



# Heritages and Memories from the Sea

1st International Conference of the UNESCO Chair in  
Intangible Heritage and Traditional Know-How: Linking Heritage  
14-16 January 2015. Évora. Portugal  
Conference Proceedings

Filipe Themudo Barata and João Magalhães Rocha (Eds.)



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### Organization and Scientific Committee

University of Évora, CIDEHUS and Department of Architecture, Portugal  
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### Conference Proceedings

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# **Editors' preface**



# HERITAGES AND MEMORIES FROM THE SEA

## EDITORS' PREFACE

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These are the proceedings of the first international conference organised by the UNESCO Chair in Intangible Heritage and Traditional Know-How: Linking Heritage, dedicated to the theme “Heritages and Memories from the Sea”.

This international meeting, as well as the chosen theme, seeks to address the need to discuss the present situation of sea heritage, deconstructing past ideological representations with a view to developing a sense of a common history and a shared future.

In the following lines, we would like to explain this choice more clearly. Part of Portuguese, European and world history was built around the capacity to access the sea and control maritime routes. To look no farther, the Romans were organised around a sea they called their own, the city-states of Italy and the North Sea left their mark on history by controlling maritime traffic, and the European colonial empires were largely maintained by their ability to control trade routes and strategic areas such as straits. In the Indian Ocean, the Omanis and many Indian states, as well as the Chinese in their cyclical expansionist movements, also regarded the sea as a key element in their strategic policy.

As is known, these expansionist or territorial defence policies – often undertaken for military purposes, or driven by a clear religious proselytism – eventually gave rise to an extraordinary architectural heritage that includes forts of pioneering military engineering, religious temples of the most varied origins and port infrastructures of different dimensions.

However, the legacy that is the subject of this meeting goes far beyond these constructions, hence the use of the plural form: ‘heritages’.

Every sea and ocean has always secured the livelihoods of families, groups and communities. It is no wonder, therefore, that there is a special correlation between this strong link to the sea and the maritime economy that sustained it, or the social practices attached to it. This aspect makes maritime heritage a very special case in which various ‘heritages’ almost merge together into the definition of local identities, and places and the sea itself merge with the intangible heritage associated with it. Perhaps due to the dangers involved in sea activities, these social practices are mixed with religious and cultural expressions – particularly interesting, even striking, phenomena for those who experience or observe them.

But these were not the only reasons for the choice of the conference theme. Indeed, in the contacts made by members of the Chair team in several countries during research work – from San Francisco and Boston in the US, to Cape Verde, Morocco and Italy – the strong connection of the Portuguese to the sea was frequently evoked. Although this image is strongly anchored in the architectural heritage, built and spread across

the five continents from the beginning of the 15th century onwards, it clearly transcends this legacy.

In many Moroccan cities and regions the Portuguese were regarded as fortress builders, but also fishermen and partners in the pioneering industry of fish preservation. In California, the Portuguese – in particular from the Azores – were the formidable fishermen who taught the art of whaling, at a time when the early days of the Azorean diaspora left indelible marks in Hawaii, before the gradual migration to the Californian coast. In the Indian Ocean region, though, what remained is a history of war and conquest, the taking of markets and military power, mixed with the memory of cordial, peaceful relations, and a culturally friendly environment, as in the case of some regions of present-day Bangladesh and Vietnam. In this context, important documents such as *The Suma Oriental* of Tome Pires: An account of the East, from the Red Sea to Japan, written in Malacca and India in 1512–1515 need to be pointed out, not to mention the importance of cartography as a unifying element between science and the art of representation in the various regions where the sea is a central element.

Today, Portugal – the country with the largest Exclusive Economic Zone (EEZ) in Europe – is gradually becoming aware that the resuming of this connection to the sea is of particular importance, though it has not yet managed to turn this into a clear advantage. In this respect, drawing attention to the ‘heritages’ of the sea is also a way to support this process and a reminder for the future. Academic research, particularly in the fields of the social sciences, history and architecture, can decidedly contribute to an enhanced knowledge of that heritage and, at the same time, help in building a real and sustainable ‘economy of the sea’. Establishing a relationship with this vast cultural sea heritage – the main part of our geography – will lead us to discover a common heritage and a privileged meeting place full of memories.

This book is organised into broad subject areas which are the responsibility of the editors and intended to arrange the variety of papers presented at the meeting into thematic lines:

1. Uncovering heritages and memories
2. The floating memory of rivers and seas
3. Anthropological approaches to heritage and memory
4. Otherness and closeness in cultural heritage
5. On the relationship of material and immaterial heritage.

The views on the sea proposed by the various researchers prove that this legacy is a dynamic historiographical element of particular interest and relevance.



## ACKNOWLEDGEMENTS

It is not possible to organise a meeting of this kind without the efforts and dedication of many people. As one can imagine, this support varied in nature and extent. It is now our turn to publicly acknowledge these contributions.

Our first thanks go to all those who registered and participated in the conference; above all, it is for them that these proceedings were published. The success of this meeting would not have been possible without the participation of the invited keynote speakers who kindly agreed to open the various sessions, setting the tone and covering important agenda items that helped to enhance the quality of the discussions. Thus, we owe special thanks to Tiago Castela from the University of Coimbra (Portugal), Matt Kondolf from the University of California, Berkeley (USA) and Hiram Morgan from the University College Cork (Ireland).

We also wish to thank our colleagues Ouidad Tebbaa from the Cadi Ayyad University in Marrakech (Morocco) and João Lopes Filho from the University of Cape Verde (Cape Verde) – whose institutions are both part of the UNESCO Chair network based in Évora – as well as Matt Kondolf from UC Berkeley for accepting to join the Scientific Committee.

With regard to the UNESCO Chair's efforts to establish a closer relationship with UC Berkeley, we would like to express our gratitude to all those who so warmly welcomed and supported us during our visit to San Francisco: Professor Deolinda Adão, Executive Director of the Portuguese Studies Program at UC Berkeley; the Portuguese Consul General in San Francisco, Dr Nuno Mathias; and Dr Manuel Bettencourt from the Luso-American Education Foundation, who was our guide to the heritage sites of Portuguese origin in the area of this great American west coast city.

But the conference, its preparation and these proceedings would not have been achieved without the work of Chair collaborators and staff from the University of Évora, namely the technical assistance and expertise of team member Cornelia Fischer and the unyielding support of PhD and master's students linked to the UNESCO Chair: Monalisa Maharjan, Ferhana Nizam Chowdhury, Sajid-Bin-Doza, Sónia Bombico and Ana Neno.

Finally, we are indebted to the University of Évora and to CIDEHUS for helping us to organise this event.

Filipe Themudo Barata

João Magalhães Rocha

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Photos illustrating field visits, conferences and events that took place during 2014-15 within the UNESCO Chair's work.



# 5

## **On the Relationship of Material and Immaterial Heritage**



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**ABSTRACT**

Forte do Guincho is situated on a promontory in a protected landscape. It was built in the 17th century and was part of an extensive line of defensive forts on the Cascais coast which protected the entrance to the Barra do Tejo. The particular nature of the location and the heritage value of Forte do Guincho were fundamental factors used in designing the architectural solution. Conservation and preservation are underlying concepts of the proposal. The pre-established use and programme intended to qualify the monument implied the need for a new construction, linked to the already existing structures but tectonically separated, thus potentially reversible, from the fort. The decision to plaster the walls of the fort or leave them unplastered was one of the most sensitive issues during the development of the project, since it would influence the integration of the fort in the landscape and its conservation. The aim of the (yet unbuilt) project was to achieve, through an integrated transdisciplinary project, a unity of form and materials between the pre-existing structures and the contemporary additions, thus giving renewed life to the monument while preserving its authenticity.

**KEYWORDS**

Forte do Guincho, rehabilitation, conservation, preservation, heritage, plaster, tea house

## INTERVENTION IN FORTE DO GUINCHO

### SEA HERITAGE – CONSERVATION AND ARCHITECTURE PROJECT

#### CONTEXT

Forte do Guincho (Figures 1 to 3), also called Forte das Velas, is situated on a promontory to the north of Praia do Guincho (Guincho beach) and south of Praia do Abano (Abano beach) in a protected landscape area (Sintra-Cascais Natural Park) in the municipality of Cascais, district of Lisbon. Forte do Guincho is classified as National Heritage<sup>1</sup> and has also been listed in the Municipal Master Plan for Cascais since 1996.<sup>2</sup> It is described, in accordance with the IGESPAR<sup>3</sup>, as belonging to the category of “Military Architecture” and as a “Fort”.

It is still currently unoccupied and in a state of decay, even though several studies have been conducted concerning its use to house the visitors’ centre for the Natural Park, the Al Gore Portuguese Headquarters or a small tea house.

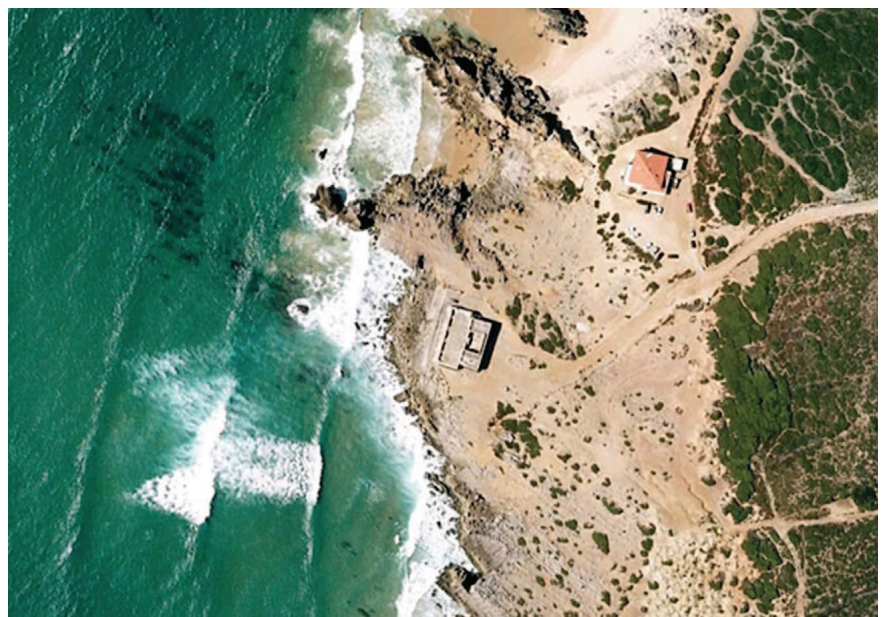


Figure 1 – Site of the Forte do Guincho

#### HISTORICAL BACKGROUND

During the 15th and 16th centuries Lisbon became a strategic point of departure and anchoring for commercial ships and stood in the middle of some of the most important maritime routes linking the Mediterranean Sea to Northern Europe. Lisbon grew larger and richer with its lively port, and a vast network of smaller ports flourished in its surroundings, both inside and outside the Tagus estuary, including the port of Cascais.

Despite the global importance of its port, and the need to defend the capital from foreign invasions and pillage, Lisbon never really had a consolidated fortified defensive line along the sea until the generalization

<sup>1</sup> Classified as *Imóvel de Interesse Público* (Property of Public Interest) by the Portuguese Government (Decree-law no. 129/77 of 29 September 1977).

<sup>2</sup> Approved by the City Council in 1996 and published in *Diário da República* (Portuguese Official Journal) on 19 June 1997.

<sup>3</sup> IGESPAR – Instituto de Gestão do Património Arquitectónico e Arqueológico (Institute for the Management of Architectural and Archaeological Heritage).

of commercial sea trade with India and the Portuguese colonies. Facing the most obvious attack to the capital from the sea, and in order to defend the maritime access to the city and the port against pirates and enemies, a strategic line of well-positioned military forts was established after the 15th century along the Linha da Barra do Tejo, from Torre de Belém (the Belém Tower) to Cabo da Roca (Cape Roca).

Thus, over an extended period of time, a range of military constructions, built in several stages, emerged around the wide river mouth. These included the following:

- fortified towers structurally adapted for artillery: Caparica, Belém and Cascais (1468–1520);
- bulwarks: S. Julião da Barra (primitive core), Santa Catarina de Ribamar and small forts built with ephemeral construction materials (1553–80/1578–80);
- the fortresses of Nossa Senhora da Luz, Santo António da Barra and S. Lourenço da Cabeça Seca, the expansion of the fort of S. Julião da Barra and the restructuring of the citadel of Cascais (1583–96) during the Third Dynasty (Philippine Dynasty);
- the construction of small forts along the coast between Belém and Cabo da Roca (including Forte do Guincho), and conclusion of the Forte do Bugio and construction of the citadel of Cascais (1642–48) during the Restoration;
- the rebuilding campaign of King José I, with work undertaken on almost every fortified structure and construction of several new ones: the batteries at Praia do Guincho and the Forte de Catalezete in Oeiras (1762–63);
- the building, expansion and modernization campaign of Queen Maria I, involving most of the fortifications, with substantial repairs on the fortifications on the eastern coast of Cascais (1793–94);
- the rebuilding campaign of King Miguel I, particularly the fortifications on the western coast of Cascais and the construction of a new battery called Forte Novo (1831–33).

Forte do Guincho is one of the forts built during these campaigns. It was built around 1642 during the reign of King João IV, in the Post-Restoration period, by order of António Luís de Meneses, at the time Governor of Cascais. It was part of an extensive line of defensive forts erected along the Cascais coast which protected the entrance to the Tagus.<sup>4</sup> This particular maritime fortification is an example of Mannerist military architecture and was intended to keep watch over the sea, control possible landings on the nearer beaches, and counter the attacks that could arise from the east.

The fort, built of irregular stone masonry with corners of cut stone, has a rectangular plan and is divided into two separate spaces. The smaller space, facing east, consists of a central courtyard and two cantonments

<sup>4</sup> Entrance to the port across the Tagus River.



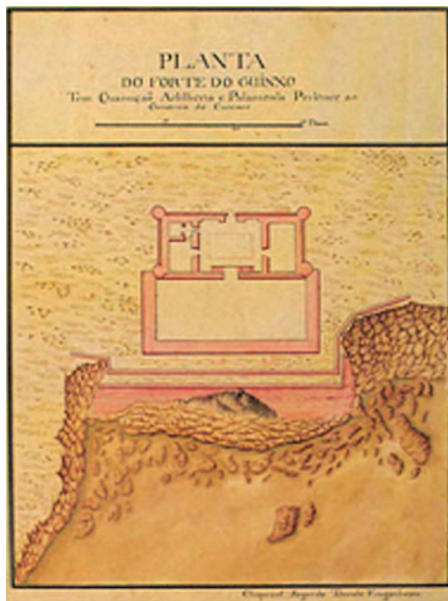


Figure 2 – Forte do Guincho, drawn by Chapuzet in 1798 (DSFOM)

that served as housing; the other space, facing west, consists of the battery platform, which originally housed seven pieces of artillery.

Forte do Guincho retains several features and architectural elements of its original layout and configuration. Other characteristics remain only in written testimonies in past descriptions. In the original design, the Fort had a rather square configuration, with the symmetry axis located at the main entrance. In the eastern zone there were three rooms of rectangular layout with domed ceilings. Today, only two are preserved, corresponding to the two side compartments – the cantonments. The third dome was in the courtyard attached to the main fort entrance. Inside, the access stairs to the battery platform are also located in the same internal enclosure. The terraces, over the domes, with stone flooring and parapets, are accessed from the battery via a lateral staircase.

The proximity of the sea and the consequent erosion of building materials, accelerated by strong winds and sea salinity, justify the numerous restoration projects that the fort has been subjected to. Among the first restoration works reported, dated from June 1720, there is a description of some repairs made to the walls, and also the replacement of doors. There is also a report<sup>4</sup> dated from 1758 which describes the repair of the kitchen chimney walls, the guardhouse and the existing barracks at the fort.

In the late 18th century (Figure 2), due to the threat of collapse of the rock platform where the fort is built, major changes were made to its entire structure. A seawall in the basement rock on which the fort's battery stands was built to create an obstacle to the destructive action of the sea. The work, which began in 1793, created a new space, although the interior layout remained unchanged from the original construction. Compared to the original fortification, the major changes were to the intermediate compartment of the cantonments, in the battery and in the outside walls. The intermediate compartment was significantly enlarged and occupied an area corresponding to twice the size of each side compartment (barracks, kitchen, warehouse storage and gunpowder). In the process of restructuring, the main gate of the fort was rebuilt and the entry courtyard reorganized. The cistern was also expanded, occupying a central position. The most extensive work was carried out on the battery. The fort's foundations, which were under threat of crumbling, due to the continuous impact of the sea waves on the rocks, were rebuilt and the fort's walls thickened. In this new layout, the new foundations were added to the continuation of the exterior walls of the cantonments, which resulted in a larger rectangular enclosure.

Probably in the early 19th century, further construction work was carried out at the fort: seven supports for cannons in the parapets of the battery were built. It is also possible that, during this work four extra watch-towers, which today are in ruins, were built.

In the early 1830s the fort was subjected to new renovation and adaptation works, justified by the disputes between absolutists and liberals. These

<sup>4</sup> Anonymous report, 1751: A.H.M., 3.<sup>a</sup> Divisão, 9.<sup>a</sup> Secção, Caixa 1, undated, annotated by Eugénio dos Santos Carvalho on 14 April 1758.

works, carried out between 1831 and 1832, included: the full restoration of the parapets, battlements and cannon supports; plastering of walls; plastering of tanks; tiling of the gunpowder store; and, finally, the replacement or restoration of the wooden doors and windows.

In 1934 the fort belonged to the Ministry of Finance. Later it was used by the National Camping Club. During the period in which the fort was under the responsibility of the latter, records exist of minor restoration works and the construction of a toilet in the battery area that changed the look of the northern elevation.

In 1970 there was the intention to install a customs post in the fort. This plan, which was never carried out, led to its abandonment for five years. In 1975 the fort was handed over to the National Camping Club, which pledged to preserve it. However, acts of vandalism led to it being closed in 1977, in the same year it was classified as a building of public interest. Despite this classification, the fort was not treated with the respect that its age and importance demanded.

Today, it stands in ruins (Figure 3).

#### CHARACTERIZATION OF THE FORT'S CONSTRUCTION

In general, the materials with which the fort was built are stone, ceramics, wood and metal, most probably from sites nearby.

The masonry that forms the walls consists of irregular-sized and shaped stones with joints of variable dimensions, originally filled with lime and sand mortars, except for the corners and the arch that encircles the main entrance, which are in cut stone.

There are masonry areas covered with Portland cement mortars, as well as areas of gaps filled with bastard mortars and ceramic material such as ceramic bricks. Visually these areas have a rather dissonant image from the original structure. The use of solid bricks is also present in the three arches in the courtyard area.

In sheltered areas, where the masonry is in reasonable condition, there are visible remains of plastered surfaces. Taking into account the reports of the work done at the fort, we are inclined to consider that the fort used lime plasters as a “sacrifice” layer to be renewed cyclically.

The battery and exterior terrace floors have stone slabs arranged in a regular stereotomy with several gaps. The bathroom recently built is in ruins and constitutes an unqualified and vandalized piece of construction. The courtyard has a boulder floor and some areas with stone slabs.

#### STATE OF CONSERVATION

The state of conservation of Forte do Guincho is directly related to its history and decay after its deactivation process, as well as to the erosion caused by the proximity of the sea and the violent winds that flog the site.



Figure 3 – Forte do Guincho: side view

The proximity of the sea has remarkably accentuated the pathologies that occur naturally in stone walls. Nevertheless, a former coating layer acted as a light protective “layer” against erosive agents. The limestone used, and the solidity of the remaining areas of plaster, seem to prove the existence of a previous layer of exterior plaster, probably covering the majority of walls, and the quality of its application. However, in some areas (especially those which are directly facing the sea), the walls are in an advanced state of degradation, and their structural sustainability is questionable.

The observed pathologies that justify and substantiate the options taken in the proposed intervention are: biological colonization and vegetation, stains and wall runoff, gaps, granular disaggregation/sanding, ruin, fracture/cracking, displaced elements, unwanted metal and cement plasters, and open and/or non-functional joints.

Briefly, we emphasize a series of situations that characterize the structure’s state of conservation:

- wall weakening, especially on the outside, with block disconnection and material detachment and significant gaps. This creates continuous lines that increase rainwater infiltration, the appearance of plants and, consequently, increased deterioration;
- erosion and diffuse disaggregation of stones and mortars filling masonry joints, where the phenomenon is more serious, accentuating the degradation process;
- infestation of plants, which enhance deep mechanical stresses, causing displacement of the elements and facilitating the movement of water within the walls; some areas of the walls are also colonized by mosses, organisms that interact with the surface substrate;
- collapse of seawall blocks, caused by wave action;
- existence of unwanted materials like corroded metal and cemented areas of plaster.

### THE ARCHITECTURAL INTERVENTION

The identity of the site, the heritage value of the fort and its integration in the landscape are key concepts for the conceptual and architectural response. Taking into account the growing awareness of the need to interlink architectural heritage and the environment, this project operated from a perspective of landscape affirmation, in the context of a broader territorial intervention.

Conservation and preservation are both concepts that sustain this intervention in the approach to the landscape and to the monument, with all its implications at the architectural level. In addition, the proposal is guided by strict criteria of authenticity, integrity and reversibility.

The regeneration of the monument will allow its enjoyment by the population and, in return, its use is expected to contribute to its preser-



Figure 4 – Three-dimensional simulation: fort walls with and without plaster

vation. However, this strategy implies the need to enlarge the covered area, and the construction of a new architectonic object, which, although linked to the pre-existing structure, is interpreted as autonomous. It was intended to ensure harmony between the built space and the territory, among pre-existing and contemporary symbols, and through formal and material unity. The proposal for the conservation and rehabilitation of Forte do Guincho was based on the conservation and restoration of the existing building and on the placement of an additional independent object inside the fort, maintaining the focus on the understanding of the different stages and layers of construction and the full reversibility of all new constructions.

### The preliminary study

In 2005, before the start of the project, the Municipality of Cascais ordered a preliminary study<sup>5</sup> that included the construction of a concrete slab whose weight would be simply discharged on the perimetral monumental walls covering the entire open courtyard. The IPPAR<sup>6</sup> (later renamed IGESPAR) made some remarks and suggestions based on the reversibility criteria.

The new design team (sspg arquitectos) was invited to design a new conceptual methodology that met the IPPAR's requirements. The proposed design solution was based on a wooden portico fixed on a concrete slab which incorporated closing glass walls. Since this structure would be self-supporting it overcame the issue and solved the problem of discharging the weight of the concrete slab on to the fort walls, in as much as the structure would stand on the floor of the battery and the courtyard and would self-sustain the roof. It was also decided to move the new object away from the entrance wall, in order not to close the entire courtyard and to keep the idea of the previous open courtyard.

### The final project

In order to ensure the conservation of the monument, the sustainability of the intervention and its maintenance over time, it was essential to define a minimal use for the monument. It was thus suggested to adapt the fort into a tea house, allowing it not only to be open to the public, but also to keep the monument alive.

Since the existing space did not ensure the necessary customer area, it was proposed that the new piece of contemporary design (Figures 5 and 6) would allow the two existing cantonments to be interconnected, thus increasing the covered area of the fort. Although this piece would enable connections to the existing structures, it was assumed as a separate object. It keeps the idea of the existence of the lower, smaller courtyard as an exterior chamber preceding the main public covered area. It would contain a tea lounge, served by the facilities arranged in the cantonments. This intermediate space would make it possible to enforce a universal design on the project.

<sup>5</sup> Preliminary study executed by Maria Ramalho and Diogo Capucho.

<sup>6</sup> IPPAR: Instituto Português do Património Arquitectónico (Portuguese Institute of Architectural Heritage).



The placement of the wooden structure in a longitudinal direction shades the interior space, due to the size of the porticos and the metric repetition of blank and occupied spaces, keeping the concepts of transparency and lightness from the architectural solution and providing aligned views of the surroundings. This new piece promotes the balance between a contemporary image and a cosy inner atmosphere providing different ceiling heights. The direct relationship to its surroundings and the variations in light during the day emphasize the unique characteristics of the place and the presence of the Atlantic Ocean.

Some minimal technical areas had to be placed in the cantonments. The northern quartering, lit by a small south-facing opening, contains the kitchen area, optimized for this purpose. The south quartering, which receives overhead light through an opening in the roof, is occupied by toilets. All new constructions and installations in the cantonments are built with no connections to the existing physical limits of the monumental spaces, thus being a box within a box. The terrace, which is accessed from the battery, and covers these two spaces, is still open to the public and permits a higher view of the sea and the surrounding landscape.

Larger technical equipment needed to ensure heating (AVAC) standards was located outside the fort, on the exterior plateau, hidden from immediate view. Thus a hidden, buried building structure was designed to cater for the need to retain sewage, according to the park's nature regulations, and to keep the larger air conditioning equipment out of sight.

Juxtaposed plasterboard walls and plastered ceilings painted white on the inside and technical wood flooring mounted on adjustable pedestals allow the reversibility of the architectural solution in the courtyard. Inside the cantonments, all self-supported walls and floors are kept apart from all existing structures.

On the northern and east facade (in the extended area), a weathering-steel (COR-TEN steel) security guard was applied. The choice of this material took into account the chromatic integration into the surroundings and the clear and unequivocal understanding of the intervention.

As previously stated, Forte do Guincho is part of a larger intervention area composed by three distinct areas: the surroundings of the restaurant near to the fort and its parking area; the fort's surroundings and its access route; and the walkway connecting the fort to the existing car park. The landscape of Ponta do Abano, which is the name of the promontory where the fort was built, is strongly marked by the Atlantic, which has a decisive influence on the plant species that colonize the territory. Undisciplined car access and soil compaction interfere with these highly sensitive ecological ecosystems. To solve these problems and preserve the local vegetation, a large landscape architectural and reforestation

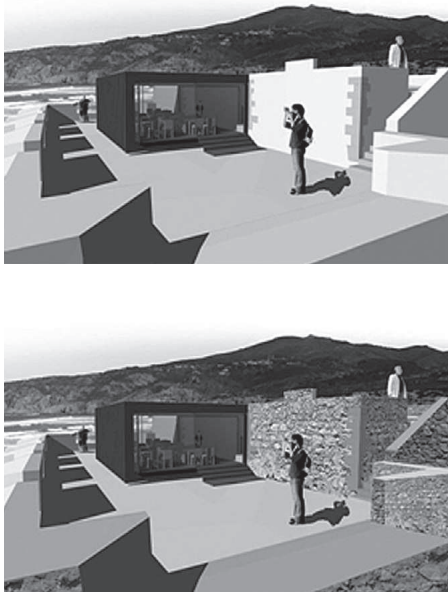


Figure 5 – Three-dimensional simulation of the tea house structure: fort walls with and without coverage



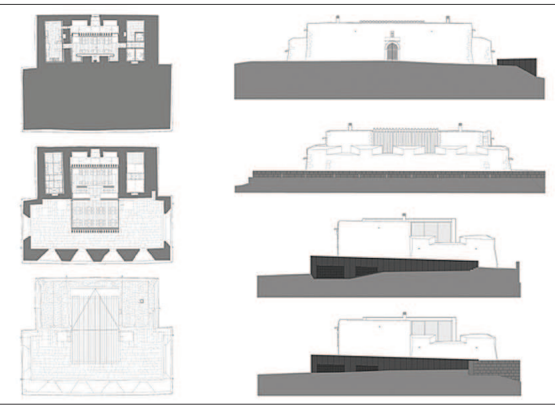


Figure 6 – Proposed plans and elevations

project, privileging the existing ecological diversity and specificity of the intervention area, was proposed.

The project proposed a single car park concentrated in the area already used for this purpose, next to the nearby restaurant, eliminating the need for another car park near the fort. It also proposed recovering the pavement that encircles the building and the installation of a pedestrian path between Guincho beach and the fort, built as an elevated wooden platform, shaped by the existing land topography and allowing the landscape to be enjoyed without damaging the existing natural ecosystem.

The landscape project (Figure 7) proposed by NPK<sup>7</sup> ensured a minimal paved area surrounding the building and confining its access, built with a stone-paving material similar to the already existing. The limits and sizing of the pavement were adapted to the terrain, outlining the existing rocky outcrops. A linear connection between the fort and the parking area was proposed for use by pedestrians and emergency and service vehicles, in order to regulate both the flow of people and vehicles in the area surrounding the building.

Since the rarity of this remarkable landscape and botanical ecosystem was recognized, its importance was ensured through the promoting of a respectful in-situ contact with it. From this perspective, people are encouraged to park in the existing car park at Guincho beach and then walk along the pedestrian path from that point up to the fort on an elevated wooden platform. The path, about four hundred metres long and coinciding with existing natural pedestrian tracks, shaped by the existing land topography, allows users to enjoy and interact with the ecosystem without damaging it. The design of this wooden walkway aims to eliminate all existing motor-vehicle paths in the coastal cliffs area; to minimize obstruction to the spreading of vegetation (a fundamental process to ensure ecosystem sustainability); and to maintain access as far as possible at current existing levels, preventing the destruction of the land morphology and existing vegetation. At the end of the walkway, near the fort, the wooden path becomes an irregular stone pavement, continuing the pavement surrounding the fort and minimizing its presence. Besides these issues, the project foresees the placement of informative signs about nature and biodiversity conservation in protected areas.

The restaurant car park was planned in the area already used for this purpose to minimize the negative impacts. The proposed design optimizes and controls the space and maximizes the number of available places and, at the same time, eliminates the need to create a new car parking area near the fort.

The intervention proposes the creation of a permeable area with native species in an area close to the restaurant, to reduce the extent of the paved surface. This proposal results in a surface integrated into the surrounding landscape. It is further proposed that all exotic and invasive species in the intervention area be manually removed. The removal

<sup>7</sup> NPK – Arquitectos Paisagistas Associados (NPK – Associated Landscape Architects) with Leonor Cheis de Sousa.



Figure 7 – Landscape architecture project

would be progressively monitored and include all necessary treatments for species control, until their final eradication.

#### Detailed proposed conservation actions for the fort

The conservation aims to maintain the existing building and facilitate future maintenance actions. Thus, the following actions were identified:

##### Preliminary photographic survey

The preliminary photographic documentation of the most significant aspects/elements constituted the starting point for the conservation work and a memory of the existing ruin.

##### Cleaning

The first phase of the conservation work should start with a general cleaning of the walls, floors and all fort areas. At this initial stage, all of the items are gathered – all of the decorated stone fragments that are loose or unstable should be collected, identified and recorded in an architectural survey –by code and number, thus preventing their loss. Later, all of the fragments found and collected must be fixed again to the support. At the same time, all fragments should undergo pre-cleaning and the removal of any efflorescence, thereby avoiding the circulation and deposition of salts in adjacent areas.

##### Treatment of infesting vegetation

This treatment is carried out by applying herbicides to all vegetation, and includes the repetition of the process over a period of time. Whenever necessary, and if possible, the herbicides should be used at the whole-wall level. This methodology allows greater efficiency by intervening in different cycles of vegetation, anticipating the technical times needed for the active ingredients to work. In all treated areas, a manual eradication of dry biomass will be required, including, where necessary, the cutting of roots in order not to affect the more unstable areas. There may be situations in which roots are functioning as anchors for elements already detached from the support.

Vegetation disinfections will be performed in two consecutive phases and without interruption: 1) chemical treatments, with specific herbicides for dry vegetation; 2) manual removal of dry vegetation and actions that limit growth of new plants. After the removal of living vegetation, an application of mortar in all joints and horizontal planes of the wall tops is required. In those cases where it is not possible to complete the extraction of plants because their roots are too deep, and removal may endanger the stability of the structure, all holes will be cut and closed with mortar caps. In the manual removal of vegetation, areas where the plants are anchored should be left perfectly clean.

##### Treatment of biological colonization

The biocide treatment aims to eliminate the biological colonization of stones and shall be performed by applying a product with a quaternary

ammonium base. Depending on the progress of the treatment, a slight manual brushing of all the stones should be undertaken in order to prepare the surfaces for subsequent actions.

#### **Gap reintegration and injury fill**

Intervention should be taken first in all areas that demonstrate instability. Gaps will be filled with stone materials of the same lithological type that exists in contiguous areas, respecting the typology and the stereotomy of the masonry where it will be inserted. The interstices between the larger blocks should be filled with smaller elements and different types of cuts and sizes should be adopted. This phase of stabilization and gap filling, since it is statically precarious, should be carried out carefully to prevent any collapse of existing historic structures. The new additions of stone should always be based on lime mortar, based in the binder or with hydraulic lime kind mortars, with pozzolanic additive and/or drying, careful selection of inerts and aggregates, properly calibrated and washed to maximize the integration of wall colours and textures.

#### **Treatment of joints, micro-plastering, fissures and fractures**

The joint-treatment phase should be addressed with all the other work that should be done with lime mortar, such as fractures and cracks micro-plastering. The non-functioning of reclosing mortars in joints is one of the characterizing features of the state of conservation of the walls. The joints' lack of sealing capability allows water infiltration into the structures, mortar leaching and the subsequent appearance of instability phenomena in the stone elements. In general, the treatment of joints should involve removal of the degraded and unstable existing mortars, lowering of the cement mortar, the removal of the loose interior materials from the joints, filling of the structural gaps and the reclosing of the surface with the indicated mortars.

The approach to opening joints should consist of: 1) removal of all non-functional mortar in the process of disaggregation or powdery; 2) elimination of the mortar overlaying the stones and lowering of un-aesthetic mortar; and 3) lowering of the joints filled with cement, since they are functional. In the joints where fracturing and imminent detachment of the edges are observable, attachment/consolidation work should be performed. After opening, joints should be cleaned in order to improve the adhesion of mortars, by compressed air, controlled washing with water and brushing, to remove earth deposits.

In the filling of deep and superficial joints, the lime mortars to be used at different stages of the work should have similar mechanical and physical properties to the existing mortars, namely: a coefficient of thermal expansion similar to the former; a coefficient of vapour permeability as similar as possible to the original material; a lower-compression tensile strength and higher porosity than the rock; less or equal resistance to compression than the old mortar, and a porosity greater or equal to that of the old mortar.

The need to use different mortars in colour and texture, varying the siliceous and/or calcareous aggregates in terms of particle size and colour, in order to obtain textures and sets of colours adequate to the pre-existing mortars in adjacent areas, should be evaluated. These fillings, as other fillings, should be preceded by a cleaning of the disaggregated and incoherent materials.

The filling operation should be performed in two stages. The first consists of filling in depth, and the second relates to surface finish. During the application of the mortar, the mortar surface should be exposed, particularly in places where the joints are quite broad. It is noteworthy that, in many areas, only after the deteriorated mortar is removed and the joints cleaned does some static instability become obvious. In many cases, the lack of material in the joints and the poor connection between stones lead to structural instability.

Particular attention should be given to the finish treatment applied on the horizontal surfaces of the wall tops, in order to facilitate rainwater drainage and to restrict infiltration in the structures. A careful analysis of the walls and, when necessary, a regularization of the surfaces, in the aim of an overall preventive treatment, is required. This intervention should aim, on the one hand, to extinguish weak points in the structure, to consolidate interdependent surfaces and, on the other hand, to ensure some aesthetic and visual uniformity in the monument.

Finally, during the work, an extra evaluation should be carried out in order to assess the opportunity to improve the aesthetic integration in filled areas where more recent mortars have been applied and in case of visible dissonance. A treatment based on a patina made with lime water and pigments should be considered, while maintaining a clear chromatic differentiation, and without simulating the existing patina.

Any existing cracks and fractures should also be worked upon from a structural perspective, whenever they present unstable situations – in this case, micro-injections may be required and consolidation made with epoxy resins. Stabilized situations where there are no structural issues, yet which constitute points of infiltration, fissures and fractures should be injected with micro-mortars formulated with binders of fine inert. In areas with micro-fissuration and stone detachment, the micro-injection of fluid epoxy resin could be used, in continuity lines, in order to create anchoring points.

### THE ARCHITECTURAL SURFACE QUESTION

One of the most difficult subjects to address was how to deal with the exterior surface of the fort (ruin) and how to address its conservation in terms of image and as an architectonic communication tool. It was clear to the team that conservation would imply a full analysis of all pathologies of the existing fort and a detailed study of the ways to address all the detected problems. This would constitute the basis of any conservation effort. However, there was an ongoing architectonic discussion regarding

the communication of the building, based on its history, but also on the aesthetic memory of the decay, that sparked another field of research.

The issue of maintaining visible walls and corner stones and their joints, as opposed to covering them, was considered a sensitive issue in the project, which conditioned the choice of wood for the construction of the new object. On the one hand, the fort's current image and its integration into the landscape depend on its chromaticity and masonry texture, while, on the other hand, the lack of a surface coat aggravates the erosion caused by atmospheric agents and, consequently, the conditions of the monument's conservation.

Any intervention on built heritage includes tasks which directly or indirectly aim to prolong a monument's life by interrupting the intensity of alteration processes and by reducing the probability of new events, in order to maintain physical, cultural and functional integrity.

In general, the current state of conservation of the fort is related mainly to the degradation of the stone, which is exposed to strong wind and water action. The absence of a plaster coating, along with the degradation of the joints and the use of hydraulic mortars, accelerates the process of rock detachment.

The decision to treat the joints resulted from a critical analysis of the following aspects:

- the advantages and disadvantages of the possible options;
- the principles and concepts that should guide any heritage-based intervention;
- the state of conservation of the fort;
- the understanding of Forte do Guincho individually and in comparison to the other forts along the coast;
- samples taken at the site, over a long time span;
- the evaluation of real needs, both from the technical and human aspect.

The application of a new covering would have technical, economic and historical advantages, although it would be an aesthetic intervention with immediate consequences for the fort's image and its integration into the landscape. The existence of several gaps at the top of the walls and lack of historical military information did not allow the walls' limits to be established and meant it was impossible to make a technical (military) assessment (mostly based on the military changes in artillery warfare). Since there was no accurate data about these limits, the option of covering the fort would have led to its reconstruction and a false historical creation.

The pre-existence of mortars on the masonry, at the existing joints on the extensions, built in the 19th century, with traces of old plaster and its use as an external sacrifice layer, was observed and verified. The



presence of such traces of mortar and plaster, the existence of some written testimonies and the comparison with other maritime fortresses confirmed the hypothesis that the fort had been completely plastered on the outside. However, existing data is insufficient to determine the type of covering, its extension, limits and the finish used. It was also noted that the image of the unplastered fort has been present in the collective memory since the 20th century. It was further noted that other fort intervention projects had chosen to apply plaster to all exterior surfaces and thus it was considered pedagogic to undertake an analysis of the different presentation options for monuments, including that of ruin.

Therefore, the option of applying a plaster coating over the walls did not fit the project design principles, because changing the formal identity of the fort precludes an adequate understanding of the new piece and the monument. Taking the concept of “minimal intervention” and the aim of prolonging the monument’s life as basic assumptions, the option to treat the joints caused fewer injuries to the original materials than covering the walls totally and did not invalidate future studies and research on the evolution of the fort’s construction, since it retained all of the mortars and plasters. A proper execution would reduce erosion intensity and the probability of new pathologies, avoiding water entry in the walls, and would permit the conservation of the building. Another advantage of treating the joints, both at the functional and aesthetic level, is the facilitation of future maintenance, since the application of the new mortar is always less intrusive than the repair of an area of deteriorated plaster. Moreover, the application of new plaster would always create an area where the existing and new plaster would come together and both would have different colours, due to the different carbonation stages. Whilst this might happen to the mortar used in the treatment of joints, the application area is very small, which significantly reduces the visual impact.

Taking into account all of these aspects, the micro-plastering of joints was adopted in the final project, because in the analysis of different factors it out-performed the applicability of a new coating.

During the tests (Figure 8) conducted in 2008, it was found (under normal conditions, in strong winds) to be difficult to ensure a slow and gradual drying of the plaster executed with lime mortar. This control was easier to ensure in small areas than in large plaster areas. Thus, in treating the joints, it is also easier to guarantee proper execution.

The intervention on the walls, without applying a new coating, involved a careful and slow joint-treatment process, because it implies practical difficulties in execution and maintenance due to the widespread loss of stone limits in large areas. A successful aesthetic result of this task clearly depends on the proper execution, ensuring compatibility and stability between the materials and products used and the reversibility of the systems, by minimizing the aesthetic variations. For this reason, joint micro-plastering constitutes an intervention framed within the field of restoration expertise.



Figure 8 – Joint treatment and wall coating plaster tests

## CONCLUSIONS

Forte do Guincho is situated on a promontory to the north of Guincho beach, between it and Abano beach, an area included in the Sintra-Cascais Natural Park. The maritime fortification was built in the 17th century and was an integral part of an extensive defensive line erected during the reign of King João IV which defended the entrance to the mouth of the Tagus River.

The fort was built from irregular stone masonry, except for the cut stone corners. The presence of mortar and cement in gap areas on the masonry, and occasionally on the corner stones, can be seen. After a careful observation of existing traces of mortar, traces of exterior plastering were detected on a brick wall built during the expansion of the battery. Although these mortars are visible, the characteristic visual appearance of the fort is not that of plastered masonry, but rather that of irregular unplastered masonry.

However, the presence of these traces of mortar, the existence of several written testimonies and the comparison with the remaining maritime fortresses confirm the hypothesis that the fort was plastered on the outside. Nevertheless, with the existing data it is not possible to state the kind of plaster used or its extent, finish and colour.

Initially, the authors were led to believe that the best approach might be to cover all walls of the fort, because this plaster would also work as “sacrifice” layer to retard erosion. However, by carefully considering this option, it was noted that:

- Existing traces of mortar do not allow, through a visual analysis, certainty about when the plaster was applied or its type and finish, nor how the plaster was applied and/or if it was applied to all surfaces/facades of the fort.
- The existence of several gaps in the upper part of the walls, which in some cases has resulted in the imprecision of the upper wall, forced rethinking the option to cover the monument since it would reconstruct these limits. Since there are no accurate data about these limits, it could have led to historical inaccuracy.
- The fort is subject to very aggressive weather conditions, with very strong wind carrying sand and sea salts, making plaster application very difficult. This situation is easily observable in other coastal forts, exposed to similar but not as extreme situations, where immediately after applying the plaster certain areas with a lack of mortar are visible.
- Lastly, there is the issue of the fort’s image. In fact, when one looks at the landscape, the visual image of the fort, built in masonry stone, either in colour or texture, is perfectly integrated into the natural landscape, raising concerns about the visual impact on the landscape implied by the covering option. Moreover, this image of the visible masonry is present in the collective memory, as the fort has been as it now stands since the early 20th century.

Based on the assumption of the key concept of “minimal intervention”, advocated by most conservation and restoration doctrines, the joint-treatment option seems to be the right one. Some aspects that led to the choice of this solution are:

- From the point of view of the principles and concepts in conservation and restoration, it seems that the minimal intervention choice – joint treatment – is the right one because any action taken with regard to heritage, however careful, introduces injuries to the original materials, determining a loss of authenticity. Thus, the tasks and processes that involve direct intervention in a monument’s conservation should be kept to a minimum and be consistent with the proposed objectives. In the aim of prolonging the monument’s life, the joint-treatment option allows the reduction and/or interruption of the intensity of the alteration processes and reduces the probability of new events, since it does not allow the entry of water into the structures.
- Another prominent feature is the fact that this option keeps all traces of old mortars and plasters as testimonies, and does not invalidate future studies and research on the fort, especially in terms of its constructive history. Plastering the fort would invalidate these studies because traces and testimonies would be covered with new mortar.

The chosen option may raise problems in terms of praxis, since the joint treatment may have a negative visual impact. The definition and characterization of the type and method of execution cannot guarantee the aesthetic result, so this approach can lead to major problems. Four trials on the fort’s walls, with the objective of supporting the decision-making process, were performed and served as a model of good practice for a future intervention, guiding the operators towards the desired result. This solution facilitates future maintenance actions, because the area of application of the new mortar is always less than that of the repair of deteriorated plaster, which always presents a junction area of the two plasters. The new plaster will never have the same chromatic appearance as the existing one, due to different stages of carbonation. Although this situation can happen with the mortar applied in the treatment of the joints, the area is very small, so the visual impact is less significant. It should be noted that it was decided to perform the joints treatment in order to keep all existing mortar traces and the maintenance actions should repeat the same methodology.

#### FINAL REMARKS

The architectural intervention mainly seeks to restore the monument and assign it a new function, in the aim of conserving this important example of historical Portuguese heritage and allowing it to be used and enjoyed by the public.

The distinction between the existing and new architectonic objects depends not only on the new structural and aesthetic solution, but also on the approach to the fort walls. The systematic and careful

treatment of joints seemed more appropriate, both at the functional and aesthetic level, because it is based on criteria of architectural and historical authenticity, integrity and reversibility. Thus, the option of leaving the masonry joints in full view is the one that most benefits the monument, from the technical and methodological points of view, in terms of materials and products applied, respecting the correct praxis in conservation and ensuring compatibility, stability and reversibility of the systems, thus minimizing the material and aesthetic intrusions.

Finally, the authors would like to mention that the option to treat joints and not plaster the fort was shared by the entire team, and this was supported by the municipal and government architects who oversee and manage the monument.

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# Biographies





**FILIPE THEMUDO BARATA** is a Full Professor at the University of Évora, Portugal since 2004, where he teaches several courses and seminars in History (especially Medieval), Heritage and Museology, with a PhD dissertation entitled “Navigation, Commerce and Political Relations: The Portuguese at the Occidental Mediterranean Sea (1385–1466)”. Former member of the Steering Committee of the Master’s degree in Museology, he is member of the Scientific and Pedagogic Committee of the Erasmus Mundus Master TPTI (“Techniques, Patrimoine, Territoires de l’Industrie”), member of the Steering Committee of HERIMED Association (Palermo), member and Vice-Director of the CIDEHUS Research Centre at the University of Évora, Visiting Professor at Cape Verde University and associated member of the Centre d’Histoire des Techniques (Paris Sorbonne – Panthéon). He is also pro bono manager of the Fondation Orient-Occident (Rabat – Morocco). He has led several project teams in the field of Heritage and Intangible Heritage, namely in the project “Portuguese Heritage Around the World – Architecture and Urbanism”, financed by the Calouste Gulbenkian Foundation (further information available at HPIP – Heritage of Portuguese Influence Portal, [hpip.org](http://hpip.org)).

**JOÃO MAGALHÃES ROCHA** teaches at the Department of Architecture at the University of Évora, where he is member of the CIDEHUS Research Center. He obtained an M.Sc from the Graduate School of Architecture, Planning and Preservation (GSAPP) at Columbia University in New York (1995) and completed his PhD at the Design and Computation Group of the Massachusetts Institute of Technology, Dept. of Architecture (MIT). He taught at the Pontificia Universidad Católica (PUC) in Santiago, Chile (1996), was a research Fellow at Cambridge University, UK, and holds a professional degree in Architecture from the Faculty of Architecture, Technical University of Lisbon (FAUTL). He has lectured widely and his research deals primarily with the development of computation in relation to architecture both from a historical and practical perspective. As member of the UNESCO Chair in Intangible Heritage and Traditional Know-How (UE) he develops his research about Portuguese architectural heritage mainly in the Maghreb region.

**TIAGO CASTELA** is an urban historian and an FCT Postdoctoral Research Fellow at the Center for Social Studies of the University of Coimbra. He holds a PhD in Architecture from the University of California, Berkeley, and a ‘Licenciatura’ professional degree in Architecture from the University of Lisbon. His doctoral dissertation discusses the history of Lisbon’s illegalized working-class subdivisions in the late 20th century. His current research prolongs this genealogy of planning in the postwar development project by exploring late colonial urbanism in Mozambique, focusing on how state planning managed the informal production of urban extensions. Before starting his doctoral research as a Fulbright grantee, he worked as an architect, notably as project coordinator for the Theater and Auditorium of Poitiers, France, at the office of architect Carrilho da Graça in Lisbon. In his own practice, he

was the coordinator of the design team that received the first prize in the international competition for the Administrative Center of the Autonomous Community of Extremadura in Mérida, Spain.

**SÓNIA BOMBICO** is an archaeologist with a postgraduate course in Nautical Archaeology (University of Barcelona) and a master in Historical and Cultural Heritage (University of Évora). Currently she is a PhD student in History (CIDEHUS–University of Évora) with a doctoral scholarship from the FCT (Portuguese Foundation for Science and Technology). Her research has been focused on Roman Maritime Economy, Maritime Routes and Underwater Cultural Heritage with several oral presentations, posters and publications at international congresses in Europe (Portugal, Spain, France, Italy, Germany and The Netherlands).

**RAQUEL GONZÁLEZ BERMÚDEZ** graduated in Interior Architecture from the Superior Technical School of Architecture of Madrid (ETSAM) of the Polytechnic University of Madrid. She has a master's degree in Ancient History and Sciences of Antiquity, a specialization in Greece and Pre-Roman Mediterranean from the Autonomous University of Madrid and the Complutense University of Madrid (2011), as well as a master's degree in Management of Historic Cultural Heritage from the Complutense University of Madrid (2013). She is interested in cultural tourism because she is aware of the social function of heritage and the need to disseminate knowledge and provide education for everyone at all ages. The concept of mixed heritage as an integral vision of cultural and natural values, the importance of intangible heritage as a source of cultural identity, and the implications of the use and abuse of history are some of her major concerns.

**ALESSIA AMATO** obtained a Research Doctorate from the University of Coimbra. As a full member of the Research Centre in Archaeology, Arts and Heritage Sciences of the University of Coimbra (Centro de Estudos de Arqueologia, Artes e Ciências do Património, former CEAUCP–UC) and specialist in nautical archaeology, she wrote a series of scientific articles, book chapters and contributions to Portuguese and international conference proceedings. Her scholarship was financed by the Fundação para a Ciência e a Tecnologia (FCT), the Portuguese funding agency that supports science, technology and innovation, in all scientific domains, under the Ministry for Education and Science. She is also an Archaeologist in the Technical Group of Trianæ Urbis – Ruvo di Puglia, Italy, and cooperates in several scientific activities and in the production of archaeological charts for the Italian Ministry of Cultural Property.

**JORGE RUSSO** was born in 1969 and graduated in History from the Universidade Aberta in Lisbon. He is a researcher at the CINAV–PT Naval Research Centre, National Archaeology Society and the Australasian Institute for Maritime Archaeology, and a member of the APAI – Portuguese Industrial Archaeology Association. He publishes regularly in Portugal and abroad, primarily on contemporary nautical and underwater archaeological themes, mainly steam navigation. His main interest

lies in archaeography and, as a rebreather trimix diver, in methodological approaches to the ship-to-wreck correlation in deep scuba diving environments. He has been involved in maritime and underwater archaeology since 2004 and was the founder and president of GEPS – Grupo de Estudos e Pesquisas Subaquáticas (Research and Underwater Studies Group). He was awarded the Nautical Archaeology Society's Adopt a Wreck Award in 2013 and the Portuguese Navy's Jornadas do Mar award in 2012.

**CAPTAIN AUGUSTO SALGADO** was born in 1965 and graduated from the Portuguese Naval Academy in 1988. He has a PhD in Maritime History from the School of Arts and of Humanities of the University of Lisbon and is a researcher at the CINAV-PT Naval Research Centre. He is also a member of the Academia de Marinha and the Portuguese Military History Commission. His field of study is Portuguese Naval History, mainly from the 16th century onwards, and he has published three books and several papers on this subject. In 2011 he was awarded the Prémio do Mar Rei D. Carlos prize (Cascais). He has also been a keen underwater archaeology enthusiast since 1996 and an underwater photographer for over 30 years.

**G. MATHIAS (MATT) KONDOLF** is a fluvial geomorphologist and environmental planner, specializing in environmental river management and restoration. As Professor of Environmental Planning at the UC Berkeley, he teaches courses in hydrology, river restoration, environmental planning, and environmental science. His research concerns human-river interactions broadly, with emphasis on management of flood-prone lands, channel change, sediment management in reservoirs and regulated river channels, and river restoration worldwide.

**SAJID BIN DOZA** graduated in Architecture from the University of Khulna in 1999. He obtained his Master of Architecture degree from the Bangladesh University of Engineering and Technology (BUET) in 2008. He is Assistant Professor of Architecture at the BRAC University of Bangladesh. He is currently on study leave to work on his PhD dissertation in History of the Arts & Heritage Studies entitled “Riverine Fortress City of Mahasthan in the Delta: In Search for the Settlement Pattern (8th to 11th century AD)”, at the University of Évora, Portugal. He organized five solo exhibitions with sketches on the cultural heritage of Bangladesh. His last two exhibitions abroad were based on cultural patterns and included the exhibition *Évora... In My Eyes!!! Sketches of a Historical City*, and a cartoon exhibition on the Bangladeshi people of the Delta land entitled *A Janela* (window).

**DÓRIS SANTOS** is a PhD Student in Art History – Museum Studies and Heritage Artistic Specialization (Faculty of Social and Human Sciences, NOVA University of Lisbon), with the thesis “Art, museums and maritime memories. Contributions to the study of the visual culture of fishing communities”. She is a researcher at the Institute of Art History (IHA – UNL/FCSH) and Master in Museology and Heritage (UNL/FCSH, 2006). She graduated in History, variant of Art History (University of Coimbra,

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**NÍDIA BRAZ** is a biologist (Faculty of Sciences of the University of Lisbon, 1981) and Lecturer in Food Science at the University of Algarve since 1984. Her research has been focused on fish quality since her MPhil thesis at Loughborough University of Technology (UK) in 1986 and throughout her PhD research in Agro-Industrial Engineering in 2001 at the School of Agriculture of the Technical University of Lisbon (ISA-UTL), Portugal. She was member of the National Portuguese Fish Standards Committee (1994–2003) and team coordinator and editor of the *Código de Boas Práticas do Fabrico de Conservas de Sardinha* (ALIF, 2006) (code of practice of industrial sardine canning). Her recent research interests include the Mediterranean Diet as a healthy food pattern (she is, since 2014, a member of the University of Algarve team on Mediterranean Diet) and clinical research on active and healthy ageing, namely on its food and nutrition aspects. She is presently involved in lecturing healthy food subjects such as food toxicology, food technology, applied culinary in dietetics and senior healthy food.

**ALISON LAURIE NEILSON** received a PhD in Comparative International and Development Education in 2006 from the University of Toronto, and was a postdoctoral researcher at the University of the Azores from 2008 to 2014. She is currently a researcher at the Centre for Social Studies at the University of Coimbra. She conducts narrative and arts-informed research on the way sustainability is understood and manifest in education and policy.

**CARLOS DE BULHÃO PATO** is president of the Association for the Defence of Marine Heritage of the Azores. He is a trained economist and developed nature trails across the islands in collaboration with public and private landowners while working for the Tourism Secretariat of the Regional Azorean government. He has also worked as a teacher in Rabo de Peixe and enjoys as well as teaches others to sail.

**ROSALINA GABRIEL** is a Lecturer at the University of the Azores, Portugal. Her research focuses on two scientific areas: Bryology and Environmental Education. In Environmental Education, her focus lies on: i) the

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**ANA MOURA ARROZ** is a Lecturer in Investigation Methodologies at the University of the Azores, Portugal. She received her PhD from the same university (2005), and her area of specialization is in the social psychology of education. Presently she coordinates the second edition of the Master Course in Environmental Education at the University of the Azores.

**ENÉSIMA MENDONÇA** manages databases and provides research support for projects of the Azorean Biodiversity Group, University of the Azores, Portugal. Her interests also include nature conservation, environmental education and nature photography.

**ANA PICANÇO** is a PhD student in the University of Azores, Portugal, exploring priority areas for conservation by systematic conservation planning.

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**FABIANA DIMPFLMEIER** received her PhD in Anthropology in 2013 from La Sapienza University of Rome. She has been Teaching Assistant in Cultural Anthropology at La Tuscia University of Viterbo since 2011. Her research focuses on the representation of Otherness in Italian travel writing of the second half of the 19th century and on the construction of Italian identity in the years following the reunification of the country. She works on archival sources (including iconography) from an interdisciplinary perspective, adopting a theoretical framework that includes History, Anthropology, Cultural and Post-Colonial Studies. Furthermore, she conducts research on travel literature and exoticism, popular literature and scientific accounts, and on the relation between Italian regionalism and nationalism. At the moment she is working on the publication (with Sandra Puccini, CISU 2015) of the Italian explorer Lamberto Loria's unpublished diaries on British New Guinea (1888–97),



and on a volume based on her doctoral dissertation (with Emilio Cocco, L'Harmattan 2015).

**NATALIA BOREK** received a master's degree in Sustainable Development in 2010 from the Institute of Political Studies in Paris (Institut d'Études Politiques de Paris), and a research master's degree in South American Studies from the Institute of Higher Studies on Latin America (Institut des Hautes Études de l'Amérique Latine), attached to the University of Sorbonne in Paris. She started her PhD in January 2014 at the University of Nice Sophia Antipolis (Université de Nice Sophia Antipolis) under the supervision of French Professor Jean-Christophe Gay, expert in the fields of Geography and Tourism Studies, and in cooperation with Professor Davis Gruber Sansolo, a Brazilian researcher at the São Paulo State University (Universidade Estadual Paulista).

**NGUYEN DAC NHU-MAI** received a PhD from the University of Paris, Sorbonne in 1984, and a State Doctorate of Letters and Humanities in History from the University of Paris X-Nanterre, in 1988. She was a Research Associate at the Institut des Hautes Études de l'Amérique Latine, related to Mexico-Vietnam Agrarian Reforms, and for the History of the Balkans at the Centre d'Études Balkaniques of the Institut National des Langues et Civilisations Orientales. Her papers and co-authored series of books are published in Vietnam, France, Canada, Mexico, Russia, Indonesia and South Korea. In 2010 she was awarded the prize Mot d'Or de la Francophonie pour la Presse Écrite. She is the President of the Association for Promoting Vietnamese Women in Sciences (APFSV).

**MARC JACOBS** (1963) is director of FARO. Flemish Interface for Cultural Heritage ([www.faronet.be](http://www.faronet.be)) and holder of the UNESCO Chair in Critical Heritage Studies and the Safeguarding of Intangible Cultural Heritage ([www.vub.ac.be](http://www.vub.ac.be)). He holds a MA in History from the University of Ghent (1985) and a PhD in History from the VUB (1998). Jacobs has been involved in drafting, elaborating, implementing, and analyzing the 2003 UNESCO Convention for the Safeguarding of Intangible Cultural Heritage since 2002. He has been a member of the Belgian delegation in the Intergovernmental Committee of that Convention between 2006 and 2008 and will continue to be so between 2012 and 2016.

**SOFIA SALEMA** graduated in Architecture (1994). She has a postgraduate course in Examination and Conservation of Architectural Surfaces, from ICCROM, a master's degree in Preservation of Architectural and Landscape Heritage by the University of Évora (2006) and a PhD in Architecture from the Faculty of Architecture, University of Lisbon (2012). Currently, she is the Head of the Department of Architecture at the University of Évora, and she is teaching at the same university.

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**ANA NENO** is a PhD student in the programme "Cultural Heritages of Portuguese Influence" at the Centre for Social Studies (CES-UC) of the University of Coimbra, organised in partnership with the Institute of Interdisciplinary Research (III-UC) of the same University and supervised jointly with the programme "Tourism, Heritage and Territorial Management" at the Faculty of Letters and Social Sciences of the Cadi Ayyad University in Marrakech (FLSH-UCAM). She graduated in Architecture from the University of Coimbra, Department of Architecture (DArq-FCTUC), and took part in a scholarly exchange programme at the National School of Architecture in Grenoble (ENAG). She then worked as an architect from October 2004 to September 2010. At present, she is a collaborator at the Network Centre for Research in Anthropology (CRIA) and integrates the UCAM Laboratory on Culture, Heritage and Tourism. The subject of her doctoral thesis is "Processes and Politics of Heritagisation in the Town of Safi".

