Documentation and damage prevention in conflict areas: The acheiropoietos monastery, cyprus

Alessandro Camiz*

Faculty of Architecture and Design, Özyeğin University, Istanbul, Turkey

ABSTRACT: The analysis of the Αχειροποίητος monastery shows the superimposition of different buildings: a domed church with a central plan, built in late Byzantine times over the ruins of an early Christian basilica, enlarged by the addition of three successive narthexes, and therefore transformed into a longitudinal basilica. The name Αχειροποίητος, literally "made without hands", referred to a sacred icon hosted therein. A walled enclosure surrounds the church and contains the monastery, which developed in subsequent phases, with different additions, demolitions and restorations. We outlined the formation process of the complex, from the VI cent. Basilica, to the transformation of the monastery into military barracks in the 1970, as a premise for the restoration project. Recently the Department of Antiquities assigned the monastery to the Girne American University for its restoration and it is urgent to accomplish some restorations. The management of this site, hence the political situation of northern Cyprus, represents an interesting case study on the contested heritage issue. Nevertheless, the heritage management in Cyprus, for the complex political situation of the island, bears more difficulties than in other UE countries, but we should consider that every heritage site has someway a contested character. An architectural project was experimented, according to the typo-morphological approach of the Muratorian Italian School, based on the principle that new buildings should be the continuation of the old ones, without imitating them, but following their formation process, as the last step of an ongoing process. We did not conceive the new architecture as an object contrasting with the context, but following the full understanding of the processual transformations of the site, it was possible to design the new addition to the monastic building as a living organism, in conformity with the sacred context.

Keywords: Urban morphology, Architectural design, Architectural Heritage

1 FORMATION PROCESS

The complex is located in the outskirts of *Lapithos*, an urban settlement on the north coast of Cyprus, documented until the seventh century when, following the Syrian raids in Cyprus, the inhabitants abandoned it settling in other sites uphill. In 653 Abu 'L-Awar, leading a Syrian army, sacked Cyprus. *Lapithos* was the last stronghold of the invasion and after the destruction of its walls; it capitulated following an agreement to trade gold and silver in change of the life for the inhabitants (Hill 1940, p. 285). It was probably at this time that someone buried the *Lambousa* treasure to save it from the invaders. In 655 AD, a bishop of *Lapithos* named Eusebius is documented, in the same time also Eulalius is quoted as bishop of *Lapithos*, with an uncertain date. The urban area of Lapithos has undergone some archaeological searching in the past, John Myres excavated the acropolis in 1913, and some of the fragments that are now in the monastery derive from these findings, like the several mosaics now inside the southern building. Here is today still visible the base of a statue of the emperor Tiberius, with a Greek inscription, dated 29 AD, that was originally placed in the gymnasium of Lapithos

^{*}Corresponding author: alessandro.camiz@ozyegin.edu.tr

(Dittenberger 1903, n. 583, pp. 274275). The name Αχειροποίητος, literally made without hands, in the first phase of the church, was connected to an icon "made without hands", so probably one of the numerous images of Christ or of the Virgin that are referred in history. There are other churches sharing this same name, including one in Thessalonica (built in 470 AD), and another one in Constantinople (built in 463 AD), both belonging to the Abramites. The name survives to this day through several misspellings, and we should consider it as an example of intangible heritage, testifying the history of a building conceived, and therefore named, to host this particular sacred image. The International Centre for Heritage Studies was established at Girne American University in August 2012 to bring together scholars and practitioners, and support a comprehensive approach to the study of heritage. The affiliates are academics in the fields related to heritage studies (such as architecture, restoration, history, and archaeology) working at local, national, and international levels. The research centre's mission is to host researches and studies on heritage, in Cyprus and abroad, with particular focus on Architectural Heritage, including history, survey, documentation, restoration and design. During the international workshop "Reading and designing the area of Lambousa, Karavas", held in Girne in 2014, we started different researches on the monastery. Specifically the activities accomplished include the laser scanner survey of the whole complex, the documentation of mosaics, *spolia* and wooden artefacts, the study of the different historical phases of the monastery, the design of a museum to host the Lambousa treasure, the design of a garden, and the design of an addition to the building. The international workshop was essential for the wider international cooperation framework and an essential prerequisite for the preservation and continuation into the future of the monument together with the UNDP and the Technical Committee for Cultural Heritage in Cyprus.

2 DESIGN METHODOLOGY

The reconstruction of the formation process of routes and settlements in the area of the monastery is one of the premises, following the Italian school of urban morphology, for the design of an addition to the monastery. On the northern coast of Cyprus, a main mountain ridge goes all the way from the East to the West; from this main ridge, secondary ridges descend towards the sea organizing the slope in a readable territorial organism. Only with the full multi-scalar understanding of the urban, territorial and built organism, it is possible to design an architecture conceived as the continuation of the ongoing process. We conceived the contemporary design not as opposed to history, but rather as a continuation of the past into the future. Teaching architectural design focused on archaeology is essential in Cyprus where ruins bear a relevant symbolic value: for the students the ruins become the living testimonies of a forgotten past. Several educational experiences have shown that architecture students, in front of a ruin, assume a reflective attitude that forces them to consider the *context*, in this case the *archaeological context*, as an integral part of the architectural design process. Often architecture students cannot understand ancient architectures, and therefore they are pushed to question their real subject expertise. They are indeed concerned about the ruins, since they belong to architecture, although old and abandoned, but cannot really deal with them. In other words, the relationship with the archaeological context triggers students' particular attention and leads them to consider the place and the artefacts that were there in the past as a single organism. The mental process of understanding the relationships between different parts of an ancient building facilitates the transposition of these relationships to the contemporary design of a living organism. Most difficult for an educational project within an archaeological area, is to transmit the choice of a quiet poetic: a compositional process based on the dialectics between foreground and background. If the main subject of the composition are the ruins, the proposed new architecture should assume a background role, cautiously avoiding any desire to emerge as an independent form. This composition exercise becomes crucial in contemporary architecture, where the research seems dominated by *striking figures* rather than by the silent construction of architectures in continuity with a still ongoing process (Strappa 2014). Designing within an archaeological area, we should also consider the absence of a given frame or limit. In the ordinary design process, the frame is determined by the property limits, and inside this frame, the architect usually displays his compositional figures. An archaeological project instead overlaps different frames, one given by the excavation perimeter, the other by the limits of existing public and private properties, another one comes from the limit of urban areas, the perimeter of archaeological restraints is very important, and finally the perimeter of the ancient architecture and its pertinence. In these cases, architects should design their composition within a complex framework, and not as a single meaningful subject. If the project normally consists in the elaboration of an architectural figure within a given frame, in this case the design exercise consists rather in the development of a complex system of frames inside an existing figure, the archaeological site. Usually ruins look like an incomplete figure, a partially obliterated picture, and herein the project should develop an *independent relationship* with the past avoiding any historicist mimicry.



Figure 1. Front view of the church (photo: A. Camiz, 2014).

The correct way for an architect to walk on a *classical soil* is to design the limit of the ancient site as a contemporary place. In addition, the design of an architecture within the ruins highlights the sustainability of pre-capitalist architecture, which can be opposed to most contemporary architecture. From Vitruvius to Alberti, from Michelangelo to Bernini, the envois of the Prix de Rome, Schinkel, Louis Kahn, Le Corbusier, Libera and Quaroni, most important architects have dealt with archaeology within their work: archaeology offers a *catharsis* for contemporary architecture; it is not a place where to bury *ancient* or *modern* repeatable styles. Designing the space between the city and an archaeological site therefore provides some educational tools to guide future designers even in small historical centres (Strappa, Carlotti, and Camiz 2016). Herein the same *silent poetic* and balanced relationship between foreground (historical context) and background (contemporary project), can reasonably be replicated and experienced with the specific purpose of reconstituting a formal relationship between the context and the contemporary design process. Different design groups, coordinated by the writer, have adopted a general strategy specification to design some small projects; all the proposed interventions follow the sustainability, and the design principles defined by Cesare Brandi, i.e. reversibility, recognisability, compatibility, minimal intervention

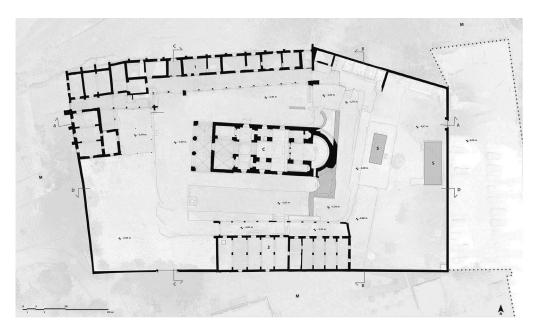


Figure 2. Carmine Canaletti (2015), Laser survey, plan of the Monastery, Lettura e progetto dell'area di Lambousa-Karavas, Cipro, rapp. G. Verdiani, co-rapp. A. Camiz, Università degli Studi di Firenze, Scuola di Architettura, Laurea Magistrale in Architettura 4/s.

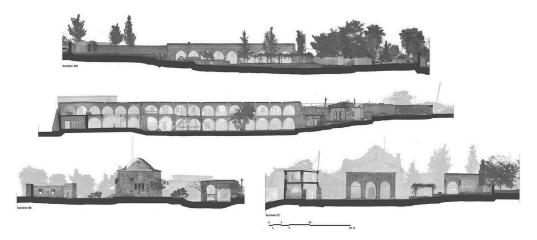


Figure 3. Internal elevations and sections of the Monastery, Lettura e progetto dell'area di Lambousa-Karavas, Cipro, rapp. G. Verdiani, co-rapp. A. Camiz, Università degli Studi di Firenze, Scuola di Architettura, Laurea Magistrale in Architettura 4/s.

and the partial image reintegration. (Brandi 1963). The project completes the formation process of the anti-polar Eastern special building. We considered the ancient monastery as a living organism to be continued by a new addition, the project therefore, using contemporary materials such as steel, stone and wood, replicates the same measure of the bays of the monastery so to develop the addition. We designed the elevation of the new composition to extend the fundamental lines of the ancient monastery: ground line, base, elevation, connection and conclusion lines were continued in the new composition, strictly avoiding any *mimesis* of the ancient buildings, and continuing the same organism started with the construction of the ancient church. The nodes where the new architecture encounters the old buildings are the crucial part of the design operation. The addition completes the living organism of the monastery, avoiding strictly any kind of aesthetical contraposition. Neither touching the old building, or bearing loads on the old walls. The new building is thus recognizable as another part and a different piece of a composition that shows even today and unique character. The distributive system of the complex, expresses the continuity with the past by granting full accessibility to all the parts, even for people with disabilities.

3 CONCLUSIONS

Within the workshop, we compared different definitions of landscape: the one given by the European Convention of Landscape, "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors»" (EU, 2000), and that provided by Emilio Sereni, "the form that man, in the course and for the purpose of its agricultural production, consciously and systematically gives to the natural landscape" (Sereni, 1961). The discussion questioned if the landscape design should be a conscious material transformation of a living organism, or an aesthetically oriented manipulation of an in-animated object, and then proposed strategies for the education of conscious communities that can guide the transformations so not to follow only speculative interests. Following these premises, we conceived a garden within the monastery of *Acheiropoietos*, inspired to Walafrid Strabo's poem. The *Hortulus* was composed in Latin in the IX century using hexameters to describe the monastic garden of Reichenau. In the poem, 23 different plants are described. These same plants were chosen as a living model for the project. The project uses wooden floor and flowers beds with a self-sufficient irrigation system and green hedges, demonstrating how it is possible to design a contemporary garden, following a medieval model, in an

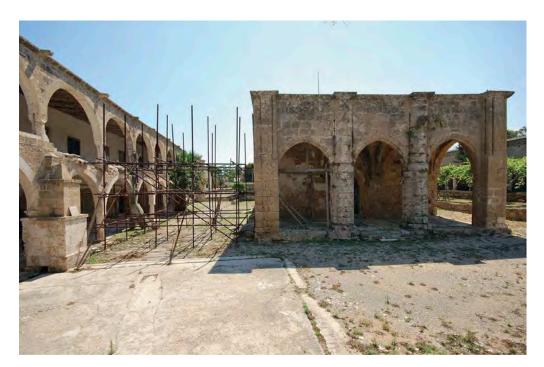


Figure 4. The scaffolding is holding in place the leaning column, urgent intervention is required (photo: A. Camiz, 2014).

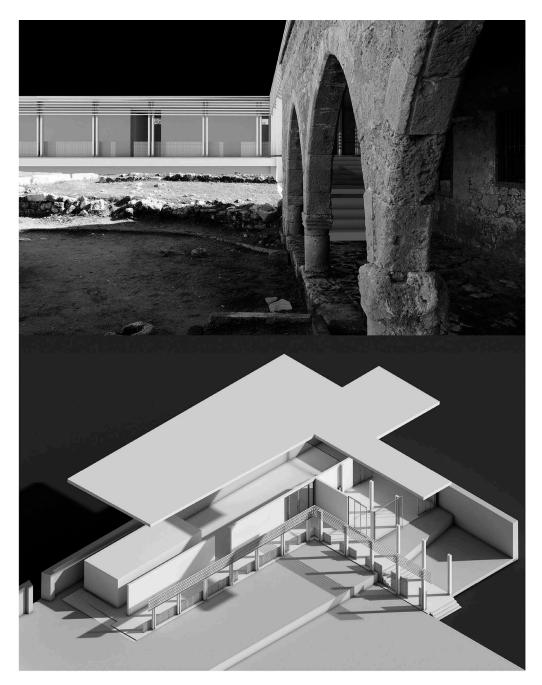


Figure 5. The formation process of the project, C. Camerota, A. Venneri, E. Vizioli, Architectural reading and design of the continuation of the Acheiropoietos Monastery, tutors: A. Camiz, L. Ferroglio, International design workshop/Graduation laboratory (Architecture and Restoration) Reading and designing the area of Lambousa-Karavas, Cyprus, 2014, Girne American University, "Sapienza" University of Rome, 2014.

archaeological site, according to the analysis of Urban Morphology, and the principles of restoration described by Cesare Brandi: i.e. recognisability, compatibility, reversibility, minimum intervention. (Brandi 1963). This enclosed medieval garden was designed to host, in one part the twenty-three plants described in Walafrid Strabo's *Hortulus*, and in the other part,

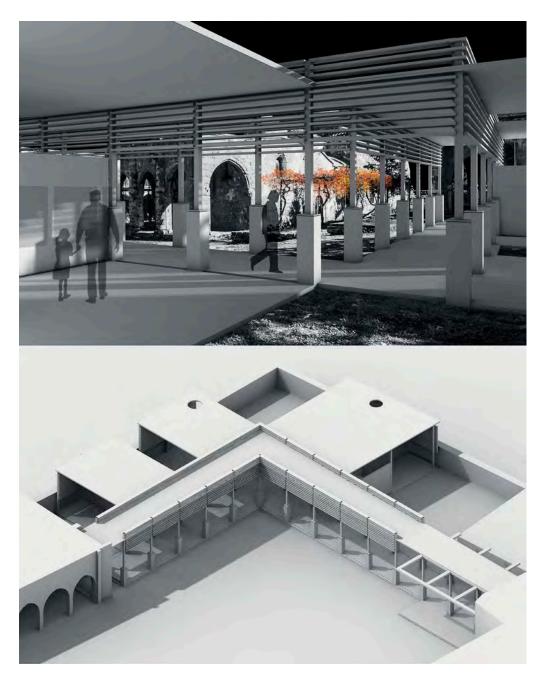


Figure 6. The formation process of the project, D. Michele Daniele, F. Lofiego, V.D. Matteis, Architectural reading and design of the continuation of the Acheiropoietos Monastery, tutors: A. Camiz, L. Ferroglio, International design workshop/Graduation laboratory (Architecture and Restoration) Reading and designing the area of Lambousa-Karavas, Cyprus, 2014, Girne American University, "Sapienza" University of Rome, 2014.

a garden dedicated to mint plants. Both of the two parts of the garden were designed, using sustainable materials and very simple technologies, so to propose a possible solution for a compatible, reversible and recognizable design within the site of the ancient Monastery. The continuation of the existing path of the portico was outlined as a system of matrix, planned

construction and connection routes, so to dispose the flowerbeds containing the plants in a way that simulates the formation process of an urban tissue within the monastery. The result is a continuation of the formation process of the monastery that enhances the site and its history, without imitating the past.

None of the proposed projects will be built in reality, but they were conceived as the experimental application of a theoretical method. The proposed method, based on the careful examination of each context and its history, recovers the rules of the transformation from the analytical reading of the formation process of the artefact. Through a project, not intended as an *impromptu* academic exercise, but rather as a design experiment, we intend to suggest to the local authorities some possible interventions in the area of the Monastery. The projects represent diverse topics, such as the reintegration of the image, or that of the construction of the margin, but they are all, in different ways, set on the transposition of the Brandi's principles of restoration to the architectural composition. All proposed projects are reversible, recognizable, consistent, and based on the minimum intervention, but finally the resulting picture certainly does not belong to the domain of the restoration itself, but rather to that of architectural composition in an archaeological area. In the analysis of the formation process of the monastery, the contribution of urban morphology and architectural typology was essential, so to develop analytically the proposal of an addition to the monastery as the continuation of an ongoing process.

In the faculties of Architecture offer undergraduate curricula in architecture which usually include only two exams in history of architecture, one theoretical exam in restoration and no elective courses in history, archaeology, restoration and survey. In addition, the different curricula available in the bachelor, master and PhD, do not include any specific option regarding heritage, so no curriculum is available for the future architects, in restoration, history or heritage management.

By comparison in Italy most of the faculties of architecture include three exams in history, two studio exams in restoration, one exam in survey and one in heritage in their curriculum, in addition to this there are specific master curricula dedicated to heritage (such as the master in Architecture (restoration) at "Sapienza" University of Rome). Also in Italy there are a specialization course (post master courses) in restoration, and several PhD programs in restoration, history and survey within the faculties of architecture. Many Faculties of architecture do have a Department of History and Restoration: and before the last university reform, which forced all Universities to aggregate their departments (so to have over 50 members) every faculty had one Department dedicated to history and restoration. In addition to this, following the compulsory professional continuing education that every practicing architect have to follow, 20 credits per year, some Chapters of Architects (such as the Rome Chapter of Architects) developed specific professional training programs dedicated to heritage. There is a Department of Heritage in the Roman Chapter of Architects, founded in 2008 and directed by Virginia Rossini. In these last seven years the policy that the largest chapter of architects in Europe has adopted (Rome has 18224 registered members. Source: Chapter of Architects President, September 2015) for professional training includes heritage as an important topic.

In the last years seminars, conferences, and workshops contributed in increasing the level of understanding of heritage within registered professionals. In countries with a history of several millenniums of civilization such as Italy and Cyprus, adopting a specific teaching policy dedicated to heritage can increase the jobs available for the new generations, and help the registered professionals to catch up with the many activities the often are offered through tender calls by UNPD and EU.

Today with this situation in education there is no option for architects trained in this country to work in the Heritage sector. The professional activities that architects can follow in Heritage, include the survey of monuments, archaeological sites and urban tissues, the documentation of heritage, the restoration, the management of Museums, archaeological sites and archaeological parks, the design of all the above, and also the design of new architectures in historical and archaeological contexts and finally, of course, the historical research. We are proposing here a new direction in architectural education in Cyprus which would affect seriously the job offer in the future, but also help Cypriot architects to participate to heritage



Figure 7. Abdul Rahman Rachdi, Walafrid Strabo's Hortulus in the Acheiropoietos Monastery, Cyprus, (ARCH371- Landscape Design, Asst. Prof. Dr. Arch. Alessandro Camiz, Girne American University Faculty of Architecture, Design and Fine Arts, Fall 2014). Designing the area of Lambousa-Karavas, Cyprus, 2014, Girne American University, "Sapienza" University of Rome, 2014.

design and management outside the island, and with a serious outcome in the perception of heritage in the people, and therefore in the inherited collective memory of the Country.

REFERENCES

Brandi Cesare. 1963. Teoria del restauro. Rome: Edizioni di Storia e Letteratura.

- Camiz Alessandro. 2004. Genere ed elenco. Tecniche compositive e significazione architettonica. In Questioni di progettazione. L'esperienza del Laboratorio di Progettazione architettonica e urbana 1 del Corso di Laurea in Tecniche dell'Architettura e della Costruzione, edited by Raffaele Panella, 102–115, Rome: Gangemi.
- Camiz Alessandro. 2014. Urban Morphology and Architectural Design of City Edges and Vertical Connections in Historical Contexts. In New Urban Configurations, edited by Roberto Cavallo, Susanne Komossa, Nicola Marzot, Meta Berghauser Pont and Joran Kuijper, 227–234, Amsterdam: Delft University Press-IOSPress.
- Camiz Alessandro. 2015. Designing contested heritage within the sacred context. The Αχειροποίητοσ Monastery. In Architecture, Archaeology and Contemporary City planning. "State of knowledge in the digital age", edited by Giorgio Verdiani, Per Cornell and Pablo Rodriguez- Navarro. 78–90. Raleigh, NC: Lulu Press.
- Caniggia Gianfranco and Maffei Gian Luigi. 1979. Composizione architettonica e tipologia edilizia. 1. Lettura dell'edilizia di base. Venice: Marsilio.
- Dittenberger Wilhelmus ed. 1903. Orientis graeci inscriptiones selectae: supplementum Sylloges, inscriptionum graecarum. Vol. II. Lipsiae: S. Hirzel.
- EU. 2001. European Landscape Convention, Treaty Series n. 176. Florence: Council of Europe.
- Hill George. 1940. A History of Cyprus. I. To the Conquest by Richard Lion Heart. Cambridge: University Press.

Maretto Marco. 2013. "Saverio Muratori: towards a morphological school of urban design", Urban Morphology 17(2): 93–106.

Marzot Nicola. 2002. "The study of urban form in Italy", Urban Morphology 6(2): 59-73.

Reuss Friedrich Anton ed. 1834. Walafrid Strabo. Hortulus. Wirceburgi: J. Stahel.

Sereni Emilio. 1961. Storia del paesaggio agrario italiano. Roma-Bari: Laterza.

- Strappa Giuseppe, Carlotti Paolo and Camiz, Alessandro. 2016. Morfologia urbana e tessuti storici. Il progetto contemporaneo nei centri minori del Lazio. Rome: Gangemi.
- Strappa Giuseppe. 2014. L'architettura come processo. Il mondo plastico in divenire. Milan: Franco Angeli.

BUILT HERITAGE IN POST-DISASTER SCENARIOS

IMPROVING RESILIENCE AND AWARENESS TOWARDS PRESERVATION, RISK MITIGATION AND GOVERNANCE STRATEGIES

> EDITED BY MARCELLO BALZANI FEDERICA MAIETTI MANLIO MONTUORI FABIANA RACO



BUILT HERITAGE IN POST-DISASTER SCENARIOS

It is assumed that the impact of natural and man-made hazards on society in terms of damage cannot be avoided. To reduce potential disaster levels and to assess which policies have had a positive outcome, a careful comparison should take place on the procedures implemented in the management of crises.

The experiences with the earthquakes in the Pianura Padana area and central regions of Italy in the last ten years have been incorporated in the 'After the Damages' advanced training project. This project aims to showcase recent innovations and advancements in post-disaster management, so as to take a more proactive role in post-disaster management, and to respond more effectively when disasters occur.

This volume provides insights into the dynamics and negative effects of natural and man-made hazards (i.e., earthquakes, fires, floods, droughts, volcanic eruptions, etc.), including more updated approaches to deal with post-disaster phases. The book also offers tools to deal with possible international crisis scenarios and mitigate the social impact of vulnerabilities through risk reduction.

Built Heritage in post-Disaster Scenarios aims at public administration managers, government agency representatives, international organizations, researchers, and professionals in architecture, engineering, and earth science.



Built Heritage in post-Disaster Scenarios

Improving Resilience and Awareness Towards Preservation, Risk Mitigation and Governance Strategies

Edited by

Marcello Balzani, Federica Maietti, Manlio Montuori & Fabiana Raco Department of Architecture, University of Ferrara, Italy





The International Academy "After the Damages" project has received funding from the Emilia Romagna Region in the scope of the three-year higher education projects in the cultural, economic and technological fields pursuant to art. 2 of the regional law n. 25/2018 approved by resolution of the Regional Council n. 1251/2019.

Front Cover Image: Finale Emilia, Modena, Italy. The parish church, commonly known as the Duomo, and its belltower seen from Via Del Monte on November 19, 2012 (©Manlio Montuori).

First published 2024 by CRC Press/Balkema 4 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN e-mail: enquiries@taylorandfrancis.com www.routledge.com – www.taylorandfrancis.com

CRC Press/Balkema is an imprint of the Taylor & Francis Group, an informa business

© 2024 selection and editorial matter Marcello Balzani, Federica Maietti, Manlio Montuori & Fabiana Raco; individual chapters, the contributors

Typeset by Integra Software Services Pvt. Ltd., Pondicherry, India

The right of Marcello Balzani, Federica Maietti, Manlio Montuori & Fabiana Raco to be identified as the authors of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

The Open Access version of this book, available at www.taylorfrancis.com, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license.

Although all care is taken to ensure integrity and the quality of this publication and the information herein, no responsibility is assumed by the publishers nor the author for any damage to the property or persons as a result of operation or use of this publication and/or the information contained herein.

Notice:

Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Every effort has been made to secure required permissions for all text, images, maps, and other art reprinted in this volume.

Design, composition and editorial coordination by Manlio Montuori

Library of Congress Cataloging-in-Publication Data

A catalog record has been requested for this book

ISBN: 978-1-032-18274-2 (hbk) ISBN: 978-1-032-18275-9 (pbk) ISBN: 978-1-003-25373-0 (ebk) DOI: 10.1201/9781003253730

Table of contents

After the Damages Project Committees	ix
Welcome Message	xiii
Foreword	xv
Preface	xvii
Introductions	xxiii
Rationalising the Emergency	xxv
Existing Built and Cultural Heritage: Risk Prevention, Conservation and Management	xxvii
Part 1: Invited lectures	
Built heritage, natural hazards and climate change M. Balzani	3
The aesthetics of landscape and the intervention on the historic city centers: The study of granada J. Gallego-Roca	17
Public building restoration after earthquakes: A strategic overview of the funding process D. Parisi	27
Temporary, non-invasive works C. Di Francesco	43
3D digital cultural heritage for resilience, recovery and sustainability. The inception project <i>F. Maietti, M. Medici, E. Iadanza & F. Ferrari</i>	53
Survey methods for the heritage and vulnerability values in a block of mexico city historic centre <i>S. Bertocci, M. Bigongiari & G. Dellabartola</i>	65
DISS/Delta international sustainable strategies. An educational and research project for the Emilia-Romagna territory of the po delta <i>E. Dorato & R. Farinella</i>	73
Overview several EU countries action versus pandemic emergency D. Ganapini	83
Mind the_gap & Be Haz-Ior S. Rossi & E. Castellaneta	93
Resilience of a legacy: Water harvesting in traditional settlements <i>M. Arya</i>	99

Endangered heritage. The preservation of industrial artefacts in Abruzzo, through research and projects <i>C. Varagnoli, L. Serafini & C. Verazzo</i>	109
Historic masonry building: From damage to first aid interventions E. Coïsson & L. Ferrari	119
Building resilience: Documentating, surveying, and representing the historical urban contex <i>P. Puma</i>	ts 129
Basics of the resilience of cultural heritage assets R. Žarnić & B. Vodopivec	141
Critical-comparative analysis of the historical theatres in Emilia damaged by the 2012 Earthquake <i>M. Suppa</i>	151
The damaged cemetery of Emilia-Romagna: From type definition to recurrent collapse mechanism identification <i>V. Vona</i>	159
Analysis of damage mechanisms of fortified heritage and proactive information tools to prevent seismic risk <i>E. Zanazzi</i>	169
Fostering economic and financial resilience through an ecosystem approach: Opportunities and peculiarities of cultural heritage <i>E. Borin</i>	177
Documentation and damage prevention in conflict areas: The acheiropoietos monastery, cyprus <i>A. Camiz</i>	185
Integrated systems for deformation monitoring E. Falvo, F. Grassi, P. Rossi, L. Parente & A. Capra	195
Risk management for historic houses museums: Casa de Rui Barbosa, Rio de Janeiro, Braz C.S. Rodrigues de Carvalho	il 205
Environmental disasters in Brazil: Case studies - cities of São Luiz do Paraitinga and Goyaz Velho J.G. Simões Junior	211
Reclamation plants between history and conservation: The effects of the 2012 earthquake <i>A.M. Tralli</i>	215
Preliminary knowledge in post-earthquake interventions. The case studies of Navelli- Civitaretenga (AQ) and Codiponte (MS) <i>C. Vernizzi</i>	225
Emergency management: Awareness, knowledge and communication after the Emilia earthquake in 2012 A. Sardo	237
Part 2: Thematic lectures	
From disaster to community restoration through interventions on the historical and artistic heritage A. Libro	245
Palazzo Schifanoia in Ferrara N Frasson A Libro M L Laddago F Pozzi & M Boyarsi	247

N. Frasson, A. Libro, M.L. Laddago, F. Pozzi & M. Roversi

Collegiate church of Santa Maria Maggiore in Pieve di Cento R. Gabrielli, M. Oprandi, M. Boni, A. Libro & M.L. Laddago	267
Duomo of Santa Maria Maggiore in Mirandola G. Azzolini, A. Libro & M.L. Laddago	283
Palazzo Sartoretti in Reggiolo M. Goldoni, F. Camorani, F. Ferrari, G. Malaguti, A. Libro, M.L. Laddago & R. Angeli	311
Mapping the cultural regeneration. The pilot experience of the "Crateri" project N. Marzot & L. Bolelli	337
Public space and landscape: Recovery strategies and risk mitigation for the management of disaster events <i>C. Pescosolido</i>	345
Protocol for an integrated 3D survey for cultural heritage at risk <i>F. Raco</i>	359
The post-disaster legacy in Italy and the effects unfolded by the reconstruction plans M . Montuori	367
<i>Part 3: Multiscale application and simulation Workshop</i> Knowledge for conservation. Methods and technologies to preserve the cultural heritage S.S. Jawhar, R. Del Regno, Z. Megouar, M. Perticarini & S. Morena	387
Team-driven documentation of civil structures C. Callegaro, R. Garozzo, E. Magrinelli & Y.A. Mazurek	397
Floods and heritage: Comparison of cases and observations C. Tosto, I. Amani, L. El Mokhlis, M.I. Lattarulo & S. Mhatre	405
ME.MO.RIA - monuments essence, materials observation, risk interpretation & analysis R. Bernardello, O. Buscariolli, M. Felli, H. Gallo, B. Letizia & E. Ziraldo	417
<i>Faster!</i> Platform: Fast assessment and survey of the territory for evaluation and restoration <i>R. Campiotto, N. Pini, F. Ridolfi & C. Ornelas</i>	427
Contemporary approach to ancient walls L. Ainine, M. Cornieti, I. Manetta, Ö. Özkuvanci & G.C. Santangelo	435
A thrust on modern heritage conservation: The comparative cases of 20 th century architecture in India, Italy and Turkey <i>C. Sharad, G. Bufo & Z. Önsel Atala</i>	447
The dimensions of heritage as strategies for action plans for pre and post disaster intervention <i>A. Milano, F. Graziosi, I. Valle Herrero, J. Krholing Peruzzo & M. Lidón de Miguel</i>	455
Strategies to manage flooding risk in historical cities: The case of Paraty L. Praticò, I.S. de Serro Azul, M. Vaz De Souza, M. Previti & A. Ledo Marques	465
Author index	477



After the Damages Project Committees

HEADS

Marcello BALZANI, University of Ferrara Riccardo DALLA NEGRA, University of Ferrara Roberto DI GIULIO, University of Ferrara

SCIENTIFIC MANAGERS

Federica MAIETTI, University of Ferrara Manlio MONTUORI, University of Ferrara Fabiana RACO, University of Ferrara

DIDACTIC COORDINATION Claudia PESCOSOLIDO, University of Ferrara

PROJECT PARTNERS

University of Ferrara University of Parma University of Modena e Reggio Emilia Regione Emilia-Romagna, Agenzia Regionale per la Ricostruzione post sisma 2012 Soprintendenza Archeologia Belle Arti e Paesaggio per la città metropolitana di Bologna e le province di Modena, Reggio Emilia e Ferrara Istituto per i beni artistici culturali e naturali della Regione Emilia-Romagna



FACULTY MEMBERS

National University of Architecture and Construction of Armenia, Yerevan, Armenia Faculdade de Arquitetura e Urbanismo, Departamento de Historia da Arquitetura e Estética do Projeto, Universidade de Sao Paulo, Brazil Historia da Arquitetura e Estética do Projeto, Sao Paulo, Brazil Escola da Cidade – Facultade de Urbanismo e Arquitectura di San Paolo, Brazil Unversidade Presbiteriana Mackenzie, Facultade de Arquitectura e Urbanismo, San Paolo, Brazil Burgundy School of Business, Université Bourgogne Research team in Arts and Cultural Management, Dijon, France College of Civil Engineering (CCE), Fuzhou University, China Universidad Politécnica Salesiana, Cuenca, Ecuador University of the Faroe Islands, Faculty of Science and Technology, Torshavn, Faroe Islands SAL School of Architecture, Gujarat Technoological University, Ahmedabad, India Res-Arquitectura, Universitat Politècnica de València, València, Spain Escuela Técnica Superior de Arquitectura, Granada, Spain Özyegin University, Faculty of Architecture and Design, Istanbul, Turkey Instituto do Patrimônio Histórico e Artístico Nacional - IPHAN, San Paolo, Brazil Istituto de la Ciudad, Quito, Ecuador Slovenian Association of Earthquake Engineering, Ljubljana, Slovenia RehabiMed e Universitat Politècnica de Catalunya, Barcellona, Spain Unione Italiana per il Disegno, Italy Res-Arquitectura, Universitat Politècnica de València, València, Spain Escuela Técnica Superior de Arquitectura, Granada, Spain Özyegin University, Faculty of Architecture and Design, Istanbul, Turkey Instituto do Patrimônio Histórico e Artístico Nacional - IPHAN, San Paolo, Brazil Istituto de la Ciudad, Quito, Ecuador Slovenian Association of Earthquake Engineering, Ljubljana, Slovenia RehabiMed e Universitat Politècnica de Catalunya, Barcellona, Spain

TECHNICAL – SCIENTIFIC COMMITTEE

Cristina AMBROSINI, Soprintendenza Archeologia, Belle Arti e Paesaggio per la Città Metropolitana di Bologna e le Province di Modena, Reggio Emilia e Ferrara Marcello BALZANI, University of Ferrara

Roberto BALZANI, Istituto per i beni artistici, culturali e naturali della Regione Emilia-Romagna Alessandro CAPRA, University of Modena e Reggio Emilia

Cristina CASTAGNETTI, University of Modena e Reggio Emilia

Enrico COCCHI, Agenzia Regionale per la Ricostruzione – Sisma 2012 della Regione Emilia-Romagna

Eva COÏSSON, University of Parma

Riccardo DALLA NEGRA, University of Ferrara

Roberto DI GIULIO, University of Ferrara

Maria Luisa LADDAGO, Soprintendenza Archeologia, Belle Arti e Paesaggio per la Città Metropolitana di Bologna e le Province di Modena, Reggio Emilia e Ferrara

Antonino LIBRO, Agenzia Regionale per la Ricostruzione – Sisma 2012 della Regione Emilia-Romagna

Federica MAIETTI, University of Ferrara

Manlio MONTUORI, University of Ferrara

Fabiana RACO, University of Ferrara

Chiara VERNIZZI, University of Parma

SCIENTIFIC COMMITTEE

Imane BENNANI, Ecole d'Architecture de l'Université Internationale de Rabat, Marocco Angelica ALVIM BENATTI, School of Architecture and Urbanism of Mackenzie Presbyterian University, San Paolo, Brasil

Stefano BERTOCCI, University of Florence, Italy

Patrizio BIANCHI, Big Data Technopole, Bologna, Italy

Elena BORIN, Burgundy School of Business, Université Bourgogne Franche Comté, France Angelo BORRELLI, Dipartimento della Protezione Civile - Presidenza del Consiglio dei Ministri, Italy Enza BOSETTI, Universidad Politécnica Salesiana, Cuenca, Ecuador

Bruno BRISEGHELLA, College of Civil Engineering, Fuzhou University, China

Marina BUNATYAN, National University of Architecture and Construction of Armenia, Yerevan, Armenia

Valter CALDANA, Universidade Presbiteriana Mackenzie, São Paulo, Brasil

Xavier CASANOVAS, RehabiMed e Universitat Politècnica de Catalunya, Barcellona, Spain

Carla DI FRANCESCO, Scuola dei Beni Culturali e del Turismo, Ministero dei Beni e delle Attività Culturali e del Turismo, Italy

Julio ECHEVERRIA, Universidad Central del Ecuador, Quito, Ecuador

François HARTOG, École des Hautes Études en Sciences Sociales EHESS, Parigi, France

Konstantinos KARANASOS, Ministry of Culture - The Acropolis Restoration Service, Greece

Beatriz Mugayar KÜHL, Faculdade del Arquitetura e Urbanismo, Universidade de Sao Paulo, Brasil

Marica MERCALLI, Direzione Generale Sicurezza del Patrimonio Culturale, Ministero dei Beni e delle Attività Culturali e del Turismo, Italy

Camilla MILETO, Universitat Politècnica de València, València, Spain

Cristiane MUNIZ, Escola da Cidade – Facultade de Urbanismo e Arquitectura di San Paolo, Brasil

Christian OST, School of Management, Bruxelles, Belgium

Harald PECHLANER, Università Cattolica di Eichstatt - Ingolstadt, Germany

Gethin WYN ROBERTS, University of the Faroe Islands, Denmark

Javier GALLEGO ROCA, Escuela Técnica Superior de Arquitectura, Granada, Spain Rossella SALERNO, Polithecnic of Milan, Italy

Ronaldo RUIZ, Instituto do Patrimônio Histórico e Artístico Nacional - IPHAN, San Paolo, Brasil

Murat SAHIN, Özyegin University, Faculty of Architecture and Design, Istanbul, Turkey Shrutie SHAH, SAL School of Architecture, Ahmedabad, India

Roko ZARNIC, Slovenian Association of Earthquake Engineering, Ljubljana, Slovenia

PARTICIPANTS

Lamiae AININE Ruba Ahmad Hussien ALOMARY Ilves AMANI Marco ANGELOSANTI Isabella AZUL Andrès BÄPPLER Nelio Josè BATISTA COSTA Rachele Angela BERNARDELLO Tania Cristina BORDON MIOTO SILVA Giulia BUFO Olivia MALFATTI BUSCARIOLLI Chiara CALLEGARO Renata CAMPIOTTO Cristina CIOVATI Michele CORNIETI Raffaella DE MARCO Rossella DEL REGNO João DUARTE Leïla EL MOKHLIS Ali DALALBASHI ESFAHANI Marco FELLI Haroldo GALLO Raissa GAROZZO Francesca GRAZIOSI

Author Index

Ainine, L. 435 Amani, I. 405 Angeli, R. 311 Arya, M. 99 Azzolini, G. 283 Balzani, M. 3 Bernardello, R. 417 Bertocci, S. 65 Bigongiari, M. 65 Bolelli, L. 337 Boni, M. 267 Borin, E. 177 Bufo, G. 447 Buscariolli, O. 417 Callegaro, C. 397 Camiz, A. 185 Camorani, F. 311 Campiotto, R. 427 Capra, A. 195 Castellaneta, E. 93 Coïsson, E. 119 Cornieti, M. 435 de Serro Azul, I.S. 465 Del Regno, R. 387 Dellabartola, G. 65 Di Francesco, C. 43 Dorato, E. 73 El Mokhlis, L. 405 Falvo, E. 195 Farinella, R. 73 Felli, M. 417 Ferrari, F. 53 Ferrari, F. 311 Ferrari, L. 119 Frasson, N. 247

Gabrielli, R. 267 Gallego-Roca, J. 17 Gallo, H. 417 Ganapini, D. 83 Garozzo, R. 397 Goldoni, M. 311 Grassi, F. 195 Graziosi, F. 455 Iadanza, E. 53 Jawhar, S.S. 387 Krholing Peruzzo, J. 455 Laddago, M.L. 247, 267, 283, 311 Lattarulo, M.I. 405 Ledo Marques, A. 465 Letizia, B. 417 Libro, A. 245, 247, 267, 283, 311 Lidón de Miguel, M. 455 Magrinelli, E. 397 Maietti, F. 53 Malaguti, G. 311 Manetta, I. 435 Marzot, N. 337 Mazurek, Y.A. 397 Medici, M. 53 Megouar, Z. 387 Mhatre, S. 405 Milano, A. 455 Montuori, M. 367 Morena, S. 387 Önsel Atala, Z. 447 Özkuvancı. Ö. 435 Oprandi, M. 267 Ornelas, C. 427

Parente, L. 195 Parisi, D. 27 Perticarini, M. 387 Pescosolido, C. 345 Pini, N. 427 Pozzi, F. 247 Praticò, L. 465 Previti, M. 465 Puma, P. 129 Raco, F. 359 Ridolfi, F. 427 Rodrigues de Carvalho, C.S. 205 Rossi, P. 195 Rossi, S. 93 Roversi, M. 247 Santangelo, G.C. 435 Sardo, A. 237 Serafini, L. 109 Sharad, C. 447 Simões Junior, J.G. 211 Suppa, M. 151 Tosto, C. 405 Tralli, A.M. 215 Valle Herrero, I. 455 Varagnoli, C. 109 Vaz De Souza, M. 465 Verazzo, C. 109 Vernizzi, C. 225 Vodopivec, B. 141 Vona, V. 159 Žarnić, R. 141 Zanazzi, E. 169 Ziraldo, E. 417

