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SITE MANAGEMENT, CONSERVATION, PRESERVATION

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Conservation Criteria for Decorative Elements at TT39, from Norman de Garis Davies to the Mexican Mission

This paper analyses the conservation work and guiding principles of the two main work stages at Theban Tomb 39 as an example of "modern world" conservation interventions in the Theban Necropolis in Egypt. The first was headed by Norman de Garis Davies from 1909 to 1916, and the second by the Mexican Mission since 2005, close to its conclusion. The review of both conservation approaches concerning the decorative elements held within a span of 100 years intends to illustrate the criteria and methodologies developed throughout this time in this cultural region.

1. THEBAN TOMB 39

TT39 was built by Puiemra during the 18th Dynasty. He was second prophet of Amun during the reigns of Hatshepsut and Thutmose III. It is located in the Khokha hill, in the Theban Necropolis, facing the processional road to Deir el-Bahari.

The tomb carved out of the limestone mountain rock was completed and lined with limestone and sandstone blocks. The façade was entirely decorated and protected by a columned portico that faced the courtyard. The inside ground plan is formed by a transverse hall and a perpendicular short central axis with two side chambers. The central chamber leads to a vaulted shrine.

Irregularities of the mountain rock were filled in with gypsum plaster. Fine quality and detail polychrome carved—bass and incised—reliefs decorated the entire tomb's walls and most of the ceilings. No mudbricks completed the architectural elements and the surfaces were not fully plastered.

Changes in the tomb began when Thutmose III erased scenes in which Puiemra accounts for his services to Queen Hatshepsut. Defacements of figures and names of Amun were also made by Aton worshipers and were later restored. This was followed by the construction of burial shafts, the reuse of the tomb for the storage of coffins, the division of the inner area by a wall and a new entrance door hewed in the northern part of the façade. Fire was used to purify the tomb. Collapses occurred and several damaged walls were replaced with bricks. After its abandonment, the tomb gradually filled up with sand and debris, concealing the best conserved parts.[1]

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1. Davies 1922.

Karl Richard Lepsius, in 1845, cleared and recorded parts of the tomb; in 1882, Gaston Maspero moved the granite stela to the Cairo Museum.[2] In 1909, the tomb was cleared and vacated for conservation and recording purposes. N. de G. Davies started recording the scenes along with his wife Nina, as head of the Graphic Section of the Metropolitan Museum team, especially during 1915 and 1916. The First World War forced the team to leave the fieldwork unfinished.[3]

2. CONSERVATION DURING THE BEGINNING OF THE 20TH CENTURY

The second half of the 19th century and the beginning of the 20th century was a period of great evolution in the view and approach of Egyptology. New foreign dedicated societies and national institutions were created. The aims of archaeology extended from recording scenes and texts, gathering artefacts for private collections, or excavating individual spectacular sites, to surveying regions, as well as excavating other types of previously ignored sites. The topics of study expanded within a site or region, thus acknowledging numerous new heritage values. New recording and excavation methods were developed. All this marked a clear road to consolidate archaeology as a scientific discipline. The concern for conservation of finds and sites became a priority and was included in these new archaeological standards and principles.[4]

The field of cultural heritage conservation was also consolidated at this time. The growing interest in the history and identity of people and countries intensified the debate on the criteria for heritage conservation. The discussion on the historic value and the limits of the interventions produced guidelines that contrasted with those established by Eugène Viollet-le-Duc, who considered reconstruction as a stylistic restoration, opposed to John Ruskin's defence of a minimal intervention.[5] Early guidelines, such as the *Carta del Restauro* in 1883, attempted to limit reconstruction in order to preserve originality.

Conservation also aimed at a scientific approach to explain deterioration processes and propose conservation treatments. Professional conservation training started worldwide and major European museums incorporated conservation laboratories and professional restorers. However, the multidisciplinary approach to conservation was recent and not yet used. Transferring heritage to museums or to other countries for conservation purposes or justification was still a common practice. Concepts such as reversibility, patina and cleaning recipes were constantly under debate.

N. de G. Davies was part of this historic moment and was trained and influenced by it. His first approach to field Egyptology was working with William Matthew Flinders Petrie in 1898 and, from 1898 to 1907, recording tombs for the Egypt Archaeology Survey of the Egyptian Exploration Fund. From 1907 to 1937, he recorded several tombs of the Theban Necropolis for the Metropolitan Museum of Arts, including TT39.[6]

2. Davies 1922.
3. Davies 1922.
4. David 2000.
5. Caple 2000.
6. David 2000.

3. DAVIES' INTERVENTION

Davies' main objective was to record and interpret the tomb's scenes. He realised the potential of the scenes and the amount of colored fragments when he began to uncover them amongst the debris. He also recognised the need to protect the tomb from major structural hazards and from ongoing looting and vandalism.[7]

He began clearing and recording the interior of the tomb with the help of Harry Burton and Ambrose Lansing.[8] Norman and Nina successfully recorded every detail of the remaining scenes, drafted ground plans and carried out a detailed architectural assessment.[9] The methodology used for recording the scenes included several line thicknesses, documentation of all the lacunae due to deterioration, and evidenced the fragments inserted to complete scenes. However, no proper conservation-based recording and documentation was carried out, probably it was not considered important. N. de G. Davies did, however, make keen observations on the various historical events at the tomb and their impact on its state of preservation, and recorded his work, but not in a systematic way.

The extensive reconstruction on the tomb followed two main paths. The first intended to protect the interior decorative elements. The broken ceiling above the corridor and the façade—the upper part of the entrance wall—were completed.

The second can be seen on three sections of the tomb: the vaulted shrine, the eastern wall of the corridor, and the facade. Walls were rebuilt to complete the structural and architectural design and fragments were replaced to complete scenes or texts. In 1915, realizing the challenge due to the numerous fragments, N. de G. Davies enlisted the help of Ernest John Henry Mackay who reconstructed the collapsed shrine and replaced hundreds of fragments throughout the tomb, under the guidance of N. de G. Davies, with regard to iconographic and epigraphic readings, as in the hunting scene.[10] We ignore who made the technical decisions and who set the criteria.

Although the reconstruction was obvious, N. de G. Davies later felt the need to justify it to the academic community.[11] Therefore, minimal intervention was already an important principle. The intention to keep the decorative elements *in situ* for conservation purposes and not to transfer the fragments was a significant approach. Several relevant but non-located or doubtful fragments were inserted on the walls in empty areas to secure their permanence in the tomb. These were documented in detail for future researchers. He also concealed the shrine to protect it from looters, housing inside the most important fragments that he could not replace.

The reconstructions were carried out with materials that were innovative at the time, such as the metal structure and concrete slabs to seal the ceiling, and iron beams to support the main entrance and the entrance to the shrine. Local and easily available materials were used for the rest of the repairs, even if they were not original constitutive materials. The walls were reconstructed with red bricks (façade) and mudbricks covered with coarse clay-straw and fine clay-sand fillers.

7. Davies 1922.
8. Davies 1922.
9. Davies 1922; Davies 1923.
10. Davies 1922.
11. Dawson 2003; Lythgoe, Lansing, Davies 1917.

Plaster of Paris was used to fix the fragments and to complete sections of the walls, as in the entrance wall of the shrine. Their selection was probably due to their suitable performance, costs, availability, knowhow of local workers and their use since Pharaonic times. Furthermore, they are easily distinguishable from the original constituent materials and reversible.

What N. de G. Davies and his team did not foresee was that these soft fillers allowed for further looting and future damage caused by the combination of clay and plaster of Paris, both in contact with the limestone. Clay provided humidity to the plaster that made sulphate salts migrate and weaken the adjacent limestone. Several voids were left behind the inserted fragments, which nowadays require structural revision. Finally, the iron beams prevented the fragments from being inserted by N. de G. Davies and by us.

Surface cleaning was carried out in a general and superficial manner, mainly with the aim of revealing the details of the decoration for recording and study. Davies' conservation work was not consistent across the tomb; some sectors were treated extensively, while others were left almost untouched. The final presentation of the tomb suggests that he gave priority to recording rather than conservation or interpretation for visitors.

4. CONSERVATION AFTER N. DE G. DAVIES AND UNTIL THE 21TH CENTURY

Over the next 100 years, the world underwent many events: two world wars and huge advances in technology, medicine, science and communication. The fields of archaeology and conservation continued to develop. Excavations undertaken by many nationalities increased in Egypt. Rescue archaeology was necessary because of the new infrastructure that threatened the monuments. These salvage campaigns produced successful and spectacular results, while outstanding royal funerary treasures, such as Tutankhamun's at Thebes became highlights. Furthermore, emphasis on other kind of settlement sites such as the royal workmen's communities at Deir el-Medina increased. Egyptology incorporated multidisciplinary scientific techniques in excavation, following the example of other areas of archaeology where fewer large monuments or written texts have survived.[12]

The cultural heritage concept and its long-term preservation also evolved. Associations and centers like ICOMOS and ICCROM were created to promote heritage preservation. Conservation principles expanded to archaeologic investigation, restoration, presentation and protection work in a systematic way. International agreements were consolidated in multiple guideline charts, along with worldwide concern for wider recognition of values and types of heritage, including tangible and intangible, landscapes and regions, mass tourism, and links with nature and society.[13] Plans were developed to manage the cultural heritage of entire regions,[14] to handle disaster risks and to place the well-being of the population at the centre of conservation decisions. This new view influenced the ancient Thebes and its Necropolis, an area designated by UNESCO as a World Heritage Site in 1979, and therefore of worldwide interest to humanity.

12. David 2000.
13. Agnew, Demas 2008.
14. Leblanc 2008.

During this century, advances in science and technology also influenced conservation. New materials and techniques were applied and their use was later reconsidered against similar or better results obtained with traditional practices and compatible materials. Proper planning and detailed documentation became mandatory, while preventive conservation was preferred to extensive treatments. Digital technology provided new options for dissemination and virtual visiting.

As part of this time, The Mexican Mission undertook the conservation challenge of TT39 in 2005, almost one hundred years after N. de G. Davies. This ongoing project is headed by Gabriela Arrache of the Mexican Egyptology Society, with the participation of the University of the Valley of Mexico and the National Institute for Cultural Heritage in Mexico.

5. THE INTERVENTION OF THE MEXICAN MISSION IN EGYPT

The Mexican Mission's multidisciplinary teams include Egyptology, archaeology, architecture conservation, decorative elements conservation and photography. The decorative conservation team is composed of three Mexican curators from INAH who, thanks to their experience in the field and in teaching, work hand in hand with their Egyptian colleagues. When the Mexican Mission first approached TT39, the tomb was in regular conditions. It was surrounded by 20th century houses and the courtyard and the inside were partially covered with debris. A dirt road was built close by, and looting shafts connected nearby houses to the tomb (see fig. 1). Traces of modern tools used to cut out fragments could be seen; the scenes had been chain-sawed and stolen. Most of the MET team's interventions were still in place, although lack of maintenance resulted in the detachment of fragments. Several other fragments collapsed from the walls and ceilings as consequence of cracks. Traces of fire covered the surface irregularly, thus the polychromy, plasters and stone suffered from stains and cracks, as has been observed in other tombs.[15] The coarse fillers used to block the looting shafts and some reinsertion of fragments are evidence of the scarce and reactive interventions that took place between Davies' time and our work (see fig. 3).

After a general revisew, we concluded that the main objectives of the project were the material and structural stabilisation of the Tomb and its decorated surfaces, and the integration and recovery of its values for academic purposes as well and public visitation.[16] Defining the values of the tomb we want to conserve has been a major concern in conservation decision-making processeses, both in philosophical and technical terms. Apart from the obvious archaeologic and aesthetic values, the passage of the tomb through the centuries has been essential.[17]

Recording and documentation remain a priority. We have digitalised and completed the drawing of scenes and texts by N. de G. Davies. The detailed recording has provided additional information on the decoration that had not been included by N. de G. Davies. New technologies have included

15. Rickerby 1999.
16. Canseco, J., Arrache, G., *Puyemre Project Tomb No. 39*, unpublished document, Mexico, 2004.
17. Grimaldi, Meehan 2017.

digital formats for easier handling. Graphic recording has encompassed Davies' interventions (see fig. 2), traces of historical use, comparison between the scenes after N. de G. Davies and those of today, the current state of art and conservation treatments.

The investigation focused on the constituent materials of the tomb and their behaviour, as well as on the testing of local materials for conservation treatments. The monitoring of environmental conditions aims to provide information for future visitor management.

The fragments are still one of the main concerns. The guideline has been to keep every part of the tomb *in situ*, so wherever possible we have reinserted fragments in their original location, partly following Davies's records. This has made it possible the reinsert large sections that promote understanding of the architectural design of the tomb, such as the entrance of the south chamber. Fragments that cannot be reinserted are saved in storage boxes that will be handed over to the Egyptian authorities and stored in the local magazine, along with a catalogue.

Materials with better affinity and aesthetic integration are substituting clay and plaster of Paris. Lime, local clay (*heba*) and sand fillers increase structural resistance and secure fragments, but are still a reversible treatment. The fillers are applied at subtly low level and at a soft, coarse texture, to achieve homogeneity and a clear distinction with the original materials.

While consolidation is a priority, cleaning is not. However, both are guided by the principal of minimal intervention, as well as by the use of materials with reworkability, applied only to the required sections (see fig. 4). Completion of figures or loss of colour are not considered. In every step of the conservation process, we have considered TT39 as part of the Theban Necropolis.

During the still ongoing conservation treatment, the expertise of the Egyptian workers in Pharaonic heritage, the use of local resources and the knowledge of the Mexican restorers allowed the formation of a strong and harmonious team and a successful conservation programme for TT39.

CONCLUSIONS

The evaluation of the two conservation phases from the point of view of the decorative elements underlines the responsibility of the conservators as actors who certainly affected the history of this tomb, as well as its social context. It serves to recognise that a single stage of conservation is not enough: conservation is an ongoing process.

One hundred years is not so long when talking about the principles of conservation for TT39. The guidelines developed in Davies' time have evolved into worldwide agreements in the forme of written charts on which we base our current interventions. Therefore, the decisions taken in both conservation phases were based on the same principles.

We build upon the experience of N. de G. Davies and our own work on Mexican heritage. Davies' publications, as well as the material traces we found in the tomb, have been an essential guide for us. The current international presence at Thebes has enriched the Mexican Mission proposal. We hope that the material traces and our written and graphic documentation will help future research and conservation projects of TT39.

Long-term conservation of cultural heritage requires more than individual efforts like those undertaken in TT39 by N. de G. Davies and by the Mexican Mission. In the future, deterioration

will continue, so maintenance plans, state of the art monitoring, and testing and evaluation of previous interventions will need to be developed and implemented with the Egyptian authorities. We hope to build on this experience to strengthen the rconservation strategy of the region.

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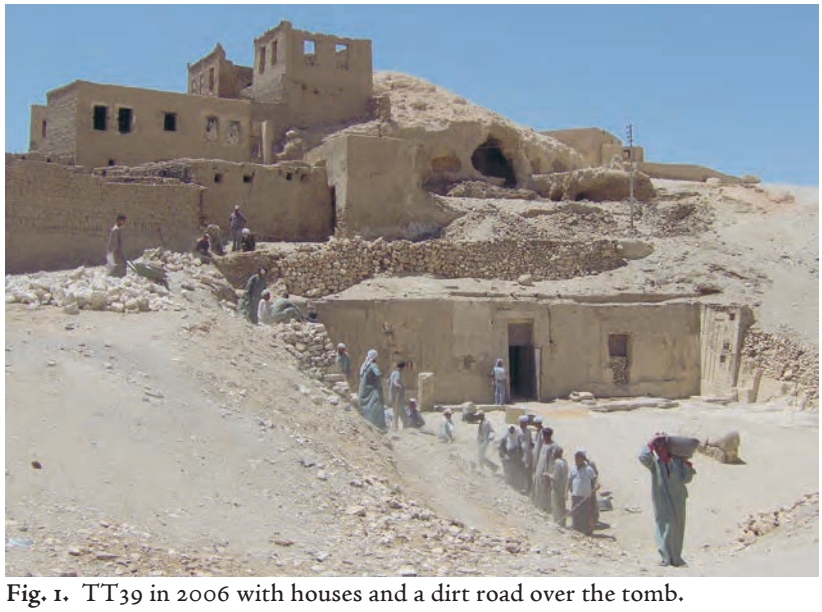

Fig. 1. TT39 in 2006 with houses and a dirt road over the tomb.

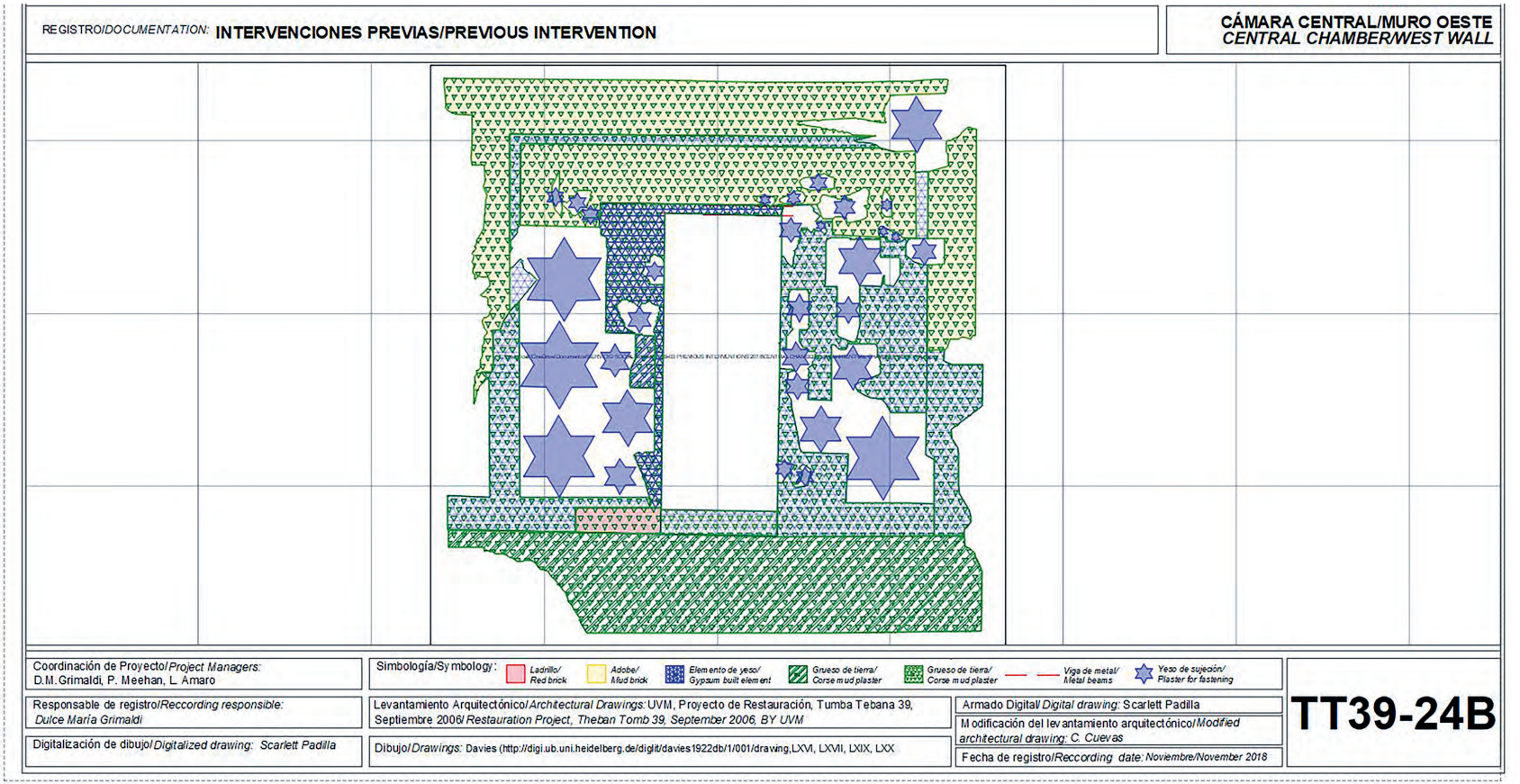

Fig. 2. The Mexican Mission recording of previous interventions done by Norman de Garis Davies (using Davies' scene drawings).

© D.M. Grimaldi, 2007.

Fig. 3. Niche of the South Chamber before intervention.

© D.M. Grimaldi, 2012.

Fig. 4. Niche of South Chamber after intervention.

Mostafa al-Saghir

Accessibility of the Karnak Temples for People with Disabilities

The United Nations' toolkit on disability for Africa explains accessibility as "the provision of flexible facilities and environments, either virtual or physical, to accommodate each user's needs and preferences".[1] The toolkit also describes the level of accessibility sought by providing access to approach, reach, enter, exit, interact with, understand or use a place or a service.

At the international level, many countries have issued laws concerning the rights of people with special needs, such as the United Kingdom's Disability Discrimination Act in 1995, which has been an essential action emphasizing the rights of the disabled. In the Disability Directory published by the Council for Museums, Archives and Libraries in the UK, the differences between the "social model" and the "medical model" have been underlined to highlight the current transformation in people's reflections regarding accessibility for the disabled visitors. The Directory discussed how the "medical model" in the past focused on the disability as a problem, and how the "social model" has introduced a new concept that focuses on the barrier to access as a problem.[2] In this case, obstacles that prevent the visitors with disabilities from obtaining a full visiting experience are considered barriers. The management indeed is responsible to overcome such barriers.

In Egypt, President Abdel-Fattah El-Sissi announced that 2018 would be the year of "accessibility for people with disabilities". This critical decision and announcement gave the green light to the Ministry of Antiquities to launch a plan to prepare the monumental sites and museums to be qualified to receive visitors with special needs. The Karnak Temple has been selected as one of the first sites to enhance its accessibility, as it is one of the main temples in Egypt and the most visited in Luxor. This paper presents both a theoretical and practical approach to improving the accessibility of the Karnak temples.

FEASIBILITY AND FUNCTIONAL APPROACHES

In tourism, a pro rata relation between accessibility and tourism impacts can be proved.[3] Good levels of accessibility lead to positive economic, social, and cultural impacts on tourism, while low

1. Toolkit on Disability for Africa 2016.
2. Lang 2001.
3. Deffner et al. 2015.

levels of accessibility represent a clear barrier to tourism development. Yet cultural heritage sites are not equally accessible,[4] since some of them were built underground. The nature of Karnak as a complex of temples helped to increase the opportunities for a successful physical access.

In terms of management, the project was divided into two stages, each of which was carried out in collaboration with NGO's or government institutions. The first stage was taken through the cooperation between the Ministry of Antiquities and the Helm Foundation as a joint project within a larger project called "Entaleq project". The second stage was completed as a cooperation between the Ministry of Antiquities and the Engineering Council of the Armed Forces. The latter had already worked on the rehabilitation project of the Great Processional Way between the temples of Karnak and Luxor. Since Karnak will be directly connected to the Great Processional Way after the opening, the Engineering Council extended its work inside Karnak, taking into account the application of the new accessibility standards for disabled visitors.

Accessibility is a general term used to portray an overall modality of assistance to people who, in fact, require different types of accessibility, which vary according to the type of disability, i.e. physical, social, intellectual, etc. The project mainly focused on the physical disability, and specified three types of impairment to provide access for: mobility disabilities (such as people using wheelchairs or parents who use a baby carriage), visual impairment, and hearing disabilities.

PHASE ONE: THE NEW IMPROVEMENTS AHEAD OF THE SITE

The World Health Organization defines disability as an umbrella term, which covers impairments, activity limitations, and participation restrictions.[5] However, physical infrastructure has the greatest direct impact on cultural visitors.[6] The majority of the efforts done in this project have been dedicated to enhancing the visiting routes. Special attention has been given to visitors using wheelchairs. The first phase covered the modern structures before entering the temples; such as the Visitors' Centre, Karnak Plaza and the security gates. In this phase, there were no major difficulties in implementing the required new modifications, because the team did not have to work with any ancient materials in these areas.

The promotion of accessibility for the three types of disabilities began at the first spot of the visiting experience, which is the Visitors' Centre, located at the beginning of the court in front of Karnak. It is the place where the visitors first receive information about the history of the temples and the development of archaeological work on the site. Improving access to information was one of the first tasks of the project. For this reason, an accessibility guide was designed to provide visitors with special needs with adequate information on the accessible routes of the Karnak temples and on all the facilities they can use during their visit. The printed guide is available at the Visitors' Centre, in the form of a booklet with a map of the Karnak Temple complex, showing its main attractions, which have been modified to make them more accessible to disabled visitors (fig. 1a).

4. Georgieva 2016.our attitude towards the past also changes. It evolves as people constantly recognise the contribution of increasingly diverse significant features. So we end up with something like this: (human <-> access
5. Dincer et al. 2019.
6. Papathanasiou-Zuhrt 2016.

The building was designed from the outset to help people with reduced mobility. It is already provided with ramps, wide spaces and user-friendly floors. Ramps to the lower level of the hall in the middle of the centre, where the 3D model of Karnak is displayed, were already provided. So, the only change made is the construction of a ramp at the side gate of the northern access to the Visitors' Centre, which leads to the ticket office and Karnak Plaza. The signage system has also been improved to reflect the recent changes. For example, at the front of this gate, an "accessible route" sign has been installed to indicate accessible directions for visiting the temple, along with international sign symbols for people with disabilities.

Our focus thereafter moved to the support of the visitors with visual and hearing disabilities. Informational flyers using Braille tactile writing system in Arabic and English has been provided. The flyers give information about the description of Karnak temples and its history, under the slogan and hashtag #Tourism_without_Barriers. The Visitors' Centre has been provided also with introductory videos in sign language. Those videos are displayed on digital screens in order to explain the main information about Karnak temples for persons with hearing disabilities.

To ensure the sustainability and continuation of the project in the future, a decision has been made to apply the new standards to any new structures to be installed on the site in the future. For example, in January 2020, and as a result of the new project to create a visual identity for Luxor, a new security gate was installed at the southeast end of Karnak Plaza. In addition, a ramp was prepared at the entrance to this gate.

PHASE TWO: DESCRIPTION OF THE IMPLEMENTATION INSIDE THE TEMPLES

The second phase focused on the routes inside the ancient monuments, such as the temples and the shrines inside the enclosure wall of Karnak. The most important issue in this phase was to install the new facilities without damaging the ancient materials and without breaking the rules of the UNESCO's Outstanding Universal Value of Karnak Temples as part of the World Heritage Site of Ancient Thebes and its Necropolis.

The fact that the majority of the grounds in the Karnak temples are made of modern sandstone blocks and tiles has somehow made the application of the new flooring installations somewhat easier. Archaeologists of the past who worked at Karnak during the last century used to change the floors of the most visited areas inside Karnak almost every two or three decades.

At the front area, a wooden bridge, which leads the visitors to the quay of the temple, was added. The bridge was a well-suited solution for adding a wooden ramp (6m long, 1.70m wide, 48.5cm high) with two handrails (6.60m long, 90cm high) to facilitate the movement of mobility tools, such as wheelchairs. The ground at the quay has two levels: a flat floor and a sloping floor. Both have been provided with a pathway (32m long, 1.50m wide) paved with small sandstone blocks (15cm × 25cm × 50cm) at the same level as the original floor, in order to highlight the accessible routes for disabled visitors (fig. 1b).

The avenue of sphinxes in front of the first pylon, the first pylon, Bubastis courtyard and the temple of Ramses III were already accessible. At the north gate of the courtyard, a sandstone pathway leading to the Open-air Museum at Karnak is now operational for the disabled visitors.

The Great Hypostyle Hall is one of the most characteristic places in Karnak and one of the most visited spots as well. Subsequently, it was important to raise its accessibility for visitors with mobility impairments. Two wide axes of pathways have been traced along the Hypostyle Hall, the first axis starts from the entrance of the second pylon in the west and extends to the entrance of the third pylon in the east, while the second axis starts from the northern entrance of the Hypostyle hall and extends to the southern entrance. The two axes intersect at the central point of the hall. Starting from the Hypostyle Hall, all the spaces of the temple have been qualified to be accessible through a new floor made of sandstone blocks with standard dimensions (40cm × 80cm × 12cm) (fig. 1c).

The route which starts from the main axis of the temple of Amun-Re and continues from the third pylon to the bark shrine of Philip Arrhidaeus, passing through the 4th, 5th and 6th pylons has been developed to meet the new accessibility measures. The corridor around the shrine that leads to the chapels of Queen Hatshepsut has met the same measurements as well.

Through the *Wadjit* Hall, a pathway has been built to allow the disabled to move between two areas: the sacred lake of the Karnak temples to the south of *Wadjit* Hall and the *Akh-Menou* Temple of Thutmosis III by a paved route running eastward through the southern side of the Middle Kingdom Court. This route ends with a wooden ramp (8m long, 1.50m wide, 66cm high) provided with two handrails (8.6m long, 90cm high) to reach the ground level of the *Akh-Menou*. The floors in this area are already accessible in some places, such as the colonnade hall and the northern corridor leading to the chapel of Alexander the Great.

Going back to the area of the Sacred Lake, the new improvements have reached around the fallen Hatshepsut obelisk and the scarab statue to the south, expanding for the first time to the side entrances between the 7th and 8th pylons and between the 8th and 9th pylons. The northern side of the sacred lake has been completely improved to allow disabled people to use the cafeteria and reach the eastern edge of the sacred lake and the Sound and Light theatre. The southern axis of Karnak, from the Cachette court to the 10th pylon, was opened to visitors for the first time in 2018 after the creation of a long pathway paved with sandstone blocks to connect the Karnak temples to the Great Processional Way, and later to the temple of Mut.

At the southwest corner of Karnak, there are two important temples with remarkable inscriptions and beautifully preserved colours. The development of routes leading to these two temples would attract more visitors to this area. At present, both the temple of Khonsu and the temple of *Ipet* can be reached by a long pathway that leads from the northern entrance of the Great Hypostyle Hall and extends southward through the massive gallery of fragmentary inscribed blocks uncovered during more than a century of excavations at Karnak. This pathway goes around the temple of Khonsu to the Ptolemaic Gate of the ram sphinxes in front of the temple of Khonsu. Moreover, it goes around the temple of *Ipet*, crosses the courtyard and enters the temple via a wooden ramp (9m long, 1.50m wide, 90cm high) with two handrails (9.50m long, 90cm high).

CONCLUSION

Today, and as a result of the project, disabled visitors can move freely and easily inside Karnak for at least a length of 2,700 meters, on accessible routes paved with sandstone blocks and wood (fig. 2). The Helm Foundation has organized specialized courses in cooperation with the Ministry of Antiquities to train the staff of the Karnak temples, so that they can deal perfectly with disabled people and qualify them optimally to fulfill their profesionnal responsibilities according to the new accessibility standards at Karnak.

In order to get the feedback about this project, a questionnaire was prepared and presented to some disabled (both Egyptian and foreign) visitors. 100 visitors filled the questionnaire. The results were generated as follows:

- 18% knew that the Karnak temples are accessible to disabled people before their visit;
- 77% were satisfied with their visit to Karnak using the accessible routes;
- 82% wanted more services for disabled people, such as accessible bathrooms, audio guide systems and antiquities replicas for the visually impaired;
- 64% were satisfied with the performance of the employees of Karnak with people with disabilities;
- 56% stated that they would give a good feedback to their friends on the accessibility standards in Karnak;
- 71% felt that the accessibility project increases the value of Karnak to people with disabilities.

The visit to any site actually begins before the actual visit. People usually start to collect accessibility information before they decide to visit a place, especially if they have disabilities. The questionnaires showed that only 18% of the sample had heard about accessibility improvements at Karnak. This means that we still need more publicity to inform visitors that further improvements have been implemented. The project is a good step towards new strategies for heritage accessibility, but there is still a lot of work to do in the future. More consideration needs to be given to large-scale services for people with disabilities.

A good visitor experience is one that develops a good relationship between the place and the people. Improving accessibility is a key factor to generate such a relationship. Engagement between the site and visitors at an accessible environment promotes a holistic understanding for the historical and archaeological contexts; no barriers can block this understanding. Improved accessibility has also helped to develop a welcoming environment and encourage repeat visits. Good access to information could attract more visitors from those who could not visit the site before it was made accessible. Not to mention the opportunity to build new relationships with other institutions whose work concerns people with special needs. No matter how perfect the accessibility of the site is, the needs of visitors will continue to grow and change. More attention needs to be paid to constantly improving accessibility in order to promote the diversity of the public.

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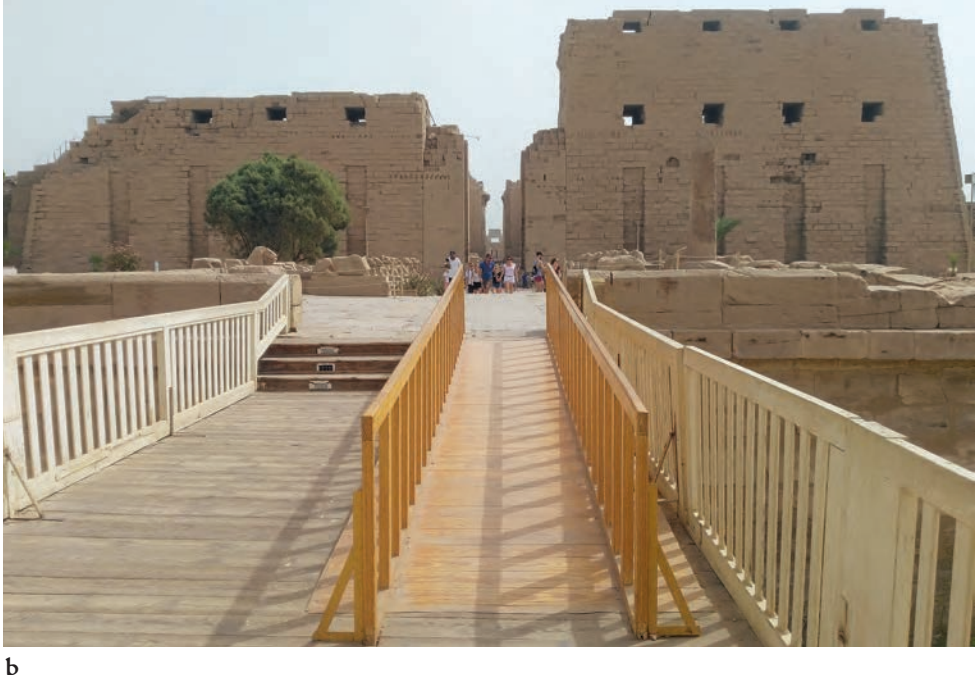
a



b

c

Fig. 1. **a.** Brochure for the disabled; **b.** Wooden ramp; **c.** New sandstone floor.

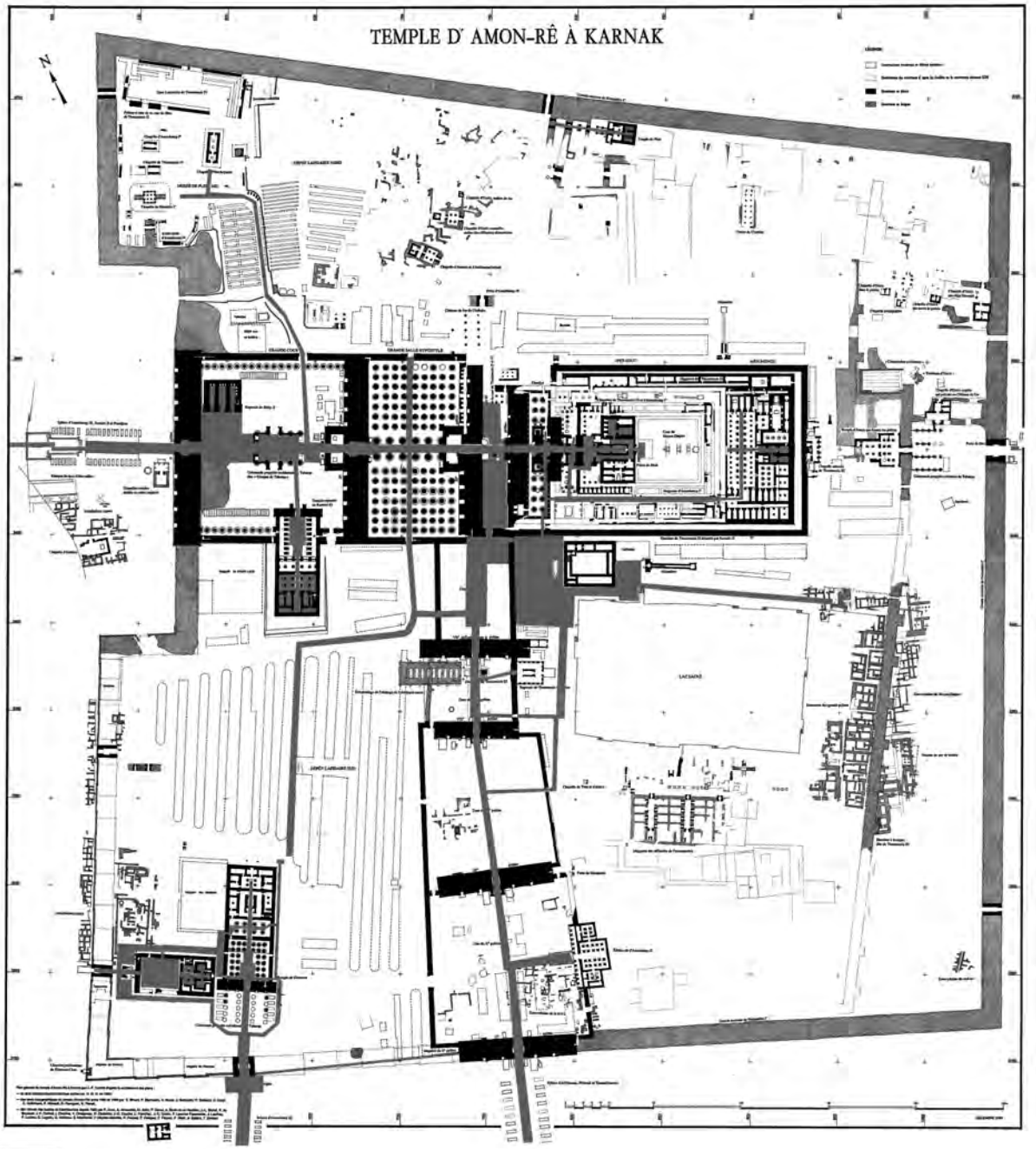


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Fig. 2. Plan of Karnak showing all accessible routes for disabled.