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H. DE LARA LÓPEZ

CULTURE CLASH IN ATLANTERRA CAVE (CADIZ, SPAIN): DIACHRONIC INTERACTIONS BETWEEN PALAEOLITHIC AND POST-PALAEOLITHIC GRAPHIC TRADITIONS

This article analyses the diachronic interaction between Palaeolithic and post-Palaeolithic graphic traditions documented in the Atlanterra Cave (Cadiz, Spain). Through a spatial and graphic approach, it explores how later motifs engaged with earlier imagery in terms of distribution, scale, superimposition, and visual hierarchy. The study highlights the reconfiguration of graphic space across different chrono-cultural phases.

K e y w o r d s : southern Iberian Peninsula; Strait of Gibraltar; Palaeolithic; post-Palaeolithic; rock art; graphic space; visual hierarchy

Previous research on the Atlanterra Cave (Cadiz, Spain) has made it possible to identify one of the oldest and most comprehensive graphic sequences documented in the southern Iberian Peninsula with regard to open-air rock art sites (De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025) (fig. 1)[1]. These studies have also enabled the identification of formal parallels between motifs recorded in the Atlanterra graphic repertoire and those documented at other rock art sites, both within its immediate regional context and on the opposite shore of the Strait of Gibraltar (De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025). Furthermore, the analysis of the pronounced dimensional variability of dot motifs suggested that prehistoric rock art could be understood as a collaborative and community-based practice, potentially involving individuals of different ages and genders (De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025).

Beyond these aspects, the Atlanterra Cave presents an additional and particularly relevant feature: the long-term coexistence and interaction of multiple graphic traditions executed on the same rock surface. The presence of motifs attributed to the Palaeolithic, the early post-Palaeolithic, and the post-Palaeolithic schematic art phases within individual panels provides an exceptional opportunity to examine how successive visual traditions engaged with pre-existing graphic marks and later reinterpreted and reorganised them over extended periods of time.

Rock art studies have long recognised the analytical value of superimpositions, surface reuse, and palimpsests for understanding diachronic graphic processes. However, while these phenomena have been extensively addressed from a chronological perspective, comparatively less attention has been paid to the ways in which size, spatial distribution, and visual hierarchy contribute to the internal reconfiguration of painted surfaces through time, particularly at the level of individual panels and localised graphic fields.

In this context, the present study focuses on the spatial and dimensional relationships between Palaeolithic, early post-Palaeolithic, and post-Palaeolithic schematic art graphic traditions documented in the Atlanterra Cave. The analysis adopts a predominantly graphic and spatial approach aimed at examining how later graphic phases interact visually with earlier ones through patterns of distribution, size, surface occupation and superimposition, and how these

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[1] The Atlanterra Cave is a small "cavity" that is traditionally referred to as a cave, but with very little depth. Typically, in Spain, these types of cavities are referred to as open-air sites due to their minimal depth, despite being categorised as caves.

interactions contribute to the reorganisation of visual hierarchies within a multi-phase rock art context.

Methodology

The present study is based on the analysis of the Atlanterra Cave graphic repertoire, documented through a combined approach integrating digital image processing, panel-based spatial organisation, and comparative graphic assessment. The methodological framework adopted seeks to ensure the accurate identification, reproduction, and contextualisation of the motifs, while explicitly acknowledging the limitations imposed by the state of preservation of the rock surface and the diachronic complexity of the site.

The identification and analysis of the motifs required the use of advanced digital image-processing tools applied to photographic documentation obtained during fieldwork campaigns carried out in the 1990s (Mas Cornellà 1994, 2002; ed. Mas Cornellà 2000; Ripoll López, Mas Cornellà 1999; Mas Cornellà, Ripoll López 2002; De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025). Adobe Photoshop (Adobe Systems Incorporated) and the ImageJ software, specifically its DStretch plugin (Harman 2015), were employed to enhance pigment visibility, delimit motifs, and produce accurate digital tracings. The process of digital reproduction presented significant challenges due to the condition of the rock surface and the state of preservation of the motifs. Several panels show advanced deterioration, many figures are highly faded, and some motifs appear infraposed beneath later graphic elements, complicating their identification and delimitation. Despite these limitations, digital image processing proved essential for highlighting graphic features that are barely perceptible to the naked eye and for improving the reliability of motif documentation.

For analytical purposes, the painted surface of the cave was divided into 16 panels. This segmentation is artificial and does not reflect any known original organisation of the graphic space, but rather constitutes a methodological tool designed to structure the analysis and facilitate a systematic examination of the spatial distribution of motifs. Panel boundaries were established by considering both the dispersion of graphic elements and the morphology of the rock surface to produce divisions that were as organic as possible. The numbering of the panels follows the natural progression of the rock surface from left to right. Although a degree of arbitrariness is inherent in this process, this approach allows for consistent observations regarding the distribution, coexistence, and superimposition of graphic phases.

For this study, a total of 896 individual graphic motifs were documented, recorded, and classified across the 16 panels. This corpus constitutes the empirical basis for the spatial, dimensional, and relational analyses presented in the following sections.

Our work has allowed us to classify the motifs of the Atlanterra Cave into three chrono-cultural phases: a Palaeolithic phase, an early post-Palaeolithic phase, and a post-Palaeolithic phase of typical schematic art (De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025) (fig. 2, 3). The attribution of motifs to these phases was primarily based on a combination of superimpositions and infrapositions, patina analysis, and typological parallels. Superimpositional relationships provided the most reliable relative chronological indicators, particularly in cases when later motifs clearly overlapped earlier graphic elements. The characteristics of the patinas and differential pigment alteration were also considered, especially when comparing motifs located within the same panel. In addition, formal and typological parallels with other well-dated rock art contexts from the surrounding region and the Strait of Gibraltar area were used to support chrono-cultural attribution. A limited number of motifs for which these criteria did not allow a confident assignment to any of the three phases were classified as undetermined for analytical purposes.

The size of the different motifs was assessed using the physical dimensions recorded in the photographic documentation, following International Federation of Rock Art Organisations (IFRAO) standards. This approach allowed for consistent comparisons of motif size and surface occupation across different panels and graphic phases without the application of complex metric or statistical models. The analysis focused on variables related to the spatial organisation of the graphic record, including the distribution of graphic phases by panel, the coexistence of motifs belonging to different phases within the same panel, the relative size of the motifs, and the extent of surface occupation within the panels. For analytical clarity, a distinction was made between superimposition and coexistence. Superimposition refers to cases in which a motif physically overlaps and partially covers another, in-

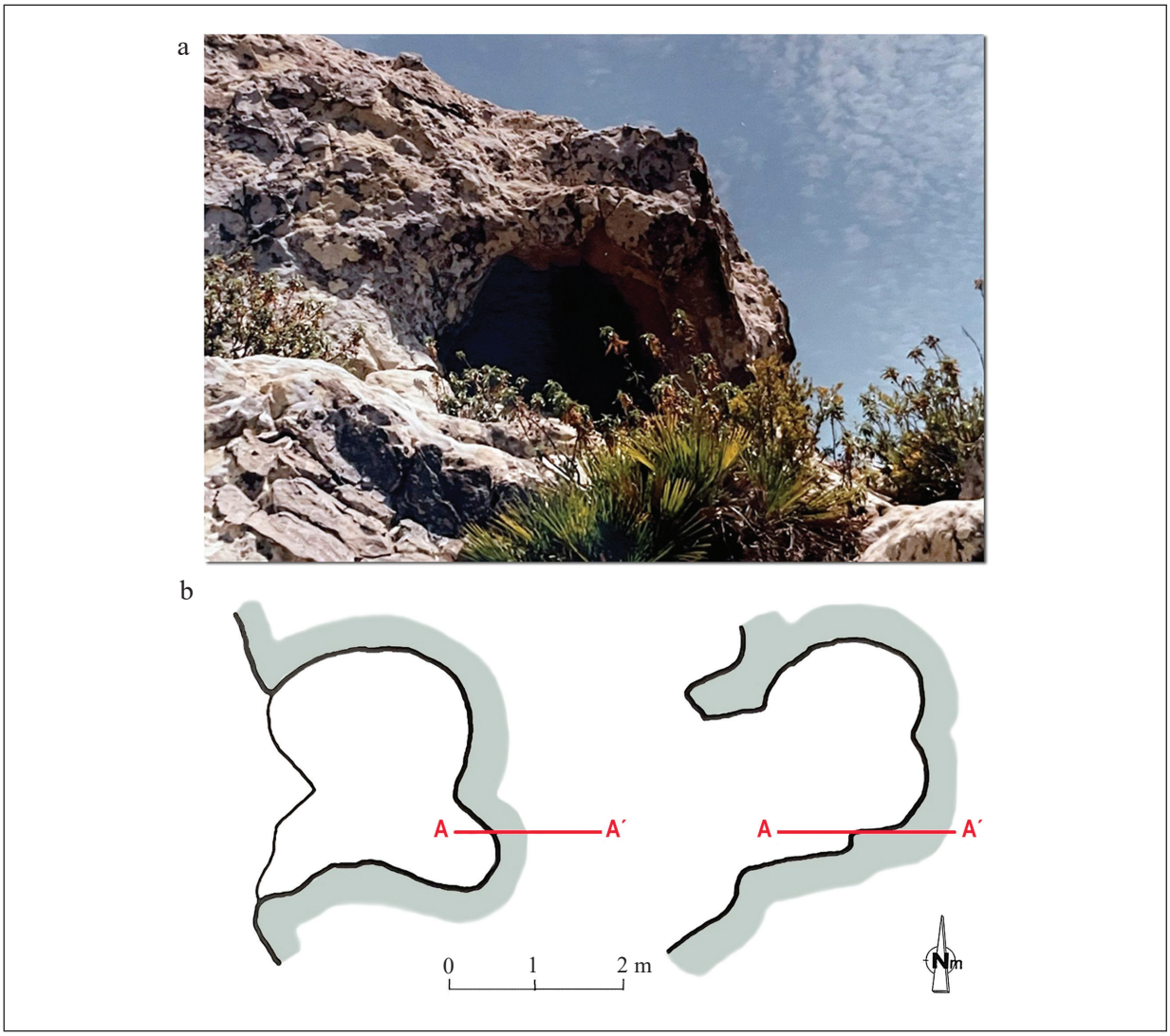

Figure 1. a — outside view of the Atlanterra Cave without its current barriers (Mas Cornellà 1994). The cave is located on a rocky ridge, facing west, and is at an elevation of approximately 72 metres above sea level. This small cave exhibits a semi-spherical shape (4.80 m x 5 m x 4.80 m) and its formation is associated with the Aljibe sandstones (Hoyos Gómez et al. 1997). *b* — topography (plant and section) of the cave (Mas Cornellà 1994)

dicating a direct diachronic relationship, whereas coexistence denotes the presence of motifs belonging to different phases within the same panel or visual field without direct physical contact.

Results

This section aims to describe the spatial distribution, coexistence, and formal relationships between Palaeolithic and post-Palaeolithic motifs documented in the Atlanterra Cave. The results presented below focus exclusively on observable graphic patterns, avoiding interpretative frameworks that are developed in subsequent sections.

Technique, colour, and pigment variability

Thorough documentation of the Atlanterra Cave confirms that painting was the only technique used in the execution of the motifs. No evidence of engraving or other graphic techniques has been identified.

The graphic repertoire is characterised by the predominance of red pigments, most likely derived from iron oxide sources available in the immediate surroundings of the site (Mas Cornellà et al. 2013). These pigments display a wide range of tonal intensities, from very dark to lighter hues, a variability generally associated with pigment dilution processes or with alterations of the rock surface (Mas Cornellà 2005; Maura Mijares 2005; 2011).

Moreover, multiple forms of surface alteration have been documented at the Atlanterra Cave, including biological, physical, anthropogenic, and animal-related processes (Mas Cornellà 1994; Hoyos Gómez et al. 1997; Núñez Guerrero, Soler

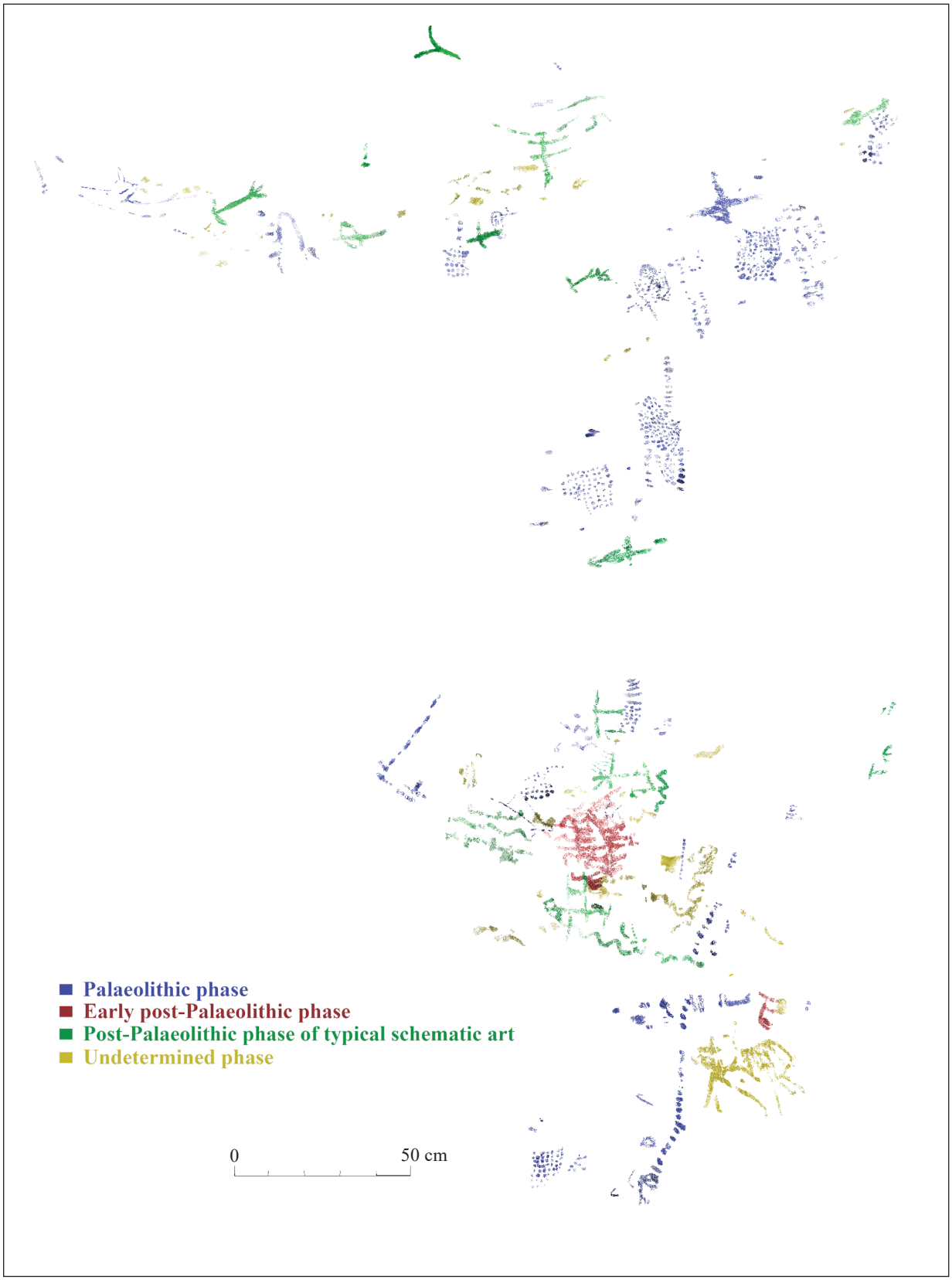

Fig. 2. Digital tracing of the Atlanterra Cave, highlighting the motifs corresponding to the Palaeolithic phase (*blue*), the early post-Palaeolithic phase (*red*) and the post-Palaeolithic phase of schematic art (*green*). Other figures whose phase cannot be clearly identified are also included

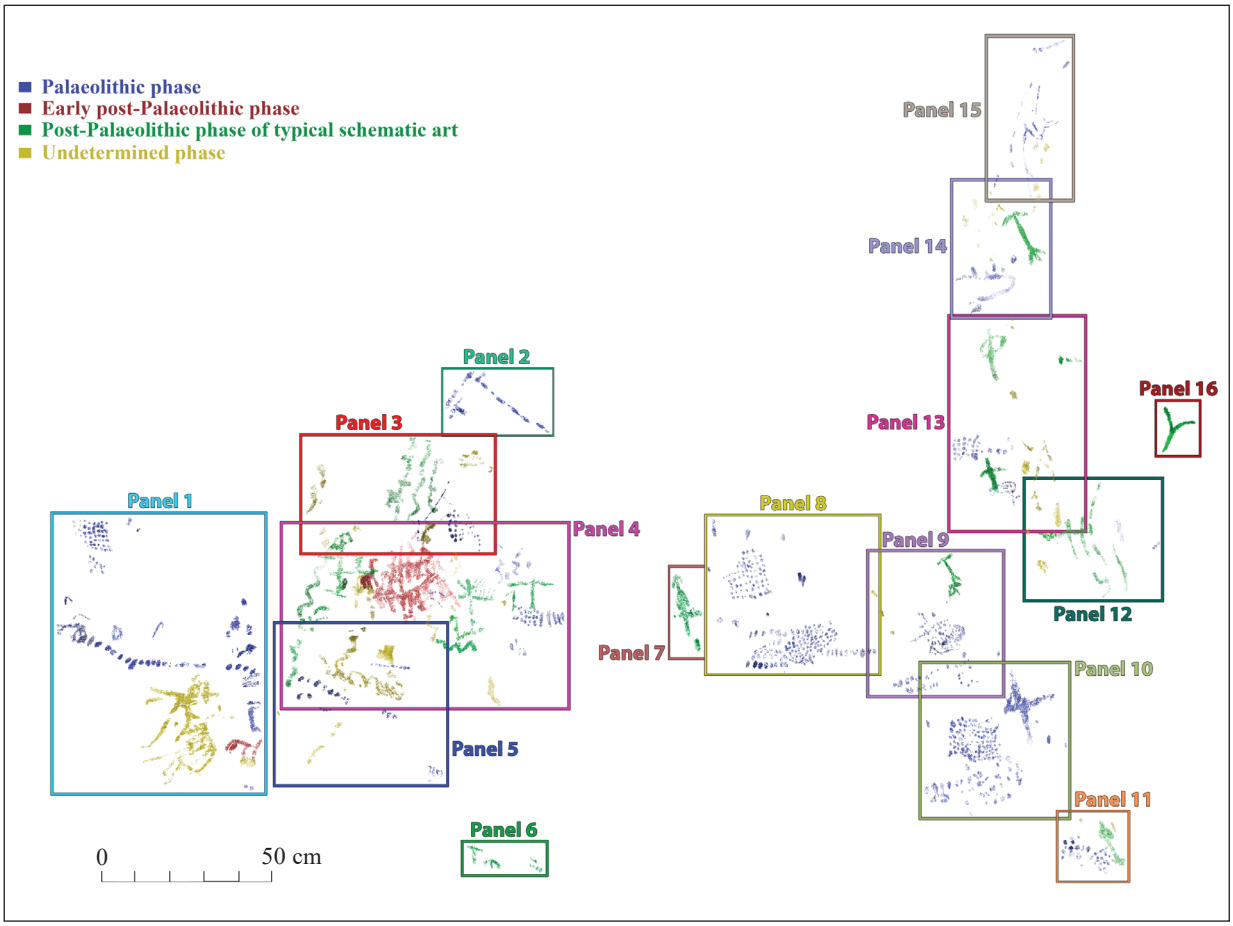

Fig. 3. Digital tracing of the Atlanterra Cave segmented into 16 panels. These panels have been colour-coded for ease of reference. Based on the previous division into phases, the motifs within each panel exhibit the colours attributed to each phase and to those figures whose phase remains undetermined

Núñez 2017). In addition to red tones, variations of orange, pink, and purple hues have been recorded.

Possible ochre (yellowish) pigments have also been observed in several panels (panels 1, 5, and 14). Comparable pigments have been documented both in other Iberian contexts (Roldán García et al. 2016) and beyond, notably at Magara Sanar (Tangier-Tétouan-Al Hoceima, Morocco), as previously discussed (Solís Delgado et al. 2023).

Previous analyses conducted by M. Hoyos using electron microscopy with energy-dispersive X-ray spectroscopy identified a white base beneath the anthropomorphic figure from panel 7, along with translucent pigment segments (Hoyos Gómez et al. 1997). Although this white base could not be clearly identified through the digital image processing employed in the present study, this discrepancy is likely related to differences in analytical resolution and methodological approach.

Chromatic identification was conducted using the PANTONE+ Solid Coated colour guide integrated into Photoshop, selected for its standardisation and chromatic precision (tab. 1).

Distribution of graphic phases

The documentation of the Atlanterra Cave has made it possible to identify motifs executed during three chrono-cultural phases, resulting in a relatively complete graphic sequence spanning a broad Palaeolithic phase, a concise early post-Palaeolithic phase, and a post-Palaeolithic phase of typical schematic art.

The Palaeolithic phase constitutes the most extensive and visually pervasive component of the site. Its motifs are distributed across almost the entire painted rock surface and form the dominant graphic substrate against which later interventions are situated. This phase is characterised not only by its numerical predominance, but also by its spatial continuity across panels. The wide extent of the Palaeolithic phase is largely, though not exclusively, explained by the presence of numerous groups of dots, which coexist with other figurative and non-figurative motifs within the same graphic tradition (fig. 4).

In contrast, the early post-Palaeolithic phase is extremely restricted in both number and spatial extent. Its presence is limited to a single zoomorphic motif in panel 1 and to a more substantial concen-

tration in panel 4, where it occupies a visually central position within the panel (fig. 5).

The post-Palaeolithic phase of typical schematic art displays a wider spatial distribution than the early post-Palaeolithic phase, although it remains less extensive than the Palaeolithic phase motifs. Motifs of this last phase are predominantly located in panels that already contained Palaeolithic figures or in their immediate vicinity. This pattern is particularly evident in the right-hand side of the cave (fig. 6).

Overall, the distribution of graphic phases reveals a marked imbalance: a dense and continuous Palaeolithic graphic substrate upon which later traditions intervene selectively, rather than expanding into previously untouched areas of the rock surface.

Panel-by-panel distribution

Palaeolithic motifs have been identified in panels 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, and 15, covering most of the rock surface. The panels in which Palaeolithic motifs are absent (panels 6, 7, and 16) are either very small in size (panels 6 and 16) or spatially integrated within areas immediately adjacent to panels densely occupied by Palaeolithic figures (panel 7).

In general terms, the distribution of Palaeolithic motifs within panels is structurally dense, even though many individual figures currently display varying degrees of fading and pigment deterioration. Despite this differential preservation, earlier motifs often remain key components of the overall graphic organisation of the panels. This structural density is explained largely, though not exclusively, by the high number of Palaeolithic dot groupings, which coexist with other motif types belonging to the same phase.

The early post-Palaeolithic phase exhibits a markedly different pattern. It is represented only sporadically in panel 1, where a single zoomorphic motif has been identified, and is concentrated primarily in panel 4. In this panel, the early post-Palaeolithic motif occupies a central position and partially superimposes a Palaeolithic quadruped protome, creating a clear spatial and visual relationship between the two phases.

This highly localised distribution contrasts sharply with the widespread presence of Palaeolithic motifs and indicates a selective engagement with specific panels rather than a generalised expansion across the cave.

Motifs belonging to the post-Palaeolithic phase of typical schematic art are distributed across panels 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, and 16. In several cases (panels 3, 4, 5, 9, 11, 12, 13, and 14), schematic motifs coexist spatially with Palaeolithic figures within the same panel. Although panel 7 does not contain Palaeolithic motifs, it is in proximity to panel 8, which is densely covered by Palaeolithic groups of dots, situating it within a broader Palaeolithic visual field.

Size, surface occupation, and spatial strategies

The Atlanterra Cave displays two contrasting models of surface occupation associated with different phases. During the Palaeolithic phase, motifs occupy a large proportion of the rock surface, primarily because of the high density of groups of dots, although other Palaeolithic motif types also contribute to the extensive occupation of the rock surface.

By contrast, both post-Palaeolithic phases exhibit strategies oriented towards the redirection of visual attention rather than the saturation of

Table. 1. **Chromatic identification of the Atlanterra Cave graphic repertoire**

PANTONE+ SOLID COATED						
Pantone Red	Pantone Red 032 C					
Pantone 4XX C	Pantone 465 C	Pantone 466 C	Pantone 467 C		Pantone 468 C	
Pantone 5XX C	Pantone 504 C	Pantone 505 C	Pantone 506 C		Pantone 510 C	
Pantone 6XX C	Pantone 681 C	Pantone 682 C				
Pantone 7XX C	Pantone 727 C	Pantone 728 C				
Pantone 17XX C	Pantone 1767 C	Pantone 1797 C				
Pantone 46XX C	Pantone 4665 C					
Pantone 47XX C	Pantone 4735 C	Pantone 4745 C	Pantone 4755 C			
Pantone 51XX C	Pantone 5115 C	Pantone 5125 C	Pantone 5135 C			
Pantone 74XX C	Pantone 7415 C	Pantone 7417 C	Pantone 7418 C	Pantone 7419 C	Pantone 7420 C	Pantone 7421 C
Pantone 75XX C	Pantone 7513 C	Pantone 7514 C	Pantone 7584 C	Pantone 7585 C		
Pantone 76XX C	Pantone 7604 C	Pantone 7605 C	Pantone 7606 C	Pantone 7607 C	Pantone 7608 C	

Fig. 4. Digital tracing of the Palaeolithic phase motifs at the Atlanterra Cave

the surface. This redirection is achieved either through the execution of motifs at a larger size than the surrounding Palaeolithic figures or through superimpositions that partially cover or incorporate earlier graphic elements.

On the left-hand side of the painted surface, post-Palaeolithic motifs dominate central areas of the cave. This dominance is achieved through dense and elongated forms and, in some cases, through direct superimpositions over Palaeolithic figures (fig. 7, 8, 9).

On the right-hand side, a different pattern is observed (fig. 10). Here, post-Palaeolithic motifs generally assert their presence through increased size rather than through systematic superimposition, establishing a clear dimensional contrast with nearby Palaeolithic motifs.

A clear case of direct reuse of Palaeolithic graphic elements is documented in panel 13, where a later motif was executed over pre-existing Palaeolithic elements without fully obscuring them (fig. 11).

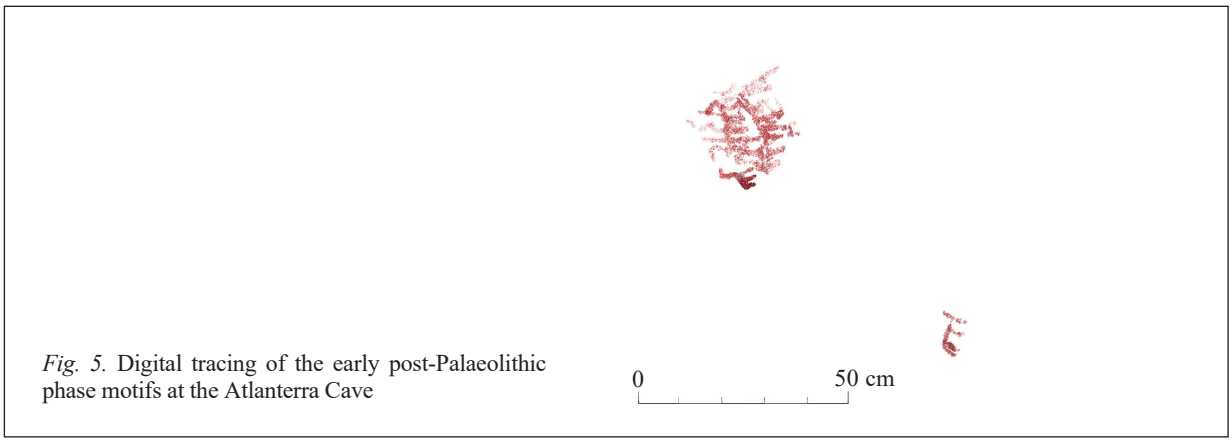

Fig. 5. Digital tracing of the early post-Palaeolithic phase motifs at the Atlanterra Cave

Diachronic reuse and reconfiguration of the graphic space

The combined analysis of distribution, size, superimposition, and surface occupation indicates that the Atlanterra Cave did not function as a static or neutral graphic space. Instead, the rock surface was repeatedly reconfigured through time as successive graphic traditions engaged with an inherited visual record. These engagements were not uniform across the site, but varied according to different phases, panel location, and the existing density and configuration of earlier motifs.

The Palaeolithic phase established the main graphic framework of the site. Its motifs are widely distributed and densely arranged, covering large portions of the rock surface and generating a visually structured background rather than an undifferentiated space. The groups of dots, while not the only component of the Palaeolithic repertoire, play a central role in shaping this initial visual organisation due to their frequency and spatial extension. Their pronounced dimensional variability is consistent with repeated graphic actions carried out over extended periods of time and reinforces the interpretation of Palaeolithic rock art at Atlanterra as a long-term, cumulative, and potentially collaborative practice involving multiple individuals of different ages and genders (De Lara López 2025; De Lara López, Mas Cornellà, Solís Delgado 2025).

Later graphic phases did not engage with the space as a blank or neutral surface. Instead, they interacted selectively with a pre-existing graphic structure in which certain panels and sections already possessed a high degree of visual density. The tendency of post-Palaeolithic motifs to cluster in areas previously occupied by Palaeolithic imagery suggests that earlier graphic activity retained visual relevance over time and actively conditioned the spatial logic of subsequent interventions. In addition, this pattern indicates that not all areas of the cave were equally attractive for later graphic action.

The early post-Palaeolithic phase represents the first clear departure from the Palaeolithic spatial logic. Although extremely limited in number, its motifs are not randomly distributed. Their concentration in the central area of panel 4 reflects a deliberate engagement with a visually prominent sector within an already structured graphic field. The execution of a dense and visually complex motif in this location results in a marked reorientation of visual attention. The associated superimposition over a Palaeolithic figure, while chronologically and spatially significant, appears to be secondary to the broader strategy of focalisation achieved through density and central placement.

A more extensive reconfiguration occurs during the post-Palaeolithic phase of typical schematic art. These motifs display a broader spatial distribution across the cave and employ different strategies depending on local graphic conditions. On the left-hand side of the painted surface, schematic motifs tend to concentrate in central areas and occasionally overlap Palaeolithic figures, producing dense graphic clusters that reorganise the visual focus of the panels. In these contexts, superimposition functions as one of several mechanisms for redefining spatial hierarchies within panels already characterised by high graphic density.

On the right-hand side, by contrast, schematic motifs more often assert their presence through increased sizing rather than through systematic superimposition. Here, visual prominence is achieved primarily through dimensional contrast

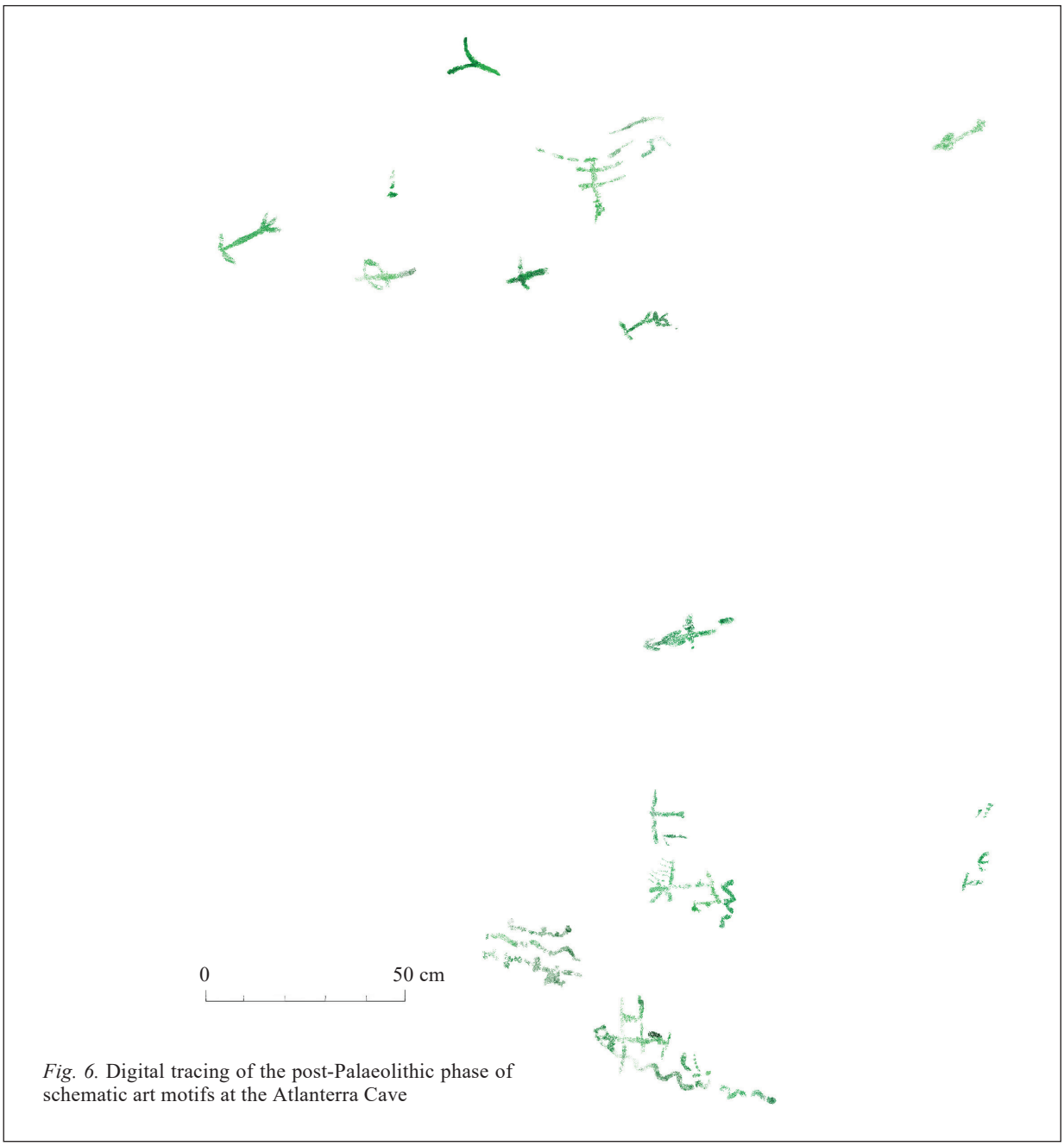

Fig. 6. Digital tracing of the post-Palaeolithic phase of schematic art motifs at the Atlanterra Cave

with nearby Palaeolithic motifs, establishing new focal points without necessarily obscuring earlier imagery. This variability indicates that post-Palaeolithic schematic art did not rely on a single mode of spatial intervention, but adapted its strategies to the visual configuration inherited in each section of the cave.

Across the site as a whole, the Palaeolithic graphic elements are directly reused through physical superimposition, which is a documented but highly restricted phenomenon. Clear evidence of such reuse has been identified only in panel 13, where a later motif was executed over pre-existing Palaeolithic elements (fig. 11). In other panels, interactions between graphic phases are expressed primarily through spatial proximity, alignment, or shared surface occupation rather than through direct overlap. This pattern suggests that diachronic reuse at Atlanterra was selective, context-dependent, and embedded within broader strategies of visual reorganisation.

If we take together these considerations, they may indicate that the post-Palaeolithic use of the Atlanterra Cave involved an active and nuanced reconfiguration of an inherited graphic landscape. Later motifs did not merely coexist with earlier ones, but engaged with them in ways that modified visual hierarchies, redirected attention,

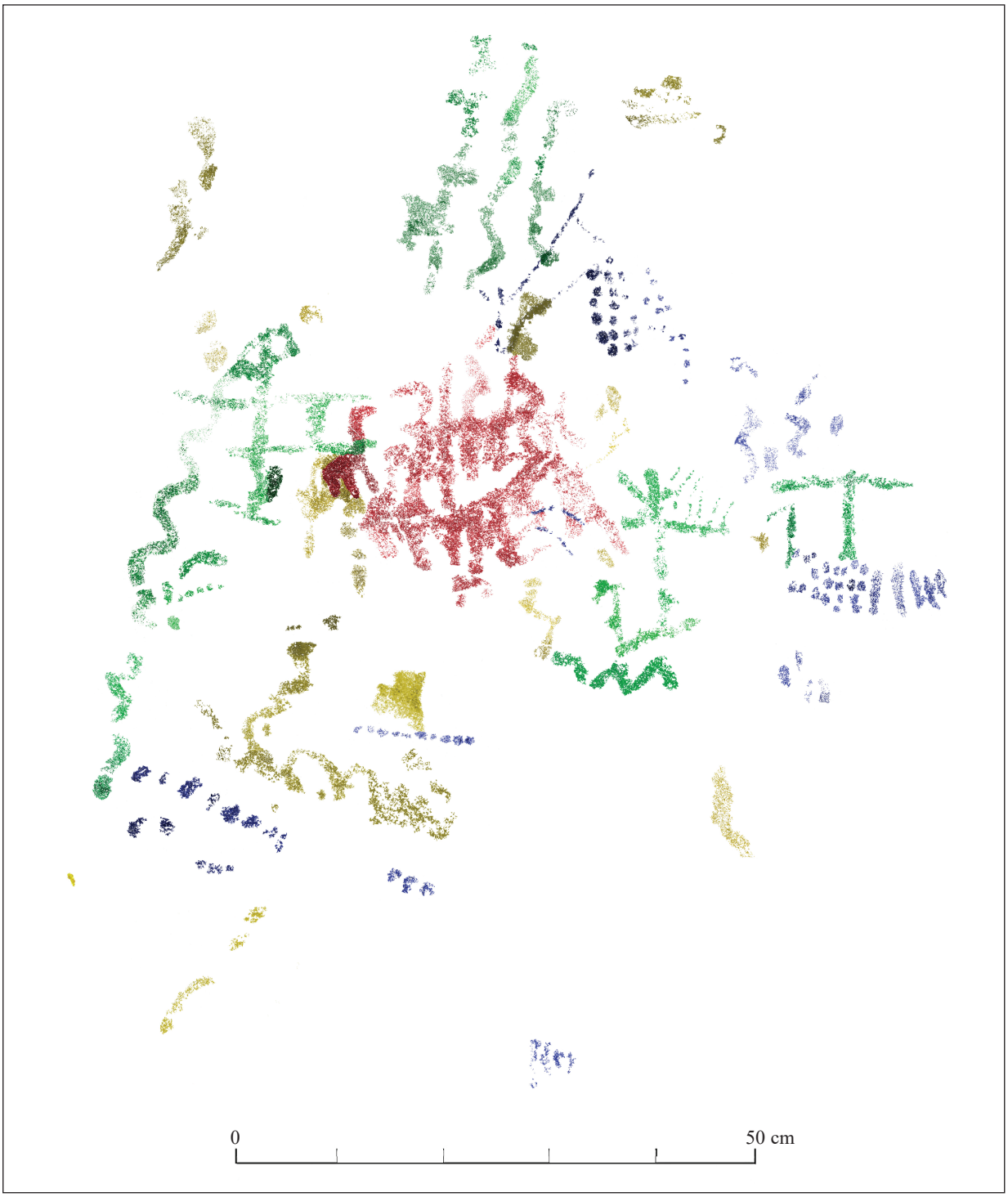

Fig. 7. Left-hand side of the cave, centred on panels 3, 4, and 5, the area of greatest convergence between the three phases. Blue: Palaeolithic phase. Red: Early post-Palaeolithic phase. Green: Post-Palaeolithic schematic art phase. Yellow: Undetermined phase

and reshaped the internal structure of the rock surface. This reconfiguration unfolded through a range of spatial strategies — centralisation, difference in sizing, occasional superimposition, and selective reuse — reflecting diverse ways of negotiating a graphic space already charged with visual meaning.

Discussion

Visual hierarchy as a relational and diachronic process

The results obtained at the Atlanterra Cave indicate that visual hierarchy in rock art contexts with multiple phases cannot be understood as an intrinsic

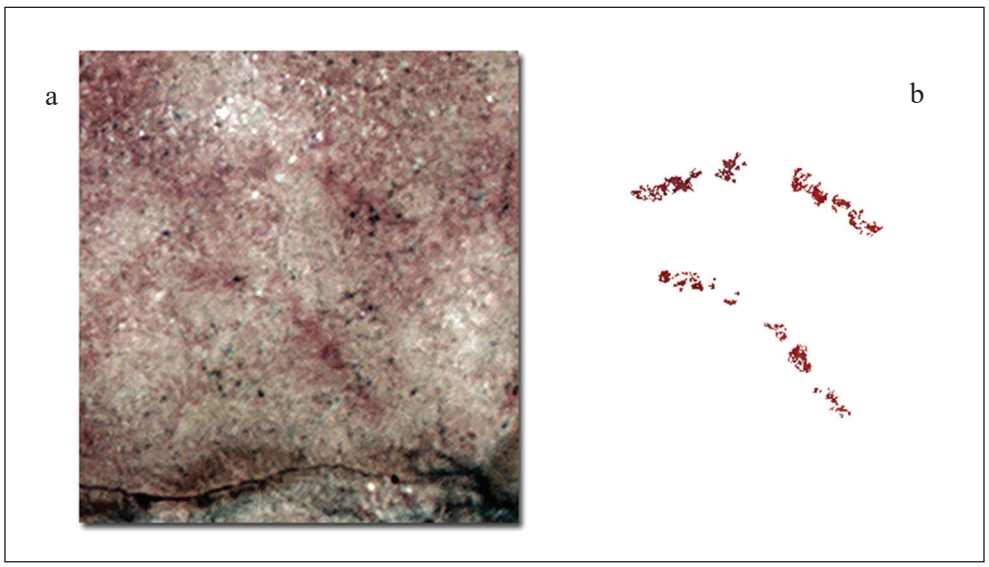

Fig. 8. Undetermined quadruped 176 beneath the plant-like motif 174 in panel 4

or static property of individual motifs. Instead, hierarchy emerges as a relational and diachronic process, produced through interactions between graphic elements executed at different moments in time and according to different visual logics.

During the Palaeolithic phase, visual prominence appears to derive primarily from repetition, density and spatial continuity rather than from focalisation. The accumulation of motifs — particularly, though not exclusively, groups of dots — generates a broadly distributed visual field in which attention is not consistently directed towards isolated figures. Even though many Palaeolithic motifs currently display varying degrees of fading and surface alteration, their original spatial arrangement and density continue to structure the inherited graphic field encountered by later phases.

Post-Palaeolithic graphic traditions, for their part, introduce different criteria for organising visual space. In these phases, prominence is no longer achieved through cumulative saturation, but through selective intervention. Increased sizing, strategic placement within panels, and punctual superimposition function as mechanisms for redirecting visual attention within an already structured graphic environment. Visual hierarchy at Atlanterra therefore emerges through processes of recontextualisation rather than replacement, with earlier imagery remaining structurally relevant even when partially obscured or visually subordinated.

This relational understanding of hierarchy underscores the importance of considering rock art panels not as static surfaces, but as dynamic visual systems in which meaning and prominence are continuously renegotiated through successive graphic actions.

Early post-Palaeolithic and post-Palaeolithic schematic art strategies of spatial engagement

Both post-Palaeolithic phases documented at Atlanterra engage with earlier Palaeolithic imagery, but they do so through distinct and non-equivalent strategies. The distinction between these phases lies not in the presence or absence of superimposition, but in the role that superimposition plays within broader patterns of spatial organisation and visual intervention.

The early post-Palaeolithic phase is characterised by a single, highly localised instance of superimposition confined to panel 4. This superimposition does not appear to constitute the primary objective of the intervention. Rather, it occurs in the context of the execution of a dense and visually complex motif, possibly plant-like in nature, whose principal effect is the redirection of visual attention towards a central area of the panel. The superimposition with a pre-existing Palaeolithic figure is therefore best understood as a secondary outcome of a strategy aimed at focalisation through density and placement, rather than as an explicit attempt to overwrite earlier imagery.

In contrast, the post-Palaeolithic phase of typical schematic art displays a broader and more diversified range of spatial strategies. Superimposition occurs occasionally and in a spatially restricted manner across several panels, functioning both as a means of reorganising graphic

space and, in limited cases, as a form of selective reuse of earlier motifs. These superimpositional practices coexist with other mechanisms, such as increased sizing and spatial dispersion, which together form a flexible repertoire for asserting visual prominence within different local contexts.

These differences suggest that post-Palaeolithic engagement with the Atlanterra Cave was not governed by a single or linear mode of interaction. Instead, the early post-Palaeolithic and post-Palaeolithic schematic art phases reflect distinct ways of negotiating an inherited graphic landscape: the former prioritising focalisation through density and central placement, and the latter combining punctual superimposition with size and spatial strategies to achieve visual prominence across a wider range of panels.

Culture clash as a graphic and spatial phenomenon

Within this analytical framework, the notion of culture clash can be approached as a heuristic concept grounded in observable graphic relationships rather than as evidence of direct social confrontation. At Atlanterra, the interaction between Palaeolithic and post-Palaeolithic traditions does not manifest as systematic destruction or erasure of earlier imagery. Instead, it takes the form of a visual reconfiguration through which later graphic systems impose new criteria of organisation, size, and focalisation onto a surface already structured by earlier practices.

This clash is best understood as a tension between different ways of conceiving and organising graphic space. The Palaeolithic phase emphasises repetition, dispersion, and cumulative density, producing a broadly distributed visual field. Post-Palaeolithic traditions, by contrast, introduce selectivity, hierarchy, and focal dominance, reshaping how attention is directed within the same physical space.

Crucially, this process does not result in a rupture with earlier imagery. The continued structural presence of Palaeolithic motifs within later compositions suggests that earlier graphic practices retained relevance over time, even when their visual impact was reduced. The resulting palimpsest is therefore not only chronological but conceptual, reflecting successive redefinitions of visual order within a shared graphic landscape.

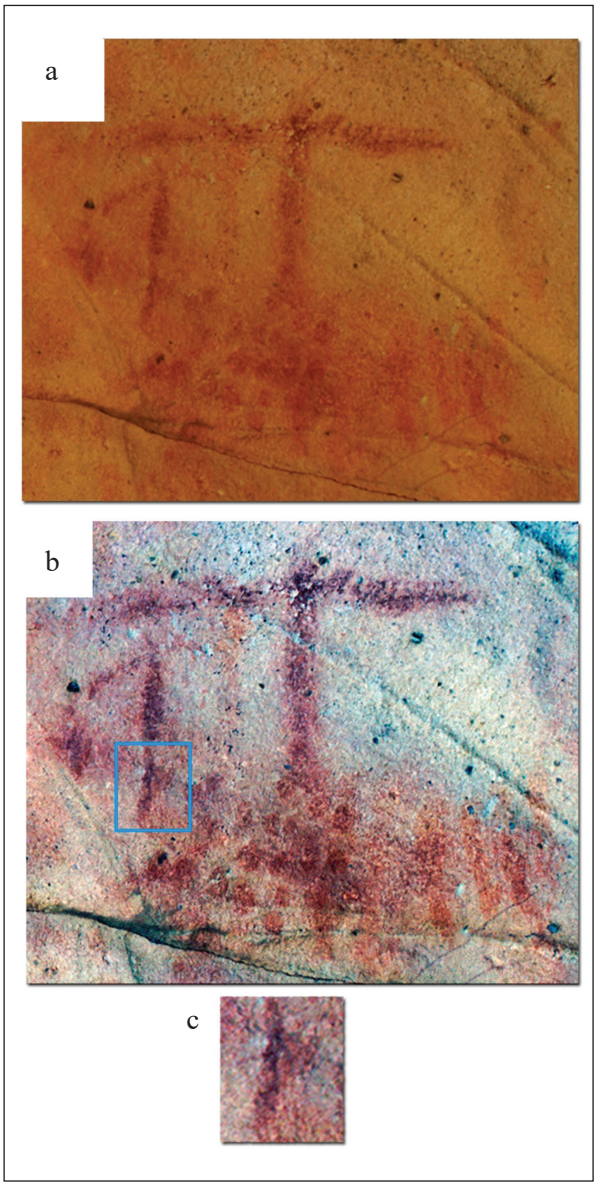

Fig. 9. Superimposition of the schematic anthropomorph 188 on dot 190 in panel 4: *a* — original photograph; *b* — digital filtering using Photoshop; *c* — close-up view of the superimposition

Conclusions

This study has shown that the Atlanterra Cave cannot be understood as a simple cumulative record of graphic activity, but rather as a dynamic graphic landscape shaped by successive acts of spatial negotiation and visual reorganisation. The coexistence of Palaeolithic, early post-Palaeolithic, and post-Palaeolithic schematic art traditions within the same site reveals a long-term process in which later graphic practices consistently engaged with an inherited visual substrate rather than operating on a neutral rock surface.

The Palaeolithic phase established a dense and spatially extensive graphic framework characterised by repetition, continuity, and pronounced dimensional variability. While groups of dots play a major role in explaining the wide

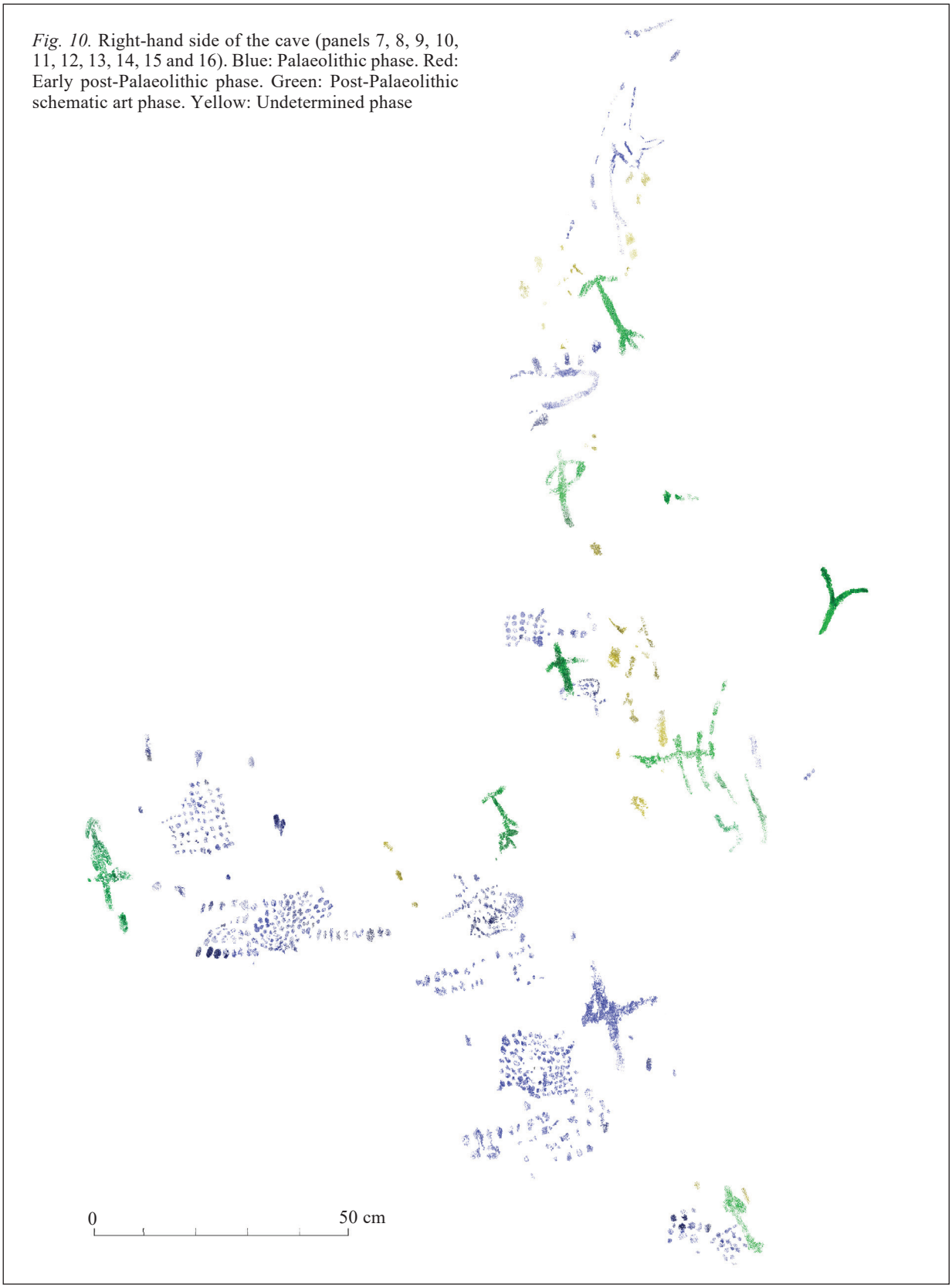

Fig. 10. Right-hand side of the cave (panels 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16). Blue: Palaeolithic phase. Red: Early post-Palaeolithic phase. Green: Post-Palaeolithic schematic art phase. Yellow: Undetermined phase

surface occupation of this phase, they coexist with other figurative and non-figurative motifs that together structure an initial visual background. This configuration, likely produced through repeated actions over extended periods of time, suggests a cumulative and potentially collaborative graphic practice that continued to shape the visual logic of the site long after its initial execution.

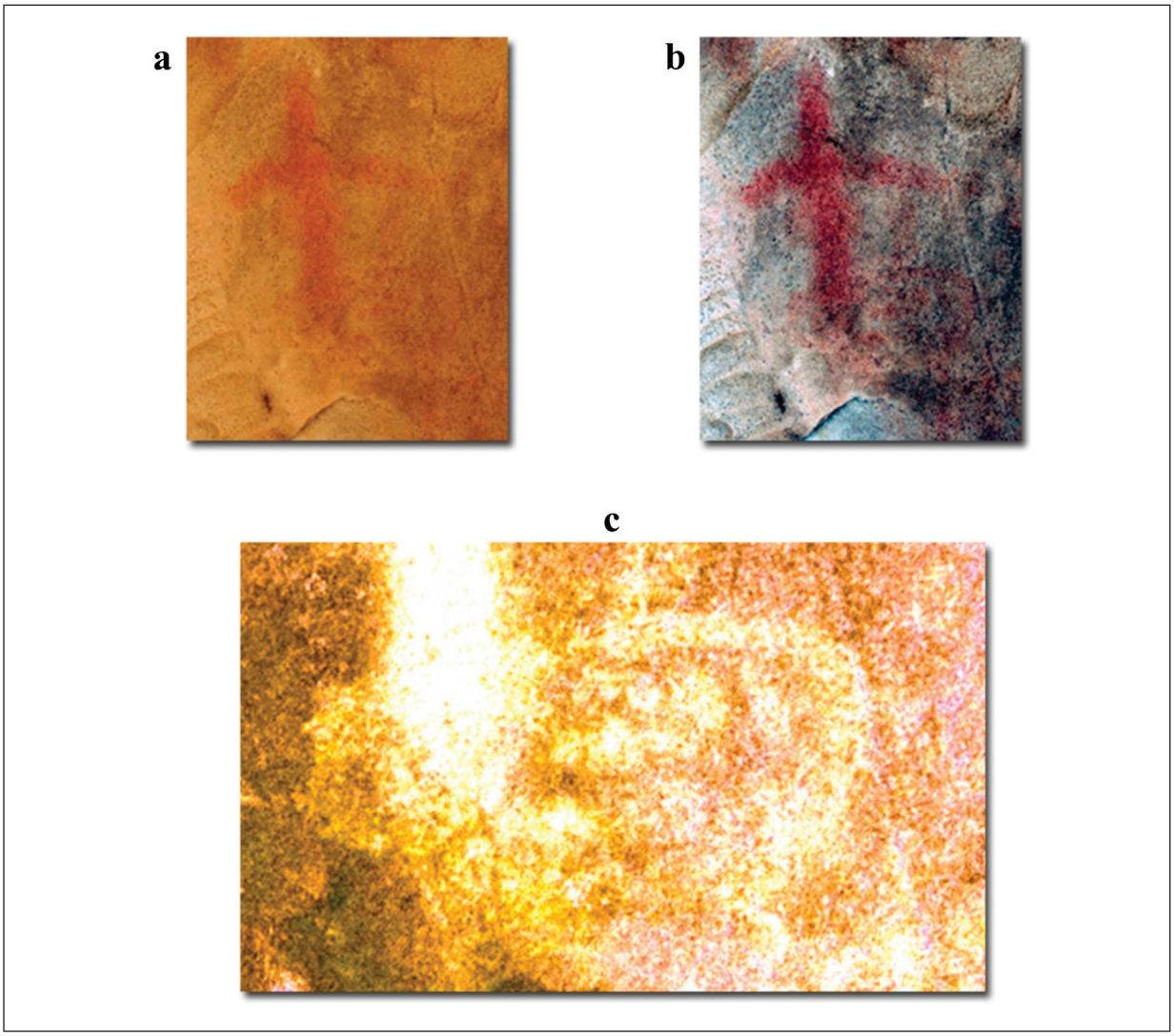

Fig. 11. Schematic anthropomorph 813 next to dots 815–832 and the oval element of group 814 in panel 13: *a* — original photograph; *b* — digital filtering using Photoshop; *c* — digital filtering using DStretch to improve the visibility of the dots

The subsequent post-Palaeolithic phases did not simply add new motifs to this background. Instead, they interacted selectively with pre-existing graphic structures, targeting panels and sections that already possessed a high degree of visual density or prominence. These interactions took different forms depending on the phase and local conditions, including focalisation through density, increased size, occasional superimposition, and, in one clear case, the reuse of earlier graphic elements. Importantly, superimposition as a strategy was neither systematic nor uniformly applied, but embedded within broader strategies of visual reorganisation.

The contrast between the early post-Palaeolithic phase and the post-Palaeolithic phase of typical schematic art highlights the existence of distinct modes of engagement with the inherited graphic space. The former is characterised by a highly localised intervention that redefines a key visual space through density and central placement, whereas the latter employs a more flexible and diversified set of strategies to assert visual prominence across multiple panels. These differences suggest that post-Palaeolithic interactions with Palaeolithic imagery at Atlanterra were neither homogeneous nor incidental.

Viewed from a strictly graphic and spatial perspective, the notion of culture clash provides a useful framework for interpreting these diachronic interactions. At Atlanterra, this clash does not reflect direct social conflict or intentional erasure of earlier imagery, but rather the superimposition of different visual logics governing how the graphic space was conceived, organised, and prioritised over time. The site thus emerges as a palimpsest in which multiple temporalities remain

simultaneously legible, and in which earlier imagery continued to condition later graphic practices.

Ultimately, the significance of the Atlanterra Cave lies not only in the antiquity, richness, or intercontinental connections of its graphic sequence, but also in how that record structured subsequent graphic behaviour. By foregrounding spatial relationships, sizing and visual hierarchy, this study emphasises the importance of considering rock art panels as evolving visual systems, shaped by long-term processes of engagement, reconfiguration and reinterpretation rather than as static accumulations of images.

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ВЗАЄМОДІЯ КУЛЬТУР У ПЕЧЕРІ АТЛАНТЕРРА (КАДІС, ІСПАНІЯ): ДІАХРОННІ ЗВ'ЯЗКИ МІЖ ГРАФІЧНИМИ ТРАДИЦІЯМИ ПАЛЕОЛІТИЧНОЇ ТА ПОСТПАЛЕОЛІТИЧНОЇ ДОБИ

У печері Атлантерра (Кадіс, Іспанія), розташованій на півдні Піренейського півострова, виявлено один із найбільших комплексів наскельного мистецтва просто неба. Комплекс поєднує схематичні зображення трьох хронокультурних фаз: палеолітичної, ранньої постпалеолітичної та постпалеолітичної. У статті досліджено просторові та графічні взаємозв'язки між цими фазами, простежено взаємодію, переосмислення й реорганізацію палеолітичних зображень у пізніших мотивах.

Дослідження ґрунтується на аналізі 896 графічних мотивів, розміщених на 16 панелях, із переважним використанням графічно-просторового підходу, зосередженого на закономірностях розподілу, масштабу, використання поверхні, співіснування та накладання зображень. Особливу увагу приділено взаємодії з уже сформованим і щільно структурованим палеолітичним візуальним середовищем.

Результати свідчать, що у палеолітичній фазі сформувалася безперервна й просторово розвинена графічна структура, яка характеризується повторюваністю, високою щільністю та значною варіативністю розмірів. У наступній фазі нові мотиви не просто додавали до наявного фону, а вибірково інтегрували в окремі панелі із застосуванням таких прийомів, як фокусування, масштабний контраст і точкове накладання з метою перерозподілу візуальної уваги та реорганізації візуальних ієрархій. Такі взаємодії радше відображають різні способи осмислення успадкованого графічного простору, ніж єдиний або систематичний принцип його використання.

Із суто графічного погляду зафіксовані в Атлантеррі діахронні взаємозв'язки можна розглядати як прояв культурної взаємодії, що відбиває різні уявлення про організацію графічного простору та визначення візуальних пріоритетів у різні часові періоди. Таким чином, пам'ятка постає як динамічний графічний ландшафт, сформований у результаті тривалих процесів взаємодії, реорганізації та переосмислення.

К л ю ч о в і с л о в а: південь Піренейського півострова, Гібралтарська протока, палеоліт, постпалеоліт, наскельне мистецтво, графічний простір, візуальна ієрархія.

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