Experiencing darkness and light in caves: later prehistoric examples from Seulo in central Sardinia

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Introduction

Caves are often represented simply as dark underground places. Indeed, total, constant darkness is sometimes held to be a characteristic feature of true caves. Biologists and ecologists have long been fascinated by the fact that life can flourish in this absolute darkness, including cave animals with distinctive troglomorphic features (such as being eyeless and depigmented). Yet, for humans, caves are physically and mentally challenging places without light. Cave guides often play upon this dimension by briefly turning off artificial lights underground to enable visitors to sense the darkness – an experience that can be both emotive and memorable. It is hardly surprising, then, that lighting technologies have been used to facilitate and enhance visits to these dark places throughout human history. For example, the nature and impact of flaming torches has been extensively considered with regard to the production and viewing of paintings in French Palaeolithic caves (e.g. Bahn & Vertut 1997; Le Quellec 2011;

Azema & Rivere 2012). The symbolic and structural potential of dark and light contrasts has also been emphasized by Ruth Whitehouse (1992) in relation to dark and secluded Neolithic cult caves in Italy. But, in this chapter, I want to present an even more nuanced view of how particular effects of light and darkness might have been actively used and experienced by later prehistoric people, and how these effects mediated between people's bodies, cave architecture and cultural objects.

My examples derive from the Seulo Caves Project (Skeates 2011; Skeates et al. in press). This is seeking to develop detailed and contextual understandings of a group of over ten caves and rock-shelters located within the present-day territory of Seulo in central Sardinia, which were occupied between the Middle Neolithic and Final Bronze Age (*c*. 4250–850 cal BC). We have so far undertaken archaeological excavations in four of these sites, but for the purposes of this chapter I focus below on the two caves which seem best-suited to a discussion of light and darkness: Grutta I de Longu Fresu (a small Middle Neolithic cult cave), and Grutta de is Janas (a large cave complex with both Late Neolithic and Bronze Age occupations) (Figure 1).

My approach here is to combine scientific data with some much more subjective observations. Using a light meter, I did attempt to measure light levels in different parts of these caves, but the equipment that I used was only effective in the best-lit areas of the caves. By contrast, we gathered a much richer dataset based on oral testimonies and discussions of our team members' experiences and perceptions of the caves, gained over many hours of moving through and working in these spaces. United with the excavation data that we obtained, I have used these 'phenomenological' insights (c.f. Hamilton et al. 2006; Tilley 2004) to offer below

some interpretations of how light and darkness might have been used and experienced by the prehistoric groups whose remains we encountered. My assumption is that (with the possible exception of some of the chambers in Grutta de is Janas), the general configuration of these caves, and of natural lighting in relation to them, has not changed significantly between prehistory and the present day. Perhaps more problematic is my use of flash photographs to illustrate this chapter, since they expose details of the caves that are hard to see with other forms of lighting. But even these artificially bright images fail to penetrate completely the darkness of the caves.

Ritual enlightenment: Longu Fresu cave

Grutta I de Longu Fresu is located in the bottom of the minor Longu Fresu valley. It has a small and somewhat hidden entrance (1.15 m wide and 0.55 m high). This leads to a tunnel-shaped corridor (15 m long, 1.5-7.5 m wide and 0.5-3.5 m high), along the sides of which small springs have formed eight niches (Figure 1). This natural cave was modified into, and used as, a place for the performance of small-scale, and potentially secret, rituals during the Middle Neolithic (*c*. 4250–4000 cal BC). This interpretation is based on the results of our excavations in the final two metres of the cave, which have revealed a contemporaneous set of special features (Figure 2). A small group of paintings was added to one of the innermost niches, extending over an area of at least 30 by 30 cm, but is today partly obscured by a coating of flowstone (Figure 3). Nevertheless, it is possible to discern at least two schematic, linear representations of anthropomorphic (or combined human-animal) figures, with legs, arms and either an elongated head or horns. The style of these paintings is comparable to that of other Neolithic cave art in the Central Mediterranean region (c.f. Graziosi

1973). About a metre and a half on from these paintings, the skull of an adult human is also cemented to the cave wall by flowstone, and in the disturbed cave deposits between the skull and the paintings an additional 104 disarticulated human bones was recovered. Together, these represent the original deposition of at least one whole adult body on the floor at the back of the cave, its later disturbance and disarticulation, and the secondary caching of large bones (including long bones and at least three skulls) along the side walls and niches of the cave. A greenstone axe-blade also lay in the same deposits (Figure 4). This was the only artefact found during our excavations, which points to its intentional, votive deposition – a practice that was widespread in the Central Mediterranean Neolithic (c.f. O'Hare 1990). These innermost cave deposits appear to have been delimited by a small, semi-circular stone structure (0.9 m long and wide), formed by a truncated group of stalactites upon which one or more large stone blocks seem to have been placed.

Natural and artificial light and darkness mediated between people's bodies, architectural space and material symbols during ritual performances at Longu Fresu cave. This is best understood when one physically experiences the cave: moving into, along and out of it. The restricted cave entrance is dark. This instils a sense of fear and hesitancy among some modern visitors as to whether or not to enter the invisible underground space beyond. Once inside, one's eyes gradually adapt to the dark environment. The level of light falls off with distance from the entrance, becoming particularly dark after 6.5 m. It is surely no coincidence that the Neolithic cultural material that we identified in this cave was all found in this dark zone, concentrated especially in the darkest and innermost two metres. Furthermore, the ritual nature of this material – human remains, cave paintings, a votive axe-blade, and a possible

stone structure – leads one to think in terms of the intentional use of this dark place for ritual secrecy or retreat. However, the entrance of the cave is south-facing, and, with direct sunlight shining on this entrance, natural light does penetrate right to the back of the cave. This provides one with just enough light to orient oneself, particularly in relation to the sunlit entrance – of course, only during daylight hours. But, this light is insufficient to illuminate the side niches of the cave, including the niche within which a small group of cave paintings were installed, adjacent to a small spring. It is an interesting paradox, then, that this visually stimulating artwork appears to have been intentionally positioned in one of the darkest parts of the cave. We must, then, imagine the original makers and audiences of this art as having used torches, however dim, to illumine this cave art and its meanings. Forms and colours are also indistinct in this dimly-lit environment, and require artificial light to be brought to life. The potentially symbolically-important vulva-like appearance of the cave niches, and the deposits of iron oxides that have stained them red, are only visible with torches and flash-photography (Figure 5). Likewise, the dark grey pigment of the paintings and the visually attractive bright green colour of the axe-blade could only have been seen with the aid of artificial lighting (Figures 2–4). From this, it is easy to think in terms of the intentional concealment and revelation of the Neolithic symbols (the freshwater spring, the anthropomorphic paintings, the greenstone axe-blade and the human skulls) during the course of ritual performances, leading to the 'enlightenment' of ritual participants into special knowledge – perhaps relating to humans and their relations with the supernatural. The light of the entrance then serves as a symbolic and spatial reference-point, generally for the outside-world, and more specifically in helping people negotiate their way back to the exit.

But light and the sense of sight do not operate alone in this cave. Bodily movement and positioning in relation to the space of the cave is particularly important. In fact, squeezing in and out of the entrance, and carefully making ones way along the cool, musty, humid and silent corridor, is a full-bodied experience. And, alongside other people, it is also an intimate experience. For the Middle Neolithic, we might, then, imagine small-scale rites of passage (including both mortuary rites and rites of initiation) being enacted here, involving multi-sensory experiences of symbolic revelation and religious enlightenment.

Fire-light: Grutta de is Janas

Grutta de is Janas is the largest cave system in the Seulo area (Figure 1). The main entrance today leads directly to the large northern branch. This is up to 12 m wide and 7 m high, it extends inwards for 114 m, and it contains some spectacular speleothems – noted in print by travellers and scientists since the early nineteenth century (e.g. (Angius [1833–1856] 2006, 1585). A smaller entrance leads, via a 13 m long corridor, to the shorter western branch. The two branches are connected, at least 10 m in from the two entrances, by three inter-connected chambers. The ‘upper chamber’ is best reached today via the small entrance corridor, extends over an area of 11 m by 6.5 m, and has a low ceiling of 0.5 m to 1.5 m in height (Figure 6). This space is connected to the two ‘lower’ chambers by a small vertical shaft. The larger of these lower chambers is similar in size to the upper chamber, while the smaller one, which is surrounded by a wall of stalagmites, is around 3 m in diameter. It is within these chambers that some shallow but rich Late Neolithic deposits were formed. These dark deposits are extensively burnt, and contain patches of ashes as well as fragments of

charcoal. Large quantities of animal bones (especially sheep/goat, but also cattle) and pottery fragments (assignable to Ozieri style bowls and jars) were found here, as well as a range of special artefacts (some imported from other parts of Sardinia), including long flint blades, freshly-flaked obsidian arrowheads, a polished bone point, seashell pendants, a polished red stone bead, and a rare stone figurine head (Figure 7). Radiocarbon dates on the animal bones provide a time-span of *c*. 3800–3550 cal BC. It is just conceivable that these deposits might have been formed as a consequence of repeated short-term occupations of the cave's 'outer' chambers by small groups of mobile herders and their animals, who might have 'cleansed' the living space by burning the accumulated organic deposits at the end of their seasonal occupations (c.f. Boschian and Montagnari-Kokelj 2000). But, given the deposition of the special artefacts and of large quantities of animal bones and pottery vessels in these three low-ceilinged chambers, a more ceremonial interpretation is also possible, involving the ritual consumption and sacrificial destruction of valued meat and artefacts on the threshold of a spiritually-charged underworld. We cannot be certain if one or either of these scenarios is valid, but it is worth noting that they are not mutually exclusive.

Light and darkness would again have mediated between people's bodies, architectural space and material culture in this series of cave chambers. Today, despite the cave's two south-facing entrances, these spaces are completely dark, and need to be lit artificially. In the past, one can imagine the use of torches here, to light people's way down and along the entrance corridors, and to illuminate their depositions of some visually attractive cultural material. However, it is currently difficult to gauge the precise balance that existed in the Late Neolithic between natural light, artificial light and darkness in this part of the cave system, because a large rock-fall – which

overlies (and therefore post-dates) the Neolithic deposits in all three of the excavated chambers – may have blocked additional cave entrances that could potentially have allowed in some natural light. Leaving this issue to one side, what is particularly striking about these chambers is the large quantity of ashes and charcoal found in the floor deposits. The majority of the identifiable charcoal is represented by small branch-wood of shrubby taxa, indicating that small twigs and branches were generally used for fuel. This evidence points towards multiple fires set in each of the chambers, fuelled by easily combustible material, and implies not only dancing flames and dynamic firelight but also concentrated heat and smoke in these confined spaces. Indeed, the heat was so intense that one charcoal fragment was totally fused, an obsidian arrowhead was partly melted, pottery fragments were re-fired, and patches of the cave bedrock were burnt. It is consequently difficult to envisage people remaining comfortably in these chambers with a fire burning. Nevertheless, the light generated by these events would have been sufficient to illuminate the chambers and their burning cultural materials, and also to cast some light and shadows into the first few metres of the two adjacent branches of the cave system – enough to give people some indication of their enormity and a sense of liminality. At night, firelight glowing, then fading, in the cave could also have been seen from just outside the cave entrances. Dynamic light effects and darkness would, then, have actively contributed to human experiences and knowledge of is Janas cave in the Late Neolithic, whatever the precise activities performed there.

Passage into the darkness: Grutta de is Janas (interior)

The northern branch of the is Janas cave system extends inwards, more-or-less horizontally, from the modern entrance over a distance of more than 100 m (Figure 1). In the central section, the cave roof is particularly high, and there are some spectacular speleothems to be seen, which create a cathedral-like atmosphere and comprise the centre-piece of modern touristic visits to the cave (Figure 8). Numerous low chambers and cavities also lead off to the sides. Towards the end of the northern branch, just before the point at which it descends steeply to the abyss of a final series of chambers, and some 95 m in from the modern cave entrance, we investigated another chamber. (We identified no archaeological remains beyond this point in the cave system.) It is a small circular space, tightly bounded by a curving wall of stalagmites (Figure 9). The floor area measures 2 m by 1.7 m, which only affords room for a maximum of two or three people. Overlying the bedrock, our excavations revealed a largely intact deposit, just 12 cm deep. This contained a few cultural remains: some tiny charcoal fragments; two fragments of copper; twenty plain pottery sherds, all probably belonging to a single bowl; and two animal bones identified as a fragment of a sheep/goat radius and a juvenile pig tibia. The pig bone was radiocarbon dated to *c*. 2250–2100 cal BC, which places the associated deposit in the Early Bronze Age. This period is particularly significant, because it saw not only an extension of boundaries within is Janas cave (compared to the Late Neolithic, whose deposits were concentrated in the chambers closest to the cave entrances), but also the wider exploration and occupation of caves in the wider landscape of Seulo, and indeed throughout Sardinia (c.f. Skeates 2012). Below, I consider what part darkness might have played in this process.

Darkness and exclusively artificial light mediated between people's bodies, architectural space and material culture during special journeys along the northern branch of the is Janas cave system. Having moved about 10 m in from the naturally-lit modern-day cave entrance, the darkness in this part of the cave system is absolute. This dark environment provides an ideal home for a colony of bats, which has a roost high up on the cave ceiling. But, for humans, this blinding darkness calls for caution. Indeed, the floor of the northern branch is strewn with dangerous obstacles, including large stalagmites and angular boulders, all made wet and slippery by the humidity of the cave. Within living memory, adventurous young people from the local town of Seulo would come here, with a kerosene lamp, to explore the inner reaches of the cave; and they repeatedly wrote their names on the stalagmites as a record of their achievements, to be lit upon by later visitors. But, today, this route is completely transformed by the installation of a health-and-safety conscious touristic walkway, complete with handrails, as well as artificial lighting: making the whole experience much more accessible – both physically and visually (Figure 8). In fact, the journey along the northern branch can now be achieved rapidly, within a few minutes, but would originally have taken visitors much longer. Whatever the conditions underfoot, artificial lighting would always have been essential for people to negotiate this route. Our experience of using torches here (without the overhead cave lighting) was a tantalizing and often frustrating one. Despite keeping our eyes wide open, we strained to see details of the spectacular and evocative natural architecture that our torches picked out on the roof and walls of the cavern. These shadowy features were brought alive by the play of our torches, but also constantly framed by areas of impenetrable darkness (Figure 10). And when our batteries ran out, we groped our way back to the safety of the cave entrance, as quickly as possible. Considering the flaming torches or

simple clay lamps of the Early Bronze Age, we can be justified in imagining that similar experiences were shared by prehistoric visitors.

During the Early Bronze Age, such a journey into the darkness involved the arguably votive deposition of a restricted assemblage of objects on the floor of the small inner chamber described above. The tiny charcoal fragments found here in the otherwise brown sediment are too few to be interpreted as a brightly burning fire set in the chamber, but did perhaps derive from flaming torches. Aided by such artificial light, a human journey to this place intentionally penetrated one of the deepest and darkest parts of the cave – going well beyond those chambers near to the entrance that had been occupied during the Late Neolithic. The configuration of the inner chamber, with its curtain of stalactites, would have concentrated artificial light in this space, and on the restricted group of people and objects situated within it. The shine of the copper artefact might have been picked up by torchlight. But the plain dark-grey bowl would have offered only limited visual stimulus. And, looking outwards, the scene would have been framed by utter darkness. In this dim and distant environment, far from the outside world and its familiar people and places, it is, then, possible to imagine the restricted sight but heightened other senses of the people who placed the objects in the chamber: isolation, disorientation, fear, wonder, a sense of achievement, and – perhaps especially – spiritual alertness. If ever there was a place to communicate with the supernatural, and to offer gifts, this dark liminal place was it. And perhaps a trace of this early significance continues to this day, carried by the place name ‘Grutta de is Janas’, which means ‘Cave of the Fairies’, with reference to the enduring folklore of Sardinia which tells of these small, winged, supernatural

beings guarding great treasures underground and their occasional good and bad interventions in the human world.

Conclusion

In this chapter, I have tried to challenge the widespread visual perception of caves simply as dark places, by considering how particular effects of light and darkness might have been used and experienced by people in two caves in central Sardinia during the Neolithic and Bronze Age, and how these effects mediated between people's bodies, cave architecture and cultural objects. I am well aware of the limitations of my approach to recording, interpreting and illustrating this difficult area of archaeological inquiry. However, I still regard its consideration as necessary, particularly within cave archaeology where darkness is often as fundamental as water is to maritime archaeology.

Darkness in caves can seem absolute and impenetrable. It can therefore instil feelings of blindness, fear, hesitancy and disorientation in visitors. It is surely because of this potency of darkness that the dark zones of caves were sometimes intentionally used by groups of prehistoric people, particularly as liminal places situated between the worlds of the living and the supernatural. Here, they concealed and revealed key material symbols during the course of controlled, small-scale, ritual performances, which might in part be understood as rites of passage – physically and conceptually – into darkness and enlightenment.

At the same time, people do adapt their eyes and other senses to the darkness of caves, particularly with the aid of entering sunlight and artificial lighting. In contrast to the bright electric lights used to illuminate caves today, dim and shadowy prehistoric firelight, torches and lamps would have struggled to contend with the darkness of deep caves. However, it would have been sufficient to enable people to orient themselves in relation to entrances, to bring-alive some of the visually-striking dimensions of the cave architecture and introduced cultural artefacts, and to unlock their symbolic potential, while framed by the darkness.

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Figure captions

Figure 1 Plans of: (1) Grutta 1 de Longu Fresu – 1. niche with human longbone, 2. human skull, 3. greenstone axe-blade, 4. painting, 5. stone structure; (2) Grutta de is Janas, chambers – 1. upper, 2. large lower, 3. small lower, 4. inner. *Drawing: Yvonne Beadnell*.

Figure 2 Interior of Grutta 1 de Longu Fresu: (1) niche, (2) skull, (3) stone structure, (4) paintings. *Photo: Jeff Veitch*.

Figure 3 Neolithic cave painting in Grutta 1 de Longu Fresu. *Photo: Giuseppe Farci*.

Figure 4 Greenstone axe blade from Grutta 1 de Longu Fresu. *Photo: Jeff Veitch*.

Figure 5 Large niche in Grutta 1 de Longu Fresu. *Photo: Robin Skeates*.

Figure 6 Upper chamber, Grutta de is Janas. *Photo: Jeff Veitch*.

Figure 7 Head of stone figurine from large lower chamber, Grutta de is Janas. *Photo: Jeff Veitch*.

Figure 8 Speleothems, and modern walkway and lighting, along the middle section of the northern branch of Grutta de is Janas. *Photo: Jeff Veitch*.

Figure 9 Inner chamber, Grutta de is Janas. *Photo: Jeff Veitch*.

Figure 10 Darkness along the middle section of the northern branch of Grutta de is Janas. *Photo: Jeff Veitch*.