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NEW ROCK ART DISCOVERIES IN KING ARTHUR'S CAVE, HEREFORDSHIRE, GANAREW

by

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ABSTRACT

King Arthur's Cave has been the focus of archaeological attention since 1870, when the Reverend Symonds excavated much of the [eastern] main chamber to the bedrock. An assemblage of early and later prehistoric flint tools, along with an array of faunal remains was retrieved. The western chamber was investigated by Taylor (1926-27) where the famous mammoth layer (comprising a stratigraphic sequence that included several hearth layers) was recorded. Again, the chamber was excavated to the bedrock. Much of the deposit that came from this excavation was dumped outside the entrance and survives today as a compacted spoil heap, which was investigated by Professor Nick Barton in 1993. Despite this antiquarian and archaeological activity, the various passages running northwards of the main eastern chamber have never been fully investigated. In 2021, a member of the First Art team (GHN), along with James Nash, discovered two haematite spreads on the wall of the western passage in an area aptly named the Sanctuary.

This short paper discusses the discovery and verification processes that claims these two marks were applied to the Sanctuary wall by human agency and, second, both marks are probably of a later prehistoric date.

INTRODUCTION

King Arthur's Cave (located at NGR SO 54573 15580) and a further 30 to 40 caves and rock shelters with significant archaeology are located between the villages of Ganarew and Symonds Yat, within a lightly wooded area that falls to the south, towards the River Wye (Figure 1). The site is considered to be one of the most important Upper Palaeolithic cave sites in the British Isles, and, as such, was designated a Scheduled Monument in August 1952 (List Entry No. 1010289). It is within an Area of Outstanding Natural Beauty (AONB).

The northwest facing entrance overlooks a light wooded area, dropping to a northern slope of the Wye Gorge. The River Wye, flowing west to east forms the southern boundary between Herefordshire and Wales. The bulk of the caves and rock shelters along this stretch of the river is within broadleaf woodland that includes the Little Doward and Great Doward areas. Most of the caves with significant prehistoric archaeology are located on the northern side of the Wye Gorge. The caves in this area have yielded large quantities of diagnostic flint from all prehistoric periods. King Arthur's Cave is no exception and has yielded a large number of artifacts over four field investigations (Symonds, 1871; Hewer, 1925; Taylor, 1926-7; Barton, 1993, 1994, 1995, 1996, 1997). Despite the large assemblage of early prehistoric artefacts and faunal remains, this cave and others within the locality had been the focus of intensive quarrying activity (Walters, 1992). It is highley likely that the cave entrance was orginally many metres forward from its present location. The cave comprises a northwest platform which is formed from a spoil heap dating to the Symonds and Taylor excavations of 1870-1 and 1926-7 respectively. The entrance leads to two sub-circular chambers which were largely emptied by 1927 (Symonds, 1871; Taylor, 1927) (Figure 2).

In addition to the lithic and limited pottery assemblages (e.g., ApSimon, *et al*. 1992; ApSimon and Jacobi, 2004), King Arthur's Cave has been the focus for archaeozoological and

palaeoenvironmental investigations (e.g., Garrod, 1926; Barton, 1995, 1996; Reade, *et al*. 2020; Stevens, *et al*. 2023).

Figure 1. *The location and surrounding topography for King Arthur's Cave, Ganarew*.

METHODOLOGY

Over the relatively recent past, several fieldwork projects have been undertaken at King Arthur's Cave, however, none of these have included geoprospection for rock art. Following the discovery of painted images in 2022, it was considered by two of the authors (GHN and JAN) that further investigations with a team of rock art specialists should be undertaken in order to verify the discoveries and to look for more paintings.

There were two site visits made by the First Art team to the cave, the first, in April 2022, being an exploratory survey and the second, in March 2024, to seek verification dialogue from colleagues on the two painted figures located within the Sanctuary; KAC 1 and 2 on Figure 2. The April 2022 visit explored all areas of the cave. As a result of this visit, applied haematite (i.e., made by human agency) was found on several wall sections but initially could not be properly assessed due to the faintness of each haematite spread. However, one cannot dismiss the possibility that these haematite spreads were not ancient.

As part of the analytical process, the team employed a desk-based colour spectrum tool, known as Decorrelation Stretch (hereafter D-Stretch). D-Stretch is a widely used digital enhancement tool that has previously been used to identify faint traces of pigment in a number of British and European caves [and beyond] (e.g., Domingo, *et al*. 2024; Nash, 2015; Quesada Martínez, 2008-2010).

D-Stretch is a plug-in of Image J software that was developed by Jon Harman (Harman, 2008 [2005]). Originally used for remote sensing by NASA in 1996, this software is

a multispectral image enhancement tool that has been specifically redeveloped to maximise colour manipulation of pigments, and usually applied by specialists working with rock art imagery. Optimum enhancement of pigments, or traces of, is achieved when photographing paintings that contain red, yellow and black pigmentation. These colours, or varying hues of pigmentation, are usually highlighted when using the various filters within the D-Stretch algorithm. This programme digitally enhances the base image to reveal potential underlying traces of charcoal, iron-oxide or manganese pigments. It should be noted that D-Stretch can identify colour imagery that the naked eye cannot; for example, the enhancement control image located inside the main entrance of Chamber 1 (Figure 3).

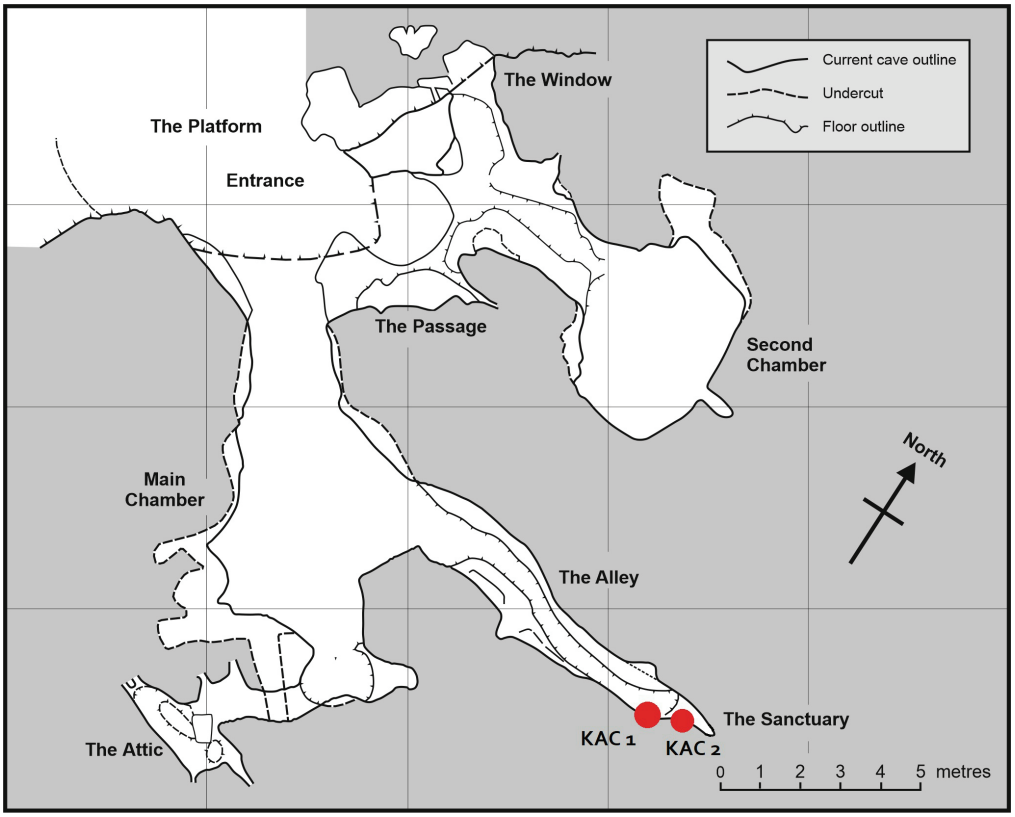


Figure 2. *Plan of King Arthur's Cave, showing the location of the two rock art panels.*
Plan: Abby George after ApSimon *et al* 1992.

RESULTS FROM THE SITE VISITS

The initial discovery of the two haematite marks was made in April 2022 by GHN and JAN. The two panels were thought to be made of applied haematite (that is, made by human agency), rather than naturally secreted haematite. We hasten to add that naturally secreted haematite is common in this and other limestone caves within the Wye Valley Gorge. During the initial visit, all areas of the cave were explored, including spaces that extended beyond the

two main chambers (the Attic, Alley and Sanctuary). In all areas of the cave, textual and dated graffiti was present.

The 2022 team ascertained that the exposed bedrock to the northwest of the Window probably formed part of the cave system but had been most likely quarried during the 18th and 19th centuries (Children and Nash, 1996). Therefore the original entrance to this cave would have extended at a further 3-4 m north-west of the current entrance, if not further.

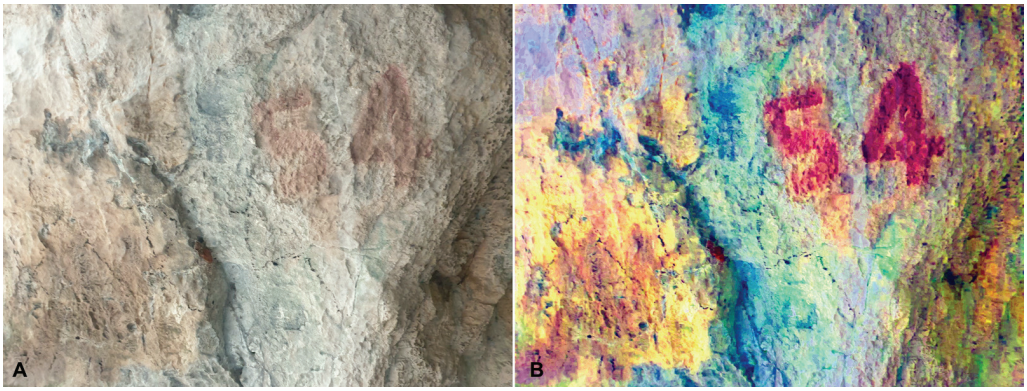


Figure 3. *(A) Original image of a panel inside the entrance of the main chamber. (B) D-Stretch image version of (A) showing the cave number code '54' and painted imagery of unknown date or subject matter to the left.*

In addition to the two marks located in the Sanctuary, the initial survey had identified several other applied haematite spreads within the Main Chamber and the northwest section of the Alley; however, the form of each spread was initially difficult to ascertain. Moreover, no flowstone was present and therefore, irrespective of whether or not the spreads were natural or of human agency, no chronometric dating could be undertaken. This is despite the fact that much of the cave walls is covered with active and fossilised flowstone deposits.

The two haematite marks (KAC 1 and KAC 2), located on the southern wall of the Sanctuary, stand c. 1.45 m from the current floor level and are applied directly to the rock surface (rather than a flowstone). The pigment colour for both is identical, comprising a dark red haematite. Both marks are, however, different in form or design and have been applied to the rock surface using a brush (KAC 1) and by fingers (KAC 2).

KAC1 measures 17 x 9 cm and is in the form of a cross-like figure. This mark is located northwest of KAC 2. In addition to the pigmented surface, the First Art team has identified an engraved horizontal line that underlies the painted image. It is not clear if there is a direct relationship between the engraved line and the painting. Using D-Stretch we have also identified many of the individual brush strokes that were used to construct this figure (Figure 4). Scrutiny of the image suggests that the upper section of the mark could be an addition to the lower section (or vice-versa). This assumption is based on the slight change in the pigment colour and a break between both sections. However, the consensus is that the image was created during a single painting event. We suggest that the image represents an anthropomorphic figure with outstretched arms that form a cross-shape. Attached to the arms are disproportionately sized hands, with fingers. The painted ovate shape located within the upper section of the figure may represent the head of the anthropomorph.

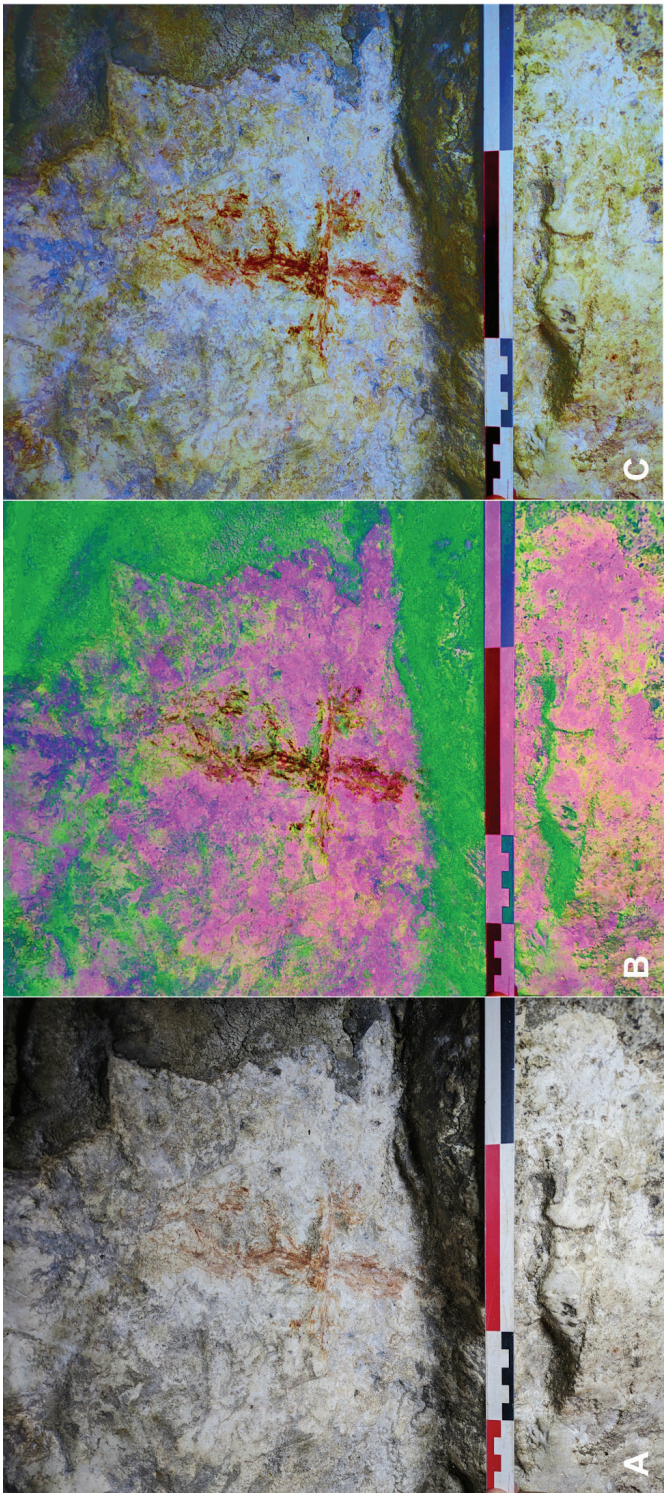


Figure 4. *(A) Original image of motif KAC 1. (B), (C) D-Stretch image versions of (A).*

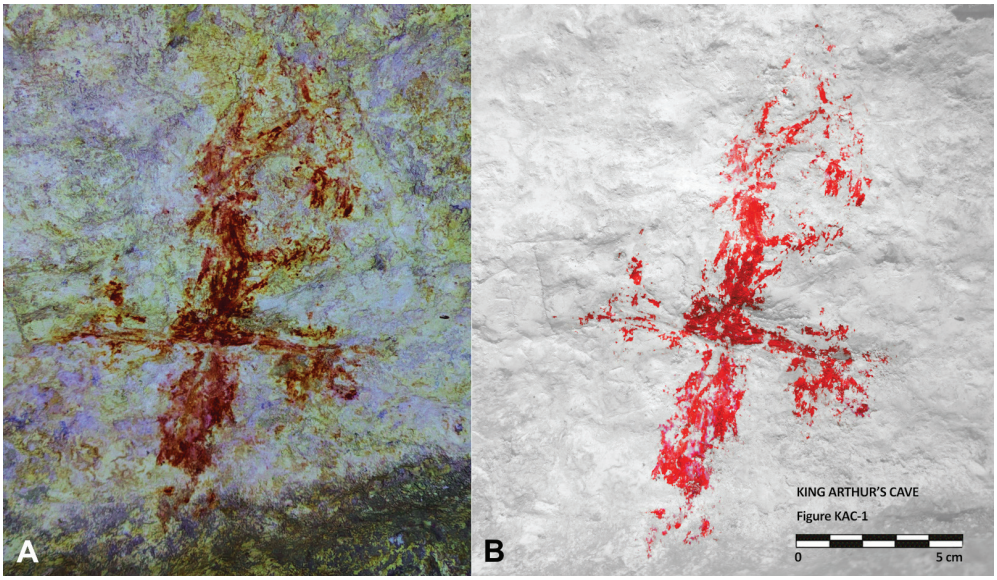


Figure 5. *(A) Detail of KAC 1 showing differently coloured pigments. (B) Colour-separated digitally-enhanced figure of KAC 1 generated using D-Stretch.*

The initial consideration by GHN and JAN that this was a medieval or post-medieval iconographic motif, possibly an Ankh or Coptic cross has now be dismissed). The style and location of this, and the other motif (KAC2), is probably prehistoric in date. This assumption is based on experience in numerous other caves throughout Upper Palaeolithic Europe where similar locations have been recognised. We should emphasise that without the use of D-Stretch, the image was difficult to discern (Figure 5).

KAC2 measures 11 x 4 cm and appears as a faint dark red pigment spread that has been absorbed into the surrounding botryoidal surface (Figure 6). The pigment comprises a red to brown colour that appears to have been spread over small horizontal fissures and cracks. Using D-Stretch, the upper section of the figure is clearly shown as a U-shaped motif which has probably been applied using a series of connected finger dots in order to create a thick line. A small spread of pigment is located above the U-shaped motif which may have together formed an ovate shaped motif, although a single line extending from the top right to the bottom left appears to provide a linkage between the remaining lines and spreads (see Figure 6C). The upper section of the motif is attached to a single vertical line that extends c. 6 cm from the base of the U-shaped motif. Currently, the style and possible date range for this motif is unknown.

DISCUSSION

Upper Palaeolithic and Mesolithic static engraved and painted rock art in the British Isles is a rare occurrence with only four cave sites currently listed: Church Hole Cave, Robin Hood's Cave (Creswell Crags), Cathole Cave (Gower Peninsula) and Aveline's Hole (Mendip

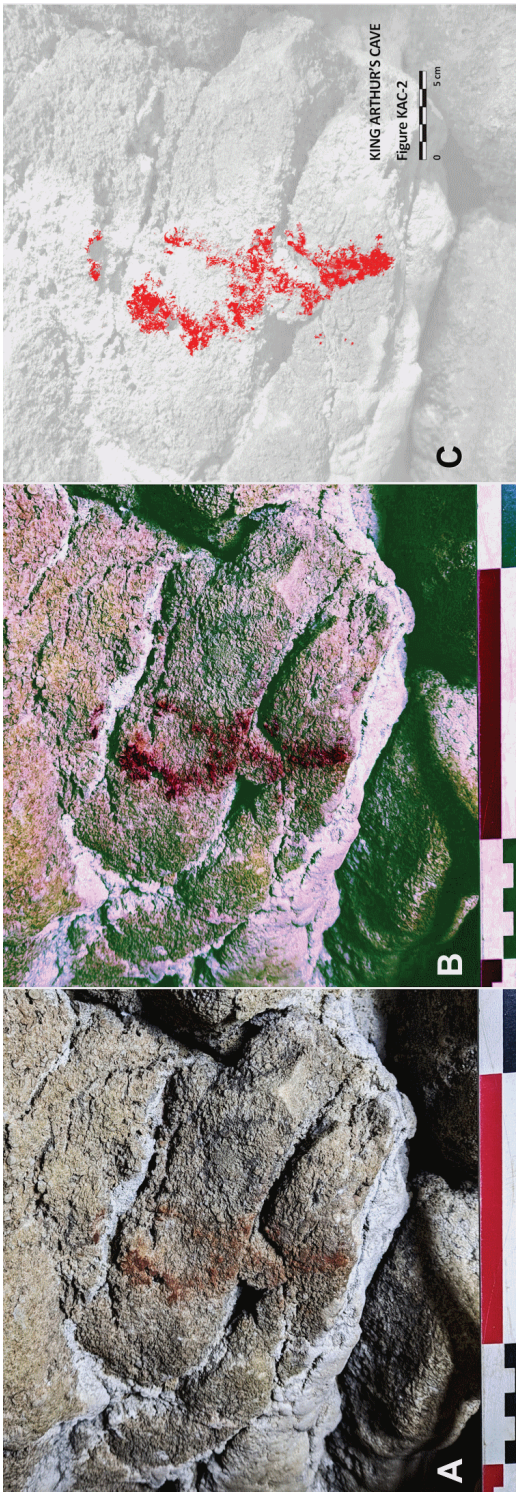


Figure 6. *(A) Original image of motif KAC 2. (B), D-Stretch image versions of (A). (C) Colour-separated digitally-enhanced figure of KAC 2 generated using D-Stretch.*

Hills). The same can be said for painted imagery that occurs in caves within a Neolithic or Bronze Age context.

The engraved rock from both Cathole Cave and Church Hole have yielded similar minimum U-Series date ranges; for Cathole 14,505±560 years BP (Nash *et al*. 2012) and for Church Hole and three other caves within Creswell Crags: between 15 and 13,000 years cal. BP (Pike *et al*. 2005). There are further cave sites that await verification.

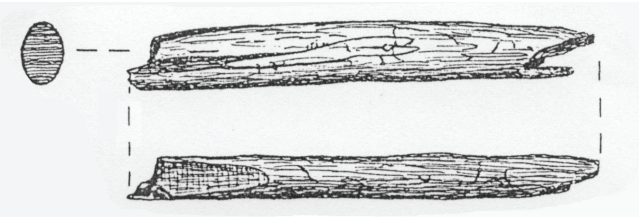


Figure 7. *Engraved eel/fish figure on a small piece of bone (Taylor, 1927)*

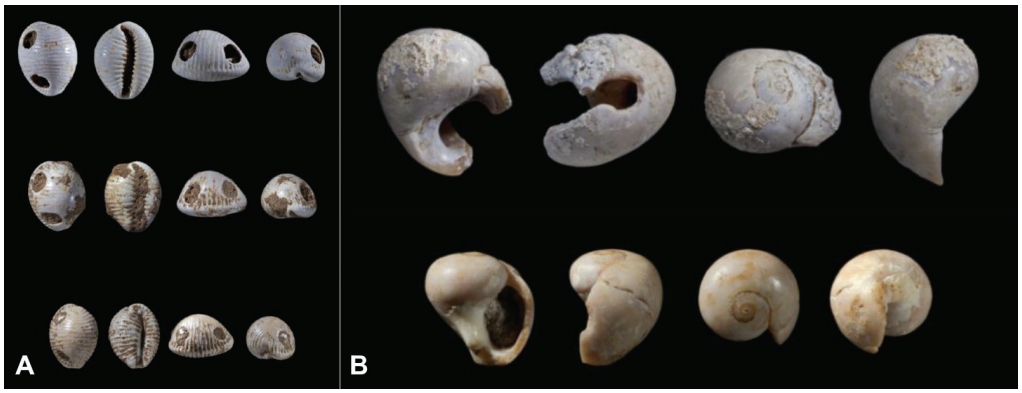
Previous excavations at King Arthur's Cave have yielded limited evidence of artistic endeavour and personal adornment. During the 1926-7 excavation of King Arthur's Cave, directed by Herbert Taylor, an engraved bone piece was uncovered within the Passage, between the First and Second Chambers (Taylor 1927, 61, Fig. 17). Engraved on this bone was a stylised fish, possibly an eel (Figure 7). The excavation also yielded a small assemblage of diagnostic LUP flint tools and what was thought to be a bone needle, referred to by Taylor as a polished bone rod. According to Taylor, the bone piece showed evidence of gnawing marks and was broken or damaged at either end (*ibid*. 64).

During the 1996 excavation of the Second Chamber, an array of prehistoric finds was uncovered within a small alcove at the northern end, including a small assemblage of LUP lithics and Bronze Age artefacts. Among this assemblage were four perforated shells that dated to the Late Mesolithic period (Barton, 1996, 268) (Figure 8). Two of the shells were identified as cowrie (*Trivia monacha*) and the other two were periwinkles (*Littorina sp*.); both species derived from a marine environment, probably originating along the Welsh coastline of the Bristol Channel or the Irish Sea. Five perforated cowrie shells were also uncovered by Barton from nearby Madawg Rock-shelter in 1993 (Barton, 1994, 70; Barton and Roberts, 2015). Collectively, the perforated shell bead assemblage is the largest in the British Isles. Although the use of these items is not yet understood, Nash (2012) has proposed a ritual context whereby adornment, gender, initiation or community rank/hierarchies may have influenced the commission and use of perforated items such as shell and animal teeth.

The two haematite marks located on the southern wall within the Sanctuary introduce an additional dimension to the limited artistic endeavour directly associated with King Arthur's Cave and nearby sites within the Wye Valley Gorge. As stated above, painted rock art of the Upper Palaeolithic in the British Isles is extremely rare. Based on painted marks found in caves and rock shelters elsewhere in Upper Palaeolithic Europe, the haematite marks at King Arthur's Cave are arguably in the right place, towards the rear section of the cave; however, the form of each mark is difficult to decipher. As yet, there are no parallels known elsewhere in the British Isles. It was originally considered that one of the marks may have been painted during medieval times. However, scrutiny of both marks suggests a much earlier period for when these marks were made. The absence of flowstone across both marks renders impossible the potential of extracting a minimum/maximum date range using Uranium-Thorium dating techniques. Furthermore, and unlike painted rock art elsewhere in Western Europe, plus the fact that only

several painted sites are known in the British Isles, it is currently difficult to determine an artistic tradition that could be called 'British' or 'Northwestern European'.

The verification process undertaken in March 2024 by members of the First Art team, ascertained that both marks were made by human agency but their age remains difficult to determine; however, the style of each may be unique to the British Isles. A similar style of painting is commonly found in the Iberian Peninsula where stylised painted human figures are found primarily in rock shelters (e.g., Domingo, et al. 2024). Based on the results of the D-Stretch analysis, we consider the two figures, especially KAC1 to be schematic in style and to have been executed during later prehistory, probably in the Middle to Late Bronze Age. KAC1 is representative of a widely-dispersed schematic tradition that features exaggerated aspects of the human body notably the upper limbs, torso and extremities, hands, feet and fingers. This assumption is based on the schematic painted traditions with similar anthropomorphic figures found elsewhere in Atlantic Southwest Europe and as warrior stelae figurines that rarely occur in a British later prehistoric context (e.g., Nash, 2011). In terms of determining the age for KAC2, the style and pigment application are different to KAC1 and, therefore, this motif could have originated in a different period.



Figures 8. *(A) The perforated cowrie shell beads and (B) periwinkles from King Arthur's Cave.*
Images: Ian Cartwright. with permission from Professor Nicholas Barton.

Although there is currently no way of obtaining a date range from these two marks, one could sample each mark using Micro-Raman spectroscopy and ATR-FTIR analysis in order to determine the organic and inorganic constituents that make-up the pigment recipe. Should organic constituents be present within the haematite recipe, the geochemical results can be measured against other tested pigments (e.g., Gomes *et al*. 2015; Gomes *et al*. 2019).

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[1] The First Art team, based in Spain, Portugal, Italy and the UK is an international consortium of specialists who undertake geochemical sampling and research in caves and rock shelters that contain early prehistoric rock art. The First Art team was formed in 2018 and operates across much of the world where ancient rock art is present.

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