and firing the figurine thus conceptually comes to correspond to a move from ontological interiority towards mereological interiority. In other faience figurines decorated 'naturalistically', this move is completed by creating a firm finished object with fixed shape and borders. However, in the case of the decorated hippos, the identification of the boundary between the interior and the exterior not just as the outward shape and skin of the animal but also as the Nile environment, effectively stops the process short half-way between ontological internality and mereological internality (Fig. 2.2). Thus, the object captures in its rigid, fired form a motif which cannot be read entirely consistently either as a statement about the hippo in the Nile or as the Nile in the hippo, but rather locating the relationship between animal and environment chronically unstably somewhere in between (cf. Nyord 2014 for a similar case with Middle Kingdom coffins).

Paste with colouring agent mixed in

Shaped figure with salts emerging

Rigid, fired form of finished figurine

Ontological internality:
Any point is a limit between an interior and an exterior

Mereological internality:
Exterior encompasses interior with surface as limit

Surface = Exterior:
The hippo never becomes a distinct entity contained within the environment

2.2 Efflorescence as concept.

In the terms of anthropologist Roy Wagner (2012 [1987]), we can think of this ambiguity as a question of 'figure-ground reversals', where one or the other aspect of the relationship between the animal and the environment is brought to the fore, while the other is 'obviated' in the sense of relativising, and forming an underlying condition of, the foregrounded aspect. Thus, the ostensibly fully individualised hippopotamus of the figurine becomes obviated as a potentiality of the undifferentiated Nile environment in a way which 'does not simply negate, [but] consummates its denial by demonstrating also that the inversion makes as much sense as the order it inverts' (Wagner 2012 [1987]: 541f).

Camouflage and momentum

We can approach the deeper ontological ramifications of this state of affairs through two different directions that I would like to explore briefly here. One is through an understanding of the decoration of the hippo figurines as effectively constituting a type of camouflage, drawing on recent work by the philosopher and art historian Bertrand Prévost on animal camouflage as a matter of ontology. The other consists of an exploration of the use in the hieroglyphic script of a sign representing the head of a hippo to write the term *ꜣt* (*ꜣat*), best translated as 'impulse' or 'moment', with clear connections to the set of ideas emerging from the hippo figurines.

One way to think about the further import of the surface decoration is that, at its most fundamental, it can be understood as an instance of camouflage added to a species in which it does not occur naturally. The normal associations of camouflage as an aspect of appearance helping an animal to hide in a particular environment by dissolving its boundaries visually (cf. Portmann 1959), however, do not appear particularly pertinent for the understanding of the hippo figurines. In a recent work, Prévost (2016) has argued a deeper significance of animal camouflage, especially in what might be labelled its purest form, where the animal loses its individuality, not just in relation to its environment but in relation to itself. Instead of understanding camouflage from the point of view of an individual animal hiding using one or more individual elements of the environment, Prévost (2016: 11f) argues that camouflage should be seen as a way of appropriating the surroundings. In this way the loss of individuality becomes not just a perceptual but an ontological matter, a way of 'becoming-world' by 'making a costume of the world' or 'carrying the world on the skin'.

To return to the figurines, against this background we can understand the decoration blurring the boundaries between the animal and its environment as a way of presenting the hippopotamus in a state of

de-individualisation, of becoming one with the world. In this way the observed ambiguity between the inside and the outside of the figurine gains an ontological relevance: The figurine presents the animal at the exact point where it is neither fully individuated nor completely dissolved in the environment. As Alberti (2007: 219) has argued, such apparent hybridity in an object may be understood in a sense where 'the forms are not static representations of a hybrid state, but rather are themselves a movement between states'. In this way, the decorated faience figurine becomes a striking image of an ontological state between the actual and the virtual and capable of moving in either direction. In turn, such a state finds an experiential correlate in the characteristic behaviour of the hippo lying in the surface of the water (Fig. 2.3), providing a good reason why this animal would have been particularly apposite as providing the outward form of the figurines. Through the material, the process of manufacture, shape and decoration, the figurines can be seen as striving to capture this exact moment in a material form that cannot be reduced to either a 'naturalistic' actual hippo or a fully dissolved purely potential hippo.

It is worth noting that, while the painted decoration elicits this ambiguity most clearly, much of it is present already in the very process of efflorescence. Thus, taking a cue from the painted specimens, the 'alchemical' transformation where the blue, water-like glazing emerges

2.3 Hippopotamus lying in the water surface.

from inside the figurine can be understood in itself as establishing a similar mode of being. This in turn means that the analysis presented above could also apply to faience hippos without painted Nile environments (which seem to have been used in very similar ways to those with painted decoration) such as the one depicted in Fig. 2.1 above.

This set of 'conceptual affordances' can be further illustrated by the use of the hieroglyph depicting a hippopotamus head to write the Egyptian term *ȝt*, which is traditionally translated variously as either 'moment' or 'power, potential' depending on the exact usage (Fig. 2.4). This is not the place for a fuller discussion of this concept (cf. Nyord 2016), so a few examples will suffice of the usage of the term to designate an ontological state like that captured in the hippo figurines.

The first example comes from a funerary spell inscribed on the walls of royal pyramids in the last third of the third millennium BCE. The passage here is spoken by the sun god who is ready to be reborn by the goddess of the sky: 'The belly of the sky swells from the power (*ȝt*) of the divine seed which is in it. Behold me, I am the divine seed which is in it' (Sethe 1908: 271, 532a–b). Here, the word expresses the as-yet mainly unrealised potential whose effects are starting to become visible
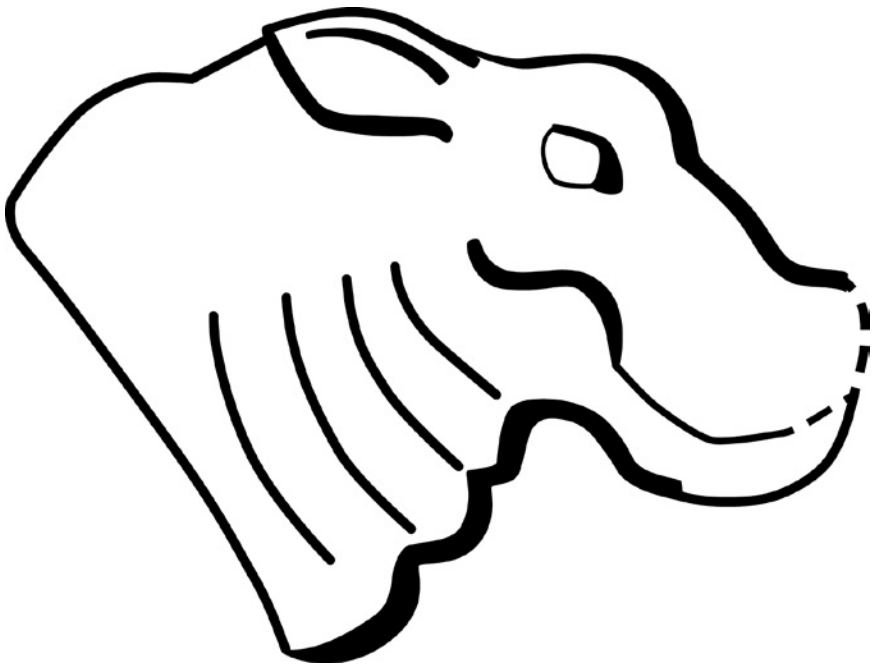
2.4 Hieroglyph of hippopotamus head in the word *ȝt*, 'moment, impulse' from Hatshepsut's temple at Deir el-Bahari (restored slightly from parallels).

by the swelling of the belly. The second example is from a more mundane description of an Egyptian who has lived many years in exile, and who is cared for in the royal palace upon his return: 'Meals were brought to me from the palace, three and four times a day, as well as what the royal children gave, without a moment (ꜣt) of ceasing' (Koch 1990: 80, B 299). While we can best translate the term in such usages as a designation of time, the context shows that this is again a potential just on the verge of being actualised, although in this case the point is that this does not happen: the servants might have stopped serving food, but they didn't.

The connection between the behaviour of the hippo and the abstract idea expressed by the term ꜣt is thus very likely to be found in the ontological ramifications of the hippo's ambiguous mode of being. This underlying experience of the hippo is masterfully captured in the figurines by drawing on the materiality and manufacturing process of the Egyptian faience as well as by adding the 'impossible' camouflage to the surface of the figurine.

At this point it is time to return to the archaeological record for a brief consideration of what could possibly be the point of placing such an object within the coffin or among the bandages of the mummy.[2] The apparent substitutability of a placement within the mummy bandages or inside the surrounding coffin is indicative of a general dual perspective under which either the coffin can be regarded from the outside as an entity in its own right or the focus can be on the mummy inside, in which case the internal relationality between coffin and mummy comes to the fore (Nyord 2014).

The creation of an assemblage consisting, among other things, of the dead body and a hippopotamus figurine delineated either by the mummy bandages or by the coffin can thus be seen as effort to make a new being incorporating both of these elements. In his discussion of a spider weaving a web, Uexküll (2010: 190, cf. Buchanan, 2008) argued that the spider has to be 'fly-like' in anticipating the body and behaviour of the fly it is meant to catch: 'to be fly-like means that the spider has taken up certain elements of the fly in its constitution'. This idea may be of inspiration in thinking about the work done by the hippo figurine, which can thus accurately be said to be 'taken up in the constitution' of the mummy. In other words, we can think of the mummy as becoming 'hippo-like' by incorporating the figurine, and the preceding discussion has given a good indication of the relationship to the world and general mode of being that this entails. If, as Pauketat (2013: 40) puts it, 'The body, as bundle, is a specific sort of condensed entanglement', this becomes true in an additional sense in Egyptian practices of mummification where the permanent transformation of the deceased into a new kind of being is accomplished by drawing on the materialities and affordances of a wide

range of objects and substances (Nyord 2013; Riggs 2014; cf. more generally Sofaer 2006).

The practice of breaking the legs, and possibly other parts, of the figurines can also be seen in a new light against the background suggested here. While no precise data are available concerning the frequency of this practice, it is commonly understood within the framework of the hippopotamus as a hostile and at least potentially dangerous being, which is accordingly rendered harmless by removing its legs (e.g. Friedman 1998: 298; Kozloff 2015: 298f; Oppenheim *et al*. 2015: 217). A parallel for such a treatment of images might be found in contemporary practices related to hieroglyphs of living entities, which are often rendered in an incomplete form when destined for tombs (Miniaci 2010). However, such a hostile treatment seems at odds with the close incorporation within the coffin or mummy in either of the two traditional interpretations referred to above – if the hippopotamus was regarded primarily as an enemy to be defeated, why incorporate it in the burial assemblage in the first place, and, if its powers were to be harnessed, why nullify them by breaking the figurine?

The perspective taken here offers a partly complementary view of what the act of breaking the figurine might entail. As has been seen, suspended tensions form the pivot of the figurine's function, materially between the core and the surface of the figurine and conceptually between the animal and its environment. Breaking the figurine removes these tensions, as the difference between the core and surface materials becomes clearly visible, and the unresolvable paradox between the Nile in the hippopotamus and the hippopotamus in the Nile is broken, when the figurine is fragmented into pieces of animal-and-environment. Breaking the figurine can thus be seen as a radical individualisation or actualisation of the figurine, ending its capacity for ambiguity. In this way, the ritual act may be a way of releasing the ontological power captured by the figurine, making its inclusion in the ancestor assemblage a way to absorb the capacity underlying the figurine's ambiguous mode of being.

Egyptian personhood is highly distributed, and one way to understand the function of grave goods at a very general level is as a means to secure through material means the intricate meshwork of social and ontological relations eliciting the new mode of being of the deceased as an ancestor spirit. A figurine capturing the exact moment between personalisation and depersonalisation (or vice versa) would be highly pertinent to the situation of the deceased, and the deposition inside the coffin or even inside the mummy bandages indicates a concern with creating a being materially incorporating this particular ontological mode.

The analysis presented here demonstrates the value of adopting a processual approach to materials and the images they form. In particular,

the focus on Egyptian experiences of the material properties of faience proves highly fruitful for moving the discussion beyond questions of 'symbolism' of the motifs which tend to make the material and material processes recede into the background as merely a necessary and negligible step to achieving the final motif. The perspective on Egyptian faience production espoused here further proves useful for understanding what other objects of that highly versatile material could do. A case in point is the faience bowls popular in the beginning of the New Kingdom a few centuries later than the hippopotamus figurines. Sharing many of the aquatic motifs, as well as the technique of production, with the hippopotamuses discussed here, the fact that these objects are broadly lotus-shaped, literal containers themselves generates new conceptual affordances as evidenced by their concrete design (cf. Nyord, forthcoming). On a more general level, the faience hippopotamuses offer a striking example of how shifting the attention to 'images in the making' can make well-known objects appear in a new light, perhaps bringing us closer to ancient experiences.

Notes

1   The chemical composition of the hippopotamus figurine (E128) examined by Tite *et al*. (2007: 1574) is consistent with the efflorescence technique, while the decrease in CuO levels from interaction level to the slip interparticle glass can be associated with a secondary glaze application (Tite *et al*. 2007: 1582, cf. also Tite *et al*. 2008: 80f). Serrota *et al*. (2017) suggest the use of efflorescence and/or cementation techniques based on a visual examination of a different exemplar.

2   The other securely attested use of faience hippos as offerings to the goddess Hathor in the Temple of the Obelisks at Byblos in modern-day Lebanon seems prompted partly by the close connection of the goddess to this material in general as indicated by the deposition of hippos along with a wide range of other faience objects (including also figurines of women, dwarves and cats, see Dunand 1958: pls 95, 99, 102f, 108), and partly by the fact that the goddess appears to have been assimilated to the hippopotamus goddess Taweret at this site. In addition, the faience hippos' more general association with Nile and marsh landscape and the related processes of creation and destruction is highly pertinent to the sphere of influence of this goddess. Thus, the objects may well have held a 'presentifying' agency broadly similar to the predominant funerary use in this context as well.

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An archaeology of anthropomorphism: upping the ontological ante of Alfred Gell's anthropology of art through a focus on making

Benjamin Alberti

Introduction: the question of anthropomorphism

One cannot see God from the back.

(Gell 1998: 192)

Alfred Gell's *Art and Agency* (1998) revolutionised the debate on agency in archaeology, melding exceptionally well with contemporary thinking on the dialectic of human–thing interactions, the biography of objects and the relationships between agents and structures (e.g. Alberti 2001; Jones 2001; 2012; Jones and Cochrane 2018; Normark 2004). His work has since been heavily critiqued, however, for the unapologetic anthropomorphism of his concept of secondary agency (see Alberti and Marshall 2009). Needless to say, there is much more to Gell than his formulation of primary and secondary agents. The question that motivates this chapter is, what is anthropomorphism? Specifically, what is it when it appears in ceramic forms from first-millennium CE north-west Argentina (see González 1977)? Unreformed Gell cannot answer that question for me; but a modified Gell might. What I propose in this chapter is to meld ontological archaeology (see Alberti 2016 for overview) with a Gellian formal analysis. Ontology has emerged in archaeology in various guises. Always present as an unexamined basis for conceptualising materiality – the relationship between artefacts and ideas – the form this took was a Cartesian substance ontology, in which a clear separation exists between things of the mind and things with extension. The so-called 'ontological turn', evident in many disciplines, including archaeology, has introduced other ways of thinking about the ontological assumptions we make when

we conduct archaeological analysis. Approaches include utilising theories that present philosophical alternatives to a substance ontology (e.g. Witmore 2014); utilising ontologies of other cultures as a lens to understand the archaeological record (e.g. Losey *et al*. 2013); and engaging with thinkers and the thought of non-Western cultures that have other ontological commitments (e.g. Alberti 2014; Fowles 2013). This chapter fits within the latter approach, as outlined below. Thus it treats the question of anthropomorphism as fundamentally one that requires an examination of the conceptual underpinnings of the term and how the specific body of archaeological ceramics from north-west Argentina might present certain challenges to the term through their analysis. The goal is to use Gell's idea of underlying principles – the cornerstone of his approach to a formal analysis – expressed through the ceramics in order to generate ontological concepts that can both shine a light on the original context and challenge what it is we think we know about anthropomorphism today. The notion of 'underlying principles', while appearing to be fixed, is instead a pointer towards concepts that themselves could be extremely fluid. This is what it means to free Gell's analysis from certain ontological assumptions. Through this process I explore whether a formal analysis of the specifics of the pots can lead to new ontological concepts in archaeology.

In this chapter I take Gell's work on Marquesan visual art both as a lesson in formal analysis and as a counterpoint to an ontological approach. I then move towards a formal analysis of anthropomorphic La Candelaria ceramics from first-millennium north-west Argentina. From there, I discuss the question of making. My claim is that it is through a focus on the making of the images that we get a glimpse of how these conceptual worlds can be accessed through the ceramics and their impact felt on contemporary theorising in archaeology. Ultimately, 'anthropomorphism' turns out to be less a descriptor and more a placeholder for the potential of the La Candelaria ceramics to reveal their own way of presenting bodies.

Alfred Gell's formal analysis

Gell's (1998: 155–220) formal analysis of artworks attempted to define the characteristics that make up a style, and show the relationship between that style and society. A formal analysis of visual artworks is the comparison of the elements of form and motif design, such as shape, volume and line. The point is to focus entirely on the objects and motifs in question without making any reference to culture or meaning. The challenge here is to assess whether this type of analysis can be used with an ontological approach. But why turn to Gell at all? The question I have

been asking for some time is how to get at ontological difference through, for example, these pots. In the past I have made general arguments on the basis of general observations and theories (e.g. Alberti 2007, 2014; Alberti and Marshall 2009). However, I have been avoiding the question of the importance of the patterns in the details and designs of the pots, which seem to require a Gellian stylistic analysis. What is particularly significant about Gell's approach for my purposes is that he attempted to understand the relationship between style and a given culture without collapsing one into the other.

Style, in Gell's (1998: 159) terms, is simply the 'formal attributes of artworks'. His formal analysis produced a list of the key characteristics of, say, Marquesan art such that this list can refer only to that body of visual work and not some other. The Marquesan corpus consists of motifs in tattoos, carved objects and architectural elements. The repertoire of motifs can all be derived from each other through a series of trans- formations. It is the principle governing those transformations from one motif to another that make up the list that constitutes the Marquesan style. The result is 'axes of coherence' that run through that style and distinguish just those artefacts from any other culture's artefacts. In the Marquesan case, Gell shows us that the key principle is that of least difference. The trick, according to Gell, is to change a motif or image such that it differs as little from another without remaining identical. For example, Gell (1998: 190) explains that the translation from two- dimensional to three-dimensional art consists in 'wrapping' a flat image around a tubular core; the core is three-dimensional, but the carved element appears to be a kind of applied decoration, in low relief. In this sense, Marquesan art is never fully three-dimensional: it is as little different from two-dimensional as it can be. Gell claims that we are conditioned into thinking of drawings as 'flat projections' of the three-dimensional objects that they are supposed to represent. The subject of the drawing and the drawing we tend to conceive of as separate. Gell argues that Marquesan art, however, is neither representational nor abstract. Instead, it is constitutive. A tattoo of an etua motif, used in ritual, for example, was not the representation of an etua motif that existed somewhere else; rather 'it was an etua, right there on the body' (Gell 1998: 191). The motif must be seen in its appropriate and stylistically coherent way: thus images are wrapped around three-dimensional forms. They cannot, as Gell points out, be seen from the back.

It is only at this point, only after the formal analysis has been com- pleted, that Gell attempts to make connections between the world of artefactual forms and that of social forms. In the Marquesan case, the principle of least difference that distinguishes artworks from each other matches the careful hierarchical social distinctions that must be maintained

against a background of undifferentiation in Marquesan society (Gell 1998: 159). Artefact styles, according to Gell, develop independently of any cultural dictates. The connection between artefacts and other cultural parameters is that of relations between artefacts working in the same way as relations between people. It is therefore '"relations between relations" of forms', in Gell's (1998: 215) formulation, that are compared in a formal analysis. What this means is that the commonality across artefactual and social domains is the way in which the structure of relations in each domain is isomorphic with the structure of relations in the other. Marquesan social relations take on a given form; that form is mirrored in the relations among artefacts in terms of their style. Society does not dictate how style develops, as the permutations are not determined by meanings given by Marquesan culture. The Marquesan style is not the sum of all pieces of known Marquesan origin, according to Gell (1998: 215); rather, it is 'a field of possible or legitimate motive transformations'. The point of contact, to reiterate, is relations among relations, between the relations in the artefactual domain and the relations in the social domain. Visual culture – how artefacts are shaped – in this sense is an autonomous domain, not one imposed by 'culture' (Gell 1998: 216), though the general principles behind the 'relations between relations' do belong to culture in the broader sense (Gell 1998: 219).

Making Gell's approach 'ontological'

To up Gell's ontological ante means to attempt to give his formal analysis an ontological resonance. I have described an ontological archaeology elsewhere as a recursive enterprise: it's our own conceptual apparatus that is the target of archaeological exploration as much as the reconstruction of past societies and their ontologies (Alberti 2016). In fact, 'concepts' are unashamedly what I am after in my archaeological work. This line is legibly derived from the work of anthropologists Martin Holbraad (2012) and Eduardo Viveiros de Castro (2010). Conceptual innovation or concept production is the philosophical field in which both Viveiros de Castro and Holbraad operate. In Viveiros de Castro's case this project has an obviously Deleuzian root. What Viveiros (2015: 17) proposes is that Indigenous ideas be treated as concepts and that the task be to 'determine the preconceptual ground or plane of immanence that such concepts presuppose … and the material realities that they create'. Concepts do not stand for collective representations, embodied experiences, cosmologies and so on; these he studiously and deliberately avoids. In his work among Amazonian communities, he proposes not an interpretation of Amerindian thought but rather an experiment with it. Ultimately, for both authors it is the philosophical charge of the concepts they extract

from the ethnographies that they are interested in: philosophy reinvigorated or exploded (see Latour 2009).

In archaeological terms, then, can we extract concepts from the 'preconceptual grounds' of our materials? Can the La Candelaria ceramics provide such a ground? And can Gell help determine what these concepts are through use of his formal analysis? Is it possible to extract conceptualisations that can be mobilised as concepts? Could the 'axes of coherence' produced in a formal analysis form the basis of the concept work, the bringing to light of the conceptual potential in archaeological artefacts?

But there's one thorny issue in particular in an attempt to bring Gell's and Viveiros de Castro's approaches together. Gell's art theory famously measures impact through psychological salience. Viveiros's (2013: 484) concept approach is staunchly anti-psychological, as he has written: 'To treat indigenous ideas as concepts is to take an antipsychologizing stance, since what is at stake here is [an] image of thought, irreducible to empirical cognition.' And further, 'concepts are intellectual objects or events, not mental states or attributes'. However, such events presumably can trigger psychological states, such as confusion and the other agentive effects of the artworks Gell analyses. There is, however, something tempting in Gell's claim that style is not a taxonomy but rather has 'psychological saliency'; that artworks 'do not do their cognitive work in isolation' (1998: 163) but 'co-operate synergically' on the basis of style. For my purposes here it is worth thinking about Gell's style as producing conceptual rather than psychological effects – and on a far broader audience, including the archaeologist. Can we switch the focus from cognition to concept?

What I propose to do, therefore, is the following. Firstly, treat the body of material I am interested in as an ethnographic isolate of the artefactual sort. Secondly, take concepts to be material concepts: ideas that are not so much manifest in ceramic form, but are extractable from it. Thirdly, analyse the formal elements of the ceramics in order to elucidate themes or underlying principles. Fourthly, conceptualise these themes. And, fifthly, think again about the concept of anthropomorphism.

Concepts are not static: The importance of making

Viveiros de Castro's work has often been criticised for its apparent stasticity (e.g. Santos-Granero 2009). Alfred Gell (1998) considers making, but only in the broadest sense, as the grounds for demonstrating virtuosity in the finished artwork. I think the response to this apparent failing in both authors is suggested by the materials under analysis. In fact, the crux of the issue is demonstrated by them. Let me explain this through

anecdote. Several years ago, a research assistant, Mike, and I were working on the photographs, measurements and notes produced during the many trips to museums I made to document the La Candelaria ceramics. There was, of course, a need to organise all these data, something I had failed to do in any systematic way to date. It was clear that a database of some sort was called for. But how to construct it? The issue was that we had a body of material and a head full of theory that was telling us that whatever categories we constructed out of this material would likely miss the mark of its actual significance. We were attempting to design a static machinery for recording a responsive, dynamic body of material. For example, what should we record on any given pot? Should we record the number of 'eyes'? 'Wings'? Its shape? Whether it had feet? The number of bulges? The position of bulges? Their size? What words should we use to describe, say, 'eyes'? What general categories could we use to name the pieces? What would be relevant and what not? (Not to mention the technical aspects, such as paste, construction technique, firing and so on.) We all face these dilemmas, whatever our material.

But what we were experiencing too was the hope that somehow we could capture a world in which bodies, worlds, materiality were quite different; in which relationality was crucial, and a state of movement or transformation as probable as the stillness of our typical categories. That is, if the world underlying the production of these pots relied on no stable referents, then what were the pots? How could that fact emerge from our categorising?

These were the concerns that we brought to Gell. We recognised the potential power in his formal analysis: transformations and relations between relations. But could he get at what was a very different ontological underpinning that motivated such transformations? Viveiros de Castro's work on perspectivism presents a quite unsettled universe – to our experience – with a great deal of potential anxiety about transformation, appropriate affect, maintaining bodies and practices just so, eating right, talking appropriately and so on. If perspectivism is our starting point – our theoretical ground – for this analysis; if that is where we start from, then the pots are in that too. They are part of that world. They carry that ontological history in them. Therefore, how can a database, or any form of analysis, incorporate that very different way of conceptualising things?[1]

From Gell to concepts

The tricky thing, then, is to connect Gell's formal analysis to ontological saliency. The particular concerns that motivate the need to engage with

Gell's account relate to the fundamental verb-like existence that forms the background to much action or activity or thought – read 'concepts' – in accounts such as those of Viveiros de Castro and other Amazonianists. It is not that Gell was not cognisant of this body of work, rather, the register in which he conducts his work is different. Gell's method is to conduct a formal analysis first, free of any notion of how that might link to society or the producers of the artworks. Such an approach is an advantage in the case of La Candelaria as we have very little by way of archaeological evidence that can attest to a way of life, other than tools, some burials and ephemeral settlements. We are free to lean on the ceramics quite heavily in any correlation between style and culture. As is common in archaeology, style can be a stand-in for culture itself, somewhat problematically.

The principles that relate ceramics to each other – that is, the relations between relations – on the basis of the coherent whole of patterns give Gell principles to relate to culture. What do you do when the underlying principles are grounded in ontological conditions that are lost in translation – or in the database – when a formal analysis of this type is undertaken? To illustrate the kind of difficulty I have in mind, I intend to work backwards from culture to style (the opposite direction to the one we ultimately need to travel). Let's say that a given culture – or group – lives within a world governed by perspectivism. What difficulties might turn up when attempting a formal analysis?

The question, then, is how to get ontological difference out of the ceramics. In what sense can alterity be engaged with by engaging the actual details of the pots and by treating them as a corpus? This more traditional analysis is called for by the pots because they show variations along general themes. We are aware that the ceramics belong together, are a group and that there appear to be principles at work (to do with bodies, transformations and so on). These principles, then, that one might elucidate from a formal analysis (what are the style 'rules'?) could then form the basis of the concept work, bringing to light the conceptual potential in the ceramics.

La Candelaria ceramics as an illustrative case that does theoretical work

My hunch is that a Gell-style formal analysis can get at the underlying concepts that La Candeleria pots might reveal, concepts that have ontological valences. I will treat the La Candelaria corpus as a 'distributed object', extended through time and space by a series of historical accidents (through casual finds, looting etc.). The find contexts are not well recorded

in many cases, though most consist of burials, often in urns. As Gell (1998: 221) notes in relation to Marquesan art, each line, groove and motif speaks to all others in a 'style' in the manner of kin relations. The collections studied come from two related areas, in southern Tucuman province and southern Salta province in Argentina, and differences do exist. Chronologically, the ceramics as a whole cover several hundred years, covering approximately the first millennium CE. Osvaldo Heredia (1975), who defined La Candelaria culture most thoroughly, sketched out a chronology of five different phases in the 1970s, based partly on relative dates but also on typologies. I think all we can say at present is that the pots likely date to the first few centuries of the current era. The life of the people/s who made the pots is similarly little understood. The majority of recognisable La Candelaria sites are funerary, generally including under a dozen urn burials containing human osteological remains, some burnt, and associated with some few ceramics, often of the anthropomorphic kind (Berberían *et al*. 1977; Heredia 1975; Rydén 1936). In the 1970s, archaeologists excavated a number of direct and urn burials at the site of the El Cadillal dam, Tucuman province (Berberían *et al*. 1977). The Las Pirguas caves in Salta have produced a large number of La Candelaria associated finds, again in funerary contexts, but these remain to be fully studied (González 1972; Barboza *et al*. 2007). In addition, the distinctive anthropomorphic vessels are scarce (see Lema 2019 for a recent study of the ceramics). There is as yet very little evidence of settlements; one site consisting of circular or sub-circular rooms of approximately 6 m delimited by undressed stones was recorded by Heredia (1968: 436–7). Other sites are indicated by artefact scatters, consisting mainly of ceramic sherds; other preserved material, much of it from Las Pirguas, includes ground stone axe heads, manos, textiles, pendants, shells (Spondylus, conches), feathers, seeds and some metal objects. The stone and ceramic material is well represented in numerous private collections from the area. Furthermore, ceramics of the La Candelaria type have been found to the west of the core area, in the dry Santa Maria valley.

In this very preliminary type of formal analysis, three steps are involved. Firstly, one needs to be primed to respond to metaconceptual questions that Gell does not take on. For example, Gell talks in general about 'visual logics' and argues that the theory of style is an extension of the theory of perception. Amazonian theories of vision and perception are quite different, as are, for example, theories of bodies. Secondly, the formal analysis of the pots is undertaken to reveal the 'axes of coherence', as in Gell's account. And thirdly, these axes of coherence are mobilised as concepts and put into play against our own concepts (such as anthropomorphism).
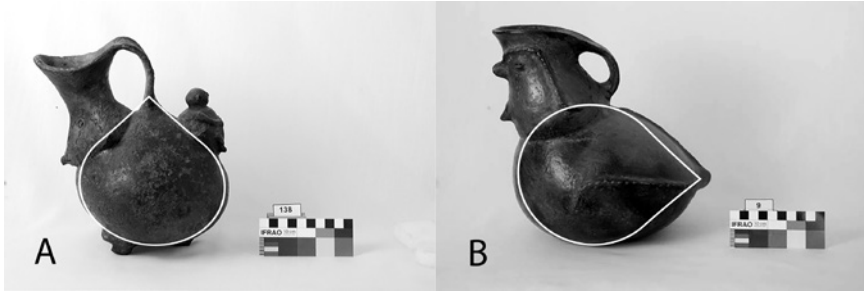
3.1 The basic volume transformed: (A) The tear-drop body volume; which when turned on its side becomes (B) the bilaterally asymmetrical body volume (Museo Histórico de Rafaela, Argentina).

From an examination of the ceramics with perspectivism providing the metaconceptual reflections, the axes of coherence in La Candelaria ceramics are about (1) relationships between volumes and (2) the embellishment of volumes with applied or incised elements. The differentiation of pots into volumes is marked by what I call a 'cinching' technique, where joins are exaggerated. This results in the clear delimitation of volumes and their marking out as significant. While there are many variants in the La Candelaria corpus, the smaller zoomorphic pots found predominantly in burial contexts can be divided into two main groups on the bases of basic underlying volumes: a tear-drop shape and a bilaterally asymmetrical shape.

These are the basic body volumes. What is of interest is how these basic volumes interact with the rest of the elements, as well as how they interact with each other. It is tempting to see this concern as an instance of 'wrapping in images', as Gell describes for the Marquesan art. Indeed, some bowls show clearly demarcated fields of incised imagery, and the biomorphic pots are very much applied elements to an underlying form.

For example, the tear-drop body relates closely to another basic volume, the bulge. The bulge comes in varying sizes, and is often an unadorned addition to a main volume. They are hollow. They also serve as the basis for the addition of other elements, such as frogs' bodies, mammalian heads or humans.

Clues to the relationship between volumes are provided by a small number of obviously anthropomorphic vessels: seated figures, made up of several volumes and bulge-like legs. Each volume is cinched as it joins another. Legs are cinched top and bottom; and the neck line is strongly

3.2 The ubiquitous 'bulge' form appears in many sizes and either unadorned or, as in this case, as the hollow body to which are added anthropomorphising elements.

marked. Moving back to the asymmetrical and tear-drop pots, one can now recognise that the cinching recurs in key locations, particularly joins between volumes, especially the neck/body conjunction, and any time a bulge volume joins a larger volume. Judging from the apparently anthropomorphic pots, these are conceptualised not as delimitating different bodies but rather as zoning a single body.

There is also a limited class of anthropomorphic vessels that depicts figures carrying large pots. The relationship between the ceramic vessel on the figures' backs is reproduced in many of the tear-drop and asymmetrical pots. The key elements are an open vessel connected to a closed vessel in the shape of a body. The affinity in shape with the more naturalistic pot is clear; and the cinching marks the distinction between two volumes as it does in the anthropomorphic pots. Thus, the body of the figure carrying the vessel (Fig. 3.4a) is equivalent to the body of the tear-shaped or asymmetrical pots; the vessel being carried (Fig. 3.4b) is equivalent to the neck and 'face'; and the head (Fig. 3.4c) is reproduced as the bulge with added anthropomorphic features on the backs of the tear-shaped and asymmetrical pots (such as the homunculus – small humanoid figure – on the pot in Fig. 3.2). In

3.3 One of the class of more fully anthropomorphic pots, in which the body shape dominates.

3.4 Figure carrying a jug. The relationship between the body (a), the jug (b) and the head (c) reproduces the relationship between the hollow figures on the backs of the tear-drop and asymmetrical pots with the main bodies and necks of the pots.

this way, the relationships are maintained across apparently disparate forms.

Relationships exist also in the elements that are applied to these basic forms. The one traced most consistently is the formal identity between frogs' legs and faces with anthropomorphic heads. The legs of the frog are formed in the identical way to the eyebrows, wrapping around the brow to form, in one case, the nose of the frog, and, in the other, the humanoid nose. There are many other such relations to be traced.
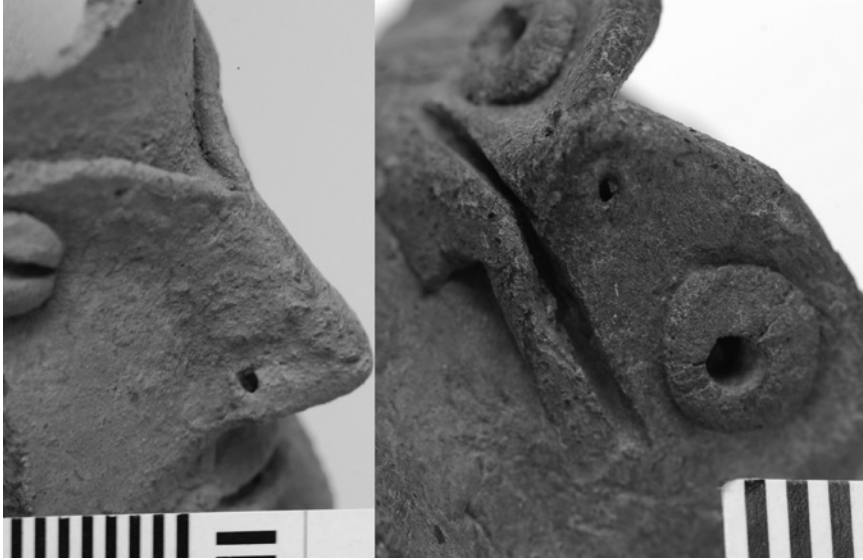
3.5 The formal identity of frogs' legs and faces with anthropomorphic heads. The flat pieces of clay used to form both are identical in shape and execution, and the eyes are in the same relative position.

Making: the answer to the problem of formal analysis

The question remains, how do these basic observations of form and design elements relate to concept production? In Gell's final analysis both culture and artefacts emerge from abstract principles that generate possibilities of form in social life and artworks. In his example, these principles are embedded in the lives or minds that are thoroughly Marquesan. He writes: 'stylistic decisions, from which the coherence, stability, and long-term transformation of the Marquesan style ensued, were taken without deliberate reflection, but never without cognizance of a prevailing social context of social forms, pervaded by a dread of spiritual/political transgression' (Gell 1998: 219).

But in the case of Amazonian perspectivism, making the artworks 'without deliberate reflection' takes place not only within a guiding social or political framework, but also within an ontological framework that includes a much more complete array of entities. Even so, Gell's initial point is useful: the connection lies at the level of making. A common theme across Amazonian ethnographies is the lack of distinction between ideal and concrete worlds (e.g. Viveiros de Castro 2012: 124). This translates into acts of making that are not simply responding to a social or ideational framework, but rather are fully involved in the act of creation

or transformation (see Alberti 2014 for a discussion in relation to the Candelaria case). The consequence has to be that there is a much tighter relationship between what the hands do or the eyes see when working with the clay, water and tools, transforming materials from one thing to another. The form that the pot takes, the gestures that produce incised marks, plastic additions or coils and joins clay around volumes; these are all part of the affective actions that keep a world as it is meant to be, or work to transform it for the agents involved. Keeping a careful eye on making is the answer; making that is constitutive of worlds. For example, if one thinks of cinching as a means of clearly marking the difference and therefore relationship between two volumes, then the act of making the pots, working with the clay, is itself a case of making the difference as you mould the fabric of the piece.

Surely it is in this process of making that the general principles get into the pots and therefore provide the dynamism that links image to ontological concept. That is, acts of making are not adjuncts to a product but rather fully involved in the act of creation or transformation. Amazonian ethnographies frequently allude to the ontological importance of making. In his analysis of Piro design, for example, Peter Gow (1999) describes the act of fabrication of geometric designs – on cloth or bodies – as intrinsic to the meaning of the design. And that is because good design originates in the knowledge and skill of old women. To push Gell's analysis in a more ontological direction, then, we could argue that the La Candelaria potter's perceptual world extends beyond a conservative socio-political context. The form that the pot takes is the conceptual and ontological residue of the gestures that produced incised marks, plastic additions or coils and cinches in clay volumes; these are all part of the affective actions that keep a world together. Elsewhere I have written about the importance of materials and practices of making to understanding the significance of the ceramics (e.g. Alberti 2014). In my estimation, it is in the making that other worlds lie. Therefore, combining Gell's formal analysis, the hunt for concepts, and a focus on making is key to future research.

I have merely outlined some particular connections and the ghost of an approach here; a full analysis would entail establishing strong connections between the formal principles drawn out of the material and the onto-conceptual world that could be said to underlie them. Close attention to the details of the pots and the relationships among elements while keeping a body of theory in mind is the task. This is not the application of a theory; it can't be. The approach clearly runs risks of idiosyncrasy and ungeneralisability. Anthropomorphism as a concept when deployed as a label or interpretative device acts as a placeholder for knowledge. We know what it means; other things are refracted through

it. Clearly, I chose the term when discussing these pots. That is because I am interested in challenging it; or, better, using the term refractively but critically. It is not meant to survive the encounter with my pots. It has catalysed a series of theoretical questions and empirico-theoretical observations of a body of archaeological material. What is anthropomorphism?, could be reframed in this way: What is anthropomorphism according to these ceramic pots? And I suspect the answer, in this case at least, is that this is not it! That is, these are not pots made to look like bodies, human or others. They are themselves bodies that participated in world-creation through the acts of making. As such, any concept that emerges from them – and admittedly, that has not been specified here – will necessarily depart from the concept (anthropomorphism) initially deployed to understand them.

Note

1   As one peer reviewer of this chapter noted, why not use Descola's (2005) work on ontological modes to explore the question of anthropomorphism in north-west Argentina? There is a good example of such work (see Laguens and Gastaldi 2008). Viveiros de Castro's 'ontological' approach differs in an important sense from Descola's, in that he allows for the productive potential of discovering new concepts through the engagement with the ethnographic, or in this case archaeological, material rather than only examining how it fits into an overall ontological scheme.

Acknowledgements

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4

Dirty RTI

Ian Dawson

> One night I was, as usual observing the sky with my telescope. I noticed that a sign was hanging from a galaxy a hundred million light-years away. On it was written: I SAW YOU.
>
> Italo Calvino, 'The Light-Years', *Cosmicomics*

Introduction

Light is our window on the universe and the condition for all life on earth. Light deposits energy into matter and fills the universe with radio-waves and X-rays as thousands of watts per square metre of filtered solar radiation are absorbed upon the surface of the world. The catalyst for molecular vibration that scatters wavelengths of visible light across the landscape as plants across the planet harness light using chlorophyll to harvest the photons in a complex process that delivers sugar for growth, whilst painting tranches of the natural landscape green. We might think of green as the colour of life but in physical reality it is the colour that life throws away, the waste photons from the photosynthesis process reflecting back into our eyes.

The spectrum of colours that illuminate our environment; from the cold blue emanating from water molecules to the pink projecting from hydrogen gases in the Milky Way is all a result of the complex interactions between electrically charged particles within all matter and the light-emitting photons that are created as energy – which bathes the world and the whole cosmos in colour.

Light thus becomes the 'condition of all vision' (Cubitt 2014), as the arc of the sun crosses rock art formations, the flicker of flame illuminates

the painted inscriptions of Chauvet, and outlines are tracked and traced around human shadow. There are long histories of the desire to control light culminating in Newton's law of optics which becomes the root of modernity setting a dialectic that Goethe would grapple with when saying 'we can never directly see what is true, … we look at it only in reflection' (Cubitt 2014: 127).

Light, which for millennia has been a celestial medium, has properties which are now converted by 'reason and experiment'. Fragmented through a prism, its meaning is relocated into the laws of physics. The contradictions between those positions were best illustrated by the Impressionist painters of the late nineteenth and early twentieth century in whose work the tensions between the impact of natural light and colour on the eye – an aesthetic based on truth to nature – is in opposition to an equally absolute assertion of the individual eye of the artist at the moment of perception (Cubitt 2014: 128). The tussle for meaning continues, and synthetic images, including Reflectance Transformation Imaging (RTI), are a new generation of image making. Producing a cam-puter image that glows brightly on a liquid crystal display in which subject and object are intra-acted; the RTI apparatus acts as a boundary forming practice that is 'formative of matter and meaning' (Barad 2007: 146).

4.1 Ian Dawson, RTI RTI, 2017 (performative RTI, Annihilation Event, Lethaby Gallery, London).

Reflectance Transformation Imaging

In 2015, fellow artist Louisa Minkin and I accompanied the archaeologists Andrew Jones, Marta Díaz-Guardamino, Eleni Kotoula and Andrew Cochrane to the British Museum. We were there to study the Folkton Drums, three remarkable decorated objects from Neolithic Britain (Jones *et al.* 2015). The Folkton Drums; three solid cylinders of chalk decorated with sequences of crosshatched chevrons and sets of eye-like indentations below eyebrows denoting rather melancholic-looking faces. One wonders if these objects, excavated from a child's grave in North Yorkshire between 1866 and 1868, were ever intended to be viewed by the living at all. We were there to scrutinise these artefacts with a new form of imaging technology to probe an object that predates script by technologies that succeed script (Dawson and Minkin 2017). RTI, developed by Hewlett Packard Laboratories, is one of the technologies adopted by the cultural heritage industries to record historical artefacts and objects of archaeological interest. Concealed pockmarks on carvings can be reanimated (Jones and Smith 2017) as the technology accentuates the perception of surface deformations. The realism of the image enhanced through a process of interreflection (Malzbender *et al.* 2001) as jpg and pixel information is converted to a synthetic polynomial texture map.

The customary RTI process involves taking multiple photographs from a static digital camera installed upon a tripod, upwards of seventy shots from a single point of view while repositioning a photographic flash for each shot. This dataset, each photograph with its own unique light condition, is inputted into the RTI software to create an interactive image which can be traversed on a computer screen. The RTI of the Folkton Drums revealed evidence of erasure and reworking, of motifs being rubbed out, removed and replaced, suggesting that the form of the Folkton Drums was arrived at through experimentation and revision, akin to a drawing and artistic process (see Dawson 2012).

In addition to the images-revealing process, the act of performing RTI is processual in itself. Both the data capture stage and the image viewing phase involve complex intra-actions between environment, camera, object, image, computer and operator (Jones and Smith 2017). In this instance the Folkton Drums were thrust into the limelight, caught in the glare, their faces startled by the media spotlight, continuing the arc of their exhumation: 'An artificial "exhibition of firelight" where the living commemorate the annual return of the departed from the land of the shades' (Stafford and Terpak 2001).

Limelight, the combustion of a lump of calcium oxide, originally known as koniaphostic lighting, was used on the Herne Bay Pier in 1836 (during 2004), to illuminate the magic acts of Ching Lao Lauro, possibly

a Cornish man, and the first European to practise sitting in the air upon nothing, also known as the ethereal suspension illusion. The whole pier was 'overwhelmed by a flood of beautiful white light' illuminating and capturing the act of magic. Limelight 'transformed night to day as a special effect' sharpening images and enriching colour; used to raise and set the sun across theatrical panoramas (Klein 2004).

Dirty RTI

Limelight – the term endures even after the obsolescence of koniaphostic lighting – describes the focus of attention on a mediated object and I too was caught in the RTI spell, watching the Folkton Drums absorb and reflect the glare of the camera flash asking the question; what can RTI bring to light again, what can it revive and restore? This question was posed when Louisa Minkin and I took the RTI process into some derelict spaces within a South London housing estate, Taplow House.

Many of the rooms in Taplow House had been closed since the 1970s, a cab office, a butcher's and a launderette. The dust and grime had settled on places and spaces unused for forty years. In the darkness Louisa and I traversed these rooms, still lives revealed through the stroboscopic activity of the photographic flash. There were arrangements of midden accumulation, flotsam, jetsam and lagan architecture, spaces waiting to be salvaged, the first layers and stratigraphy of the onset of the archaeological process.

The relationship between these RTI images and the reflections, refractions and spatialisation in Edouard Manet's *Bar at the Folies-Bergère* (1882) became apparent (the balcony at Taplow House points northwards towards the Courtauld Institute and the painting's current home). The painting, and Foucault's 1971 lecture, describe its well-known features: the entanglement of three components, the space, the lighting and the viewer which occurs through a mirror (the lens) situated parallel to the picture plane and encompassing the whole canvas, so that everything in front of the mirror and within the painting is also found within the reflection. Yet, owing to the impossibility of the position of all the components, the painting becomes an image that 'the viewer can move around'.

The distortions that arise between the reflection and the represented point of view of the painting are 'simultaneously two incompatible places' (Foucault 2009).

The RTI images at Taplow House appeared to raise similar questions; here is an illusory image file that is navigable, that resembles something else – an amalgamated time-lapse image – yet with inherent temporal

4.2 Ian Dawson and Louisa Minkin, RTI Taplow House, 2015.

disparity as if the traditional logic of the visual is being superseded by a new logic, that of data-smart image processing.

Shadow

somewhere in the waste. The Shadow sits and waits for me
<div align="right">Alfred Lord Tennyson</div>

The RTI experimentation at Taplow House caught shadows cast through discarded bottles and broken windows. Outlines of deflected shade aggregated into cloudy smears, catching glimpses of phantom images: a hand holding the flashgun appearing out of the haze. The Shadow is a vast penumbra in Western art, used to conjure what's not there and to prophesy with ghost stories of demons and hobgoblins. The Shadow was adopted as early as the second century to pictorially explain structure: Roman and Hellenistic floor mosaics would depict litter, discarded fishbones and fruit, titbits on the floor, the shadow becoming the foremost way to describe form, and it has continued ever since. This mosaic image plane is a precursor to the fragmentary subjectivity of the encoded pixelated image that occurs nearly two millennia later (Lazaratto 2014). The shadow, and its alignment with ideas of a geometric space, is typified by *trompe*

l'oeil where shadows are part of a history of animation that converts the image into deceptive figments of the real world, 'devoted to the replication of appearance and to the power of technique to produce illusion' (Cubitt 2014: 170)

In these second-century mosaics, as well as Man Ray's silver gelatin photograph *Dust Breeding* (1920), which pictures Marcel Duchamp's *Large Glass* with a year's worth of grime settled on its surface, we see the shadow and the detritus itself functioning as a physical index for the passage of time. The accumulation of dirt and dust is both an index and a projection; the shadow and spatial measurement inextricably linked as the pre-eminent technique for creating relations between objects and their environment.

Metric photography

'We can only see what we are looking for,' wrote Alphonse Bertillon in the late nineteenth century, 'and we look for what is already in our minds.'
(Dufour 2015: 19)

Nineteenth-century Paris, the city of light, 56,000 gas lamps illuminating its streets, home to the Folies-Bergère, a city which was absorbed with *ombremanie* (Gombrich 1995). At *Le Chat Noir*, shadow plays such as *L'Epopée* would use four thousand silhouettes performing thirty scenes. The silhouette, the image of austerity, made epic. Bertillon was a Parisian police clerk, who had started to assort and arrange with photography, dividing facial features into discrete units of information, thus introducing biometrics and anthropometry. At this time psychology was further questioning the reliability of human memory and scepticism was placed on eyewitness accounts. Bertillon continued to pioneer forensic science by merging metric measurements, plans and calculations with the camera to create a systematised procedure for photography.

Bertillon, from a family of statisticians, developed a formal structure of photography allowing for re-investigation of the crime scene with the aim to 'produce directly with no instrument other than the lens, photographs which could be utilized as actual geometric plans in cross-section, elevation and horizontal projection, and which, with the aid of simple rules and calculations would be capable of providing the shapes and exact dimensions of the objects shown' (Dufour 2015: 19). By using an overhead camera fitted with a wide-angle lens, recordings were made by Bertillon under strict standardised conditions from atop a two-metre-tall tripod. These images take on a supra-human point of view: looking down on to murder scenes, the victims are framed within the converging lines created by the apparatus. These photographs are then fused with

4.3 Ian Dawson and Louisa Minkin, RTI Taplow House (Cab Office), 2015.

a *perspectometric* measurement grid to enable a transformation of the image into *planimetric* drawings. This elaborate representation system was even applied to the morgue, where the floor was divided with a sequence of cross-hatched, isometric lines in order that all photography could be used as a metric analytic tool.

Back at Taplow House, in the cab office, a room set out in quadrants, a letterbox aperture divides the rooms, once used to communicate one's desired destination to the controller.

RTI is designed to record a flat narrow depth of field but was used to describe a whole space, the RTI software ordering the shadows into a synthetic sundial, the architecture of the space acting as the gnomon. Gnomon: Greek for the 'one that examines', the emblem for French notaries (Schwartz 1996) and the orientation tool on three-dimensional visualisation software.

Optical tricks

Any studying of imaging is a study into the devices that have created them; visualisations, whether digital or analogue, are always constructions, as Carlo Rubbia the particle physicist said: 'Detectors are really (just) a way to express yourself … The detector is the image of the guy who designed it' (Cubitt 2014: 245). There is a fundamental uncertainty to

images when produced by contraptions; apparatuses create experimental impressions: they are not unmediated truths. From torch light to optical boxes, lenticular images and holography, mediation affects the event itself – visual media are also interventions into the physical processes of the world. 'The world does not exist as data: it must be produced as data' (Cubitt 2014: 246).

Optical tricks were often byproducts of scientific endeavour; the solar microscope of the eighteenth century was used by both scientists and swindlers, with quasi-scientific shows, involving necromantic cats and influenza lice, being presented before dubious remedies were peddled. The noble pursuit to understand nature brought fashion to lenses. London's famous diarist Samuel Pepys chronicles the shop of Richard Reeve's, which he frequented, where microscopes, telescopes, magic lanterns were avidly sought. Spectacles, invented in Pisa in the thirteenth century, and eyeglasses to fix faulty vision were in general use by the seventeenth century (by the wealthy) and these were offered alongside sextants, telescopes and compasses. One could also find fantastical eyeglasses with faceted lenses, cut from crystal and mounted in gilded metal frames, devices that multiply an object's view as the saying went at the time: 'These are pleasurable spectacles for avaricious persons that love Gold and Silver, for one piece will seem many, or one heap of money will seem a treasury' (Stafford and Terpak, 2001: 185).

These particular lenses influenced a type of optical painting that could be viewed through a special perspective glass; here the image didn't just proliferate but instead the broken elements of the scene would realign into a coherent new image. The busts of twelve Ottoman rulers combine to form a portrait of King Louis XIII, for example, as a tuft of hair from one, a nose from another, are drawn together. The influence of this form of imaging can be seen on Hobbes's title-page for *Leviathan* (1651) as the body of the towering figure of Leviathan is composed of innumerable smaller figures. 'There is no power on earth to be compared to him', it states, as Hobbes's frontispiece illustrates the translation of new optical technology into political and religious spheres (Stafford and Terpak 2001: 186).

One might say Taplow House is twinned with Taeppas Low, the seventh-century Anglo-Saxon burial mound located sixty miles upstream on the river Thames. This mound dominates the local environment and must have been the focus of legend and curiosity. In 1883 a group of antiquarians excavated the mound 'with a zeal only outmatched by their incompetence' (Webster 2001), producing contradictory plans of the burial chamber and failing to keep any systematic records of their observations. The extraordinary array of grave goods from the Kentish east lay around the body indicating the dead man's power and hinting at the politics and power struggles of the early Anglo-Saxon period.

Eastwards and firmly in Kentish territory, Taplow House has its own political dimensions. Built between 1963 and 1977, the estate was one of the most imposing in Europe, one of the last to be built using the now defunct LPS (large panel system) of prefabricated concrete slabs. This style, along with its raised walkways, almost immediately became synonymous with its decline. And it is here that Tony Blair gave his first public speech as Prime Minister, with his 'Will to win' speech, standing high on a balcony, saluting out towards the country.

Like the antiquarians', our own archaeology of the forgotten rooms on this estate was similarly problematic; the estate is under regeneration, artists' projects are the first wave of gentrification – as new blocks of incremental housing and dispersal architecture are constructed. As Taplow waits for its own demolition, how does one remember buildings whose importance lies in their very own hostility to heritage (Hatherley 2009)? The very same imaging techniques used to explore the site from within are those used to advertise renewal, and revival from outside with the pixel-bright hoardings and panels featuring cleansed regeneration sunsets. Perhaps our images of the interior of Taplow House can be classed as beautiful images that counter the an-esthetic subordinating images of mass media so that they can be used to communicate and ascribe a common value and used to discuss relationships to the machinery of production?

4.4 Ian Dawson, RTI Underpass, 2016.

The self-swallowing camera

In 1971 with the aid of a couple of mirrors John Hilliard photographed a camera using seven different apertures and ten different shutter speeds. The resultant work – a grid of seventy photographs that disperses the dark black underexposed images in the bottom right-hand corner to the overexposed bleached images in the top left part of the grid – is a shimmer of cameras. This is a recording of the phase space of the 35 mm camera as apparatus. Titled 'A camera recording its own condition', these photographs impart a teleology (Hofstader 2007): a system endowed with desire to describe its own status and illustrating the dialectical position that 'with every photograph, the photographic program becomes poorer by one possibility, while the photographic universe becomes richer by one realization' (Fuller 2005). What would happen if the RTI process were to be turned in on itself, to create a recursive feedback loop? How would RTI evidence its own phase space? The RTI software doesn't like reflective surfaces, so what would be generated by the flashlight reflecting through the lens and on to the film? Or more accurately, what do multiple electronic discharges of xenon (the flash) do when captured on the metal oxide semiconductor of the DSLR image sensor? The process commences with an electronic charge of flash-emitting photons which rebounds from a mirror before entering the lens and reaching the image sensor at the rear of the camera; these photons then react with the photosensitive capacitors of the chip to release electrons thus to produce a charge. What starts with an electronic charge returns to an electronic charge.

The charge couple device (CCD), a relative of the solar panel, stores these incoming photons. There is a further dialogue around the existence of photons in the first place; photons are emitted when electrons jump, and electrons exist only when they are being interacted with (Rovelli 2014: 14). These photons are organised at the back of the camera in a grid-and-column structure, holding the heat charge until a system of gates and barriers enables an orderly discharge and conversion via voltage to information. At this point the CCD performs its function as if like a clock (Cubitt 2014: 100). After the output as lines of numeric code, the RTI software calculates the directionality of the light source of each pixel and extracts the reflectance information translating these data into a polynomial texture map. Here the directionality of the light source for each single pixel is converted, producing a surface normal for those pixels whilst discarding all other pixel and jpeg information. The RTI Viewer acts as the interface that allows for a visual representation of this information. At this point the world of visible surfaces have transitioned from geometrical and grammatical structures to mathematical organisation.

Polynomial, a conjunction of the Greek for 'many' and Latin for 'term', is an algebraic function: wherever there is proliferation a polynomial will be used to relate the data from one to another; it encodes information about objects into curves. Polynomials process variables that are easily smoothed; and because they are 'many termed' they obey all the rules. Polynomials are used to design rollercoasters or to plot the trajectory of projectiles, and in the stock market to strategise demand against pricing. In the polynomial imaging of RTI we can see that, once converted into numbers, light can be subjected to the kind of manipulation that we observe in the financial sector, where the abstraction rather than the actuality is massaged and manipulated: a system in which any light, any charge, any voltage can be exchanged for any other, creating an externality out of the very substance of image making. The image is not only fashioned mathematically, it can also be refashioned mathematically.
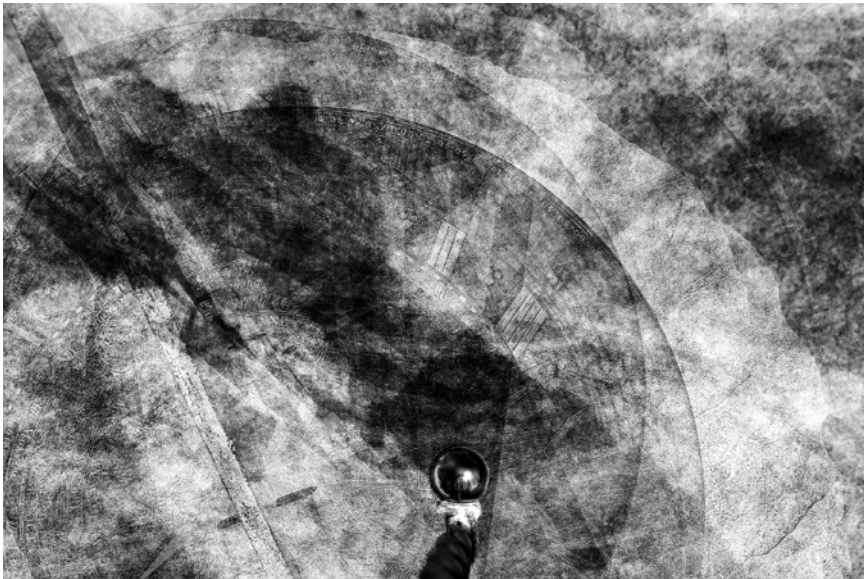
Unstable RTI

The standard spherical cue ball is a constant in RTI: it contains the high-light information used to extract the directional light information, the crystal ball for the software. In conventional RTI this black sphere is eventually cropped out of the image, redundant and superfluous. The black ball became an ever more central part in our experimentation, expanding in scale, to the size of a beachball when capturing oversized environments, the situation for the cue ball ever more significant as thresholds between architectural spaces were used to explore the limits and tolerances in the software itself.

Firstly, the sphere was supplanted by the reflective domes of the security mirror, the eye of the underpass, before the camera was pointed (Peeping Tom style) at the fish-eye lens of a 360-degree camera, itself becoming the tool for reordering the temporal and spatial configurations of the process, allowing for multiple processing of the latency of each camera. The 360-degree camera footage bears witness to the omni-point of view of the sphere, the ensuing film inducing the latency of the digital image: the disappearance and reappearance of the technical image and the transformation of time into space, the spherical coding of the camera creating images organised for a post-optical point of view. In a final untethering, a jig was constructed to conjoin the camera to the ball in order to release the camera from the tripod. The apparatus was now able to align photographic data derived from different viewpoints; the subsequent polynomial texture maps present dematerialised images, merged compound images of dissipated data.

An experiment with this unstable RTI was also conducted in the grounds of Lacock Abbey, Wiltshire, a movie location for Hogwarts, the

school of wizardry and magic in the *Harry Potter* film franchise. Lacock Abbey is also the erstwhile home to William Fox Talbot, one of the inventors of photography. Lacock Abbey was where the earliest photographic experiments were performed. By the latticed oriel window, an image of which is the earliest surviving photographic negative, a sundial is captured by RTI. The jig allows the camera to become the re-locatable and re-quantifiable component in the system in order for sunlight to be utilised as the light source.

The first experiments at Taplow House were dubbed as 'Dirty RTI' (Eleni Kotoula coined the term during a field trip to record Neolithic chalk carvings at Monkton Up Wimborne), describing the bending, stretching and unfolding of the spatial capacities of the RTI process. These latest experiment with unstable RTI continue the dialogue about image making where the apparatus continually enslaves and ensnares us and asks us to challenge its boundaries. The complex temporalities of these unstable RTI processes produce images that are like tree rings. They are not evenly spaced moments, where matter is tracked regularly; rather the properties 'that come to matter' in the image are 're(con)figured in the very making/marking of time'. To follow the metaphor of the RTI image as tree ring is to consider these images as 'enfolded participants in matters iterative becoming' (Barad 2007: 181). These are images that celebrate and revel in having no such exterior observational point of view.

4.5 Ian Dawson, Unstable RTI, Lacock Sundial, 2017.

Light years

The quotation which began this chapter is taken from a short story by Italo Calvino, which is a tale of a galaxy. This galaxy spots a sign from another galaxy 100 million light years away which references an embarrassing moment 100 million light years previously. The story then unfolds, of the comic and ever more frantic escapades of the universe to reconcile the moment when it had been spotted and how to resolve that moment when light had sent a message into space and time. No matter what it did, the universe couldn't satisfactorily alter its message; and its only respite was the knowledge of a ten-billion-light-year horizon where no object can be seen again. The galaxy said, 'I suddenly felt a kind of relief, as if peace could come to me only after the moment when there would be nothing to add and nothing to remove in that arbitrary ledger of misunderstandings' (Calvino 1968).

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Commentary on Part I

Tim Ingold

Can a living being emerge in its own image? It can, if it is an insect. Most insects pass in their life-cycles through a series of developmental stages known as instars. For some, the change from stage to stage is gradual, such that each stage somewhat resembles the one before. For others, however, including beetles, bees, ants, butterflies, moths, fleas and mosquitoes, the transition from one instar to the next is abrupt and complete: a total metamorphosis. What happens is that each instar furnishes an outer covering, skin or exoskeleton that hides the formative processes going on inside it until the time comes when it can be shed, or moulted, at which point the next instar emerges or hatches out, already formed. Thus does the larva emerge from the egg, the pupa or chrysalis from within the engorged body of the larva, and the adult form from the pupa. It was the great Swedish naturalist Carolus Linnaeus who, in the eighteenth century, adopted the term larva for the first instar to emerge from the egg, and imago for the final, adult form. The word larva comes from the Latin for 'mask'. Evidently, Linnaeus had in mind that the imago – the image – would finally appear into the light once the mask in which it had been encased finally disintegrated. In art, after all, images can reveal themselves in the same way, and to Linnaeus the metamorphosis of the insect, from larva to imago, must have seemed like a case of nature imitating art.

For artisans of sixteenth- and seventeenth-century Europe had already been casting their own images of animal forms, using a technique that goes back to Roman antiquity. And their preferred animals were precisely those fabled for their capacities of metamorphosis or spontaneous generation, including not only insects of all sorts but also a range of amphibious

creatures such as lizards, snakes, frogs, toads, turtles and crabs (Smith 2014: 45; Smith and Beentjes 2010: 141). Creatures raised for the purpose would be killed – as gently as possible so as not to cause scarring or deformation – and encased in wet plaster. After drying and firing, the animal's ashes would be tipped out from holes left for the purpose, into which would then be poured molten metal – gold, silver or a mixture of lead and tin. Once cooled, the plaster cast could be broken open to reveal the animal, exquisitely formed in metal, with every detailed faithfully preserved.

The historian Pamela Smith, whose investigations of early modern methods of life casting have extended to their experimental replication, argues that craftsmen aimed to do more than satisfy the tastes of their wealthy patrons. For they saw their practice, in itself, as a kind of nature study – a way of understanding the processes thought to be at work in the spontaneous generation of life-forms through attempts to replicate these processes with their own hands. This was art imitating nature. As the creature takes shape within its exterior casing, to be revealed when the casing is cast off, so its life-cast replica is formed within the hidden recesses of the mould first formed around the original and emerges, already complete, when the mould is broken. And if there was a preference for creatures of marsh and swamp, drawn to fetid pools and putrefying materials in which the elements of earth, air and water had yet to separate out, it was because in such media the forces of emergent life were thought to be at their most potent and creative (Smith 2014; Smith and Beentjes 2010).

After having read Rune Nyord's chapter (Chapter 2 above), I am convinced that if the artisans of ancient Egypt had been able to time-travel to early modern Europe and share notes with the life-casters of the period, they would have immediately discovered much common ground. Egyptians venerated the hippopotamus and used to make images of the animal to accompany the bodies of the dead in their graves. Why the hippopotamus? Clearly, too, this animal is amphibious: emerging from the swamp, it is imbued with the life-giving powers of riverine mud – the very same mud that is deposited on the fields after every annual flood of the Nile and that, over countless centuries, has made the land of Egyptian farmers so rich and fertile. Might it not impart the same powers to the deceased in their afterlife? As Nyord shows, in the processes of making the images, art once again imitates nature. The images are made of faience, by taking silica from desert sand, soda from the ashes of plants, lime from limestone, and a colouring material such as copper, and mixing these materials to form a thick paste that can be shaped into the figure of the hippopotamus. As it dries, the colouring agent rises to the surface which, on firing, melts and fuses to form a glaze. Though

a variety of other methods were used, this so-called 'method of efflorescence' was the most often employed.

The key point to emerge from Nyord's analysis is that the method effectively replicates the processes by which, in Egyptian thought, all life is generated. It emerges, or bubbles up, from a vital sludge of undifferentiated material, which turns inside out into the skin of a form. That's how plants grow from the swamp, as well as water-birds, frogs and insects such as butterflies. It is no wonder, then, that the surface of hippopotamus figurines would be painted in designs depicting plants and animals such as these. For they arose out of the same processes that gave form to the hippopotamus itself. As the real-life hippo rises from Nilotic mud, surrounded by plants, birds, frogs and butterflies, so the figurine emerges from the wet paste of mixed materials, covered by depictions of the same. Which, then, is the image: the figurine or its real-life counterpart? Like early modern craftsmen, who would start with living, amphibious creatures and end with their life-cast equivalents, for the people of ancient Egypt, too, the creature and its image appear to be ontologically equivalent, both born of same formative process.

It is with these thoughts in mind that I now turn to the contribution from Benjamin Alberti (Chapter 3), who is concerned with the making of ceramic pots, dating from the first millennium in north-west Argentina. These pots, belonging to the archaeological culture known as La Candelaria, often have anthropomorphic features, though not without ambiguity, as the nose or eyebrows of a face could sometimes double up as the legs of a frog. Indeed, as Alberti has observed elsewhere, Candelarian pot-bodies often come embellished not only with amphibian features but also with those of peccaries, water-fowl and vines, 'exuberant forms that seem to grow' (Alberti 2014: 111). The parallels with the faience hippopotamuses of ancient Egypt, likewise decorated with the fauna and flora of their wetland milieu, are uncanny. What is at stake with these pots, however, is the growth and formation of human bodies. Alberti is wondering what anthropomorphism really is, and he turns to the pots for answers. He also turns for inspiration to the influential work of Alfred Gell (1998), not so much for what it has to say about art and agency, but for its analysis of the formal attributes of artworks. But the attempt to apply a Gellian analysis immediately collides with the fundamentally 'verb-like' character of existence in the Amerindian world. Nothing in this world is stable; everything is subject to transformation and metamorphosis. No form can be more permanent than a skin, destined to be shed, broken and discarded when overtaken by the growth that swells inside it. Likewise, every pot, as the skin of a form, is bound to be broken. Sounds familiar? It's the same with insects.

The difficulty with Gell's approach, as Alberti finds as soon as he tries to apply it, is that its starting point is the finished work. For Gell, art means artworks, not the work of making them. The latter, as it were, falls through the cracks. Yet in a world where nothing is ever finished, in which beings – whether of organic or artefactual origin – are always in the making, the cracks open to a void, and everything falls through. Making, in such a world, is indistinguishable from growing, from the formation and transformation of materials under careful hands and watchful eyes. The hands of potters caress the clay as the hands of parents caress the new-born; out of all this care and attention emerge the chronically unstable forms of human bodies and pots. Like faience and real-life hippopotamuses in Egypt, pots and bodies are ontologically equivalent. We cannot say, without equivocation, which is the image of the other. What then of anthropomorphism? Alberti is forced to conclude that what looks like anthropomorphism, if we encounter pots only as finished objects or works, is not really that at all! The pots are not made to look like bodies, they are bodies, made and grown as bodies are. Their humanoid features are not imposed, as form on matter, but generated from within a nexus of human making and care. This is not anthropomorphism but anthropogenesis (Ingold 2015: 120–4).

What then, of forms that have no substance? With insects, frogs, hippopotamuses and humans – whether organically grown or cast in metal, faience or clay – forms emerge from matrices of vital materials. Introducing us to the technique of 'reflectance transformation imaging', however, Ian Dawson (Chapter 4) describes an imaging process for which the medium is nothing more, and nothing less, than light. The image, it seems, is but an apparition, form without substance. But this at once confronts us with the question of the meaning of light. Are we to think of light as energetic rays that reveal the material world to us, in its objectively visible forms, or does light enter materially into the processes of world making in which both we ourselves and the things around us are continually in-formation? And what of colour? Is colour a property of incident radiation, given in its spectral variation, or is it intrinsic to the material ingredients from which things are made – as copper, for instance, is an ingredient of the paste from which the faience hippopotamus emerges?

There is no right answer to these questions. We can allow light, as Dawson does, to be a kind of electromagnetic radiation, perhaps limited to the range of frequencies to which photoreceptors in the eyes of human beings or other animals are able to respond. And we can equate colour with the spectral variation that is revealed when rays are refracted through a prism. But this is not the light that shines or flickers, nor is it the colour

that paints the illuminated world of our experience. Such light, and such colour, are generated not in the play of charged particles but as an affectation of consciousness, where the space of awareness merges with that of the cosmos. It is not physical but phenomenological. Sunshine, the flame of the candle, the limelight produced by burning calcium oxide, even the glare of the camera flash – all these, and more, are instances of luminous experience. Radiation and spectral variation, in short, are conditions for the experience of light and colour; they are not light and colour as such. And when we oppose light to shade – even though we know that the shadow is physically caused by the interruption of radiation incident on a surface – the shadow itself, as it affects us, is a phenomenon of experience. Like the RTI image, the shadow is not an object seen but rather an affectation that takes hold of the very way we see. In the form of the image, or the shadow, the world 'coils over', as the philosopher Maurice Merleau-Ponty (1968: 140) put it, entering vision on the hither side.

Let me return in closing to the insect larva. I have already noted the origin of the term in the Latin for 'mask'. In even earlier usages, however, it referred to a ghost, demon, or disembodied spirit. Do you believe in ghosts? Have you ever experienced that clammy sense of presence, that passing shadow which chills the air even as it dims the light, and that seems on the verge of taking form without however settling into any shape so definite as to permit unequivocal identification? As anyone who has suffered such an experience will tell you, the ghostly image is neither internal to the psyche, nor 'out there' in the world, but exists in the very space in which mind and world are as yet undifferentiated, in a nascent world of becoming, of instability and transformation. Even the boundary between life and death seems momentarily suspended. This is the space of transition between the larva and the fly, between the living animal and its metallic life cast, between the real-life hippo and the faience hippo in the afterlife, between the human person and the pot, and between the artefact and its 'reflection transformation'. In every case, imaging is about not representation but metamorphosis.

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Part II

Images as process

5

Rock art as process: Iberian Late Bronze Age 'warrior' stelae in-the-making

Marta Díaz-Guardamino

Introduction

Research on engraved rock art has been traditionally focused on aspects of meaning and representation. Perhaps one of the best examples of this in Iberia is the influential work of Emmanuel Anati (1968), who viewed all engraved rock art in western Iberia as part of a tradition that evolved from the Mesolithic to the Iron Age, and whose religious-ideological meaning was considered self-evident and seminal to its making. A more sophisticated approach rooted in structuralism was developed for Atlantic rock art in Galicia by Santos-Estévez (2010). For this author, Galician rock art is a system for space representation, part of 'a technology of organization and articulation of all levels and dimensions of space' (Santos-Estévez 2010: 155). In this context, rock art motifs, their combination and location on the panel, and the setting of the latter in the landscape, are held as representations of space and, ultimately, codifications of underlying cultural rules.

The formal methods deployed to study petroglyphs have been mainly concerned with aspects such as style (understood as 'form') and spatial patterning. Stylistic and spatial patterns have been interpreted as physical representations of extant symbolic frameworks. As mentioned above, the spatial setting of Galician rock art at the panel and landscape levels is thought to represent a culturally bound organisation of space (Criado-Boado 2010; Santos-Estévez 2010). Another relevant example is Kristiansen's work (2010), in which it is argued that the southern tradition of Scandinavian rock art narrates episodes of Indo-European myths, notably the sun-journey (Kristiansen 2010). These approaches tend to

render rock art motifs and panels as static repositories of meaning and, while the role of the panel in the making of rock art has been considered to some extent (e.g. Criado-Boado 2010), key aspects related to the ontology of rock art have rarely been discussed.

Rock art is in constant flux (Jones and Cochrane 2018: ch. 2). What we encounter today is not the 'finished outcome' of some predefined plan but a momentary state of being involving many different participants, past and present, including not only people, vibrant rocks and places but also the elements, other substances and organisms etc.

Whilst considered inert, rocks have the capacity to change, to do things without human intervention (Ingold 2007). The interplay between the micro-topography of the rock and the sun has been often highlighted as key to understanding Scandinavian rock art: the sun brings petroglyphs, images, alive, and this changes on a daily and seasonal basis (Bradley 2009: 168–75). Water also forges interesting relationships with rock outcrops and petroglyphs. Further than representing the broader landscape, the rock art panel becomes alive and changes with water running through its surface (Jones and Díaz-Guardamino 2017). Whilst often viewed as intrusive and damaging by archaeologists and conservators, lichens also are an integral part of what the rock art becomes, and by stripping its layers away, as it is usually done, we are reconfiguring the panel to the canonical idea of what we think rock art should be – needless to say, this may not correspond to past perceptions.

But, of course, rock art also changes through its encounters with humans. There are countless cases, in Scandinavian and Galician rock art, in which rock art panels have experienced transformations by the human hand time after their initial creation. These are recorded, their implications in terms of chronology and meaning explored (Santos-Estévez 2013; Horn and Potter, 2017), but little is suggested about rock art's capacity to affect or its changing essence (but see Fahlander 2012). Here it is relevant to consider that rock art meanings emerge through practice, they are embodied, relational and fluid. Consequently, following Barad (2007), it can be argued that rock art embodies the ontological commitments of people, and this has relevant implications for how we think about and engage with rock art. As it has been proposed recently (Jones and Díaz-Guardamino 2017), by placing formal methods, particularly bottom-up approaches, at the heart of rock art studies alongside analogy, we can start focusing on ontological questions. A focus on rock art (re) making, for example, can help us think about material engagements, the crafting of relations and embodied knowledge, that is, about how people create(d) their worlds (see also Jones and Cochrane 2018: ch. 12).

If rock art has been in a constant process of becoming since the earliest petroglyphs were carved – and even then motifs were caved out of

already vibrant rocks – it is necessary to consider rock art as things that emerged from something else and that have been constantly in-the-making. Therefore, to study 'rock art making' requires an inclusive open-ended long-term perspective that can consider encounters, transformations, relations and so on through time (either as 'multiple objects' (Jones *et al*. 2016), 'relational biographies' (Joy 2009), 'itineraries' (Joyce 2012; Díaz-Guardamino 2015) or four-dimensionally (Jones and Cochrane 2018: 183–6)).

In the following sections I will illustrate how rock art is co-constituted through the dynamic interplay of different entities, through a case study, the so-called 'warrior' stelae, which are part of what researchers identify as a standardised tradition found in Iberia, which has been dated to the Late Bronze Age (c. 1250–850 cal BCE). After providing an introductory view of 'warrior' stelae and some of the latest results of research on them, I will focus on two key issues. Firstly, I will discuss the significance of individual boulders in shaping rock art production, as well as the skill and knowledge of the engraver(s). Secondly, I will argue that stela making was as significant as – if not more than – the images. Finally, I will make a case for stela (re)making as an open-ended process.

Iberian Late Bronze Age 'warrior' stelae: from iconography to making

Iberian 'warrior' stelae were identified as a 'tradition' in the mid-twentieth century, when around twenty such slabs were known (Ramón y Fernández de Oxea 1950, 1955; Almagro-Basch 1966); by 2017 a total of around 140 'warrior' stelae from across south and western Iberia were known. The iconography of these slabs, which are decorated on one side, revolves around a basic panoply of weapons composed of spear, shield and sword. These elements can be accompanied by representations of other objects associated with social status, dress and personal care (i.e. comb, brooch, dogs, chariot, lyre, weights). A key element in more than half of the slabs recorded to date is the human figure: this is usually an individual schematic body, although in a few instances there are two or more figures. The size and arrangement of these elements on the stela surface seem to represent the body of a deceased accompanied by a series of elements, including grave goods, following specific conventions that are broadly shared.

There are various intriguing issues about these decorated slabs. Little is known about their findspots; they were frequently found during agricultural work and, believing that these were 'decontextualised' remains, archaeologists paid little attention to studying their findspots. Recent

research on some of these sites, however, is revealing that these were persistent, liminal locations, where ritual practices were carried out at different points in time, also in connection to stelae (Díaz-Guardamino *et al*. 2019, 2020). Another fascinating fact is that, whilst motifs represent objects that were known and/or circulated in Iberia and beyond (i.e. the Mediterranean and the Atlantic) during the Late Bronze Age (*c*. 1250–850 cal BCE), the ones found in Iberia are mostly found in regions where stelae are not present and are rarely found in funerary contexts (but usually in hoards and domestic contexts). Lastly, the distribution of stelae – and their iconographic conventions – is very extensive, spanning up to hundreds of kilometres, suggesting that the communities related to these monuments were tightly interconnected (Fig. 5.1).
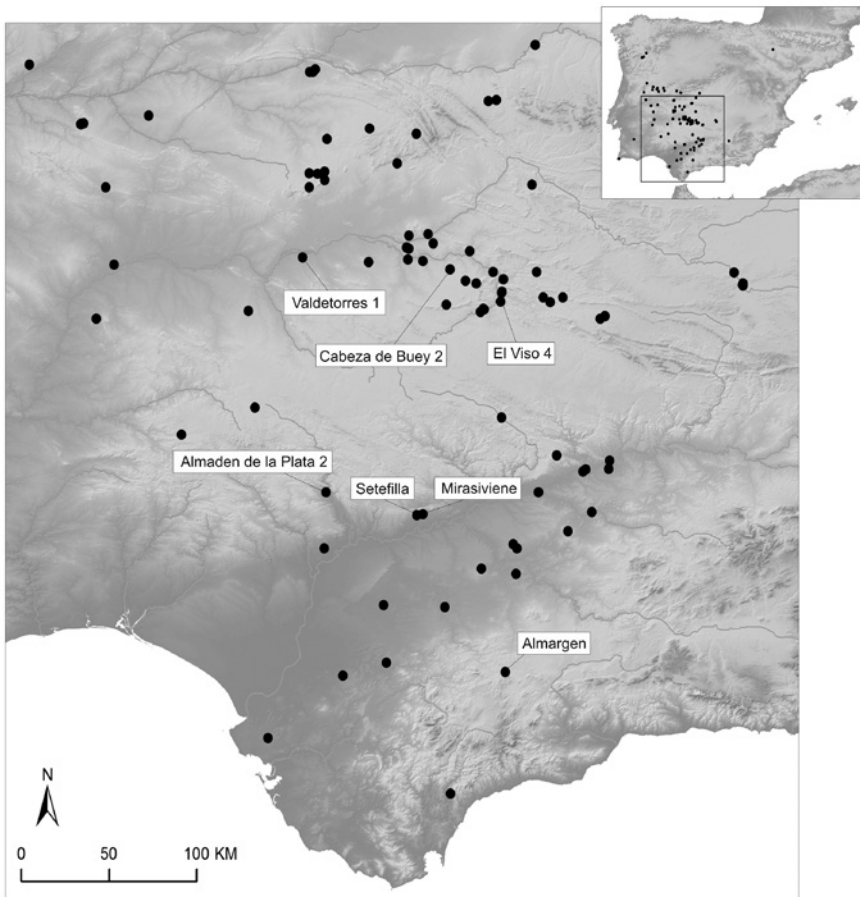

5.1 Geographical distribution of the Iberian 'warrior' stelae mentioned in the text.

Because of the alleged lack of context, mainstream archaeology has consistently focused on the typological or stylistic analysis of stela iconography. Stelae decorations were held as finished compositions, and little if any attention was paid to the stones they were made of or the techniques used to shape or carve them. The presence or absence of specific motifs and their arrangement on the stone canvas were the key variables considered to explore the evidence; on the basis of the results, stelae were categorised into groups, types and subtypes, which, while lending themselves to be interpreted chronologically, in relation to changing patterns of connectivity (Díaz-Guardamino 2012), have been held as expressions of extant identities or incoming ideologies (Galán-Domingo 1993; Celestino-Pérez 2001; Harrison 2004). But, as highlighted by a recent review of the evidence (Díaz-Guardamino 2012: 402–6), reuse of these slabs involving episodes of recarving, erasure and fragmentation was most probably more extensive than currently thought. As this has not been researched systematically, we just lack the evidence to assess its extent.

Recent research on 'warrior' stelae has focused on the biographies of these boulders, from their quarrying up to the present, with special emphasis on the emerging properties of the stones used to create stelae (see below), the *chaîne opératoire* of their manufacture, and the later engagements in which they may have been involved (see below) (Díaz-Guardamino 2015; Díaz-Guardamino *et al*. 2015, 2019, 2020).

How were stelae made? Were the stones carefully selected? Were specialist knowledge and experience required to manufacture them? Were they made by itinerant craftspeople? How long did it take to manufacture them? These are some of the questions we have explored recently through the detailed analysis of a sample of 'warrior' stelae by means of petrographic analysis, digital imaging techniques and experimental work (Díaz-Guardamino 2015; Díaz-Guardamino *et al*. 2015, 2019, 2020). The results shed light on some of these questions (Figs 5.2 and 5.3). For example, the analysis of the *chaîne opératoire* of manufacture by means of RTI of four stelae located in the same region, the Guadalquivir valley (two of them found barely 3 km apart), and bearing similar iconographies, revealed that they were made using different sets of techniques. The four stelae are made of different (local) stones: Almadén de la Plata 2 is made of tuff, Setefilla of limestone (probably, since this one has not been analysed by means of petrography), Mirasiviene of mica-schist and Almargen of dolomite. In all four cases a lot of effort was invested in the preparation of the surface to be decorated, although, whilst the surface of Almadén was just flattened through fine chiselling, the surface of the others was thoroughly smoothed through abrasion. The techniques used to carve the motifs are even more varied (Fig. 5.2): in Almadén
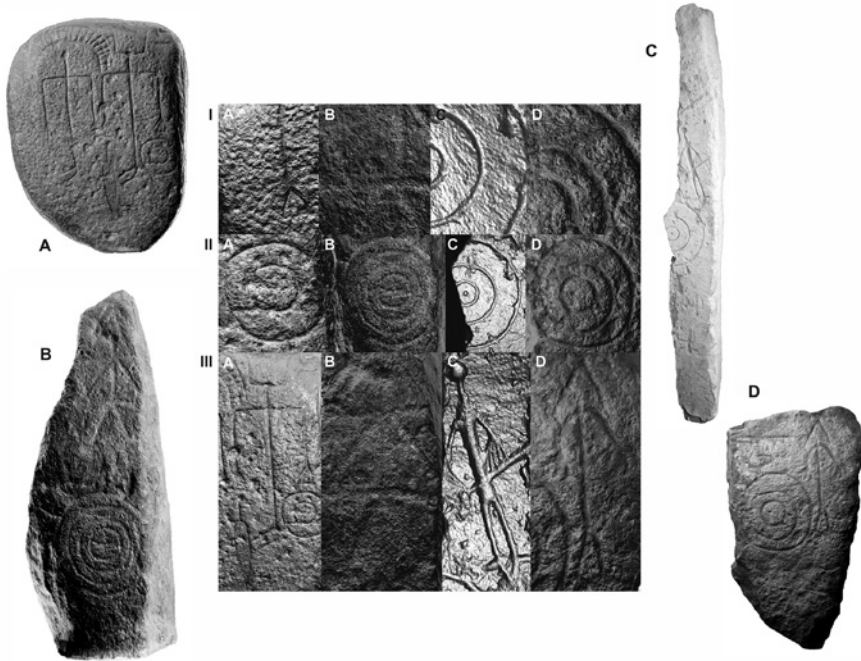
5.2 Different carving techniques used to make 'warrior' stelae as revealed by RTI analysis (stelae not to scale): A – stela of Almaden de la Plata 2 (height: 76 cm), B – stela of Setefilla (h: 170 cm), C – stela of Mirasiviene (h: 182 cm), D – stela of Almargen (h: 100 cm). RTI snapshots with various filters (Diffuse Gain, Specular Enhancement, Luminance Unsharp Masking filters): I – details of surface preparation, II – details of the grooves depicting the shields, III – details of the grooves depicting the human figures.

incision and abrasion were used to delineate the fine outline of motifs, in Mirasiviene significant effort was invested in carving most of the motifs through pecking; some of the grooves were later abraded, achieving a very smooth surface. Setefilla and Almargen were made with less care. The outlines, made with more or less shallower pecking, are quite schematic, simpler than the ones featured in the other two stelae.

These results have significant impact in the way we understand rock art style and iconography. Firstly because it reveals that, while creating images with broadly shared stylistic traits, the carvers had variable degrees of skill and were using local 'know-how' to engrave them, making particular choices. Surely, the outcome of these encounters with stone also depended on the rocks and their emergent properties (see below). The fact that these boulders were locally sourced is also key, but they seem to have been sourced differently: the rounded tuff of Almadén de

la Plata 2 appears in the area as naturally formed boulders, as happens with mica-schist in the surroundings of Mirasiviene, although in this case the stela's slab seems to have undergone considerable shaping work. Finally, we know that Almargen's dolomite was quarried from a large outcrop situated on the spot where the stela was found.

In general, these data suggest that, far from being carefully planned and executed projects, stelae were made on the spot in a rather improvised manner. This would fit well with the data that are emerging about their findspots in the cases of Setefilla and Mirasiviene, where a range of ritual activities (mortuary in the case of Setefilla) were conducted (Díaz-Guardamino *et al*. 2019). In Setefilla, urns with cremations (but no, or very few, grave goods apart from plates and bowls with possible food offerings) were deposited in circular pits at the time the stela was made and erected (Díaz-Guardamino *et al*. 2019; Aubet 1975, 1978; Brandherm and Krueger 2017). At Mirasiviene, where archaeological deposits were destroyed by agricultural work, numerous fragments of similar urns, bowls and plates were recorded, indicating the deposition of possible offerings, if not funerary deposits (Díaz-Guardamino *et al*. 2019). In both findspots, tools possibly related to stela manufacture (e.g. hammers, pecking stones) were found, indicating that stela shaping and carving were significant activities by themselves, and that they could have been closely linked to (or been part of) ritual activities. In this context, stelae making can be envisioned as a way of presencing the deceased and her or his paraphernalia, perhaps as part of a complex ritual process that would include the cremation of the body and the distribution of his or her regalia (e.g. through exchange, fragmentation, deposition in places of special significance).

Given the significance of stela making, it is important to ascertain the role of stone in those processes. This is an issue that we explored through a replication experiment.

Boulders with attitude

While doing fieldwork in the farmstead of the Mirasiviene stela, we decided to conduct a replication experiment with students to gather a more personal experience of how stela making might have unfolded. The experiment would consist of making a 'warrior' stela, including the flattening of its surface and the carving of motifs similar to those found on Late Bronze Age stelae, with tools comparable to those thought to have been employed for their manufacture.

Petrographic analysis of a sample from the Mirasiviene stela had already concluded that it was mica-schist found in the area, also as naturally formed boulders. An interesting fact is that, once detached

from the bedrock, the surface of mica-schist hardens through contact with air. We surveyed the farmstead to look for two suitable boulders of mica-schist, as well as stones of various lithologies that could be employed as tools. Importantly, the surfaces of the boulders to be worked were quite different, for their internal layering surfaced in different angles, one perpendicular (boulder 1), the other horizontal to the surface (boulder 2).

Students were organised in two teams of two students each. Since none of them had previous experience in stone working, I gave them a brief introduction on how they could use the tools to shape or carve the rock and showed them two prototypical images of 'warrior' stelae. The activities of flattening and carving proved quite entertaining to students: they shared among themselves the knowledge they were acquiring in real time, through their practical encounter with the boulder and their stone tools, and they even tried out creative methods to outline some of the motifs (i.e. using a string to delineate the shield). However, while they advanced, two distinct experiences were emerging: during the four hours the experiment lasted, those working with boulder 2 found it rather easy to produce something resembling a stela, whereas those working with boulder 1 felt somehow frustrated because they found a strong resistance of the boulder's surface to being shaped as they wished. Anyhow, in four hours students were able to create something very similar to 'warrior' stelae that are known in some of the areas with the highest concentrations of these finds (Fig. 5.3).

This experience illustrates key aspects of stelae making. Firstly, we need to go beyond categories (i.e. type of rock, in this case mica-schist) and consider the emerging properties of individual boulders, which had a significant impact in the students' learning process and, overall, throughout rock art production. Secondly, the sociality of rock art making and its rapidity reiterate once more the centrality of stelae making, which during the Late Bronze Age was perhaps more significant than the contemplation of the carved motifs. This is relevant because we do not really know if stelae were actually ever conceived as 'finished' productions. In fact, even though this has not been systematically assessed, there are already clear cases of reworking taking place soon after their initial manufacture.

These stones are alive! Entangling boulders and petroglyphs

Until very recently, studies of 'warrior' stelae did not pay much attention to the shaping of the block, the techniques used to carve motifs, the carving sequence, or the eventual reworking of stelae. In his work, Harrison (2004) discussed some of the most obvious cases of reuse, and the further

5.3 Rock art replication experiment in the farmstead of Mirasiviene (Seville, Spain). Above: Students engaged in rock art making. Below: boulder 1 (left) and boulder 2 (right).

assessment of the published evidence, jointly with the new analysis of some stelae, revealed additional cases (Díaz-Guardamino 2012). In 2010, Enríquez-Navascués and Fernández-Algaba presented one of the first attempts to characterise the carving techniques of these stelae, in this case the 'warrior' stelae held at the Museum of Badajoz (see also Domínguez de la Concha *et al.* 2005). Despite the limitations of the methods used – direct tracings and photography with oblique light – they were able to correct long-held misconceptions (e.g. that incision was the main technique employed to decorated stelae, as stated by Celestino-Pérez in 2001: 86) and to demonstrate that the most common technique used to decorate the Badajoz stelae was pecking and abrading; incision was used only for some details (i.e. fingers) (Enríquez-Navascués and Fernández-Algaba 2010: 159–60). The authors were also able to confirm some cases of reworking but did not discuss possible sequences of manufacture or how these may have been linked with instances of reworking within a processual perspective.

Indeed, the recent reassessment of some stelae held at the Museum of Badajoz reveals a complex panorama: some stelae show marks of erasure and reworking which could have been made some time after their initial manufacture, but still using carving techniques common at the time and within the framework of existing styles, changing them slightly. This would reinforce the idea of stelae as open-ended, collective projects. Also, these cases reveal very clearly how the boulders were actively involved in the process of stela making.

I will comment here on three cases that were recently re-examined by means of RTI and close-range photogrammetry, whose results revealed interesting insights.

The stela found in La Solanilla, known as El Viso 4 (El Viso, Badajoz, Acc. N. 10815), illustrates well the role of boulders in the process of rock art co-production (Fig. 5.4). This seems to be a 'natural' quartzite block. Possibly, the slab was extracted from the bedrock using a natural plane of fracture (there is only a mark of fracture in the upper right area that could have been produced through extraction) but it was not modified further; only the edges were softened as some small flaking marks reveal. The fracture produced various naturally smooth, flat and compartmentalised surfaces. Some of the carved motifs use the 'natural' topography: the spearhead is partially carved over a slope; the chariot's wheel is partially carved over an area affording a more irregular structure. The surface of the grooves outlining the human figures, the shield, chariot and the weapons were carefully abraded, although, as noted by Enríquez-Navascués and Fernández-Algaba (2010: 156), the left human figure was carved with less care and was perhaps a later addition. The shield and the sword were carved after the main human figure's hands and
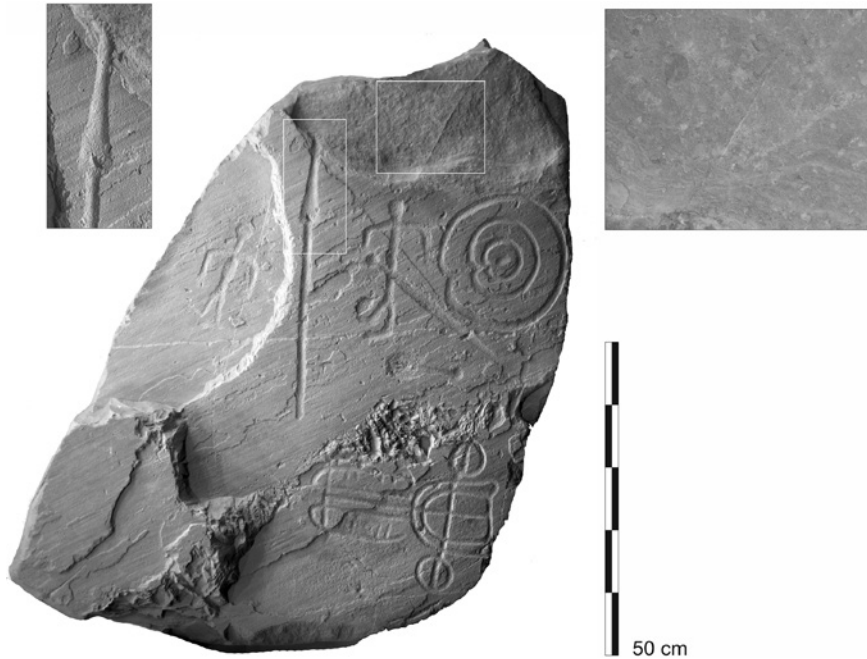
5.4 Stela of La Solanilla/El Viso 4 (El Viso, Badajoz, Spain, Acc. N. 10815).
General view and details as revealed by conventional photography. Left:
spearhead wrapping the stone; Right: faint human figure.

arms, since they cut them. These motifs, positioned on the flat spaces
afforded by the boulder, include the key elements (and their disposition)
of a canonical stela. But one more human figure was carved in a peripheral
position, in the upper part of the boulder surrounded by randomly
distributed shallow peckings. This human figure has a rather poor execu-
tion (is barely visible to the naked eye), being seemingly 'unfinished'.
But is it so or was the main purpose its carving to bring it into being?

The fascinating stela of Cabeza de Buey 2/La Yuntilla Alta (Cabeza
de Buey, Badajoz, Acc. N. 10814) expands on these questions (Fig. 5.5).
The diabase boulder has some natural edges, while others have been
shaped by the human hand. Interestingly, in the upper part, while the
right side is largely natural, the left side was shaped to make the block
symmetrical. In the lower part the surface seems to be a natural plane
but the mid- and upper parts show several marks of abrasion produced
through the flattening of the surface. In many ways the motifs carved
on this stela make up a canonical composition (e.g. the larger shield
centred, the human figure over it, the brooch and comb on the side, the
sword in the belt, the spear vertically positioned). However, there are
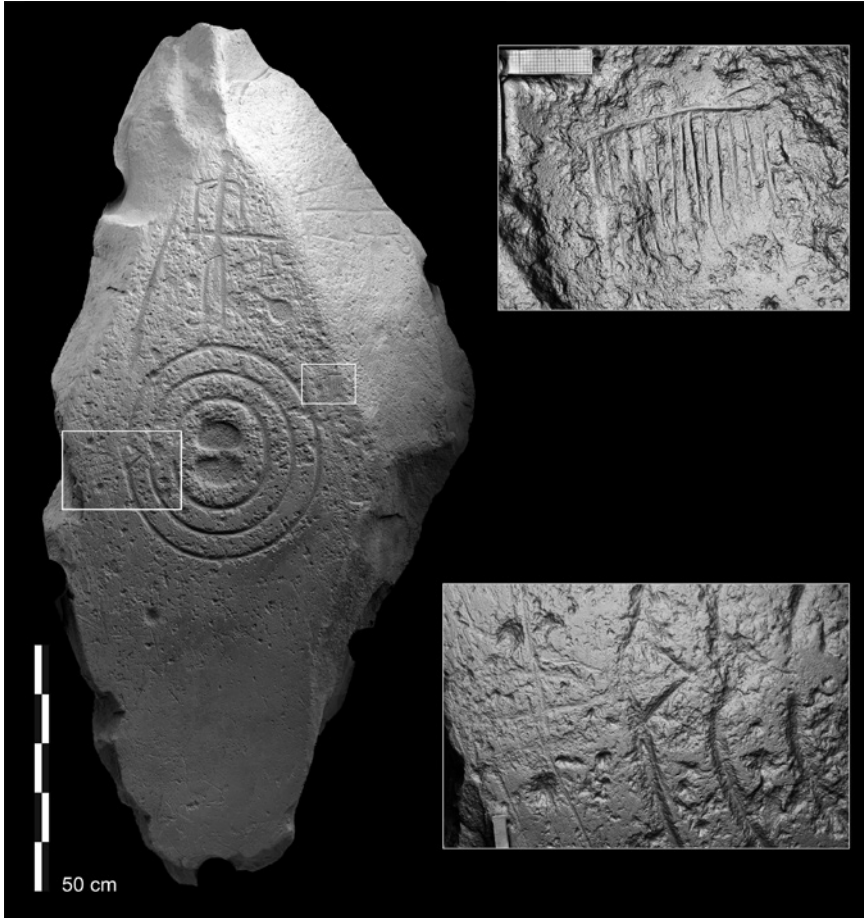
5.5 Stela of La Yuntilla Alta/Cabeza de Buey 2 (Cabeza de Buey, Badajoz, Acc. N. 10814). General view and details revealed by means of RTI (Filters: Luminance unsharp masking and Specular enhancement). Above: comb made with fine incision; Below: remains of partially erased chariot and marks of erasure of horses where the V notch was later engraved.

two striking details that reiterate the interplay between the carver and the boulder, as well as the possible addition of motifs at a later stage. There is part of a chariot on the left side of the shield; Enríquez-Navascués and Fernández-Algaba (2010: 159) interpret this motif as a later addition but there is evidence to suggest that this was carved before the shield was created. There are traces of the erased draft pole and horses beneath the shield, suggesting that once this chariot was carved the space left was deemed too small for the shield, and therefore it was partially erased
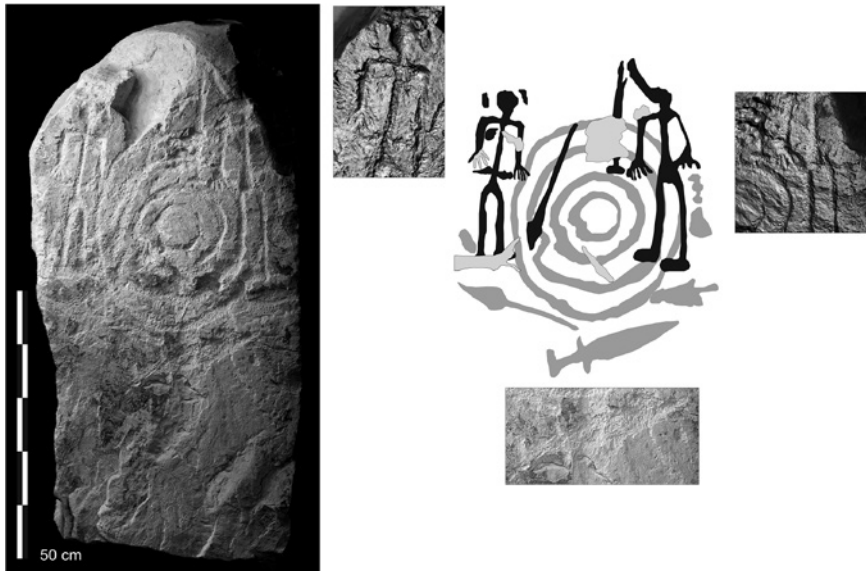
5.6 Stela of Valdetorres 1 (Cerro de El Santo, Badajoz, Acc. N. 13735). Left: general view revealed by RTI (Filter: Luminance unsharp masking). Right: schematic tracing of the carvings showing instances of superimposition and possible phasing (centre), and RTI snapshots of different details: upper half of the left human figure (left), mid-portion of the right human figure (right), both with Specular enhancement filter, and sword with Luminance unsharp masking filter (bottom).

when the shield was engraved. Then a new chariot was carved on a rather odd position, the upper right side. Additionally, there are various elements that were incised, rather than pecked and abraded as the rest of the motifs: very fine incisions delineate the fingers of the human figure, the detailed comb, and the reins of the second chariot, whilst deeper incisions mark the brooch and the V notch of the shield.

The stela of Valdetorres 1 (Cerro de El Santo, Badajoz, Acc. N. 13735), also made of quartzite, shows a coarser manufacture (Fig. 5.6). The boulder seems to have been partially shaped. The decorated surface has been minimally flattened and largely shows a natural plane. There is what seems to be an amalgam of carved motifs (i.e. a shield, human figures, two spears, two swords, part of a mirror). The human figures, the smaller spear and sword are superimposed to the shield and, therefore, seem to have been carved at a later stage (Fig. 5.6: centre right). This would conform to the classic, widely accepted evolution of the iconography of 'warrior' stelae: first we have the basic panoply, while the human figure(s) emerge at a later stage in the 'evolution' of this tradition. But

how much later did these elements appear? In this case all motifs were made with similarly broad, shallow grooves made by pecking and then some minimal abrasion (Fig. 5.6). All figures seem to have been manufactured similarly, opening up the possibility that the 'additions' were made close in time to the carving of the earliest motifs. This suggests, once more, that stelae were monuments meant to be active and engaged with after their initial manufacture, rather than contemplated.

Stelae in-the-making in Late Bronze Age Iberia

This chapter has sought to contribute to an understanding of rock art that goes beyond the idea of representation by focusing on the dynamic interplay between people, tools and boulders. As a case study I have used the so-called 'warrior' stelae from Iberia, identified by researchers as part of a rather standardised tradition that was practised for around five centuries, during the Late Bronze Age.

Focus has been placed on making and materials. The research here presented illustrates how, despite reproducing styles that were broadly shared, stelae were made on the spot in a rather improvised manner. Carvers used local 'know-how' to work the boulders, making particular choices to meet the challenges posed by the emergent properties of individual boulders. Stela making emerges as a very significant activity, perhaps more than the images themselves, and it could have been undertaken in tandem or in relation to ritual activities. Stelae seem to have been conceived not as 'finished' productions but as open-ended, collective undertakings, as cases of reworking taking place soon after their initial manufacture suggest.

From an ontological point of view, these insights have relevant implications for our understanding of stelae and, more broadly, Iberian Late Bronze Age communities. Encounters forged through stelae making crafted relations with different temporalities and spatialities among people, materials, places. Some relations (i.e. stylistic similarities) seem to have been more persistent (Fowler and Harris 2015) and extensive, emerging nowadays as 'categories' (i.e. traditions' or 'types') through the work of archaeologists focused on stylistic traits. But focus on specific encounters (i.e. stelae making) reveals that stelae were in constant flux, relationships between persons, things and places were unstable and changing; they were (and are) in a constant state of becoming (Marshall and Alberti 2014).

During the Late Bronze Age, the reworking of 'warrior' stelae did not involve significant ontological change; they were transformed within fairly orthodox parameters, and they seem to have served the same series of conventional roles throughout the period. Ontological change during this

period occurred when 'natural' or 'raw' boulders became 'warrior' stelae or when some older sculptures (e.g. Neolithic standing stones or Early/ Middle Bronze Age statue-menhirs) were reworked to hold iconographies that were typical of 'warrior' stelae. Key examples of this are the 'menhir' and/or 'stela' of Magacela (Badajoz) or the 'statue-menhir' and/or 'stela' of Talavera de la Reina (Toledo) (Díaz-Guardamino forthcoming). It was only during the Iron Age that 'warrior' stelae significantly transformed into new 'things', including funerary epigraphic stelae, a grinding stone, construction material, grave cover or the first step of the access staircase at the main entrance of an 'orientalising' palace-sanctuary (García-Sanjuán and Díaz-Guardamino 2015: 189–92). These new becomings emerged in connection to new ways of dealing with the dead and communicating knowledge (with alphabetic writing), and with new emerging social, political and territorial articulations. Intra-actions between 'warrior' stelae and people during the Roman and medieval periods, and in more recent times, were also diverse and ontologically productive (Díaz-Guardamino 2015; García-Sanjuán and Díaz-Guardamino 2015: 192–6).

Acknowledgements

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6

Images and forms before Plato: the carved stone balls of Northeast Scotland

Andrew Meirion Jones

Graeco-Roman thinkers cast a long shadow over contemporary approaches to art and representation. In the *Republic*, written around 375 BCE, Plato imagined humankind as prisoners in a cave able to determine the existence of reality only from the shadowy representations of that reality cast on cave walls. Shadows also figure in another origin story related by the Roman historian Pliny in his *Natural History*, written between 77 and 79 CE. In a two-part explanation Pliny discusses the origins of painting and sculpture. The origin of painting began with tracing a man's outline in shadow against a wall. In a development of this origin myth, the origin of sculpture was attributed to the potter Butades in Sicyon at Corinth, Greece who used the shadows cast on a wall to fashion in clay a three-dimensional commemorative image of his daughter's lover (who was soon to be sent away to war).

For Plato, the shadow offers a link between forms and appearances, each of which is associated with differing orders of knowledge (Plato 2007 [1955]: 235–7). While the form of physical things provides access to belief, the shadow (or the representation) provides only access to illusion. The accounts of Plato and Pliny are separated by centuries and the Platonic theory of mimesis is only implicit in Pliny's later account (Stoichita 1997: 12). Pliny was also likely to have been influenced in his thinking by Egyptian and Greek conventions of two-dimensional depiction of the human form, such as those on Egyptian wall paintings and Attic Black on Red pottery (Stoichita 1997: 12–13). Nevertheless, taken together the two present a powerful template for the understanding of images-as-representations that remain with us today (Stoichita 1997; Sontag 2009 [1961]; see Manghani *et al.* 2006 for useful overview).

In this chapter I will consider the impact of these long-standing ideas about the image alongside an analysis of an unusual group of decorated Neolithic artefacts: the carved stone balls of North-east Scotland. Carved stone balls predate Plato by several millennia, and by thinking with these artefacts I consider how we might regard images without recourse to the Platonic theory of the image.

The classification of archaeological artefacts

The distinctions between form and appearance, and belief and illusion, posited by Plato have their legacy in the way archaeologists have discussed artefacts, which are typically classified as functional or symbolic. In most cases artefacts are classified as evidently functional or probably symbolic; often the term 'ritual' is invoked as a shorthand definition for classifying artefacts whose functional character is not evident. This is particularly true of the analysis of lithic artefacts, which are typically assigned functional categorial terms 'scraper', 'fabricator', 'arrowhead' and so on, which are occasionally refined by microwear analysis used to further define their function (e.g. Odell 2001). Since the 1980s archaeologists have also argued that some stone artefacts may have symbolic value: this is especially argued for artefacts such as polished stone axes (Bradley and Edmonds 1993; Edmonds 1995). The most sophisticated lithic analyses examine the biographical lives of flint artefacts as they are used, reused and re-evaluated (see Van Gijn 2010). It is not my purpose here to legislate on which of these terms is most appropriate to the study of artefacts; instead I wish to note that these classifications propose a distinction between artefacts which it is difficult to uphold. These categorial distinctions become all the more problematic when we are faced with a category of artefact whose character is difficult to understand, such as the carved stone balls of North-east Scotland.

The carved stone balls of Neolithic Scotland

Carved stone balls are numerous (there are over four hundred of these objects known; numbers vary in the literature from 411 to 425 and they continue to be discovered in museum collections and excavations; Marshall 1977, 1983), but they defy easy description and classification. They are typically 70 mm in diameter (although a small group of stone balls is 90–114 mm in diameter) and are carved in a number of forms. The majority of these artefacts are carved from hard metamorphic rocks, such as granites. In some regions, including Orkney and northern England, balls are also made from sedimentary rocks like sandstones, and on occasion igneous rocks, such as camptonite, porcellanite and lavas, are

used in regions like Orkney, Northern Ireland and the Hebrides. The most common form are six-knobbed balls, carved with distinct knobs or projections. There are also four- or three-knobbed forms. Another group of stone balls has multiple knobs or projections, with 10–55 or 70–160 knobs; these balls have the topological form of berries or other natural fruiting bodies, such as horse chestnut (*Aesculus hippocastanum*) shells.

Since these objects first received archaeological attention and entered museum collections they have puzzled archaeologists. As curiosities, carved stone balls have been adopted as signifiers of regional identity as public sculptures in several North-east towns, and in public squares in Scotland's capital, Edinburgh; they have also been the subject of analysis by diverse groups, including artists (Pattison 2012) and mathematicians (Critchlow 1979; Lawlor 1982; Reimann 2014).

Problems in the interpretation of carved stone balls

Researchers have relentlessly applied the logic of the distinction between the functional and the symbolic to carved stone balls (Fig. 6.1). From a functional perspective, carved stone balls have variously been described as bolas for hunting (Evans 1897), as stone ball bearings to aid the movement of megaliths (Ravilious 2010), or as tokens used during tribal meetings (Marshall 1977). From a symbolic or representational perspective, carved stone balls have also been described as mathematical representations of Platonic solids made several millennia before Plato (Critchlow 1979; Lawlor 1982), or more loosely they have been described as 'symbols of power' (Clarke *et al.* 1985; Sheridan and Brophy 2012), wielded to signify social status. The distinction between the functional and the symbolic is unhelpful in our analysis of these artefacts and does not appear to adequately describe the complexity of these objects. How then are we to understand them?

Plato's view of forms posits not only a distinction between physical forms and their appearances as shadowy representations. He also argues that physical forms are simply expressions of ideal forms that can be described mathematically or geometrically. Comprehension of these ideal forms is the domain of reasoning and intelligence; these higher attributes are required of the good and just citizens of Plato's ideal Republic. Plato's hierarchical notion of idealised form is a canonical example of hylomorphism: the idea that makers impose forms internal to the mind upon a material world (Ingold 2013: 20–1). In this formulation matter appears to play little role in its own shaping.

Returning to carved stone balls, I want to assess this concept critically by examining the making of these artefacts. Rather than assuming that
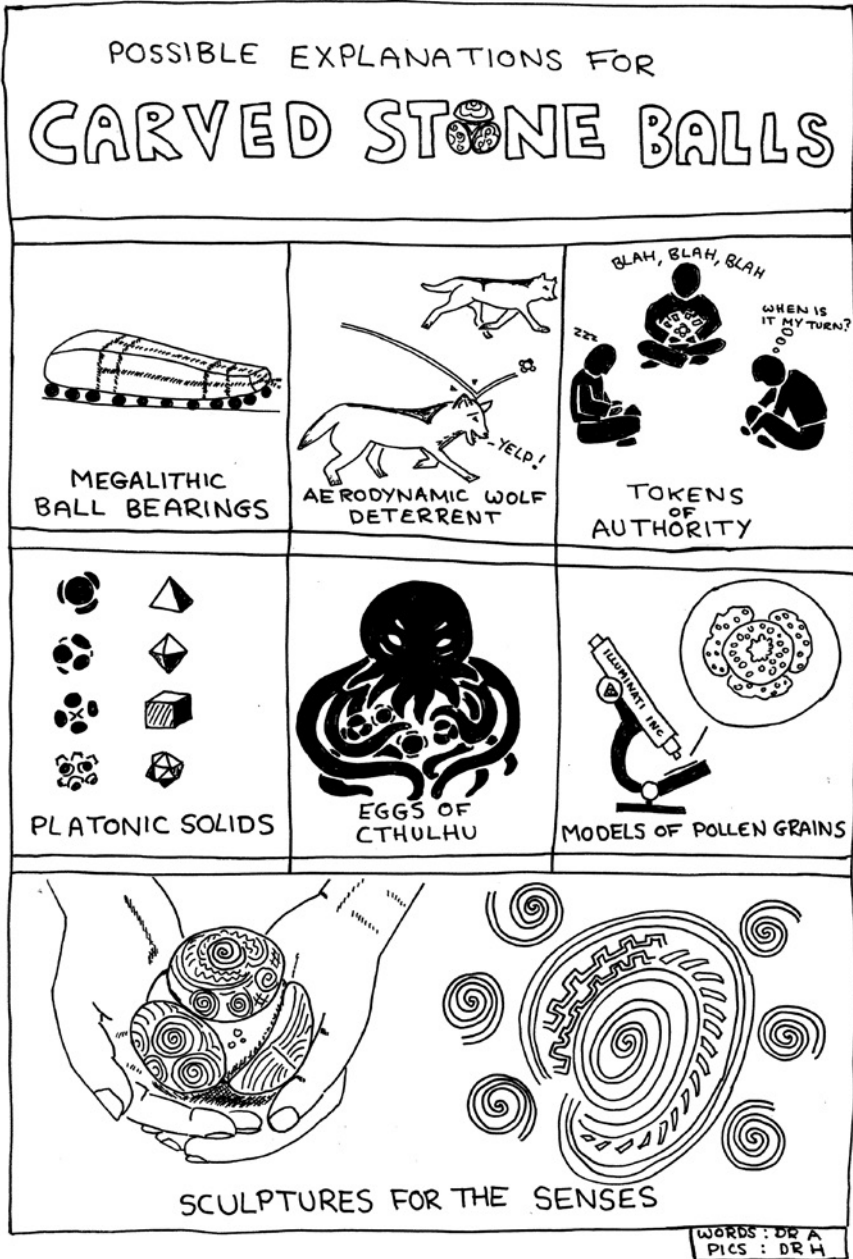
6.1 Comic depicting the possible interpretations of carved stone balls posited by academics and internet discussants.

ideal forms are imposed on matter, my aim is to think instead with carved stone balls. In doing so, I will argue that we are better considering carved stone balls as materials-in-motion, whose form comes to take the shape it does through a dynamic intra-action between material and maker (see Malafouris 2013 for a discussion of the dynamic interplay between maker and material; see Jones and Cochrane 2018 for a discussion of the adoption of Karen Barad's notion of intra-action for the archaeology of art). I will argue that what marks these artefacts out is not what they are but what they achieve.

Making carved stone balls

My reassessment of carved stone balls began with a workshop in November 2013 in the sculpture studio of Winchester School of Art organised in collaboration with Ian Dawson and Louisa Minkin (discussed in Jones 2016; Minkin and Dawson 2014). In the company of fine art and archaeology students we made six-knobbed carved stone balls (type 4b according to Marshall's 1977 typology) from plaster. We wanted to understand the processes of making these artefacts, and one of the clear outcomes of the workshop was the realisation that the series of types classified by archaeologists for these artefact (e.g. Marshall 1977, 1983) were in fact simply stages in the sequence of making, or sequences in a *chaîne opératoire*. This sequence begins with roughing out a sphere of stone, smoothing it or polishing it, then beginning to divide it with a series of circles, the interspaces between these circles are then carved out leaving distinct knobs projecting outwards. On occasion, these knobs might then be further decorated by carving into their surface. The workshop led me to consider carved stone balls not as fixed types or forms, but as the result of processes of working.

The next stage of analysis involved recording carved stone balls in museum collections using digital imaging techniques, including Reflectance Transformation Imaging (RTI) and photogrammetry (for details of this see Jones and Díaz-Guardamino 2019).

Among the first things recorded in museum collections were the large numbers of plain carved stone balls, which are not typically discussed as part of the carved stone ball phenomenon. We took considerable time in distinguishing these artefacts from Civil War and Roman Ballistae and demonstrating their probable attribution to the Neolithic on the basis of comparisons in size and geology. This task was made especially complex by the fact that few balls have a secure archaeological context, except those from Neolithic settlements in Orkney and the Hebrides firmly dating to between the thirty-first and twenty-eighth centuries cal.

BCE (see Jones and Díaz-Guardamino 2019 for more detailed discussion of the date of these artefacts).

Digital analysis revealed plentiful evidence for the various stages of manufacture of carved stone balls. These included peck marks from the roughing out of balls. For example, one of the balls from Leith Ross, Ellon (accession number 15821–159/10c; Marischal College) is not completely spherical, and is roughly shaped, while unprovenanced examples, also from the Marischal Museum collections (accession number 15606–158/2 and 14500–159) are also roughly shaped, the second example on one side only. The ball from Mountblairy, Banff (accession number X.AS 9; NMS), also has clear pecking on its surface. A group of balls from Gordon Childe's excavations at Skara Brae also exhibit evidence for pecking and roughing out (accession numbers L35C, L35D, L35E; Tankerness House Museum).

There was plentiful evidence for incompletion. In some cases, the knobs were clearly defined on the surface of carved stone balls, but not worked any further. For example, an unprovenanced ball from the Marischal Museum collections (accession number 15603) had the edges of knobs pecked (Fig. 6.2). Similarly, the ball from Tarves, Aberdeenshire (accession number X.AS-86; NMS), had the knobs marked out but not fully carved and exhibited evidence of peck marks on the surface of the ball.

Further stages of working were evident on some balls. For example, the ball from Glass, Huntly, Aberdeenshire (accession number 15937A, Marischal College Museum), had very shallow interspaces defined but is not fully worked. The example from Peterhead, Aberdeenshire (accession number X.AS 88; NMS), is a multi-knobbed ball with clear evidence of fine working between the knobs on the ball's surface. Likewise, the multi-knobbed ball from Kildrummy, Aberdeenshire (accession number 14231; Marischal College Museum), still has clear peck marks on its surface, defining the knobs.

There is also evidence for incompletion during the working of carved stone balls. One such example is from Mill of Cromdale, Moray (accession number X.AS 72; NMS): here the knobs are not completely defined, and the ball appears to be unfinished (for an extended discussion of incompletion see Fahlander, Chapter 12 below). Other balls seem to be in an intermediate state of working, such as the example from Kintore, Aberdeenshire (accession number 16252; Marischal College Museum), which has a large raised area remaining in one of the interspaces of the ball. This is paralleled by an unprovenanced example (accession number 16263; Marischal College Museum) which also has unworked interspaces.
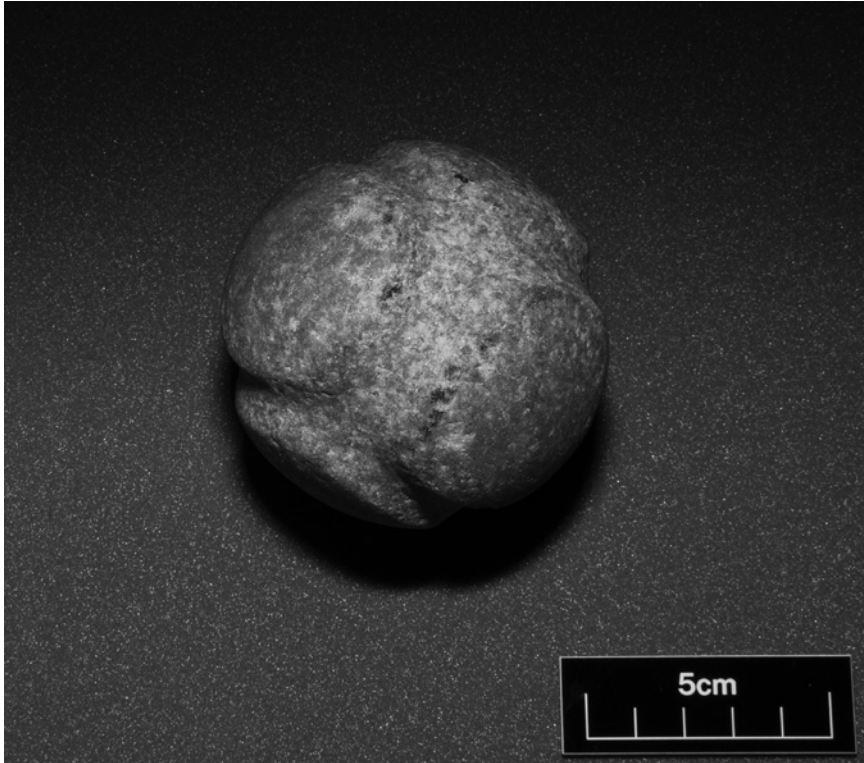
6.2 Unprovenanced carved stone ball with the edge of the knobs reworked by pecking.

Surprisingly, one of the balls that appears to be incomplete is the famous ball from Glass Hill, Towie (X.AS 10; NMS). Although most of the knobs of this ball are finely decorated one knob remains undecorated (curiously this knob is rarely presented in photographs of this artefact, giving the appearance that the artefact is completely decorated). Given the fine working on the rest of this artefact, it would seem that the undecorated knob was left deliberately unworked.

We also noted evidence for revision of carving on carved stone balls. A knobbed ball from Clatchard, Newburgh, Fife (X.AS-042; NMS), exhibits evidence for revision during working as peck marks cross-cut the grooves cut into the surface of several of the knobs, suggesting that the organisation of the design was revised during the process of manufacture (Fig. 6.3).

As discussed above, carved stone balls are made from a variety of geologies. In the majority of cases extremely hard rocks – granites and
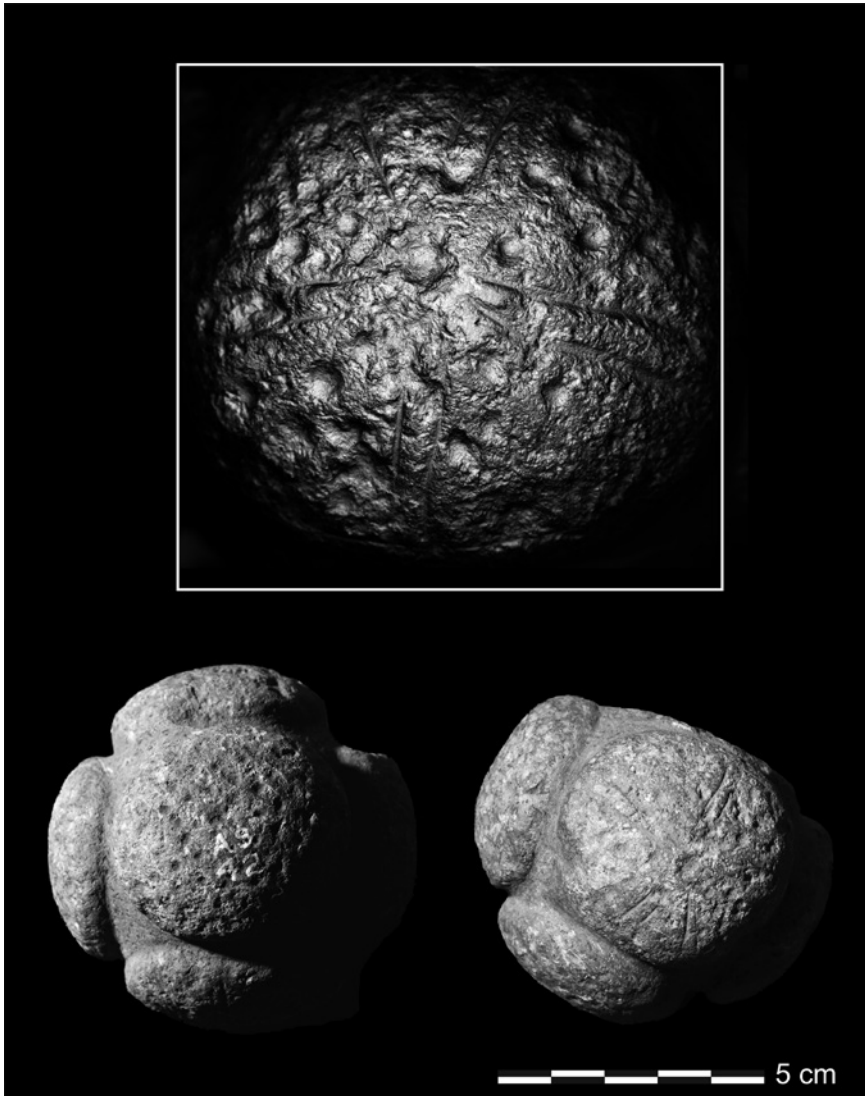
6.3 RTI images of carved stone ball from Clatchard, Fife. Note the reworking by pecking over the incised design on the knob of the ball.

basalts – were utilised for carving; these will have tended to be less likely to be worn or abraded, making the evidence of working highly visible. Occasionally, we also see sandstone being used. Sandstone was more easily worked, but more liable to wear and abrasion, making the traces of working less obvious.

Shadows and representations

How does my analysis of these curious Neolithic artefacts allow us to reconsider the concept of imagery, belief and reality posited by Plato? I want to consider this by returning to the shadow (for more on digital analysis, shadows and light see Dawson, Chapter 4 above). For Plato light is thrown *against* the form, which offers a distorted shadowy and illusory image of that form. Similarly, the way in which light cast against the wall delineates form, producing an image of that form, is also clearly imagined in Pliny's account of the origin of painting. The hylomorphic implications of this view are also underlined by Pliny's account of the origins of sculpture, in which the sculptor infills the form delineated by the shadow with clay (Stoichita 1997: 19); here matter appears to be secondary to the geometry of form.

By contrast, my digital imaging techniques involve throwing light *on to* forms; light and shadow pick out the changeable forms of the carved stone balls as they are caught in the process of being worked or carved (see Fig. 6.3). In Plato's example, the shadow delineates a distorted image of an idealised and ready-made form. In my analysis, using digital imaging, shadows and light reveal a form undergoing change.

Ultimately influenced by Plato's idealist differentiation between reality and illusion, or form and appearance, the debates around carved stone balls have focused on questions of either function or symbolism. In each case arguments are based on assumptions of intentionality: the carved stone balls were made either for a functional purpose or to symbolise something, whether an ideal mathematical concept or simply 'prestige'. As we have seen, several of the balls exhibit evidence of being incomplete. It therefore seems unlikely that an ideal form is imposed during the manufacture of carved stone balls. Rather than the balls being representations of idealised Platonic solids, the division of a sphere into regular shapes (Lloyd 2012; Reimann 2014) is instead a matter of mathematical exploration and experimentation. What we observe then is a sense that carved stone balls *take shape* through a process of working, as the craftsperson engages with material. If carved stone balls simply served a functional purpose, or were destined to be symbols of prestige, it seems extremely unlikely that they would be discarded in an unfinished state.

It also follows that if the form of carved stone balls emerges through a process of material exploration and experimentation then they do not conform to an ideal type. The archaeological concept of typology is also a legacy of Platonic thinking; it is based upon the assumption that artefacts can be grouped or categorised by form according to the possession of certain ideal traits. These traits are assumed to be the product of

cultural traditions or techniques imposed upon material (for a critique of these ideas see Fowler 2017; Jones and Cochrane 2018: 100–14). Carved stone balls manifestly disrupt the Platonic notions of the ideal: they are neither functional nor symbolic and their forms are not imposed as ideals but arise through the process of shaping.

Learning from carved stone balls

This ongoing exploration of material, the process of taking shape, is also generative; it produces both new forms and new ways of engaging with materials. We can consider this now when we examine carved stone balls at a greater scale of analysis (Fig. 6.4). Carved stone balls have a distinctive geographical distribution, with a focus on North-east Scotland and eastern Scotland (from Caithness in the north to Fife in the south),
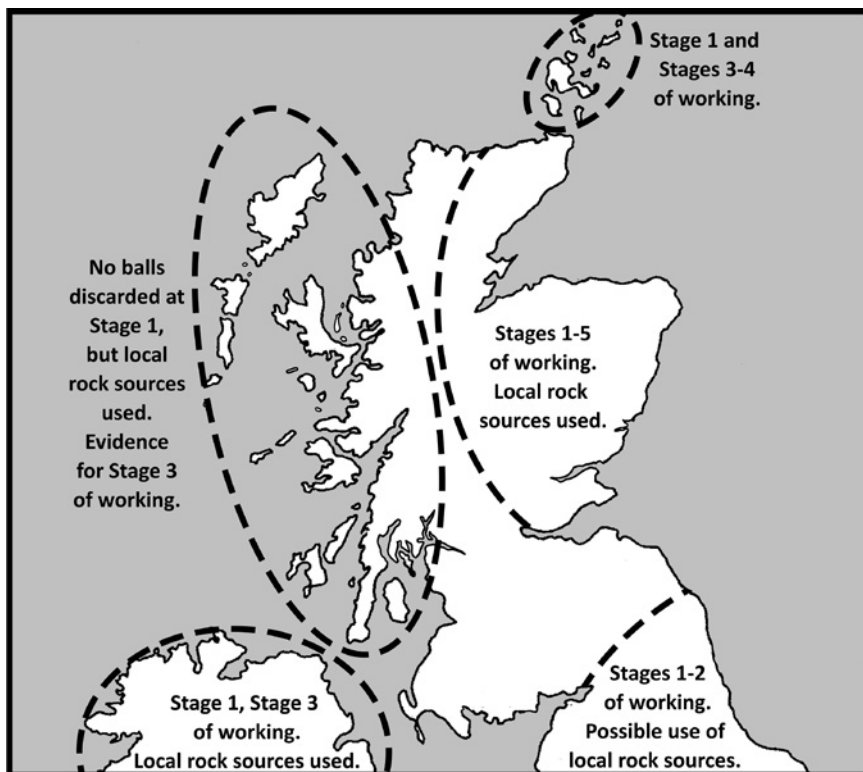
6.4 Map showing the geographical distribution of carved stone balls in Scotland, northern England and Ireland indicating use of local or exotic rock and the stages of working evident on the balls.

there are also regional clusters in Orkney and the Hebrides and small groups found in Northern Ireland and northern England. Each region produced carved stone balls at different stages of working: different stages of the *chaîne opératoire*. Added to this, an analysis of the geology of these artefacts shows that some of these artefacts must have been exchanged from the main regional centre in North-east Scotland, but in each regional cluster many of them are locally made. This doesn't seem to conform to the models of bidirectional gift exchange we know of for other Neolithic artefacts (e.g. for polished stone axes; Bradley and Edmonds 1993). How are we to explain this? I argue that this pattern of exchange and local production equates to a form of knowledge transfer, or transmission of knowledge (Roddick and Stahl 2016).

Carved stone balls are not ideal types whose form is imposed on material. Rather the forms that arose in one region – North-east Scotland – prompted experimentation and exploration in a variety of regions. Not only are carved stone balls artefacts-in-process, but their working is an example of knowledge-in-motion (Roddick and Stahl 2016). Andrew Roddick and Ann Stahl (2016) develop the ideas of Jean Lave and Etienne Wenger in an anthropological context to argue for knowledge transmission amongst communities and constellations of practice. Knowledge is distributed not only by smaller-scale communities of practice but by larger-scale constellations of practice connected by what they describe as boundary objects (Star and Griesemer 1989). Below I develop the idea of boundary object and instead describe carved stone balls in a different way as 'pedagogical hinges'. The very fact that carved stone balls are made from hard granitic and basaltic rocks made evidence of their working highly visible. In that sense these are not technologies of enchantment (in the sense described by Gell 1992). Rather than the technology of making being hidden and cognitively difficult to grasp, the technology of making was highly visible and invited attention from other makers, whether those located in the original region of fabrication or those located some distance from the original region. The sequence of working of these artefacts was therefore distributed geographically and over an extended period of time.

In their discussion of prehistoric art from the British Isles written in 1951 Stuart Piggott and Glyn Daniel state of carved stone balls that 'their use is wholly unknown'. Is it possible that rather than having a specific function, these artefacts have multiple functions, one of which is to teach? Minkin and Dawson (2014) also describe them as 'object lessons'. Carved stone balls are incomplete, artefacts-in-process, whose form embodies their processes of making. Their forms, embodying various stages of working, enabled makers to access and respond to their processes of fabrication.

One of the key outcomes of the experimental Winchester School of Art workshop was the realisation that the manufacture of these objects involved a series of actions including hammering, polishing, pecking and fine working by incision (Jones 2016). In that sense, it seems that carved stone balls are essentially didactic objects, objects for learning the techniques of working stone. While the term 'boundary object' is useful for thinking about how objects conjoin communities of practice, I find the term 'pedagogical hinge' preferable to describe carved stone balls. This is a term coined by the education scholar Elizabeth Ellsworth (2005: 37–56). Pedagogical hinges are pivot places or objects – things for knowing differently – in which the knowledge, thoughts and concepts of the learner are brought into relation with outside others; other events, histories and social ideas. Pedagogical hinges are relationally dynamic. Working with materials, puzzling with materials, to work out how they were made unfolds a rich seam of knowledge relating to stone working, much of which will be applicable to other tasks whether manufacturing polished stone axes or mace heads or working architectural stone. In that sense, carved stone balls are affective artefacts: they make things happen.

Conclusion

What have carved stone balls taught us? They have forced us to question the Platonic view of forms and appearances, on which Western concepts of art and representation are based. Plato's view of the relationship between form and matter was intensely abstract; the highest understanding of form was through mathematical description. This view considers form purely in terms of points in space, and the lines drawn between them, and renders matter as inert. From this viewpoint the representational shadow – as a distorted outline of the original form – can be little but illusory. By contrast, the digital imaging techniques used to study them employ shadows and light to reveal the making of carved stone balls. By following how carved stone balls were made we can also see that form is not a ready-made template into which matter is inserted. Rather form is provisional, and results from close engagement with matter through hammering, polishing, engraving and carving. It would be mistaken to regard these artefacts as representational, instead their forms evince traces of working. The act of taking shape does not leave shadow images to be represented; instead the act of making novel forms is embodied in the traces of working visible on the surface of each carved stone ball. Form comes to take the shape that it does because of the working of matter: matter and form are coextensive. Rather than producing a representational object, the working of carved stone balls is performative and generative: the process of working produces knowledge of novel

ways of working stone, and these ways of working generate new connections between communities across Neolithic Scotland, Ireland and England.

Carved stone balls also act as pedagogical hinges for archaeologists. These enigmatic artefacts have taxed archaeologists since their discovery and have one final lesson to impart. They have forced us to question classificatory distinctions between the functional and symbolic; they have forced us to realise that the concept of ideal types is equally problematic; their incomplete character forces us to regard them as artefacts in the making. Rather than isolating these as special characteristics of these puzzling Neolithic artefacts carved stone balls instead throw into relief a series of characteristics evident in the study of all archaeological artefacts. Is it not about time we began to think differently about archaeological artefacts?

Acknowledgements

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7

Connectivity and the making of Atlantic Rock Art

Joana Valdez-Tullett

Introduction

The expression 'Atlantic Rock Art' refers to a type of prehistoric carvings with a wide geographic distribution across a number of European countries, namely Britain, Ireland, Spain and Portugal. Despite its long historiography, research remained rather regional and conservative until the 1990s. The pioneering work of Richard Bradley represented an important turning point in this trend, with the introduction of new methodologies and the concept of landscape archaeology, which became almost intrinsic to rock art studies. Bradley championed the first systematic inter-regional approach to Atlantic Art, focusing particularly on the similarities of the tradition between northern England and north-west Iberia (1997). This chapter will address results of a recent project building on Bradley's work. It summarises the findings of a systematic investigation on Atlantic Rock Art, focusing on two particular cases studies (see Fig. 7.1) – the Machars Peninsula (Dumfries and Galloway, south-west Scotland) and Iveragh Peninsula (Co. Kerry, south-west Ireland) – out of five. The remaining regions, which are not approached here, include England, Spain and Portugal.

Cup-and-rings, cup-marks and penannulars are the most recognisable motifs composing the geometric and abstract repertoire of Atlantic Rock Art (Fig. 7.2). In these depictions cup-marks are often surrounded by complete or gapped, single or concentric circles (cup-and-rings and penannulars respectively) which may be interconnected by a number of linear grooves. Whilst motifs can occur in isolation, they are also often arranged in complex compositions covering large portions of the rock

7.1 Location of the study areas of Machars Peninsula (Dumfries and Galloway, Scotland) and the Iveragh Peninsula (Co. Kerry, Ireland) in relation to the British Isles.

surfaces. Imagery includes other rarer motifs like spirals, simple circles, rosettes (a specific arrangement of cup-marks with or without circles and radials), keyholes and so on (for a complete typology see appendix 2, Valdez-Tullett 2019). These representations were mainly used to decorate flat, low-lying open-air outcrops or boulders in wider landscapes. Exceptions include a few examples of carvings on vertical walls (e.g. Ballochmyle, Ayrshire, Scotland) and shelters (e.g. Calderramos, Galicia, Spain), but also lateral faces of boulders (e.g. Derrynee 394, Co. Kerry, Ireland (this number refers to the rock art inventory by O'Sullivan and Sheehan 1996)) and rock surfaces protected by overhangs (e.g. the Binn, Fife, Scotland or Ketley Crag rock shelter in Northumberland, England). All known examples of Atlantic Art are engraved, and currently there are

7.2 One of the carved panels of Culscadden (Machars Peninsula) with carvings of typical cup-and-ring motifs.

no known cases of paintings. Although most of the images were pecked, combinations of carving techniques were identified, including incisions and abrasions (Valdez-Tullett 2017: 75–81). Typically located in relatively accessible places, the decorated panels are commonly situated close to valley bottoms or mid-slopes, but some examples are also found in higher grounds, such as the iconic group of Ilkley Moor (East Yorkshire, England).

Atlantic Art was traditionally ascribed, chronologically, to the Bronze Age, mostly due to finds of engraved blocks in cairns in the British Isles, and depictions of accurately datable material culture (e.g. daggers, halberds, short swords etc.) carved alongside cup-and-rings in Iberia (e.g. Baptista 1983–84; Beckensall 1974; MacWhite 1951; Santos-Estévez 1998). Nevertheless, arguments supporting this chronology are circular and unfounded and, although it is still an open debate, opinions are shifting towards a Neolithic date of Atlantic Art (e.g. Alves 2003; Fábregas Valcarce and Rodríguez-Rellán 2012; Jones 2006; Jones *et al.* 2011; O'Connor 2006; Valdez-Tullett 2017; Waddington 1998). This proposal is based on the reassessment of old finds, new occurrences and results of a number of archaeological excavations in the immediate surroundings of decorated rocks (e.g. Bradley and Watson 2009; Bradley *et al.* 2010; Bradley *et al.* 2012; Jones *et al.* 2011; O'Connor 2006; Waddington *et al.* 2005). Carved stones found in situ, such as the cup-marked slabs

in the long cairn of Dalladies (Aberdeenshire, Scotland) (Waddington 2007) or the cup-and-ring carved stones from a Neolithic settlement of Eileen Domhuill on North Uist (Armitt 1988) and the Ness of Brodgar (Thomas 2016) corroborate the idea that this imagery was in use in this period.

Similarities in the morphology of these motifs has led to suggestions that the carvings are part of a unified phenomenon in Western Europe, resulting from long-distance contacts (e.g. MacWhite 1951), an assumption merely grounded on typological comparisons. Nevertheless, whilst the above general description is applicable to the majority of regions where the cup-and-ring tradition is present, the detailed in situ assessment of the rock art revealed subtle differences and a number of regional preferences. The following discussion describes the results obtained through the application of a multi-scalar methodology to an empirical dataset, which enabled the comparison of Atlantic Rock Art, in a number of regions, beyond the similarities of the motifs. The identification of important details of the rock art's *chaîne opératoire* (Conneller 2011) repeated in the different study areas suggested that a network of cultural transmission and connectivity was in place during prehistory, contributing to the widely spread character of Atlantic Rock Art.

Comparing Atlantic Rock Art

The cup-and-ring tradition shares a sense of familiarity and undeniable similarity, which goes far beyond the motifs, across the abovementioned countries. It is also true that there are regional differences which likely result from the cultural backgrounds of the communities using the symbols. In order to understand these differences, the making processes and use of the carvings were compared in various study areas. A multi-scalar and interdisciplinary methodology was successful in determining regional preferences through the assessment of rock art's many components. The approach aimed at the detailed analysis of the imagery, but also other features that characterise Atlantic Rock Art, such as the type of media selected to decorate, landscape location and carving techniques. Most of these are generally shared by the tradition as a whole.

A small-scale assessment appraised the motifs and their details, morphology, carving techniques, appearance and patina, through the analysis of 3D models produced with Structure from Motion (SfM) photogrammetry and Reflectance Transformation Imaging (RTI) technology. The detailed examination of the rock surface enabled the documentation of previously overlooked relationships between the imagery, such as superimpositions, juxtapositions and convergent symbols, providing a better understanding of the compositions. The deep engagement with

the rock surface, required by this scale of analysis, facilitated the identification of significant structural differences in the conception and execution of the forms, revealing important regional stylistic preferences.

The type of rock on which the motifs were carved was the focus of a second scale of analysis. The hard and durable character of boulders and outcrops suggests that the imagery was created in order to prevail across time and, at least in its initial moments of make and use, to be attached to a specific place in the landscape. As such, the chosen media can provide important information. Some authors have suggested that the rock art creators may have been attracted towards specific outcrops or boulders due to features such as their colour, texture, roughness, heat, cold (Tilley 2008: 39), brilliance or even the sounds produced while hammering the rocky surfaces (Bradley 2009: 45). Legends, myths, memories, tales from communal cosmogonies or even functional reasons are other more obscure and intangible elements that could have drawn the makers to specific rocks.

As such, this intermediate scale evaluates the rocks themselves, their characteristics and also the relationship between motifs and the micro-topography of the carved surfaces (e.g. irregularities of the rock and natural features such as crevices, cracks and solution holes which are often incorporated into designs). Considering these elements may yield interesting views on the conception of the rock art and promote new interpretations (e.g. Bradley *et al.* 2001; Clottes and Lewis-Williams 1996; Helskog 1999: 91; Jones and Tipping 2011: 17; Lorblanchet 1989).

Finally, the scale scheme used in this study included the analysis of the rock art's immediate surroundings and wider backdrop, inspired by a landscape-archaeology approach first developed by Bradley (e.g. 1997). As living entities, landscapes play dynamic roles in the social lives of past individuals and communities (Knapp and Ashmore 1999). Individuals interact directly with their landscapes, which in return provide essential goods for their survival, but also landmarks and important features of their and rock art's social and cultural contexts (Valdez-Tullett 2017: 107). The approach to the relationship between Atlantic Rock Art and the landscapes was twofold, comprising field observations and computational analyses developed with GIS, backed up by statistical methods. The latter provided an idea of the landscape affordances and enabled the simultaneous examination of a series of locational parameters that may have been taken into consideration when selecting places to carve (e.g. visibility). Field observations, on the other hand, carry some subjectivity derived from the researcher's own experience and modern perspectives of landscape archaeology, but nevertheless introduce a social dimension of analysis reflecting the unpredictability of human nature that would, otherwise, be absent. This scale of analysis was further subdivided in

two approaches, one of them assessing the wider landscape corresponding to the geomorphological units that determined the study areas (i.e. a peninsula, a valley, a mountain), and another focusing on the immediate surroundings of the carved rocks. The scrutiny of this methodology revealed a range of shared features between the Machars and Iveragh Peninsulas, but also characteristics in which they differ.

Differences and similarities: Comparison and methodological considerations

The classification approach to motifs was inspired by Blaze O'Connor's work in Ireland (2006), where she began to identify specificities of Atlantic Rock Art in that country. This initial typology was modified and complemented to meet the requirements of this investigation. Unlike traditional typologies and classificatory tables, grouping similar features in rigid systems, the categorical scheme devised here is relational and dynamic and comprises all variables assessed in the different scales of analysis, from small motif details to the characteristics of landscape settings and their affordances. This system enabled the 'juxtaposition of distinct elements … generating new entities, new possibilities and new ways of understanding' (Hamilakis and Jones 2016: 79) Atlantic Rock Art, its context and its role within a wider narrative of prehistory.

In practical terms, Atlantic Rock Art was described according to 11 main categories, each of them subdivided in a number of variables and characterised by a total of 341 attributes (Fig. 7.3). The panels, recorded in situ, were classified according to these features. Motifs were assessed individually, along with the characteristics of the compositions, the types of grooves, the rock media, landscape location, the character of the carvings etc. (see appendix 2 in Valdez-Tullett 2019, for more details on the categorical scheme). The analysis included other elements that are often overlooked, such as the behaviour of the rock art, that is, the relationship between motifs carved on the same surface, and of these and natural elements, or how natural features were used and transformed to create specific imagery.

Despite the researcher's bias involved in this exercise, the process of analysing each of the panels individually provided a good understanding of the rock art and its *chaîne opératoire* and enabled the identification of very small details and particularities that were pivotal for comparisons between case studies. It was essential that the appraisals did not oppose cup-and-rings against cup-and-rings, but were based on a robust set of elements that characterised the rock art comprehensively.

The applied methodology, briefly described above, produced an extensive dataset, stored and organised according to a detailed categorical
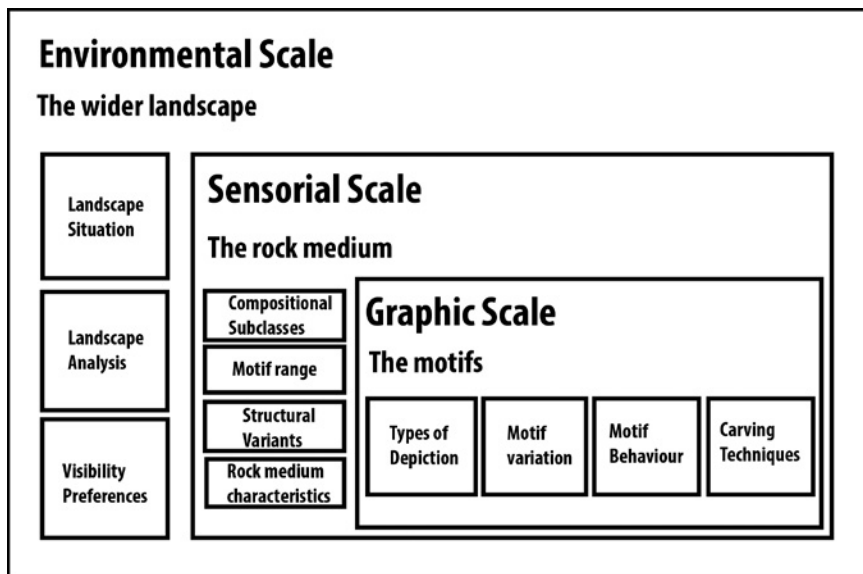
7.3 Categories and attributes organised according to the different scales of analysis devised for the methodology of the investigation.
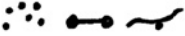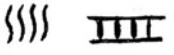
scheme, which was explored according to three main combined strategies. A comprehensive account of Atlantic Rock Art was generated, in an interregional fashion, transposing all artificial modern boundaries. The categorical scheme, comprising all details gathered for each rock a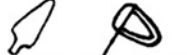rt site, was systematised in a Presence/Absence Matrix (PAM) assessing the existence or not of specific attributes within the sample, as well as the preferences comprised in each study area. Initial results corroborated many fieldwork observations, and distinctions between regions began to emerge. The approach to the matrix was phased, according to three different levels of analysis, examining the main characteristics usually attributed to Atlantic Rock Art and slowly introducing others that were identified throughout the study. For example, a first order of examination assessed the simple form of the main categories, excluding detailed variation (i.e. presence or absence of cup-mark variants, ring variants, boulders, outcrops etc.). A second approach began to consider smaller details of the motifs, medium characterisation and landscape situation of the panels, using 131 attributes, as opposed to the previous 41. As a result, more variation between the study areas emerged. Finally, the third order of analysis comprised the whole categorical scheme and its 341 attributes providing a better picture of the particularities of each region's rock art and enabled the first systematic comparisons. This strategy facilitated a

better understanding of the rock art and avoided unnecessary bias (for details see Valdez-Tullett 2019).

Given the sheer amount of data produced, and in order to study Atlantic Rock Art holistically, avoiding hermetic approaches, Network Science methods were used to examine the dataset. The data were studied through a Social Network Analysis (SNA), a formal method of enquiry used in a number of disciplines, from physics to economics, computer science to sociology (Brughmans 2013; Coward 2013; Knappett 2011). Archaeology has increasingly benefited from these methods, used to explore interactions between humans, objects and their relationships with wider social structures (Coward 2013: 248; Knappett 2011: 7–8, 2013: 7). The SNA effectively related and connected all components of the categorical scheme, encompassing all its wealth of information and complexity. Unrestricted and direct relationships between panels and attributes were outlined, but the SNA was also capable of exploring the behaviour of entities and the social implications of the relationships (Coward 2013: 249; Knappett 2011). Similarly to the PAM, data were assessed according to a phased introduction of variables, enabling a slow and detailed evaluation of differences and similarities, as well as the identification of particular attributes shared by the carved rocks. The application of SNA was successful in teasing out relationships between the case studies and identifying patterns of regional logic (Valdez-Tullett 2019: 145–7).

Machars and Iveragh: Similarities and regional variations

The rock art of the Machars and Iveragh Peninsulas is undeniably similar, sharing iconographic grammars and resemblances in terms of carving techniques and other features. Some of these elements reveal potential cultural exchange. This is particularly visible in small details in the micro-structure of the motifs that were identified in the two regions, and that would have hardly been repeated by chance. Such is the case of many designs within the category of circles. Observation of the carvings at a small scale revealed that there is a great variation and that often these symbols are not simply cup-and-rings composed of a central cup-mark surrounded by circles (Fig. 7.4). Examples of this include circular motifs composed of a combination of complete and gapped rings around a cup-mark; cup-marks surrounded by circles that are gapped on one side; gapped rings whose ends extend outwards (ring extended); cup-marks surrounded by gapped rings whose ends converge inwards (rings with converging ends); cup-marks surrounded by circles whose ends are conjoined (ring with one conjoined end); cup-marks surrounded by rings

7.4 Short extract from the categorical scheme used in the study to illustrate the variation within each category of motif.

and the end of the outer circle directly adjoins the inner ring (ring terminus convergence); among other variations. These particularities were initially identified during fieldwork, but confirmed after an exhaustive analysis of the carved panels and the documentation of their features in the categorical scheme. The making of such specific motifs, in addition to other characteristics of the rock art such as the carving techniques and the landscape setting, implies that a detailed transmission of knowledge was in place, rather than a simple imitation of shapes. Should the similarities of the iconography be the product of copying, then these symbols would probably be found in different contexts and displaying significant differences in their making process.

There are noteworthy differences between the rock art of the Machars and Iveragh which denote strong regional preferences. For instance, the iconic cup-and-ring motif is obviously well represented in both regions, ranging typically from either one single circle or two concentric rings. Whilst in Iveragh there are a few cases with up to five rings, in the Machars there are more examples of multiple concentric circles which, in some cases, can have up to nine rings. Similarly, the use of simple cup-marks is widespread in both regions, appearing either in isolation (i.e. one cup-mark in one rock, or a rock which was carved only with cup-marks) or in complex combinations of various symbols. In Iveragh the use of cup-marks is quite extensive and they feature compositions in a variety of fashions, whilst in the Machars they are mostly associated with other types of images (e.g. cup-and-rings or grooves), with which

they interact. Other motifs represent more pronounced differences between the two regions. For example, partial rings (cup-and-ring motifs of which only one-half or one-quarter of the whole is carved) are absent from Iveragh, whereas in the Machars they are quite common. On the other hand, gapped rings without a central cup-mark or combinations of gapped and complete circles surrounding a central cup-mark are more common in Iveragh and quite rare in the Machars. The use of enclosure-type and U- shaped motifs is one of the most prominent differences between the two study areas, since these are a very popular choice in Iveragh but are documented only once (in 80 panels) in the Machars in a situation where the design seems to be unintentional. Similarly, the identification of 'erased motifs', exclusive to Iveragh, was both interesting and intriguing. Before this project these carvings, consisting of specific shapes (mostly circles) which have been intensely pecked on the inside, had not been previously described as a feature of open-air contexts but only mentioned as a characteristic of Passage Grave Art (O'Sullivan 1986). More examples of iconographic preferences could be mentioned; however, the most interesting conclusion retrieved from this analysis is the idea that in the Scottish region the artists seemingly used more often a wider range of artifices to create their motifs, evident in the greater variability of the carved imagery (Valdez-Tullett 2017). For this reason, the rock art of the Machars is, to us modern observers, apparently more exuberant, even if often compositions have fewer numbers of motifs (see Fig. 7.5). There are obvious exceptions to this assumption in Iveragh, such as the well-known examples of Derrynablaha.
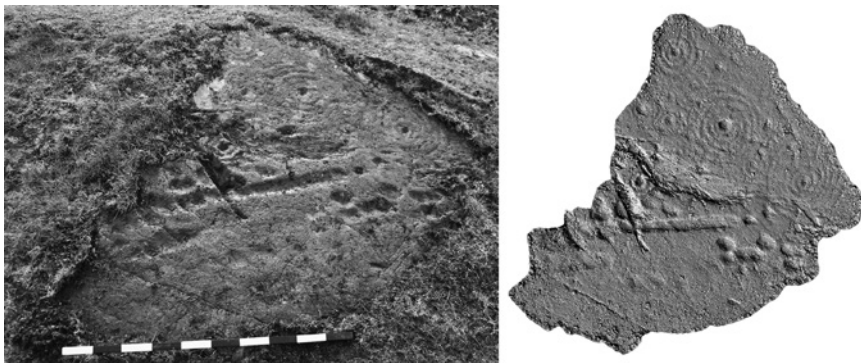
7.5 Photograph (left) and Structure from Motion (SfM) (right) 3D model of one of the panels at Drumtroddan 1 (Dumfries and Galloway, Scotland). A flat, low-lying surface with a complex composition of motifs covering the majority of the rock face. Different carving techniques can be observed, such as pecking and a combination of cup-marks joined together by abrasion to form a groove.

In addition to motifs, striking differences were documented regarding the carving techniques. Whilst in the Machars the type of pecking was usually neat and finished with abrasion resulting in regular, smooth grooves, in Iveragh the engravings tend to be rough with no special finishing. Here, the shapes are often not very consistent, suggesting that the act of carving was more important than the accomplished final product. Additionally, in the latter region a number of random peck marks are frequently found scattered or in clusters on the rock surfaces, providing an unruly appearance at times. Finally, whilst in Iveragh the rock surfaces tend to be densely carved with the same types of symbols often repeated extensively, in the Machars there are many examples of rocks in which only one or two motifs were engraved, although sites such as Drumtroddan demonstrate that there are also dense compositions.

In conclusion, the above discussion demonstrated that the rock art of Iveragh and the Machars is quite similar, and there seems to be a universal understanding of the symbols and how they should be used in open-air contexts. Despite the similarities, however, there are meaningful differences regarding the motifs and other characteristics, including their landscape location. It is noticeable that in Iveragh the decorated panels are more diverse in terms of geographic situation, although this may be owing to the local geomorphology dominated by glacial lakes and U-shaped valleys, as opposed to the flatness of the Machars. In the Irish study area some carvings are located in valley bottoms and high grounds, whereas most of the engraved rocks in the Machars are situated on lowlands and by the coast. Here too the location of the symbols in the landscape is more uniform, often deployed on low-lying outcrops in coastal areas. Perhaps because there was greater availability of rocky resources, or a different set of conventions, carvings in Iveragh were made in the many faces of outcrops and erratic boulders, with no visible preferences for a type of morphology or texture. In the Machars the choice of surface is stricter and tends to follow the horizontal, flush-with-the-ground trend that characterises Atlantic Art more globally.

Cultural transmission of Atlantic Rock Art and prehistoric connectivity

The relational study of Atlantic Rock Art demonstrated that its widespread character derived from concerted networks of cultural transmission which facilitated the systematic dissemination and adoption of the tradition. Evidence for this argument is provided not only by the formal similarities of the carved motifs, which have numerous local and regional variations but by a whole concept based on an assemblage composed by the style and carving tradition, the knowledge of carving techniques required to

reproduce the motifs, the micro-structures of the shapes and a general understanding of the relationship of the rock art with the landscape (Valdez-Tullett 2019: 166). The small details identified in the making process of Atlantic Rock Art, and repeated in the different regions, suggest that the use of this tradition was indeed consolidated by intense connections established across the Atlantic coastline.

Developmental psychology has demonstrated that there are a number of ways in which knowledge can be transmitted, including, first, emulation, when a copy is produced without a discussion about the necessary process to achieve a goal; second, imitation, when the final result is achieved by copying a certain behaviour and method; and, third, teaching, implying an intentional discussion of knowledge from an individual to another, who should be able to think about the teacher's thoughts (Huang and Charman 2005; Stade 2017; Tomasello 1996). These principles were tested in relation to cultural transmission in archaeology through an experimental study aiming at the empirical assessment of linguistic ability in the Palaeolithic (Stade 2017). Different groups were given the task of replicating a handaxe by emulation or by either imitating an experienced craftsman with few instructions or having been taught in detail. Results demonstrated that imitation and teaching resulted in less copy error than emulation (Stade 2017). Although no experimental archaeology has been carried out to test these options regarding the making of Atlantic Rock Art, it seems likely that it operated in a similar manner. In order to replicate this type of rock art with the degree of similarity observed in the different case studies, the artists would need to hold specialised knowledge, including that of, first. the iconography, small details of variation and composition of the motifs; second, carving techniques and possibly the right type of tools to use; third, which rock surfaces to look for; and fourth, required landscape settings. This specific information was probably passed on between individuals through a system of direct cultural exchange. Owing to the consistency and repetition of the tradition in its wide geographic area, it is unlikely that the dissemination of Atlantic Rock Art resulted from mere verbal or visual transmission. The simple observation of a motif and an attempt to replicate it in another rock nearby or in a different region would not be enough to create such a standardised and widespread style of carvings.

According to the above premise, the level of repetition and replication observed in the different study areas suggests that Atlantic Art was intentionally taught and learned as a tradition that was meaningful and important enough for a range of different communities to use it consistently, during an extended period of time. The suggestion of an active process of intentional teaching occurring in such widely separated regions also corroborates the argument that structured cultural exchange

was happening during the Neolithic and Early Bronze Age in Western Europe, instead of spontaneous contacts. This idea was supported by the SNA analysis, pivotal in the successful identification of similarities between all sites of the dataset. The analysis was not constrained to the geographical location of the panels and included the whole suite of parameters described in the categorical scheme, from motif morphology to landscape affordances and location. Similarly to the PAM, the SNA was approached with a gradual introduction of the attributes, in three phases, which facilitated a good understanding of the rock art's evolution. Whilst Atlantic Rock Art's global character was confirmed, the SNA also established that each study area has its own preferences and retained a strong individual personality. The analysis validated the idea that Atlantic Rock Art was initially transmitted in a basic form, but evolved locally, which may explain the identified regional differences (Valdez-Tullett 2019: 145–6). These variations perhaps represent important ideological discrepancies, and reflect the preferences, cultures and cosmogonies of past societies.

Conclusions

Atlantic Rock Art is best known for its remarkable regular forms, shapes and techniques, widely used across an extensive geographic area of Western Europe. The detailed analysis of the making process of this type of rock art revealed that there are several ways to achieve a similar visual final result and that this knowledge was shared amongst different people who lived far apart. The comparative study of Atlantic Rock Art, so far, suggested that this tradition was widespread due to a systematic network of connections that were in place during prehistory. In fact, recent studies have shown that people have been moving around quite often since early periods (e.g. Garrow and Sturt 2015; Sheridan 2004). Artefacts, evidence for boat building, similar monuments and even isotopic analyses of skeletal material demonstrate that there were intensive cultural connections and exchanges occurring between various territories. The directionality of prehistoric contacts is not clear, but there seems to be no doubt that there were relationships between modern France, the British Isles and Iberia (Anderson-Whymark and Garrow 2015: 59). This allowed for the iconography, imbued in a tradition of outdoor carving in similar places of the landscape, to be passed on and intentionally shared by the communities inhabiting several parts of the Atlantic coastline. The use of SNA endorsed a hypothesis arguing that Atlantic Rock Art was deliberately taught, at least at its basic level of representation, considering the overwhelming presence of a number of characteristics in the various studied regions. Evidence suggests that an initial group of features, which characterise the rock art, was transmitted globally, and further developed

locally, initiating regional variations. This chapter has focused particularly on the cases of the Machars Peninsula (Scotland) and Iveragh Peninsula (Ireland) where a number of such attributes were identified. More than the differences and similarities between the motifs of the study areas, the small details in the panels' compositions (e.g. variations of the main motifs, such as cup-and-rings, repeated in more than one region), the carving techniques, the micro-structure of the shapes and the perception of the landscape, suggest connections between the regions, implying a transversal understanding of the phenomenon on both sides of the Irish Sea. Unsurprisingly, Atlantic Rock Art is probably a by-product of cultural transmission taking place during the Neolithic and subsequent periods. At this point, a system of imitation and teaching was seemingly in place, probably extending during succeeding periods, fostering the widespread distribution of Atlantic Rock Art. Only a dense network of systematic connections would allow Atlantic Art to thrive spatially and temporally as we know it.

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Neolithic and Copper Age stamps in the Balkans: a material and processual account of image making

Agni Prijatelj

Stamps are some of the strangest tools from Neolithic and Copper Age settlements across the Balkans: whilst more than 430 have been preserved across some 175 sites (Makkay 1984, 2005), their imprints remain absent from the archaeological record. Indeed, whilst the absence of materials with stamp impressions remains the central problem in any study of these artefacts, I argue here that the tools themselves are far from mute. Imbued with thing-power and involved in vital material engagements (see Bennett 2010), stamps reveal a great deal about the relational processes between the materials they were made from, their makers, the finished tools and the people who used them. They also tell us much about other objects associated with them, the places in which they were used, the images produced with them and the materials on which they reproduced geometrical motifs. By examining these various emerging assemblages of people, tools, materials, things, places, processes and practices (see Bennett 2010; DeLanda 2016), I demonstrate that the meaning of stamps and their imprints was neither fixed nor static: rather, it was in a constant flux of becoming. Yet, in addition to being constituted by fluid and entangled relations and processes, stamps were also things-in-themselves: they possessed distinct material properties that endured across time and space (see Fowler and Harris 2015). These I explore, in order to consider ways in which some stamps' relations and meanings persisted even while the assemblages themselves shifted and changed.

The present chapter is structured in three parts. The first briefly outlines the prevalent narratives on Balkan stamps, and my own approach. The second examines the archaeological data on the stamps, including their chronology, style and depositional contexts, by discussing the available

information through the prism of different assemblages. In the final part, I consider those material properties of stamps which defined them as things-in-themselves. I examine how stamps were made, and how they produced distinct material effects on various bodies and surfaces. In doing so, I present stamping as an act of assemblage making (see Jones 2017), and as a rhythmic, relational and open-ended engagement between people, tools and different materials.

Narratives

Archaeological narratives on the Balkan stamps are, as examined in greater detail in Prijatelj (2007: 231–40), dominated by two themes. The first is the relationship between the earliest tools and the Neolithisation process in the region. Within discussions on this theme, stylistic comparisons between Balkan and Anatolian stamp motifs are most often employed in support of models that condition the beginning of the Neolithic in south-eastern Europe, either with migration or with the diffusion of cultural elements from Anatolia (e.g. Çilingiroğlu 2009; Lichter 2011; Makkay 1984; Özdoğan 2009; Perlès 2001). The second prevalent topic is an examination of the functions of stamps. Since both artefacts and surfaces with positive imprints are missing from the archaeological record, scholars refer to historic and ethnographic parallels (e.g. Calegari 2008; Faris 1972; Galvaris 1970). As discussed elsewhere (Prijatelj 2007), most archaeologists argue in favour of printing or impressing on one particular type of material, be it textile, human skin or edibles, most notably bread.

What all these narratives on the Balkan stamps share is the privileging of human agency, unity and homogeneity: in most archaeological writing, stamps feature as passive artefacts with a single place of origin (Anatolia, in this case) and a single function. This chapter, on the other hand, takes the opposite approach: I acknowledge the thing-power of stamps (i.e. their agency), and the heterogeneity of their purposes and meanings. Furthermore, by discussing their material properties and material engagements, I consider the ways in which stamps, and their impressions, were involved in the creation of more-than-human communities; ones that also included animals, plants, fluid materials, vital things and animate places, as well as shifting assemblages of all these (see Bennet 2010; Harris 2014; Prijatelj and Skeates 2018).

The main theoretical tool employed in this exercise is that of an assemblage – a pliable concept which denotes an ensemble of heterogeneous components that mesh, and in the process exert different powers: some parts of hybrid, complex and volatile clusters coexist, cohabit and co-operate, whereas others are in conflict with each other and cause or

undergo friction. While interacting with each other, these different –
animate and non-animate; human and non-human – materialities also
act as a whole and exert a distributive agency that creates distinct emergent
properties of the whole (Bennett 2010; DeLanda 2016). In the rest of
the chapter, I shall, then, explore the Balkan stamps within a number of
assemblages at varying spatial and temporal scales, including regional
groupings of tools; ensembles of stamps associated with individual
Neolithic houses and villages; groups of artefacts from the same archaeo-
logical contexts; and finally, distinct assemblages that emerged through
the process of stamping itself.

## Stamp assemblages in the Balkans

In the Balkans, the earliest stamps occurred after *c*. 6200 cal BCE, along
with the first painted pottery, within the context of the Greek Early
Neolithic, Karanovo I–II and Starčevo-Körös cultures. After 6000 cal.
BCE, they are documented at Greek Middle Neolithic, Transylvanian
Tordos and Macedonian Porodin sites. During this earlier phase (Fig.
8.1), corresponding to the late seventh and the sixth millennium BCE,
they reached greater concentration in Thessaly and Greek Macedonia,
where some 120 specimens are documented (Lichter 2011: 37). During
the later phase (Fig. 8.2), from the late sixth/early fifth to the early third
millennium BCE, the use of stamps spread into new areas, including
Ukraine, Moldova, central Europe and the Adriatic coast. In addition
to the spatial expansion, some new forms – most notably clay cylinders
– appeared during this period (Makkay 1984, 2005).

A regional assemblage of some 430 preserved tools consists of stamps
of various sizes, ranging from around 4 to 12 cm in length. Their faces,
while most commonly flat, are sometimes slightly convex, concave, sinuous,
or designed with a plastically modelled edge and central hollow. Flat
faces can be oval, round, quadrangular (frequently with rounded corners)
or cross-shaped. Other shapes of the base, including wavy, or round
with grooves, are less frequent. Their handles, placed opposite the face
and sometimes perforated, are most often conical, and slightly tapered
from the base towards the top. In a few instances, they are cylindrical,
cubic or mushroom-like. Their faces characteristically carry simple or
more complex geometric motifs, including straight, curving and zigzag
lines; rows of dots, triangles, rectangles, crosses, chevrons, circles, spirals,
meanders; and maze-like abstract patterns; the motifs in each case being
deeply incised or impressed (cf. Figs 8.1 and 8.2).

The assemblage of listed geometric forms comprises a distinct style of
Neolithic and Copper Age stamp motifs in the Balkans. While that style
has most frequently been discussed as one of the tools' static properties,
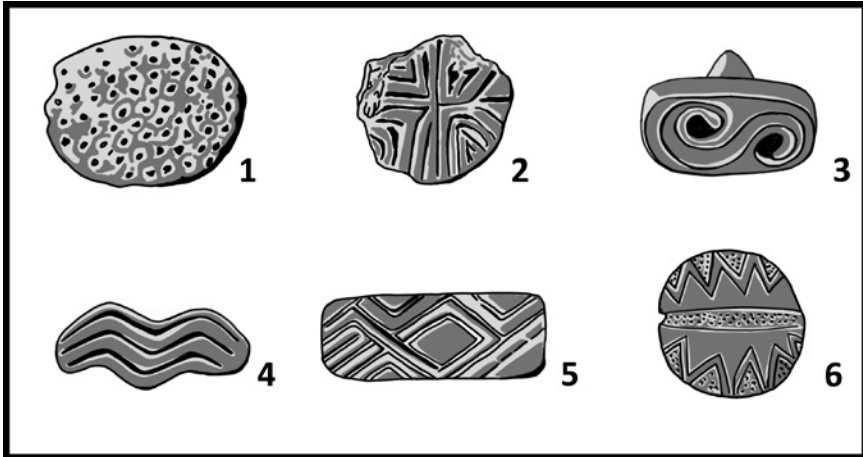
8.1 Balkan stamps from the early phase – late seventh and sixth millennium BCE. Not to scale. 1 Nea Nikomedeia, Greece; 2 Sesklo, Greece; 3 Trn-Mala tumba, Macedonia (FRYM); 4 Nessonis, Greece; 5 Kirdžali, Bulgaria; 6 Porodin-Tumba, Macedonia (FRYM).
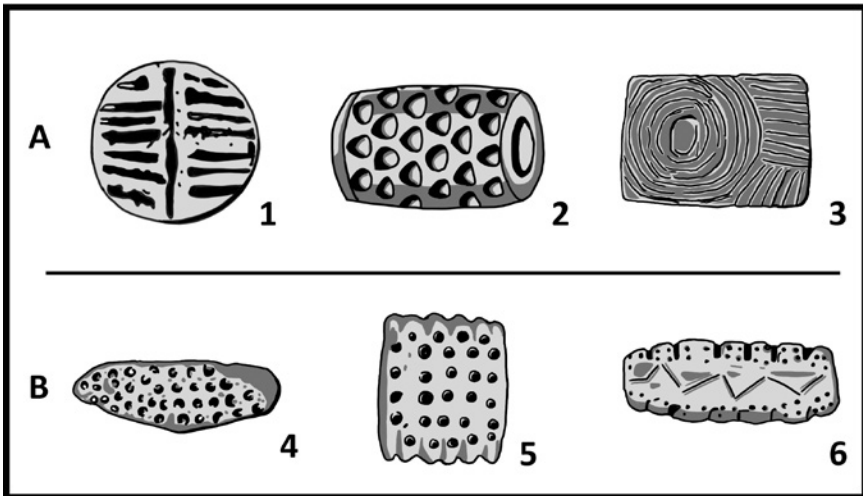
8.2 Stamps dated to the late phase – late sixth/early fifth to early third millennium BCE. A: Late Neolithic and Copper Age stamps from the Balkans. B: Copper Age stamps from the Carpathian basin and north of the Balkans. Not to scale. 1 Aldeni II, Romania; 2 Maliq, Albania; 3 Drama, Bulgaria; 4 Balatonkeresztúr-Réti Dűlő, Hungary; 5 and 6 Balatonőszd-Temetői Dűlő, Hungary.

signalling similarities across the region, changes through time and even consequences of the Neolithisation impulses from Anatolia (e.g. Budja 1998, 2003; Lichter 2011; Makkay 1984), I follow here Jones's approach (2017: 87): I consider the style a process that emerged through the repetition, differentiation and experimentation involved in the making of stamps and, ultimately, their imprints. Through the remainder of the chapter I will return repeatedly to various acts of iteration and change, in order to consider the effects of these on various assemblages.

Some of the distinct assemblages I refer to here consist of stamps from a variety of Neolithic and Copper Age sites. The majority of these were settlements where stamps were deposited on floors or working platforms inside houses; in public or ritual buildings; in courtyards and outer working areas; or in refuse pits (Prijatelj 2007: 245–8). In the later phase (from the late sixth millennium BCE onwards), they also appear at caves and rock shelters on the north-east Adriatic coast, again in occupational deposits (Buršić-Matijašić 1993). Within these contexts, they are sometimes associated with painted pottery, anthropomorphic and zoomorphic vessels, figurines, miniatures, altars, amulets and pins – which may indicate their ritual and performative use (Budja 2003; Prijatelj 2007). On the other hand, they are also regularly found in connection with everyday objects, including coarse ware, lithics, grinders and querns, spindle whorls and loom weights (Prijatelj 2007: tab. 3). As two examples were discovered in graves at Sofia-Slatina, Bulgaria (Makkay 2005: 34), and Pilismarot-Basaharc, Hungary (Makkay 1984: 44), they may, in certain instances at least, have been considered a valuable personal item. Overall, these varied depositions suggest they were entangled in assemblages of things associated, possibly, with both mundane and ritual actions.

At the sites in question, stamps generally occur sporadically and in small numbers, ranging between one and four. Larger stamp assemblages are recorded at only a few settlements, including, for instance, 21 at Nea Nikomedeia in Greek Macedonia (Makkay 1984: 36–40); 26 at Sesklo in Thessaly, Greece (Alram-Stern, 1996: 325); and some 30 at Kovačevo in western Bulgaria (Makkay 2005: 24–6). These data suggest, at first glance, that stamps were awarded a more important role at certain settlements; yet, when they are placed in a temporal context, it reaffirms the rarity of these tools within individual occupational phases at different sites.

Given that most of the aforementioned stamps have been found at long-lived settlements but were dated only in very loose culture-chronological terms within a very broad time span of several hundred years, the claim to rarity is best illustrated by the stamp assemblage from Çatalhöyük in central Anatolia. The site has not only the largest number of Neolithic stamps discovered so far, but arguably also the best records

in terms of their depositional contexts and stratigraphy. In total, it has yielded some 86 stamps, scattered through some four hundred years of the settlement's history, from *c*. 6700 to 6300 cal BCE (Türkcan 2013: 235). Some 42 stratified stamps are associated with different occupational levels (each lasting several decades), their number most often not exceeding ten specimens per level (cf. Turkcan 2013: 240). This clearly shows that assemblages of contemporaneous stamps remained limited in size, even at large and regionally important settlements such as Çatalhöyük.

Similarly, the number of stamps associated with different depositional contexts remains small. Although it is not uncommon to encounter an assemblage of several fragmented and heavily worn stamps in stratified middens or refuse pits, this merely indicates that they were repeatedly discarded over prolonged periods of time (Prijatelj 2007: tab. 2; Türkcan 2013: 237). On the other hand, only one stamp is generally associated with a particular building, as attested, for example, at Rakitovo, Serbia; Gura Baciului, Romania; Achilleion, Greece; Cerje-Govrlevo, Macedonia; Karanovo, Bulgaria; and Sitagroi, Greece (Prijatelj 2007: 245–9); and, again, confirmed at Çatalhöyük, Turkey (Türkcan 2013: 237–40). One notable exception to the one-stamp-per-building pattern is Middle Neolithic House A in Sesklo, Greece, which yielded three stamps; each, however, had the identical motif of a concentric circle (Prijatelj 2007: 245).

The pattern of stamp individuation is further confirmed by a comparison of motifs within large stamp assemblages from sites such as Çatalhöyük, Turkey (Türkcan 2013) and Nea Nikomedeia, Greece (Makkay 1984: 36–40), where motifs, significantly, (almost) never replicate. Overall, the data suggest, then, that, during the Early and Middle Neolithic, stamps with individual motifs may have been linked to individual houses. The relationship, however, changes in the late phase, most notably at the Copper Age settlements of the Gumelniţa-Karanovo VI culture: there, stamps often share an identical motif or variation on it, as in the case of three specimens from Căscioarele-Ostrovel, in Romania, each with a spiral incised in its face (Ştefan 2009: 149–50).

Another equally intriguing issue relating to spatial distribution is the occurrence of stamps with the same unique, non-generic motif at different sites (Fig. 8.3). Arguably the best-known example of this phenomenon is a group of stamps with an identical, maze-like pattern recovered from the Thessalian Early-Middle Neolithic settlements of Pyrassos, Nessonis and Philia (e.g. Perlès 2001). The stamps at the first two sites were made of stone, whilst the one at Philia was modelled in clay. Notwithstanding the difference in material, however, the Philia stamp still retains, fascinatingly, small circular depressions at the end of straight grooves originally used as markers, which would have helped an artisan working in stone to engrave straight lines. The stamp therefore raises a number of intriguing
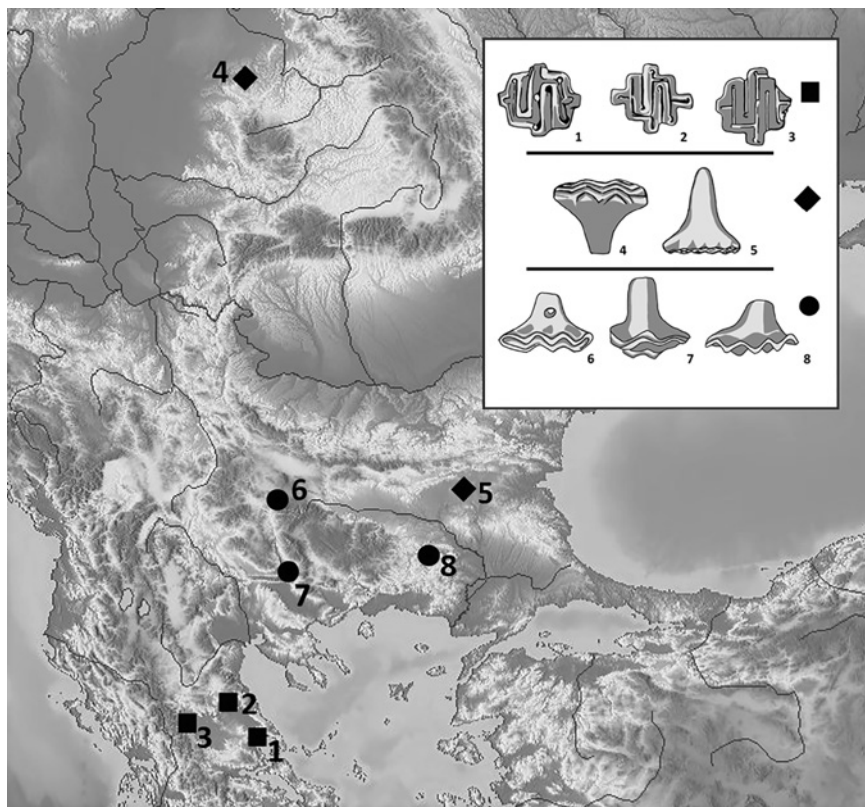
8.3 Distribution of stamps with identical motifs. A: Thessalian stamps with maze-like motif. B: Bulgarian and Romanian stamps with plastically-modelled edge and central hollow. C: Bulgarian stamps with plastically-modelled, chevronned base. Culture-chronological determination of stamps given in brackets. 1 Pyrasos, Greece [Early-Middle Thessalian Neolithic]; 2 Nessonis, Greece [Early-Middle Thessalian Neolithic]; 3 Philia, Greece [Early-Middle Thessalian Neolithic]; 4 Zăuan, Romania [Starčevo-Körös]; 5 Karanovo, Bulgaria [Karanovo II]; 6 Kremenik, Separeva Banja, Bulgaria [Kremenik-Anzabegovo]; 7 Kovačevo, Bulgaria [Karanovo I–II]; 8 Kirdžali, Bulgaria [Karanovo I–II].

questions concerning the relations between the three tools, their imprints and the communities using them. Was the clay stamp a later copy of a prestigious object, made in a more readily available and more yielding material? Was it modelled in clay because the original stone tool had been lost or irreparably broken? Did the potency of imprints vary? If so, did such variations stem from the different characteristics of the materials of which the three tools were made?

Readily available answers are lacking; yet further examples of stamps with identical motifs testify to the occurrence of this assemblage type at different locales outside Greece, too (Fig. 8.3). They include, for instance, two stamps with a plastically modelled chevronned face from Early Neolithic settlements at Karanovo, in Bulgarian Thrace, and at Zăuan, in Transylvania, Romania (Prijatelj 2007: 249–50); and three from the Bulgarian Early Neolithic settlements at Kovačevo, Kremenik and Kirdžali, each of which has a base with a plastically modelled zigzag edge and central hollow (Prijatelj 2007: 250). In the light of their unique yet shared motifs, the listed Early/Middle Neolithic stamp assemblages from Greece, Bulgaria and Romania may have been involved in communicating socio-economic relations such as alliances or obligations, or other relationships of exogamy or trade which connected neighbouring or more distant Neolithic villages at the time.

In summary, the diverse assemblages discussed so far highlight some of the social, aesthetic, functional and economic aspects of stamps in the Neolithic and Copper Age Balkans. Considering the absence of repetition in motifs at sites with large stamp assemblages, and the common occurrence of one stamp per building at various settlements across the region, it seems that during the early stage, specific motifs (in certain settlements at least) may have been connected with individual houses and therefore used as identification signs, associated perhaps with such assemblages as personhood, household, lineage, ancestry and clan. At the time, some Neolithic communities may also have used stamps in establishing, communicating and preserving connections with other groups. This distinct individuation of stamps, however, disappears (to a large degree) during the late stage, when some stamp patterns – spirals in the Gumelniţa-Karanovo VI culture in particular – become more standardised, more commonly repeated across sites, and hence more generic and ornamental in character. This suggests the emergence of different meshworks; and also, perhaps, the transfer of stamping technology into other media.

I argue here, nevertheless, that there is more to stamps than the functions and meanings that were ascribed to them by people in the past, or read from them by archaeologists in the present. Stamps, and assemblages with stamps, had the ability to act and produce quite dramatic visual and textural effects on other organic and inorganic bodies. Naturally there were differences between the person stamping, the tool itself and the stamped materials: whilst traditionally described hierarchically in vertical planes, these do in fact – in view of the capacity of things and people to exchange their properties (see Latour 2005) – need to be flattened out and juxtaposed horizontally (see Bennett 2010: 9).

The horizontal and fluid nature of connections between stamps and various things, people and places has been highlighted by diverse assemblages which occurred at varying scales of space and time. A stamp was 'matter on the go' (Bennett 2010: 18), entering and leaving a series of nested assemblages, including a regional grouping of tools; an ensemble of things associated with an individual Neolithic village and a house; and, ultimately, a community of people, materials, things, places and practices associated with the use of that particular tool. Within such assemblages, each stamp was always in the process of becoming; its effective relational properties – its purpose and meaning – arising through its fluid and shifting relationships with heterogeneous elements in different meshworks.

Continuing a New Materialist move away from discussions on what things and materials are to what they do, I will explore stamps' relational and processual character further, by considering the distinct *chaîne opératoire* of gestural techniques and performances involved in the process of making a stamp. I will then examine some materials and surfaces intimately involved in material engagements with these tools, before concluding the chapter by discussing the process of stamping as an act of distinct assemblage making.

Technologies of making a stamp

Neolithic and Copper Age stamps were small, light and portable tools, made to reproduce simple geometric motifs on a number of surfaces. The ability to reproduce images was achieved through a combination of two particular physical affordances of the object: first, the affordance of a stamp to be manipulated easily when the handle was grasped; and second, the affordance of the stamp's face to make an imprint or impression in a number of different materials and surfaces. These two enduring material properties, then, defined stamps as things in their own right: they enabled distinct relationships associated with the process of reproduction to persist through time, thereby allowing the tools to retain a recognisable form – even while their other connections within various assemblages shifted and changed across time and space. Mobility was another essential characteristic of stamping. In contrast with relatively sedentary technologies such as metallurgy, for instance, stamping was technology on the go: the size and weight of stamps allowed them to be carried around very easily, especially when their handles were perforated. Tools have been recorded at various caves and rock shelters on the Adriatic coast (Buršić-Matijašić 1993) which were used as temporary abodes at the time; this confirms that stamps did indeed move with people across the land.

The vast majority of some 430 preserved stamps within the Balkan corpus were modelled in clay, although some 33 Greek examples (Lichter 2011: 37) were made from rocks of different colour, texture and hardness, including serpentine and alabaster (which are softer), and marble and steatite (which are harder). Other, archaeologically-invisible, specimens may have been made of wood. Depending on the material used, the making of a stamp understandably required variable amounts of time and a variety of skills and techniques.

Stamps composed of fired clay, for example, would have undergone a process of material transmutation from amorphous, volatile soils into solid and durable ceramic tools. The *chaîne opératoire* of making a ceramic stamp consisted of several interconnected processes, which included obtaining heterogeneous clays from local sources near the Neolithic and Eneolithic villages; plastic modelling of a stamp from a lump of purified and homogenised clay; engraving the face of the stamp when the surface was leather-hard; air-drying the tool; and then, eventually, firing it. This was perhaps done with other artefacts in a simple hearth, oven or bonfire, without much control over the temperature – which would not have exceeded 600–850 °C. Like the temperature, the oxidising conditions would have varied somewhat, giving stamps a range of earthy colours, from dark browns and yellowish reds to pale yellows (e.g. Skeates 2007; Türkcan 2013).

Modelling a clay stamp was, in general, a simple task that required little skill and not much time: according to my own experience in replicating some of the Balkan examples (cf. Fig. 8.4), it would have been possible to make an individual stamp with a basic geometric motif within half an hour, and without much prior knowledge of working with clay. It is even more surprising, then, that some of the Balkan stamps have patterns – including the most basic ones such as zigzags, chevronned crosses and spirals – executed in an impromptu or even cursory way (Fig. 8.4).

These impromptu motifs, I believe, speak loudly of the vitality of materials, and more specifically of clay's ability to act back: its recalcitrance. The stamp from Endröd-Szujókereszt, Hungary (Fig. 8.4), for example, has four parallel zigzag lines engraved into its face; yet the rhythm of the pattern is disrupted in the second row. More specifically, a rising line is disconnected, testifying to a resistant force on the part of the matter to the process of engraving. Considering that the form of the tool and its motif emerged as a processual dialogue between the maker, her or his basic engraving tools and a yielding or resisting response from the material (see Ingold 2011: 51–62; 2013: 109–24), cursory patterns such as this (cf. Figs 8.1, 8.2, 8.4) may have been the work of someone (perhaps a child) who was playing, of someone who imitated
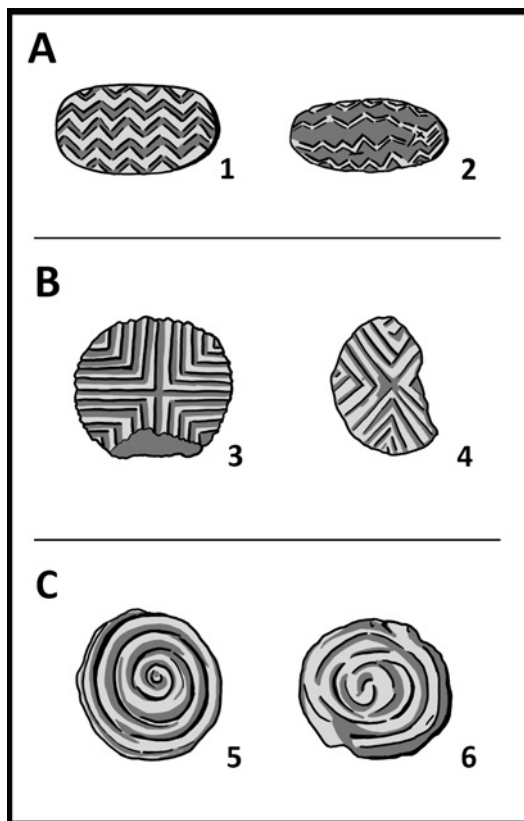
8.4 Selected examples of differences in modelling the same basic geometric design. A: zigzag. B: chevronned cross. C: spiral. Culture-chronological determination of stamps given in brackets. 1 Gura Văii, Romania [Starčevo-Körös]; 2 Endröd-Szujókereszt [Starčevo-Körös]; 3, 5, 6 Frumuşica Cetăţuia, Romania [Cucuteni A]; 4 Ruse, Bulgaria [Gumelniţa].

others with greater skill, or of someone who had just begun to learn how to work with the material. Alternatively, these unusual examples may simply indicate that their makers' stylistic and aesthetic considerations were different not only from ours but also from those of people in the Neolithic and Copper Age Balkans who modelled the same type of motif with great attention to detail, and executed such patterns in a very meticulous fashion (Fig 8.4).

In contrast to the stamps with simple yet cursory designs are those with complex geometric patterns, such as meanders and maze-like motifs (see Fig. 8.1). The execution of the two would have required skill and familiarity with the form, obtained through its repetition either in clay

or in other material. When a complex pattern was engraved in one of the Thessalian Middle Neolithic stone stamps, considerable dexterity was clearly required: stone specimens taken from regionally restricted, highly valued, very durable coloured rocks were carved, drilled and polished with great effort, skill and time – an undertaking that probably required specialised knowledge available only to a limited number of individuals within Neolithic communities in Greece (Perlès 2001: 222–3).

The Neolithic and Copper Age stamps in the Balkans emerged, then, through processual interactions between clay, stone and people of different skill levels: the great majority could have been made by anyone in a domestic context and possibly ad hoc, according to requirements. Others with complex geometric patterns may have been made by a few individuals who, by frequently replicating these forms, knew them, and their chosen materials, intimately and by hand. In the making process, the mechanical properties of stone and clay contributed both recalcitrance and a positive, productive power of their own (see Bennett 2010) to the emergence of a stamp. The clay specimens with impromptu designs, the rarity of stone stamps (especially those with circular motifs, which are much harder to execute than linear ones) and the Philia stamp – a clay copy of a stone specimen (Fig. 8.3) all indicate that the material resisted moulding into the desired form, especially when the person who made them had less skill or experience with a particular material and/or making technique. On the other hand, stone and fired clay also acted in accord with the maker; and, significantly, gave the stamp-forms and their motifs durability. This, in effect, enabled the repetitive mechanical reproduction of a geometric pattern on various surfaces over an extended period of time.

Stamped materials

Neolithic and Copper Age stamps from the Balkans were, in contrast with contemporary stamping and sealing practices in south-west Asia (e.g. Collon 1990), involved neither in marking or decorating pottery, nor in identifying traded property. In the absence of any preserved artefacts, or surfaces, with positive imprints, archaeologists refer to historic and ethnographic parallels (e.g. Calegari 2008; Faris 1972; Galvaris 1970) and, in a few instances, experimental studies (Gheorghiu 2008; Prijatelj 2007), to discuss their function. Stamps are thus frequently interpreted as tools for printing and impressing culturally significant abstract patterns on a variety of perishable and archaeologically-undetectable materials, such as textiles, leather, bread, butter, cheese and even human skin. As discussed elsewhere (Prijatelj 2007), most archaeologists argue in favour of one particular stamping technique.

Contrary to the majority view, I claim that stamping technology, rather than being unified, varied across time and space. Given the significant differences they exhibit in the modelling of their faces and motifs, stamps were clearly used on different materials (Prijatelj 2007). More specifically, tools with a concave or sinuous base would have been able to impress patterns on soft and yielding surfaces such as unbaked bread and cheese; yet they would have left only partial or very poor imprints on human skin, textile or walls. Those with a flat or slightly convex surface would, on the other hand, have made an imprint on a wide variety of materials. Furthermore, undecorated specimens, modelled as small cones with no base motif, may have served as tokens, rather than tools for the reproduction of geometric patterns (Budja 2003). Similarly, the group of artefacts with engravings, interpreted as proto-writing symbols, may have constituted another assemblage (Prijatelj 2007: 251).

The presence and absence of distinct traces on the bases of the preserved stamps likewise indicates a variety of stamping techniques. Within the Balkan corpus, only one stamp, from Frumuşica-Cetăţuia in Romania, had a heavily burnt base (Makkay 1984: 23); this may indicate that the branding of herd animals, or the application of heat marks on other materials such as wood, leather and human skin, was carried out only infrequently. Remnants of red, white and yellow paint have, however, been recorded within the grooves of several stamps, including the three from Olteni-Vármege and Frumuşica-Cetăţuia in Romania (Makkay 1984: 23, 42), and one from Stillfried in Austria (Ruttkay 1993/1994); and also in clay cylinders from Sitagroi, in Greece (Renfrew 1986) and Limska gradina, in Croatia (Buršić-Matijašić 1993: 7). Traces of either a single colour (red or white on the stamps from Romania and Austria, and the clay cylinder from Greece) or a combination of two colours (yellow and red on the clay cylinder from Croatia) have been preserved, and this suggests that both monochrome and polychrome prints were made with stamps on different surfaces, at the time.

A further indication of the type of material imprinted is provided by the context of a Copper Age stamp from the Romanian site Căscioarele-Ostrovel: the specimen, which has an incised spiral, was recorded inside Building no. 4, along with more than 90 prismatic or oval-shaped loom weights and large quantities of pottery, as well as shell valves, lithics, fragments of a female figurine and a burnt clay mould for casting copper (Ştefan 2009: 151). The association of the stamp with a very large number of weights is significant, as it may imply the use of the tool in printing on fabric. Stamps associated with textile-related objects such as bobbins, loom weights and spindle whorls have also been documented at earlier sites, including the Late Neolithic burnt building at Sitagroi,

Greece, and the Early Neolithic House 10 at Rakitovo, Serbia (Prijatelj 2007: tab. 3).

Nevertheless, it remains uncertain whether people in the Neolithic and Copper Age Balkans knew of any methods for fixing dyes, or any means of preventing the discoloration of textiles when in contact with water. The earliest material evidence of such knowledge comes from the northern Italian Bronze Age site Lago di Ledro, where a piece of fabric, imprinted with a stamp covered in a resinous substance, has been discovered (von Kurzynski 1996: 17). The constraints of the textile hypothesis are also illustrated by two separate experiments which tested a variety of stamping techniques, including imprinting on different fabrics with either mineral or organic pigments (Gheorghiu 2008; Prijatelj 2007). Both demonstrated that stamping on textiles with clay replicas yields rather mediocre prints; it is therefore doubtful the technique was common practice in the Neolithic and Copper Age Balkans.

Graphic designs imprinted by stamps may, alternatively, have adorned human bodies (Fig. 8.5); in such instances, the term *pintadera* is frequently used. Body art created with stamps has been documented not only in numerous ethnographic studies on indigenous peoples from Africa, Mesoamerica and South America (e.g. Calegari 2008; Faris 1972), but also in historical records for Europe. Most notably, in the fourteenth and fifteenth centuries CE – during the period of the fur and slave trades, and, ultimately, the Spanish conquest – the practice continued among Guanches, natives of the Canary Islands who, at the time, lived similarly to many Neolithic peoples, creating stone tools, making pottery and herding sheep and goats (e.g. González 2015).

Several distinct motifs employed both in figurine decorations and on contemporary stamps (e.g. Dzhanfezova 2003; Naumov 2008; Ștefan 2009) indicate that pintaderas may indeed have been used in the Neolithic and Copper Age Balkans too. A practical experiment (Prijatelj 2007: 240–2) has shown that clay replicas of Neolithic stamps imprint well on human skin, regardless of the way in which the motif is executed. When used for extended periods of time, however, excised motifs were more effective than incised ones, the grooves of which probably became clogged up with paint residues (Cornaggia Castiglioni and Calegari 1978: 9).

Other stamps within the corpus may have been used to impress geometric motifs on foods, most notably bread, cheese and butter (Fig. 8.4). Ethnographic records for the practice in the Balkans are rich and varied: stamps made of wood, clay or even bone were used to mark bread on special occasions, including feasts, funerals and other religious ceremonies (e.g. Galvaris 1970; Gheorghiu 2008; Naumov 2008). Social feasting has been attested in the Neolithic Balkans (e.g. Halstead and
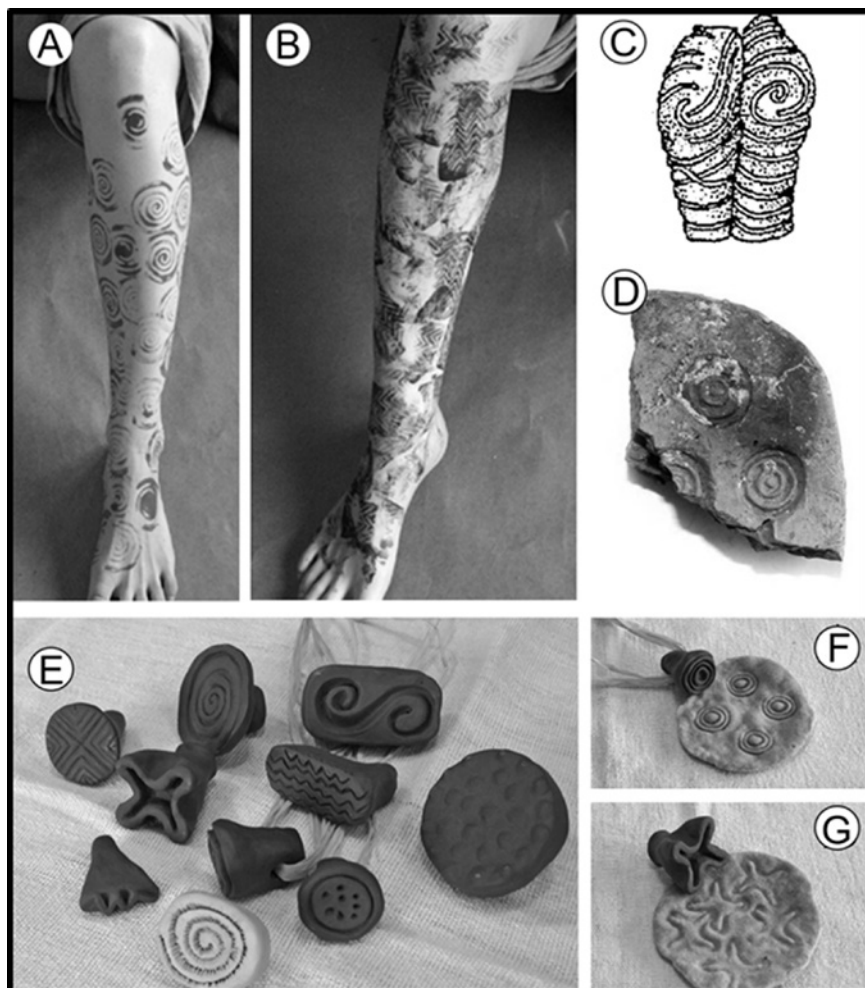
8.5 Archaeological, ethnographic and experimental evidence for body art and bread markings. A and B: Body art created with clay replicas during the experiment. C: Copper Age figurine from Ovcharovo, Bulgaria, with ornaments similar to those found on contemporary stamps. D: Bronze Age clay model of bread with impressions, Monkondonja, Croatia, $6 \times 5.4 \times 2$ cm. E: Clay replicas of Neolithic stamps. F and G: Baked unleavened bread, stamped during the experiment.

Barrett 2004), and the ritual consumption of stamped bread may well have played an important role in such activities. As in the case of pintaderas, this hypothesis has been strengthened by a practical experiment showing that clay replicas imprint well on unbaked bread (Gheorghiu 2008: 89–94; Prijatelj 2007: 240–2). It has also been supported by finds

of clay (and stone) models of bread, with impressed decorations that are often identical to those found on stamps. Given that more than three hundred intriguing miniatures of this type have been recorded across large stretches of Central, Southern and Eastern Europe within a timespan from the Neolithic into the Bronze Age, stamped bread may have been a widespread phenomenon in prehistoric Europe (e.g. Mihovilić *et al*. 2017).

When discussing Neolithic and Copper Age stamps from the Balkans, archaeologists have frequently privileged uniformity above heterogeneity, within a single narrative construct, in order to tame the difference of the past. As demonstrated in the discussion above, however, objects in the Balkan assemblage share the defining trait of being designed to reproduce the original image, while, at the same time, differing in the materials on which they stamped abstract designs. The combination of preserved traces, the physical constraints of the tools as revealed during the practical experiments, and the historical and ethnographic parallels indicates that Balkan stamps probably imprinted colourful geometric patterns on human skin, or, alternatively, impressed relief patterns in softer, perishable materials – bread in particular. Very rarely, they may also have been used for branding domestic animals. The stamping of textiles, while not entirely unlikely, may have been, in my opinion at least, less widely practised during the period in question.

The stamped materials – human and animal skin, textile, bread and other perishables – acted as heterogeneous assemblages of such diverse vital entities as various animate tissues, plant and animal fibres and edible matter. Similarly to clay and stone during the making of a stamp, they, too, would have been active participants in the process of creation. While resisting or yielding (cf. Ingold 2011, 2013) to the force of a hand-with-a-stamp (and consequently affecting the quality of the imprints), they actively contributed to the becoming of a new, distinct assemblage: a body/thing-with-a-stamped-image. This transformative process – a vital material engagement between people, tools and different materials – is explored in the final part of the chapter.

Stamping as a vital material engagement

Small, plain and with the motif hidden when resting on their base, clay stamps were rather inconspicuous things. During the process of stamping, however, their vitality – their ability to act and affect, move and transform, human and non-human material configurations – came clearly to the fore: in replicating geometrical patterns, stamps were creating material connections between the user, the stamped materials and the tools themselves. The performative, repetitive and rhythmic gesture of

stamping, whether in private or in public, within settlements or between neighbouring or more distant communities, emerged as a relational and open-ended engagement between people, tools and different materials that would have found its expression in a negotiation between iteration and change.

Replication was the intrinsic essence of Neolithic and Copper Age stamps; these were, in fact, probably some of the earliest tools that enabled mechanical reproduction of simple motifs on a number of materials. The same tools, on the other hand, also allowed for considerable change and creative freedom, expressed, first, in a wide variation in the modelling of particular motifs, and then in their actual imprints, the visual effect and optical dynamism of which depended on a number of acting and participating variables, including, for example, the type of material stamped; the number of motifs combined; the colours used; the spatial organisation of motifs; the number of iterations of each motif; and the overall symmetry or asymmetry of the produced image.

Images ranged from rather static shapes, made up of simple geometric elements such as concentric circles, triangles, crosses and parallel lines to more vibrant designs, including pulsating and iterative spirals, meanders and mazes (cf. Figs 8.1 and 8.2). These complex forms enticed the eye of the viewer, and made it travel within their dynamic and often laby-rinthine compositions. Abstract images would have been perceived as aesthetically pleasing, whilst they were also, at the same time, used to relay a range of either very narrow, distinct or broader, looser personal, communal and cultural concepts, contingent on fluid and shifting relation-ships among heterogeneous elements in in more-than-human communities. Ultimately, the imagery required a multifaceted sensorial engagement: in addition to watching it, people would also have touched it (on skin or textiles, for example), and even sensed it by taste (when consuming stamped edibles such as bread).

Stamps, then, covered things and bodies with new visual, textural and taste-sensory layers, transforming their properties either temporarily or more permanently; thereby creating new, distinct assemblages – bodies/things-with-stamped-imagery. When people, things, foods, and materials crossed paths, as part of a pulsating and shifting set of assemblages in which stamping also took place, the impact of each would have been further enhanced by repetitive, sometimes identical but more often slightly different, graphic designs occurring on and being reflected from different materials and surfaces. This particular distributive agency of graphic imagery echoed across stamps and other types of artefact, including ceramic vessels, figurines and 'altars' (e.g. Dzhanfezova 2003; Naumov 2008), and very probably perishable materials, such as human bodies and the products of basketry and weaving, too.

The lines between tools, people and stamped materials were blurred and fluid; during the process of stamping, the stamp became the extension of the holder's hand, animated by the movement of the hand. But the effect worked both ways: a number of stamps with perforated handles may have been worn in contact with the owner's body, in which case the tool's potency, stemming from the many communities and processes associated with it, would have permeated the owner. Given that some tools have heavily worn bases, stamping was clearly a process that recurred over an extended period of time. Some tools may even have passed from one generation to another until they became damaged; some were so worn out that they ended up in a midden or refuse pit. Paradoxically, the flow of time may, by way of the creation of denser connections and an accumulation of memories, have imbued stamps with greater vitality and thing-power, while at the same time slowly eroding their form.

Conclusion

In this chapter, I have introduced a revised account of Neolithic and Copper Age stamps by focusing on their material properties, and on what these tools do. Given their ability to act, transform and create new assemblages, I have presented stamps, their materials and stamped surfaces as active participants imbued with thing-power. Stamp designs – motifs in particular – have told of animate clay and stone, resisting or yielding to the hands of people with different levels of skill: while the great majority could have been made by anyone, stone stamps, in particular, were clearly made by artisans and craftsmen familiar with chosen materials and complex geometric designs. Rather like the stamps themselves, the impressed materials varied; a combination of evidence suggested that Balkan stamps probably imprinted colourful geometric patterns on human skin, or impressed relief patterns in soft, perishable edibles such as bread.

In discussing various assemblages of people, tools, materials and things, I have sought to tease out some of the quite dramatic transformations that occurred during the process of making and using a stamp in the Neolithic and Copper Age Balkans. More specifically, I have argued that stamps covered things and bodies with new visual, textural and taste-sensory layers, transforming their properties either temporarily or more permanently. I have shown that these new distinct assemblages – bodies/things-with-stamped-imagery – emerged through a process of vital material engagement governed by horizontal relations between humans and non-humans. The hope, then, is that this account on one of the earliest techniques of mechanical reproduction has helped to elucidate

some of the complex, sometimes harmonious and sometimes dissonant connections and entanglements within more-than-human communities.

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Commentary on Part II

Chantal Conneller

These chapters reflect on a range of different things that have been considered as art-objects. These vary hugely in what they are made from, how they are made and by whom, the different concerns with surface and depths they display, and their affects. These papers show the potential of foregrounding approaches that problematise long-standing Western conceptualisations of and preoccupations with form and representation. A diverse range of broader themes are raised. Two in particular that resonated through different chapters intrigued me, and it is these, the idea of the finished object and the concept of replicability, which I would like to explore in more depth.

Both Jones and Díaz-Guardamino problematise the idea of the finished object. Díaz-Guardamino (Chapter 5) describes how rock art panels have been considered by archaeologists as 'finished projects', yet her analysis of Bronze Age warrior stelae reveals that these objects had complex biographies. Similarly, Jones's analysis (Chapter 6) has revealed that many of the different types of Neolithic carved stone ball, as classified by archaeologists, were in fact stages in a *chaîne opératoire* of stone ball production.

These stone balls in particular reminded me of another set of unfinished objects: antler frontlets from the Mesolithic site of Star Carr, which consist of the skull caps and antlers of red deer, sometimes smoothed and perforated for wearing. Clark (1954) suggested these were part of ritual costumes, comparing them to an eighteenth-century image of a Tungu shaman wearing an antlered headdress. The Tungu headdress might correspond to one of Plato's ideal forms, as discussed by Jones. Only Clark could see through the mainly decayed, fragmented scraps

of bone and antler from the shadow-world of the past to the ideal form beyond. It is telling that, just as the unfinished elements of Jones's Neolithic stone balls are not reproduced in images of the object, only the frontlets that most conform to the ideal form of the Tungu headdress are replicated in academic texts. However, it has long been recognised that Clark's frontlets had moved beyond an ideal finished form, recycled as a source for barbed points (Jacobi 1978); furthermore, several had not been perforated. The more recent excavations have recovered 14 further examples, but all might be considered unfinished (Elliott *et al.* 2018): deer skulls lacking a mandible; skulls with the maxilla and nasal bones removed; skulls made into skull-caps but lacking perforation. None met the criteria of Clark's ideal form, yet all were recovered from similar contexts to the 'finished' objects, deriving from the formal deposition of these objects into the shallow waters of the lake edge.

The idea of the finished form, the image in the mind of the maker, or even the ideal, relatively inaccessible, Platonic form (as discussed by Jones), is sufficiently compelling that elements that deviate from this have been ignored, seen as a lack or incompleteness. This is particularly true, no doubt, in expectations of what a work of art should be, and in the teleology of making that accompanies this expectation, and the contributions to this volume work to problematise this view. Díaz-Guardamino's analysis of additions to and erasure of images on the 'warrior' stelae leads her to argue that they should be seen as open-ended collective projects; they are always potentially unfinished. They may transform in step with the dead that they commemorate. For the stone balls, Jones suggests that instead of types it is more helpful to think of these as processes of working. But the conception of the unfinished stone balls and antler frontlets as congealed stages of a linear *chaîne opératoire* appears still perhaps in thrall to the idea of what lies at the end of this: the ideal, finished object.

Perhaps then we need to take 'unfinished' objects more seriously and see that at times they might be ends-to-themselves, rather than things lacking completeness. Rather than a linear 'chain' leading to a finished object, the transformatory processes working on the frontlets at least can better be conceived of as circular. A deer transforms into a costume, which by incorporating a human wearer transforms again into an animal. This is perhaps a more appropriate analogy for hunter-gather technical systems where ideas of production *ex nihil* are rare; instead things and beings originate as a transformation of 'something else' (Viveiros de Castro 2004: 477) and concepts of recycling of essences are common (Ingold 2002). In a circle, things are not incomplete; rather they chose or are chosen to exit the endless recycling process at a particular point.

Some move then into other circles of transformation: frontlets were used for barbed point production and barbed points used for killing an animal, whose antlers then might become a frontlet or barbed point.

A second theme shared by several of the chapters is the replication of designs. This of course is related to the first theme, in that the 'standard view' would be to see designs – like form – as ideas or symbols existing in the mind that are inscribed on matter. The broader issue of why some of these persist unchanged or vary temporally or regionally is a perennial one in archaeology, and one which has recently seen renewed interest as archaeologists re-engage creatively with the basic concepts of the discipline (Sørensen 2015; Fowler 2017). Lucas (2012) for example has discussed the production of 'types' or 'serial objects' in terms of their emergence through repeated citations of past acts which brought things into relation with each other. Here similarity relies not on an ideal type but on references to memories of the ways in which things were assembled in previous acts. Each new act, assembling similar things but under different sets of circumstances, would contribute to these distributed memories of making.

This is the sort of replication that Valdez-Tullett explores in her study of Atlantic rock art (Chapter 7). These designs are found from Portugal to Ireland, and their strong similarity has been used to suggest long-distance contact. She notes identical micro-elements of designs across different regions, suggesting to her a strong concern with the transmission of specific elements, enacted through teaching or an active imitation involving close observation of techniques and processes. However she also notes considerable regional variations, as memory of past acts were reconfigured through assembling the material and technology of rock art in new landscape settings. Here we see how these types begin to change: for example in Iveragh designs are often rough and unfinished, suggesting that the processes of production was more important, whereas in the Machars there is more of a concern to finesse and sharpen a particular design.

The ultimate means of perfect replication is through a stamp, and Prijatelj offers some fascinating insights into the use of Neolithic and Chalcolithic stamps in the Balkans (Chapter 8). The same designs have been inscribed on to stamps of both stone and clay, obviating differences between materials that would have needed different skills and levels of know-how. Prijatelj highlights a change in design between the Neolithic and Copper Age: In the Neolithic stamps were linked to individual houses; in the Chalcolithic the same designs are found across settlements. What was stamped still remains under debate but Prijatelj suggests that human skin and bread and other foodstuffs were likely candidates. Thus, as well as making materials similar through their production, the stamps

also seem to have brought the surfaces of different things, bodies and food into alignment.

Traditional Western views, inherited from Aristotle, would see things as having a substantial form or essence, which cannot be changed by alterations of a thing's outward appearance (accidental form). In this view, bread would remain bread and people people despite similar stamped surface decoration. If, however, we are willing to explore alternative configurations of matter and of the significance of images, then we might perhaps be able to consider that the making similar of surfaces might have a more substantial effect.

In the Neolithic, the household basis of stamping practices made people and food similar, but at the same time differentiated them from other households; similarity appears routed through genealogical relationships of the house, its people and its products. The presence of similar designs in distant regions suggests that these genealogical relationships cross-cut settlement location. In the Chalcolithic, people and things were made similar across settlements, but designs differentiated people in different settlements.

The same-making properties of the stamp can perhaps return us to the detailed replicated elements of the Atlantic Rock Art designs. Humans are less effective than stamps in the act of replication, being subject to concerns with appropriate citation, tendencies to elaboration, reinterpretation, forgetfulness and the demands of engagement with the material on which a design is made. Thus, when a concern with facsimile emerges, as it appears even with micro-elements of certain designs, this needs to be taken seriously. Making the same marks on a panel of rock over a wide geographical area is a practice that makes heterogeneous landscapes similar, folding together space and time. Through this it also enfolds people.

In the standard view then, replication or form would involve the imposition of a transcendental (yet at the same time passive) symbol, existing in the mind of the maker, on to an unchangeable substance. Through tracing the materials, production, makers and the broader assemblages in which these operated, these chapters offer different ways of understanding the ways in which images emerged and show the varied ways that these were configured in the contexts explored. Above all these images are not abstract, they have effects on people, landscapes and things, even to the extent of transforming their nature.

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Part III

Unfolding images

9

Pattern as patina: Iron Age 'kintsugi' from East Yorkshire

Helen Chittock

Introduction

Repair is the restoration of damaged objects to their functional states and can involve processes such as patching, tying, adhering, reattaching, binding, riveting, stapling and taping, for example. Rather than simply undoing damage, therefore, repairs involve the addition of components to objects, or the replacement of damaged ones. Through these processes repairs have the potential to alter the values and functions of objects. This chapter concerns two forms of repair that originate from two distinct traditions of mending with very different histories, geographies and time spans. While it will not compare them directly, it will use insights gained from one to provide new perspectives on the other. The primary focus of the chapter is on decorated Iron Age metalwork from East Yorkshire (UK), an assemblage of objects dating to between approximately 350 BCE and 100 CE (see Garrow *et al.* 2009), which contains frequent examples of use, damage, repair and modification. Throughout the chapter, new evidence on the uses of these objects will be presented, and I will argue that viewing their repairs and modifications from the perspective of *kintsugi*, a Japanese art form thought to have been established during the late fifteenth century, might allow new understandings of Iron Age metalwork to be reached. The chapter will rest particularly on the aesthetics of repair and will argue that the accretion of different decorative patterns and contrasting components on some Iron Age objects was a mode of emphasising repairs and modifications and making the changes in the values and functions of these objects visible.

Kintsugi: 'to patch with gold'

Kintsugi ('to patch with gold') is a Japanese art form comprising the mending of broken pottery using lacquer mixed or coated with powdered gold, or occasionally silver or platinum. Broken ceramic vessels are pieced back together to create striking visual effects, resulting in vessels that resemble closely their original forms, but that are criss-crossed with shining seams of metallic lacquer (Iten 2008, cf. Fig. 9.1).

Kintsugi historically sits within a wider group of mended Japanese ceramics, all of which are closely linked to the tea ceremony, an important aspect of traditional Japanese culture (Iten 2008: 17–18). The histories of how these types of ceramics first came about generally date back to the fifteenth and sixteenth centuries and feature cherished vessels, often tea bowls, belonging to important individuals, which are accidentally broken and then mended using lacquer (Bartlett 2008). The importance of cherished objects and utensils in the tea ceremony has continued into the present day. They are passed between generations, and the visual apparency of repairs like kintsugi adds a sense of time, memory and honour to these objects (Holland 2008). Kintsugi, therefore, not only restores a broken vessel to its useful state but adds value to the object. The repair itself is fairly expensive but its true value comes from the fact that it is a visual representation of the object's history, and forms the linchpin in its transformation into a wholly different object (Holland 2008: 16; Iten 2008: 17). Lying behind the traditional practice of kintsugi is a direct connection to the interlinked philosophical principles of *wabi* and *sabi*, which are woven through many different aspects of traditional Japanese culture, having originated in poetry and becoming incorporated into the tea ceremony during the sixteenth century. These words can be roughly translated to 'poverty and undemandingness' and 'seclusion, ageing, patina and decay', and represent a beauty found in simplicity, asymmetry, roughness and imperfection (Iten 2008: 18).

The aesthetic ideals of *wabi-sabi* are exclusive to traditional Japanese culture, but the remainder of this chapter will argue that they present a new way to think through the aesthetics of repaired objects more broadly. Kintsugi epitomises a philosophy that values age and patina and that is linked to a category of objects that represents this in material form. I will suggest that Iron Age metalwork from East Yorkshire epitomises a philosophy that also values these characteristics, resulting in objects that carry patinas of time and honour. Certain objects in this group have been identified as heirloom objects that were passed down over generations (e.g. Giles 2012; Gosden and Hill 2008: 11; Joy 2019; see also Chittock 2019), and this chapter will explore one aspect of *how* Iron Age metalwork acquired value through age. It will focus on value derived from the

9.1 A cup, broken accidentally and repaired by the author and her partner, using a kintsugi-inspired method. Two-part epoxy adhesive and gold mica powder were used in place of lacquer and powdered gold.

aesthetic effects of repair and modification. Just as archaeologists have used historical case studies to make points about the cultural specificity of the values of certain materials in the context of prehistory (e.g. Conneller 2011: 4–6) for example, I will draw inspiration from kintsugi to argue that modern, Western preferences for pristine, undamaged objects are similarly culturally specific. The next section will introduce the group of objects on which the remainder of the chapter will focus.

Mending and modification in Iron Age East Yorkshire: Introducing the dataset

The dataset drawn on throughout this chapter is derived from PhD research conducted as the holder of a Collaborative Doctoral Award at the British Museum and University of Southampton, entitled *Pattern and Purpose in Iron Age East Yorkshire* (Chittock forthcoming). This research looked holistically at decoration and plainness in East Yorkshire in north-east England between 400 BCE and 100 CE to answer the question 'what did pattern *do*?' Included in the research methodology was a study of the use-wear, damage, repair and modification of a varied sample of 145 objects, which allowed me to look at the ways that plain and decorated objects were used. Methodologically, this involved carefully examining and recording each object. The results of this study will be discussed here, focusing on three types of object: sword scabbards, chariots and a single shield, most excavated from sites located along the line of the Wolds, chalk uplands that arc through the north and west of the region (Table 9.1). The objects I will discuss traditionally fall into the category of 'Celtic Art' and, like other objects in this category, they have often been discussed as objects of power (e.g. Giles 2012: 175–213; Gosden and Hill 2008: 11; Sharples 2010: 43, footnote 3), with their aesthetic effects deriving from colour (Giles 2008) and the enchanting patterns skilfully incised on to their surfaces (Garrow and Gosden 2012), for example. This chapter will go on to argue that elements of their power and value were also derived from visible signs of their use and repair. The paragraphs below will briefly introduce details of the objects examined, before going on to discuss the resulting findings.

Shield

A single shield was examined. It was excavated in 1868 by John Mortimer from a grave within Grimthorpe hillfort (Mortimer 1905: 152). The so-called 'warrior burial' from which the shield was excavated belongs to a group of similar burials from around the UK, dating to 360–100 BCE (Garrow *et al.* 2009: 103) and containing the bodies of young

Table 9.1 Metalwork examined by the author during the project.

Site	Object type	Museum	Museum No.	Key references
Grimthorpe	Shield	British Museum	1876, 0208.2 1876, 0208.1 1876, 0208.3	Mortimer 1905, Stead *et al.* 1969
Grimthorpe	Sword	British Museum	1876,0208.10	Stead 2006
South Cave	Sword	Beverley Treasure House	2005,99.9 (other ref RF40)	Evans *et al.* in prep. Northover in prep.
South Cave	Sword	Beverley Treasure House	2005,99.8 (other ref RF18)	Evans *et al.* in prep. Northover in prep.
South Cave	Sword	Beverley Treasure House	2005,99.10 (other ref RF41)	Evans *et al.* in prep. Northover in prep.
South Cave	Sword	Beverley Treasure House	2005,99.5 (other ref RF17)	Evans *et al.* in prep. Northover in prep.
Wetwang	Sword	Hull and East Riding Museum	KINCM:2010.8.65 KINCM:2010.8.31	Dent 1985
Wetwang	Sword	Hull and East Riding Museum	KINCM:2010.8.65 KINCM:2010.8.31	Dent 1985
Wetwang Village	Terret x 5	British Museum	2001, 0401.3 2001, 0401.4 2001, 0401.5 2001, 0401.6 2001, 0401.7	Hill 2001, Giles 2012, 245
Wetwang Village	Bridle bit x 2	British Museum	2001, 0401.1 2001, 0401.2	Hill 2001, Giles 2012: 245
Wetwang Village	Linch pin x 2	British Museum	2001,0401.15 2001,0401.14	Hill 2001, Giles 2012: 245
Wetwang Village	Strap union x 3	British Museum	2001, 0401.18 2001, 0401.8 2001, 0401.9	Hill 2001, Giles 2012: 245
Arras	Terret	British Museum	1877, 1016.9	See Giles 2012
Arras	Bridle bit x 2	British Museum	1877, 1016.11 1877, 1016.10	See Giles 2012
Garton Station	Terrets x 5	British Museum	1985, 0305.28 1985, 0305.27 1985, 0305.26 1985, 0305.25 1985, 0305.24	Stead 1991

Table 9.1 Metalwork examined by the author during the project (Continued)

Site	Object type	Museum	Museum No.	Key references
Wetwang 1	Linch pins x 2	Hull and East Riding Museum	KINCM:2010.8.29 KINCM:2010.8.30	Dent 1985
Wetwang 1	Terrets x 5	Hull and East Riding Museum	KINCM:2010.8.14 KINCM:2010.8.15 KINCM:2010.8.16 KINCM:2010.8.17 KINCM:2010.8.18	Dent 1985
Wetwang 2	Terrets x 5	Hull and East Riding Museum	KINCM:2010.8.57 KINCM:2010.8.56 KINCM:2010.8.55 KINCM:2010.8.58 KINCM:2010.8.59	Dent 1985
Wetwang 2	Linch pins x 2	Hull and East Riding Museum	KINCM:2010.8.45 KINCM:2010.8.46	Dent 1985
Wetwang 2	Bridle bits x 2	Hull and East Riding Museum	KINCM:2010.8.44 KINCM:2010.8.43	Dent 1985
Wetwang 3	Terrets x 4	Hull and East Riding Museum	KINCM:2010.8.66 KINCM:2010.8.68 KINCM:2010.8.69 KINCM:2010.8.67	Dent 1985
Bugthorpe	Sword	British Museum	1905.0717.1	Stead 2006
Wetwang Village	Tyres x 2	British Museum	2001, 0401.17 2001, 0401.16	Hill 2001, Giles 2012: 245
Wetwang Village	Nave hoop x 4	British Museum	2001, 0401.13 2001, 0401.12 2001, 0401, 11 2001, 0401.10	Hill 2001, Giles 2012: 245
Kirkburn	Bridle bit x 2	British Museum	1987, 0404.17 1987, 0404.16	Stead 1991
Wetwang 1	Nave hoop x 4	Hull and East Riding Museum	KINCM:2010.8.10 KINCM:2010.8.11 KINCM:2010.8.13 KINCM:2010.8.12	Dent 1985

males along with objects of a 'martial' character. The example from Grimthorpe contained a sword and a number of bone points, which may have functioned as projectile weapons, along with the shield. Although the Grimthorpe shield is usually referred to as a single object, it actually

consists of six fittings: a central boss, two crescent-shaped plaques, a small disc and two ribs. Due to the early excavation date, the exact positioning of the fittings within the grave is unknown. They may have been deposited when attached to a leather or wooden backing, as in Stead's hypothetical reconstruction (1969: 167), or as an assemblage of separate objects. The fittings of the shield are unusual in East Yorkshire, in that they are made from sheet bronze, as opposed to iron, and, therefore, survive well, whilst other shields from the region exist only as corroded fragments (Giles 2012: 210; Stead 1991: 61–4).

Chariots

Chariots, complex composite objects, were also considered during the project through the examination of their durable fittings. These fittings were made primarily from bronze, iron and sometimes, in the cases of linchpins, antler, and were combined with wooden components such as the wheels and yoke to form wheeled vehicles. The 'groupsets', to borrow a term used by Garrow and Gosden (2012: 217) from six chariots were examined: Wetwang Village, Wetwang 1, Wetwang 2 (WS454), Wetwang 3, Garton Station and Arras Queen's Barrow. The information gathered was then incorporated into an existing body of work on chariots from East Yorkshire and its surrounding counties (e.g. Brewster 1971; Dent 1985, Giles 2012: 202–9; Stead 1991), including examinations of a further three chariots that I was not able to study in person: Kirkburn (Stead 1991) and Garton Slack from East Yorkshire (Brewster 1980: 384–94) and Ferry Fryston from West Yorkshire (Boyle *et al.* 2007).

Each of the chariots examined was recovered from a chariot burial. Standard inhumation burials are thought of as being fairly rare in Iron Age Britain (although see Harding 2016 for broader definitions of 'burials' in the Iron Age) and burial with wheeled vehicles is no exception: 26 examples are currently known in the UK, and 24 of these instances are clustered on the Wolds of East Yorkshire and within its neighbouring counties (Boyle *et al.* 2007; Brewster 1980; Dent 1985; Krakowka 2017; Stead 1991; see also Giles 2012: 202–9), whilst a single example exists in Scotland (Hunter *et al.* 2010). Whilst some examples of chariot burials contain an intact chariot, wheeled directly into the grave (Giles 2012: 209), all the examples I examined were dismantled prior to burial, possibly by specialist craftspeople as part of the spectacle of the funerary event (Giles 2012: 209–10). The groupsets in which chariot fittings functioned can vary, but generally they include: five terrets to guide the reins, two linchpins to fix the wheels to the axles and two bridle bits. They can also include strap fittings from the bridle of the chariot and 'miniature

terrets', which resemble, in some ways, chariot rein rings, but may have been mounts designed to hold linchpins in place (Lewis 2015: 19, 58). The metal elements of the chariot wheels – tyres and nave hoops – also sometimes survive.

Sword scabbards

The scabbards from eight swords were examined as part of the project (Bugthorpe, Wetwang 1, Wetwang 3, Grimthorpe, South Cave, four examples) and evidence from existing examinations of the Kirkburn sword (Stead 1991: 66–70) and an additional sword from South Cave (RF 16) was also incorporated. The South Cave swords were excavated from a hoard of weapons deposited in the later first century CE (Evans 2006; Evans *et al.* in prep.), whilst the remainder were excavated from graves. Similarly to chariots, scabbards are complex composite objects and include a variety of materials: primarily bronze, iron and wood, with bone sometimes used as grips on the handles and occasionally with additions of coral and enamel ornamentation. This study included scabbards made primarily from bronze, given the preservation issues with wood and iron. Key scabbard components mentioned within this chapter are the front plate and back plate, which form the main body of the scabbard; the chape, which covers the pointed end; and the suspension loop, from which a scabbard can be hung from a belt or strap. The Kirkburn sword, one of the most iconic Iron Age objects from Britain, is known to have been an old object when it was deposited, having been passed down through at least several generations with several repairs and modifications (Giles 2008: 61; Gosden and Hill 2008: 11; Stead 2006: 184), and this study allowed me to investigate similar possibilities in a broader group of scabbards.

A summary of the results

The study outlined above showed that the composite metal objects I examined were, overwhelmingly, well-used, bearing signs of wear and damage. They were also sometimes repaired when broken, and components from older objects were sometimes recycled as parts of newer objects. The following paragraphs will provide a summary of the results of the study, integrating other work on the subject (e.g. Giles 2012; Stead 2006) before going on to discuss their implications for understanding the functions and values of this group of metal objects.

Of the eight scabbards I examined, six showed signs of wear or damage, five had been repaired and two incorporated potentially older components. Use-wear was identified in the form of polishing on the
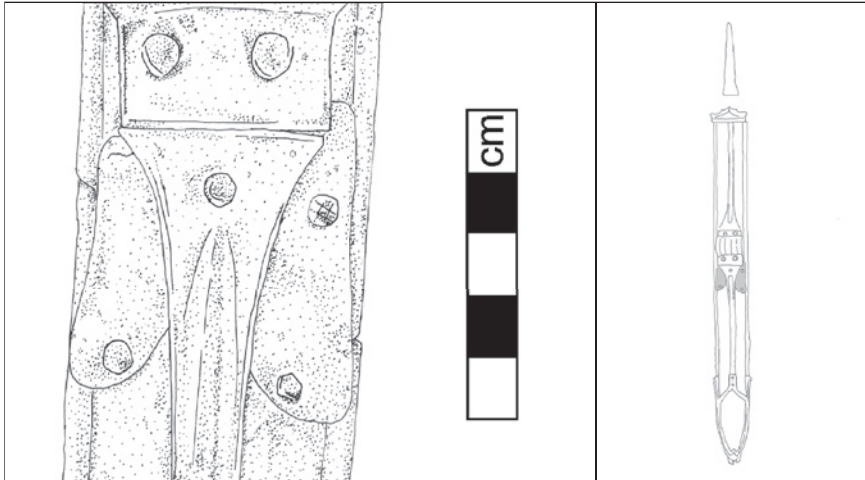
9.2 A repair patch added to the scabbard of sword RF40, South Cave, to mend a break across the scabbard's back plate. The patch is shaded in grey on the right of the figure, and shown in close-up on the left.

decorated front plate of the scabbard from Wetwang 3, perhaps created by contact with a garment during the time that the scabbard was being worn. Splits in the front and back plates of scabbards, especially along the edges, were common forms of damage. Although some instances of splitting had probably occurred post-deposition, repairs to this damage were also present on some scabbards in the forms of patches. An example can be found on RF40 from South Cave (Fig. 9.2). In addition, a crack ran round the circumference of this scabbard close to the chape end, and had been repaired by the attachment of an entirely new chape, which held on the detached section. A repair strip on the Grimthorpe scabbard once circled the circumference of the scabbard, presumably holding the front and back plates together (only part of the strip remains today). Another repair strip is present on an openwork rung on the back of this scabbard (Stead 2006: 187). Breaks to the back loop plate of RF41 (South Cave) were mended by riveting detached sections back on to the back plate. A crease across the front plate of the Bugthorpe scabbard suggests it had been bent and re-straightened (Stead 2006: 186), either while part of the scabbard or as an individual component. Damage and repair were also noted on the Kirkburn sword by Ian Stead (2006: 184). The whole bottom end of the scabbard had been replaced, as shown by repair strips at the junction between the original front plate and replacement section. Gosden and Hill (2008: 11) also suggest that the front and back plates were deliberately split and reattached. This may have

occurred as part of the same repair event that led to the replacement of part of the front plate.

Evidence from the South Cave assemblage suggested that some scabbards had been formed from both old and newer components. This is visible stylistically and also through a programme of metallurgical analysis carried out on the scabbards that showed that different components were made from different copper alloys: some characteristic of Iron Age British metalworking and some of Late Iron Age interactions with the Roman-occupied continent (Northover in prep.). For example, the bronze chape of RF40 is an early northern type (see Stead 2006: 14–15, type g), but is riveted on to a stylistically late brass scabbard in order to mend a break in the front and back plates. Similarly, two decorative openwork panels on RF16 are made from a different brass to the rest of the scabbard, suggesting they may derive from a different, potentially earlier, act of making (Northover in prep.).

The components of chariots were less often repaired than scabbards, but they still showed signs of wear. Polishing, sometimes subtly smoothing relief decoration, was visible on the insides of terret rings from Wetwang Village and Arras Queen's Barrow. In addition the links of bridle bits from Arras Queen's Barrow were extremely worn, and those from Wetwang Village more subtly so. Wear facets were also visible on chariot linchpins, particularly on the antler examples from Wetwang 1, but also more subtly on metal examples, such as those from Kirkburn, as Stead notes (1991: 45–6), and perhaps also on Wetwang 2. A repair to a terret from Wetwang Village was noted by J.D. Hill (2001), and comprises a blob of red glass, which replaces a lost coral stud.

Just as some of the scabbards I examined may have been made from mixtures of old and new components, the chariots were also sometimes brought together from potentially varied sources. Giles has written about this particularly in the context of the Ferry Fryston chariot, which had, for example, conspicuously differently sized and designed wheels and a set of 'sham terrets', made only for its final journey into the grave (Brown 2007: 138–41; Giles 2012: 203), suggesting that it existed in its final configuration only for a short time. The mismatching replacement wheel on the Kirkburn chariot suggests that this chariot had also been subject to a similar process, although evidence suggests it was driven for a time after its new wheel was added (Giles 2012: 203; Stead 1991: 42). Giles (2012: 203) comments on its mismatching terrets, whilst Garrow and Gosden (2012: 218) note the varied appearances of its fittings as a whole group, which are decorated in a wide variety of different patterns. I also noted a similar mismatch within the group of five terrets from the Garton Station chariot. One terret is large and highly decorated, with three polished bone attachments, and has been made by casting a bronze form

on to an iron ring. This contrasts with the four smaller and plainer terrets, which were made entirely from cast bronze, an unusual form of terret in East Yorkshire.

The Grimthorpe Shield had also seen much use, damage and repair (Chittock 2017). Its two crescentic fittings were torn around the edges and one of the crescentic fittings had sustained several substantial dents, plausibly made during armed combat. The same crescentic fitting had split in two. Repairs had been made to this break and to the several smaller tears, simply by riveting the torn or broken edges back on to the leather or wooden backing that the shield was attached to. I also identified evidence that the two crescentic fittings had been nailed to several different backings over time. Each had a great number of rivet holes (many more than other Iron Age shield fittings – see, for example, the Wandsworth shield boss) of different sizes, spaced at varied intervals around its edges. The appearances of the rivet holes also suggests that the fittings were torn away from their backing on at least one occasion (Roland Williamson, pers. comm.). The ribs, in contrast, were in good condition, whilst the boss was pristine (Figs 9.3 and 9.4).

A discussion of the results: pattern as patina

The paragraphs above have provided examples of the repairs made to Iron Age metalwork from East Yorkshire, as well as introducing more complex forms of reuse and modification. This evidence suggests that the objects discussed were well-used and supports existing accounts of 'heirloom' objects, such as the Kirkburn sword (Giles 2008: 61; Gosden and Hill 2008: 11; Stead 2006: 184; see also Chittock 2019). It is notable that none of the repairs or modifications I have described have been hidden. In fact, they are, in many cases, somewhat 'shoddy' (for want of a better word) and have been carried out using different techniques to the original methods used to make the objects. It is possible that the reason for this relates to a scarcity of individuals with specialist metalworking skills within north-east England during the centuries these objects were in use, which fits with the idea of 'itinerant smiths' in later prehistoric Britain, popular among scholars for much of the twentieth century (e.g. Childe 1930: 10, 227). However, as Jody Joy points out in reference to the Grotesque torc, a highly repaired, antique object from Snettisham, Norfolk (UK), objects such as these were highly valuable, treasured objects, sometimes passed down over generations before being deposited. Why not wait until a craftsperson with the relevant skills was available to carry out the repairs needed? (Joy 2019). Considering this point, and taking into account the deliberate modifications made to some objects, I suggest that evidence presented shows that these Iron
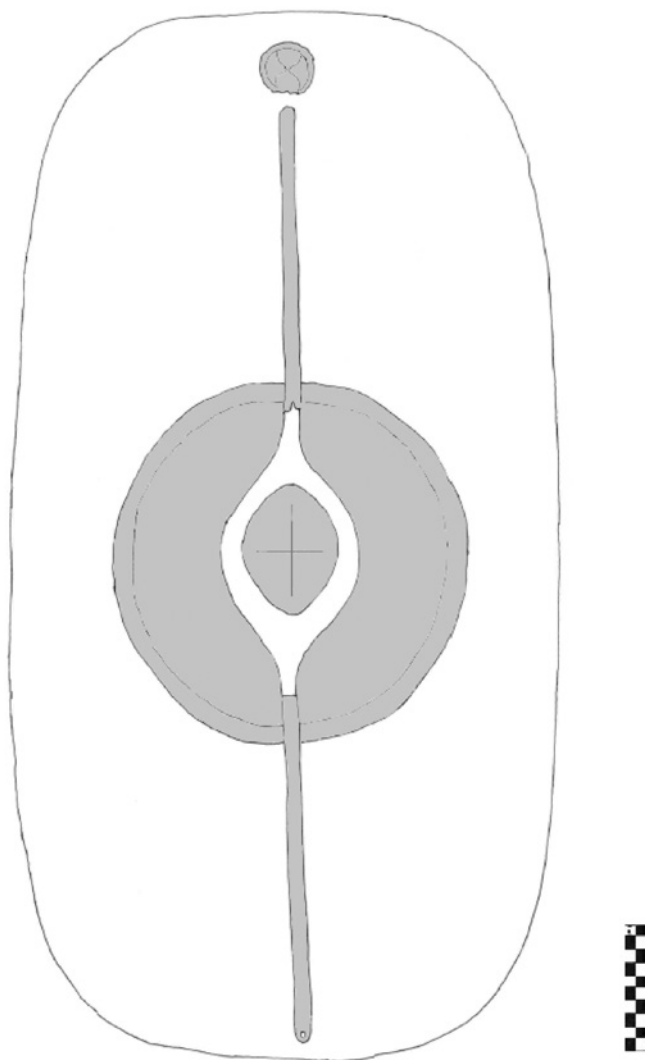
9.3 An impression of the way that the six sheet bronze fittings of the Grimthorpe shield may have been arranged on a wooden or leather backing, if, indeed, they were ever part of the same shield. The scale is approximate.

Age repairs were *meant* to be seen. Like the kintsugi described at the beginning of the chapter, I suggest that the visible repairs to these objects formed aspects of patinas of age and imperfection that added value to them (Iten 2008). Just as Japanese mended ceramics, like kintsugi, are frequently the central characters in stories about their breakage and
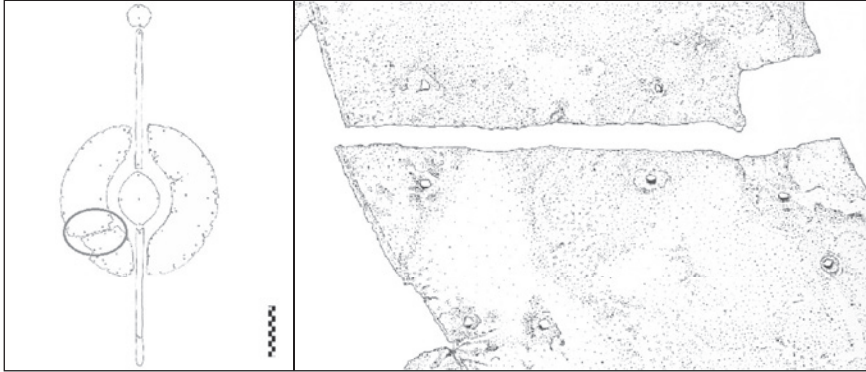
9.4 A close-up image of damage and repair to one of the crescent-shaped plaques of the Grimthorpe shield. A tear across the plaque has been mended by riveting the broken edged back on to its wooden or leather backing. The circle on the left of the image shows the approximate area illustrated in the close-up.

repair (Bartlett 2008), perhaps the patinas of the Iron Age metalwork I have described also had mnemonic functions.

These ideas can be taken further by examining the aesthetics of repair and the roles of decorative patterns in the processes of creating visible repairs and modifications, and emphasising the enchained relations (see Brittain and Harris 2010; Chapman, 2000) inherent in the stories of these objects. In several cases, repairs were made decorative in themselves. The repair strip wrapped around the Grimthorpe scabbard bore faint traces of a spiral design, suggesting it had been produced specifically to draw the eye towards it. And on scabbard RF40 from South Cave, one of the rivets used to secure a repair patch was criss-crossed with a subtle pattern (Fig. 9.2). Similar phenomena can also be seen on decorative repairs from elsewhere in Iron Age Britain, to the Torrs Pony Cap (Briggs 2014) and cauldrons from Chiseldon (Baldwin and Joy 2016), for example. The addition of decorative pattern to already decorated objects may also present evidence for this phenomenon. The decoration on the replacement panel at the chape end of the Kirkburn scabbard has been described as 'crude' (Stead 2006: 184), presenting a wholly different style and execution to the pattern on the rest of the scabbard, or at least an imitation of the original style. I noted a similar addition to the scabbard of the Wetwang 3 scabbard: an uneven wavy tremolo line bordered by two unsteady parallel tremolo lines that borders the more confident and complex curvilinear pattern, also using tremolo lines, that snakes down the centre of the scabbard.
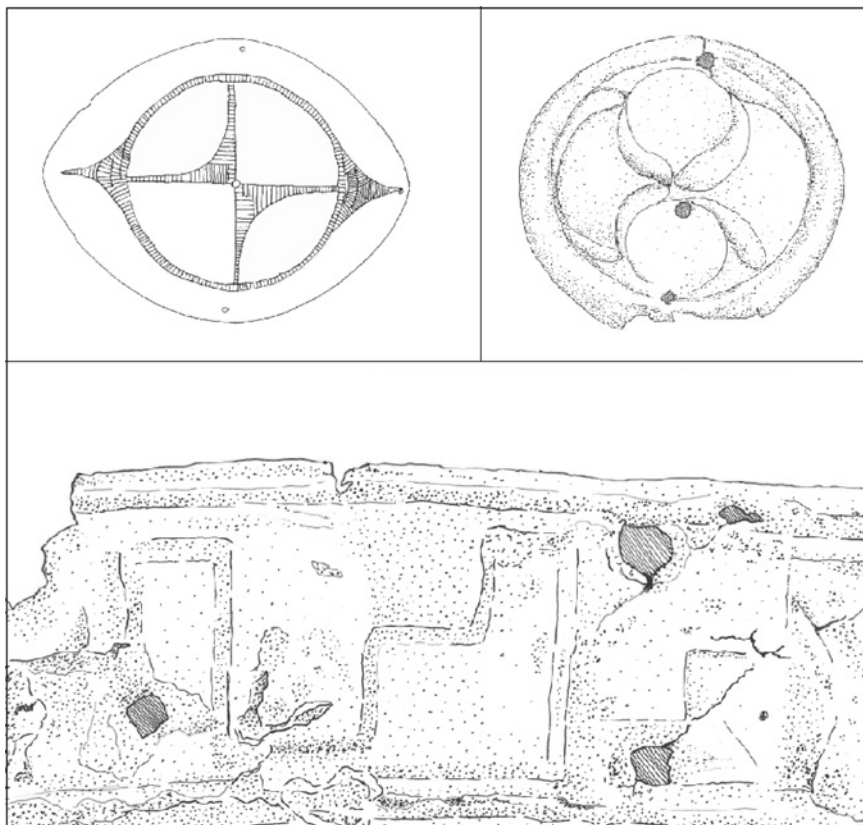
9.5 Varied decorative elements of the Grimthorpe shield (see Figs 9.3 and 9.4 for scale). Clockwise from top left: central boss; small disc; border of crescent-shaped plaque.

The use of decorative pattern to emphasise the history of an object is, perhaps, exemplified by the components of the Grimthorpe shield. Not only do its components represent varied histories of use and damage, they also display a range of different decorative patterns that, I argue, may have been deliberately juxtaposed in the formation of this assemblage of components (Fig. 9.5). Pattern, in this instance, is a form of patina: a way of creating visual contrast between components and, therefore, a way a visually emphasising the stories of objects.

Understanding Iron Age repair: conspicuous accretion

The study described in this chapter is one that might be described as a study of object biographies, a concept that has been hugely useful in

archaeology during recent decades, allowing relations between people and objects to be examined (e.g. Gosden and Marshall 1999; Joy 2009), but which has faced recent criticism hinging largely on the artificial arrangement of objects' existences into birth, life and death (e.g. Joy 2015: 127; Jones *et al.* 2016). Arising from these criticisms, the concept of 'object itineraries' has recently been presented as a complementary way of seeing objects in time and space, focusing on the motion of objects and linking them to sites and locations (Joyce and Gillespie 2015: 1–5). As Joy (2015: 128) explains, however, the concept of object itineraries is not without its own issues. Although itineraries in this context are intended to be seen as non-linear, the very idea of the stages of such an itinerary is inherently linear, even if not delimited by birth and death (Knappett 2013: 37). Joy argues that, to advance this concept, archaeologists can combine the ideas of objects as things and objects as itineraries in an approach that draws on relational object biographies, viewing objects as process, but retaining the structure of a loose itinerary to make the resulting ideas comprehensible (2015: 132). Jones *et al.* (2016) have devised an entirely new way of conceptualising objects and their relations, terming a group of Neolithic slate plaques from the Irish Sea Region 'multiple objects' and seeing them as involved in multiplicities of relationships that are not arranged within linear constructs. The composite nature of the objects from this chapter means that they can perhaps be considered multiple objects in several senses: not only the sense in which Jones *et al.* (2016) use the phrase, given their complex histories, but also in the sense that each object is made of multiple components, each of which is its own object, and change in configuration of components results in a new object.

Given the complex and intertwining histories of repair and modification I have described throughout this chapter, perhaps the best way of understanding the objects involved is as assemblages: heterogeneous collections of co-functioning elements that are related but independent (e.g. DeLanda 2006, 2016; Hamilakis and Jones 2017). A terret, for example, is part of a yoke assemblage, which acts as part of a chariot, but the terret may also have had its own independent functions outside this context. Indeed, the extremely intricate decoration on some terrets suggests they were meant to be handled close up, as well as seen as chariot components. The objects discussed in this paper are all parts of multiple assemblages on different scales (see Harris 2017 for a discussion of assemblage and scale). Each bronze rivet is an assemblage of copper and tin atoms, for example. More tangibly, each terret is itself an assemblage of bronze and iron components. And the whole group of objects discussed is part of an assemblage of objects within my work and

within the much wider assemblage of European Celtic Art, for example. Importantly, the nested scales of assemblage I describe are all of equal significance (Harris 2017).

Process is key to definitions of assemblage (e.g. DeLanda 2006: 19; Deleuze and Guattari 1987), which perhaps means that defining Iron Age objects as assemblages negates the need for the imposition of a linear construct to explain their changing configurations. I have suggested that the visible repairs to Iron Age metalwork from East Yorkshire increased the values of these objects. It could therefore be said that this value is derived from change within the assemblage at a particular scale: the scale of components – for example, the addition of repair strips, patches and rivets, and the replacement or accumulation of components. The process that defines assemblage, specifically the process associated with ageing, damage and repair, imbues the objects with value via the *conspicuous accretion* of parts and of the same patina of age that makes ceramics mended with kintsugi valuable.

Concluding point: Iron Age 'kintsugi'

This chapter has explored a group of objects traditionally seen as art objects from a new perspective, arguing that their evident value during the Iron Age was derived not only from the materials they were made from and the master craftsmanship involved in their production but also from the way they acted as assemblages, accreting components. Revisiting kintsugi at the close of the chapter allows me to reflect on the useful analogy it has provided, but also to identify the limits of the analogy by acknowledging the differences between kintsugi and the repairs to the Iron Age objects this chapter has described. While kintsugi involves, as described, the ostentatious repair of broken ceramics, the conspicuous accretion of parts of varied ceramic vessels is not a key part of the tradition (although sometimes a single sherd may be replaced by a sherd from another vessel), as it is with the treatment of composite metal objects from Iron Age East Yorkshire. To draw a final point from the analogy this chapter has employed, I described at the beginning of this chapter the way in which mended Japanese ceramics also accrue value through use, repair and ageing and how this is inextricably tied to the underlying philosophy of *wabi-sabi*. Of course, it cannot be said that the value of ageing and visible patina in Iron Age East Yorkshire was governed by the same philosophy, but the analogy sheds light on the idea that the underlying philosophy governing the values of this Iron Age metalwork was concerned not with the pristineness often valued in modern, Western societies but with the process inherent in assemblages.

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The act of creation: tangible engagements in the making and 'remaking' of prehistoric rock art

Lara Bacelar Alves

The geometric point is an invisible thing. Therefore, it must be defined as an incorporeal thing. Considered in terms of substance, it equals zero.

[…]

[It is the] most singular union of silence and speech.

[…]

It belongs to language and signifies silence.

Kandinsky 1926

A line is a dot that went for a walk.

Paul Klee, 1919, quoted in Wrathall 2010

Introduction

'Everything starts from a dot' is a quotation from Kandinsky, the artist who accepted both logic and intuition as equally valid in the act of creation (Rodríguez and Athayde 2014: 8). The intricate network of references, desires and sensations underlying the poetics of Kandinsky's art (2014: 18) touches, to some extent, the main quests that shape our analysis, fieldwork and interpretation of Iberian rock art, resting upon three interconnected lines of approach:

Every work of art is the child of its age and, in many cases, the mother of our emotions. It follows that each period of culture produces an art of its own which can never be repeated. (Kandinsky, 1918, quoted in Whitford 1967)

Firstly, an investigation into the relationship between imagery, natural environment and socio-cultural contexts, grounded on the idea that 'each culture produces an art of its own'.

> emotion that I experienced on first seeing the fresh paint come out of the tube … the impression of colours strewn over the palette: of colours – alive, waiting, as yet unseen and hidden in their little tubes. (Kandinsky 1918, quoted in Whitford 1967)

Secondly, the study of how images came into being by exploring how matter was manipulated physically, ideologically, and emotionally, as well as how they engage in dialogues with the backdrop and the landforms where they sit. If, traditionally, rock art studies concentrated on classification and formal analysis of motifs, thus focusing on the second word, 'art', today, our study object is seen as the sum of 'rock' and 'art'.

> My passion for ethnography has ancient roots: as a student at Moscow University I understood, though without full awareness, that ethnography is no less an art than a science. (Kandinsky quoted in Sers 1974: 192)

Thirdly, the fundamental role that anthropology may play in one's approach and interpretation of art. Kandinsky revealed that his use of the abstract image followed his interest in the life ways of rural Russia, folk art, icons, tales and songs. This happened, as he describes, in the contemplation of a *krasny ugol*, or 'beautiful corner', the most important spot in a house, covered with printed and painted icons. In his words, 'In these extraordinary peasant houses I encountered the miracle that later became one of the key elements of my work. Here I learned how to not look at a painting from the outside but to move about within it, to live inside it' (Kandinsky, *Stupeni*, 1918, cited in Petrova 2014: 16). Seemingly, from my early days of fieldwork in rural parts of northern Portugal I became aware that prehistoric art sites are still meaningful places in the landscape as they have their own place names and legends imbued in a well-preserved oral tradition (Alves 2001). Moreover, the tradition of carving signs on rocks prevailed until recently, as part of ceremonial rituals associated with the maintenance of territorial boundaries, making use of particularly long-lived motifs depicted since Prehistory (Alves 2001).

As Kandinsky points out, the dot precedes the act of creation and, from its silence, lines come out to create different images. In north-west Iberia, two types of figures typify two contrasting prehistoric rock art traditions. The dot alone and the dot carved at the centre of multiple rings are the most common motifs of the Atlantic Art tradition, whereas

a painted dot may signal the head of a human figure which is the most characteristic image of the Schematic Art tradition.

This chapter investigates some of the steps that might have taken place before and after carving or painting a dot on to a rock surface, as images come into being, from the observation of features emanating from the landscape to the tasks of experiencing and interpreting rock art sites, in which both logic and intuition play a fundamental role.

Moreover, considering that rocks are worked with rocks, that is that rock is both the raw material and the backdrop for the creation of prehistoric imagery on natural formations (Alves 2009: 175), insights into the manufacturing processes, from the techniques and raw materials employed to the arrangement of motifs, may help unveiling particular aspects of the worlds to which different stylistic traditions were attached.

Setting the background: natural environment and socio-cultural contexts

The post-glacial art in the north-west corner of Iberia (this includes regions of northern Portugal and the Spanish autonomous region of Galicia) is particularly interesting for studying the relationship between imagery making, natural environment and socio-cultural contexts because, singularly, it is a region where two major rock art traditions come together and may have overlapped in time, in the fourth, third and beginning of the second millennia BCE. These traditions tend to occur in two entirely different environmental regions across Europe. Atlantic Art spans Atlantic Europe from north-western Portugal and western Galicia to Ireland, Scotland and northern England, whereas Schematic Art paintings occur along the Mediterranean basin, in southern parts of Italy and France, Spain (including eastern parts of Galicia) and north-east Portugal (Fig. 10.1).

As far as the Portuguese territory is concerned, the presence of multiple rock art styles dated from the Neolithic to historical times has long been acknowledged, yet we owe to A.M. Baptista the first comprehensive attempt to systematise the evidence in relation to different geographical regions (1983–84: 73; 1986: 33). In the mid-1990s, R. Bradley and R. Fábregas brought new insights into the spatial and chronological relationship between Atlantic Art and Schematic Art, from the perspective of landscape archaeology, setting an interaction area between the two, running from east to west along the border between Galicia and Portugal (e.g. 1998). Yet this 'transition zone' was later reset into a north–south boundary, following the full consideration of the Portuguese literature as well as new findings (Alves 2003, 2009: 172–3). It is perhaps not surprising to find that both traditions converge along

the line that marks the boundary between the Mediterranean and the Eurosiberian/Atlantic biogeographical regions of Europe (e.g. Alves 2012: 198–9).

Biogeography is a branch of geography that may be particularly interesting for the study of past human societies as it is the study of both the past and present relationships between climate and the distribution of living beings on Earth (Aguiar 2008). It incorporates knowledge from sciences like biology, geology, ecology, bioclimatology and phytosociology and one of its fundamental aims is to establish typological hierarchical models of the territory known as eco-regions based on biomes, that is ecological communities sharing climatic conditions and geological features that support species with similar life and adaptation strategies (Costa *et al.* 1998: 6; Spellerberg and Sawyer 1999: 2). Hence, biogeographical regions are areas of distribution of plants and animals with common environmental features. The interest of the biogeographical approach to human geography rests on the idea that economic strategies, mechanisms of social order and cultural landscapes are inextricably bound up with the presence of specific biomes. If adaptation to the environment, that is to what the land has to offer, is at the basis of human culture, it may be reasonable to argue that the features that characterise a particular biogeographical region are bound to shape the relationship between humans and the natural world (Alves and Reis 2017a: 50).

Long before Iberia's biogeographical units were defined, the Portuguese geographer Orlando Ribeiro, in his seminal book *Portugal: O Mediterrâneo e o Atlântico* (*Portugal, the Mediterranean and the Atlantic*, 1945), describes two contrasting ways of life between eastern and coastal parts of northern Portugal: towards the west, the fields, woods and meadows are laden with a thick verdure bathed in damp light, that evokes Brittany or Ireland, as opposed to the arid hinterland, in which the heat and dryness, typical of the extreme south, infiltrates the valleys (Ribeiro 1945). Ribeiro further states that a geographic region is characterised by identity aspects common to all of it, not only the general conditions of climate, the particularities of nature, the relief and vegetal mantle but also the marks of the human presence. The sense of belonging comes from the force emanating from the earth. It is the ground in which people's knowledge is born and where the experience and work of the communities are shaped (Ribeiro 1945).

Thus, could it be the case that the establishment of either prehistoric rock art tradition in such different environments means that they were adopted by two different socio-cultural backgrounds, corresponding to 'two different ways of living' in north-west Iberia in the Neolithic, as
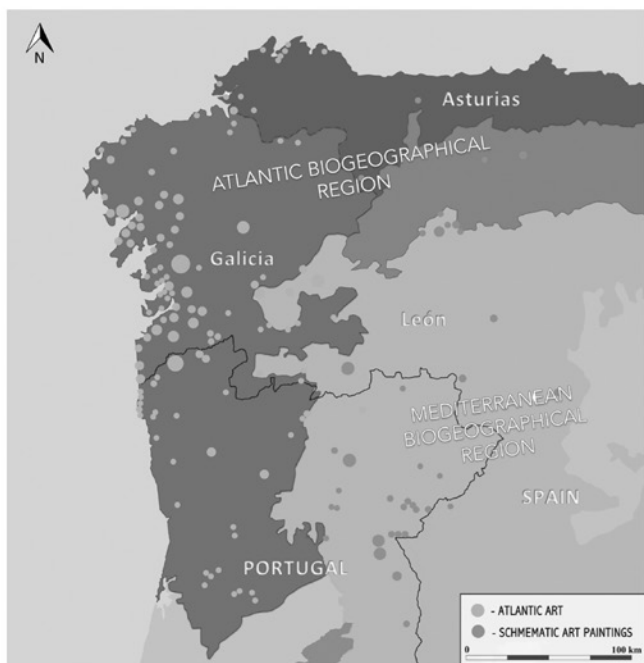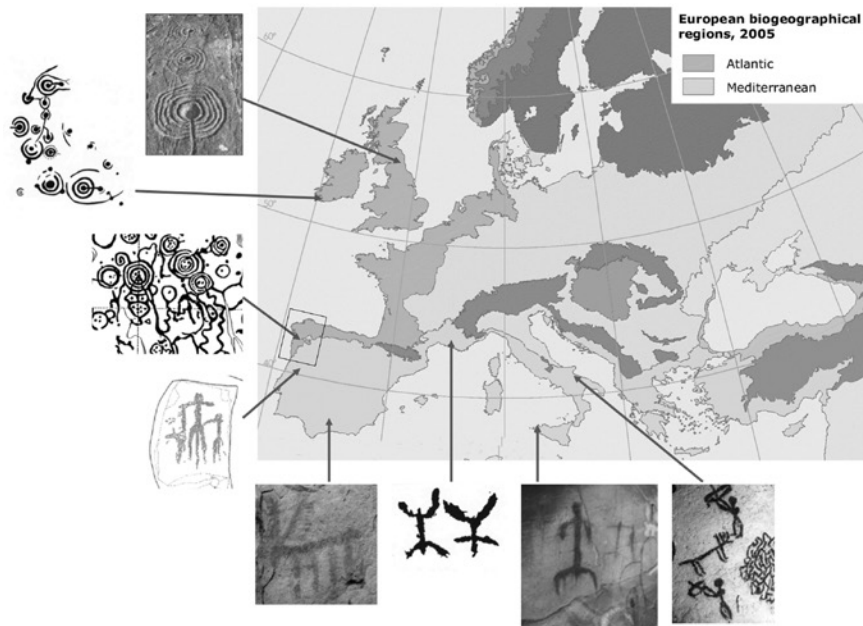
10.1 Overview of the distribution of the Atlantic Art rock art tradition and Schematic Art paintings across the Atlantic and Mediterranean European biographical regions.

suggested by Bradley and Fábregas (1998: 306)? This is a question emerging from rock art studies but one that is yet to be thoroughly addressed by mainstream archaeology.

Contrasting traditions of imagery making

Atlantic Art is typically carved on open-air outcrops. Stylistically, it may be characterised by the broadly abstract character of the imagery, as the main repertoire of motifs includes cup-marks, cup-and-rings, curvilinear motifs and wandering lines, organised in either simple or complex arrangements. Also, it has frequently been noted that the imagery is not haphazardly placed on the natural backdrop, as circular motifs are carved on or around natural lumps in the rock surface and may simultaneously interact with particular features in the surrounding landscape (e.g. Dinis 2009: 81; Alves 2012: fig. 13.4). They occupy the typical granite landscape of the Atlantic coastline, scattering across the hillsides, spurs, platforms and rocky hills, and are readily accessible. Furthermore, sites allow physical movement around the carved rocks (Fig. 10.2).

Conversely, Schematic Art paintings are mainly distributed along the bottom of river valleys, hidden from view at times but occupying dramatic rock settings; or, in contrast, they decorate rock shelters and fissures in quartzite crests on top of conspicuous mountains. Painted rock shelters tend to be confined, intimate spaces and usually not suitable for large gatherings. Schematic Art is typified by the representation of the human figure, bars, dots and geometric rectilinear motifs (Fig. 10.2).

Recent research at Monte Faro, the largest assemblage of Atlantic Art carvings in northern Portugal, with over one hundred rocks containing abstract imagery, showed that there are no sharp differences in the topographical setting of complex and simple arrangements given that the latter, often composed of a single motif, tend to scatter around the less frequent yet exuberantly decorated rocks (Alves and Reis 2017b: 1041). In fact, creating complex arrangements implies knowledge of the design grammar and execution techniques but, above all, careful site selection and planning as most carvings must have been designed in advance or previously sketched on to the surface (e.g. Baptista 1981). Also, the task of cutting circles into hard granite may be time-consuming as a simple cup-and-ring mark of *c*. 15 cm in diameter may take about 12 minutes (Otero 2015: 60–1). Motifs with a larger number of rings take longer and could have been produced by first defining the outline of the circles with small cup-marks, subsequently joined up by pecking the intervals between them. Therefore, the methods employed in the making of Atlantic Art were not at all hidden for they consisted of long and rhythmic
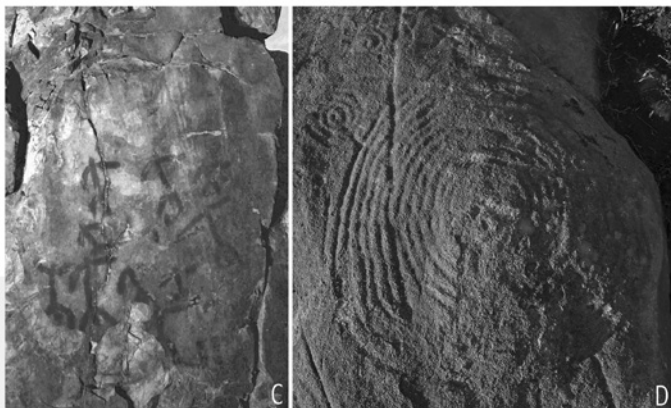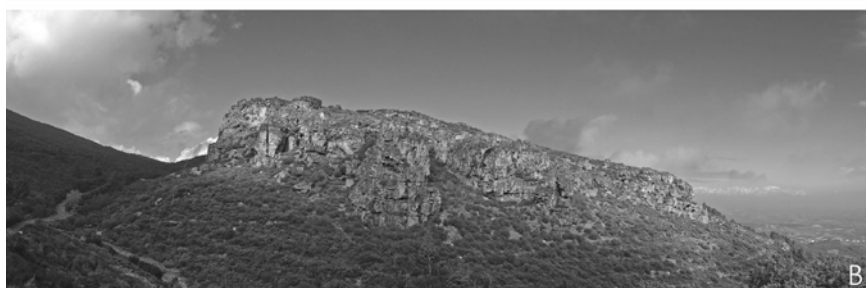
10.2 Contrasting landscapes and imagery making traditions. A – The hilly granite landscape of the north-western coastal regions is the typical setting of the Iberian Atlantic Art tradition; B – View over the dramatic quartzite crest of Serra de Passos, one of the largest assemblage of Schematic Art paintings in northern Portugal; C – Schematic human figures painted at Colmeal (Guarda, Portugal); D – Oversized circular motif and adjacent cup-and-ring marks from the Atlantic Art repertoire at Monte dos Fortes I (Monte Faro) (Viana do Castelo, Portugal).

hammering on rocks, meaning that the art's creation resonated across the landscape (Alves 2009: 176).

In contrast, painting Schematic Art motifs is not particularly time-consuming. A simple experiment shows that a human figure takes about 10–15 seconds to paint or about 5–7 minutes if we include the process of grinding and mixing the pigment. As opposed to carving, painting could have been a silent and solitary activity for the large majority of rock shelters are confined places, which suggests that paintings may have been produced, in intimate ceremonies, by a few, not unlike what we experienced when recording rock paintings at these sites (Alves 2009). Provenance studies show that raw materials are usually found locally (e.g. Martins 2014). In this respect, the site of Peña Piñera (León, Spain) is extraordinary for here we find a monumental upright fissure along the quartzite crest, literally bleeding iron oxide. Thus, the source of raw material was readily available from the canvas, as it runs from within the outcrop. In this way, red minerals were transformed into pigments and then returned to the rock, as symbolic designs.

As mentioned above, Atlantic Art engages with the elements, landforms or rocky features. At a larger scale, it can mimic landforms in the wider landscape, yet, at a smaller scale, a dialogue between the carvings and the natural backdrop is frequently established. There are several examples from Monte Faro that show how the moulding of granite rocks may assume a highly sculptural effect, like the carved boulder at Tapada do Ozão or Monte dos Fortes II – rock 6 (Fig. 10.3). Here, not only does the set of rings run towards the bend and upright surface of the rock, but also a carved groove is set towards one of the three solution hollows on the bottom of the surface, providing arguments to support the idea that the work of art should be considered as an indivisible whole, that is rock and imagery. There are also numerous examples of carved motifs adhering to circular lumps or simply outlining naturally convex shapes on the rock. Actually, the image of the circle is all-pervading across the mountain. Atlantic Art scatters across the skin of the land to create what we called exuberantly tattooed landscapes (Alves 2012: 200).

Both rock art traditions blend with the particular features of the territory where they sit, from the lands shaped by the plasticity of the granite in the hilly Atlantic region to the rough, sharp and dramatic geological settings of the Mediterranean region. As far as Schematic Art is concerned, we are also able to see how paintings often interact with natural features of the backdrop: images or scenes may be framed by natural fissures, such images merge with iron oxide, or mineral inclusions on the rock face, solution hollows may have been used to complete a
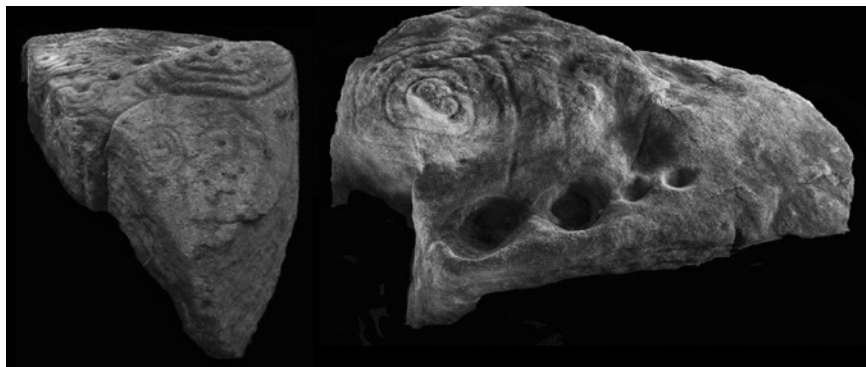
10.3 At Monte Faro, a number of carved rocks show circular arrangements adhering to the rock's shape, to lumps on the surface or interacting with natural features, like solution hollows or fissures (Tapada do Ozão – rock 1, on the left, and Monte dos Fortes II – rock 6, on the right)

motif, or just to bring depth or shape or provide dynamics to painted images (e.g. Alves 2002: 64) (Fig. 10.3).

The majority of painted rock shelters exhibit a small number of figures, offering little evidence for overlapping motifs and diachronic sequences. One exceptional site in northern Portugal is Lapas Cabreiras, in the Côa Valley, which contains *c*. 190 individual motifs on the main panel, some of which are extremely faint. This site, which is currently under investigation, shows succeeding phases of imagery production, the use of multiple colours, ranging from red to orange and purple, and different execution techniques. There seems to be evidence for paint having been applied directly with the fingers, with brushes or even with a spatula but there are also very unusual motifs in orange obtained by scrapping a crayon on the surface (Reis *et al.* 2017: 107–10) (Fig. 10.4).

However, Schematic Art images are mostly painted with the fingertips directly on the rock surface. This obviously contrasts with Atlantic Art's cup-and-ring marks produced by pecking, in which the contact with the rock surface is indirect and the final product is a more tactile imagery, closer to sculpture.

In fact, exploring intrinsic aspects of imagery production brings a closer proximity between the subject and the object of study. For instance, recording rock art by direct tracing implies spending time on site, replicating the original gestures of the person who created the original representations in the past. It therefore enables us to unveil subtle details

10.4 The rock paintings at Lapas cabreiras rock shelter (Guarda, Portugal). The image shows the recording of the motifs overlapped on a photo of the rock panel.

of his or her skills and behaviour as well as the techniques, the *chaîne opératoire* and implements employed in the process of painting or carving signs on rocks. The gestures are a primary feature in the act of creation and, as A. Jones states, convey a form of affective performance (2018: 31–4).

If we extend our analysis to other contexts of imagery making in the Neolithic, we find that the same raw material – red ochre – employed in rock shelter paintings was also used in passage graves as part of funerary rituals as well as for dressing the slabs of inner chambers and passages. It is interesting to note that, in north-west Iberia, Megalithic art also shows stylistic contrasts between the coastal region and the hinterland, matching to a large extent the distribution of Schematic and Atlantic rock art. However, there is no sharp contrast between the geographical regions in terms of the techniques employed in the decoration of chambered tombs, as we find both carvings and paintings in each area. The contrast lies in the selection of the repertoire of motifs and in how they are arranged in compositions. Towards the west, where we find Atlantic Art, Megalithic Art is mostly composed of abstract and curvilinear designs, whereas in the hinterland passage grave imagery is clearly inspired by the Schematic Art tradition (Bueno and Balbín 1992). It includes the representation of human figures, animals and linear geometric motifs from the repertoire we find in painted rock shelters.

This actually allowed us to suggest the possibility that one of the roles of painted rock shelters with Schematic Art might have been of funerary character (e.g. Alves 2009: 411–12). The use of common imagery in rock art, Megalithic Art and artefacts can also be attested as in the case of the Picoto do Vasco passage grave, where a solar motif decorating a pottery fragment recovered from excavation matches one of the motifs engraved on the chamber's slab (Cruz 2002).

The design programme of many decorated tombs seems to show greater dynamics when compared to rock art sites in natural rock formations, as there is increasing evidence for ongoing changes in both the architectural scheme and decoration, complex sequences of imagery production with superimpositions and the complementary use of different techniques, with grooves which may be simultaneously painted and carved (Carrera 2011; Twohig 1981).

Some monuments are exclusively carved, others show simple or complex paintings, which implies the use of more than one colour (red, white, and/or black). There are also instances where earlier carvings were covered by complex paintings, and others like Taco 1 where, despite the exclusive presence of carvings on the chamber's slabs, recent excavations revealed a grinding stone or palette with remains of red ochre (Alves and Carvalho 2017: 1026). Grinding stones with remains of pigment have been collected from several other monuments, seeming to show that, although these are carefully crafted pieces, suitable to be reused, they have been recurrently left on site.

Having suggested a relationship between Schematic Art and the funerary sphere, it is interesting to recall the hybrid site of El Pedroso, a decorated cave opened in a conspicuous granite outcrop that resembles a natural passage grave. Excavations unveiled an occupation sequence, starting from the fourth and running to the beginning of the second millennium BCE, including indirect evidence for burials (Alves *et al.* 2013). The carvings found in the inner chamber share a number of stylistic features with painted Schematic paintings (human figures and grids), yet many of them have been recut, the layout changed and features added to earlier motifs, in historic times. This illustrates how some designs, particularly cross-shaped motifs, were long-lived in northwest Iberia. There is also evidence that new carvings, in the form of graffiti and inscriptions, were added up to the present (Fig. 10.5). At El Pedroso, schematic, cross-shaped human figures, were reinterpreted as Christian symbols, emphasising the ongoing role of this imagery, which raises the possibility that the cave itself re-enacted its significance in medieval times. The maintenance of such rituals may be attested by written documents dated to the seventh century CE in which the Christian church rises against pagan cults on rocks (Nascimento 1997). One

further argument attesting this longevity is the fact that the cave is still known by its traditional place-name 'the house of the Moor' and that local folklore attributes healing properties to the mountain where it sits.

This evidence leads us to think about the role that the ethnographic record may still play in the study of rock art in Iberia. As mentioned, rock art sites are still part of the symbolic topology of rural communities and there is a well-preserved oral tradition, which included tales about supernatural beings who shaped the land and inhabit particularly significant places in the landscape (Alves 2001: 76–7).

In the late 1990s, during my first visits to rock art sites accompanied by local people, I found that carved rocks had their own place-name and legends telling the story of 'enchanted mooresses' who were believed to dwell inside the rocks, revealing themselves to humans on St John's night (when festivities are related to the summer solstice) and to be very often responsible for carrying and placing large boulders at particular locations (Alves 2001). Through the word of the elders, I met a land in which social and cultural identity is still anchored to an imaginary realm operating 'inside' it, where ancient rock art sites were part of the invisible geographies of rural landscapes that come to light only through oral tradition.

Concluding remarks

The traditional agenda for rock art studies was set on the analysis of the stylistic and formal character of the imagery, therefore much closer to art history than to archaeology. The data were supposed to be inserted into a preconceived framework or a Grand Theory to ease its acceptability by peers. At the turn of the millennium, a new generation of students, no longer committed to classifying motifs, started to explore how the work of art came into being. They did this by focusing on how imagery engaged with the canvas which, in rock art studies, may extend from the landforms where it sits to the natural backdrop. They also started thinking about the experience and emotional engagement that permeate between the subject and the object of study. As an example, the practice of rock art recording by direct tracing allows researchers to spend time on site, to replicate the gestures and bodily experience of the act of carving or painting, a close observation of the *chaîne opératoire* and technical details. Yet this exercise should take place having in mind J. Thomas's statement that experiential archaeology 'is best understood as contributing to the conversation between these horizons (past and present), rather then and end in itself', as the meaning produced through this encounter is a contemporary meaning (2012: 181).
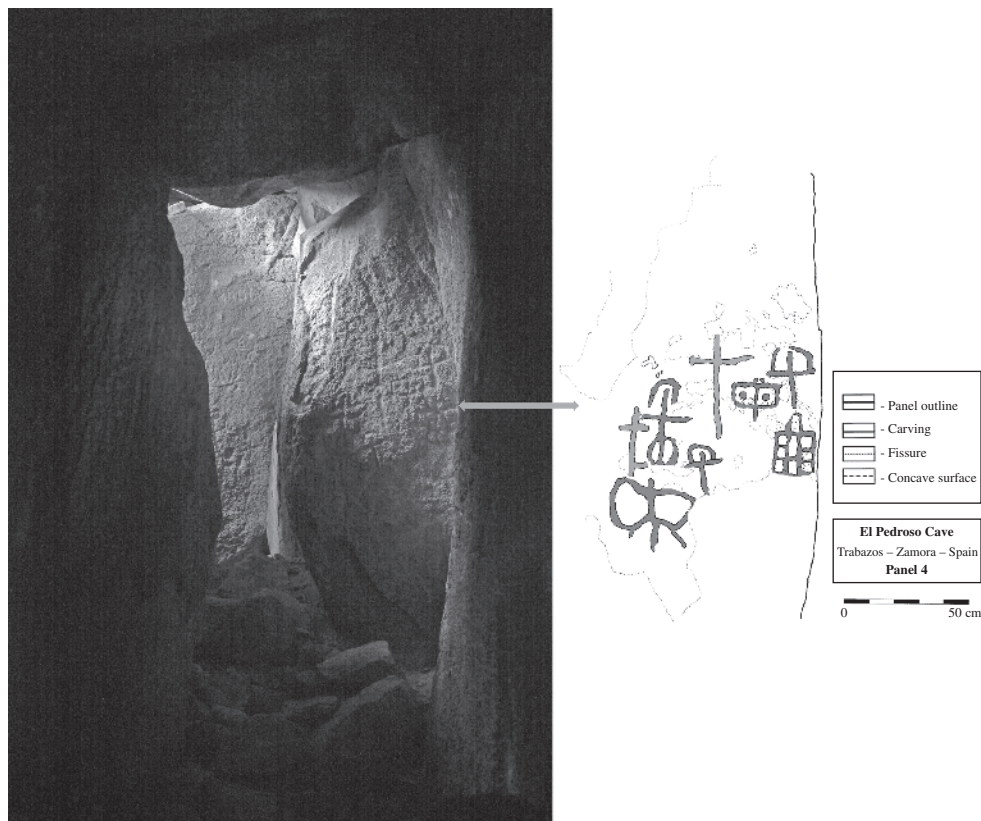
10.5 A view towards the inner recesses of El Pedroso (Zamora, Spain) shows the resemblance between the environment inside this natural cave and that of a chamber of a passage grave (on the left; image by author). The recording of the carvings on panel 4 shows two cross-like motifs (in light grey) that may have a prehistoric origin and have been reshaped or recut in historical times whereas the reminder show parallels with the imagery found in painted rock shelters (in dark grey).

Over the last two decades, some studies on the post-glacial art in north-west Iberia have been following the directions pointed out by A. Jones (2017) for the study of rock art under an ontological perspective, namely the approach to the relationship between rock art images, rock surfaces and landscape, the relationship between imagery and different kinds of society, studying imagery making and, finally, deploying ontological concepts from anthropology as an analytical tool. Thus, inspired in the poetics of Kandinsky's work, this chapter tried to reinforce the idea that thinking about different 'modes of becoming' may help in establishing wider connections to other spheres, times and spaces of human life.

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11

'Guldgubbars' changing ontology: Scandinavian Late Iron Age gold foil figures through the lens of intra-action

Ing-Marie Back Danielsson

Introduction

This chapter discusses Late Iron Age gold foil figures from Scandinavia. The figures can be described as tiny human-like beings stamped on very thin gold foil. They mainly date to what in Sweden is called the Vendel period, *c.* 550–800 CE. Despite a great variety in terms of execution, appearance and so on, they are all known as 'guldgubbar' (similar names in Swedish, Danish and Norwegian). They are commonly interpreted in representationalist ways, as representing gods or deities, which has forced them to be static entities that seemingly never change. Attention has not been paid either to the manipulations they have experienced. Instead of using the concept of guldgubbar for all golden, tiny humanoid beings I argue that the figures need to be studied from the ground up, highlighting and taking into consideration their relational differences, as well as the different practices and events that they have participated in. In this respect, I consider the images as simultaneously material, affective and emergent (e.g. Bennett 2010), which also means that I am open to ontological relativization (Holbraad and Pedersen 2017: 3); that is I keep an open mind to what these objects are or do. When the gold foil figures are approached in this way, Karen Barad's concepts of intra-action, apparatuses and phenomenon are especially helpful to illuminate the figures' multiplicity and unfolding characteristics. Further, by highlighting the figures' varieties of being and becoming different things or versions of themselves throughout time, changing onto-ethico-epistemological concerns may be more easily recognised and may be addressed. I start by briefly introducing Barad's agential realist ontology, and then delve

deeper into the question of the changing ontology of the gold figures throughout time.

Intra-action, apparatuses and phenomenon

Karen Barad (2003, 2007) has discussed how matter comes to matter at great length. She invents the concept of intra-action, and speaks of an agential realist ontology. It is an account of the performative production of material bodies (Barad 2003: 814), and as such it should be of the greatest interest to archaeologists, or indeed researchers in general who are devoted to studies of material culture. According to Barad, bodies, understood in the general sense, are produced through apparatuses, while at the same time the phenomena are produced. The apparatuses of bodily production and the brought-about phenomena have a causal relationship that is the result of agential intra-action. (See also Law and Ruppert (2013) on devices as both material and social.) By using the concept of intra-action, Barad underscores that there are no separate, independent or *a priori* entities that are available for *inter*action, that is action *between* pre-given entities. By using the prefix *intra-* emphasis is instead placed on practices as occurring *within* (entanglements of phenomenon). The practices are material-discursive, and involve not only objects but also bodies, discourses and other non-human material things (Barad 2003: 814). Categories such as these intra-act, and bring about the entity of study. The categories have themselves at some point in time been brought about through intra-acting components. We thus get a sense of a world that is in constant becoming. As researchers seeking knowledge we do not stand outside the world, ready to explore it, but instead we are *of* it, and we are part of it in its differential becoming (Barad 2003: 829). To separate epistemology from ontology is from such a perspective futile, since the separation rests on the assumption that there are inherent differences 'between human and nonhuman, subject and object, mind and body, matter and discourse' (Barad 2003: 829).

If there are no inherent differences, this means that differences are produced and relational, and further that the properties of the bodies of investigation in effect are the results of the phenomena in their becoming (Alberti and Marshall 2014: 22). Intra-actions (temporarily) exclude certain ways of mattering, while including others. Such a procedure can be called an 'agential cut' in Baradian terms (2003). Through specific intra-actions both boundaries and properties of what is included in the phenomena become determined, and specific embodied concepts become meaningful (Barad 2003: 815). It is important to point out that the cut makes a connection and makes things come both together and apart, and further that cuts are ongoing and continuously enacted (Barad 2007:

179, cf. Haraway 1988: 595). Barad also recognises that agential cuts have onto-ethico-epistemological consequences (cf. Braidotti 2002, 2011, 2013; Dolphijn and van der Tuin 2012; Haraway 2008; see also Bennett 2010; DeLanda 2006; Deleuze and Guattari 1988; Latour 2005 for other neo-materialist perspectives that equally identify the importance of, and previous neglect of, non-human things in the constant and differential becoming of the world, ourselves etc.).

Returning to the gold foil figures, how can we understand these tiny bodies in new ways, by embracing thoughts on apparatuses of bodily production, phenomenon and intra-action, and taking seriously ontological considerations? I start by exemplifying the different ways in which the figures were active and affective in the first section, *Making things small*. I then turn to the issue of image making of guldgubbar in the present in the section *Making small things big*. I shed some light on how different apparatuses used for analysing the one and same material create *de facto* different phenomena, but also on how the investigated material at hand may strike back and refuse to be handled by certain apparatuses.

Making things small: gold foil figures in the past

Gold foil figures are strikingly small, *c.* 1 cm in breadth, and slightly more in length, although examples up to as much as *c.* 2.5 cm in length are also known (e.g. Lamm 2004). The gold foils may show human-like single figures, couples, as in two people facing each other, and from one place of discovery also animals. Most are stamped with the help of bronze patrices (Fig. 11.1), whereas some may be cut out straight from the foil, in which cases the figures are cruder in their execution. Those made with patrices can be very detailed in their appearance. They may show depictions of garments which we know were fashionable of the time, since remnants of such garments have been found in contemporaneous burials (Mannering 2006). They may also show common hairstyles, and on other occasions even hair nets (e.g. Slöinge, Sweden). Some parts or limbs of the figures appear enlarged at times. They include for instance bodily features such as eyes and noses (reminiscent of masks – see Back Danielsson 2007), but also arms or hands, when gestures have been deemed important to highlight. Jewellery worn by the figures may also be enlarged. While some figures indeed are very detailed, it must also be pointed out that some are more schematic, and at times even grotesque in their execution (cf. Bakhtin 1968). The grotesque figures should not be dismissed, as is commonly the case, if we are to get a richer and more nuanced understanding of what the objects of study are.

The place that has yielded the most figures is Sorte Muld on the island of Bornholm, Denmark, with more than 2,300 figures. Other
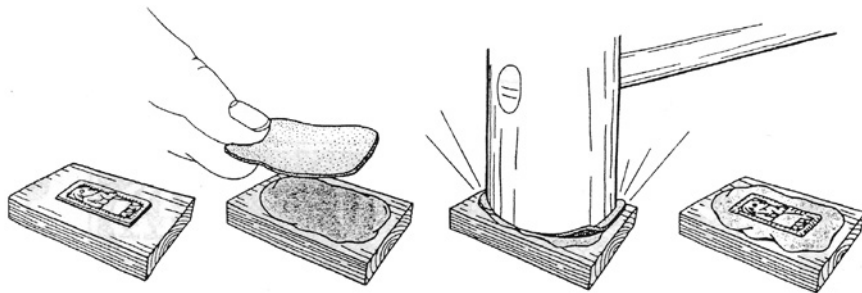
11.1 A modern idea of how a gold foil figure would have been in the making during the Late Iron Age in Scandinavia.

places in Scandinavia (Denmark, Norway, and Sweden) have yielded far more modest numbers, ranging from a single example to a few and occasionally to more than one hundred figures.

The figures are often, but not exclusively, found in halls of ceremonial character at so-called central places that served several functions (e.g. Watt 2002: 81), for instance at Helgö, Slöinge, Uppåkra and Svintuna (Sweden), and Borg and Hov (Norway). In view of their occurrence at such locations, and the fact that some figures from different places are very similar to one another, and at times even identical, they are often thought of as indicators of aristocratic networks. However, gold foil figures have also been found in hoards (e.g. Nørre Hvam, Denmark, and Hög Edsten, Sweden), in a ring-fort or enclosure (Eketorp, Sweden) and in the filling of a boat burial (Ulltuna, Sweden).

It has been suggested that the figures were utilised as a sort of temple-coin, given in connection to cult activities (Watt 1991: 99; cf. Hauck 1994: 302; J.P. Lamm 2004). The gold foil couples, showing two people facing each other, are often considered to be connected to a fertility cult, a representation of *hieros gamos*, a sacred wedding between the Norse god Freyr and the giantess Gerd (Steinsland 1991; cf. Sundqvist 2002, J.P. Lamm 2004). The gold foil couples have also been interpreted as representations of dynastic weddings (Simek 2002: 475; cf. Ratke and Simek 2006). Regardless, all these researchers have utilised written sources that are hundreds of years later than the figures themselves to interpret the figures (see criticism of this in Back Danielsson 2007, but also Bailey 2005: 12–13 on prehistoric figurines or miniatures treated as contemporary 'photographs'). Equally, they aim at discovering the real function of the figures (e.g. J.P. Lamm 2004; Mannering 2006: 37; Ratke 2009; Tangen 2010; cf. Hedeager 2015) and express the view that the symbolic system of the figures has not been solved yet. If we instead leave these representationlist ideas, and equally thoughts on finding a single solution to

what guldgubbar supposedly signify, and instead pay attention to the material, its effects, affects and its making, involving a number of material-discursive practices, what can we then say about the figures?

Let us start with the obvious. The figures are made of gold foil, and albeit thin and small, they tend to catch your eye immediately. The qualities of shimmering gold generally has this effect, and if attached by means of honey or fat (Larsson and Lenntorp 2004: 23, 42; Rosengren 2000: 12) on at times enormous posts in halls (e.g. Uppåkra in Sweden) they must have been seen and attracted attention even from afar, like twinkling, small beacons. While some figures were fastened on posts in halls, others have been deposited in post-holes. Their small size has not hindered different sorts of manipulations made to them. Some figures have been folded, some are not, some have been crumpled up, and some yet have had parts of their bodies pierced or marked by a sharp instrument. There are also known examples that have had extra foil parts added to them, for instance wired around their neck, perhaps intended as an added golden necklace (e.g. Uppåkra, Sweden; Bornholm, Denmark) and one has seemingly been stabbed in the abdomen by a golden instrument (Uppåkra, Sweden). Other added parts, in other materials, such as a sturdy plate in bronze on the backside of the figure, have, together with an added loop, enabled the figure to be worn as a pendant (J.P. Lamm 2004: 57).

The versatility and heterogeneity of the gold foil figures do not stop there. One foil figure was reshaped in a cylinder form, and was threaded with 'ordinary' beads on a necklace. The necklace was recovered together with a small spiral in bronze in a bog during peat removal in Danish Tørring (Fischer 1974). When the golden cylinder, working as a bead, was unfolded it revealed a female figure in a feather-like garment possibly equipped with a beaker, wearing a button-on-bow brooch, and, fittingly, a necklace with beads (Fischer 1974: 28). This practice is suggestive of the production or making of worlds within worlds – through reshaping or folding, the image is transformed into an object that brings about new affordances (cf. Gibson 1979) and relations. The flat image becomes three-dimensional and can act like a pearl of a necklace. The necklace can be worn by a female figure, as demonstrated by the image of the once-flat now cylinder-shaped foil. The necklace seen worn by the figure on the foil on the other hand, might also have had a cylinder-shaped 'bead' of gold foil, and so on into eternity. In this respect, the gold foil figure seemingly invites to play and create multidimensional realities and relations, fractal-like in character.

In sum, all of the above suggests that the gold foil figures were ascribed an array of capacities that resulted in the figures being and becoming a number of different things, acting as multiple objects (Jones

et al. 2016; see also Chittock, Chapter 9 above; Back Danielsson forthcoming). They were both objects in themselves and components, meaning that they had a combinatorial potential allowing them to be reconfigured freely into new arrangements, strongly underlining these images' open-endedness and constant unfolding.

Further, if we think of images as having desires, drives and appetites (Mitchell 2004: 5) we may also envision the figures as entities that wanted to enter into different social relationships with humans, but also with other materials and places, and equally had the capacities to do so (cf. Bogost 2012). The figures' often humanoid execution and small size likewise demanded of you to look at the foil for a long time in order to discern something, or at times, despite such endeavours, 'nothing'. Such bodily activities prolong your moments or meetings with the figures and subsequently enhance, facilitate and/or renegotiate memories of different kinds and on different levels. These prolonged meetings may further have stimulated and invited what Hustak and Myers (2012: 77–8) call affective ecologies that could have included play, pleasure and improvisation (see also Jones and Cochrane 2018: 49–50, but also Deleuze and Guattari 1988: 12 on the symbiotic becoming of the wasp/orchid unit). The possible playfulness may also have been instigated by the material properties of the metal gold itself. The metal is extremely ductile. As one of the most stretchable metals in the world, one gram of gold, if drawn out to its maximum, can be turned into a 2,000-metre thread. This quality of the metal is likely to have attracted attention throughout time, and it made or makes the figures easy to fold and unfold, or even curl into a cylinder bead, for instance. It must also be stressed that a moving observer's distance from the gold foil figures generates new, and different images; from further away they would come across as small, shiny items and from very close up, a new image or object would emerge, where all the details could be appreciated.

Through the ongoing and entangled material practices described above, involving a number of human and non-human agents, gold foil figures can be described as being continuously in the making, changing appearances and assemblages through time. However, it is also possible that the very process of making the gold foil figure itself was considered of the utmost importance. A brief analysis of the material from Helgö, Sweden, suggests that this may be the case.

Helgö

In comparison to the number of gold foil figures, few patrices used to make them have been unearthed (cf. Prijatelj, Chapter 8 above, on the reverse situation with the Neolithic bountiful 'pintaderos' or stamps

11.2a Gold foil couple from Helgö (nr 477).

whose imprints are missing). On the island of Helgö, Sweden, 26 gold foil figures were unearthed, but no patrices were found. The Helgö gold foil figures consist only of couples (Figs 11.2a, b), and the majority of them were found in Building 1A, in connection with a post-hole, and next to a wall (K. Lamm 2004; J.P. Lamm 2004). In the area of this hall, the famous Buddha in bronze from Pakistan, the equally famous crozier head, and the Coptic ladle were found. A large number of glass shards were also encountered in connection to the hall, as well as other imported objects. (For more information on spectacular Helgö, see all the *Excavations at Helgö* reports, published from 1961 onwards).

The Helgö gold foil couples show great variety as regards details and execution. Some are crystal-clear and easily identifiable human-like beings. Others may be a bit crumpled and by modern standards less aesthetically pleasing. Of the 26 retrieved in Helgö, two gold foil couples had been

11.2b Another gold foil couple, more grotesque in appearance (nr 1546).

made with the same patrix (numbers 737 and 186). Despite this, the gold content of the two foils differs greatly: they contain 63 per cent and 88.6 per cent gold, respectively (Gullman 2004: 113). Consequently, they were made with different gold foil sheets, suggesting perhaps two different occasions of making. With the exception of two items (numbers 2593 and 4010), all couples have been stamped on foil sheets with different chemical compositions, that is with varying amounts of gold (the major ingredient), silver and copper. The gold material that experienced the stamping was thus not standardised, which might be considered odd since Helgö, along with other central places, for instance Uppåkra, has revealed great variety and complexity in raw materials and techniques, with the probable presence of highly skilled craftsmen (Hjärthner-Holdar *et al*. 2002: 175). The lack of standardisation is thus an active choice,

and indicates that other features were essential. One was probably the shining quality of metals; what mattered was that the foil shone. During the Scandinavian Late Iron Age luminous metal, gold-like in character, was considered endowed with numinous and divine qualities. Analysis has revealed that the gold melted for foil making was of diverse origin, and had been smelted many times (Gullman 2004: 113). The patrices most probably travelled with, and were the property of, skilled smiths. Making a gold foil figure thus required the presence of a skilled smith, his or her apparatuses (bronze patrices etc.), thinly hammered foil, made from a variety of objects that had been smelted, remade, smelted again and so on, and finally the possible desire of someone.

The Norse anthropogenic myth *Voluspá* recounts that gods created smiths or artisans who in turn made *manlikon*, human or human-like beings in the shape of statues or something similar (Steinsland 1983: 85). This indicates that the gold foil figures might have been recognised as divine, minuscule beings. Smiths or artisans of the period are generally considered to have been perceived as makers of magic, created by gods and having supernatural powers that were essential in the processes of making a variety of goods (e.g. Lindeberg 2009: 59–60 with references). Only through the expertise of the artisan could certain human bodies be furnished with spectacular jewellery. The artisan equally delivered divine, miniature bodies that also were equipped with similar jewellery. In this way, the smith's making and dressing up these small and big bodies, in effect giving bodies of very different types similar treatments, resulted in the bodies being ontologically equivalent; they were brought about in related manners (Back Danielsson 2013). Making as practice was onto-generative, that is productive of reality. In fact, it can be argued that making, as a process of production, was an enactment of how the world came into being in Late Iron Age Scandinavia (cf. Alberti and Bray 2009; Conneller 2011; Ingold 2010: 92; 2013, Latour 2005). During this time period, for us significantly different activities such as smithing and the preparation of food were considered similar (Hed Jakobsson 2003 with references). This is due to the fact that they both resulted in products of different kinds that had in common the ability to offer regeneration and/or wealth, for instance in the form of non-edible products such as jewellery, but also edible products such as cooked meat or brewed beverages (Back Danielsson 2013: 337). Making, then, is not about producing separate, indivisible entities, things or indeed images, that are unchanging, static or representations of something in the world. Making images, things or products is about making the world and to engage in a flow of matter in such a way that the world or society could prosper and live on, and to be in a continuous mode of becoming and unfolding. At the same time, it must not be forgotten

that processes of production are also dependent on power relations, access to webs of knowledge, networks of relations, *chaîne opératoires*, etc. Consequently, questions regarding onto-generativity are equally concerned with questions that are onto-ethico-epistemological in character, highlighting how certain ways of mattering are favoured in comparison to others.

Making small things big: 'Guldgubbar' in the present

Gold foil figures eventually go out of fashion, perhaps as late as in the early Viking Age (800s CE). They are seemingly not engaged with again until the eighteenth century, at which time the term or notion 'guldgubbe' entered into the academic literature. One of the earliest known and printed drawings of a gold foil figure is the one found in the thesis of the scholar Otto Sperling (1634–1715). In his book from 1700, an image of a gold foil couple is shown (Fig. 11.3). Sperling's thesis, and his other publications on coins, must be seen as part of the general interest in ancient material culture, especially coins, amongst scholars and antiquarians at the time. He remarks that this item differs from the coins, since it is rectangular, and shows two male Gothic figures, he claims. They seemingly meet each other, and one is in secular clothing and one in a priestly garb (translation from Latin in Axboe (1981: 98–9)). The image in his thesis is very small, but not as small as the gold foil figures are in real life. The tiny, but yet enlarged, image of the foil not only demonstrates how Sperling interpreted and saw the two opposing figures but also, importantly, testifies to the apparatuses he had at hand to produce the image. Although a basic observation, this needs to be pointed out. Later in the same century, Nils Henric Sjöborg (1767–1838) mentions that in Ravlunda, Sweden, people after storms at times encounter in the sandy beach small, glimmering gold foil figures. They call them 'guldgubbar', he reports (Sjöborg 1790: 7). The notion 'guldgubbe' has persisted ever since, and it embraces the vast category of tiny gold foil

11.3 Gold foil couple as seen by Otto Sperling. Enlarged.

strips that I have briefly accounted for above. Despite a very varied and multifaceted material in terms of execution, size, geographical location, dating, changing appearances, etc. they are all somewhat misleadingly usually treated as one and the same material, 'guldgubbar'.

Ever since their first appearance in books, the interpretations of guldgubbar have been influenced by, amongst other things, the current discourses of the time. Sperling's two opposing males became later, during the late nineteenth and early twentieth century, a man and a woman. Perhaps coincidentally, with the scientific invention of the concept of heterosexuality during the same period, the two figures soon came to be interpreted as 'loving couples' (Olsen 1909). The loving-couple interpretation has persisted ever since. Jumping ahead a few decades, as the archaeological discipline became more professional in its excavation techniques, for instance, while at the same time the number of excavations increased for a variety of reasons, the number of known finds of guldgubbar also increased.

Apparatuses creating enlarged phenomena

When gold foil figures were discovered on the sandy beaches of Ravlunda, Sweden, or were presented in books for the first time, or indeed were unravelled during professional archaeological excavations, apparatuses were used, that created certain phenomena. We do not know what these items were called in prehistoric times, but they become the archaeological phenomenon guldgubbar through a variety of apparatuses that intra-act(ed), some of which date back to the eighteenth century. They are also re-created, or represented with photographic media. The photos commonly appear in enlarged formats in books or in digital media (Fig. 11.4). For instance, they can be found on museum web pages that also offer zooming in options. All these instantiations are examples of how different apparatuses create new phenomena that are affective and effective in new ways. They demonstrate how, for instance, humans, discourse, computers, and photographs intra-act and bring about the phenomenon that we generically call a gold foil figure, but in actuality, material-wise, are different things (cf. the materiality of a photograph (often a piece of paper), and the materiality of a gold foil figure in real life (a tiny piece of metal)). The different components that are used when for instance photographing the specific material culture at hand (camera, lighting, flashes, room features, material in focus, photographer etc.) deeply affect the outcome. In Barad's words, these different components intra-act and create the new material culture in the form of a photograph, whether digital or analogue.

11.4 A unique gold foil figure from Bornholm, puzzled together from three folded fragments which were found at different locations on the excavation site (Watt 1986: 72). The end of the sword, held in the left hand, is still missing, as well as the figure's right leg.

The importance of apparatuses, which themselves at some point in time have been phenomena, as I mentioned before, is not very often elaborated upon. One pertinent example can be mentioned in this context. It concerns the Danish artist Asger Jorn (1914–73), and his collaboration with archaeologists in the 1950s and onwards. Jorn recognised that the figures on thin hammered gold from the Scandinavian Iron Age, foremost in the shape of golden bracteates, could be interpreted as an early form of independent Scandinavian art (Østergaard Pedersen 2017). Golden bracteates are a category of objects that are earlier and at times contemporaneous with the gold foil figures that are discussed here. They are circular in shape, and usually *c*. 2–5 cm in diameter. In his efforts to make the political point about a true Scandinavian and independent art style clear, Jorn started working with a professional photographer. Together they staged and photographed material culture from different prehistoric ages, not only gold bracteates, in specific affect-enhancing ways, for instance through certain lighting arrangements, close-ups and so on. Through different apparatuses, they wanted to bring about, or bring out, the uniqueness of the Scandinavian 'art'. In the case of the golden bracteates they wanted to demonstrate that they were independent enough from the earlier Roman golden medallions to be considered Scandinavian art. Through their efforts, it becomes clear that they chose apparatuses that they thought would create both certain boundaries and properties of the studied phenomenon (cf. Barad 2003: 815). Hence, issues of politics and power relations can also be considered in our research into imagery.

However, phenomena may have their own politics too, in the respect that they may not perform in the anticipated, or desired, way when exposed to new apparatuses. A common approach today in order to experience and gain enhanced understandings of prehistoric objects, their *chaîne opératoire* and so on, is to remake them (see Jones, Chapter 6 above; Díaz-Guardamino, Chapter 5 above). The remaking of ancient objects is also popular at museums, since they enable otherwise non-accessible, perhaps fragile, artefacts to be available for sensuous touch and so on. One such means is a 3D laser scanner. It is a method that is increasingly used in the museum sector. It works by probing the objects with laser light. However, it has difficulties in reproducing shiny objects, and other objects that are transparent or mirroring. Gold foil figures are extremely shiny, and do not go well with such apparatuses, they seemingly strike back and refuse to be copied in such manner. At Uppåkra, Sweden, where a large number of gold foil figures were found, and also a few patrices were unearthed, the archaeological visitor centre wanted to offer hands-on experiences of the figures. In order to do so, instead of a shiny gold foil figure, a less shiny Uppåkra patrix was successfully

11.5 Image in the making – a plastic patrix and other intra-acting agents bring about an enlarged copy of a gold foil figure.

3D copied and reproduced in a larger format (Ask 2007). Hence, in order for visitors to encounter the figures, they have to make them themselves, by using the patrix copy (Fig. 11.5). Seemingly, even today, gold foil figures have to be in the making to come alive and be experienced, equally underlining the fact that things are also a 'doing, a congealing of agency' (Barad 2007: 151).

Conclusions: guldgubbars' changing ontology

In this chapter, I have discussed exceedingly tiny gold foil figures from the Scandinavian Late Iron Age through the lens of Barad's concepts of intra-action, apparatuses and phenomena. The gold foil figures demonstrate a myriad of ways in which they were constantly in the making in the past. These at times aesthetically pleasing, detailed, crude, grotesque, dressed-up, worn, torn, folded, unfolded, remelted, or pierced figures all testify to a number of practices and events that they were co-creators or even instigators of. Seemingly, the figures wanted to enter into a variety of social relationships with humans, bodies, places and things. When they were excavated or discovered in modern times, relations changed, and

different apparatuses were needed to bring about the gold foil figures, such as at museums or in reports or books. In these cases they had, and have, to be regenerated through for instance photographic media, or pen and paper, or through being kept still in a glass case, visually observable through instance strong lighting arrangements and perhaps a magnifier. However, such regenerating of the figures equally acts as a framing device, which puts the figure or image in complete motionlessness, both literally and figuratively speaking (cf. Serra and Foster 2018). They become 'victims' of representationlist thought, where they are supposed to represent someone or something. Yet, these intra-acting components are seldom recognised in archaeology (or in any academic discipline). The contribution of modern apparatuses to the common understanding and interpretation of gold foil figures as being mere representations is paramount. Barad calls the acts of framing 'boundary making practices' (2007: 146). Were the gold foil figures then only in flux or in constant becoming in the past? Are they 'prisoners' of the representationlist present? I would argue that they still are in constant flux and becoming, but in a different way. Dealing with their future generations, here referring to the fact that we have generated alternative renderings of the gold foil figures, it is rather the hauntological versions of the figures that are in constant becoming and flux. Hauntology as a concept comes from Derrida (1994) and it has been elaborated upon by Karen Barad (2010: 253). She uses it to highlight how the production of specific material-discursive beings, when brought about, simultaneously excludes other phenomena. These exclusions then haunt the phenomenon, and we thus do not so much speak about the ontology of the gold foil figures but rather, through illustrations and images in books, reports or indeed the chapter you are reading now, deal with their hauntology. However, whether discussing the changing ontology or hauntology of the figures, the act of bringing about gold foil figures in the past, and the present, offers glimpses of how image making also is an enactment of world making.

Acknowledgements

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The partial and the vague as a visual mode in Bronze Age rock art

Fredrik Fahlander

Introduction

In archaeology most materials come in pieces; artefacts are broken, buildings are in ruins and imagery has become obscure from weathering and decay. This fragmentary nature of archaeological materials has traditionally been considered an empirical deficiency that should be overcome. To make sense of fragmentary remains, to reconstruct objects, to resolve issues of representation and to combine fragmented parts into meaningful wholes has thus been a key issue in archaeology. However, the view of fragments as parts of wholes tends to obscure the things that actually *are* vague and indistinct (Flohr Sørensen 2016). Even though deliberate fragmentation can comprise a meaningful process (Bolger 2014: 168; Burström 2013; Chapman 2000), it is only rarely that we try to find meaning and intention in the fragmentary and partial as an ontological fact.

This fractional aspect is especially apparent in visual culture. Because imagery normally represents or depicts something, it is bound to be reductive to some degree (Morreau 2002: 333). This does not mean that all images appear incomplete. Due to visual conventions and the perceptual closure effect, we are inclined to fill in details that really are not there (Minissale 2013: 6; Snodgrass and Kinjo 1998). None the less, certain images are partial in ways that stand out and affect people engaging with them. On the one hand, they can generate confusion, ambiguity and stress, but also promote curiosity and fascination and encourage subsequent actions on the other. The partial and the incomplete thus comprise potentially generative capabilities, that is to make things happen.

In this chapter, the potential generative aspects of partial Bronze Age rock art is examined. The examples are taken from the Bay of Mälaren
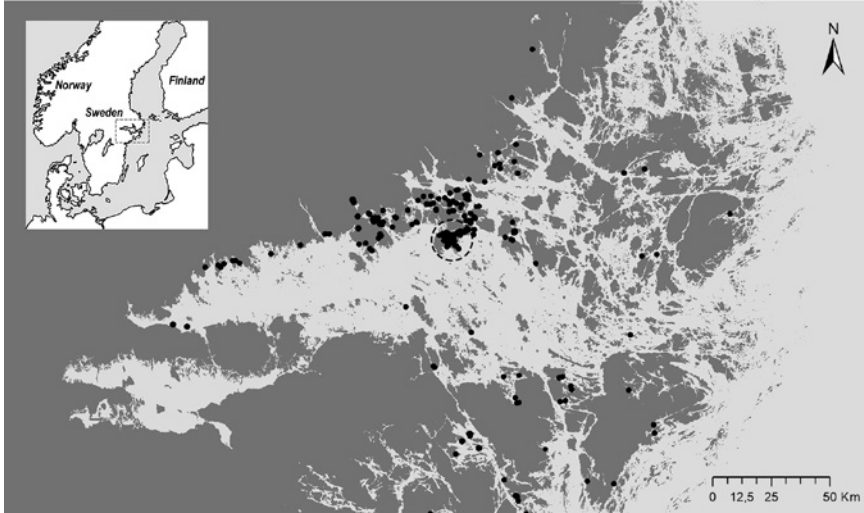
12.1 Map of the figurative rock art (black dots) in central eastern Sweden with the Boglösa area circled. The water level is adjusted to Early Bronze Age levels (24masl).

in central eastern Sweden in which an unusually high rate of partial petroglyphs is found (Fig. 12.1).

Partial rhetoric in visual culture

In art history and visual culture studies, partial or incomplete images primarily tend to be understood as unfinished. Images might be discarded first attempts, abandoned failures or pieces that were meant to be completed at a later stage (Baum 2016). There is, however, no simple dividing line separating what is finished and what is not. A work of art is not finished simply when the artist stops reworking and signs it (Jackson 2016: 33f). Consider, for instance, the varying level of detail in Titian's late works; was he experimenting with a *non-finito* style or are the paintings unfinished (despite the fact that they are signed)? Sketches, dummies and prototypes are sometimes regarded as independent works of art, too.

In modern art, reduction and abstraction are employed in various degrees as visual techniques. In the painting *Mountain Saint-Victoire seen from Gardanne*, Paul Cézanne deprived the fields of detail and schematically sketched the houses of the village, while Saint-Victoire is carefully outlined (Morvan 2006: 164). This play with focus emphasises the mountain and makes it stand out from the background. Other artists,

such as Kandinsky and Paul Klee, work with a much higher degree of abstraction and reduction in order to expose 'what really is' (or should be) rather than how it appears (Ingold 2010: 21, 91). Munch also paints what for him is the essentials, which may give his paintings a sense of incompleteness (Jackson 2016: 33f). In abstract, impressionist and cubist art, objects are generally partial and distorted to induce effects. Francis Bacon, for instance, uses partial bodies in a triptych (1972) to create a sense of rhythm (Deleuze 2003: xv).

To portray objects and sceneries as fragmented or vague is an effective way to catch the viewers' attention as a 'punctum', as Roland Barthes describes it. A punctum is something that 'pricks' the beholder: something striking that 'rises from the scene, shoots out of it like an arrow, and pierces me' (Barthes 1981: 26f). In Cézanne's painting of the mountain Saint-Victoire, the varying levels of detail make the carefully portrayed mountain a punctum in relation to the less elaborated fields and houses. This technique of leaving a part out of the picture as a way to emphasise something is also employed in modern marketing. For example, business logos are sometimes consciously designed as partial to enhance the company's visibility. The partial logo is also argued to evoke a perceptual ambiguity, sending subliminal signals about the company as being innovative and progressive (Hagtvedt 2011; Hoyer et al. 2016).

The examples above illustrate how the partial and vague can be employed to affect people engaging with them. Such more or less conscious aspects of visual culture can be discussed in general terms as art function, aesthetics, agency or enchantment (Morgan 2018). It is, however, important to emphasise that this need not be intentional to be generative. Images produced for a specific purpose frequently take other paths when entering new relational networks or assemblages (see Mitchell 1996). In some ontologies, art also tends to be more than mere symbols and representations. Images can be considered animated, can work as portals, and in various ways can embody powers to change the world (Gell 1998: 6; Harman 2015; Fahlander 2018). Such potentially generative aspects of imagery vary depending on context and thus need to be discussed in specific terms. Because of their mediality (Belting 2005), petroglyphs comprise an especially interesting type of imagery in this case. The slow and laborious production process and limited iconographic range of motifs make petroglyphs well suited to a discussion about generative aspects of partial imagery.

Partial boats and anthropomorphs in Boglösa

Due to the schematic style of petroglyphs and the materiality of the rock, which does not encourage detailed elaboration, even fully fledged

rock art figures are quite reductive as images. Because of the lack of colour, worked only with hammered-out fields, grooves and lines, petroglyphs constitute forms or shapes rather than images. The common boat motif, for instance, basically consists of four simple lines, which can be varied and embellished in assorted ways (especially the prows and the hull, see Fig. 12.6 below). Despite a quite extensive regional and temporal variation, the schematic simplicity makes the common motifs in south Scandinavian rock art easy to recognise. This quality may indeed have been one of the main reasons behind the choice of medium. However, looking more carefully at the panels, it is apparent that many of the motifs are incomplete in one way or another. They often lack one or two lines or a typical feature. A brief survey of the documented locales indicates that *c*. 15–20 per cent of the motifs in the research area miss out one or more essential elements. Normally, partial or fragmented rock art motifs are explained by weathering or wearing of the rock, which indeed is the case for many of the shallowly cut motifs. There are, however, a number of figures that apparently never have been 'complete'. Interestingly, this phenomenon is restricted to the boats and anthropomorphic motifs. There are a limited number of foot-soles and encircling motifs that sometimes lack parts of a line, but these are few in relation to the number of partial boats and anthropomorphs. Moreover, the zoomorphs found on the same panels are complete in the sense that they all have heads and four limbs – as well as ears and tails when appropriate. This predisposition towards boats and anthropomorphs is a clear indication that the partial motifs are not only due to the weathering of the rock.

The boat motifs are partial in various ways. Some lack details such as crew strokes, a hull line or a prow (Figs 12.2a and c). Others consist solely of crew-strokes or just two parallel lines (Figs. 12.2b and d). A common example is the 'half boats' that lack a bow or a stern (Fig. 12.2c). There are also a few examples of bow and stern, complete with keel and prow extensions that are not connected with hull lines (Fig. 12.2e). Whilst the majority of the boat motifs in the area can be considered 'intact', the anthropomorphs are only rarely portrayed with body, head, arms and legs. A few of them have extra attributes such as a shield, a sword or a phallus, but the majority of them (*c*. 70 per cent) none the less miss one or more limbs. The armless figures are particularly common, and are found in all major clusters of southern Scandinavian rock art (Almgren 1960: 52). Other motifs also miss the torso, and there are several examples of a pair of legs without a body (Fig. 12.3).

The fact that so many of the anthropomorphic and boat motifs are incomplete requires an explanation. Coles (2000: 30), who also noted the significant portion of partial boat motifs, suggested that they may
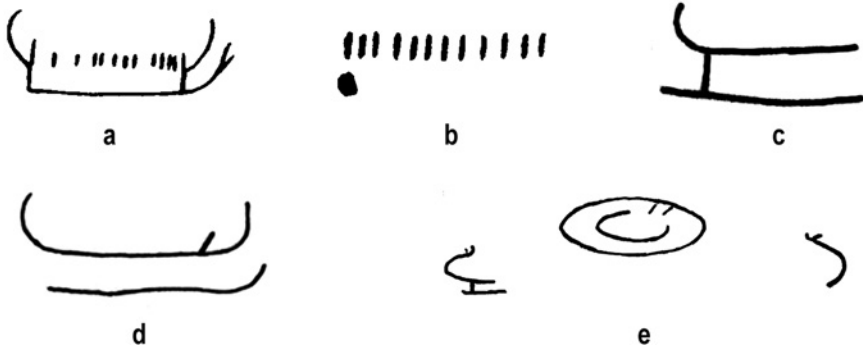
12.2 A variety of incomplete boat motifs that lack one or more lines or features. All examples taken from the Boglösa area.

12.3 Examples of anthropomorphs with missing body parts (Boglösa 141, 94 and 73).

still have filled their purpose (see also Kjellén and Hyenstrand, 1977: 16). Sometimes it may be enough to recognise two slightly bent lines as a 'boat'. There may even be a grammatical aspect behind the lack of certain elements of a well-known figure which conveys unknown meanings, that is, a half boat means one thing, and another without crew strokes something else, and so on. There is, however, no apparent pattern that suggests such a differentiated meaning in which various incomplete motifs can be read. Late Bronze Age rock art comprises some constellations that indeed could carry narrative aspects but, in the early part of the period, there is very little that supports such a scenario. In the Boglösa area, most panels consist of a few different motifs that have accumulated over the years, and the anthropomorphs are rarely involved in narrative constellations.

The production could also have been interrupted and abandoned for some reason, leaving the motifs unfinished. This could indeed be the case for some of the partial boat motifs. One such example concerns a two-metre-long boat motif with only eight crew strokes which in most other respects is similar to another of the same size with no fewer than
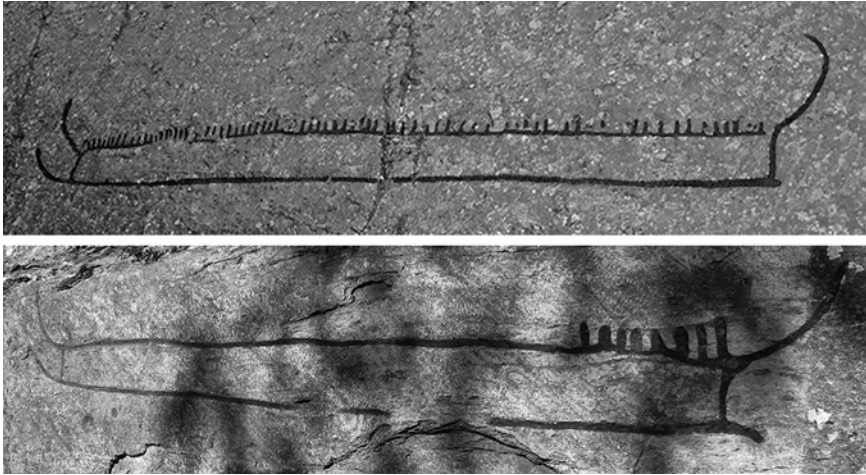
12.4 Finished and unfinished? Top: A two-metre long boat motif with 75 crew-strokes (Boglösa panel 109). Below: A similar-sized motif with only eight strokes (Boglösa 131:1).

75 strokes (Fig. 12.4). It is essential to appreciate the meticulous work behind the latter example, which equates to a serious amount of work. It reveals something about the meaning of rock art and the ontological status of the motifs. Making rock art is clearly not only about producing a specific type of motif but about doing it in different ways, in varying sizes, styles and levels of embellishment (Fahlander 2018: 72).

It is also possible that some partial motifs were momentarily left 'in process'. In visual magic, a figure is sometimes consecrated by a final addition that 'activates' the image and brings it into being (Freedberg 1989: 32). To leave a motif in an unfinished state can also make sense in terms of a propitiatory votive offering. The 'half' boats without bow or stern may represent the first stage of an offering, which is to be completed after the request has been fulfilled. The same could also be valid for the anthropomorphs. A figure without legs may be intended to be completed after the appeal for healing of a body part has been granted. It is, however, a less likely scenario when it comes to the anthropomorphs that consist only of a pair of legs or half a body. On the contrary, those cases rather suggest that some partial motifs are purposely made 'incomplete' from the start. There can be several reasons for doing so. In regard to Palaeolithic rock art, Hodgson has suggested that some animal motifs are made fragmented so as to mimic camouflaged animals. 'By drawing just-identifiable fragmented outlines, Palaeolithic artists were, in effect, using this kind of depiction to maximise implicit

learning in order to achieve closure when the hunter encountered actual occluded fauna' (Hodgson 2003: 100). Besides the fact that Hodgson underestimates crucial aspects of hunting, such as movement and sound, such a hypothesis would none the less fit Bronze Age rock art poorly because the petroglyphs are already schematic from the start.

There have also been suggestions that some partial boat motifs could represent actual situations. For example, a half boat could refer to how a boat may appear when it enters an archipelago, and boats without hull-lines may illustrate sinking vessels (e.g. Goldhahn 2005: 590). The partial anthropomorphs could in a similar sense also be actual depictions of fragmented bodies. Lødøen (2015) has suggested that the incomplete skeleton-like anthropomorphs of the northern tradition of rock art relate to the incomplete bodies in Mesolithic burials. This might also be the case for the Bronze Age cremation burials, which involve a certain level of fragmentation of the dead (Röst 2016). The inhumations of the Early Bronze Age, however, are only rarely found disturbed. It has also been suggested that distorted representations of bodies may represent different states of consciousness of shamans (Hampson 2016: 117, see also Tilley 2008: 169).

None of the representational suggestions above can convincingly account for the high frequency of partial boat and anthropomorphic motifs in the research area. To be credible one would expect that the same interpretations should be valid for more than one of the types of motifs on the same panels, and to some extent also account for why only boats and anthropomorphs are partial. This lack of fit suggests that there may be other, subtler, reasons for producing partial motifs that do not hinge primarily on mimesis. As indicated in the introduction, the partial and incomplete can comprise a visual mode that depends more on what images do, rather than what they might depict. Partial motifs hang suspended in time as 'temporal itineraries' or materialities in becoming (see Deleuze and Guattari 1993; Joyce and Gillespie 2015). As the example of Francis Bacon illustrates, using partials can create rhythm, seemingly controlling movement, a coming to being, which emphasises the *process* of making art. We should thus be careful to make a too-sharp distinction between finished and unfinished petroglyphs. Instead of trying to find what lies behind the imagery, we are better off viewing them as 'as a process of growth' (Ingold 2013: 96; see also Gormley 2004: 131). Such becomings do not only involve repeated encounters between an artist and the rock, but also include generative aspects of all materialities engaged in the process (the rock, the tools, the milieu and the petroglyphs etc.). A most interesting aspect of the partial petroglyphs may thus lie in what they contribute to a relation; that is, how they may interact in social processes and sometimes even initiate a sequence of events.

Partial imagery as a visual mode

Bronze Age rock art research has by tradition emphasised narrative, symbolic or representative aspects of imagery, which tends to reduce the petroglyphs to passive reflections or illustrations of ideology and cosmology. Despite the fact that the importance of context is emphasised, that is the landscape and the location of rock art in clusters along the shore, the imagery is surprisingly inert. In recent work on the materiality of rock art, some generative aspects of the imagery have been stressed in terms of agency (e.g. Fahlander 2012; Jones, 2006; Nimura 2016; Sapwell 2017). These discussions have unmistakable connections to symmetrical approaches that explore the distributed aspect of agency, and how materialities mediate in social processes (Fahlander 2008, 2017; Latour 2005; Jones 2012). Up to this point, however, much discussion on the materiality of rock art focuses on how specific motifs are employed as strategic symbols or on the fact that they may possess some kind of vague agency in 'magical' terms (e.g. Goldhahn 2010; Ling and Cornell 2010; Tilley 2004). In these texts, rock art is thus still 'read' as symbolic depictions that interact with each other or with the rock in presumed symbolic or narrative figurations. The partial figures are seen as fragments of something else and never as a visual expression on its own terms.

However, by stressing petroglyphs as material articulations, the dilemma of representation and resemblance can partly be bypassed to make room for analyses of what rock art actually does and how different visual modes affect the beholder (Fahlander 2013, 2018). It is, however, one thing to emphasise the mediality and materiality of art, but quite another to show such generative effects empirically. For instance, in Gell's (1998) scheme, rock art has secondary agency only within a specific cultural background (Layton 2003). Indeed, the potential generative effects of partial imagery can be argued to depend on a knowledge of what completed figures look like. This is, however, only partly true concerning partial petroglyphs, which due to their mediality can generate responses without any previous knowledge of Bronze Age visual culture. For instance, petroglyphs normally appear as vague lines and patterns in the rock. It does not matter if their origin is assumed to be natural, supernatural or human-made. The grooves in the rock can be evocative enough and when following the lines in the rock one can get fascinated or curious about where they might lead. When a line of a partial motif you follow unexpectedly stops, it would undoubtedly evoke a moment of surprise and curiosity, or incite a certain level of unease and insecurity.

We tend to view rock art as pictures, that is, something made to be perceived by other humans. However, petroglyphs may not be produced primarily to be experienced as images. As material articulations,

petroglyphs are more likely to constitute magical contraptions with a specific aim to affect the world (see Gell 1998: 9). For example, the partial imagery can work as a maze-like device to confuse humans, animals and supernatural entities alike. In magical contexts, the function of maze-like imagery is generally for protection by confusing malignant powers. For example, to borrow a term from Gell (1999: 166), partial imagery can evoke a 'halo-effect'. Gell argued that elaborate art can create such an effect around certain objects. His main example concerns the complex carvings on the prows of the Kula canoes. The art was meant to dazzle the beholder and transform the canoes from mere vehicles to enchanted vessels of magical power. The more technically complicated and intricate the art is, the greater the halo-effect. In this case, however, the effect would emerge not from awe of skill but from the way a common motif is successfully enshrouded. In magical ontologies, hunting tools and traps are often embellished and decorated to lure or incite the human, animal or supernatural entity to 'give' itself to the hunter (Willerslev 2007: 102; Lemonnier 2012: 51). The allure of partial motifs can comprise a similar function to attract or capture something. The partial motifs may thus be involved in a particular type of *vitalist technology* with the aim to affect the animacy of the world in different ways (Fahlander 2018: 150ff; see also Jones 2012).

A partial image may also be considered a materialised exhortation for completion, that is, consciously made partial to encourage (or even demand) completion or other actions. Such secondary effects due to partial imagery are difficult to establish since not many of them are likely to leave tangible traces. There are none the less a few examples of secondary responses. One example concerns a partial zoomorphic motif that consists only of a pair of legs, a tail, a head and a neck, but without a body. By the aid of detailed laser scanning it has been possible to identify the addition of faint scratching marks over the area where the body should have been (Fahlander 2012: 103). Another case concerns a partial petroglyph at Himmelstalund, outside the modern city of Norrköping, where a half boat motif has been 'supplemented' by a row of Iron Age runes (Nilsson 2012: 87, Fig. 12.5).

However, to properly identify secondary actions in relation to incomplete figures we need to question in more depth what really is partial and what is complete. Holl (2002) has suggested that many seemingly finished motifs in African rock art actually represent different stages of the production. Simple contour-lined motifs, he argues, represent outlines that in later stages are completed with extremities and the decoration of the body with dots and lines. There are a number of instances in Bronze Age rock art where certain elements of the same motif seem to have been added at different occasions. For instance, elements of the boat motif (e.g. keel extensions and crew strokes) are sometimes cut in

12.5 A partial boat motif at Himmelstalund, with an added row of Iron Age runes.

12.6 Example of a sequence in which details have subsequently been added to a seemingly complete motif (Boglösa 131).

lesser depth in relation to the main body (the hull, keels and prows). This is a tangible indication that key elements have been added to a motif at a later occasion (see also Milstreau 2017). The added (or original) elements of shallower-cut motifs can, in line with Holl's study, illustrate the becoming of a fully embellished and 'manned' boat in order to disarm, consecrate or finish it (Fig. 12.6). This might also be the case for the contour-cut motifs that are not yet hammered out (Fahlander 2012). There are thus indications that at least some petroglyphs are continuous projects that are never really 'finished'. In this case we can only speculate, for instance, whether making and using petroglyphs are individual or collective projects, or whether the main point lies in the continuation of certain motifs. Be that as it may, it is evident that the relation between partial or unfinished motifs is more complicated than first meets the eye. The partial petroglyphs can thus help to reveal essential indications of the meaning and purpose of rock art in general.

Summary

By studying petroglyphs as material articulations, and exploring issues of mediality and becoming, another dimension of Bronze Age rock art emerges. From such a perspective, the main aspect of petroglyphs is not

primarily about mimesis and representation but about what they can do. The partial motifs comprise an interesting point of departure for such a 'processual' study. In the Boglösa area, the partial mode is restricted to boats and anthropomorphic figures, whilst zoomorphs and other motifs on the same panels are 'complete'. This shows that the partial motifs are not primarily the result of weathering of the rock or of interrupted production. On the contrary, it suggests that partial motifs indeed comprise a special type of visual mode in Bronze Age rock art.

The partial petroglyphs, however, are probably an entirely different matter from the modern artworks of Cézanne, Klee and Kandinsky. They are not likely to emphasise symbolic meanings or 'essentials', but the very effect, *the punctum*, of the fragmented and partial is none the less similar, despite different mediality and complexity. The closest analogy is perhaps the way in which modern marketing works with fragmented logos in order to generate the attention of the consumer and promote certain positive aspects of the company. Intentional or not, the 'partial effect' in Bronze Age rock art may indeed initiate both emotions and secondary actions. Partial motifs can catch the attention, incite anxiety and confusion, or evoke curiosity and promote completion or other secondary actions.

The incomplete motifs have either been deliberately made partial or have been left 'in progress'. For instance, some partial motifs may await consecration or the fulfilment of a votive request. Such a process is indicated on some panels where the different cutting depth of various elements is documented. Another interpretation of this phenomenon is that the incomplete motifs, intentionally or unintentionally, incite secondary action, in this case, the 'completion' of the motifs by adding features. Although it is difficult to show such effects of the partial motifs empirically, it is evident that they add important information about rock art in general, and stress the importance of viewing rock art as a process rather than a series of static images.

Acknowledgement

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Parts and holes: a commentary

Louisa Minkin

These four chapters make explicit the assumption that both art and archaeology have something to gain (or, after W.J.T. Mitchell (2004), something they *want*) from paying close attention to each other's situated knowledges. Collectively they evidence the will to create ecological links, to transpose methodologies and to create intermediary objects. Here representations of the archaeological community, its identifications and modes of thought, are counterpointed by fragments of art historical thinking, or embedded with decontextualised images to produce surprising assemblies and multi-stable objects. There is a tangling of networks and a privileging of relational ontologies. If art and archaeology are seeking new perspectives on artefacts and relations, then critical understandings of material cultures and imaging technologies are crucial to both fields of study. In its simplest form, two eyes give us three-dimensional images. Critical issues arise when archaeological method is applied to the study of contemporary art practice and, conversely, the speculative methods of art practice, conceived as a testing ground, may open up new understandings of material culture for archaeologists. These chapters are a pleasure to read, images are made active through the writing, brought into new and affective configurations or, after Barad (2007), intra-actions.

Extrapolating Helen Chittock's argument (Chapter 9) it might be apt to apply an idea of mending or bricolage to transdisciplinary exchange: a kind of heuristic making fit for purpose or holding together of fragments in the present, reworking and tracing over. Such processes may involve repurposing or getting wrong the relation between fragments, forcing square pegs into round holes and speculating a whole object from remnants and traces. The 'shield' conjured by Chittock is a composite, a kind of

mental diagram that joins excavated pieces by probability, comparison and metonymy. She presents beautifully careful readings of surface, describing the wear inside a terret ring for instance. Her descriptions allow an image to be embodied in the world, to be made physical. This close attention to material circumstances is like a work of repair sorcery, where the 'whole' object is held together by the absent parts. For an artist, the objects produced by archaeology can act as catalysts for thought in the present, shaping the dimensions of the future through creative practice. Where darning, patching, making-do and mending are concerned, it might not be too much of an exaggeration to say that our future depends on valuing such processes.

The narrator of Chris Marker's film *La Jetée* (1962) begins 'This is the story of a man marked by an image from his childhood.' That we may be marked by an image, as engram, or scar, recalls Roland Barthes's formulation of the *punctum*. Barthes uses *studium* to denote the cultural, linguistic and political interpretation of a photograph, and *punctum* to describe the personally touching detail which establishes a direct relationship with the object or person within it. He uses a photograph of his mother to demonstrate the affective blow of an image, a puncture or wounding in fact. We can compare this notion of punctum to Peirce's index, and to Lacan's Real, perhaps making the assertion that this particular register is one of the primary operational modes of the archaeological, a kind of bringing home.

The agential is never far from surfacing in these texts. Alves's biome of images (Chapter 10) is an entrancing environment of physical and psychological matter. A biome of image? Image itself adapting to surface, to relational environment to climate. Image as adaptogen? Adaptogens in herbal medicine are used to increase resilience to change, to promote systemic self-regulation, balances, homeostasis. Ingestion of wisdom from other disciplines might operate to calm or to enervate fatigued systems subject to change?

Alves evokes a tattooed landscape, literally marked by an image. Here as we meet the *Moura Encantada*, builder and occupier of stone monuments, we might think again about writings into the body of the land. The suffix *-scape* is too scopic, a view or a picture. Here we are part of the land. This cup-and-ring scar weathered in the granite is how the rock remembers us. Different materials have different capacities for memory. What remains of less obdurate markings? Fingertip figures where touch is marked by ochres bound with fats, can now be found only in obscure or intimate places. In broad daylight on a gleaming rock surface we make marks that are more touch and sound-struck than visual (cf. Gant and Reilly 2018). In dark spaces less inclined to the visual we make marks for the eyes, materialising and obscuring in turn.

Is vision created by surface? Do such contingent haptics determine our construction of the social and sense of the intimate? Alves quotes Kandinsky's reflections on the *krasny ugol* or beautiful corner of icons found in a Russian home. This is the corner over which Malevich hung his black square, letting the darkness pour in. Medicine against mystification and nostalgia.

> The black square was like an open window through which the revolutionary spirit of destruction could enter the space of culture and reduce it to ashes. (Groys 2010)

If we let down our guard, we make vulnerable the stable representations of our disciplines. Bringing other paradigms into focus involves a suspension of disbelief, sometimes a sharp intake of breath, as knowledges are brought to bear in necessarily unconventional ways. The seams are vulnerable places, liable to unravelling or to infection, but it is worth persevering. Images themselves have always been wild and obdurate border-crossers. They actively shape our worlds, passing promiscuously between internal and external states, drawing out or educating. A process that might be called transindividuation (Stiegler 2010) the basis for social transformation.

When Alves writes of recording rock art by direct tracing, what we see here is the performance of an image or gesture rather than a copy. This is consistent with the digital. Having made a digital capture, each iteration stages or performs the dataset.

Projective identifications can be seen as pathways for change. Things may also cast off images as fire gives off heat. The Roman poet Lucretius is concerned with the thinness of images. He likens them materially to the slippery serpent's sloughing off of its skin. The filmy snakeskin is blown and caught in the brambles as images are caught in our eyes. Colour is cast on to us from an awning. Images, he says, are thrown off from things in 'constant and ceaseless repulse' where movement gives back a picture or animation. The world of materialities and of ontological [over]turning counters the general academic idea of a causal movement from text to image.

Consider the image of a human with a thumb in its mouth. The image, impressed into a tiny piece of gold, is explained thus:

> Sigurd took Fafnir's heart and cooked it on a spit. When he thought that it was fully cooked, and the blood foamed out of the heart, he then tried it with his finger to see whether it was fully cooked. He burned his finger, and put it in his mouth. But when Fafnir's hearts-blood came in his tongue, he understood the speech of birds. (Østergaard Pedersen 2016)

The poem provides a kind of protohistoric reading of an image. An overlay from the future. This translation of the poem *Fáfnismál* is nested within Teresa Østergaard Pedersen's essay *The Image as Agent*, hosted on the wiki of the Scandinavian Institute for Computational Vandalism, an art and media-archaeological research group who have worked extensively into Asger Jorn's 1961–67 Scandinavian Institute of Comparative Vandalism (SICV). Jorn's project was itself a collaboration with archaeologist P.V. Glob, an attempt to liberate the image from semantic fossilisation through a strategy of collection, collage and parataxis. Jorn ignored standard illustrational methods, instead commissioning close-ups and using cropping and juxtaposition to unsettle conventional taxonomies. His methods and intentions had something in common with Aby Warburg's 1929 *Mnemosyne Atlas*, Saxl and Wittkover's 1948 *British Art and the Mediterranean*. Jorn commissioned André Malraux's photographer for *Le Musée imaginaire* and worked alongside Jacqueline de Jong on the *Situationist Times*. Each of these endeavours presents a non-linear, promiscuous approach to image transmission, mediated by developments in offset printing technology. The image in the making here is a bringing into view, a pulling into focus. Hear the lens pulling back and forth in increments, focus-stacking. Such approaches flourish exponentially through the advent of digitisation. Jorn's interest in the past *10,000 years of Nordic Folk Art* was always motivated by contemporary artistic and political concerns. Consider his alternative title for SICV: *Centre for Destruction of Undesirable Prejudices within the Domains of Artistic and Scientific Culture*, something we are still working on.

It is useful here to invoke the fungible as a counter to the indexical. Where the indexical touches or pierces, the fungible operates on the register of stand-in, distribution and replication. One thing is substitutable for another, like a coin. In new technologies multiple versions of a file may be manifested in different forms, various iterations assumed through a life cycle.

Back Danielsson's guldgubbar (Chapter 11) seem to occupy the intersection between indexicality and fungibility: a kind of peeling away of a new form of image. The thin foils of each guldgubbar incorporate substrate and image inseparably. The shape of the carved patrice may be lifted through an impression with a malleable substance, a thin skin of metal foil in this case. A making precious? It is the nature of the image to be in movement. It is the nature of gold to be beaten and extruded, to be bright and to pass through time unpatinated or to pass through the body inert. Where the gold is unchanged, the image may be digested and variously incorporated.

In 1967–68 the sculptor Richard Serra compiled a *Verb List*. He lists the infinitives of 84 verbs – *to roll, to crease, to fold, to store, to bend,*

to shorten, to twist … and 24 possible contexts – *of gravity, of entropy, of nature …* a series of 'actions to relate to oneself, material, place, and process':

> So what I had done is I'd written a verb list: to roll, to fold, to cut, to dangle, to twist … and I really just worked out pieces in relation to the verb list physically in a space … as a way of applying various activities to unspecified materials.

Materials work though history like pushing mud through a sieve or throwing a plate at the wall. It gets messy. Each fragment is conceptually made anew for the concerns of each moment: extruded, folded, pierced, marked and crumpled by recontextualisation and interpretation. Rolled and threaded into beads, indulged as temple-coin: votive stabbings, wishes in wall cracks, legal gestures. Each refiguring an haecceity. A toreutics of time. Extra-archaeological phenomena piecing together a faulty perceptual apparatus. Misreadings or a co-evolutionary mode based on affective relations between things and people? Sensitivities?

Ing-Marie stuck these tiny gold impressions into the dark spaces of my imaginary. Attached with a fingertip by spit or fat or honey. They mark out the shape of a great post like a constellation of reflective scanner targets. Some time later, days or years, adhesion failing, they are falling. Confetti of giant weddings. The great hall collapsed in time and mouldered away around them. Numina glinting around the post-hole. Precious things, stamped or cut out. These tiny metal things are objects symptomatic of heavier production, of casting, smithing, cupellation, depletion, gilding: metal works. These are the bijoux of folkloric dwarf smiths. We are cast as Giants.

The guldgubbar are a pathos formula of little gold people, 'wraiths', animals and broken pieces. They parade like a glorious procession of shadow puppets into the future, abandoning their originary symbolic context for another itinerary altogether. Prised from context, loops are added for attachment to new eras. They are read backwards through written sources: refigured in proto-histories through the rich words of Snorri Sturluson or Lotte Motz whose figure is indelibly stamped into my own memory as an engram.

Marcel Duchamp coined a neologism that might describe the sensual transitions between tangible and visible, smell and shape, sound and feel. He conjured the word 'infrathin' (*inframince*). The elucidation, he said, of the intelligible embodied in the sensible:

> The warmth of a seat (that had just been vacated) is infrathin.
>   When the fumes of tobacco also smell of the mouth that exhales it, the two odors co-mingle by way of infrathin.

2 forms cast in the same mold (?) differ from each other by infrathin separable amount.

The condensation or moisture on polished surfaces (glass, copper) is infrathin.

Look at 'Gold foil couple as seen by Otto Sperling' (Fig. 11.3) with Duchamp's 'Magnifying glass for touching infrathin'. A textbook drawing, scaled up. The gap between this and that, male and female, between intention and realisation, produces difference, deferral, delay. 'The passage from one to the other takes place in the infrathin.' The matrices or patrices may be missing but this parental loss just accelerates the movement of the image through multiple indexes, drawn, photographic, digital. Modes of representation are not innocent. Images are as active in shaping our worlds as bacteria in our gut.

Images may bring words into being. Think of guldgubbar as kennings: the compressed metaphors inlaid as devices in Norse and Anglo-Saxon poetry. Compound words: whale-roads, sound-grabbers, gold-gubbins. Genitive phrases dropped on the floor or stuck to a pillar. A base word or substrate and a determinant image or figure that qualifies it and makes associations. Nothing here is ever complete.

Fahlander's 'The partial and the vague as a visual mode in Bronze Age rock art' chips away at the idea of completion (Chapter 12). There is a sensuous spectrum with the unfinished on one side and the broken on the other. When we leave off doing something it doesn't mean it is finished. Quite the contrary. What drives a cultural anxiety around the finished? A sensibility longing for end-times perhaps? Or the desire to still an image, to stop it moving and being active in the world?

The petroglyphs Fahlander describes act as sites where relations become visible, worked-up or roughed-out. I am reminded of a visit to Writing-on-Stone on the Milk River in south-western Alberta, Canada. This Archaeological Heritage Site was described to me as 'post-office central for our people' by a member of the Blackfoot community I met walking there. I learned that drawings of humans do not have eyes. This is not an omission or partial image. It is only spirits who have eyes. The site of the petroglyphs, then, acts as an intersection between ways of knowledge.

In art school crits of a certain era the idea of finish was often brought to bear. Can we bring a work to scrutiny if it is unfinished? How do we know when something is finished? Is it finished only by the viewer and if so is this a form of execution? There seemed to be a form of secret knowledge at play. It was agonising. The method of a crit is actually to produce objects in flux, changing with context and through interaction with each reader or interpretant's subjective schema. When do we ever

leave off working on something? Shabash! Guys I'm done here, I'm going home.

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