

ARCHITETTURA RURALE LA MEMORIA DEL PAESE

a cura di

Beatrice Messeri
Marta Casanova
Valentina Cineri
Federica Pompejano
Maria Vitiello

Atti

CONFERENZA INTERNAZIONALE, ICOMOS ITALIA
COMITATO SCIENTIFICO NAZIONALE ARCHITETTURA VERNACOLARE
21-22 Maggio 2022

RURAL ARCHITECTURE. THE MEMORY OF THE COUNTRY

Proceedings

INTERNATIONAL CONFERENCE, ICOMOS ITALY
NATIONAL SCIENTIFIC COMMITTEE CIAV
21-22 May 2022

Altralinea
EDIZIONI



Consiglio Internazionale
dei Monumenti e dei Siti
Comitato Nazionale Italiani



ICOMOS CIAV
International Committee
on Vernacular Architecture
International Council on
Monuments and Sites



Direzione generale
Educazione, ricerca
e istituti culturali



Direzione generale
Educazione, ricerca
e istituti culturali

La pubblicazione è stata realizzata grazie al contributo della Direzione generale Educazione, Ricerca e Istituti culturali

ARCHITETTURA RURALE. LA MEMORIA DEL PAESE

Conferenza internazionale, ICOMOS Italia Comitato Scientifico Nazionale Architettura Vernacolare 21-22 maggio 2022

RURAL ARCHITECTURE. THE MEMORY OF THE COUNTRY

International Conference, ICOMOS Italy National Scientific Committee CIAV 21-22 May 2022

Organizzato da / Organized by:

ICOMOS ITALIA COMITATO SCIENTIFICO NAZIONALE ARCHITETTURA VERNACOLARE
ICOMOS ITALY NATIONAL SCIENTIFIC COMMITTEE CIAV

Coordinatrice / Coordinator:

Beatrice Messeri

A cura di / Edited by:

Beatrice Messeri, Marta Casanova, Valentina Cinieri, Federica Pompejano, Maria Vitiello

Con il patrocinio di / Under the patronage of:

- Intbau Italia (International Network for Traditional Building, Architecture & Urbanism)
- Associazione Storia della Città (Centro internazionale di studi per la storia della città, fonti d'archivio e patrimonio architettonico-ambientale)
- Parco Regionale dell'Appia Antica
- Università degli Studi di Salerno, Dipartimento di Scienze del Patrimonio Culturale
- Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori di Roma e Provincia
- Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori della Provincia di Firenze
- Ordine degli Architetti Pianificatori Paesaggisti e Conservatori della Provincia di Avellino
- Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori di Napoli e Provincia

Comitato Scientifico Convegno / Scientific Committee Conference:

Beatrice Messeri, Giuseppe Amoruso, Alessandro Camiz, Marta Casanova, Valentina Cinieri, Rosa Fiorillo, Simona Messina, Antonella Nappo, Federica Pompejano, Alessandra Trivelli, Maria Vitiello

Contatti / Contacts:

arch.rurale@gmail.com

© ALTRALINEA EDIZIONI s.r.l. - 2024

Via P. Carnesecchi - 50131 Firenze

Tel. +39 055 333428 info@altrilinea.it www.altrilineaedizioni.it

Tutti i diritti sono riservati: nessuna parte di questa pubblicazione può essere riprodotta, o utilizzata in qualsiasi forma o con qualsiasi mezzo (elettronico, meccanico, compresi fotocopie e microfilms) senza il permesso scritto della Casa Editrice / All rights reserved: no part of this publication may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and recording, without permission in writing from the Publisher.

Comitato Scientifico Atti / Proceedings Scientific Committee:

Beatrice Messeri, Giuseppe Amoruso, Alessandro Camiz, Marta Casanova, Valentina Cinieri, Simona Messina, Federica Pompejano, Alessandra Trivelli, Maria Vitiello

Design: Adriana Toti

Edizione digitale / *Digital edition:* ISBN 979-12-5676-005-3

ottobre 2024 / *October 2024*

(Edizione cartacea / Printed edition: ISBN 979-12-5676-003-9 ottobre 2024 / October 2024)

Copertina / Cover: Elaborazione grafica da una foto di Beatrice Messeri / *Graphic processing from a photo by Beatrice Messeri*



ICOMOS CIAV

International Committee
on Vernacular Architecture

International Council on
Monuments and Sites



Consiglio Internazionale
dei Monumenti e dei Siti
Comitato Nazionale Italiano

ARCHITETTURA RURALE LA MEMORIA DEL PAESE

Atti della CONFERENZA INTERNAZIONALE, ICOMOS ITALIA
COMITATO SCIENTIFICO NAZIONALE ARCHITETTURA VERNACOLARE

21-22 Maggio 2022

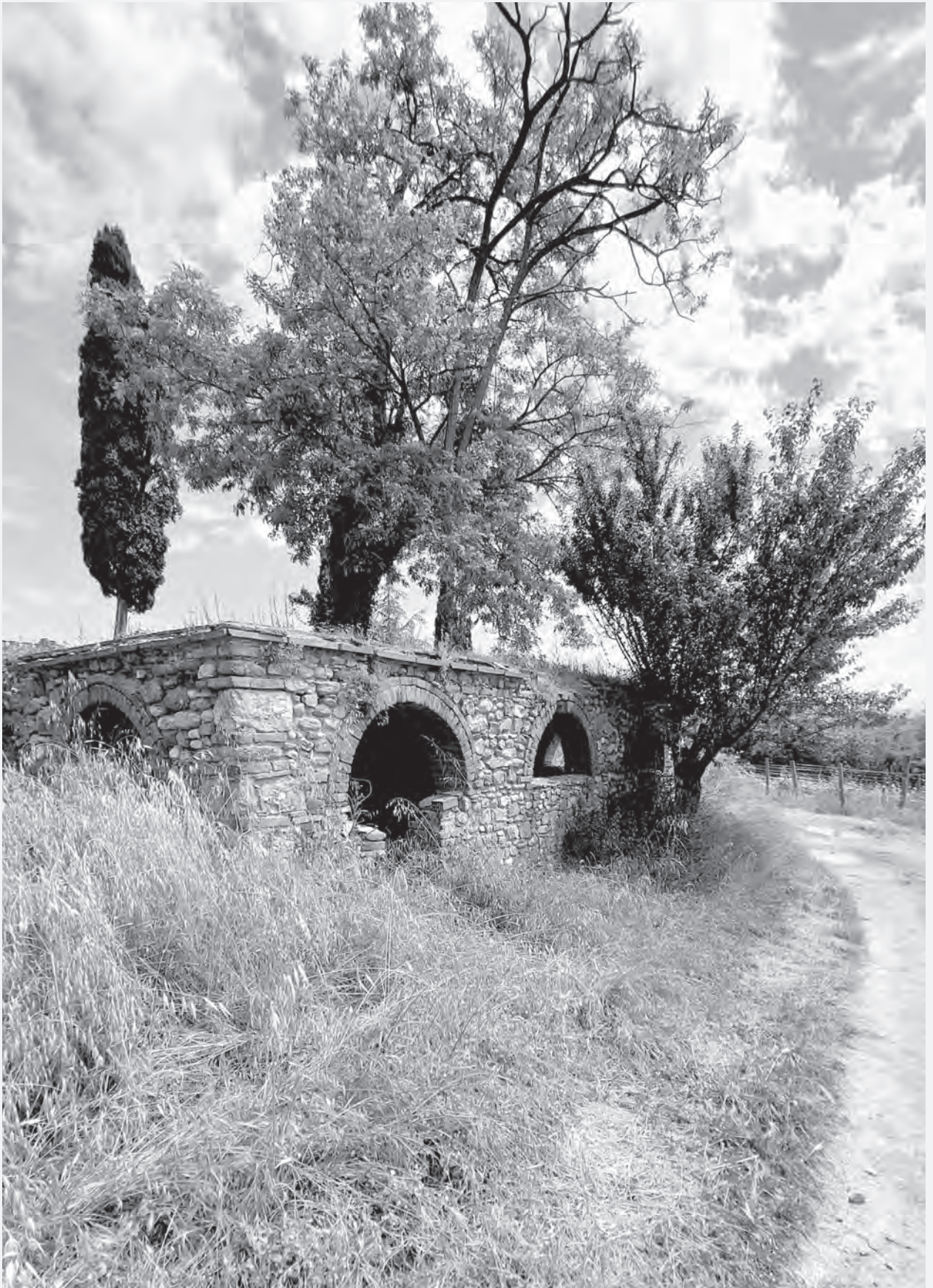
RURAL ARCHITECTURE. THE MEMORY OF THE COUNTRY

Proceedings of the INTERNATIONAL CONFERENCE, ICOMOS ITALY
NATIONAL SCIENTIFIC COMMITTEE CIAV

21-22 May 2022

a cura di

Beatrice Messeri
Marta Casanova
Valentina Cinieri
Federica Pompejano
Maria Vitiello



Annesso agricolo di casa colonica ubicato a San Donato in Poggio, FI (ph. Beatrice Messeri, 2021).

Indice / Contents

- pag. 13 Presentazioni / *Forewords*
Maurizio Di Stefano, Cettina Lenza, Paolo Salonia, Hossam Mahdy, Marwa Dabaieh
- 38 ■ *Beatrice Messeri*
Conferenza Internazionale “ARCHITETTURA RURALE LA MEMORIA DEL PAESE”
International Conference “RURAL ARCHITECTURE THE MEMORY OF THE COUNTRY”
Introduzione / *Introduction*
Temi e Sezioni / *Themes and Sections*
- 50 **SEZIONE I**
-
- ARCHITETTURE RURALI E XX SECOLO**
SECTION I - RURAL ARCHITECTURE AND THE TWENTIETH CENTURY
Introduzione / Introduction Federica Pompejano
- KEYNOTE**
- 56 ■ *Cettina Lenza, Angela Pecorario Martucci*
Dal vernacolare al moderno e ritorno: il tema dell'architettura rurale nel dibattito e nelle sperimentazioni del Novecento
[Abstract] From Vernacular to Modern and Back: the Theme of Rural Architecture in the Debate and Experiments of the 20th Century
Introduzione
Il ruolo dell'architettura rurale nella ricerca del Moderno
L'incerto ritorno al vernacolare
- 66 ■ *Angelamaria Quartulli, Piernicola Cosimo Intini, Piero Intini*
Borgate rurali del XX secolo: Plinio e Paolo Marconi progettisti per l'Ente Riforma in Basilicata e Puglia
[Abstract] Rural Villages of the 20th Century: Plinio and Paolo Marconi Designers for the Ente Riforma in Basilicata and Puglia Regions
La pianificazione rurale della riforma fondiaria in Puglia, Basilicata e Molise
Il contributo di Plinio Marconi al dibattito che accompagna le trasformazioni dei paesaggi rurali in Puglia, Basilicata e Molise
I progetti di Borgo Taccone ad Irsina (MT) e Borgo San Cataldo a Bella (PZ)
I centri di servizio progettati da Plinio e Paolo Marconi in Puglia e Molise: Lamadacqua di Noci (BA) e Melanico a Santa Maria di Magliano (CB)
Conclusioni
- 74 ■ *Maria Vitiello*
Borgi rurali e case coloniche nel paesaggio della pianura pontina. Conoscenza per la conservazione
[Abstract] Rural Villages and Farmhouses in the Landscape of the Pontine Plain. Knowledge for Conservation
L'Agro Pontino. Bonifica e colonizzazione
La trasformazione “integrale” del territorio
Città, borghi e case coloniche
Il tipo edilizio della casa colonica e il dibattito sull'architettura rurale
Lo stato attuale dell'insediamento. Il censimento e la schedatura delle case coloniche
Conclusioni

ARCHITETTURE E AMBIENTI RURALI**SECTION II – RURAL ARCHITECTURES AND ENVIRONMENTS**Introduzione / *Introduction* Maria Vitiello

- 88 ■ *Simonetta Acacia, Anna Boato*
Le frazioni della valle di Levanto (SP). Trasformazioni dell'architettura rurale negli ultimi trent'anni
[Abstract] The Hamlets of the Levanto Valley (SP). Transformations of Rural Architecture Over the Last Thirty Years
 Levanto: inquadramento storico e struttura insediativa
 Lo stato dei luoghi negli anni Novanta
 La nuova ricerca ISCum 2020-21
 Analisi dei dati
 Riflessioni e conclusioni
- 100 ■ *Valentina Cinieri, Marta Casanova, Federica Pompejano*
I mulini della Val Borbera: un patrimonio rurale diffuso tra passato e presente
[Abstract] The Mills of Val Borbera: a Widespread Rural Heritage between Past and Present
 Il contesto storico della Val Borbera
 Il Novecento e il fenomeno dello spopolamento
 Il censimento e la schedatura dei mulini della Val Borbera
 L'importanza degli aspetti materiali e immateriali per la conoscenza e la conservazione
 Conclusioni
- 110 ■ *Alessandra Trivelli*
Masserie irpine tra passato, presente e futuro
[Abstract] Irpinian "Masserias" between Past, Present and Future
 Introduzione
 1. Masseria Montefalco – Ariano Irpino (AV)
 2. Masseria Maffucci – Calitri (AV)
 3. Masseria di Contrada "Travagliuso" o Malanga – Conza della Campania (AV)
 4. Masseria Ponterotto – Mirabella Eclano (AV)
 5. Masseria località Casale – Paternopoli (AV)
 6. Masseria località San Gennaro – Sant'Angelo dei Lombardi (AV)
 Conclusioni
- 120 ■ *Francesco Sommese, Gigliola Ausiello*
Un approccio bioclimatico per le architetture rurali della Campania
[Abstract] A Bioclimatic Approach to the Restoration of Rural Architecture in Campania
 Introduzione
 Metodologia
 1. Masseria Cerreto – Calvi Risorta (CE)
 2. Masseria Nicotera – Faibano a Marigliano (NA)
 Discussione e conclusioni
- 128 ■ *Sara Cipolletti, Alessia Guaiani*
Itinerari rurali nel paesaggio medio Adriatico. Architetture delle case coloniche e tracce della mezzadria
[Abstract] Rural Itineraries in the Middle-Adriatic Region Landscape. Architecture of Farmhouses and Traces of "Mezzadria" (Sharecropping)
 Ambiente, Paesaggio e Architetture vernacolari
 Metodologia
 Ambiente collinare del Centro Italia e caratteri delle architetture vernacolari
 Architetture vernacolari e relazioni con il paesaggio collinare
 Itinerari nel medio Adriatico
 Conclusioni
- 138 ■ *Bernhard Lösch*
Architetture rurali in Sudtirolo – Alto Adige
[Abstract] Rural Architecture in South Tyrol
 Introduzione
 La scelta delle sedi delle aziende agricole
 Acqua come elemento compositivo
 Le tipologie
 I tetti a paglia
 Le proporzioni

■ *Kun Li, Laura Anna Pezzetti*

Reading the Structure of Chinese Villages through Typo-Morphological Semantic Units: the Cases of Traditional Villages in Shaanxi, China

[Abstract] **Lettura della struttura dei villaggi cinesi attraverso unità semantiche tipo-morfologiche: i casi dei villaggi tradizionali nello Shaanxi, Cina**

Introduction

The Perspective of the Investigation: from Single Building Types to Settlement Form
Morphological Foundations of Semantic Units: Layered Morphologies and Latent Structure
From Typo-Morphology to Semantic Units: a Research Path for the Chinese Villages' Form
Expanded Semantic Unit Interpretation: a Method of Cultural Invariants Analysis
Conclusions

SEZIONE III

EDIFICI E STRUTTURE RURALI

SECTION III - RURAL BUILDINGS AND STRUCTURES

Introduzione / Introduction *Valentina Cinieri*

KEYNOTE

■ *Rossano Pazzagli*

La scomparsa delle rondini. La stalla contadina e la trasformazione dell'ambiente rurale

[Abstract] **The Disappearance of Swallows. The Paesant Stable and the Transformation of the Rural Environment**

La casa contadina

La stalla

Primavera silenziosa

■ *Dario Foppoli, Alessio Caligari, Lucia Aliverti*

Costruzioni tradizionali in pietra a secco: I baitelli della media Valtellina

[Abstract] **Traditional Dry Stone Constructions: the "Baitelli" (Huts) of the Middle Valtellina**

Introduzione

I *baitelli*

Conoscenza

Conservazione

Conclusioni

■ *Antonio Frattari, Michela Dalprà*

L'architettura rurale scomparsa delle Valli Giudicarie (Trentino - Italia)

[Abstract] **The Traditional Buildings of the Giudicarie Valleys**

L'edilizia tradizionale delle Valli Giudicarie

I tetti di paglia

La ricostruzione di un tetto di paglia

Conclusioni

■ *Daniele Colistra*

The Rural Architecture of Ginostra

[Abstract] **L'architettura rurale di Ginostra**

Introduction

Ginostra: History and Environment

The Building Types

The Service Elements of the Home

Conclusions: Cataloguing and Research Developments

■ *Irene Pace*

I palmenti di Pietragalla, la pietra e la vite

[Abstract] **The Millstones of Pietragalla, the Stone and the Vine**

Introduzione

La pietra e la vite

Il palmento e il modello pietragallese

Conclusioni

■ *Teresa Feraboli*

La Cascina Monticelli a Bertinico e la difficile sopravvivenza del Moderno rurale

[Abstract] **The Monticelli Farmstead in Bertinico and the Hard Survival of the Rural Heritage of the "Moderno"**

Introduzione

Monticelli: una 'cittadella' moderna rurale in declino

La Fondazione Patrimonio Ca' Granda e le proprietà rurali dell'Ospedale Maggiore

Il Moderno rurale: esiste un pregiudizio storico-critico?

Conclusioni

- pag. 210 ■ *Enrico Bascherini*
Interazioni architettoniche tra dialetto e accademia nelle architetture del territorio apuano
[Abstract] *Architectural Interactions between Dialect and Academy in the Architecture of the Apuan Territory*
Introduzione
Le radici minori dell'architettura moderna, da Pagano a De Carlo
Tra dialetto e accademia, interazioni nelle architetture del territorio apuano
Conclusioni

220 SEZIONE IV

PROGRESSI NELLA RICERCA SULL'ARCHITETTURA RURALE

SECTION IV - PROGRESS IN RURAL ARCHITECTURE RESEARCH

Introduzione / *Introduction* *Valentina Cinieri*

- 224 ■ *Federica Matteoni*
Edilizia rurale nelle valli bergamasche: l'archeologia al servizio della conoscenza di un patrimonio comune
[Abstract] *Rural Construction in the Bergamo Valleys: Archeology at the Service of Knowledge of a Common Heritage*
Introduzione e metodo di ricerca
Le tendenze costruttive nelle valli bergamasche: peculiarità nei contesti medievali
Il supporto dell'archeologia per la conoscenza dell'edilizia rurale: lavorare in una prospettiva comune
- 234 ■ *Beatrice Messeri*
Dalle origini della ricerca sull'architettura rurale italiana nel Novecento fino agli sviluppi internazionali. Un dibattito attuale ancora aperto
[Abstract] *From the Origins of Research on Italian Rural Architecture in the Twentieth Century to International Developments. A still Open Current Debate*
Introduzione
Gli anni Trenta e la mostra di Pagano e Daniel
Renato Biasutti e la ricerca sull'architettura rurale italiana
Rudofsky e la mostra del MoMA
I documenti internazionali

246 SEZIONE V

CONSERVAZIONE E RESTAURO DELL'ARCHITETTURA RURALE

SECTION V - CONSERVATION AND RESTORATION OF RURAL ARCHITECTURE

Introduzione / *Introduction* *Federica Pompejano*

- 252 ■ *Iole Nocerino*
Architettura rurale leopoldina: problemi di conservazione e approcci per la difesa della memoria contadina in Val di Chiana
[Abstract] *Leopoldine Rural Architecture: Conservation Problems and Approaches for the Defense of Farming Memory in Val di Chiana*
Il paesaggio della Chiana conserva i 'segni' della storia
Le architetture rurali nei luoghi della bonifica tra tempo e materia
Spirito di salvaguardia e criteri operativi per la difesa della memoria contadina
- 260 ■ *Chiara Circo*
Un futuro per l'architettura rurale urbana in Sicilia. Osservazioni per il restauro e il riuso abitativo delle antiche case a Leonforte (EN) e Petralia Soprana (PA)
[Abstract] *A Future for Urban Rural Architecture in Sicily. Observations for the Restoration and the Residential Reuse of Ancient Houses in Leonforte (EN) and Petralia Soprana (PA)*
Introduzione
Gli insediamenti e le loro componenti
La casa di Leonforte
La casa di Petralia Soprana
Verso il restauro delle case rurali urbane
Conclusioni
- 272 ■ *Deborah Sanzaro*
Un futuro per l'architettura urbana-rurale in Sicilia. La natura dell'abbandono nei centri storici di Leonforte (EN) e Petralia Soprana (PA)
[Abstract] *A Future for Urban Rural Architecture in Sicily. Reasons for Abandonment in the Historic Centers of Leonforte (EN) and Petralia Soprana (PA)*
Introduzione
Due casi-studio a confronto: il quartiere Granfonte a Leonforte e il centro storico di Petralia Soprana
Materiali e metodi per la conoscenza e l'interpretazione dello stato di abbandono
L'entità dell'abbandono e il suo processo di avanzamento nel tempo
La condizione di fragilità del patrimonio urbano-rurale
Conclusioni

- *Emma Buondonno, Filomena Nardone Aggiutorio*

Valorizzazione della Masseria fortificata e delle *lammie* tradizionali pugliesi di “Archidamo III”

[Abstract] **Enhancement of the Fortified “Masseria” and the Traditional Apulian “Lammie” of “Archidamo III”**

Introduzione
 Il progetto. Caratteristiche architettoniche e strutturali generali
 La masseria
 Le *lammie* e le *pajare*
 I muretti a secco
 L'eco superindividuale del progetto
 Conclusioni

- *Carmelo Raniolo, Valentina Macca*

La storia del palmento “Pancari” tra mutamenti territoriali e socioeconomici nel paesaggio agricolo della valle dell’Acate

[Abstract] **The History of the “Pancari” Millstone between Territorial and Socioeconomic Changes in the Agricultural Landscape of the Acate Valley**

Introduzione
 Il paesaggio agricolo della valle dell’Acate
 Il palmento “Pancari”: storia e tecnica costruttiva, abbandono e condizioni di degrado
 Alcune considerazioni sulle strategie di conservazione

- *Manlio Montuori*

Rural Architecture in Emilia-Romagna and the 2012 Legacy for the Recovery of the Landscape Identity

[Abstract] **L’architettura rurale in Emilia-Romagna e l’eredità del terremoto del 2012 per il recupero dell’identità paesaggistica**

The Rural Component in the 2012 Emilia Earthquake Aftermath
 Overcoming the Emergency of Spontaneous Built Heritage
 The Spontaneous Architecture at the Earthquake Test
 Assessment of the Earthquake Damage Scenario
 Environmental Design and the Strategies of the Reconstruction
 Preserving the Traditional Building Type in the Reconstruction in Historic Courts
 Conclusions

- *Silvia Beltramo, Paolo Bovo, Ilaria Papa*

Conoscenza e conservazione del patrimonio architettonico rurale della Valchiusella e di Rueglio (Piemonte). Lo studio dell’abitato storico e il recupero di Ka D-Mezanis

[Abstract] **Knowledge and Conservation of Rural Architectural Heritage of Valchiusella and Rueglio (Piedmont). The Study of the Historic Town and the Recovery of Ka D-Mezanis**

Introduzione
 Conoscenza e recupero di Ka D-Mezanis: la ricerca, il progetto e il cantiere
 L’architettura rurale di Rueglio e della Valchiusella: ricerca e catalogazione
 Conclusioni

SEZIONE VI

PATRIMONIO RURALE: RISCHIO E VULNERABILITÀ

SECTION VI – RURAL ARCHITECTURE: RISK AND VULNERABILITY

Introduzione / *Introduction* *Marta Casanova*

- *Stefano Gizzi*

Problemi di conservazione dell’architettura rurale nell’“Aquilano”

[Abstract] **Problems of Conservation of Rural Architecture in the “L’Aquila” Province**

Introduzione. La casa rurale negli Abruzzi e gli studi del geografo Mario Ortolani
 La tipologia delle abitazioni e i relativi problemi conservativi
 Conclusioni: problematiche di recupero

- *Matilde Caruso, Fernando Vegas López-Manzanares, Camilla Mileto*

Paesaggi rurali e architettura di terra in Spagna: analisi dei rischi e delle strategie per la conservazione in contesti di spopolamento

[Abstract] **Rural Landscapes and Earthen Architecture in Spain: Analysis of Risks and Strategies for Conservation in Contexts of Depopulation**

Introduzione: contesto culturale, economico e sociale della Spagna rurale
 Metodologia
 Le origini dello spopolamento nei territori rurali della Spagna
 Caratteristiche e criticità dei contesti rurali
 Conseguenze sull’architettura tradizionale di terra
 Contesto e patrimonio a confronto: garantire la sopravvivenza di entrambi incentivando la conservazione dell’architettura di entrambi
 Discussione dei risultati e conclusioni

- *Marina Fumo, Giuseppe Trinchese, Gigliola D'Angelo*
Salvaguardare il patrimonio immateriale per ridurre i rischi del patrimonio materiale: l'arte dei muri a secco nei terrazzamenti rurali

[Abstract] **Safeguarding Intangible Heritage to Reduce the Risks of Tangible Assets: the Art of Dry Stone Walls in Rural Terraces**

Muri a secco per i terrazzamenti rurali: un'arte antica e preziosa
I terrazzamenti della Costa d'Amalfi come patrimonio materiale e immateriale
Dal paesaggio naturale ai sistemi di ingegneria rurale
Il patrimonio immateriale e la prevenzione del rischio
Percorsi di consapevolezza per la messa in valore dei paesaggi culturali
Prodotti e criteri per l'innovazione nel recupero del paesaggio e dell'architettura rurale: i cantieri scuola
Conclusioni

- 356 ▪ *Mariagrazia Leonardi, Simona Maria Porto*

Patrimonio rurale: masserie nel ragusano

[Abstract] **Rural Heritage: "Masserias" (Farmsteads) in the Ragusa Province**

Introduzione
Paesaggi rurali nel ragusano
Recupero e riuso di un edificio rurale tradizionale per la promozione della produzione vinicola nella Sicilia orientale: Masseria Fegotto
Conclusioni

- 366 ▪ *Bianca Gioia Marino*

Tra «importanza estetica della casa rurale» e tutela dell'ambiente: l'importanza strategica di una visione integrata

[Abstract] **Between «Aesthetic Importance of the Rural House» and Environmental Protection: the Strategic Importance of an Integrated Vision**

Introduzione: alcuni fattori in campo
Architetture e paesaggio rurali: caratteri e valori patrimoniali
Conservazione versus innovazione? Orizzonti tematici
I 'larghi campi' e gli 'spaziosi palazzi della memoria'

- 376 ▪ *Annamaria Ragosta*

Case fortificate dimenticate. L'architettura rurale sommesse tra pianificazione urbana e cancellazione della memoria storica locale

[Abstract] **Forgotten Fortified Houses. The Rural Architecture of Somma between Urban Planning and the Erasure of Local Historical Memory**

Introduzione
Architetture rurali sulla dorsale del Monte Somma: lo stato di conservazione
L'architettura rurale sommesse nella recente pianificazione urbanistica
Conclusioni

- 384 ▪ *Alessandro Baratta, Ileana Corbi, Ottavia Corbi*

Static Behavior of Built Environment Realized by Rammed Earth Construction

[Abstract] **Comportamento statico dell'ambiente costruito realizzato mediante strutture in terra battuta**

Introduction
Criteria for Design and Static Evaluation
Recent Regulatory Proposals
International Regulatory Directions and "Green Building"
Rational Approach to the Structural Conception of Rammed Earth
An Overview on Mechanical Properties of Rammed Earth
Structural Assessment for Earth Buildings
Conclusions

392 **SEZIONE VII**

PAESAGGI RURALI E ITINERARI CULTURALI

SECTION VII - RURAL LANDSCAPES AND CULTURAL ITINERARIES

Introduzione / Introduction *Maria Vitiello*

KEYNOTE

- 398 ▪ *Maurizio Di Stefano, Carolina Coppola*

Architettura vernacolare dell'isola di Ischia. La casa in grotta di Sant'Angelo

[Abstract] **Vernacular Architecture in the Island of Ischia. The Cave House of Sant'Angelo**

Introduzione
Ischia. Note sulle origini, la genesi e gli aspetti territoriali dell'Isola
L'architettura rupestre di Ischia: case in pietra, case in grotta
L'isolotto di Sant'Angelo: la casa in grotta e il suo restauro
Conclusione

- pag. 410 ■ *Giorgio Azzoni*
Architetture rurali nei maggenghi alpini di Valle Camonica
 [Abstract] Rural Architecture in the Alpine “Maggenghi” (Spring/Autumn Pastures) of Valle Camonica
 Introduzione
 Un paesaggio culturale
 Tipologia e tecnica costruttiva
 Aree culturali
 Funzioni, forma e necessità
 Conclusioni
- 418 ■ *Giacomo Martines*
Il paesaggio delle cave barocche di Matera tra usi e trasformazioni
 [Abstract] The Landscape of the Baroque Quarries of Matera between Uses and Transformations
 Il contesto delle cave “barocche”
 Le indagini scientifiche
- 424 ■ *Giuseppe Pignatelli Spinazzola*
«Quelle misere e strane abitazioni». La narrazione dell’architettura rupestre a Ponza tra Otto e Novecento
 [Abstract] «Those Poor and Odd Dwellings». The Narration of Rock-cut Architecture of Ponza between XIX and XX Century
 Introduzione
 Tra Cinque e Settecento: un lungo percorso (re)insediativo
 La narrazione ottocentesca tra luoghi comuni e osservazione demologica
 Nascita e declino del mito novecentesco
 Conclusioni
- 434 ■ *Maria Elena Sigismondi*
I Tratturi. Custodire per Condividere
 [Abstract] Sheep Tracks, Cherish to Share
 Introduzione
 Il “segno” dei tratturi
 Conclusioni
- 440 ■ **SEZIONE VIII**
-
- INSEGNARE E PROMUOVERE L’ARCHITETTURA RURALE**
 SECTION VIII - TEACHING AND ADVOCATING RURAL ARCHITECTURE
 Introduzione / Introduction *Federica Pompejano, Marta Casanova*
- KEYNOTE**
- 444 ■ *Jelena Pejković*
Drawing Connections: VERNADOC Methodology and Worldwide Network
 [Abstract] Metodologia e rete internazionale VERNADOC: il disegno interconnesso
- 448 ■ *Jaap Dawson*
Building from Our Inner Country
 [Abstract] Costruire dalla nostra “Inner Country”
 We Begin to Build
 We Build Columns as Living Bodies
 We Build Living Spaces as Centres Between Living Bodies
 We Build Living Spaces as Spatial Building Blocks
 We Build Openings in Walls as Living Centres
 The Structure That Structures Us
 Buildings That Show Us Our Inner Country
 How Buildings Can Show Us Our Inner Country
 We Can Continue to Build from Our Inner Country
- 456 ■ *Luis Martín Domingo, Alessandro Camiz*
Spanish Rural Architecture: a Lagar in the Ribera del Duero Wine Region for a Real Project Based Learning (PBL) Experiment
 [Abstract] Architettura rurale spagnola: un lagar nella regione vinicola della Ribera del Duero per un concreto esperimento di Project Based Learning (PBL)
 Introduction
 Literature Review
 Methodology
 Results
 Conclusions

Abstract

LETTURA DELLA STRUTTURA DEI VILLAGGI CINESI ATTRAVERSO UNITÀ SEMANTICHE TIPO-MORFOLOGICHE: I CASI DEI VILLAGGI TRADIZIONALI NELLO SHAANXI, CINA

Lo studio analizza la forma e lo sviluppo evolutivo dei villaggi storici cinesi in termini di struttura e morfologia, basandosi sulla tradizione italiana della ricerca tipo-morfologica. Negli anni Settanta la proposta di "sistemi morfologici" e di "unità morfologiche" avanzata da Samonà fornì per la prima volta strumenti concettuali e operativi per la lettura della consistenza e del paesaggio edificato e influenzò la ricerca urbana tra le università di Milano e Venezia. Partendo dalle osservazioni di Samonà, Pezzetti (2019a), nella sua ricerca sull'antico villaggio cinese di Fenghuang (Shaanxi), ha sviluppato due concetti attraverso i quali leggere la forma urbana e stabilire unità coerenti di "protezione morfologica", vale a dire "Strutture latenti" e "Unità semantiche morfologiche".

Il metodo si è rivelato efficace nell'individuare specifiche unità paesaggistiche complesse - unità significative composite - che, nonostante le recenti costruzioni caotiche e gli effetti del processo storico diacronico, sono ancora coerenti con la struttura tipo-morfologica, le tracce e i riti dell'antichità. In aderenza ai concetti sopra esposti, in questo saggio gli Autori indagano un gruppo di villaggi storici e il loro paesaggio nella contea di Hancheng (provincia dello Shaanxi). Sulla base del lavoro in situ, della ricerca documentaria e delle interviste a carattere antropologico, sono state prodotte una serie di mappe interpretative, inclusa l'attuale mappa tipologica dell'intero villaggio e della struttura agraria, e mappe ragionate dello sviluppo storico. La lettura di questa "grammatica" costituisce un efficace supporto per la praticabilità di un coerente sviluppo coevolutivo (Della Torre, 2019; Pezzetti, 2019a) e di una costante riscrittura (Pezzetti, 2019b, 2020), producendo una morfologia dinamica e coerente.

Le recenti trasformazioni politiche e l'infiltrazione della modernità hanno portato cambiamenti nei modelli di offerta fondiaria e nella cooperazione produttiva contadina, causa diretta di due fenomeni: una "errata formulazione", risultante dal processo di ricostruzione spontanea in unità semantiche tradizionali e la semplificazione, nel tempo, della grammatica tipo-morfologica. Di conseguenza, negli ultimi tre decenni, la natura organica della forma è progressivamente scomparsa nelle aree marginali e periferiche, concentrandosi nel centro storico dei villaggi. Inoltre, entrambi gli studi hanno dimostrato che la "grammatica" delle unità morfologiche organiche tradizionali viene rafforzata attraverso la lettura combinata di concetti del Feng Shui, numerologia, antiche norme e meccanismi di diritto fondiario. La ricerca intende quindi fornire una base metodologica e un quadro operativo per la conservazione e lo sviluppo dei villaggi tradizionali cinesi e il ripristino delle loro forme tradizionali.

Keywords: CHINESE TRADITIONAL VILLAGES, LAYERED MORPHOLOGIES, ITALIAN TYPO-MORPHOLOGICAL STUDIES, TYPOLOGICAL AND INTERPRETATIVE MAPPING, RURAL LANDSCAPE STRUCTURE.

Reading the Structure of Chinese Villages through Typo-Morphological *Semantic Units*: the Cases of Traditional Villages in Shaanxi, China

Kun Li

State Key Laboratory of Green Building in Western China, Xi'an University of Architecture & Technology; School of Architecture, Xi'an University of Architecture & Technology, kunli@xauat.edu.cn

Laura Anna Pezzetti

ABC Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, laura.pezzetti@polimi.it

▪ Introduction

Chinese Traditional Villages and their residential buildings are an essential part of the rural material culture and environment. They have recently undergone radical transformations that deeply altered their built and rural landscape, with significant losses in terms of urban form, cultural and built heritage, population and land-use, knowledge and traditions.

Since 2003, after more than ten years of investigation and selection, the Chinese government has so far selected 6,819 historical villages at the National Protection Level (the preservation of traditional dwellings is an essential part of the investigation), which accounts for only 1,27% of the total number of administrative villages in the country (Li, 2018).

This phenomenon shows that the traditional built environment of most villages is no longer suitable for contemporary life and has been abandoned by peasants. Modern brick-concrete-structured houses have replaced traditional houses with wood, brick and raw soil as the main primary building materials. At the same time, the traditional physical environment and landscape of the villages also changed.

Yet, the traditional clustered villages of the Chinese countryside embody the richness and complexity of Chinese culture through their structures. These rural settlements usually have a population that ranges from hundreds to thousands of inhabitants, and their size, usually several hectares to more than ten hectares, is equivalent to a micro-city. In China, the transition process from traditional to modern failed to develop. Traditional culture has been abandoned in the process of urban renewal. Except for some few monuments, most areas in historic cities have been erased or reconstructed for tourism consumption. As the Chinese Pritzker Prize Wang Shu said, there is no more hope for Chinese cities.

It is precise because of the lack of specific pre-arranged planning that, in the context of rapidly satisfying the needs of modern life, Traditional Villages have been assimilated by modernity, while their traditional authentic character has been constantly estranged.

Regarding policies and regulations, the *“Requirements for Famous Historical and Cultural Cities, Towns and Villages Conservation Planning (Trial)”* (2012) stipulated that Conservation Plans should delineate first the protection boundaries of Famous Historical and Cultural Towns and Villages. The protection boundaries include the “Core Protection Unit” and the “Buffer Zone”. The “Core Protection Unit” is demarcated by the “red line” of the site boundaries, which presumes the integrity of ancient towns and villages. Its identification is the result of substitutions or roughly juxtaposes the old types and of rural parts morphologically differentiated in a short-term process of transformation in use and meaning (PEZZETTI, 2019a).

Following the guidelines of the *“Principles for the Conservation of Heritage Sites in China”* (2015) and the *“Regulation on the Protection of Famous Historical and Cultural Cities, Towns and Villages”* (2008), the red line separates the “core protection unit” from the “buffer zone”. The buffer zone separates its assumed integrity from the rest of the settlements without clarifying its characteristics, relations, and interactions. Now that development turns from cities to the Chinese countryside, in the process of “urbanization” and “rurbanisation” of villages and towns the conflict between the “Traditional” (architecture) and the “Modern” (self-built rough buildings) becomes prominent. In many villages, the built heritage has been devoured in the rapid development of cities, and the same is happening in the process of rural development. Yet rurbanisation should not be a necessarily a derogatory term. Rurbanisation can also be defined as the process

of increasing the presence and the quality of green spaces and agriculture in both towns and cities. In the development of the countryside we need to embrace a co-evolutionary approach (DELLA TORRE, 2019; PEZZETTI, 2019a) of the new and the old, rather than producing another “crisis of civilization” (MURATORI, 1963). Furthermore, the new label of Historic Cultural Towns and Villages is already attracting standardised touristic-commercial development projects, which erase the deep structural and morphological order of the whole settlement (that has proved to be resilient even to self-built constructions), and the authentic character of rural and mountain landscape (PEZZETTI, 2019a).

This is possible because Protection Plans are also planned by zoning and focus only on “key protection units” in view of their touristic attraction, erasing in turn every sign of the passage of time to satisfy the expectation of a symbolic authenticity based on the prevailing value of the style (PEZZETTI, 2020). Since the relation with the morphological rural-urban structure has never been studied outside the plot, or beyond plots aggregation, Protection Units are roughly determined with no relation with their building types, morphologies and rural landscape. So, preservation is standardised in the rough and arbitrarily definition of three sequential zones corresponding to the “Protection Unit” (supposedly uniform), the “buffer zone” (supposedly unrelated) and the “environment control zone” for tourism development (supposedly a *tabula rasa*).

▪ The Perspective of the Investigation: from Single Building Types to Settlement Form

Morphology protection should become an integral part of Traditional Village conservation. When we recognize Traditional Villages as living heritage, we must recognize that villages will likely continue to expand or shrink. When the village expands, a significant threat is a difference in the spatial production results caused by the differences in the acquisition modes of rural residential land in ancient and modern times. This difference can easily lead to destroy their organic form.

The current supply system of homesteads has replaced the social mechanism of freely buying and selling land in ancient times; peasant families can obtain land for free as a social welfare in a planned allocation model. Under this premise, we need to provide a plan (i.e. design and management) from the level of urban design to avoid the assimilation of Traditional Villages by modern urban space during the process of expansion or contraction.

As WHITEHAND AND GU pointed out in 2006, the study of urban morphology in China had two characteristics: 1. Compared with most other aspects of Chinese urban studies, the development of urban morphology is mainly independent of Western countries. 2. In the study of urban morphology in China, narrative descriptions and other descriptions are dominant, and there are relatively few analytical and conceptual approaches.

Although researches on urban form have increased rapidly in recent years, it has still had little to do with architecture as an urban phenomenon and thus, guiding urban development. The replacement of Chinese native urban forms by Western ideologies instead has brought about various problems in spatial, social, economic and cultural realms.

It is undeniable that rural villages and small towns are the loci of the persistence of Chinese settlement forms, and not just local vernacular and intangible traditions.

The researches on the two case studies will demonstrate the typo-morphological solidarity between the dwelling courtyards and the topographic structure, which allows us to read and interpret the entire settlement form as a high-quality *figure-organism* (PEZZETTI, 2019a). In the field of research focusing on the Chinese rural area, the current analysis methods and standardized strategies are insufficient to read the principles that constitute urban-rural form, nor to interpret its underlying formal structures, as well as style, construction technology, vernacular tradition, and settlements facts, in their integrated relationship between type, morphology, and topography.

In Italy, the study of urban form has a long-established tradition. Giuseppe Pagano's early work on rural architecture (PAGANO & DANIEL, 1936), regarded the subject as a working tool resulting from spontaneous awareness inherited from the cultural habits passed down from generation to generation. Pagano was the first to posit a general typological process whose distinct stages could be traced back to various geographical traditions. When we observe the historical centre of Italian cities, we can quickly realize that the types related to cultural attributes are organic, and the towns' fabric feature this organic organization around main structures. Despite the fabric organicity, the law of the birth and transformation of cities is not “natural” but the result of precise historical and cultural positions (MURATORI, 1950).

In the same years of Pagano's book, Gustavo Giovannoni pointed out that form is a transitional stage in a

never-ending development process, and that form itself retains and continuously shows its inner traces. Advancing the concept of “organicity”, he pointed out two issues: historical environment could be read through contextualism. Through the strategy of complementarity between old and new, the past has an opportunity of organic continuity (GIOVANNONI, 1931).

From the issue of *Environmental Pre-existences* (ROGERS, 1958) that gave theoretical dignity to the dialogue between design and history and the focus on the physical dimension of settlements within the unity of architecture and urbanism (SAMONÀ, 1978), to the analytical study of the urban fabric concerning building typologies (MURATORI) on the other hand, the basis for an *urban science* and the urban significance of architecture was jointly established and further developed by the following generation (PEZZETTI, 2020). Some aspects can be here mentioned to highlight some issues to be taken into account.

When Saverio Muratori published the results of his and his assistants’ studies on Venice and Rome in the 1960s, he explored continuity in the process of the historical city’s transition from traditional to modern. The types and morphological forms expressed in his cartographic elaborations studied urban tissues at different moments of history. The “forming-form” of the residential types could be understood only in a specific urban tissue, within the urban organism and its historic dimension (MURATORI, 1959).

Architecture is an urban phenomenon. For Giuseppe Samonà too, the morphological research constituted the base for both analysis and design, although leading to a synthesis rather than a linear derivation from the historic process. In the 1970s, Samonà’s concepts of “morphological systems” and “morphological units” provided conceptual and operational tools for reading jointly for the first time urban facts and landscapes, influencing the urban research between Milan and Venice (PEZZETTI, 2019).

In Samonà’s works, Aldo Rossi saw a new foundation for the research on cities and architecture, viewed for the first time as an evolving whole (ROSSI, 1968). Urban research needed to be reconnected to architecture and vice-versa. As Carlo Aymonino stated, the fundamental character of architecture is its ability to dialogue with the context, where the individuality and therefore recognisability of each element is composed within a *whole* that has its *raison d’être* in the coherence of the parts. As well as to «be in relation to each time (to other existing architectures, to a certain landscape, to a system of infrastructure, etc.) to be an accomplished part of a process in continuous becoming» (AYMONINO, 2000).

Besides, some issues raised by VITTORIO GREGOTTI (1985) contained a critique to modernity, bridging the problems of European and Chinese modern urban space. He pointed out that the notion of type encourages an interest towards the form of the city different from the one promoted by the Modern Movement. Criticising both vulgar modern results and various original models of zoning and garden cities, Gregotti pointed out that the urban structure is indebted to far richer and more complex morphological systems. Which are far more capable of “narrating” urban facts than a morphology based on the simple addition of types.

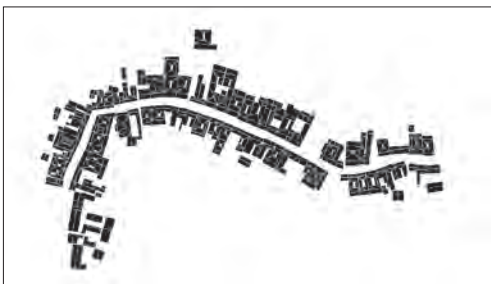
In the last decade or so, with the introduction of relevant theories and the holding of the *International Seminar on Urban Form (ISUF)* in China, more Chinese scholars (GU ET AL., 2008; CHEN & ROMICE, 2009; TIAN ET AL., 2012; DENG ET AL., 2013; DING, 2013; TANG ET AL., 2016; DONG ET AL. 2018) have recognized the potential of morphological and typological methods in analysing and interpreting traditional Chinese urban morphology and architectural types, committing to case studies and practice.

At the same time, Western scholars, mostly represented by Laura A. Pezzetti, pioneered new methodologies and interpretation of the historic-structural and typo-morphological research in the built environment of Chinese historical villages.

▪ Morphological Foundations of *Semantic Units*: Layered Morphologies and Latent Structure

To understand, preserve and continue villages co-evolution, we need to understand the spatial grammar of rural settlement and their landscapes, while raising the need to re-address typo-morphological studies to urban and rural forms as “*a whole architecture*” (PEZZETTI & LI, 2021) as man-made form is a carrier of meaning and layering of culture.

The surveys carried out in the two villages in different provinces attach great importance to the site as an archive of historic forms as well as to the connections between village form and rural landscape, architectural type and morphologic units, local culture and Feng Shui. This understanding of the overall urban and rural forms in both synchronic and diachronic reading through the concept of “latent Structure”, the concept of “Semantic Morphological Units” produced by composite types and “layered morphologies”, the concept of “writing of the ground” including topographical signs into morphology, are the most significant differences from all previous studies on urban morphology, such as the Conzenians focussed on the plot as the key unit and referred to geographers’ approach, and the Caniggians (not exactly coinciding with Mu-



[1] Reading Fenghuang's "Mountain-Water" relationship: identification of the radial Latent Structure and its influence on the urban form and buildings of different periods and types; aerial view of Fenghuang in 2015; "Feng Shui" relationships: confronting the Old Street's meandering structure with topography and geographical landmarks; graphic reconstruction of the Old Street by courtyard houses roofs. (Source: PEZZETTI, 2019a).

ratori's views), reading the city as a processual aggregation of types explored in their taxonomic diachronical processes.

The theoretical and operational problem for Chinese Traditional Villages is to cognize them as contexts that overlap different historical orders and structures, enshrining value to all historic periods and making sense of a nonlinear and complex unity through preservation, appropriate modification and design enhancement (PEZZETTI, 2019a).

"Layered Morphologies" (PEZZETTI, 2019a) is an interdisciplinary conceptual tool to investigate the coevolutionary nature of buildings and settlements and a base to define integrated and site-specific preservation and enhancement design strategies. This morphological concept evokes the topological dimension of buildings as defined by the settlement behaviour itself ("tòpos"- place, and "logos"- study, in ancient Greek). The concept of "Layered Morphologies" effectively connects the reading of architectural "facts" in terms of their typological and morphological dimensions to the writing performed by men on the ground topography. This connection, tangible and intangible at the same time, produces the *lines of force* of the Latent Structure underlying the settlement and the overall urban or village form, allowing studying urban and rural form as a unitary whole (PEZZETTI 2019a; 2020).

At the same time, this conceptual tool reads built heritage as "historicised architecture", thus still part of an ongoing co-evolution and submitted to the principles of architecture, that is, the project of a given society, and landscape as "a structure of structures", and not a mere visual homogeneous appearance or self-standing discipline (PEZZETTI 2019a; 2020).

As latency, disappearance, and uncertainty of historic sources in China too often open the way for unjustified demolition, replacement and replicas reconstruction, the study of urban and village forms through in-depth urban *stratigraphic readings* and interpretative mapping remove the alibis of the lack of layering in China and provide sound basis for both preservation and design strategies.

In the first case study, Fenghuang ancient town (Zhashui, Shaanxi), the study innovated the methodological reference based on the tradition of urban studies between Milan and Venice.

Pezzetti's research combined the scale and morphological characteristics of the territory with the historic meaning of the place, integrating urban form with topographical and geographical factors, as well as the decoding of typo-morphological units with the stratigraphic study of the historic village.

Based on deep onsite surveys, historical records in Gazetters, local paintings, pictures and interviews, another concept included in the Layered Morphologies was formulated, the "Latent Structure" (PEZZETTI, 2019a).

By intertwining typological invariants with morphological permanencies, land patterns and significant traces, the research has revealed the existence of a unique historical "Latent Structure" formed by radial *lines of forces* presiding over the type, the plot and the agrarian structure, while opening like a fan to connect through the village form the Mountain to the River (PEZZETTI, 2019a; 2020), [fig.1]. The significance of the concept of Latent Structure has proved essential to read Chinese Villages as it demonstrates a triple relationship between the type,

the morphology and the agrarian structure. Three principles explained the village's settlement form: the relationships between the settlement structure and the topographical and structural context; between building types and morphological units; and between the form of the village and the farmland structure. Besides, and for the first time in Chinese studies, it provided a describable physical form to traditional Feng Shui and Shan Sui concepts, proving the effectiveness of the mapping methodology in decoding the village form: clear correspondence between meandering linear structure of the old road and mountains gaze; correspondence between radial structure and mountain-water relationship.

This meaningful unity of type, morphology and urban-rural landscape's structure completely redefined the object of preservation, enhancement, and development. This meaningful urban-rural whole is the very text to be understood, preserved and coherently enhanced for the future.

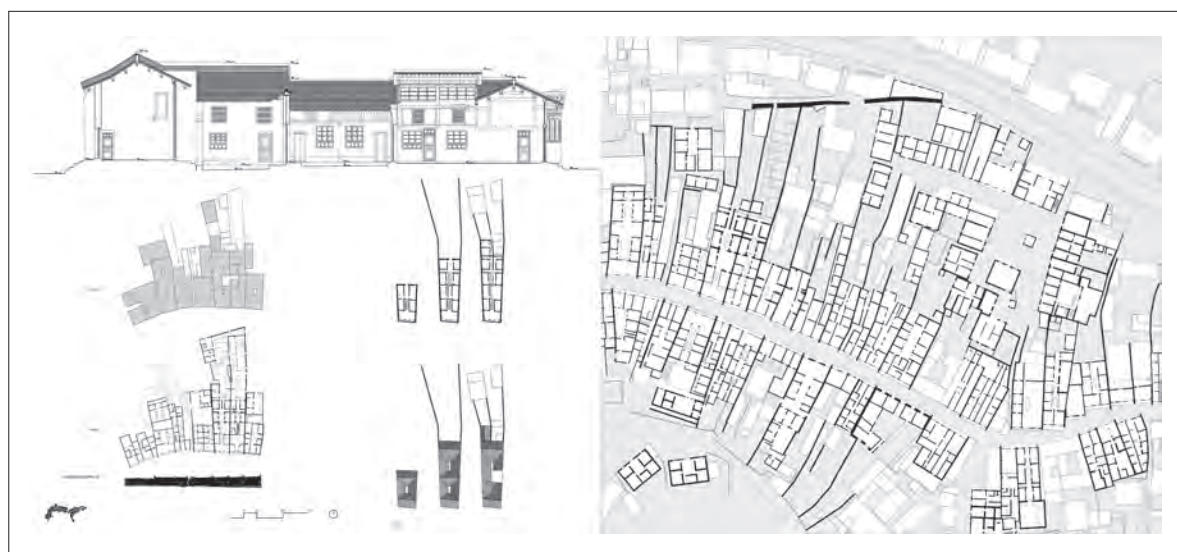
The importance of the farmland patterns, therefore, should be always addressed in the study of settlement morphologies, since it is no less important than the village's architectural heritage. Farmland structure and architectural heritage were produced and co-evolved in a mutual relationship, thus condensing the meaning of historical settlement forms.

The discovery of the existence of latent structures has a double interest and meaning: first, it explains the aforementioned triple relationship in urban form; second, it proved to explain the filling of the plots and tracing of the expansion process. Although typologically and morphologically differentiated, the modern expansion followed in many cases the previous tracing of the latent structure. This has remarkable significance for an integrated conservation-enhancement design, including all traces of history and a diachronic authenticity.

Moreover, the research by Pezzetti demonstrated a typo-morphological solidarity between the *typological invariant* of the courtyard house and the clear topographical structure in traditional Chinese settlements, which allows us to interpret the entire settlement as a high-quality "organism figure". This concept makes a difference for architects as it provides a formal structure capable of absorbing diachronic constructions and future writings in a complex but organic unity made of parts (PEZZETTI, 2019a). Emphasising the concept of "palimpsest", Pezzetti demonstrated by design exploration on four problem-areas that the discovery of the Latent Structure provides clear principles for future writing and rewriting, in a co-evolutionary harmonious evolution.

Discussing the relationship between form and meaning, it is worth mentioning Peter Eisenman's theoretic research focussing on syntax and considering formal elements and orders as a potential system of signs (EISENMAN, 1973). The reading and describing of the underlying structure, in fact, is a decoding procedure of the formal structures and a guide for future "re-coding" operations.

The space of traditional organic settlements, therefore, is readable as well as *rewritable* (PEZZETTI, 2019b). Finally, by interrelating the demonstration of Fenghuang's Latent Structure to further explorations of Chinese Traditional theories, the authors provided an ascertainable physical body to Shan Shui and Feng Shui principles, connecting them for the first time to the study of the rural-urban form (PEZZETTI, 2019; LI, 2019).



[2] Latent Structure and Morphotypes: survey section through Dang Courtyard House showing the result of the historic palimpsest; study of the Morphotype and historical coevolution of the Zhai Yuan type in Dang Courtyard; typo-morphological survey of the old village, showing the walls, which land partitions extended in the farmland structure, detail. (Source: Pezzetti, 2019a).

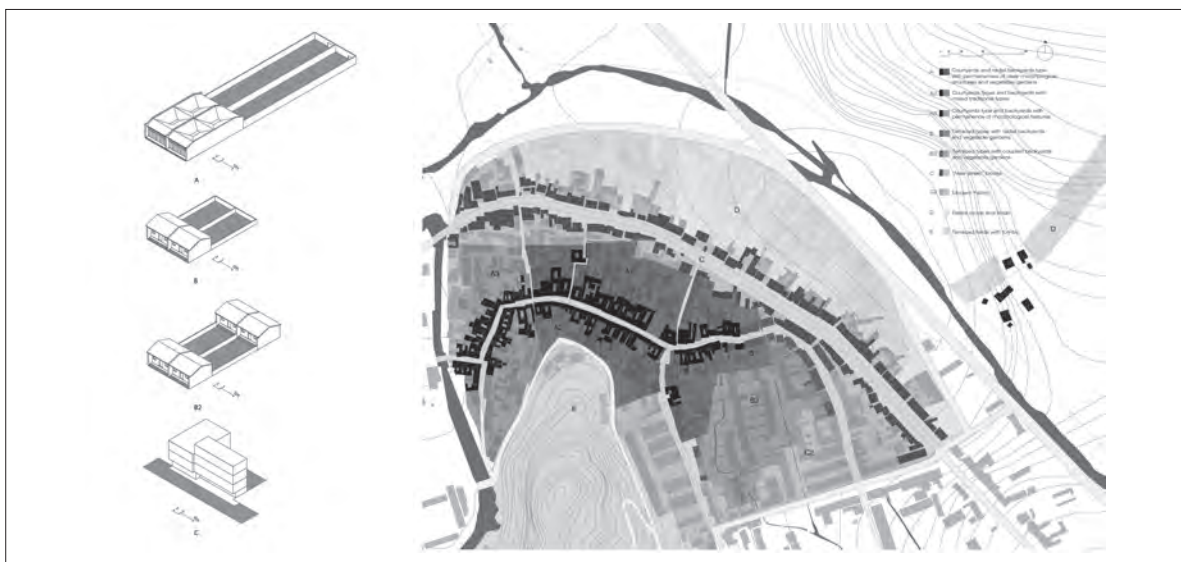
▪ From Typo-Morphology to *Semantic Units*: a Research Path for the Chinese Villages' Form

Since the 1930s, especially after World War II, the research on urban form in Italy gained distinct characteristics, attempting to interpret urban form in its entirety and in close connection to architectural types. In the 1970s, Samonà's proposal of "morphological systems" and "morphological units" provided conceptual and operational tools for a first joint reading of urban facts and landscapes. In the "Program Plan" for the Historic Centre of Palermo, Giuseppe Samonà started a mapping that would detect the parts of the city based on their formal coherence. The parts identified by Samonà are environmental units that he defined *contexts*, whose identification combines the recognition of their form with a sort of cultural recognition also touching on toponymics. In the words of Samonà «Urban morphology is animated by a dual theoretical and analytical objective, also aims at the reunification of architecture and urbanism in a single discipline, in this sense, architecture finds the analytical dimension of the intellectual tradition, and urbanism finds its traditional interest in the physical and spatial object (FERNANDES, 2020).

Developing further Samonà's concepts, Pezzetti (2019a) decoded a series of morphologically defined areas in Fenghuang, namely "Morphological Semantic Units" to go beyond the three conventional Heritage Protection Units (Key Conservation Unit, Construction Control Zone, Environmental Coordination Zone), and redefined them in a sound and articulated way according to specific typo-morphologic characteristics. The identification was not based on visual homogeneity or historical period only as for the usual concept of "landscape units", since its application would falsify all urban and architectural meaning and reduce the preservation to the façade or plot patterns of courtyard houses only, erasing all other signs. The concept identifies instead morphological units defined by the dual relationship between the original type and morphology (morphotype) that are composite in their historic-architectural time and style, therefore layered, but still consistent with the form of a specific urban part. Behind the recent chaotic constructions and through the diachronic historical process, buildings belonging to different morphological periods and styles proved to be still consistent with the original latent structure, following the ancient typo-morphologic structure, traces and rites. Pezzetti's research demonstrated that by combining the research on the historical structure of the generative matrix with the type and form analysis of the fabric historic development, we could decode the latent structure of landscape and identify its subdivision in different morphological units of meaning, each one necessitating different preservation and intervention rules [figs.2,3].

According to Pezzetti, "Morphological Semantic Units" can be understood as "structuring morphological units". These units correspond not only to a particular but composite urban landscape originating from historic morphotypes, but also to differentiated social components and use patterns.

The complexes made of similar morphotypes constitute the various morphological semantic units that constitute the whole urban-rural form. These Morphotypes and their composite landscape units feature a distinct character that should be recognised and preserved in its components and materials in the conservation plan.



[3] Morphological Semantic Units: Identification of building types and their relation with land; decoding composite Morphological Semantic Units in Fenghuang. (Source: Pezzetti, 2019a)

▪ Expanded *Semantic Unit* Interpretation: a Method of Cultural Invariants Analysis

In their subsequent investigation on Zhangdaicun Village (Hancheng, Shaanxi) the authors continued to discuss the heteronomy of architecture as the key to understand contradictions and historical conflicts. A responsible interpretation of the processes and mechanisms of morphological development in the case studied should be informed by the case's specific cultural and social context through time.

In Zhangdaicun Village, the authors also explored *Feng Shui* and *Shan Shui* identification based on the results achieved in their previous studies on Fenghuang. At the same time, a distinctive feature of the investigation of Zhangdaicun is the comprehensive interpretation of the roots of the organicity of the settlement morphology through the study of traditional local knowledge (extension to the philosophical dimension) as well as the relationship between the family unit and the morphological unit in the settlement form. The synthesis of the investigation is reflected in the integration of morphology, architecture and local knowledge. The study of local knowledge, which encompasses ancient experiences of existence, philosophy, law, values, numerology, rituals, etc., is the most effective tool for explaining the *invariants* of both settlement and architectural form.

The morphological semantics study of Zhangdaicun mainly included three levels:

1. To analyze the presentation and expression of Hancheng's landscapes in ancient local chronicles (gazetteers) and maps to understand the landscape characteristics of the area in the ancients' thoughts. That is to study the semantic expression of the landscape in the historical period (traditional Chinese society) from abstract, even symbolic records.
2. To study the village's "morphogenetic field" by integrating material and non-material contents.
3. To consider the formation of Traditional Villages as the overall process of human behaviour.

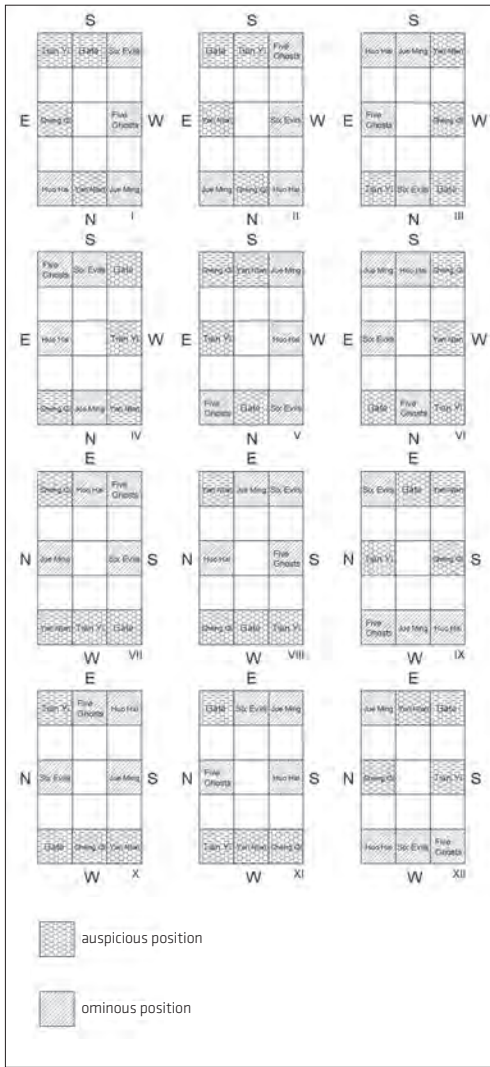
This paper argues that the doctrine of the *I Ching* (the *Book of Changes*) is an essential tool for explaining some traditional Chinese village formations. In China, the *I Ching* is considered a philosophy of change. This cultural foundation is responsible for some of the uncertainty of the settlement form, which is the external manifestation of the invariant nature of the latent structure.

At the level of the village as a whole, traditional Chinese settlements show extremely strong "migratory" characteristics. As DE PAUW (1795), DE QUINCY (1803) and MOULE (1914) have argued, traditional Chinese architecture and settlements were historically nomadic. In the context of the contrast between the geographical and climatic environments of the East and the West, RAY HUANG (1997) suggested the relevance of the frequent flooding and diversion of the Yellow River basin in ancient times to ancient Chinese state forms. In recent years, Huang's views have been widely shared by historical scholars. Based on these ideas, the authors argue that it is likely that in remote antiquity, many Chinese settlements migrated on a large scale to escape natural disasters, mainly frequent and variable floods. This migration was a change of location¹. According to the House Classic, a house's properties are constantly changing, with people from the north and east living in it as a *Yang* house and those from the south and west becoming a *Yin* house (WANG, 2007). Thus, the timber form of traditional Chinese architecture and the mortise-and-tenon joints of timber elements provided the technical feasibility for migration. The building materials and construction rules developed during the "nascent" period of Chinese architecture to facilitate migratory behaviour have become a gene deeply embedded in the Chinese building tradition.

At the level of the planar layout of the settlement, both Fenghuang and Zhangdaicun reflect the correspondence between the village roads and the surrounding environment's mountain peaks. Some Chinese scholars have interpreted such phenomenon as the ancients' worship of the great mountains. Besides, villagers in Zhangdaicun say that local folk's sayings associate mountain peaks with weather changes. The authors believe that a real significance lies in the recognisability of the scene brought about by a person standing on the road and seeing the mountain peaks and the weather forecasting function they provide. For example, the main road in Zhangdaicun faces Lone Mountain, and since old times, local villagers assume that when a cloud floats on top of Lone Mountain on the other side of the Yellow River, heavy rain is coming soon. In ancient times, the "changes" in the weather and the solar terms were essential for guiding agricultural production. Therefore, one of the necessary standards for settlement construction is that when people stand in the alley in front of the house, they can see the mountain peak.

The courtyard house is not only a family unit but also the minimum differential of the semantic interpretation of village morphology. In the investigation of Zhangdaicun, the authors found that the *I Ching* book has direct guidance for the shape of the courtyard. As an important branch of the theory of the

1. The wholesale relocation of the Daming Palace complex in the Tang dynasty and the Classic of the Yellow Emperor's Residence (黄帝宅经) provide empirical evidence and a "yin-yang" explanation for the relocation of settlements, respectively.



[4] Twelve illustrations of courtyard layout in “Eight House School Fengshui” (Source: Li, 2010, redrawn and translated by the Author).

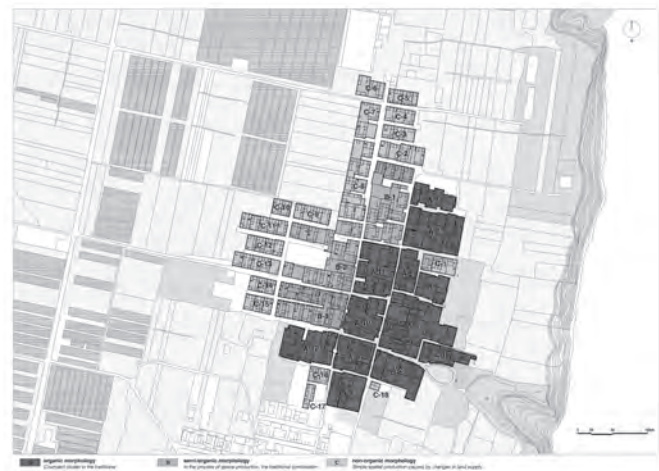
Book of Changes, traditional Chinese numerology believes that the eight characters corresponding to the birth moment of the owner of the courtyard (year, month, date and one of the 12 two-hour periods of the day, respectively, correspond to two characters in the Heavenly Stems and Earthly Branches) are the key basis for determining the functional layout of the courtyard. A more easily understood explanation is to divide the rectangular homestead into eight parts or orientations (not including the empty part in the middle of the courtyard) corresponding to the *Tai Chi* Eight Diagrams. In fig.4, each orientation has the attribute of “auspicious” or “unlucky”. The correspondence between the so-called “auspicious” or “unlucky” and the physical direction is not static. Still, it is calculated according to the numerological interpretation of the birth time of the head of the household. This is a very complex computing system.

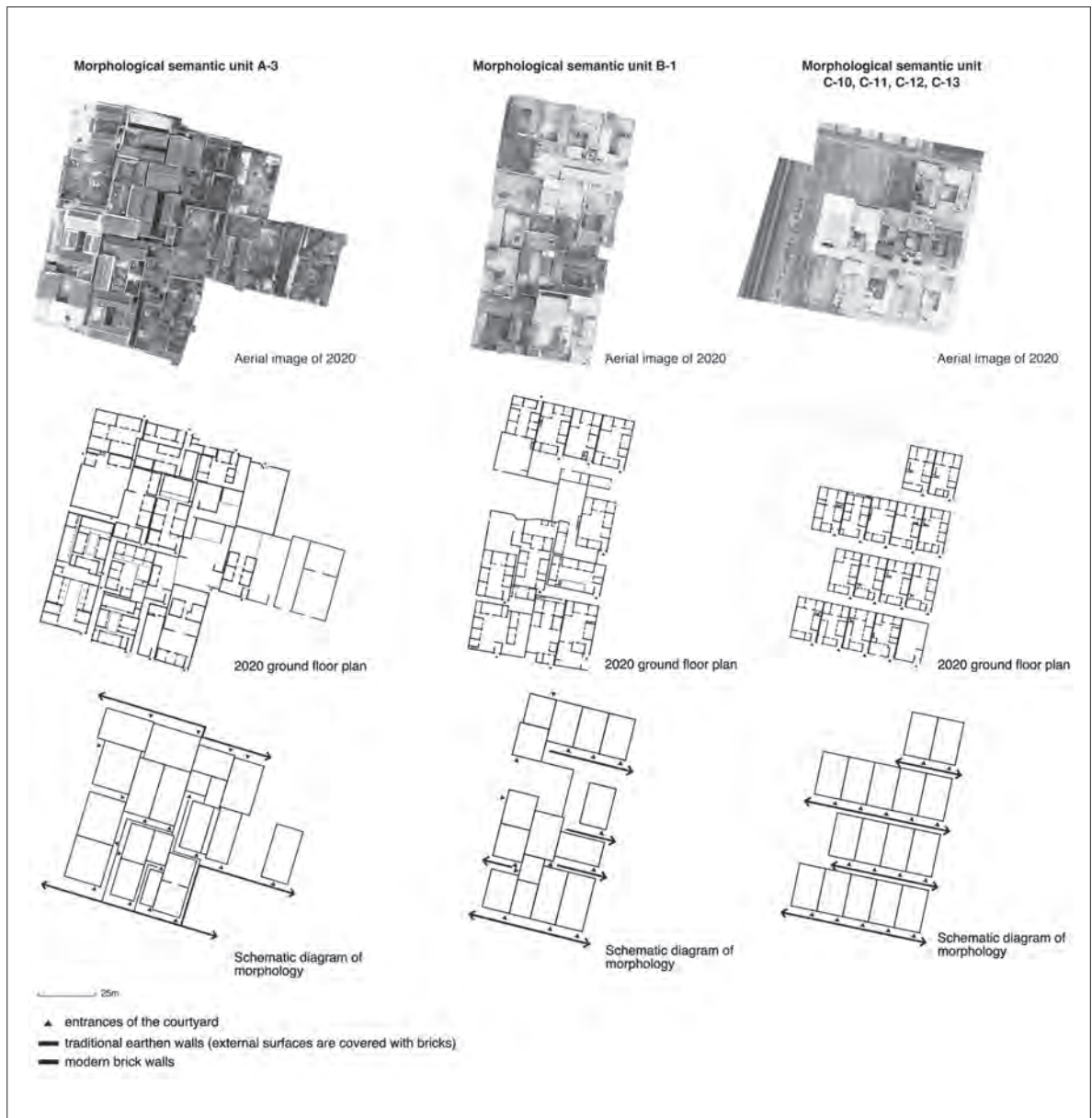
This tradition of numerology provides a theoretical premise for the diversity of orientation and layout of the village courtyard. At the synchronic level, under the same primary type (prototype) of the courtyard, different families in a village would inevitably present multiple orientations of the main house, functional layout and orientation of the gate. On the diachronic level, the layout of each courtyard would change with the inheritance of the times. Because the heir’s birth date (the date of birth and the eight characters of a horoscope) is different from his ancestors, when he has enough financial resources and is worried about bad luck, he would actively adjust the layout of the courtyard and the location of the gate. These changes sometimes lead to changes in the location of the external roads of the courtyard. In other words, numerology endorses the rationality of changing the layout of a residential compound or even demolition actions.

In addition, the minor changes in the laws of the Qing Dynasty based on the laws of the Ming Dynasty induced (or recognized) a massive change in the shape of the individual courtyard, which allowed the number of wing rooms to increase and led to a narrower and longer geometric shape of the courtyard.

It can be seen that “change” itself is the “inherent” (invariant) feature of the settlement form. The invariable time is the rule of change determined by traditional philosophy, the construction materials logically determined by traditional experience,

[5] Morphological semantic units’ analysis for Zhangdaicun Village based on overall ground floor plan (Source: PEZZETTI & LI, 2021).





[6] Typical Morphological semantic units in Zhangdaicun Village (Source: PEZZETTI & LI, 2021).

the architectural scale (the number of bays of a single building), and the colour specified by law. Under the dual factors of change and invariance, the traditional settlements present an organic order in which differences and harmony coexist. These characteristics constitute the authenticity of Chinese traditional settlement's landscape heritage.

Obviously, the endogenous mechanism of courtyards layout changes had made the architectural cluster of traditional settlements "organic". However, in recent decades, with the decline of the influence of traditional culture and the influence of the supplying way of rural homestead land in the contemporary political context, the settlement form in many traditional villages presents the juxtaposition of organic, semi-organic and inorganic regions [figs.5,6]. These three types of regions identify three different morphological and semantic units which distinct formal structure and character cannot be ignored any longer. Because in them lies the "history as thought and action".

▪ Conclusions

As early as 2005, “*Hoi An Protocols for best conservation practice in Asia*” (UNESCO) put forward that «Cultural landscapes in Asia are influenced by and imbued with value systems and abstract frameworks, such as cosmology, geomancy and feng shui, animism, as well as traditional, technological and economic systems. These systems must be identified and understood for the effective safeguarding of authenticity of the landscapes.» (ENGELHARDT & ROGERS, 2005) However, no decoding has been provided for traditional settlement forms and landscape based on the oriental value system and abstract framework before these two researches. The two researches illustrated by this paper break the previous static analysis mode to study the layered morphologies and decode the latent structures of the settlement, taking the semantic units' concept and methodology from the western context as the clue. Besides, they further intertwined the morphological characteristics with their oriental cultural roots acknowledging the fact that the settlement morphology changes dynamically.

Since the features of morphological semantic units embodied in Fenghuang and Zhangdaicun as well as the underlying social and cultural principles are widely ascertainable in most Traditional Villages in China, this research perspective introduces a cutting-edge methodology tool. The tool combines architecture with cultural geography, history, sociology, anthropology and other disciplines.

The authors hope that this study will open a new perspective on the combination of eastern and western methods for the study of traditional Chinese settlements so as to preserve and continue effectively villages architecture and morphology, their deep cultural values and layered authenticity.

Acknowledgments

The survey of Fenghuang was developed during the Heritage-Led Design Workshops (2017-19) led in Xi'an by prof. L. A. Pezzetti under the framework of the Politecnico di Milano and Xi'an University of Architecture and Technology Double Master's Degree Programme. The survey of Zhangdaicun was founded by the "Independent Research and Development project of State Key Laboratory of Green Building in Western China" (Project Number: LSZZ202109).

References

- AYMONINO, C. (2000). *Il significato delle città*, Venezia, Marsilio.
- CHEN, F., & ROMICE, O. (2009). "Preserving the cultural identity of Chinese cities in urban design through a typomorphological approach", in *URBAN DESIGN International*, 14(1), 36-54.
- DE QUINCY, A.C.Q. (1803). *De l'architecture égyptienne, considérée dans son origine, ses principes et son goût, et comparée sous les mêmes rapports à l'architecture grecque*. Paris, chez Barrois l'aîné et Fils, Libraires, rue de Savoie, N°. 23. An XI.
- DELLA TORRE, S. (2019). "A Coevolutionary Approach to the Reuse of Built Cultural Heritage", in G. DRIUSS (ed.), *Il patrimonio culturale in mutamento. Le sfide dell'uso (25-34)*, Venezia, Arcadia Ricerche.
- DENG, H., SONG, F., & CAI, H. (2013). "Urban Tissue and Walkability: Morphological Analysis on the Essential Characteristics of Urban Walkable Space", in *Architectural Journal*, 6, 8-13.
- DING, W. (2013). "Urban design needs urban morphology: A practitioner's viewpoint", in *Urban Morphology*, 17(2),
- DONG, Y., HAN, D., & SHEN, Y. (2018). "The Making and Application of Typological Map Adaptive to Conservation and Regeneration of Historic Districts in China: A Case Study of the Xiaoxihu Area", in *Nanjing Architectural Journal*, 2, 81-87.
- EISENMAN, P. (1973). "Notes on conceptual architecture II A", in *Environmental Design Research Association*, 2, 323.

- ENGELHARDT, R.A., & ROGERS, P.R. (2005). *Hoi an protocols for best conservation practice in Asia. Professional Guidelines for Assuring and Preserving the Authenticity of Heritage Sites in the Context of the Cultures of Asia*, 25-38.
- FERNANDES, S.P. (2020, September 28-30). "'Forma Urbis LAB' and the Morphological Atlas of Portuguese City", in IV Congreso ISUF-H: *Metrópolis en recomposición: perspectivas proyectuales en el Siglo XXI: Forma urbis y territorios metropolitanos*, Barcelona, 1-20.
- GIOVANNONI, G. (1931). "Vecchie città ed edilizia nuova", in *Nuova Antologia*, XLVIII (995), 449-472.
- GREGOTTI, V. (1985). "I terreni della tipologia", in *Casabella*, 509-501, 4-7.
- GU, K., TIAN, Y., & WHITEHAND, J.W.R. (2008). "Residential building types as an evolutionary process: the Guangzhou area, China", in *Urban Morphology*, 12(2), 77-95.
- HUANG, R. (1997). *China: A Macro History* (2nd ed.), London, Routledge. <https://doi.org/10.4324/9781315705835>
- LI, K. (2018, December 14). "Big data illustration of five batches of traditional Chinese villages", in *The Paper*. https://www.thepaper.cn/newsDetail_forward_2734771 李焜. (2018, December 14). 大数据图解五批中国传统村落. 黔东南和歙县各列市、县级第一. 澎湃新闻
- LI, K. (2019). "Interpretation of the Location and Pattern of Fenghuang Town from the Perspective of Fengshui", in PEZZETTI, L.A., *Layered Morphologies and Latent Structures: Reading, Decoding and Rewriting to Enhance Historic Rurban Landscape*, Shanghai, Tongji University Press.
- LI, S. (2010). *Illustrated the Yellow Emperor's House Classic: Understanding the Way of Living in China*, Xi'an, Shaanxi Normal University General Publishing House. 李少君 (2010). 图解黄帝宅经`认识中国居住之道`. 西安: 陕西师范大学出版社, 2010.
- MOULE, A.E. (1914). *The Chinese People: A Handbook on China*, London, Society for promoting Christian knowledge.
- MURATORI, S. (1950). "Vita e storia delle città", in *Rassegna critica di architettura*, 3(11-12), 3-52.
- MURATORI, S. (1963). *Architettura e civiltà in crisi*, Roma, Centro Studi di Storia Urbanistica.
- PAGANO, G., & DANIEL, G. (1936). *Architettura rurale italiana*, Milano, Hoepli.
- PAUW, C. (1795). *Philosophical dissertations on the Egyptians and Chinese* (Vol. 1), London, T. Chapman.
- PEZZETTI, L.A. (2019a). *Layered Morphologies and Latent Structures: Reading, Decoding and Rewriting to Enhance Historic Rurban Landscape*. Shanghai, Tongji University Press, 34-41.
- PEZZETTI, L.A. (2019b). "Overwriting the Urban Palimpsest: A Regenerative Structure for Historic Public Spaces and Buildings", in *New Architecture*, 2: 5-14.
- PEZZETTI, L.A. (2020). "Layered Morphologies and Topographical Structures in Historic Rurban Landscape: Integrating Typo-Morphological, Topographical and Landscape tools with Feng Shui. In *Cities as Assemblages*", ISUF, XXVI International Seminar on Urban Form, 1-11.
- PEZZETTI, L.A., & LI, K. (2021). "Reading Structures, Morphology and Landscape as a Unity in Chinese Villages. Typological and Interpretative Maps of Zhangaicun (Shaanxi) Traditional Village", in *U+D urbanform and design*, 16, 162-171.
- ROGERS, E.N. (1958). "Il Problema di Costruire nelle Preesistenze Ambientali", in Id., *Esperienza dell'architettura*, Torino, Einaudi.
- ROSSI, A. (1968). "Architettura per i Musei", in CANELLA G., COPPA M., GREGOTTI V., ROSSI A., SAMONÀ A., SCIMEMI G., SEMERANI L. AND TAFURI M. (eds), *Teoria della progettazione architettonica*, Bari, Dedalo.
- SAMONÀ, G., 1978. *L'unità architettura urbanistica. Scritti e progetti 1932-1973*, Milano, FrancoAngeli.
- TANG, L., XU, Y. & DING, W. (2016). "Plots and Building Types: case studies in historical area in Nanjing, China", in *Urban Morphology and the Resilient City*, ISUF, XXIII International Seminar on Urban Form, 43-54.
- TIAN, Y., ZHANG J., & GU K. (2012). "Analysis on the Evolution of Dwellings Form and Its Influencing Factors in Guangzhou", in *Traditional Chinese Architecture and Gardens*, 3, 68-71.
- Wang, G. (2007). "Discussion on the Orientation of Ancient Chinese Architecture", in *Chinese Architectural Heritage from a Global Perspective*, The 4th International Conference on Chinese Architectural Historical, 232-243. 王贵祥 (2007). 中国古代建筑方位问题探讨. 全球视野下的中国建筑遗产, 第四届中国建筑史学国际研讨会论文集(营造第四辑), 232-243.
- WHITEHAND, J.W.R., & GU, K. (2006). "Research on Chinese urban form: retrospect and prospect", in *Progress in Human Geography*, 30(3), 337-355.