2 Do Caves Have Agency?

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Abstract Recent studies of later prehistoric cave use have stressed the affective qualities of these natural spaces. Certain properties of caves, darkness, constriction and their active geomorphology for example, can lead to caves be characterised as active agents, natural places with profound powers. However, is it really plausible to interpret caves, inanimate geological formations, as active agents? This paper will review arguments on social, environmental and material agency. This will include Structuration theory, with its emphasis on human consciousness as a key aspect of agency, Ingold's 'Dwelling perspective', which allows the possibility of non-human agents, the work of Alfred Gell and Actor Network Theory. Two common threads are drawn from these approaches to describe the way that things act. Things act in accordance with the properties they have and in a way that is structured and enabled by their past history. From this perspective caves can be shown to act and therefore caves would have been perceived as having agency.

2.1 Introduction

This chapter draws on previous research around memory and human remains in caves, particularly on Neolithic artefacts and human remains from caves in Britain (Peterson 2013). In that paper it was argued that long term social memory was constructed at cave burial sites, among other places, through a combination of human actions and transformations to place. Central to this process was both the embodied agency of groups of mourners and the feedback received from objects such as decaying corpses or cave spaces. It was suggested that the passage of time was indexed by both changes to caves but also by changes made by caves. Mourners had agency, but so did the recently deceased body being mourned and the distinctive natural formation where the burial took place. This analysis took for granted that theory around agency could be usefully applied, not only to living human actors, but also to the dead and to the caves they were buried in. The second part of that assumption raised a number of substantial questions around what precisely we mean when we discuss the agency of non-human (or formerly human) actors. Therefore, this chapter will review the theoretical background to studies of agency in archaeology and related disciplines. In particular, it will focus on what we imply when we suggest that a geological structure, such as a cave, has agency.

Recent wider research in cave archaeology has drawn upon the idea that the physical properties of cave systems can be said to 'act' upon people in various ways. Bjerck (2012) analysed the placement of Bronze Age anthropomorphic rock art in Norwegian caves in terms of the profound sensory and bodily experiences created by being in dark and restricted places. In this example the response of human actors to a particular set of sensory cues seems to have led to particular parts of certain caves becoming 'sacred' or ritualized, and therefore to have become appropriate places for the creation of rock art.

In a somewhat similar case from the Slovenian karst, Mlekuž (2011) draws on Gibson's (1986) concept of the 'affordance' to discuss how the bodies of Neolithic sheep and shepherds were created through repeated encounters with caves. Affordances are the specific properties that a cave possesses in relation to a particular human or animal user. Mlekuž analyses cave affordances by drawing on the concept of the 'affect' as defined by Brian Massumi in his introduction to Deleuze and Guttari (1987, xvi). Massumi's definition describes affect as the pre-cognitive bodily responses to a physical encounter with another body. These are separate from conscious or emotional response and are held to underpin both consciousness and emotional responses to other bodies. Mlekuž (2011, 3-4) broadens this definition to look at how the constricted space of caves influences affect between human and animal bodies and between bodies and the cave space itself. The cave space thus becomes a key part of the creation of new kinds of bodies associated with Neolithic domesticity and pastoralism.

Both Bjerck and Mlekuž discuss the way in which cave spaces act upon living bodies. In her study of Earlier Neolithic cave burials from Yorkshire, Leach (2008, 39) has identified a potentially important way in which caves and cave systems act upon the dead. At Cave Ha 3, near Settle, four individuals were buried within an actively forming tufa deposit while their bodies were still articulated. Leach (2008, 51) suggests that this was a deliberate choice and cites other known examples of Early Neolithic votive deposition associated with tufa (Davies and Lewis 2004, 8). She argues (Leach 2008, 51) that the petrifying properties of tufa springs were actively incorporated into the burial rites at some caves, either to commemorate particular individuals or to hold them apart from the more collective rites used on other Early Neolithic burials in the region. In either case, it could be argued that the agency of the cave system was being deliberately invoked.

Research such as this opens up a wider range of questions around the agency of caves and other natural places. What exactly do we mean when we talk about a cave having agency? Is agency even an appropriate term to use to describe something inanimate like a rock formation? Agency as a descriptive term is both powerful and fluid but it has its origins in theory about human interaction and human social institutions. In applying it to the three examples above we are pre-supposing a definition of agency which makes it a property of both inanimate objects and living subjects. We also need to consider how we differentiate between the dead and the living body. Similarly, we would need to question any distinction we might make between inhabited place and Cartesian space. Many different formulations of agency are possible, which would give different weights to these different

properties. The aim of this paper is to review some of the wider social theory about agency and, in particular, to compare theories of practice. By comparing theories of practice about agency it is possible to move towards using agency theory, in the broadest sense, in thinking about the human use of caves.

2.2 Defining Agency

2.2.1 Structuration Theory

Theory about agency in archaeology was initially developed by Barrett (1988) as an attempt to sidestep a dichotomy between two different perceptions of the archaeological record. Barrett drew extensively on both the Structuration Theory of Giddens (1984) and the work of Bourdieu (1977). He sought to move archaeological analysis away from studying patterns in artefacts (whether these were conceived of as analogous to texts or to fossils) and to find a methodology for thinking about the way that relationships between people were structured (Barrett 1984, 8-10). In Giddens' early writings on the subject (for example, Giddens 1979, 2-3) structuration is presented as a way of creating a theory of action in the social sciences. For Giddens (1979, 51-53), theories of individual human action developed in philosophy had little impact on a sociology which was concerned almost exclusively with the analysis of large scale social structures. Therefore, the theory of structuration can be seen as an attempt to overcome the disjunction between Structuralist and Marxist accounts of modern human society, social determinist analyses which give a disproportionate weight to large scale impersonal forces, and a decontextualized philosophy of human intentions and actions.

Giddens (1979, 56: 1984, 5) developed a 'stratification' model of the agent for this purpose. As we shall see throughout this chapter, geological metaphors of depth and stratification are an important common theme in theory about agency more broadly. Giddens' stratification model begins with motivation of the action, moves onto rationalisation of the action and then onto reflexive monitoring of the action. However, it is important to realise that these three layers cannot be worked out independently of the surrounding structure, which Giddens characterises as both the unintended conditions of the action and its unintended consequences. Without this surrounding structure then there is nothing to motive the action, no context within which to rationalise it and no comparative standard for the reflexive monitoring of the action.

Nested within this model of agency is another metaphorical set of layers to define human actions and their functioning in a specific way and within a particular set of conditions. Giddens' (1984, 7) definition of the way an agent acts is grounded in a tripartite model of human consciousness, ultimately derived from psychoanalytic theory. At the lowest level are unconscious motives, above this is the realm of

practical consciousness and above that discursive consciousness. These two models together provide a methodology for working out a recursive relationship between individuals' thoughts and actions and the structures which govern their society.

Structuration theory analyses four important components to provide a model which aims to describe both large scale institutions and individual human action. These are: human action; social structure; power and time. The preceding paragraphs have described the analysis of human action. For Giddens (1984, 4), human beings are fundamentally 'knowledgeable actors'. The interplay of practical and discursive consciousness ensure that people are able to carry out their routine lives. The conditions and consequences of actions within the stratification model of the agent ensures that knowledgeable actors understand wider social structures and how to use and influence them to achieve their own ends.

The analysis of social structures (Giddens 1984, 25) also follows from the implications of the stratification model of the agent. In structuration theory all institutions are made up of the actions of knowledgeable actors. They form the unacknowledged conditions of actions and are created from their unacknowledged consequences. Giddens (1984, 16-34, for example) analyses many different definitions of social institutions but for our purposes the key part of structuration theory as it relates to social structures is his concept of the 'duality of structure' (Giddens 1979, 69). This states that social structures are both the medium within which actions take place and are created from the outcomes of these actions. Therefore, social institutions cannot be reified as something abstracted from human action (Giddens 1984, 34). This, as Barrett (1988, 8) has noted, is a very powerful argument for the archaeological utility of the duality of structure.

The analysis of time and memory within structuration theory is similarly linked to the stratification model of the agent. Actions take place over time, they are influenced by the memory of past actions and they will have consequences for future actions. However, what is important here is not the chronometric time of empirical measurement but the lived experience of time. This leads Giddens (1984, 35-6) to consider yet another stratigraphic system of classifications around the human experience of time. Day to day experience is regarded as essentially repetitive ('reversible' in the terminology Giddens borrows from Levi-Strauss). The life of any one individual, however, has a clear directionality arising from memory and bodily changes. Institutions, in Giddens' view, have their own form of reversible time. The duality of structure discussed above operates within time, existing structures constrain actions and are created from them through time. This combination of the repetitive nature of reversible time and the directionality of individual lifespans is a fundamental part of the working of the duality of structure.

The analysis of power within structuration theory (for example Giddens 1979, 88-91) assumes that social rules and conventions are not neutral, they always serve someone's or some group's ends. However, as they are made up of the actions of people in society they are also always open to being reworked and renegotiated as they are created and perpetuated. According to Giddens (1984, 15-16) power is implicated in all kinds of action, it is not something intrinsic to certain types of behaviour such as domination or resistance. The duality of structure implies that

resources can both constrain and enable actors in different ways and to different degrees.

From the perspective of the archaeological analysis of agency, then the central contribution of structuration theory is to place the emphasis of study on human action and bodily experience. The creation of the duality of structure (Giddens 1984, 25-6) from memory traces links both these aspects.

2.2.2 Habitus

However, with the notable exception of Mizoguchi (1993), archaeological studies drawing on pure structuration theory have been relatively rare. The early work of Bourdieu (especially Bourdieu 1977) has therefore been an important point of reference as agency was integrated into archaeological work. For Barrett (1988, 27), Bourdieu's work offered a corrective to a perceived lack of focus on the material world in Giddens' writing, whereas for Gardner (2004, 7), Bourdieu allowed a more nuanced grasp of problems of subordination and domination.

Bourdieu's work is explicitly concerned with developing a theory of practice (Bourdieu 1977: 1990). Of particular interest here is the concept of 'habitus', the analysis of daily routines of everyday life. Habitus is the unconscious knowledge of what constitutes appropriate behaviour used by people to get through their day to day life. As such it is both generally unarticulated (practical consciousness in Giddens' (1984, 7) terms) and extremely culturally specific (Bourdieu 1977, 72). However, as Giddens is careful to point to a variable and permeable boundary between practical and discursive consciousness, Bourdieu also stresses the 'creative, active and inventive capacities of habitus' (Bourdieu 1985, 13).

Habitus is an example of Bourdieu's belief that theory cannot be developed in philosophical isolation. It is necessary to apply theory to practice in order to develop and understand it (Bourdieu 1985, 12-14). Therefore, Bourdieu articulates the details of what habitus is by the use of concrete examples. Although his discussion of the relationship between structures and habitus draws on a wide range of philosophical positions about consciousness (Bourdieu 1977, 73-95) it does not require a specific, stratified model of how consciousness works for its effectiveness. In other works, Bourdieu (1985, 14) has talked about the need to find a way of discussing agency while getting away from the 'philosophy of consciousness'.

Bourdieu moves away from a top-down view of structures by studying the taken for granted routines of daily life. In his phraseology, habitus becomes not only the 'structuring structure' but also the 'structured structure' (Bourdieu 1984, 170). That is to say that social structures and institutions are both created from and reinforced by the actions of habitus. In both Giddens' and Bourdieu's work the apparent circularity of this argument is overcome by invoking the action of memory. Bourdieu (1977, 87) discusses the concrete example of the way in which learning within the family underpins the way learning is experienced in school, which in turn underpins the way learning is experienced in later life.

For archaeological applications of the concept of habitus, and particularly for cave archaeology, then the most positive effect of Bourdieu's insistence on theory as practice is its engagement with the material world. In numerous detailed examples the structures developed in habitus are real physical structures. Whether it is on the French proletarian dining table (Bourdieu 1984, 193-200) or within the Kabyle house of Algeria (Bourdieu 1977, 89-91), then what is being analysed are relationships between people which are mediated through material culture and how that material culture is deployed in space.

2.2.3 Environment and Agency

Classical structuration theory ties agency very firmly to particular stratified models of human consciousness and therefore caves, as inanimate objects, can't plausibly be described as having this kind of agency. Caves do not have discursive or practical consciousness therefore they are not, in Giddens' terms, agents. Bourdieu's pragmatic focus on theory as practice and his focus on space and materiality offer a more promising programme for the study of the interaction between living people and caves. However, there is no sense within Bourdieu's work that the Kabyle house, for example, has habitus as distinct from the Kabyle women and men who inhabit it.

Building on the material perspective developed in the review of Bourdieu's work, other strands of theory about agency can also be worked into a discussion of cave archaeology. Ingold's essay *Building, dwelling, living* develops a detailed argument to dissolve the distinction between the cultural world of human agents with consciousness and the natural environment (Ingold 2000, 172-88). Interestingly, Ingold (2000, 172) begins this essay by characterising the traditional divide between culture and the environment as a distinction between intentionally motivated human agency, the 'social domain' and the 'ecological domain' of relationships between animals and the environment. Ingold's (2000, 173) stated project is to find a 'new ecology' which rethinks the way both animals and humans are perceived as interacting with their environment. The problematic issue for Ingold is intentionality, what people do is intentionally motivated, what animals do is apparently not. However, both Giddens (1984, 3-14) and Bourdieu (1977, 72) devoted considerable space to discussing non-intentional agency in people. Ingold (2000) focusses his argument on intentionality, discursive consciousness in Giddens' terms, presumably as a rhetorical device to stress the synthesising power of his 'new ecology'.

Ingold (2000, 174-81) develops this 'new ecology' by resolving a perceived distinction between the structures made by animals, for example, spider webs, beaver lodges and ape nests, and structures designed and constructed by people. The former are usually described as the results of biological imperatives encountering particular ecological conditions and the latter as the results of intentional human design (Ingold 2000, 181). Ingold draws on Heidegger (1971, 145-61 particularly)

to develop a ‘dwelling perspective’ to unify the description of both these kinds of making and, therefore, of both human and animal agency.

In the dwelling perspective, in common with structuration theory and habitus, agency is developed through the passage of time and of memory (Ingold 2000, 186). Both humans and other animals dwell within environments which have been fashioned by previous activity. Their actions are structured by those environments and they in turn create new kinds of environment. Therefore, for Ingold (2000, 187-8) agency does not operate in isolation from its surroundings. Both human and animal agents respond to pre-existing structures and conditions in similar ways and create and modify these environments by their actions. The recursively organised connection between structure and agency has been embodied and materialised in a way which allows us to see no fundamental difference between the building of beaver lodges and the building of houses. The dwelling perspective therefore suggests that we can ascribe agency to non-human animals.

In other writing on this theme Ingold (1993) elaborates on the role of temporality in the dwelling perspective. He coins the neologism ‘taskscape’ to describe an array of related activities, analogous to ‘landscape’ as an array of related features (Ingold 1993, 158). Taskscape is the material equivalent of Giddens’ structures, it is both the medium within which actions take place and is created from the outcomes of those actions. One of the important contributions which Ingold makes to this debate is to find a similarly embodied description of the way the passage of time is experienced. As we have seen, time and memory are a crucial part of the recursive cycle that lies at the heart of structuration theory, habitus and the dwelling perspective. Ingold (1993, 159) uses the phrase temporality to describe a conception of time, derived from the phenomenological understanding of Merleau-Ponty (1962, 416-21), which is neither tied to specific models of human consciousness nor calibrated to an external constant. When people or other animals do things they make time pass. Temporality is the time of the participant.

Therefore, from Ingold we can gather both a continuity of broad themes around agency: the recursive duality of structure and agency; and the importance of an experiential approach to time. However, what is novel in this work is the extension of Bourdieu’s concerns with objects and space to see the material basis of both structure and time. The second major contribution of the dwelling perspective is to see that agency is not limited to animals with human consciousness.

2.2.4 Art with Agency

Although Ingold’s arguments are persuasive, they do not necessarily resolve the problem of environments with agency. Caves, as conventionally described, are inanimate objects and therefore they do not spin webs or build nests. Accepting for the moment, although we shall return to this point later, the description of caves as inanimate then further discussion is needed on the nature of the agency of inanimate objects. There is an extensive literature on the agency of such objects. An excellent

review from an archaeological perspective is provided by Alberti and Bray (2009). As they point out (Alberti and Bray 2009, 339-40) archaeological approaches to this problem have largely followed either the work of Gell (1998) or of Latour (2005). The distinction between these two approaches can be characterised, following Alberti and Bray (2009, 340), as lying between those, such as Gell, who maintain a distinction between the intrinsic agency of living subjects and the ascribed agency of passive objects, and those, such as Latour, who would describe the agency of both people and things in the same way. For Gell (1998, 16) agency is what allows us to distinguish between 'happenings', something which happens because of the consequences of natural physical laws, and 'actions' which are caused by prior human intentions. Agency is therefore strongly identified not merely with human consciousness but also with deliberate human intentions.

Despite this, Gell (1998, 13-17) goes on to develop a thesis which ascribes extremely powerful agency to art objects. In order to follow this argument, it is necessary to introduce two further pieces of terminology. Gell (1998, 13) sidesteps the debate about *how* precisely we should define art by developing the concept of the 'index'. An index is any object which has the property of permitting people to make a 'causal inference'. Gell (1998, 13) uses the example of the smile, which we use to infer friendliness. This kind of inference is not a matter of axiomatic truth, nor is it a linguistic convention, rather it is a kind of synthesis based on the informal probabilities of previous experience. Gell (1998, 14-15) borrows the term 'abduction' from semiotics to describe this kind of inference. An index therefore, is any object which permits abductions to be made from it. However, in order to focus his argument more tightly on the agency of objects, Gell (1998, 15-16) further restricts the definition of an index to stipulate that it must permit an abduction that some kind of social agency must lie behind the creation of the index. The important point which Gell (1998, 17) makes in defining this agency is that it does not have to be part of a 'philosophically defensible' system of thought about agency. It merely has to be an example of a way in which agency is or has been thought about by people.

Gell (1998, 19) uses the example of 'vehicular animism', the modern western habit of ascribing personalities and power to cars, to illustrate the way in which this agency can be held to belong to non-human agents. This habit of mind is regarded by Gell as fundamentally irrational but is nevertheless an example of a commonly held belief about agency. It is therefore a potential object of study, but it throws up a considerable paradox when considered in the light of the definition of agency cited above, where human 'action' is contrasted with natural 'happenings'. To resolve this paradox Gell (1998, 20-21) suggests that we classify agents into two groups. 'Primary agents' are intentional beings whereas 'secondary agents' are objects through which primary agents distribute their agency. Gell (1998, 140-1) draws on the idea of distributed personhood, especially Wagner (1991), to stress that secondary agents are not in any sense inauthentic but rather that they are the distributed material aspects of primary agency. For Gell, objects have agency as distributed parts of the people who have made and used them. Any other agent

encountering such an object is able, through a process of abduction, to infer things about the primary agent. Such an object 'embodies intentionalities' (Gell 1996, 36).

2.2.5 Actors and Networks

While Gell's characterisation of the agency of inanimate objects is very persuasive, this is not a completely helpful solution to the problem for prehistorians. It does not seem to provide us with a clear and obvious methodology we should use if we want to identify what it was about a cave which may have led people in the past to ascribe agency to it. Gell's characterisation of object agency is an example of what Pels (1998, 94) would describe as 'animist' object agency, in which things have life because an external soul or spirit is perceived as inhabiting them. Pels (1998, 95) contrasts this with 'fetishist' object agency, in which an object's power comes from the very nature of the materials of which it is comprised. This internal, materialistic perspective leads us to consider a whole range of different approaches to object agency which have three things in common. These are a fundamental critique of the distinction between active subjects and passive objects, a focus on the relationships between objects and people, and a 'flat ontology' which does not prioritize one kind of agent or structure over another. Examples of this kind of thinking include the 'relational realist' archaeology proposed by Fowler (2013, 20-67), the 'symmetrical archaeology' described in Shanks (2007), and, in the broader social sciences, the 'assemblage theory' associated with De Landa (2006).
All of these writers draw to a greater or lesser extent on the 'Actor-Network Theory' developed by Latour (2005) and colleagues. This provides us with very different way of thinking about the agency of inanimate objects to that proposed by Gell. At the heart of actor-network theory is Latour's (2005, 70-74) critique of the distinction between active subjects and passive objects. In contrast to Gell's (1998, 20-21) categorization of primary and secondary agents, Latour (2005, 46) declares 'an actor is what is made to act by many others'. He adopts the technical term 'actant' to describe this property of making a difference which can apply equally to people, animals or objects. The 'actant' is introduced in a way which does not require it to possess any kind of consciousness or intentionality:

> 'Kettles 'boil' water, knives 'cut' meat, baskets 'hold' provisions… ..if action is limited a priori to what 'intentional', 'meaningful' humans do it is hard to see how a hammer could act.. …any thing that does modify a state of affairs by making a difference is an actor.. … the question to ask about any agent is simply the following: Does it make a difference in the course of some other agent's action or not?' (Latour 2005, 71)

For Latour (2005, 72) objects as actants allow, afford, permit, encourage, block or forbid actions. They don't themselves 'have agency' but then, neither is there a separate category of humans with intentions who possess agency. Agency exists in the network of relationships between the actants.

Relationships between actants are central to actor-network theory precisely because Latour (2005, 75-6) *does* maintain that there *is* a significant difference between subjects and objects. Actor-network theory can potentially analyse all networks that involve human social agency, it is not supposed to pre-judge which of the actants in these networks has priority, but the presence of human subjects is necessary for the analysis to take place (Latour 2005, 78). Therefore, it is not 'symmetrical' in quite the way that term is used by Fowler (2013, 30). Latour (2005, 171-2) is also sceptical about the usefulness of both the highly localised study of actors' agency and the study of wider social structures. This leads him to a concern with metaphorical 'flattening', a focus on the descriptive analysis of the connections between actants, without making *a priori* assumptions about the kind of actant they are.

Theory of practice in actor-network theory draws on the analogy of map-making, connections should be described and followed wherever they lead without disjunctures or jumps between different scales of analysis (Latour 2005, 174). However, this focus on local connectedness needs to recognize that that the local situations which are being described are not created from nothing. Latour (2005, 194-5) replaces the 'structure' of structuration theory with actual physical things. Places and objects are actants in the network and they act, in a somewhat similar way to Gell's (1998, 14-16) indexes, to connect the network being described in the local present, with other previously existing networks. Places and objects are also embedded in different times (Latour 2005, 200-1), in any given interaction some of them will be ancient and others newly created. The third major practical implication of actor-network theory is that the descriptions it furnishes are necessarily incomplete. Latour (2005, 246) is clear that we should resist the temptation to 'fill in the blanks', to assume that some ineffable essence of society is held between the connecting strands of the network.

From the perspective of actor-network theory, caves can be considered as actants. They are places and objects which would be drawn into the network of connections associated with any human use of them. As physical and temporal spaces they would also act to link older and more recent networks together. Each of the different discussions of agency which have been considered so far makes a different kind of contribution to the study of caves as agents. Ultimately, the question for us is not which of these formulations of agency are right, or even, which is the most persuasive as an abstract description, but which provides us with a workable programme of research.

2.3 Towards an archaeology of active caves

2.3.1 How do Caves Act?

The first point which arises from the preceding discussion is the danger of reifying 'agency' as a social force, something which is somehow above or behind the actions of people and things. Following the lead of Ingold (2007), who sought to shift from the study of 'materiality' to the study of the 'properties of materials', we should transpose the opening question of this paper from 'do caves have agency?' to 'how do caves act?' Throughout this paper we have been concerned with theories of practice for this reason. How do different thinkers describe the ways in which people and things act?

The first common thread we can see is that how people and things act is strongly influenced by what they are like. They act in the way they do because of the properties they have. For Giddens (1984, 4), the property which matters is the stratified model of the consciousness, the specific interplay between practical and discursive consciousness. In Bourdieu's (1977, 72) work a similar role is played by the culturally specific 'habitus' of any individual. Both of these concepts are embodied, material and also historically contingent (Rorty 1989, 30-43). Ingold (2007, 14) gives us a similar way of thinking about why things act. The properties of materials are parts of processes and relations, they are experienced, once again they are embodied and historically contingent. Similarly, for Gell (1996, 36), things which can act are things which embody intentionalities. They have the property of being visibly altered or placed in a way which makes them the kind of object which is comprehensible to an observer as part of the distributed agency of another person. In Latour's work (2005, 71) the way that both people and objects make a difference is governed by their material form. They allow, encourage, facilitate or block actions depending on what they are made from.

2.3.2 Properties of Caves

Therefore, the way that caves act will be structured by their physical form. If we think about Ingold's (2000, 186) definition of the dwelling perspective as relating to something which affects and is affected by its environment, then we can broaden this insight beyond the living non-human animals which form the bulk of Ingold's examples. Both the caves in the examples cited from Bjerck (2012) and Mlekuž (2011) at the start of the paper and the decomposing bodies described by Leach (Leach 2008) affect their environment and are affected by it. Caves act in the way they do, at least in part, because they are constricted spaces. However, across later Prehistoric Europe we also have evidence of the importance of other properties of caves. They are dark, underground spaces, often difficult to access and might be summed up as sharing the property of separateness (see, for example, the discussions in Dowd & Hensey 2016).

At Glencurran Cave, Co. Clare, Ireland, excavations by Dowd (2009, 98) showed evidence of the Late Bronze Age deposition of lithics and shell beads in association with neonatal remains of humans, wild and domestic animals. This practice took place at least 50 m into the cave, in the zone of permanent darkness, and much

deeper into the system than the Middle Bronze Age burials from the same site (Dowd 2009, figure 10.2). The deposit is interpreted by Dowd (2009, 98) as a single complex event, gaining at least part of its meaning and power from its location in the dark zone of the cave.

Sites in Scotland also indicate the way that the physical separateness of caves could be both drawn upon by and act on people and objects. At High Pasture Cave, Skye, passages appear to have been deliberately modified in the Middle Iron Age to create a stairway down into an extensive cave system (Birch et al. 2003). At the Sculptor's Cave, Covesea, Aberdeenshire there is evidence for ritual activity in both the Late Bronze Age and Later Iron Age. This is a site which would have only been accessible from the sea and, given the constraints of the surrounding hydrography and tidal conditions, would have required very specific knowledge of these natural phenomena to approach at all (Armit et al. 2011, 254-5 and Ian Armit *pers. comm.*).

Caves also act in more physical ways, water, mud and screes all flow through them, often substantially moving any objects within the cave, as for example, at Pontnewydd Cave in North Wales (Aldhouse-Green et al. 2013, 255). There are good examples of how the active properties of caves and their associated fluvial systems were drawn upon in later Prehistory. At Le Trou de Han, Han-sur-Lesse, large scale ritual deposition of metalwork took place in the Late Bronze Age in two specific locations of the underground sections of the river Lesse (Warmenbol 2014, 69-73). Further south, in Charente, France, Manem (2012, 142-9), discusses the consistent association between cave deposition of pottery in the Middle Bronze Age Duffaits culture and river submergences. At both Perrats Cave and Duffaits Cave there was deliberate deposition of groups of sherds made by the same potter and this practice was shared with the nearby enclosure site at Fouilloux. All three sites are within 800 metres of the submergence points of four substantial rivers. Manem (2012, 146-149) suggests that in the case of the Duffaits culture we have a specific depositional practice focussed on karstic aquifer features. In these cases, we see practices which drew on two inter-connected kinds of separation, of being both underground and underwater, to move artefacts away from the everyday world.

Caves also have the ability to trap and petrify material in speleothem deposits. In addition to the tufa encrusted material described by Leach (2008, 51), prehistoric human bone has been reported from within flowstone at Carsington Pasture Cave, Derbyshire (Barnatt & Edmonds 2002, 117) and from Longu Frescu Cave, Sardinia (Skeates 2016, 41). Detailed evidence of the interaction of human and cave agency around speleothems is provided in Whitehouse's (2015) review of the cult of 'abnormal water' in Italian Neolithic caves. In Puglia, at Grotta Sceloria and probably also Grotta di Porto Badisco, pottery vessels were placed on broken stalagmite surfaces, apparently to collect the precipitating water from the stalactites above. These vessels in turn became petrified parts of the remodelled stalagmites (Whitehouse 2015, 57-58). Therefore, in the Italian Neolithic, we can see direct evidence of the interplay between human and material agency in caves through time.

This material evidence of the role of time brings us back to our consideration of theories of practice about how people and things act. Alongside the structure of the

caves' physical form, the second common thread in all the theories of agency we have considered is a concern with the passage of time and memory.

2.3.3 Caves, Time and Memory

In all the theories about agency we have considered, the passage of time is fundamental to the recursively organized nature of action, the 'duality of structure', as it is described by Giddens (1979, 69). In the work of both Giddens (1984, 35-6) and Bourdieu (1977, 87), what is important is the lived experience of time. In essence, people act as a consequence of their memories and create a framework for future actions by remembering the consequences of past actions. With the dwelling perspective, Ingold (2000, 186) develops an environmentally embodied version of this recursive 'duality of structure'. Central to this is the definition of temporality as the 'time of the participant' (Ingold 1993, 159), when things act they experience time passing. We can strengthen this insight by drawing on the way that Gell (1998, 13-15) defines an index. Temporality is not simply experienced, it is embodied and materialized in the scars and traces these actions leave on the world (Peterson 2013, 273-4). Latour (2005, 200-1) points out that both places and objects are embedded in different times. They contain within themselves the histories of their previous manufacture or use. In actor-network theory all these connections are potentially informative, they should all be followed.

It follows that we should analyse the ways that caves act through this embodied and material experience of time. Caves act as they do because people have previous embodied experience to draw on when they encounter them. They are also able to act thorough the indexes and traces that are left in them. For example, the Romano-British cemetery established in chamber 4, Wookey Hole (Hawkes et al. 1978) indicates a repeated use of one particular place within the cave. A minimum of 28 individuals were placed on a spit of cave sediment at the back of chamber 4 during the later 3rd century AD. Enough skeletal material remained *in situ* to show that the bodies were not placed in gave cuts and that waterborne silts accumulated around the bodies as they lay on the surface (Hawkes et al. 1978, 26-28). The types and frequency of grave goods at Wookey Hole can be paralleled at other late 3rd century cemeteries in south-western England, in many ways these were entirely typical burials for the period (Hawkes et al. 1978, 30-31). Presumably they drew upon a habitus of social responses to death which had developed in common across the region and province as part of the transition to inhumation burial in the 3rd century AD. However, they did so in such a way that responded both to a particular cave environment and to what appears to have been

(Hawkes et al. 1978, 29) about 100 years of cemetery use. This time depth would have been indexed by the presence of bodies in various stages of decomposition covered to different degrees by the periodic silting from the flooding of the river Axe. The selection for the cemetery of the back of the deepest accessible part of the system, 200 metres from the entrance, was probably, as Hawkes et al. (1978, 30) suggest, driven by a belief that the point of emergence of the Axe from the rock in chamber 4 was spiritually significant. On this model, the river Axe itself was more than a passive natural phenomenon to be referenced, it was an active contributor to the on-going funerary activity at the site.

We can see the impact of these interactions particularly in the longer term fate of parts of these bodies after the Roman period. Flooding events in the cave moved the crania from many of these burials and caused them to be re-deposited at different locations nearer the cave entrance (Hawkes et al. 1978, 25). The cave removed the skulls and collected them in a new deposit. This is an action which was only possible because of the past geological history of the streamway in combination with the hydrodynamic properties of particular skeletal elements, the disarticulated crania in particular would float (Nawrocki et al.1997). However it was also only possible because of the past decision to place the Romano-British bodies on the sediment surface, rather than burying them, and to place them close to the emergence of the Axe in chamber 4.

Caves, then, do act. We can describe their actions in terms which draw upon agency theory to give ourselves a powerful theory of practice to interpret those actions. However, it may be objected that we have stretched some of these definitions almost to breaking point. In the example given above all of the actions ascribed to the cave can also be described as the result of geochemical or biological processes which would have taken place regardless of any further human intervention. Did the cave then ‘act’. To answer this question, we can return to Gell (1998, 19) and his insight that we do not need to describe ‘philosphically plausible’ agency for some thing to have acted. Caves undoubtedly have acted and people, who shared their material, temporal and embodied world, would have perceived them to have agency.

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