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Interrogating space in archaeological site museums

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ABSTRACT

The paper focuses on archaeological site museums and seeks to explore how the museum contributes to the perception and the experience of the site. Museums and sites constitute two spatial entities, which are a priori in some sort of correspondence relation. The archaeological site can be thought of as a conceptual whole, while the exhibits in the museum as parts of the whole. The shaping of museum experience in relation to the experience of the site constitutes the key challenge for site museums. Here we explore, through the first-hand analysis of three cases of site museums in Greece, how the museum uses space to display a place. Each case study is different in its approach to architecture and space, and its curatorial programme, and all are tailored to a specific set of local conditions. Using syntactic analysis, the paper will illuminate the complexity of individual cases and show how they are theoretically related to each other. By focusing on the relations of movement and visibility in the layout as a whole, it will demonstrate for example, how, in one case, a highly integrated visually layout structures a hierarchy of access, which culminates in the deepest space, charged with particular significance, and gives form to the experience of time; in another, the use of focused views, enclosed spaces, and localized physical movement creates highly condensed experiences, and compresses the time and space of the archaeological site; and in the most recent case, the use of visibility, open space and physical movement through spaces, offer an embodied experience of the topography of the ancient site.

KEYWORDS

museum spatial layout, configurational analysis, space types, relations of movement and visibility

1 RESEARCH QUESTION AND BACKGROUND

The paper focuses on archaeological site museums and seeks to explore how the museum contributes to the perception and the experience of the site. Museums and sites constitute two spatial entities, which a priori are in some sort of correspondence relation. The archaeological site can be thought of as a conceptual whole, while the exhibits in the museum as parts of the whole. The shaping of the museum experience in relation to the experience of the site constitutes the key challenge for site museums. Yet, the connections between museum and site constitute an understudied field, despite the wealth of literature on archaeological museums (for example, Swain 2007; Skeates 2017) and the musealization of archaeological sites (Peressut and Caliari 2014, Vaudetti, Minucciani and Canepa 2012). The aim of the paper, which is part of ongoing research, is to build on our previous work (Bakola and Tzortzi 2020) and earlier syntactic studies of museums and explore, through the first-hand analysis of three cases of site museums in Greece, how the site museum uses space to display a place (Matero 2012, p. 122). Each case study is different in its approach to architecture and space, and its curatorial programme, and all are tailored to a specific set of local conditions. Using syntactic analysis, the paper will illuminate the complexity of individual cases and show how they are theoretically related to each other. It will demonstrate how, in one case, a highly integrated visually layout structures a hierarchy of access, which culminates in the deepest space, charged with particular significance, and gives form to the experience of time; in another, the use of focused views, enclosed spaces, and localized physical movement creates highly condensed experiences, and compresses the time and space of the archaeological site; and in the most recent case, the use of visibility, open space and physical movement through spaces, offer an embodied experience of the topography of the ancient site.

The starting point is the idea that museum buildings are not simply technical constructions. They are organized as intentionally designed backgrounds for the presentation of objects and can help to tell stories through the architectural organization of their spaces (Markus 1993, Storr 2006, Peponis 2005, Mason, Robinson and Coffield 2018). The idea of the museum as organized space in this sense has attracted the attention of many authors. For example, since the l980s Duncan and Wallach have explicitly discussed how the building by organizing the order and sequence of spaces becomes a manifestation of ideology. This issue has been repeatedly taken up since then and amplified. Bal (1996, p. 12) for example considered how walking through the museum is ‘a meaning-making event’ and Whitehead (2009) proposed the idea of the museum as ‘a map of knowledge’ in the sense that it maps knowledge relations between forms of material culture and creates the spatial layout through which the visitor experiences the objects.

More recently, Siapkas and Sjögren (2014) showed, in their study of displays of ancient sculptures in contemporary European museums, that overall effects of layout, such as placement at the end of the museum itinerary or visibility from the museum entrance, rather than local qualities of space, affect modern understanding of ancient sculptures. A more consistent and

rigorous analysis of the patterns of accessibility and visibility in museum layouts, and the role of movement in the exploration of the content of the museum has been proposed by syntactic studies of museums (see, for example, Hillier and Tzortzi 2006, Psarra 2009, Zamani and Peponis 2010, Tzortzi 2015, Lazaridou and Psarra 2017). The relation between space and the communication of knowledge has been a key theme in this body of work, since the first published syntactic study on museums, Peponis and Hedin's seminal paper on the 'Layout of Theories in the Natural History Museum' (1982). Subsequent studies have also addressed the idea of the museum working as a pedagogy aimed at transmitting non-narrative meaning. Stavroulaki and Peponis (2003) showed, in their analysis of the Castelvecchio Museum, how 'museum space supports an embodied and immersive pedagogy aimed at ways of seeing' (2003, p. 66.11). 'Museum layouts as non-discursive pedagogical devices', they argued, 'complement the overt pedagogical aims of interpretative labels, exhibition catalogues and other related documents' (2003, p. 66.2).

A more holistic approach to the role of museum space in the experience of objects has been proposed by authors like Moser (2010), who outlines 'the complex network of factors', from architecture, location and setting to exhibition style, colour and light, involved in creating meaning in exhibitions; and Monti and Keene (2013), who investigate the role of space in making some exhibits more attractive than others, using concepts from the fields of architecture, design, cognitive science and museology. More recently and in the context of the rising interest in the senses, our current understanding of their functioning, and the relationship between architecture and neuroscience revealing that perception and understanding progress from the entity as a whole to details (Pallasmaa in Havik and Tielens 2013, p. 35), architects like Perer Zumthor and Juhani Pallasmaa assign, in their writings as well as in their architectural work, a crucial role to the multisensory and embodied nature of the museum's experience. 'Any museum space', Pallasmaa argues, 'frames the exhibited objects in particular ways, and the space projects characteristics and qualities on the work of which we are usually not conscious' (Pallasmaa 2014, p. 240).

2 METHODOLOGY AND CASES

Here we focus on the less explored aspects of space, namely the relations of movement and visibility in the layout as a whole, which we will study using concepts and methods from space syntax. A key purpose of the analysis will be to identify similarities and differences in the configuration of the cases on a systematic basis. With this in mind, the layout of each museum is first represented as a graph, so as to bring to the surface the way the museum is designed to structure the visitor's journey. This is coupled with the concept of space types, the idea that each space can be described as a type a, b, c or d according to how it is embedded in the graph, and so in the layout of the museum (Hillier 1996, ch.8 – see Table 1). To describe the limits of visibility which are formed by the building around the located visitor, and change as s/he moves, we use the visibility polygon or isovist (Benedict 1979). The isovists from all points (that are drawn and analysed using Depthmap) will be used to calculate visual integration in the layout and bring to surface the visual integration core of the museum.

Table 1: Definitions of space types

SPACE TYPE	DEFINITION
a-space	a-spaces are dead-ends, so cannot be passed through
b-space	b-spaces control access to a-spaces (or other b-spaces) and so offer only the same way back
c-space	c-spaces form rings, so offer one alternative way back
d-space	d-spaces offer more than one alternative way back, so route choices

The empirical focus of the paper is on three site museums, which have been recently redesigned – the Archaeological Museum of Delphi (2004) (Figure 1)– or newly built – the Archaeological Museum of Nicopolis and the Archaeological Museum of Pella (2009) (Figures 2 and 3). All three are located a short distance away from the archaeological site (ranging from 270m to 1.5km), and so are set in the context they intend to interpret (Figure 4). The archaeological site of Delphi, a UNESCO Heritage Site, was a panhellenic sanctuary of Apollo, which flourished during the Archaic and the Classical periods (6th – 4th c. BC). In contrast, the sites of Pella and Nicopolis were major urban centres in the Hellenistic period (4th –1st c. BC), and the Roman and the Byzantine periods (1st c. BC– 9th c. AD) respectively, which share conspicuous similarities. Both sites cover a large area (400 hectares and 900 hectares respectively) and include a rich variety of building types and structures.

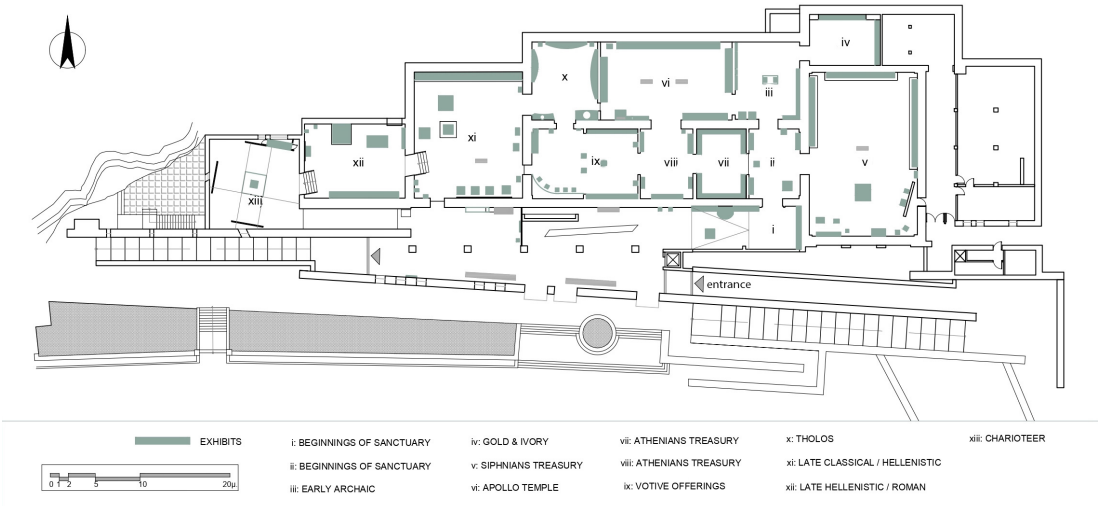

Figure 1: The layout of the Archaeological Museum of Delphi, with spaces numbered and locations of objects

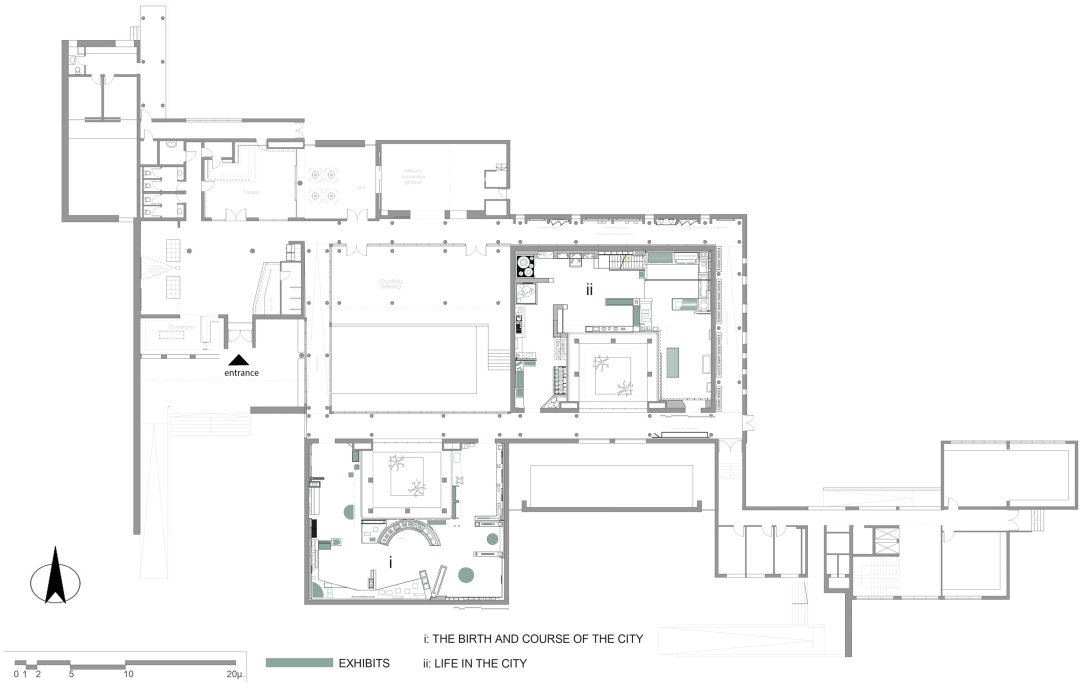

Figure 2: The layout of the Archaeological Museum of Nicopolis, with spaces numbered and locations of objects

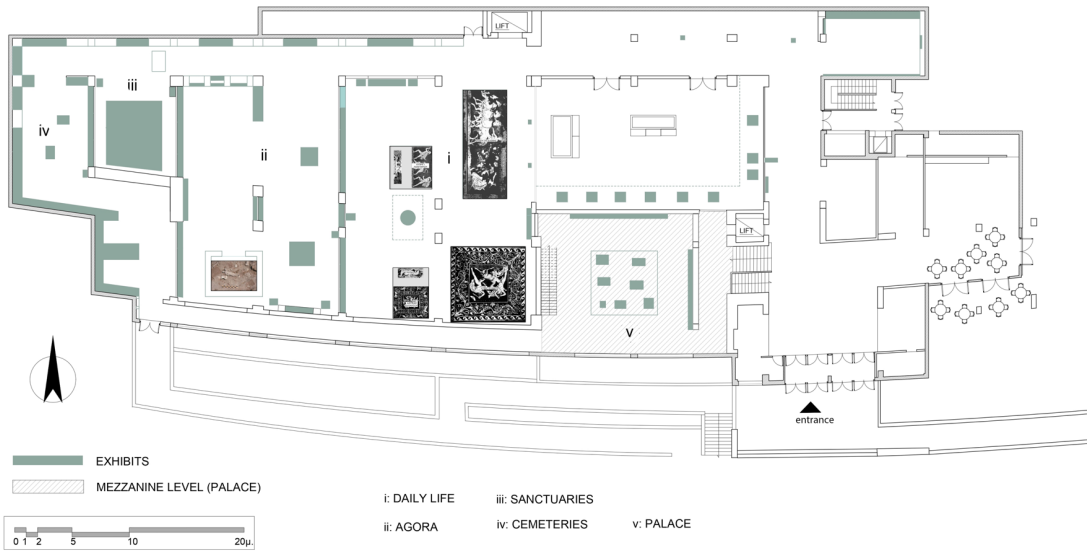

Figure 3: The layout of the Archaeological Museum of Pella, with spaces numbered and locations of objects

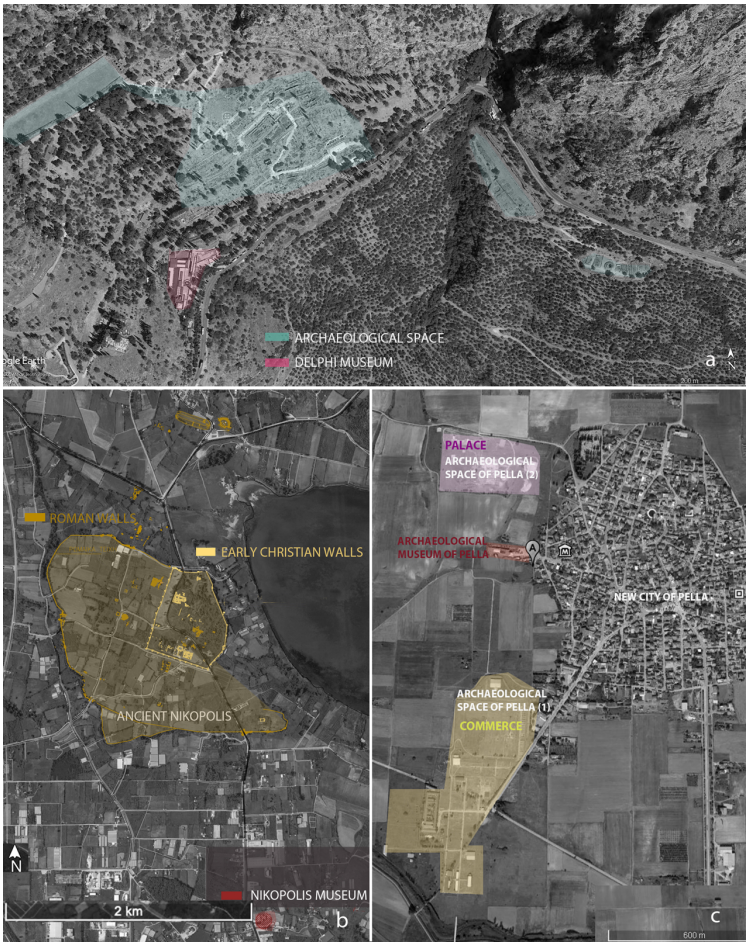

Figure 4: Views of the archaeological sites of (a) Delphi, (b) Nicopolis and (c) Pella, making visually clear the relation between museum and site

The analysis of the three museums will progress in stages by studying two spatial morphologies: the spatial structure of the building itself , with emphasis on the relation between spatial and visual patterns in the layouts; and the spatial arrangement of objects, with the aim of clarifying how the layout of space and objects relate to each other and resonate with the archaeological site. The basic profile of the museums is presented in Table 2, which will provide a numerical background for the sections that follow.

Table 2: The basic profile of the studied museums

	DELPHI MUSEUM	NIKOPOLIS MUSEUM	PELLA MUSEUM
total museum area	2500 m^2	1615 m^2	2263 m^2
total display area	1176 m^2	391 m^2	1423 m^2
no of galleries	13	2	7
mean gallery size	90,46 m^2	195,50 m^2	240,5 m^2
exhibits from specific locations/monuments of the archaeological site	61%	32%	all key and large-scale exhibits (e.g. mosaics, columns)
a-spaces	3	2	6
c-spaces	12	4	7
mean integration (permeability)	3,86	4,55	6,08
mean integration (visibility)	9,64	4,55	7,18

3 THE SPATIAL STRUCTURE OF MUSEUMS

3.1 Archaeological Museum of Delphi

The Archaeological Museum of Delphi was founded in 1903 and developed through a succession of extensions and redisplays, with the latest (2004) having been designed by A. Tombazis (Colonia 2006, pp. 17-27; see also Psalti 2015). The layout is characterized by regular geometry and a strong axiality, and is made up of conventional, well-defined rooms with strong (visual and permeable) connections (Figures 1 and 5a–c). However, if we analyze the museum plan as a graph justified from the point of view of the visitor (Figure 6a), we find that it has a 'deep tree' form, consisting of c-spaces, except for three a-spaces The rigidity of the sequential circulation pattern is in contrast to the dense network of views and system of permeabilities that characterize the layout as originally designed. If we look at the axial organization, we see that distant views cover a series of spaces offering visual continuity, while the multidirectional pattern of visual connections between galleries contributes to a dynamic sense of space (in accordance with the architect's intentions – see Tombazis, Vratsanos and Preuss 1998, p. 30) (Figure 7a). This results in a clear, easily comprehensible and visually integrated layout (Figure 8a) whose visual integration core links the entrance to its deeper parts and structures access between galleries, so that visitors can easily form a picture of where they are as they move in space.

Figure 5: Archaeological Museum of Delphi: (a–b) views of the galleries xi and vi, showing the variety in the disposition of openings; (c) the vista through the galleries xi and xii is terminated in the 'Charioteer' space (d) (*Source*: (b) Tombazis *et al.* 1998, (a, c–d) E. Bakola ©Archaeological Museum of Delphi)

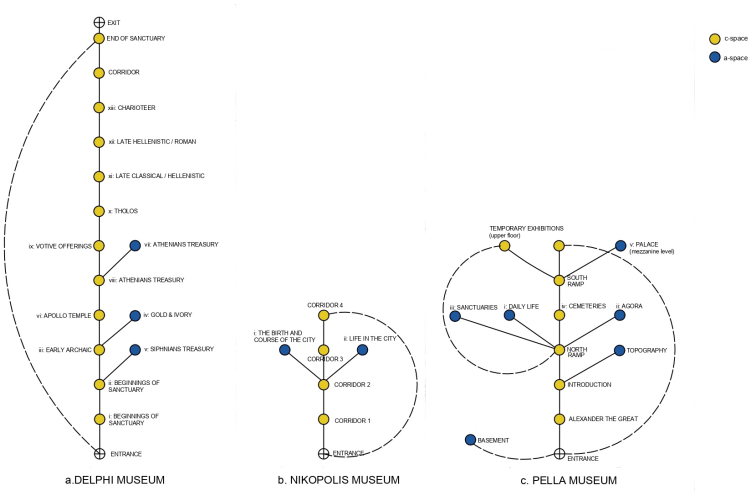

Figure 6: The *justified graphs* of the three museums and the abcd space types according to their embedding in the layouts

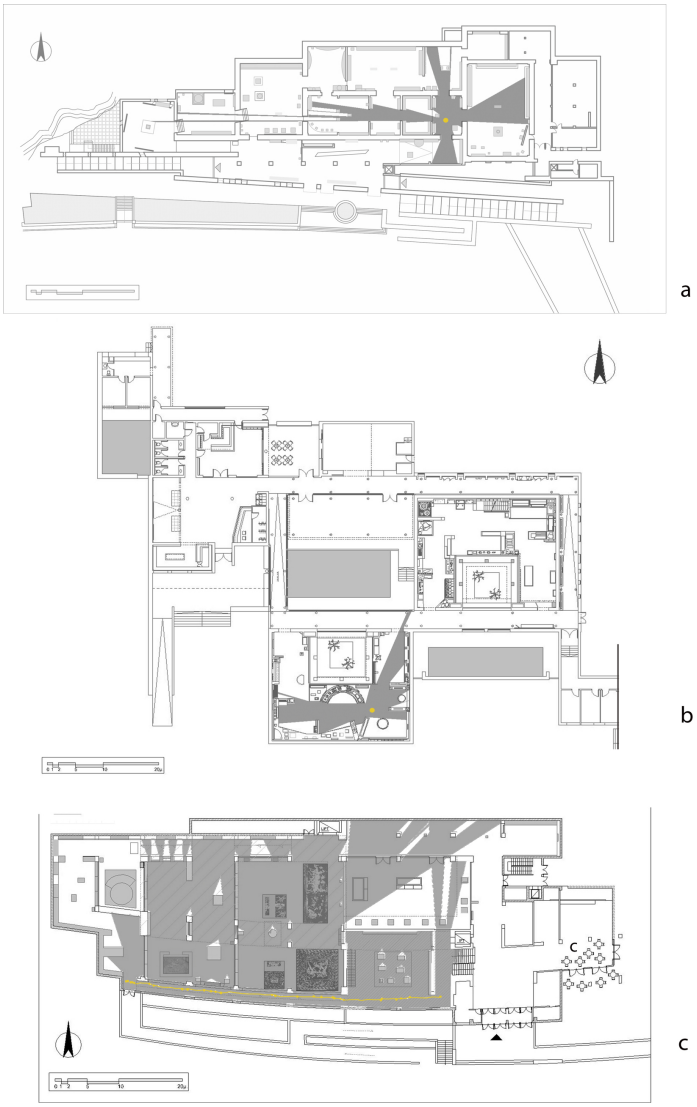

Figure 7: (a–b) Visibility polygons, or *isovists* (in grey) from selected points (in yellow) in the two museum layouts: the multidirectional and spiky vista in the Delphi Museum (from the first gallery to the 'Charioteer' space) is in contrast to the locally-focused viewing in the Nicopolis Museum; (c) line isovist drawn from the south ramp, characterized by visual openness, in the Pella Museum

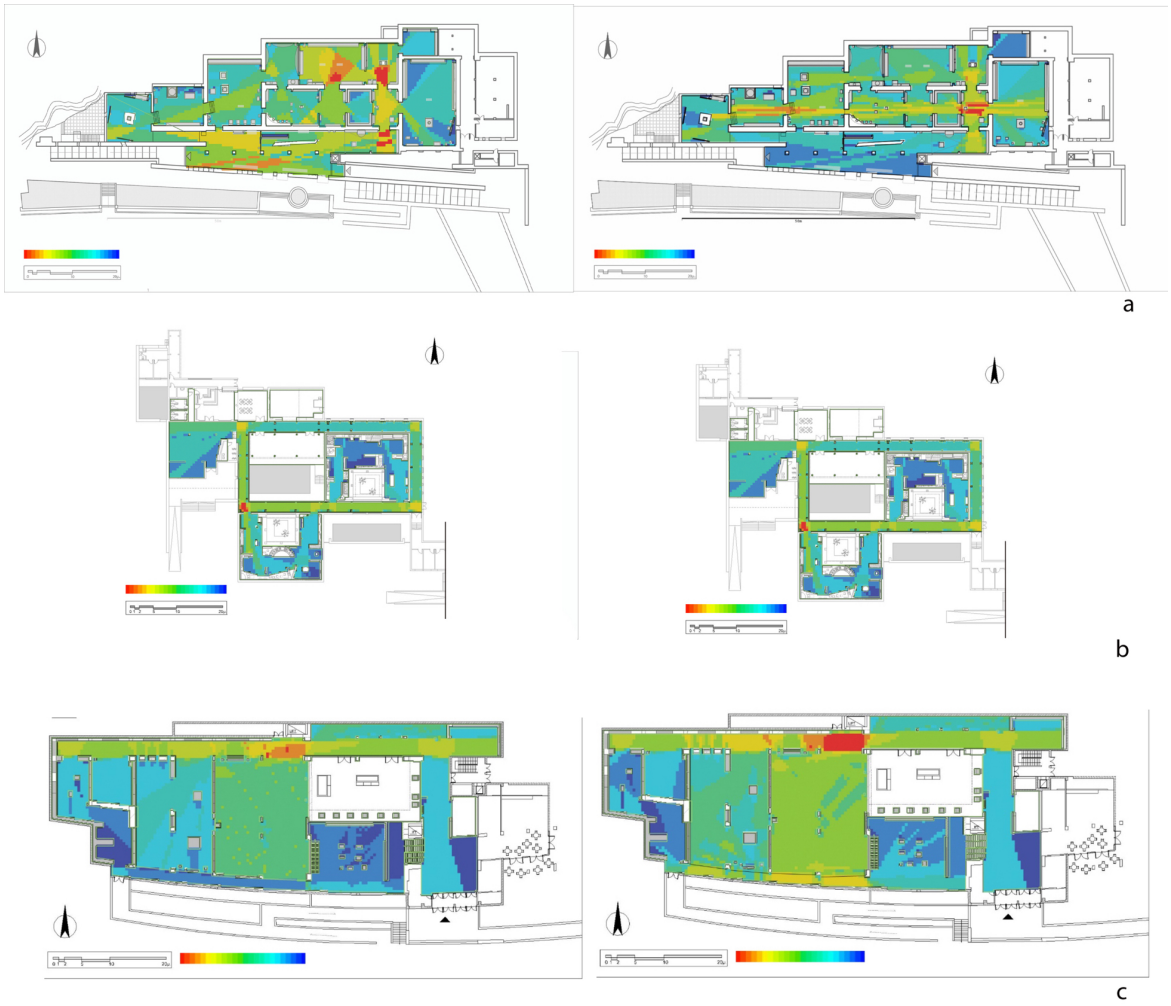

Figure 8: VGA analysis showing permeability (left) and visibility (right) relations in (a) the Delphi Museum and (c) the Pella Museum: their juxtaposition shows that there is a tension between *spatial* and *visual configuration*. In Nicopolis (b), in contrast, the spatial structure is further enforced by visual relations

3.2 Archaeological Museum of Nicopolis

The new Archaeological Museum of Nicopolis replaced the old one located in the archaeological site (Riginos and Katerini 2009). The layout is a ring consisting of two exhibition spaces, similar in shape and size, arranged on the sides of a corridor which offers views to an interior court and the outside (Figure 2 and 9a). As in Delphi, here too the well-defined route consists of two types of spaces: a-spaces (display spaces) and c-spaces (movement spaces) (Figure 6b). The corridor is devoid of any display cases and exhibits. Thus, visitors' movement is separated from the viewing of exhibits. But unlike Delphi, in Nicopolis the spatial structure is further enforced by visual relations. The two exhibition spaces are closed spaces, with no direct visual relations between them. The majority of visual fields are restricted to the local scale of a single space, generating a more static-seeming impression, and encouraging a local focus by the viewer (Figure 7b and 9b).

If in Delphi the long axes and the dense network of visual connections between galleries enriches visitors' visual experience as they are moving in a spatial sequence, in Nicopolis, the short axes, the changes of direction and the lack of visual relations between galleries, operate to enforce the spatial separation and the discrete character of the galleries. The pattern of visual integration in the layout of Nicopolis could hardly be more different, with the visual integration core of the building being detached from the viewing sequence (Figure 8b).

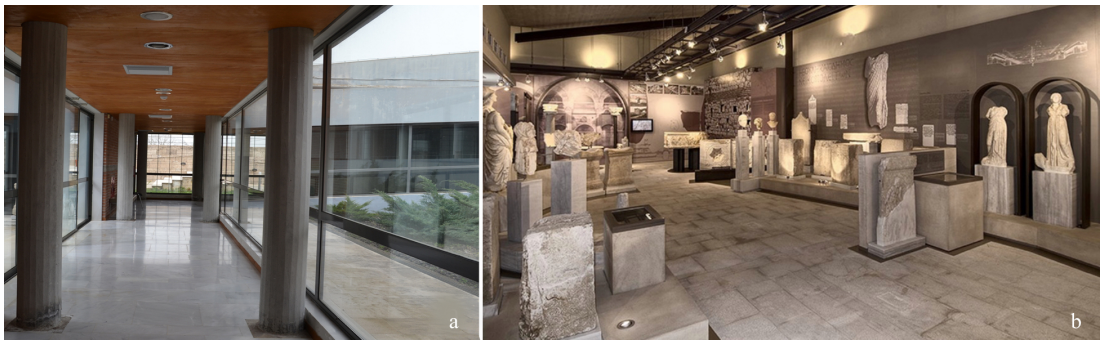

Figure 9: Archaeological Museum of Nicopolis: (a) visibility characterizes the relations between the corridors and the interior court; (b) view of the 'Public life' gallery bringing together the Roman and the Byzantine periods (*Source*: (a) E. Bakola ©Archaeological Museum of Nicopolis, (b) ©Thomas Tsoukalas)

3.3 Archaeological Museum of Pella

Parallel in terms of chronology (2009) but very different in terms of its approach to space is the Archaeological Museum of Pella, designed by K. Scroumbelos and Vikelas, in the northeastern part of the site. The design of the building is influenced by the site and makes a link between museum and site in that its outline follows the contours of the landscape (Lilibaki-Akamati et al. 2011, p. 24), and its physical form is inspired by the Hellenistic houses organized around central peristyle courtyards. Museum and site form part of a unified itinerary, as in Delphi. The building has the spatial form of an open plan, articulated by display cases, and organized on different levels, which, as we will see, correspond to the topography of the site (Figure 3 and 10). The key features of the organization of space are a high differentiation of spaces in terms of shape and size, the juxtaposition of large spaces and narrow corridor-like spaces, and the contrast between curved and linear shapes. The layout is in effect a sloping loop, leading from the lowest to the highest point. Like the previous cases, Pella is a sequenced experience, permitting choice of galleries but not providing choice of routes to a gallery (Figure 6c). The first part consists of a set of three spaces (i-iii), arranged on the side of an ascending ramp (north), leading to the fourth gallery (iv), where ramp and exhibition space are unified with each other. From there, visitors continue through another ascending ramp (south) to the final gallery (vi), where a staircase leads back to the starting point.

But what differentiates Pella from Delphi and Nicopolis is that a tension arises between accessibility and visibility (Figure 8c), in the sense that strong visual relations are not relations of direct accessibility. Visitors have to move in space to gradually access revealed information

though images and spaces that unfold progressively. These images are then synthesized on the mezzanine level of the building, which is devoted to a panoramic view of the display (Figure 7c). The contrast between the restricted views from one space to the next and the expansive vistas across levels (Figure 10b–c), and between long and short axes are key characteristics of space in Pella, which, as we shall see, contribute individually and collectively, to meaning making in themselves.

Figure 10: Archaeological Museum of Pella: (a) view to the interior court from the 'Daily life' gallery; (b) the enclosed 'Cemeteries' gallery; (c) view from the upper-level balcony overlooking the ground-floor display (*Source*: E. Bakola ©Archaeological Museum of Pella)

We will now shift attention to the interaction between space and display, the second critical issue for this paper, seeking to explore how the spatial potential is used to tell the story of the site.

4 THE CONCEPTUAL AND SPATIAL STRUCTURE OF THE ARRANGEMENT OF OBJECTS

4.1 Archaeological Museum of Delphi

The collection of the Delphi Museum comprises mainly architectural sculptures, statues, and small-scale objects from the archaeological site, dating from prehistory to late antiquity. The collection is displayed chronologically, and each gallery tends to be devoted to a particular monument or to objects with a common topographical frame (as for instance, the Temple of Apollo in room vi (Figure 1 and 5b), the Siphnian Treasury in room v, the Athenian Treasury in

rooms vii-viii, and the Tholos in room x). However, it is intriguing to find that the chronological narrative is interrupted so that the iconic object of the museum, the 'Charioteer', is placed in the deepest gallery (xiii), at the end of the sequence (Figure 1 and 5c). The large-scale bronze statue is positioned in the middle of the room, as a sole exhibit, optimally lit with natural lighting (Figure 5d). Its importance is further emphasized by the long line of sight which runs from the first gallery (ii), through the entire length of building, to the 'Charioteer gallery', allowing a narrow glimpse of the distant space (Figure 7a). Overall, spatial qualities, such as axes and cross-views, are used to enhance the impact of objects. Key works are placed axially or positioned in strategic locations in relation to door openings (as for example the monumental archaic statues, known as the 'Twins of Argos' in room iii, and the 'Sphinx' in room v). Moreover, the dense network of visual connections allows for flexibility in expressing relationships between works from different locations and monuments of the site (Tombazis, Vratsanos and Preuss 1998, p. 31), while reducing depth effects between different parts of the display and creating a unified and coherent experience of objects in space.

4.2 Archaeological Museum of Nicopolis

In contrast to the chronological scheme of Delphi is the display of Nicopolis, which, setting out from the curatorial intention 'to make the story of the site easy to read' (Riginos and Katerini 2009), is organized around two broad themes – 'Public life' (room i – Figure 9b), and 'Private life' (room ii). In spatial terms, the display of each room is self-contained and within each space, objects, in a dense arrangement, are either organized chronologically (the 'Roman city' and the 'Byzantine city' in room i) or linked by a thematic thread ('Economic and commercial activities' and 'Burial customs' in room ii). Unlike Delphi, Nicopolis does not systematically use the spatial properties of the building in the presentation of the collection. The arrangement of objects arises from their embedding within their immediate spatial setting, rather than being an outcome of decisions dependent on the relational properties of the layout – such as depth. Instead of directing attention to resolving tensions like Delphi and Pella, Nicopolis aims to equalize the accessibility of galleries (symmetrically arranged along the corridor) and thus also the significance accorded to the works displayed. In addition to this, strategic locations within a single space allow a synchronic perception of exhibits from different time periods and spatial structures of the site (Figure 7b). The generous visual fields systematically bring together a rich variety of objects of very different category and scale (from architectural fragments to coins). In contrast to the peripatetic experience favoured by Delphi and Pella, the display layout of Nicopolis privileges localized movement and a rather static approach. The self-contained displays, the controlled visual fields, the lack of visual continuities across spaces intensify local experience and encourage concentration.

4.3 Archaeological Museum of Pella

The Archaeological Museum of Pella illustrates a completely different curatorial approach, an approach which is closely interlinked with the spatial logic of the archaeological site. As noted, the museum is organized on different levels and in discrete display units which correspond to the topography of the Hellenistic city. The archaeological –and accordingly the museum– itinerary takes the visitor through a spatial narrative, from the lowest south part of the site, the residential area (which corresponds to the 'Daily life' gallery (i) – Figure 3 and 10a, c), the agora (ii) and the sanctuaries (iii), through the cemeteries (iv), up to the hill with the palace complex (v), in the north part. It is clear that the route through the museum is assigned a symbolic function in terms of space. The mezzanine-level 'Palace gallery', the culmination of the route, generates an impressive panoramic view which includes the entire ground-floor display (Figure 10c), as well as a view to the site, creating thus for the visitor the sense of being located, here and now, in the historic space of Pella. Additional meanings are generated by the way the layout creates a differentiated system of spatial experiences and an interplay between contrasting themes: closer perspectives are in sharp contrast to distant views (as in the case of the highlight of the collection, the marble head of Alexander the Great, placed at the end of the first main view), and visual insulation (for example, the intimate, spatially enclosed and visually protected 'Cemeteries' gallery'– Figure 10b) to visual openness (for example, the visually entire open south ramp leading to the 'Palace gallery' – Figure 7c and 10c). It follows from the above that a distinctive feature of the Pella Museum is the way it uses configuration to shape intense local experiences which maintain a measure of autonomy – for example, through the configurational quality of a-spaces, and at the same time, tightly connects them to each other by means of powerful visual relations.

5 COMPARATIVE DISCUSSION

Combining and synthesizing the above arguments it could be said that all three museums are set in the context which they intend to represent, but each does so in a different way. At the same time in all three, as we have seen, configuration plays a key part in shaping visitors' movement and experience.

5.1 Movement structure

If we first look at the movement structure of the three museums, we can immediately note certain general trends in terms of space-types (Figure 6): c-spaces form the vast majority of constituent spaces in all three layouts; b- and d-spaces are absent; and what varies between the cases is the ratio of a-spaces, which tend to be between a quarter and a third of the spaces. It might be argued that the lack of d-spaces is countered by the number of a-spaces. A reason for this design choice could lie in its configurational effects: on the one hand, it minimizes the depth of the spatial system creating integration (a-spaces do not add depth to the system in the way that b- and c-

spaces do, because one cannot pass through them to go to other spaces); and on the other hand, it allows for local differentiation in visitors' paths, reducing the rigidity of a sequential circulation system.

5.2 Articulating the relations of accessibility and visibility around the concept of depth

To pursue the comparative analysis a step further, we can add the dimension of depth and look at how each case articulates the relations of accessibility and visibility around the concept of depth. In Delphi the strong sequencing of spaces gives articulation to a hierarchy of access, which culminates in the deepest space, and in parallel creates a less deep structure of visibility by creating non-local visual links between spaces. In Nicopolis the structures of movement and of visibility are made less deep from the entrance as well as between spaces, through the 'bush-like' form of the shallow layout. In contrast to a systematic pattern throughout the display, as found in Delphi and in Nicopolis, in Pella, there is a changing pattern of access and visibility, which gives relational meaning to the local experiences (for example, death vs life).

5.3 Shaping museum experience in relation to the experience of the site

If we now turn our attention to the way the three cases shape, through spatial design, museum experience in relation to the experience of the site, we find that in Delphi, the spatial design supports a historical narrative of the site, so that by moving in space the visitor is traversing time. This is complemented by the dense network of views which perceptualy enrich the experience and become part of the experience of visiting. In contrast to Delphi where the relations of space represent time relations, in Nicopolis movement is dissociated from the representation of time. In fact, the localized physical movement compresses both the time and the space of the archaeological site, and creates a highly condensed experience. Pella differs again from the previous cases: rather than the passage of time, the visitor is invited to experience the topography of the site though movement in space and perceive the city as a place.

6 CONCLUDING REMARKS

In this paper we have sought to illuminate different ways in which architectural-spatial design increasingly becomes part of the distinctive experience of the archaeological heritage each museum offers. The aim of this research is to build a comparative knowledge by enriching the sample and propose a model of the key differences between site museums. It might be hoped that the comparative analysis of three cases generates new insights into the spatial understanding of the site museum, and, more importantly from a syntactic point of view, brings to light the role of spatial and visual configuration and their interrelationships in creating the unique identity of each museum.

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