

Digitising Heritage:

The Case of Qusayr 'Amra

Aghlab Al-Attili & Yuka Kadoi
the University of Edinburgh (UK)

This paper will explore an interdisciplinary approach to the conservation of cultural heritage in the Middle East by combining art-historical knowledge and digital technology. Through the case study of the desert castle of Qusayr 'Amra, Jordan, it aims to arouse several issues concerning the research and educational merits of the preservation of cultural heritage in a digital format and the interaction of different disciplines in the fields of the humanities and science. Our digital archive could also be utilised as an immersive tool of interaction between humans and heritage that allows anyone to have real like experience of the place. By suggesting the potentials of digital technology in conservation science, it is hoped that this study could promote a further engagement of art historians, architects, archaeologist, digital artists, with the cultural heritage of the Middle East.

The conservation of cultural heritage is a vital issue in the Middle East in the context of the cultural and historical identity of the region. Together with numerous pre-Islamic sites, a number of important Islamic monuments await appropriate restoration. Unfortunately, some historic monuments in the Middle East have been unsuccessfully restored due to an extensive retouching, indeed almost re-modelled as new buildings in old guise.¹ This tendency has much

to do with the growth of tourism. In order to fit visitors' fantasies, famous monuments have been treated in a historically and scientifically inappropriate way. It is thus crucial not only to make every effort to restore a historic building as authentically as possible, but also to offer an alternative approach towards the preservation of cultural relics in the Middle East – for example the use of digital documentation for preserving a memory of heritage.

The digital archives of Islamic architecture have recently aroused a great deal of interest. Archnet, for instance, enables everyone to access a reliable database of Islamic monuments, both historic and contemporary, from Europe to Asia.² The Creswell Archive (Ashmolean Museum, Oxford), a photographic collection of Islamic architecture by K. A. C. Creswell, was digitised and became available online.³ The collection is still vital for tracing original features of early Islamic monuments, and its quality is superior to that of present-day digital photographs. Yet such archives have not yet gone beyond the realm of photography and do not create a strong sense of virtual reality. What could then be offered is to digitise Islamic architecture in a three-dimensional format. Besides digitising Islamic monuments in danger of damage, it is fascinating to

create a virtual environment for an Islamic monument of great historical significance, such as Qusayr 'Amra that has been chosen as the first case study of our project (Fig.1), so as to experience architectural details as if one were on site. More significantly, three-dimensional digitisation offers an ethical alternative to the reconstruction of historic buildings; in other words, it does not affect the original fabric of a monument and therefore enables future generations to analyse them on the basis of their primary features.

It is hoped that this project will serve to demonstrate the importance of the catalogisation of historic monuments in a digital format, to suggest the research and educational merits of our archive, and moreover to encourage a scholarly dialogue among different disciplines in the fields of the humanities and science, ranging from art history, architecture and archaeology to computer science, digital art and technology.

Qusayr 'Amra: art-historical remarks

Qusayr 'Amra is undoubtedly one of the most well-preserved desert 'castles' in Jordan.⁴ Standing in the desert about 60 km east of Amman, the complex was built in the first half of the 8th century, most probably during the reign of the Umayyad Caliph al-

Walid I (r.705-15) or even al-Walid II (r.743-44). This monument is particularly relevant to the subject of our digital archive for the following three reasons: first, the monument is key to understanding important aspects of early Islamic architecture, namely style, function and patronage. The complex combines public bath rooms with a banqueting hall, yet it also evokes Roman and Byzantine fortresses (Fig.2). The desert castle of this kind was long considered to function as a hunting lodge of the prince suitable for occasional visits. But recent studies have suggested its multiple functions, such as a courtly palace, a place of relaxation, a fortress and even a centre of farming in parallel with the development of irrigation systems in the areas of Jordan and Syria.⁵ Whatever its principal function might have been, it is clear that Qusayr 'Amra is an important architectural manifestation of Umayyad courtly life and culture.

The second importance of this monument lies in its unique wall paintings. In contrast to the sober appearance of the exterior, the internal space is richly covered with unique fresco decoration. The pictorial programme of the frescoes highlights the theme of princely leisure and entertainment, such as hunting, bathing, dancing and music making. Vivid descriptions



Fig. 1

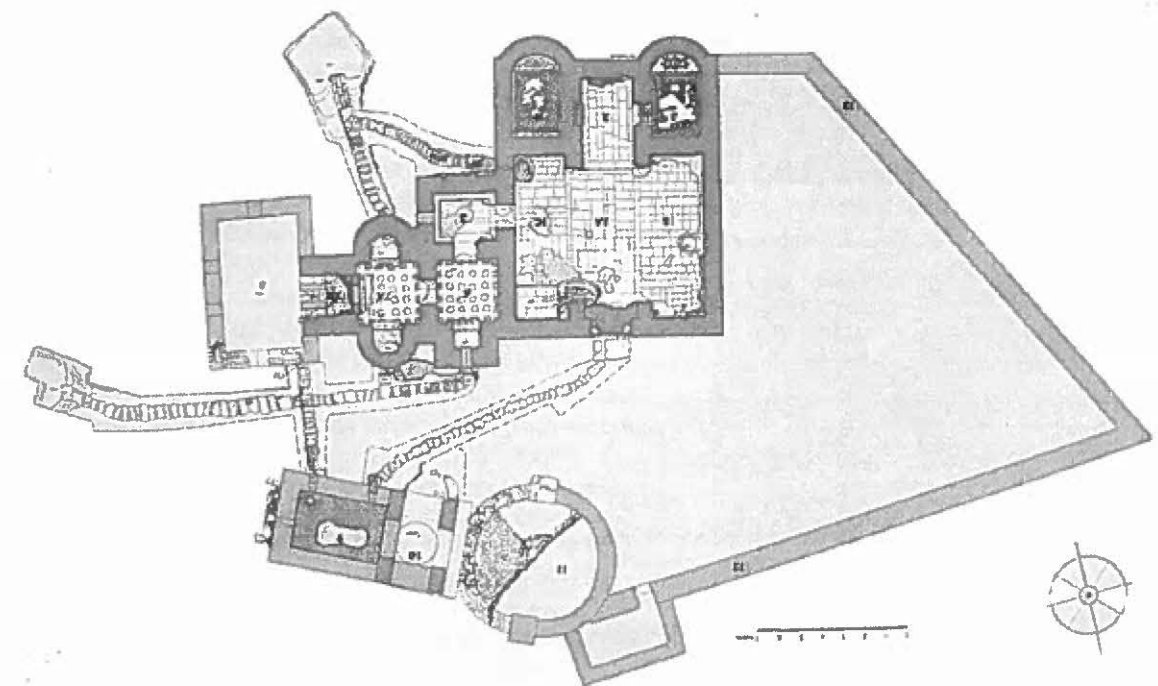


Fig. 2



Fig. 3



Fig. 4a



Fig. 4b

of human beings, particularly nude women (Fig.3),⁶ have often been described as an unusual case in Islamic contexts. Yet given that the formation of Islamic art owed much to previously-existing art traditions in the conquered regions – in this case the Hellenistic style – and that the theological prohibition of figural imagery did not take effect in the early Islamic period, the wall-paintings of Qusayr 'Amra are by no means exceptional but should be regarded as good supplementary evidence for the adoption and adaptation of pre-Islamic traditions in Umayyad art. In fact, such figural decoration parallels that found in other Umayyad palatial buildings in Syria and Jordan, for example Qasr al-Hayr al-Gharbi and Khirbat al-Mafjar,⁷ demonstrating that it was acceptable to have such decoration in the palaces of the Umayyad caliphs, who were then also the spiritual leaders of the Muslim community. Among the most interesting wall-painting is the full-length portrait of six kings of this period in the audience hall (Figs.4a-b). Four of them have been identified as: a Byzantine emperor; Roderick, the last Visigoth King of Spain; Khosraw II, the Shah of Persia; and the Negus or King of Abyssinia.⁸ They are apparently doing homage to the Caliph. The adjoining three bath rooms are also lavishly decorated with frescoes, including a striking image of bathing women in the second bath room (Tepidarium) (Fig.5). The third bath room (Caldarium) has a remarkable cupola which bears an image of the zodiac (Fig.6) derived from a Greek astronomical manuscript.⁹

The third marker of this site's importance is its dramatic discovery in the late 19th century and its reappraisal in the 20th century. Qusayr 'Amra was first discovered in 1898 by a Moravian-Czech priest and scholar called Alois Musil (1868-1944). His Kusejr 'Amra (1907), together with architectural drawings and facsimiles of the frescoes made by Alphons Leopold Mielich (1863-1929), who accompanied Musil's third visit to Qusayr 'Amra in 1901, still provides the most reliable information about the interior decoration of the monument.¹⁰ The monument remained relatively little known for several decades after the discovery and escaped dubious restorations. Creswell, who visited the site in 1919-1920, comments on the frescoes in the audience hall as follows:

The painting in the audience hall have suffered far more than those in the small rooms; nearly all in fact are too faded or too blackened by smoke to give a useful result if photographed."

Compared with other early Islamic monuments in Syria and Jordan,¹² which became victims of scholarly explorations by European Orientalists and European Imperialism in the late



Fig. 5

19th and early 20th centuries,¹³ Qusayr 'Amra remains intact and the best conserved architectural ensemble of the early Islamic period in the Levant.¹⁴ A Spanish team of archaeologists began to excavate the site in the 1970s. The frescoes were cleaned between 1971 and 1974. Fresh photographic images of the frescoes taken by the team, though not before but after restoration, have still been indispensable for the study of Umayyad painting,¹⁵ and despite suspicions as to how far the Spanish restorers repainted the frescoes,¹⁶ their contribution towards the reassessment of Qusayr 'Amra is undeniable. This desert castle captured the World Heritage Committee nomination as 'an exceptional testimony of the Umayyad civilisation' and 'the best conserved architectural ensemble'; it was registered as a UNESCO World Heritage Site in 1989.¹⁷ At the same time, a new project of documentation was undertaken by a Franco-Jordanian team under the direction of Gazi Bisheh and Claude Vibert-Guigue and was completed in 1995.¹⁸

Thus architecturally, art-historically and in terms of the history of discovery of Islamic art, Qusayr 'Amra deserves special attention as an architectural masterpiece of early Islamic architecture. It is certainly worthy to be digitised three-dimensionally, and this virtual image particularly helps to grasp the complex yet intriguing pictorial programme of the frescoes.

Virtualising Qusayr 'Amra

In order to communicate space, architects as well as movie makers and game designers are using Virtual Environments (VE) as forms of representation in order to simulate endless scenarios and possibilities that otherwise cannot be experienced in Real Environments (RE). The connection between this representation and what it represents is self-evident in several situations. For example, in a simple computer game, players navigate their way and use the same spatial grammar as that of their everyday life. But unlike most of these daily life encounters, we do not have any limitations on interactions in VE, while there are many limitations in RE imposed by materiality and certain ethics. In reality, ethics engulf this notion of limits or rules. On the other hand, VE appears to release one from these limitations.

Computers introduce an interesting mode of interaction using a metaphorical world or space. As users of this metaphorical space, we are familiar with it, but familiarity does not provide a strong connection between both Virtual and Real modes of space, i.e. not enough to describe our interaction with this space. The connection is more of a relationship in which the consciousness of the user is highly augmented in terms of sensory data perceived from objects in their environment, and from relationships between these objects.

Departing from the basic concept of familiarity, we can ask a simple question: can an archaeological site in a Real Environment be represented in a Virtual Environment in more than a rigid 3D model, and to enable this representation to offer interactions similar to the real?

Answering this question requires more than simply reviewing technical terminologies, and programming languages scripts. Rather we must rigorously engage in the personal experience of the user of this virtual environment.

The personal experience of the user derives from the Heideggerian notion of dwelling, as the condition of being-in-the-world to happen both in the Real and the Virtual Environment. In these terms every subject-being simultaneously dwells in a Real and a Virtual place whose spatial value and characteristics appear both in a Real and Virtual mode.

The relation between subject and space, Qusayr 'Amra in this case, is a problematic one. In a way we have the dilemma of having a real space that has a function and meaning and for many users it stands as a repository for memories and interactions.

Although VE is understood in the same way we understand RE, it consists of a 'place' which is separate from 'space'.¹⁹ 'Place' is a 'space' holding activities and cultural meanings and for this it carries Ethical load.

The real space is a space with function, memories and interactions, that define 'place.' While the virtual environment is a representation of the 'real' and a repository of meaning, it has no 'real' space. It is a place but not a space. Every subject explores the character of built environment as described in Bachelard's *Poetics of Space*,²⁰ the home as a cellar, a garret and a hut. The phenomenon of space is closely linked to intimacy and memory in Bachelard's writing. Certain parts of our everyday spaces serve as 'repositories' of memories. They also provide a person's prototypical spatial experience, a reference point from which all other spatial experiences derive and with which they are compared. These spaces, or places, are also understood episodically, in relation to sequences of events (walking inside Qusayr 'Amra, standing beside

the wall, looking at the paintings on the wall and ceiling, etc). From this perspective, our being-in-the-world is structured narratively. The house serves as a space for Bachelard's narrative, and Qusayr 'Amra is the house of our narrative and is itself a narrative space.

Interactive digital media make possible advanced investigation into themes of embodiment and perception, providing an excellent means of testing, comparing, validating and challenging theories about perception of space. 'Virtual Environments' are one form that introduces an interesting mode of interaction deploying space as a major metaphor about our existential being-in-the-world. The capability of creating a 3D world similar to that existing in reality and filling it with artefacts from our more familiar environments is possible due to the ever increasing power of computer processing.

Our own exploration of possibility for digitising heritage starts with an attempt to simulate the physical space in question using software such as 3D Studio Max, Maya and Form Z. These programmes offer capabilities that range from creating a simple geometrical shapes and volumes to creating a full photo-realistic environment, deploying optical effects, and offering the ability to animate this world in different ways. Translating this space from physical form to software constitutes digitisation, creating representations through various algorithmic and mechanical transformations.

An efficient procedure for recording and simulating all plausible interactions with a digital environment has not been reached as yet. So, interpretative interventions are required to orchestrate navigation, interaction and behaviours. Multimedia authoring tools, such as Macromedia Director and its ShockWave 3D functions, facilitate navigation through virtual environments, and allow many other user interactions via its programming language.

In a sense we are working with two metaphors. The first metaphor is about a world or an environment that resembles a physical environment (computer model as physical model, digital world as material world), and the second metaphor is of the interaction between our bodies and the world (screen cursor as hand, digital avatar as body, virtual camera as eye). Metaphors work both ways. Our study into bodily interaction



Fig. 6

with the virtual world can inform our understanding of interaction in the material world. In the manner of action research, there is the potential to uncover many outcomes. Direct outcomes include insights into the way we understand and interact with a space full of memories, and the way these memories are preserved in both physical and digital space. Indirect outcomes include determining the importance of the use of virtual environments as a method and a medium of conserving and preserving historical monuments.

As a space, historical monuments feature prominently in narratives about cultural heritage, traditions, historical facts, as well as historical interpretation of ancient everyday life, all of which modulated by the spread of digital media to create ever-expanding narratives of communication, containment, boundaries, thresholds and transgressions.

In order to examine the possibility of creating a virtual environment that not only simulates Qusayr 'Amra, but also digitally captures the meanings carried by this monument and preserves it to be delivered to all users of this virtual environment, we aligned the phenomenology of Merleau Ponty and Heidegger with contemporary researches into 'embodied interaction'.²¹

In order to create this virtual environment, dimensions were measured and the real environment was modelled

in 3D modelling Software (3D Studio Max).

To instantiate Bachelard's spatial narrative as a 3D computer model available for navigation and interaction introduces some startling incongruities. As users of this new space representation we sense a familiarity with it, though we are perhaps struck by the mismatch between the medium and our bodily awareness. Our physical presence is perhaps reduced and moved into hardware and software. Our sense of recognition is suspended and the spatial phenomenon reduced to concepts of digital interaction.

Through the process we established familiarity through the similarity between the real and the virtual environment, and then we asked users to interact with the virtual environment.

If the goal is to understand any kind of users' responses in the real environment and to create a virtual environment that corresponds in all measures to the real environment, then creating virtual interaction according to the physical one, or identifying the limitation of this system's capabilities, and therefore its ability to reflect the heritage and memories preserved in it, would be of little use.

The model aligned the ability freely to navigate Qusayr 'Amra with a high visual input to users resulting in a phenomenological approach to interpreting Qusayr 'Amra. This approach has trendy aspects attracting

different generations, and should result in binding them better with their heritage. It is also needless to say that such VE diminishes the problem of distance for visitors and provides a better interactive and visually intensive material for educational purposes,²² even at elementary school level.²³

NOTES TO THE TEXT

* This article is based on our paper given to the Second World Congress for Middle Eastern Studies (13 June, 2006; Amman, Jordan). We would like to express our thanks to those who gave us invaluable comments on our project.

¹ It is not our intention to criticise any individual cases for lack of conservation; therefore, we refrain from mentioning the name of a particular monument in this paper.

² <http://www.archnet.org>

³ <http://creswell.ashmol.ox.ac.uk>

⁴ A full list of references on Qusayr 'Amra up to 2004 is found in G. Fowden, *Qusayr 'Amra: Art and the Umayyad Elite in Late Antique Syria* (Berkeley, 2004), pp.335-74.

⁵ Ibid., pp.46-57. It is also assumed that Qusayr 'Amra was intended as a meeting place between the Caliph and the Bedouin tribes, for their loyalty was indispensable for the stabilisation of Umayyad rule (W. Ali, *The Arab Contribution to Islamic Art* [Cairo, 1999], p.37).

⁶ Fowden (2004), pp.57-79. See E. Baer, 'Female images in early Islam', *Damaszener Mitteilungen*, 11 (1999), pp.13-24.

⁷ K.A.C. Creswell, *Early Muslim Architecture* (Oxford, 1932/1969), vol.1, pt.II, pls.86d, 90-91 (Qasr al-Hayr Gharbi); pls.102a, 102c, 105c, 105d, 105f, 106a, 110a, 110b (Khirbat al-Mafjar).

⁸ See O. Grabar, 'The painting of the six kings at Qusayr 'Amra', *Ars Orientalis*, 1 (1954), pp.185-7.

⁹ For further discussion, see Creswell (1932/1969), pp.424-40.

¹⁰ A. Musil, *Kusejr Amra* (Vienna, 1907). On his discovery of Qusayr 'Amra, see Fowden (2004), pp.1-25.

¹¹ Creswell (1932/1969), p.396.

¹² For instance, the elaborate decorative section of the façade of the Umayyad palace at Mshatta was sent to Berlin as a personal gift from Sultan Abdulhamid II to Kaiser Wilhelm II for the Kaiser Friedrich Museum (now in the Museum für Islamische Kunst, Berlin). For a recent study on the Mshatta façade, see V. Enderlein and M. Meinecke, 'Graben-Forschen-Präsentieren: Probleme der Darstellung vergangener Kulturen am Beispiel der Mshatta-Fassade', *Jahrbuch der Berliner Museen*, 34 (1992), pp.137-72.

¹³ See S. Vernoit (ed.), *Discovering Islamic Art: Scholars,*

Collectors and Collections, 1850-1950 (London, 2000).

¹⁴ Nevertheless, Musil and Mielich removed several fresco fragments from Qusayr 'Amra (Fowden [2004], p.12), and some of them are now in the Museum für Islamische Kunst, Berlin (inv.nos. I-1264, 1266, 1267).

¹⁵ M. Almagro, et al., *Qusayr 'Amra: Residencia y Baños omeyas en el desierto de Jordania* (Madrid, 1975).

¹⁶ For further discussion, see Fowden (2004), p.28.

¹⁷ See the WHC nomination file of Qusayr 'Amra (<http://whc.unesco.org/en/list/327>; accessed 7 July 2006).

¹⁸ C. Vibert-Guigue and G. Bisheh, *Les peintures de Qusayr 'Amra* (Paris, forthcoming).

¹⁹ For further discussion, see T. F. Gieryn, 'A space for place in sociology', *Annual Review of Sociology*, 26 (2000), pp.463-96. See also J. E. Malpas, *Place and Experience: A Philosophical Topography* (Cambridge, 1999).

²⁰ G. Bachelard, *The Poetics of Space* (Boston, 1969), p.3.

²¹ P. Dourish, *Where the Action Is: The Foundations of Embodied Interaction* (Cambridge, Mass., 2001).

²² A comment made in the Second World Congress for Middle Eastern Studies (13 June, 2006; Amman, Jordan) by Assistant Professor Nada M. Shabout, School of Visual Arts, University of North Texas, Texas, USA.

²³ A comment made in the Second World Congress for Middle Eastern Studies (13 June, 2006; Amman, Jordan) by Dr. Wijdan Ali, the Dean of Faculty of Arts and Design, University of Jordan, Amman, Jordan.