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Qusayr 'Amra: a desert haven on the eastern steppes of Jordan

usayr 'Amra is a magnificent bathhouse located in the eastern *badiya* (steppe) of Jordan, 50 miles east of Amman along the road to Azraq. Built by the Umayyad prince Walid ibn Yazid during the caliphate of his uncle Hisham, most likely between A.D. 730 and when he became caliph himself in A.D. 743. The building is part of a larger complex that includes a *qasr* (palace), watchtower, and other unexcavated structures, as well as complex hydraulic systems. The bathhouse at Qusayr 'Amra contains an extensive cycle of mural paintings that are an outstanding and unique testimony to early Islamic art. These paintings are the reason the site was placed on the UNESCO World Heritage List in 1985.

Qusayr 'Amra is commonly referred to as being a part of a group of "desert castles"—structures typical of Umayyad times that are scattered throughout the deserts of Syria and Jordan. The Umayyad dynasty was founded in A.D. 661 and lasted almost 90 years, when it was defeated by the Abbasids—who also moved the capital from Damascus to Baghdad. The "desert castles" were built by the Umayyads for various purposes, including political and strategic ones. They offered attractive spaces to engage the chiefs of local Bedouin tribes in leisure activities and political discussions, thus ensuring that relations with the tribes remained strong while strengthening Umayyad power in the region.

Currently, both natural and man-made factors threaten the site, requiring urgent action for its long-term, sustainable conservation, investigation, and management. World Monuments Fund included Qusayr 'Amra on the 2008 World Monuments Watch because of these pressing threats. Following inclusion, World Monuments Fund initiated a project in 2010 targeting the site's conservation needs. The project is a joint effort by World Monuments Fund (WMF), the Istituto Superiore per la Conservazione ed il Restauro (ISCR, or Institute for Conservation and Restoration, Italy), and the Jordanian Department of Antiquities (DoA).



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History of discoveries and interventions

arly mentions of Qusayr 'Amra appear in the seventeenth-century chronicles of Hajj pilgrims on their way to Mecca. The first clear reference to the site and its paintings dates back to 1806, by the German explorer Ulrich Seetzen. Other travelers tried to reach the site toward the end of the nineteenth century, but were discouraged by intertribal wars and the volatile security in the area. The site was visited again in 1898 by the Czech priest and scholar Alois Musil, who returned to the site in 1900 for a brief documentation campaign. Musil came yet again in 1901, this time with painter Adolph Mielich, to complete the documentation with further photographs, measurements, and drawings.

During that visit, Musil and Mielich attempted to clean some of the paintings with brushes and chemicals, which unfortunately initiated their subsequent deterioration, at least in some areas of the site. Fragments of paintings were also removed from the walls and taken to Vienna to be studied. These are currently in the collection of the Museum of Islamic Art at the Pergamon in Berlin.

One of the earliest photos of Qusayr 'Amra (1898–1901)

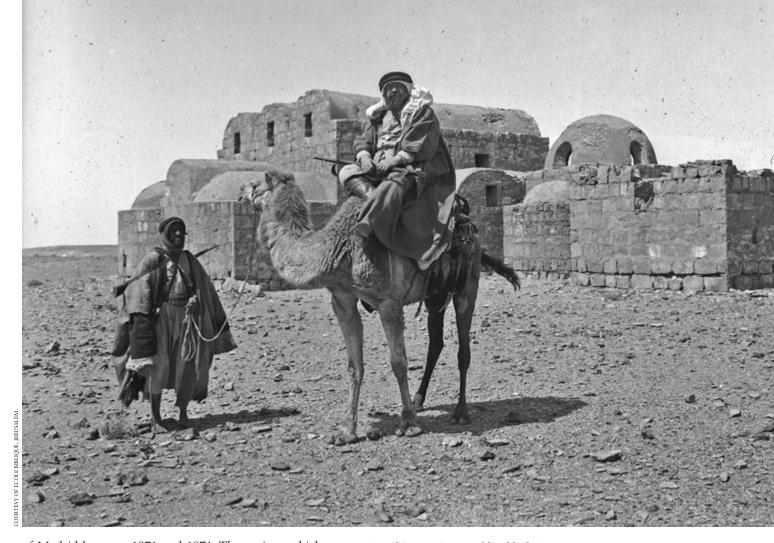


Since then, Qusayr 'Amra has been periodically visited by concerned authorities and scholars. In the 1920s or early 1930s the site was explored and documented by Sir K.A.C. Creswell, at that time Inspector of Monuments in Palestine and Syria. From the 1930s through the 1950s, the site was visited several times by Gerald Lankester Harding, Director of Antiquities of Jordan from 1936 to 1956.

The 1950s and early 1960s also saw the earliest conservation work at Qusayr 'Amra. This was carried out by the Department of Antiquities and consisted of consolidating the outer walls by replacing stones and patching with cement. It wasn't until the 1970s that the first major, comprehensive conservation project was undertaken, carried out by the Archaeological Museum

The dome of the caldarium, ca. 1911





of Madrid between 1971 and 1974. The project, which included new site surveys and documentation, focused primarily on the paintings, which were cleaned of soot and grease, protected with a layer of shellac, and enhanced by repainting the figures' outlines.

In 1985 Qusayr 'Amra was included on the World Heritage list because of uniqueness of its paintings and the exceptional testimony it bears to the Umayyad civilization. Owing to the combined preservation of its architectural and decorative features, at that time Qusayr 'Amra was recognized as the best conserved architectural ensemble, if not the most complete, of all the Umayyad palaces and castles in Jordan and Syria.

Exterior of Qusayr Amra and local beduins., ca. 1911

Qusayr 'Amra was again the object of coordinated national and international interventions between 1989 and 1996, when a team from the Institut Français du Proche-Orient (IFPO) and the Department of Antiquities of Jordan undertook an extensive documentation project that involved gently cleaning the paintings, then creating life-size reproductions of them. The project provided the most comprehensive and detailed study of the paintings of Qusayr 'Amra to date. It also led to the consolidation of the spur wall west of the main building and of the hydraulic infrastructure to the north. Sup-



Restoration of the noria and saqiya, French mission 1993

porting conservation work included paving the main building with stone slabs that were designed to integrate with the original pavement.

In 1996, conservators from the University of Granada readdressed the paintings—particularly those in the so-called "throne room"—to counteract the rapid deterioration caused by the fixative used in the 1970s. At the same time, and until 1999, the site underwent a series of coordinated actions by the IFPO, the French Embassy, UNESCO, and the Department of Antiquities. These targeted site presentation and enhanced accessibility, and included the design and construction of a new visitor center and the installation of an exhibition.

Since 2010, the site has been undergoing a thorough conservation process—simultaneously targeting the

building and its decorative features, and addressing the site's management, preservation, and presentation. The project is a joint collaboration between WMF, ISCR, and the Department of Antiquities of Jordan. So far, the project has consolidated the exterior of the monument and conserved a third of the mural paintings in the main hall and of those contained in the first room of the baths (the apodyterium). This process has revealed unprecedented aspects of these important artworks, and has reinforced awareness among local stakeholders of Qusayr 'Amra's value and importance. A management system was also developed that ensures sustainable conservation at the site. Although no completion date is set, it is estimated that if funding to the project continues, another eight to ten campaigns over a period of four or five years will be required to complete the conservation at Qusayr 'Amra.

The natural and archaeological environment

usayr 'Amra was built as the hub of a ruling class of desert origins, the Umayyads, in order to control this part of their territory, to interact with chiefs of local tribes, and to exercise leisure activities among which the hunting of wild donkeys (onagers) took special significance. One clear element in the choice of Qusayr 'Amra's location is the presence of water, presumably to attract these animals. This is seasonally guaranteed by Wadi al-Butum, a stream running northwest to southeast toward the Azraq oasis.

The moist soil surrounding the stream allows Mediterranean vegetation to grow, particularly butum trees,

which flourish along the course of the river and date back centuries. The area also hosts a variety of wildlife, particularly birds and small mammals. Wadi al-Butum appears as a green line in the middle of the typical Jordanian *badiya*, a desert of clay-like soil covered by a thin layer of small stones.

The site extends over an area of approximately 250 acres and includes a variety of archaeological remains. East of the main building is a second well and water system (*saqiya*), which was excavated in the 1970s by the

Terebinth trees in the vicinity of the site, after a winter storm





The ruined qasr (palace)

Spanish archaeological mission. The saqiya is located on the riverbank of Wadi al-Butum, and is similar to the one in front of the bathhouse—with a cistern, well, and riding area for an animal to draw water from the well and into the cistern. It might have been used to irrigate nearby fields or gardens surrounding the baths.

Northwest of the main building is the qasr, a square arrangement of archaeological debris with two projecting units on its northern side—presumably two defense towers—and one on its southern side, which was possibly the doorway. Beyond minor archaeological surveys in the 1970s and recent aerial imagery analyses, there is no consensus on the qasr's use: it might have been living spaces for those using the bathhouse, or is perhaps an unfinished building that was abandoned before it could ever be used.

Other archaeological remains include a watchtower located a few hundred meters southeast of the qasr that was surveyed by the Spanish team in the 1970s; an open-air mosque, now almost entirely lost; a ford across the riverbed of Wadi al-Butum; and possibly some further protective walls east and northeast of the main building. Recent investigations as part of the current project have also uncovered a structure containing a number of rooms near the site's visitor center. The nature of the artifacts found there—including thousands of unused glass tesserae similar to those found in the floor mosaics of the main building—suggest that it was possibly a workshop used during the construction of Qusayr 'Amra.

The bathhouse and its paintings

he bathhouse is the main building at the site, with an interior that houses a world-renowned and unique cycle of Umayyad paintings—the most extensive collection of figurative art from the era. They are fundamentally important to understanding the birth and evolution of themes, iconography, and techniques used in Islamic art. The paintings are provincial Greco-Syrian in their form, and display a rich and varied iconography that blends together images, texts, and narratives borrowed from Greek mythology; Sasanian traditions; Byzantine-style portraits and hunting scenes; depictions of animals and birds; and other, diverse figures of pagan and symbolic origins.

The building opens with a main audience hall, divided into three parallel aisles, each or which is covered

with a vaulted roof and decorated with painted murals. The paintings here are divided into two registers: a lower register, from the floor to a height of approximately six feet, and an upper register that continues to the top of the walls and includes the vaults. The lower register is painted to resemble marble slabs and *opus sectile* (a type of decoration made with marble pieces). The upper register features scenes of leisure activities, professional tasks, and possibly political engagements. In the western aisle, the western wall is further subdivided into two sub-registers: above, a hunting scene fills its length, with hunters capturing a herd of onagers by driving

Painted vaults and arches in the main hall. Umayyad period, ca. A.D. 730









Opposite: the "Six Kings" after conservation. Above: detail of the vault of the apodyterium before and after conservation

them into a net. Below, a composite scene juxtaposes a scene of wrestlers with that of a bathing woman, and includes Qusayr 'Amra's most well-known image: the so-called "Six Kings." Inscriptions above the heads of the figures identify at least three of them as kings or emperors: the Byzantine Caesar, the Sasanian Chosroe, and the Negus of Abissinia.

On the opposite side, the eastern wall of this aisle is seriously damaged, and few figures are visible—but standing people, a basket of grapes, and an animal are discernible. Cleaning this area revealed two previously unknown paintings: a three-headed dog and two larger-than-life figures of a man and a woman, possibly a reference to a mythological tale. The southern wall of this aisle is particularly well-preserved, depicting a richly-dressed prince sitting on a bed or sofa. He is surrounded by other figures, including a scribe and a fan-bearing servant. The scene is crowned by two peacocks under Greek inscriptions, Charis (Grace) and Nike (Victory). Above this scene, two figures recline on either side of the window, and recent interpretation of two Greek in-

scriptions above their heads suggest they may represent the prophet Jonah.

This wall also hosts two Arabic inscriptions. The first—in large letters—is a typical invocation to Allah (the *basmala*), while the other wasn't discovered until 2012 during the current phase of conservation. It contains the name of the prince that commissioned the building, Walid Ibn Yazid, who became caliph in A.D. 743. The northern wall of this aisle is very damaged, but cleaning the painting revealed the images of Jonah being swallowed and then left by the marine monster on a beach, a swimming naiad in a body of water with fish, and a boat with fishermen pulling up a net full of fish.

The central aisle is also decorated on a double register. The lower—at the level of the arches—features a series of richly dressed women and men within natural and built settings. The upper register starts just above the arches and extends across the entire vault. The space is divided into 32 squares that frame people engaged in a variety of leisure and other activities, including music and sports.



Vault of the apodyterium after conservation

The eastern aisle is also divided in two sub-registers; the theme here is mostly the hunting of onagers. The vault is the most remarkable element of this aisle, and provides a comprehensive catalogue of crafts and activities connected with construction work. Divided in small square fields, the vault depicts 32 activities, including blacksmiths forging metal, carpenters, masons squaring stone blocks, laborers preparing mortar, and others carrying tools such as saws, punches, and chisels. The northern wall features a hunting scene with the killing of onagers trapped within the net, while the southern wall depicts hunters skinning onagers.

To the south, the main hall leads into the so-called "throne room," which opens onto two alcoves to the east and west. The walls and ceiling of the alcoves are also covered with mural paintings of curling grapevines, while the floors are decorated with geometrical mosaics. In the "throne room" the paintings are concentrated in the upper register. The main image is on the southern wall, depicting a prince sitting on his throne flanked by two human figures. The painting on the eastern and western walls features richly dressed men and women framed by Corinthian columns and surrounded by foliage.

To the east of the main audience hall a small opening leads to the baths, which are divided in three rooms of approximately 65 square feet each: the *apodyterium*, the *tepidarium*, and the *caldarium*. In the baths, the lower register of the walls was originally sheathed with marble slabs that hid the terracotta pipes of the heating system. The slabs and pipes are lost, but traces of both are visible—as are stains on the walls left by the smoke from the fires that heated the water for the baths.

The apodyterium is the dressing room. It features a stone bench running along its southern and eastern walls, and the vaulted ceiling is decorated with a pattern of diamond shapes that frame human and animal figures. The two lunettes in this room are also decorated with figurative scenes. The eastern one depicts Dio-

nysus discovering Ariadne sleeping on a beach; similar imagery can be found throughout the Roman-era Mediterranean region. The western lunette depicts a woman and a man sitting on either side of the real window, gazing adoringly across it.

The tepidarium is the warm room, where people could acclimate to the temperature of the baths. It has a cross-vaulted roof entirely covered with patterns of intertwined leaves. These patterns extend to its northern lunette above the window, where they are enriched by curling grapevines that frame human and animal figures. The other three lunettes depict scenes with women and babies, possibly at the bath and within architectural settings. The pavement of the tepidarium rests on a set of *pilae*—small basalt pillars placed between the pavement and the ground level to create a hollow space for circulation of hot air.

The caldarium is the final room of the bath, and the hottest due to its proximity to the furnace. Its pavement also rests on a set of pilae. The caldarium is crowned with a domed ceiling pierced by four small windows and resting over pendentives that were originally covered with glass mosaics, fragments of which are still visible in places. The domed ceiling is painted with constellations and zodiac signs, and is thought to be the earliest surviving representation of the night sky on a hemispherical surface.

Beyond the caldarium, on its eastern side, are the hypocaust and the praefurnium—the working spaces where fires were lit and tended to produce hot air and water. In front of the main building is the hydraulic system (saqiya) that controls the bath's water supply. The system consists of a well adjacent to a riding ring—the circular path for the beast of burden that powered the water pumps—and a cistern for storage. A guard room is also located here, where presumably an overseer was housed to ensure that the pumps and fires were running smoothly. A spur wall to the west of the main building protected the baths from Wadi al-Butum's floodwaters, which still occur at Qusayr 'Amra from time to time.

Tepidarium room, awaiting conservation

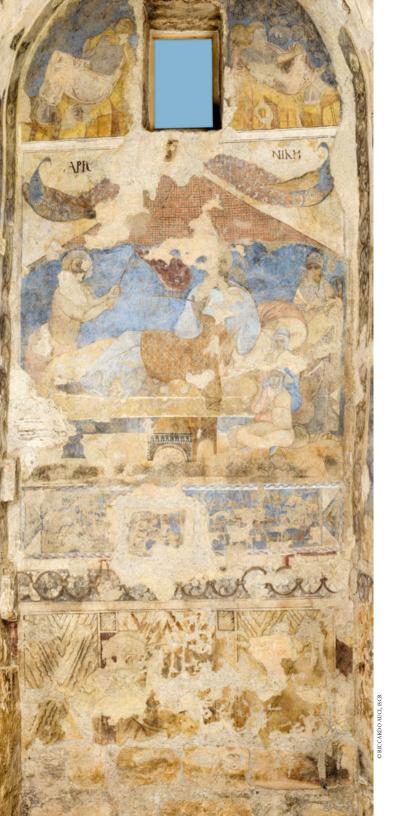


In the caldarium room, basalt pillars (pilae) supported a floor, now missing



Dome of the caldarium awaiting conservation





Site conservation and management

usayr 'Amra was inscribed on the World Heritage List in 1985 as an extraordinary and unparalleled example of early Islamic art and a window into the life of a society in transition. In 2010 the adoption of a new Statement of Outstanding Universal Value broadened the scope of conservation at Qusayr 'Amra to include the surrounding archaeological features, as well as elements of its natural context.

Both natural and man-made factors are a constant threat to the preservation of this site. These include sandstorms, floods, vandalism, maintenance issues, and tourism. The protracted, combined activity of these factors led to Qusayr 'Amra being included on the World Monuments Watch in 2008.

In response, WMF coordinated with ISCR and the Department of Antiquities of Jordan to assess the site's conditions and to design a pilot project for the conservation of the building's exterior and the mural paintings inside. The actual conservation project did not start until 2011, after four campaigns in 2009 and 2010 that documented Qusayr 'Amra's conditions, gathered samples, and conducted laboratory analyses to identify the best way to solve the site's conservation problems. Conservation work is carried out through two missions each year, supervised by Italian experts with the participation of numerous Jordanian professionals and skilled workers.

A preliminary phase of documentation was carried out in 2011 using high-resolution photography—under normal, infrared, and ultraviolet light—in order to record the building's condition before conservation began. A thermal analysis of the building was also conducted in order to identify the locations of stone blocks under painted layers, with the hope of identifying the causes of detachments of these layers from the walls. Further documentation work included interior and exterior laser scanning of the building and surrounding area, and defining site boundaries, which resulted in a detailed topographic map of the entire archaeological complex. As part of the documentation process, WMF established and maintained collaborations with a number of institutions holding archival material on Qusayr 'Amra, including the Ecole Normale Supérieure and the Centre national de la recherche scientifique

South wall of the west aisle, after conservation



Conservation of the exterior of the site. Application of a lime mortar layer

(CNRS) in France, the Institut Français du Proche-Orient (IFPO) in Jordan, the Spanish Archaeological Mission in Jordan, the Pergamon Museum and the Rathgen Laboratories in Berlin, Germany, and various universities in the UK. The documentation material was used to create physical and virtual repositories of information at the Department of Antiquities of Jordan, whose ultimate purpose is to facilitate international research through improved accessibility.

Part of the site management process was also the analysis of key threats to the physical conservation of Qusayr 'Amra and the assessment of the current management system, and of key competencies and responsibilities among Jordanian authorities. Strategies for the long-term conservation and enhancement of Qusayr 'Amra—including maintaining its authenticity and integrity—were developed, and the plan was completed in December 2013, fulfilling the obligation to provide this document to the World Heritage Center.

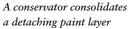


3D model of the site derived from a laser scan survey

Other activities included consolidating the main building's exterior, where the base of the walls and the top of the vaults showed substantial loss of mortar, resulting in dangerous water infiltration. A preparation of lime mortar was applied, using a formula that approximated the original Umayyad mortars. New windows and coverings on ceiling openings were installed to prevent water and animals from getting into the building, stemming one of the primary causes of damage to the paintings.

Inside the building, cement patches applied during previous interventions have been leaching salts into the walls, so are being removed and replaced with lime mortar. The basalt pillars that served to suspend a floor in the tepidarium and caldarium have been returned to their original positions after removing dirt that had accumulated on the floor below. This revealed the original paving, and also some intact charcoal deposits that were carbon dated to ca. A.D. 730. The same date was also found in charcoal contained in the original mortar,







A conservator cleaning one of the paintings in the apodyterium



A conservator shows the thick layer of shellac applied in past conservation attempts

also confirming an Umayyad date for the construction of the bathhouse.

Over the course of eight field missions conducted between 2011 and 2015, a team of Italian conservators painstakingly removed thick layers of shellac from the paintings in the western aisle and in the apodyterium, completing conservation of approximately 30 percent of all the paintings in the building. Shellac had been unwisely applied in the 1970s upon completion of conservation campaigns, hoping to ensure long-term protection of the paintings. Its degradation has left a shiny yellow film on the paintings and—because it is an impermeable substance—is also causing paint layers to detach from their base. The conservation intervention consists of dissolving and removing the shellac layer where possible; cleaning the surfaces of dust, soot, grime, bird droppings, and other calcified deposits; and reattaching the paint layers to their base. Gaps in the

walls are filled with a neutral mortar, and small paint losses are integrated using a reversible watercolor *tratteggio* technique. The deep cleaning conducted during these conservation interventions revealed not only a rich color palette where blue, orange, red, and yellow prevail, but also previously unknown details, which are bound to change the interpretation of the paintings and our understanding of Umayyad art.

Supported by World Monuments Fund, the Italian government, the U.S. State Department through its Ambassadors Fund for Cultural Preservation, and the Jordanian government, the project will continue as funds are made available. New discoveries and consequent interventions may require adapting work timeframes to emerging needs. The ultimate goal is to guarantee the handover of a renewed, fully accessible, and self-sustaining site for the benefit of the local community and audiences worldwide.

Community participation

Local and national communities are the first and ultimate beneficiary of any conservation project, since their roots and daily life are profoundly intertwined with the heritage we preserve. In line with this philosophy, the Qusayr 'Amra project includes a component on community participation and awareness, which is implemented on-site through awareness-building activities and business development.

Qusayr 'Amra rests in the land of the Beni Sakher, one of the key Bedouin tribes in Jordan since the eighteenth century. The Beni Sakher are divided into clans, of which the Khreisheh are based in Qusayr 'Amra. Because of their intimate connection to the land, a key community activity so far has been engaging with local representatives of the tribe to explore their memories and traditions regarding the site, analyze tribe identity

Stakeholder meeting in support of the preparation of the site's management plan

associated with it, assess their current interest in site conservation, and raise awareness of the value of Qusayr 'Amra. These activities are ongoing and intended to promote long-term community-based conservation of the site, which is the only effective way to ensure its sustainability.

A second key element of community participation activities is the engagement of local stakeholders at the national and local levels—particularly the two concerned municipalities of Muwaqqar and Azraq. The most important activities to date have been meetings to promote discussion about Qusayr 'Amra, gather information on local attachment and identity in connection to the site, and raise awareness of its values and importance. These meetings have also included an assessment of tourism-related income-generating possibilities, and discussions are currently ongoing regarding the viability of revitalizing local handicrafts and skills for the production of souvenirs to be sold in the visitor center and other tourist locations.





Students from the Queen Rania Institute of Heritage and Tourism (Hashemite University) visiting the site

Capacity building and education

he project also intends to bolster the knowledge and skills of present and future generations of Jordanian conservators, with the ultimate purpose of ensuring the long-term, sustainable conservation of Qusayr 'Amra, as well as other sites in Jordan.

In January 2011, two training courses took place in Amman for staff members of the Department of Antiquities and other skilled conservators in the country. The first course taught technical workers and masons methods of lime mortar production and application; the second targeted conservators and focused on cleaning techniques for mural painting. Trained conservators and technical workers later attended the conservation campaigns and were included in the cleaning and con-

solidation of the exterior of the main building. Due to the complexity of conservation interventions on the paintings, only trained conservators are allowed to work on the mural paintings.

Another educational initiative, the Queen Rania Institute for Heritage and Tourism at the Hashemite University in Zarqa has been collaborating with the project since 2012, and is aimed at enhancing educational opportunities for university students. Two activities were put in place: the analysis of tourism behavior and perception at the site through interviews with tourists and guides, and consideration of on-site interpretation and presentation by analyzing the current visitor center and formulating ways to improve it.

Scientific research and international debate

usayr 'Amra is a unique and fertile ground for new discoveries, and much work remains toward its investigation and analysis. To encourage a holistic approach to conservation and management of the site, the Qusayr 'Amra project regularly organizes workshops that bring together art historians, epigraphists, and archaeologists to discuss new findings.

The continual discovery of new drawings and details hidden under layers of grime and non-original painting necessitates strict philological guidelines and rigid restoration techniques to avoid a loss of authenticity. Specifically, the philological approach requires extended research on the socio-cultural environment and literary/

historic frames of reference of the painters who worked at Qusayr 'Amra.

Research and scientific debate go hand in hand, which is the key to satisfactory heritage interpretation. For this reason, international workshops were organized in 2012, 2013, and 2014 to introduce the project and its initial results to the scientific community. The workshops gathered international experts from Europe, the United States, and the Middle East, and were a successful laboratory of ideas and discussions on heritage conservation, early Islamic art and architecture, and particularly on the interpretation and sustainable preservation of the Qusayr 'Amra World Heritage Site.

Conclusions

he collaborative efforts of WMF, ISCR, and DoA engagement at Qusayr 'Amra have produced spectacular results. The surprising discovery of new paintings, and the details and quality that are emerging in paintings that were once considered to be well understood will certainly change our approach and interpretation of Umayyad art.

The art history component, however, should not overshadow other discoveries made at the site, including a better technical understanding of pigment composition, mortar preparations, and painting techniques.

The concurrent work that produced the site management plan provided the opportunity to engage the local community and create a roadmap for the future integration of the site into the economy of the area.

Contributions to this project will not only ensure its successful completion, but will also guarantee its sustainability through improved practices adopted by the Department of Antiquities, the development of broader skill sets for its staff, and the fostering of a local community that is engaged and participates in the protection of the site.

