

Beyond Ancient Egypt. Preservation and Valorisation of the Sphinxes Avenue in Luxor and Its Urban Context

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Abstract The excavation and the opening to tourism of the ancient Sphinxes Alley is one of the most extensive works carried out in the first years on twenty first century in Egyptian territory for an archaeological area and, at the same time, one of the most recent urban archaeological operations that has deeply marked the city fabric of Luxor. The paper takes into account the experience gained since 2008 of knowledge, survey and assessment of the state of conservation of a portion of the Road and its immediate nearby, consisting of a compact urban fabric of traditional buildings of not recent formation. The aim of the work was, on the one hand, to identify intervention priorities and methods of managing the archaeological heritage of the Sphinxes that could suggest a rational planning of conservation works. On the other hand, see whether the most recent cultural heritage could become a resource for conducting policies and interventions for the development of sustainable tourism in the area. Research has also led to some reflections on the relationship between archaeological excavation and existing city and the most suitable tourism models for the exploitation of archaeological areas. From these starting points the papers starts.

1 The Scenario

1.1 Archaeology and Existent City. Which Relationship?

The relationship between archaeology and city developed over oldest vestiges is most of the times conflictual. In fact, one makes the way to the other, or vice versa: in relation to the diverse factors that in time have given priority to archaeological discovery or to urban “development”.

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Selection and value judgment have imaginarily driven the use of “destructive pickaxe” in favour of archaeological evidence rather than to successive urban and architectural witnesses, even though historical; or the pickaxe has acted in detriment of evidences when ignored or destroyed if fortuitously found during infrastructural operations that have subjected cities already during the second part of twenty first century.

Rome is an emblematic case in this sense: layered city by excellence, represents an extraordinary example to describe the “relationship between archaeology and city”.

An essay by Italo Insolera written in 1983¹ resumes clearly the alternate fortunes of archaeological investigation and discovery in the context of a compact urban fabric: not a re-enactment of facts, but rather a clear analysis of their conflictual relationship. While firstly, in the time span from the Napoleonic era to the first decades of twentieth century, archaeology has the priority over urban fabric by exalting “roman spirit” through excavations to the detriment of “historical centre”, the second part of twentieth century sees an inversion of roles.

But is licit to destroy layers so as to undercover others? Which layer is more important to urban history? And between coeval stratum is there a value scale?

Once again, selection and value judgement have a role. These two categories are too frequently considered as objective, while they retain an evident subjectivity strongly related to personal feeling and to the historical moment in which they become “operative”.

“Yet in ancient Rome (...) all the subsequent archaeological layers are overlapped (...). Destroy a city of this kind means to strike its whole history; not to substitute an epoch with another, or a style to another. (...) It is taken for granted that an historical urban entirety does not exist; but rather that exist only the so-called “monuments” inside a city not recognized as cultural evidence (...).² Thus, the priority of archaeology over stratified existing city is expressed also through the selection of the evidences discovered; “roman spirit” and renaissance have priority over middle age and baroque, “marble” over “bricks” and “tuff”.

In the second post-war period and in the following years the increase of urban population brings an uncontrolled urban expansion; new roads, new neighborhoods, new infrastructures and services. These are the years of “rescue archaeology”, being not the archaeological excavation to discover evidences but rather documentation of deposits fortuitously found during urban operation and threatened of destruction. “The typical archaeology practicable in a living urban center, (...) is “rescue archaeology”.”³

¹Insolera (2010).

The essay is part of the rapport presented to the venue “Archeologia urbana e centro antico di Napoli”, already published 1983 in conference proceedings. Translation from Italian to English of the authors.

²I. Insolera, *op. cit.*, p. 30. Translation from Italian to English of the authors.

³Gardini and Milanese (1979).

Archaeological discovery, which for years has preeminence over existing city, has nowadays a subordinate position. Urban expansion threatens archaeological complexes and surrounds them with a stranger “environment”, often not planned and lacking in architectural quality. “The issue of relationship between modern life and ancient art is getting critical...”⁴

The context of archaeological evidence changes and modifies “the environment that surrounds every archaeological complex is without doubts the essential element to valorize it... Thus, every rehabilitation has to assume a particular aspect and its validity can derive only from sensitiveness and perception of who is in charge of it. To reach this aim is necessary a long, accurate study; a careful investigation of the area in order to conciliate the needs of modern life to the ones of the archaeological context”.⁵

But it is sufficient sensitiveness and perception of the singular, or rather shared norms and controlled buffer zones are needed?

It is evident that “underground” and “over ground”—discover of the archaeological evidence and safeguard of the built layer over it—are given as incompatible. Which of the two has more “right of existence”?

Such conflict, as in Rome, is evident and explicit in the case of Split historical center, in the traces of Diocletian’s Palace. This case allows some reflection on a theoretical basis, thanks to the existence of essays on the topic written by two important actors of Preservation in twentieth century: Alois Riegl and Gustavo Giovannoni.

Retrace even few passages can reconstitute which are the reflection conducted in the tentative to let the instance of archaeological research and the safeguard of layered historical city coexist, since the first years of twentieth century.

The demolition events in the historical center of Split has started in the years in which Riegl writes; until the end of nineteenth century a dense medieval urban fabric absorbed the traces of the Palace, which emerged only in the peristyle, the mausoleum and Jupiter’s Temple. For a century almost, until 1997—year when the excavations were stopped—demolishment campaigns continued with the debatable aim to reconstruct the disappeared roman “monument”.⁶

The Austrian scholar opens his essay by underlining from the first sentences the principal matter of the question. “A liberation of ancient part of the Palace means, at present, nothing but the elimination of antique and medieval additions (...) (it) has caution to not forget the care of medieval and modern monuments of the ancient

(Footnote 3 continued)

The entire issue of the magazine is dedicated to the relationship between archaeology and urban planning and collects contributions from different disciplines presented in interdisciplinary seminar “Archeologia urbana. Archeologia e pianificazione dei centri abitati”, performed in Rapallo in 1978.

⁴Forlati Tamaro (1967).

⁵Mustilli (1967).

⁶See: Blasi and Carabellese (2005); Lorenzi (2012); Marasovic (1997).

complex. Thus, assumes the challenge to analyse until what point its decisions—given by the interest towards ancient evidences—can be adaptable with the repairing action towards the right of existence of its medieval and modern components”.⁷

It is evident that Riegl introduces the theme of destruction that would occur over urban fabric if it happens, sustaining at the same time the need to give maximum importance to archaeological discovery of the ancient Palace. The subsequent page in history does not have necessarily a minor witness interest: therefore, the effect of demolition should be evaluated.

Gustavo Giovannoni, almost forty years later, writes similar considerations: “the commission is now unanimously convinced that this page, more modest than the first one, is not less glorious, and that the aspect that it has given to Split urban fabric cannot be erased, and even crippled. Split must not remain a dead evidence, but a living city, and its neighborhood enclosed in the ancient monument must preserve Art expression that have overlapped in all times spontaneously and that characterize its most suggestive peculiarity”.⁸

The two scholars propose different solutions for Split, strongly related to their theoretical positions to solve the matter on field; a norm, following Riegl thoughts, should have for “medieval and modern Split” “to guarantee its integrity as the primary scientific interest for the conservation of the ancient evidences of the Palace”.⁹

Giovannoni stated that “freed” the walls and “arranged” the central part, it should be proceeded not with demolitions, but rather with “building reduce” finalized to heal the dense historical urban fabric.

The era of great destructions to set in light archaeological evidences seems to proceed, in the first part of twentieth century, to an end.

1.2 *Archaeology and Sustainable Tourism*

Which relationship occurs between cultural heritage and tourism development, especially when focussing over archaeological assets? When the archaeological research leaves the step to valorisation of discovered evidences and which bond has

⁷A. Riegl, *Rapporto su una ricerca per la valutazione dell'interesse verso i monumenti medievali e moderni all'interno del Palazzo di Diocleziano a Spalato, condotti per incarico della Presidenza della I.R. Commissione Centrale*, 1903, in S. Scarrocchia, *Alois Riegl: teoria e prassi della conservazione dei monumenti*, Boulogne, CLUEB, 1995. Translation from Italian to English of the authors.

⁸*Spalato Romana*, Report of the Academic Commission, 22 novembre 1941, in G. Zucconi, *Gustavo Giovannoni. Dal capitello alla città*, Milan, Jaca Book, 1996, p. 160. Translation from Italian to English of the authors.

⁹A. Riegl, op. cit., p. 340. Translation from Italian to English of the authors.

the investigation with the willingness to increase touristic flows towards an economic development of places?

In the specific case of Luxor, some of the presented reflections are needed. In this site, particularly in past years, the presence of tourists was extremely high, and their impact over everyday life of local community was important.

Therefore, the question is which tourism for cultural heritage?

Sustainable tourism, together with its implications, can be described as a crucial objective for those places that want to develop their economic resources and, at the same time, to safeguard their cultural, social and natural heritage. Thus, it can be defined as “Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities”.¹⁰

The World Conference on Sustainable Tourism¹¹ has ratified, more than two decades ago, the principles over which sustainable tourism should base on, in order to guarantee a fruition of places that would not deplete the resources at the centre of tourism flows, which are by definition scarce and perishable:

- the development of tourism can help promote closer ties and peace among people, creating a conscience that is respectful of the diversity of cultures and life-styles;
- we need to develop a tourism that meets economic expectations and environmental requirements, while respecting the demands of the local population;
- tourism development shall be based on criteria of sustainability, which means that it must be ecologically bearable in the long term, economically viable, ethically and socially equitable for local communities, integrated with natural, cultural and human environment, able to control its impact on the cultural heritage, respectful of the central role played by traditional elements, activities and dynamics of each local community;
- the active contribution of tourism to sustainable development necessarily implies solidarity, mutual respect, participation by all stakeholders/actors, both public and private, conservation, protection, and awareness of the value of natural and cultural heritage, afford a privileged area for cooperation. Sustainable tourism must, first of all, take into account the different opportunities offered by the local economy. It should be fully integrated into and effectively contribute to local economic development. All options for tourism development must effectively improve quality of life in the local community and influence its social and cultural growth; actions should be promoted to allow a more equitable distribution of the benefits and burdens of tourism.

Particularly, is cultural tourism that should set up its development criteria in a sustainable perspective, since its base—cultural heritage—is fragile and suffers from the impact of important numbers of tourism flows.

¹⁰World Tourism Organization, *Definition*, <http://sdt.unwto.org/content/about-us-5>.

¹¹Lanzarote, Canary Islands, April 27–28, 1995.

Mass tourism brings evident issues due to the concentration of great numbers of people in few places for limited time during the year. This model is facing difficulties in recent years also due to the still unsolved economic crisis.

Every site has its own “carrying capacity”. That being so, it could stand a maximum number of visitors without being damaged in its cultural and natural environment, or without representing a worsening instead of an enhancement in terms of quality of life of local residents, whose needs are in conflict with the ones of tourists.¹²

“In tourism, in fact, it is realized the encounter of two communities: the one of tourists (alien species) and the one of residents (endogenous species), which aspirations or desires of use of some resources can be concurrent (congestion effect) or counter posed (externality effect). The issue is more evident and/or severe when the availability of resources is reduced; when the two categories are not homogeneous (e.g. cultural diversities or contraposed aspirations over the use of shared resources) and more the arrive of “alien species” develops relationships (interests) counter posed to the hosting community (e.g. between opponents and creators of a certain kind of territorial transformation)”.¹³

Without going in depth with the damages that concentrated tourism flows can cause to physical conservation of the historical architectural heritage, it is evident that mass tourism tends to substitute indigenous productive activities, to modify the context in which population lives in, rises the consume of resources like water and energy by concentrating, on the other hand, economical benefits coming from this revenues over a reduced number of operators from the sector (frequently of great dimension and, in case of emerging countries, the capital is often coming from abroad).¹⁴

The resident population in sites of major tourism concentration, has to face strong modifications to its territory, which is adapted to the needs of tourism. Frequently, local community has to cope with a decrease of purchasing power caused by an adjustment of life cost to different standards.

These issues are particularly evident in emerging countries where the two communities, the one of tourists and the one of inhabitants, are in conflict. Tourism should limit the negative impact over these places, becoming a key factor to reduce poverty and social inclusion, instead of being the trigger of these problems. It is fundamental to set up “measures to prevent or minimise the potential negative social impacts of tourism, such as competition for land, water and other resources, and unwanted social change, including crime and sexual exploitation. This emphasises the need to ensure that local communities are consulted, engaged and

¹²WTO, 1999.

¹³S. Bimonte, L. F. Punzo, *A proposito di capacità di carico turistica. Una breve analisi teorica*, in “EdATS Working Papers Series”, n. 4, January 2004. Translation from Italian to English of the authors.

¹⁴E. Poggiali, *Turismo sostenibile*, elaboration from ENEA sources, Gruppo di Coordinamento Agenda 21 “Terre di Siena”.

empowered to influence decisions on tourism development and operations that may affect their livelihood and society”.¹⁵

The importance of sustainable tourism is at the base of the reasons that have led the 2030 Agenda for Sustainable Development,¹⁶ promoted by United Nations, to state “through Sustainable Development Goal Target 8.9 to devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products”, underlying its importance also in the Sustainable Development Goal target 12.b.¹⁷

“Tourism must consider its effects a cultural heritage and traditional elements, activities and dynamics of each local community. Recognition of the traditional elements and activities of each local community and support for its identity, culture and interests must at all times play a central role in the formulation of tourism strategies, particularly in developing countries”.¹⁸

1.3 Luxor “World Heritage”

The research area was listed as World Heritage in 1979 as part of a broader site including “the temples and palaces at Karnak and Luxor and the necropolises of the Valley of the Kings and the Valley of the Queens”.

In order to frame the context in which project proposals were posed—as will be described in next paragraphs—it is useful to recall briefly the threats underlined in UNESCO state of conservation reports, in a time span that starts from nomination year until the beginning of the project concerning “ancient Thebes and its Necropolis” site.

The first UNESCO online report is dated back to 1998.¹⁹ Matters include the village of Gurnah, set in Kings Valley, and the move of population decided by local authorities to a different site, since the settlement was built over archaeological traces and that wastewater coming from the village might harm underground heritage.

UNESCO recommends to investigate in detail to evaluate carefully architectural characteristics of more recent settlements and the environment, before moving inhabitants.

¹⁵UNWTO (with the financial assistance of the European Union) *Sustainable Tourism for Development Guidebook. Enhancing capacities for Sustainable Tourism for development in developing countries*, 2013.

¹⁶Egypt launched in March 2015 its strategy for sustainable development “Egypt’s Vision 2030”, in agreement with the targets of Agenda 30.

¹⁷*Sustainable development, Knowledge platform*, <https://sustainabledevelopment.un.org/topics/sustainabletourism>.

¹⁸*Charter for sustainable tourism*, Art. 3, Lanzarote, 1995.

¹⁹The mentioned and other information can be retrieved from: <http://whc.unesco.org/en/soc/3099>.

The subsequent report, dated back to 2001, is focussed over the same themes, underlining: “Possible conflict between conservation requirements and safeguarding of socio-cultural character of the local community”.

In 2006 the main problems of the site might be summarized as follows: “Crop production; Deliberate destruction of heritage; Flooding; Housing; Identity, social cohesion, changes in local population and community; Land conversion; Management systems/management plan; Water (rain/water table)”.

In 2008 a joint World Heritage Centre/ICOMOS mission conducted between 18th and 24th of April discloses some important matters on the investigated area of study.

Specifically: “ICOMOS reviewed the mission report and made the following remarks: (a) The information made available demonstrates that while the Master plan is very much about cleaning up, improving image and conditions for tourists, renewal, sanitization etc., it is not about protecting the Outstanding Universal Value of the site. As a result, little attention has been given as to how best to maintain the complex set of historic layers which underlie the Thebes inscription on the List, and that indeed many significant parts of the site are being needlessly discarded. (b) The demolition of some of the structures near Karnak, the later urban settlements between the two temples and of substantial parts of Gurnah are neither acceptable approaches within contemporary conservation theory (which demands that changes be limited to only those essential to meet critical functional needs, and here, only where this can be done without loss to heritage values), nor respectful of the property’s Outstanding Universal Value. Even if some of these places are not what would be described as “antiquities”, they should be protected as being indissociably connected to the development of the site, and therefore worthy of the strongest protection efforts (...). (c) The demolition of structures along the proposed Avenue of Sphinxes linking the Luxor and Karnak temples is an effort to reconstruct past physical relations. However, the Operational Guidelines stress that “in relation to authenticity, the reconstruction of archaeological remains or historic buildings or districts is justifiable only in exceptional circumstances”.²⁰

2 Project Proposals

2.1 *Addressing Sustainable Tourism. Some Enhancement Proposals for the Context of the “New” Sphinxes Road*

Starting from considering the city of Luxor as an open air museum, defined enhancement proposals have the aim to implement the quality of settlements and of life for inhabitants and tourists in the entire city both. This aim must be pursued

²⁰World Heritage Committee, *Mission report*, Thebes and its Necropolis (Egypt) (C 87) 18–24 April 2008, source <http://whc.unesco.org/en/soc/3099>.

through adequate strategies, able of facing coherently: the relationship between tradition and innovation; the relationship between archaeological estate, urban fabric, monuments, natural landscape, mobility.

The proposed strategy is articulated in actions different, but necessarily complementary:

- Considering buildings and spaces, structural territorial traces, memories, uses, customs, etc. can play a primary role in addressing planning choices oriented to urban requalification;
- Consideration of the system “Luxor Temple—Sphinx Avenue—Karnak Temple” as the fundamental city system. Therefore, the system should not be considered as a “monumental enclosure”, isolated from the rest of the city, but as a generative device of relationships, of unexplored physical and visual connections, of new modes of organization of spaces of the city in their numerous configurations and complex uses;
- Design of public spaces organization, beginning from the requalification of those places made recognizable by uses and collective practices. Their enhancement can produce their reconsideration in a new relationship with spaces and city equipment (both existing and new).

Particular attention should be paid to the surrounding complex of Karnak.

The archaeological area (Figs. 1 and 2) is, at time of survey campaign, nearby to some very poor neighborhoods but retain potentially interesting ethnographic values (Figs. 3, 4, 5 and 6).

It would therefore be appropriate to limit demolitions to what is necessary for archaeological knowledge, and proceed to the rehabilitation of the other recoverable buildings.

“Modest” buildings in adobe but decorated with recent frescoes of family pilgrimages to Mecca, trees protections in adobe (which could be used as an inspiration for newly designed green areas), urban green spaces, constitute an ethnographic potentially attractive value for tourists interested both in public monuments and in the local material culture. Materials, architectural elements and construction techniques are traditional: masonry with mud bricks; plaster made with earth mixed with straw, finishing with polychrome brushed painted; slab-load bearing wood beams, intrados in wattle, plastered and painted; flooring and cladding elements made in fired clay.

In this area there is also a palm grove, located east of the temple, which could connect to the Sphinxes Alley, at least visually with appropriate movements of the ground (Fig. 7).

To the west, the wall of the monumental complex, made in adobe, make the place particularly attractive.

Some of these buildings and urban spaces, in case of a conservation compatible with archaeological and urban needs, could be rehabilitated and involved in the tour. For example, a small building used as a neighborhood centre located in the



Fig. 1 Views of the Sphinxes Avenue, 2009



Fig. 2 During the excavation works and the foundations of the found Sphinxes

green square with typical adobe building, next to the west wall of the complex of Karnak (Fig. 8).

This building, dating back to 1917 and existing at time of survey campaign, could be restored with modern and well proved adobe conservation techniques and, while maintaining the current destination, be open to visitors who will find here the local culture and, perhaps, a refreshment area with traditional products.

The aim of this project is to preserve these important proofs of traditional architecture in adobe and make them protagonists of an urban regeneration process useful to archaeological heritage.

The building becomes a Folk house to support, on the one hand, a new kind of relationship between local people and tourist based on showing of traditional ways of life, while on the other to improve social opportunities of meeting for local people. The project shows what kind of interventions the existing building needs in order to become a new urban reference and a social focus point (Fig. 9).

Preservation interventions, a needed premise for the enhancement of this kind of traditional architecture and change in use, are referred to the state of conservation surveyed and investigated at the time of the in situ research; the operations described as follows are indicative and need a preliminary and detailed diagnostic



Fig. 3 Children walk through the Sphinxes Avenue back from school, 2009



Fig. 4 Views of the village near Karnak temple, 2009

phase before become executive. The green square in front of this building could be upgraded both for tourists and for the population. Besides, in this building, as in another made with the same technique, could be hosted a small information center on adobe building modernization and restoration techniques. The restoration of the stretch of Alley excavated in the early decades of the twentieth century, the arrangement of a public park, the recovery of some traditional buildings in this area south west of the fence of Karnak, could become an alternative access for the main



Fig. 5 Open spaces in the village, 2009



Fig. 6 Handcraft area in the village, 2009

archaeological site to that of busses, used, for example, from visitors in non-organized groups (pedestrians, carriages, bicycles). These kinds of tourist are probably also interested in create a contact with the local population and with its traditions and way of life. This small (but important for the new models of sustainable and compatible tourism increasingly spreading worldwide) flow of visitors may also provide a modest entry of money for the people of Luxor that, perhaps organized in “Cooperation”, could offer food and quality craft products, far from the large-scale trade that does not protect in any way the identity of the sites.



Fig. 7 Palm grove near Karnak temple. Space for relax and restoring (graphic simulation)

These works could be financed by N.G.O. in form of “microcredit” or with cooperation project.

2.2 Notes About Conservation State of the Sphinx System

The knowledge project of the Sphinxes road as a system and as singular elements is the necessary premise to intervene punctually and efficiently over an archaeological heritage that it is not subjected to any systematic maintenance or conservation intervention, although it is subjected by the natural process of decay.

Another characterising aspect of this archaeological site is the presence of inhabitants. The entire dig road crosses the core of the city, creating two diverse

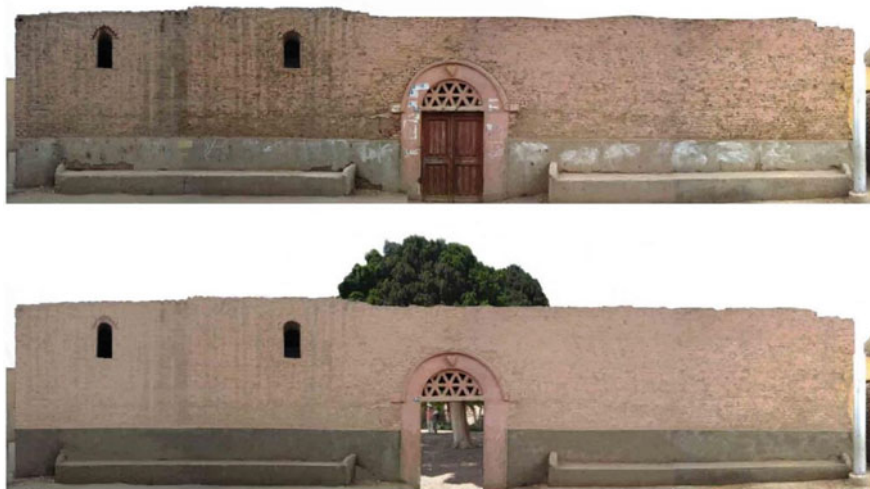


Fig. 8 Folk house: façade before (2009) and after conservation works (graphic simulation)

conformations. In the proximity of Luxor temple, the settlements are few meters below the road and city level, thus reducing the spontaneous pressure of inhabitants; instead, nearby Karnak temple the situation is extremely different (Fig. 10).

At time of survey the rural village is at the same level of the road and often the few evidences of this archaeological heritage, although sometimes not recognizable and extremely fragmented, are used and lived daily in an unstructured way by the inhabitants (e.g. becoming the scenography setting for children's play, support for bicycles or carts...) (Figs. 11 and 12).

If this situation is potentially more dangerous for the conservation of archaeological heritage, the continuity of the archaeological dimension with the urban one is extremely interesting and might become an opportunity, if properly managed, to generate a process of valorisation of existing archaeological, architectural and rural heritage.

The willingness to define a knowledge process of the road "system" in its entirety, without ignoring its complexity (every sphinx came us in different conservation state and completeness) has required the creation of a GIS (Geographic Information System), to locate the geographical forms, to be compared and combines different types of information (textual, numerical and iconographic).

GIS becomes also a useful tool to plan preservation interventions on the sphinx, in terms of intervention priorities or/and modality.

Concerning the "Avenue of the Sphinxes" near Karnak, set inside the rural village, it has been studied a survey of archaeological structures.

The database contained in the GIS for these items has been completed for a sample area, but designed to be upgraded in situ by the archaeologists and extended to all the sphinxes already excavated.

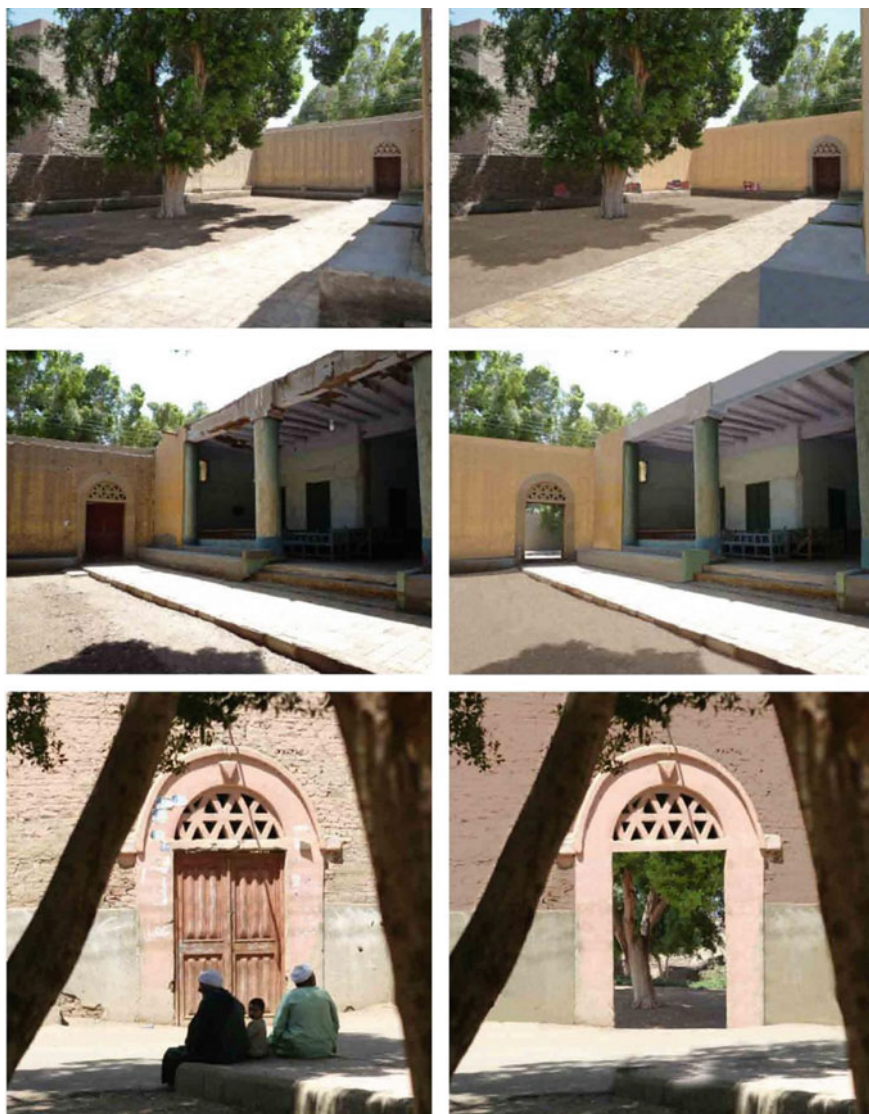


Fig. 9 Folk house: some views before (2009) and after conservation works (graphic simulation)

The information gathered in situ through the phase of direct survey (visual, photographic and using measurement tools) reference to two specific aspects of this archaeological heritage: the state of consistency and the one of preservation.

All the information have been inserted in the GIS database and subsequently elaborated through thematic maps (see Rosamaria Rombolà "The GIS for Urban



Fig. 10 The rural village at the same level of the Sphinxes Avenue, 2009



Fig. 11 The Sphinxes into the rural village, 2009

Analysis and Risk map of archaeological site: the case of Sphinxes Avenue in Luxor”).

From the methodological perspective, it was necessary to define synthetic categories able to explain the complexity of the heritage under investigation, without punctually reading its characters: this is an appropriate *modus operandi*, referred to the specific data to investigate and its different manifestations in situ.

Regarding the state of consistency, namely the parts effectively still existing of the single Sphinx and their morphological recognisability (not an abstraction of the



Fig. 12 Sphinxes become the setting for children's games, 2009

architectural-sculptural element of the sphinx, but a punctual lecture of existing heritage and of its consistency), seven principal categories have been defined that, if necessary, can be combined one to the other. Sphinxes can be considered as a system composed by a basement and an anthropomorphic body; starting from the most fragmented and incomplete situation under the morphological perspective until the complete form (basement and body) the categories defined and then inserted in GIS database are: significant tracks no longer recognizable; tracks no longer morphologically recognizable; tracks hardly recognizable; tracks basement; basement; partial body; complete body.

A part from the important information related to the completeness of the evidence is necessary to individuate its state of conservation, in order to program preservation interventions efficient and punctual over the archaeological heritage of the Sphinxes.

Specifically, during the investigation conducted at time of survey over the sector of the road nearby Karnak temple decays and structural issues have been identified.

Four different categories have been individuated, from the less to the most severe:

- alteration of the visual aspect and color: discoloration, chromatic alteration, stain, patina;
- deposition or formation of new materials: biological crust and climbing plants, crust, deposit, efflorescence, encrustation, film, soiling;
- loss of stone material: missing part, erosion, perforation;

- loss of mechanical strength: crack, deformation, fragmentation, splitting, loss sealing, break out.

For each category have been identified four levels related to the presence and diffusion of decay phenomena (absence, low, average and high) (Fig. 13).

In order to define a knowledge process that can have also an operative character, numeric coefficients have been associated to each abovementioned decay category, which represents also in quantitative terms the priorities of intervention (Fig. 14).

Methodically, the choice was to associate low numerical coefficients for less serious degradation to high values in more graceful situations requiring urgent intervention. It is important to define this quantitative element to outline modalities and timing related to more risky situations, as it is necessary in the eventuality of an effective intervention of preservation over archaeological evidences, in terms of gravity and extension (localized or diffused) of surveyed decay phenomena.

The abovementioned modality of knowledge, reading and interpretation of the state of the arts during the survey has allowed to give a synthetic judgment over the Sphinxes road, analyzing the system in its complexity and individuating the main peculiarities.

The research has proposed a methodological approach specific and punctual: two phases are defined (safety and diagnostic), which are the premise for every punctual intervention over the Sphinxes, and a pilot preservation project.

For what concerns the safety procedures of this archaeological heritage, starting from the existing situation as surveyed in the on-situ investigations, have been recognized as urgent the following operations:

- General cleaning and presence of waste material. The system of the Sphinxes, as already mentioned, is structured in an urban context extremely populated: the problem of waste, which characterizes the entire city, interests also the road that becomes the privilege place of abandonment of object and materials not in use anymore. The removal of waste is clearly the first operation that demonstrates respect and awareness of the collective value of this archaeological heritage;
- Driveway: production of new pavement and connection with the level of Sphinxes. It is necessary to define a new level (paved or not) in correspondence with the road in order to reduce, on the one hand, the rising damp from soil to Sphinxes (especially in case of traces or absence of basement) while, on the other, to manage the system of collection and removal of rain that will spontaneously deposit, therefore activating decay processes that set at risk the subsistence of materials (rising damp, disaggregation, powdering...);
- Classification, collection and recovery of the fragments located on the ground. Nearby the Sphinxes, especially in the portion that crosses the rural village beside Karnak temple, stone fragments that in time detached and fallen to the ground are now in complete abandonment. These evidences, although are incomplete and fragile, are a heritage to discover and preserve. An accurate photographic and geometrical survey, together with fact-sheet documentation and the choose of an intervention strategy to assure material conservation

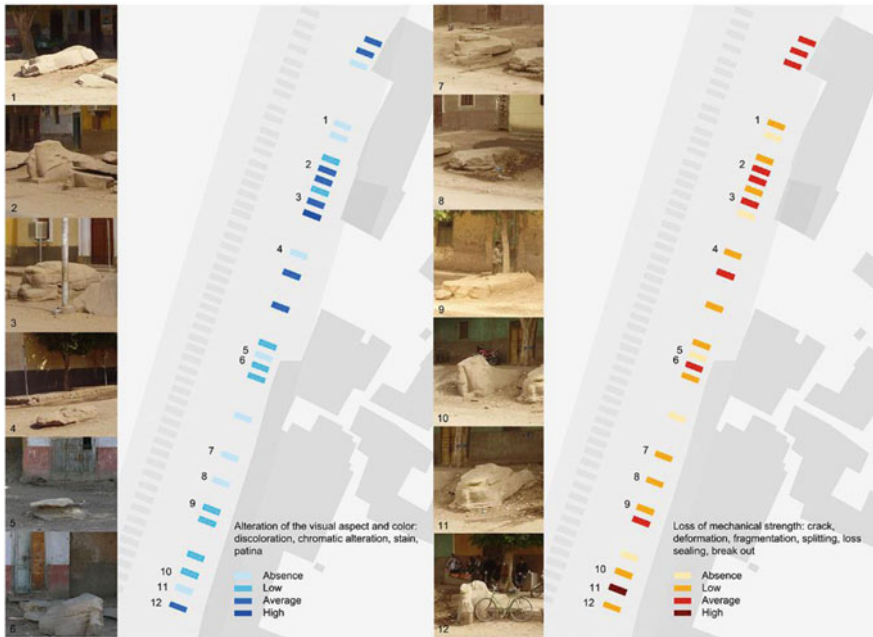


Fig. 13 Severity levels of decay phenomena. Examples for “alteration of the visual aspect and color” and “loss of mechanical strength”



| STATE OF CONSISTENCY | | |
|--|-------|-------------|
| Partial body | | |
| STATE OF CONSERVATION | | |
| TYPE OF DISEASE | LEVEL | COEFFICIENT |
| Alteration of the visual aspect | 1 | 0,2 |
| Deposition or formation of new materials | 1 | 0,3 |
| Loss of material stone | 2 | 0,6 |
| Loss of mechanical strength | 1 | 1 |

Fig. 14 Examples of cataloging of Sphinxes

(in situ, ensuring the protection from misappropriation, or in archaeological deposits);

- Generalized dry cleaning with small hand tools (rags, brushes, paint brushes) and low pressure airless: this action allows the removal of all the incoherent deposits that at the moment do not represent a worsening of conservation state, but if not removed can transform in decay products that might change physical-chemical and mechanical composition of stone materials;
- Temporary seals to reduce the ongoing deterioration (erosion, fracture, loss...), provisional interventions to reduce damages caused by severe decay phenomena, before a punctual intervention of conservation.

After the first phase of safety procedures of this archaeological heritage at risk, a diagnostic activity must follow. The objective, in the different actions listed, is to develop a framework of knowledge regarding the state of the arts the more complete and detailed possible, referring not only to chemical, physical and mechanical characteristics of stone materials that compose the Sphinxes, but also to natural and artificial elements of the context. Only a profound knowledge of the reality investigated allows the definition of an effective and aware intervention.

In the specific case of the Avenue of the Sphinxes a check of ground-water level and of the presence of dissolved salts represents a priority. The presence of water in stone materials is potentially a hazardous agent that triggers significant decay processes. Understanding the level of ground water and its seasonal growth represents an important information to quantify the phenomenon of rising damp from the ground, and to define adequate strategies to reduce negative effects. Not only the quantity of water, but also its composition is a necessary factor to complete the framework of knowledge: the presence and chemical composition of soluble salts is in fact an hazard element that allows the formation of efflorescence (crypto or sub) extremely dangerous for material conservation.

To understand the effective consistency of archaeological heritage, that might be partially covered and protected by soil, the use of geo-radar is recommended. This technique is not destructive and is able to identify material discontinuities underground. This phase would therefore be preliminary in order to start, if necessary, localized excavations. If these two diagnostic phases are referred to the system of Sphinxes and are necessary to understand some specific characters of this heritage, the subsequent ones are strictly related to single Sphinx.

Analysis of lithic-type for recognition of chemical and physical characteristics and the consequent choice of techniques and products to be used in intervention for preservation are fundamental: through samples gained in situ, choosing properly the position in order to reduce at maximum the external obstacle elements and the specific lab analysis both, it is possible to understand precisely the chemical and physical peculiarities of the material, important information in the decision of techniques and products for the intervention of conservation. That being so, these are not theoretically but practically adequate and efficient to the investigated case.

The last step of diagnostic process is the survey and mapping of disease and ongoing degradation. In this phase, the results of precedent phases are interpreted

and set in relation, in order to understand in the most correct way the state of the arts and its complexity.

Through a detailed direct and photographic investigation are surveyed, localized and then turned in drawing the material and structural decays, individuating the causes.

Following the safety procedures and diagnostics phase the pilot project has been defined.

As case study was chosen a specific Sphinx that, at the time of the survey, was significant for its consistency and the decay phenomena present (Figs. 15 and 16). The preservation project indicates precisely the technical operations (cleaning, strengthening and protection) and the specific execution modalities. Thus, the project was an important occasion to test in situ the validity of aforementioned operations.

The objective is to define all those useful and necessary actions to reduce decay phenomena that would set at risk the subsistence of stone materials, which compose this archaeological heritage. The preservation project indicates punctual interventions over causes that trigger decay phenomena: to not recognize and so, not intervene over external risk and acceleration of decay factors of materials would make the intervention not useful and partial.

The objective of the intervention is essentially to preserve the material consistency of Sphinxes: to remove all the deposits caused by chemical alteration processes of the existing material (e.g. crusts, soiling...); to consolidate materials subjected to breakage or consumption (e.g. erosion, disaggregation, powdering...) so that their consistency can be reinstated (superficial or deep, basing on specific situations); to apply products able to protect materials from natural decay causes (water, wind, sunlight...).

Therefore, the preservation project aims to slow down natural decay processes of material, not to stop them. The project will then be followed by a maintenance programme able to indicate, in specific time and modalities, the operations to carry on in order to permit conservation and transmission of archaeological heritage to future generations.

In the pilot project the operations, which localization and extension are indicated on a three-dimensional base, are the following:

- Cleaning: dry or with laser equipment. The proposal of two techniques (tools, product and manpower different one to the other) will allow—if the intervention would be realized—to test the different results in terms of efficiency and costs, permitting to choose the most adapt modalities in regards of the needs;
- In case of presence of efflorescence and crypto-efflorescence (see results diagnostic phase) testing of packs for the extraction of soluble salts (ammonium salts, ion exchange resins) to choose the most efficient and less invasive one for existing material;
- Sealing: testing of products to fill the gaps in order to restore a uniform surface and less attack from water and atmospheric agents. Testing of products for use in depth and surface;

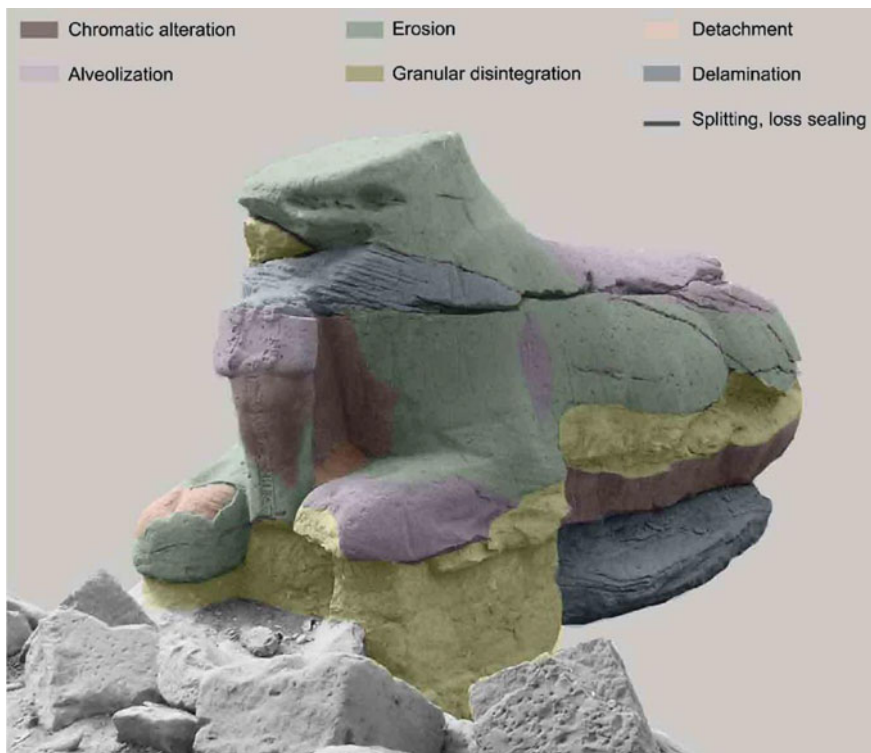


Fig. 15 Case study Sphinx: diagnostic phase

- Consolidation: consolidating testing of products and methods of application (leaching, spray, brush). The choice of product will be a direct result of information obtained during the diagnostic phase (for example ethyl ester, acrylic resin);
- Protection: testing of protective products and methods of application (leaching, spray, brush). The choice of product will be a direct result of information obtained during the diagnostic phase (for example silicone resins, mixtures of acrylic and silicone resins).

3 Final Remarks

The research project described has allowed to conduct some important experiences in the field of international cooperation for the safeguard of cultural heritage.

Firstly, it has permitted to analyse in detail the state of conservation of an important witness of the past as the Sphinxes characterising the Avenue are, being it

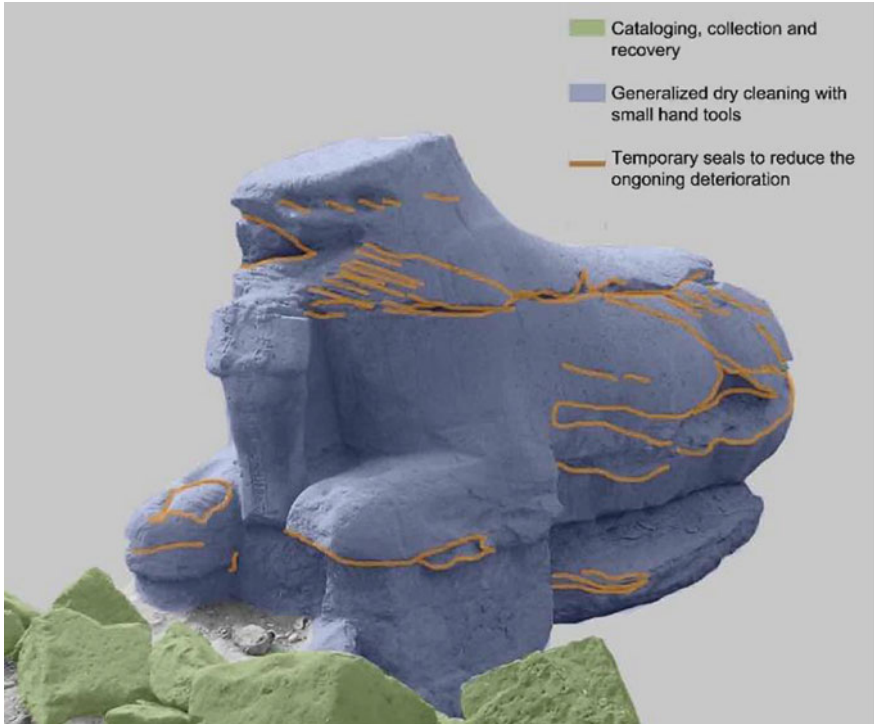


Fig. 16 Case study Sphinx: put in safety procedures

the evidences discovered during excavation or the one already known connected directly to the road level both.

The presented results concerning the state of conservation and intervention hypothesis constitute first and provisional indications that have to be supported by a process of analysis and lab test in situ. Thus, this action should be done to verify the consistency of decay phenomena and to experiment intervention techniques in an environment severely under anthropic and weather conditions pressure.

What the research aimed to demonstrate is the validity of the proposed methodology that is based on accurate studies and intervention hypothesis not decided on field, but designed on the base of a preliminary knowledge project.

Another important result of the research was to confront valorisation policies regarding archaeological areas and, more in general, of cultural heritage, in a context different from the one which we are used to, and that represents the knowledge reference of the author.

The relationship between archaeology and city assumes in Luxor theoretical principles and intervention practices different from the ones covered by actual European positions. For this reason, they must be read and analysed in the reference Egyptian scenario, in order to be fully understood. The lesson learned in this case is

related to the capability of interpreting a context without preconceptions, so as to understand and sustain our positions and knowledge, proposing them to colleagues from another country.

Similar considerations might be done over the theme of touristic valorisation and regarding the different ways to interpret which are the needs and requirements of tourists, and how much those have to set a relationship with the necessities of the community. Sustainable tourism is a gradual process that must be guided by local stakeholders and therefore requires a great awareness from the population about the dual occasion that it offers: to enhance living conditions and increase at the same time visit experiences, improving so tourism flows and touristic fruition of the site.

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Advice

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