

a cura di
STEFANO BERTOCCI
FEDERICO CIOLI

Franciscan Landscapes

*Conservation, Protection and Use
of Religious Cultural Heritage
in the Digital Era*

vol. 1



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edited by
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This volume collects the papers presented at the concluding conference of the European project 'F-ATLAS: Franciscan Landscapes: The Observance between Italy, Portugal and Spain' that took place in Assisi, May 11-13, 2023.

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Porziuncola, Assisi (Italy). Drawing by Stefano Bertocci.

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ET HEC SANCTISSIMA
MYSTERIA SUPER
OMNIA VOLO
HONORARI,
VENERARI ET IN
LOCIS PRETIOSIS
COLLOCARI.

Francesco d'Assisi, *Testamentum 11*



INTRODUCTION

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We are glad to present the Proceedings of the International “F-ATLAS Conference – Franciscan Observance Landscapes”, promoted within the European project “F-ATLAS – Franciscan Landscapes: The Observance between Italy, Portugal and Spain”, funded in 2020 by the JPICH 2019 Conservation, Protection and Use Call.

From May 11th to May 13th, 2023, Assisi’s Domus Pacis became a hub of intellectual exchange and exploration as scholars worldwide gathered for the F-ATLAS Conference – Franciscan Observance Landscapes. The event, organized by the F-ATLAS consortium led by Stefano Bertocci – University of Florence, Soraya Genin – ISCTE-IUL University of Lisbon, Maria Soler Sala – University of Barcelona, Maria Filomena Andrade – UCP-CEHR Universidade Católica Portuguesa, aims to shed light on the tangible and intangible aspects of Franciscan Observance and Religious Cultural Heritage. With 96 participants and 49 inspiring contributions, the event showcased diverse perspectives from esteemed researchers and academics representing universities across Italy, Spain, and Portugal, as well as Belgium, Colombia, and Brazil.

The F-ATLAS Conference brought together experts from various disciplines, including history, architecture, geography, digital humanities, and computer science, creating a rich and comprehensive dialogue. Participants from renowned international universities offered unique insights into the Franciscan Observance and its impact on European Cultural Heritage. Historical investigations formed a significant part of the conference, with presentations focusing on documenting Franciscan Observance and Religious Cultural Heritage. Researchers delved into the evolution of Franciscan convents, examining their organization over the centuries and their intricate relationship with local territories and cultures. Through meticulous archival research and critical analysis of existing literature, these contributions painted a vivid picture of the historical context in which the Observance movement flourished. One of the highlights of the F-ATLAS Conference was the emphasis on leveraging cutting-edge technologies for Franciscan’s Architectural Heritage analysis and digitisation. Presentations showcased the transformative potential of drones, 3D laser scanners, digital

photogrammetry, augmented reality/virtual reality (AR/VR), Geographic Information Systems (GIS), and 3D printing in documenting and preserving religious architectural heritage. These nowadays experimented digital tools provided researchers with new ways to collect, analyse, and present architectural data, enabling a deeper understanding of the complex structures and landscapes associated with the Franciscan Observance.

The F-ATLAS Conference fostered international collaboration, with participants hailing from a diverse range of countries and backgrounds. International scholars brought their unique perspectives to the discussions, enriching the exploration of Franciscan Observance beyond European borders. This global engagement highlighted the universal significance of religious heritage and the need for international cooperation in its preservation.

The contributions examined the past and sparked discussions on the future of documenting and safeguarding religious heritage. Integrating historical research with technological advancements opened exciting possibilities for creating comprehensive digital archives, virtual reconstructions, and immersive experiences that can bridge the gap between the past and the present. The F-ATLAS Conference was a captivating and enlightening gathering that united scholars, researchers, and academics under Franciscan Observance and Religious Cultural Heritage. Through a multidisciplinary approach and the integration of new technologies, the conference fostered a deeper understanding of the historical context and architectural intricacies of the Observance movement. As the legacy of the conference continues to inspire future research, the F-ATLAS Conference has made significant contributions to the preservation and appreciation of religious heritage worldwide.

In addition to the stimulating discussions and presentations, the F-ATLAS Conference featured an Exhibition illustrating the extensive results of the project. Complementing the scholarly discussions and presentations, the Exhibition '*F-ATLAS – Digital documentation of Franciscan Landscapes in Italy, Portugal and Spain*' provided a tangible experience, allowing conference participants to delve into the project's findings in a visually compelling manner through a series of graphic panels, immersive videos – from aerial views by drones to 3D models by laser-scanner and SfM photogrammetry – and detailed 3D-printed models. This interactive display captivated the senses, making complex concepts accessible and fostering a deeper connection with the subject matter. It showcased the power of visual storytelling in conveying the depth and significance of the project's results.

The conference proceedings testify to the contents of the various reports, characterised by multiple insights ranging from history to architectural analysis to developing strategies for digitising tangible and intangible heritage. The three days of the conference were, in fact, an opportunity for speakers and listeners to meet and exchange opinions between scientific, academic and cultural realities that were also very different from each other and certainly represented a point of synthesis of the various and many activities ongoing research at an international level.

The book 'Franciscan Landscapes. Conservation, Protection and Use of Religious Cultural Heritage in Digital Era' collects 49 contributions and is divided into four parts corresponding to the topics of the call. Part I, entitled 'History and Theory of the Franciscan Observance', collects contributions relating to the themes of historical and archival research, the evolution of the Order concerning the territory and architecture, the history of architecture, the history of art and theology. Part II, entitled 'Digital Survey and Documentation of Cultural Heritage', collects contributions in the field of digitisation of cultural heritage and the architectural survey, deepening the topics of laser-scanner surveys, SfM/IM photogrammetry, 3D modelling, the study and representation of cultural heritage, data-sheet census systems and cataloguing and diagnostic investigation. Part III, entitled 'Landscapes and territories: new tools and strategies', collects contributions in the field of landscape and environmental analysis, with particular attention to the aspects related to historical geography and the study of cartography, deepening the themes of GIS, land use, vegetation, and complex database management. Part IV, entitled 'Dissemination, management and Promotion of Cultural Heritage in the Digital Era', collects contributions relating to the strategies offered by digital for the enhancement of cultural heritage, deepening the issues associated with restoration projects, methods for cultural tourism, VR /AR/MXR, HBIM, museum systems and 3D printing. In conclusion, we want to thank all those who have contributed to the success of this initiative. The conference and this publication were made possible thanks to the joint efforts of the scientific committee, the organising committee, and the group of external reviewers. In particular, we want to thank the members of the consortium of the European F-ATLAS project and the associated partners, with specific attention to the Umbria Region and the Seraphic Province of San Francesco d'Assisi of the Friars Minor of Umbria, who contributed to the success of the project and of the conference. We extend our warmest thanks to all of them.

Stefano Bertocci and Federico Cioli



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On 21 November 2014, on the ‘*Anno della vita consacrata*’ (2014-2015), Pope Francis invited all consecrated people to look at the past with gratitude, explaining that “recounting our history is essential for preserving our identity, for strengthening our unity as a family and our common sense of belonging”. For ourselves as Franciscans, this history now spans eight centuries and five continents! “At their origins we see the hand of God who, in his Spirit, calls certain individuals to follow Christ more closely, to translate the Gospel into a particular way of life, to read the signs of the times with the eyes of faith and to respond creatively to the needs of the Church. This initial experience then matured and developed, engaging new members in new geographic and cultural contexts, and giving rise to new ways of exercising the charism, new initiatives and expressions of apostolic charity. Like the seed which becomes a tree, each Institute grew and stretched out its branches”. Leafing through the 49 contributions of the present volume of proceedings, one has a clear perception of this creative expansion from a specific and privileged observation point: that of the Franciscan, conventual, and ecclesiastical architecture of the Observance period. A period in which the Christian faith and the Franciscan charism showed particularly clearly their fruitfulness and ability to impact culture and art, society, and political institutions. For we as Franciscans, it is not a question of mere erudition; to quote the words of the Supreme Pontiff, “more than an exercise in archaeology or the cultivation of mere nostalgia, it calls for following in the footsteps of past generations in order to grasp the high ideals, and the vision and values which inspired them, beginning with the founders and foundresses and the first communities. In this way we come to see how the charism has been lived over the years, the creativity it has sparked, the difficulties it encountered and the concrete ways those difficulties were surmounted. We may also encounter cases of inconsistency, the result of human weakness and even at times a neglect of some essential aspects of the charism. Yet everything proves instructive and, taken as a whole, acts as a summons to conversion. To tell our story is to praise God and to thank him for all his gifts”. Therefore I am very happy that the first international con-

ference of the F-ATLAS project was held in Assisi, in the shadow of the “*bella cupola del Vignola*” (beautiful Vignola dome; G. Carducci, *Rime nuove*, libro II, XV); and I warmly thank the scholars who dedicated their time, skills, and energy to the research presented in this volume, together with all the members of the consortium and associated partners who made it possible.

In the case of Franciscan architecture in Umbria, we are referring to sanctuaries known and loved throughout the world: the Basilicas of San Francesco, Santa Chiara, Santa Maria degli Angeli, the sanctuaries of San Damiano and the Eremo delle Carceri. For ourselves as friars, custodians of these places, the growing influx of visitors presents an extraordinary opportunity for meeting, dialogue, and announcing the faith, through sacred art as well. It is easy for us to understand the special attention that Pope Francis has dedicated to sanctuaries, pointing to them, in the Apostolic Letter *Sanctuarium in ecclesia* of 11 February 2017, as “driving centres of the new evangelization” and recommending to “enhance the cultural and artistic value of Shrines in keeping with the *via pulchritudinis* as a particular mode of evangelization of the Church”.

Custody and valorisation require constant cultural and economic commitment; we experience it in a particularly urgent way in the years 2023-2026, in which we celebrate the human and Christian maturity of Saint Francis through the anniversary of the 8th Centenary of the Approved Rule and of the Christmas of Greccio (1223), of the Stigmata (1224), of the Canticle of the Creatures (1225) and the Blessed Transit of Saint Francis of Assisi (1226). At the same time, we have to manage massive seismic safety measures, structural consolidation, and restoration of the Basilica of Santa Maria degli Angeli.

From this perspective, I consider the entry of our Seraphic Province into the F-ATLAS project in January 2021 as providential. I am delighted not only for the results achieved so far, but also for the prospects of further investigations and the opening of new areas of collaboration with the Department of Architecture of the University of Florence. A particular word of gratitude goes to Prof. Stefano Bertocci and his large group of collaborators, in these three years, I have had the opportunity to personally appreciate their outstanding professionalism, genuine enthusiasm, and generous dedication to their research work, combined with exquisite kindness.

To everyone, I address the greeting of our Seraphic Father: *il Signore vi dia la pace!*

Fr. Francesco Piloni

FOREWORD

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Numerous motivations have historically characterized the actions of the Franciscans in Europe that played an essential role in the reform of the Church from below. Francis of Assisi and his followers lived in poverty, humility, and dedication to the poor – an explicit criticism of the conduct of the medieval ecclesiastical hierarchy. In adherence to the evangelical dictates and moved by social commitment, the Franciscans were therefore influential figures in the religious reform of the time.

The innovative way of spreading the Gospel is straightforward: using for example a common language accessible to the population, through sermons in Italian instead of the official Latin language. The choice to constitute conventual families increased and spread throughout Europe the Order by founding numerous convents. These communities first played an essential role in structuring the urban space of several towns and significantly influenced the territorial organization of certain areas. Furthermore, following their objectives, they contribute to improving occupation and education, including assistance to people experiencing poverty.

The Franciscans forwarding adopted art and culture to communicate their message, significantly influencing European art and culture with masterpieces, architecture, and literature inspired by their spirituality and vision of the world.

They adopted a globalised policy for the spread of Christianity in the then-known world, also achieving mediation roles between local powers and between nations, thus taking an active role in diplomacy and political affairs. They also developed an essential policy for higher education through the foundation of schools and universities to promote education and academic training throughout Europe. It was precisely these educational institutions that contributed significantly to the development of European thought and culture. They, therefore, aim to evangelise distant and unknown territories, sending, first among the religious orders, missionaries to little-explored lands and contributing to the spread of Christianity in parts of the world, such as Asia and Africa. The impact of these actions in European territories and cities led to the construction of churches and convents, which

influenced the organisation of the road network – often opening new connections – and the urban layout of the other buildings.

These settlements have gradually generated a new urban space with a profound impact not only on the Christian religion and the religiosity of the masses but also on the culture, philosophy and, above all, on the architecture of European society.

The contributions collected in this volume, which range between topics that are only apparently distant, testify to this tight fabric and the role of the franciscans ideas in structuring the European space.

I want to recall, in this brief presentation, some aspects of this innovative outcome, which had been prophetically anticipated about a century before Francis of Assisi by a Calabrian monk and theologian, Gioacchino da Fiore (1135-1202).

As is known, for those who study the evolution of Christian religious thought, his eschatological vision was based on a historical division distinct into three ages: the one of the Father (Old Testament), the one of the Son (New Testament) and the one of the Holy Spirit (yet to be written). The latter was only hoped for, but there was the belief that it would bring a profound and radical renewal of the Church, towards a way closer to the scriptures, above all more linked to poverty as a life model.

The fundamental text that contains this vision is the *Liber Figurarum*, one of the most important collections of figural and symbolic theology of the Middle Ages, which illustrates the sacred writings in a 'simple' way and will influence a good part of the Christian iconography of the time. This parallelism is only explored in the contribution of Figueroa Pereira and Cobo Fray in the present volume. Several scholars have proposed reading the similarities or influences of the theology of Gioacchino da Fiore in Franciscan spirituality, which some scholars have advanced. Umberto Eco in the novel *The Name of the Rose* makes this discussion the story's focal point through the character of William of Baskerville, a Franciscan friar.

However, by comparing the ideas of Joachimite architecture and Franciscan architecture, which represent two distinct architectural moments, many similarities can be highlighted, which, even in this book, the most astute readers can glimpse.

For example, the theme of 'simplicity and sobriety': Joachimite aesthetics were influenced by the spiritual visions of Gioacchino da Fiore, who believed that architecture should reflect the purity and simplicity of the soul, that of Francis of Assisi and the Franciscan Observance. Embracing a philosophy of poverty, a simple and sober design, free of elaborate ornamentation, is introduced into architecture to create humble and unostentatious spaces in harmony with the lifestyle of the Franciscan friars.

Even in construction, both favoured local and accessible materials, moving away from ostentation and luxury, with constant attention to the surrounding nature. Joachimite and Franciscan architecture emphasised the connection with nature and drew symbolic inspiration from it. This fascinating book can also offer an essential perspective of metaphorical comparison, not only strictly disciplinary, for new readings and interpretations, bringing out differences and similarities that exist and are evident.

Giuseppe De Luca



BENEDICTINE MONASTERIES IN UMBRIA. A BENCHMARK OF THE MONASTIC SETTLEMENTS OF BENEDICTINE RULE

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Benedictine monasticism is one of the most long-lived and widespread movements in the history of Western Christianity and the Church; born in the first millennium, it has spanned the entire second one, reaching the dawn of the third millennium with a renewed spirit and strength of dialogue with the society of our time.

Born from the religious experience and life model of San Benedetto of Norcia (480-547) – who codified since the beginning its principles in his monastic Rule drawn up in Montecassino in the first half of the 6th century – the Benedictine Order has known a widespread diffusion in Italy and throughout Europe. Monasteries and abbeys were founded in inhabited centers and the most isolated areas, on islands and at the foot of the mountains, where both male and female communities dedicated themselves to prayer, study, and work. Since the 17th century, historians and scholars have attempted to draw up catalogues and inventories of the monasteries established over the centuries¹. To provide the most in-depth knowledge possible and create a rigorous tool for studies and research on the history of Benedictine monasticism in Italy, the Centro Storico Benedettino Italiano (Italian Benedictine Historical Center) was established in 1967, based in the monastery of Santa Maria del Monte in Cesena. All the Congregations of the Benedictine Rule joined it: Cassinesi, Camaldolese, Cistercians, Olivetans, Silvestrini, Sublacensi and Valmombrosani². The programmatic objective of the Centro Storico Benedettino Italiano is the creation of the *Monasticon Italiae*, that is, the compilation of the repertoire of all the male and female monasteries of the Benedictine Rule, existing and having existed in Italy and distinguished by region³.

¹ Among others we mention IACOBILLI, LODOVICO, *Vite de' Santi e Beati dell'Umbria e di quelli i corpi de' quali riposano in essa provincia*, 3 vols., In Fuligno, Agostino Alteri, 1647-1661; LUBIN, AUGUSTIN, *Abbatiarum Italiae brevis notitia*, Romae, typis Jo. Jacobi Komarek, 1693; COTTINEAU, LAURENT HENRI, *Répertoire topographique des abbayes et prieurés*, 2 vols., Macon, Protat, 1935-1937.

² For the history of the Centro Storico Benedettino Italiano see Farnedi G. O.S.B., *Das Centro Storico Benedettino Italiano* in «Studien und Mitteilungen zur Geschichte des Benediktinerordens und seiner Zweige», 132 (2021), pp. 465-478.

³ From 1967 to today, volumes relating to Rome and Lazio, Puglia and Basilicata and some dioceses of the Three Venices have been published; these are: *Roma e Lazio (eccettuate l'arcidiocesi di Gaeta e l'abbazia nullius di*

In 2014, the first volume of *Monasteri benedettini in Umbria. Alle radici del paesaggio umbro*⁴ was published, with the repertoire of the first ninety monasteries among the main ones in the regional territory. The research continues with the second volume of the work, whose publication is expected at the end of 2023⁵, and will be completed by a third volume in preparation. The work *Monasteri benedettini in Umbria. Alle radici del paesaggio umbro* started the Biblioteca del Monasticon Italiae series of the Italian Benedictine Historical Centre; in addition to the data relating to the identification of the monastic site and the historical, artistic and bibliographical elements, this veritable encyclopedia of the Benedictine monasteries of Umbria presents the territorial and landscape analyses of the place where the monastery stood and its location represented on the regional cartography. This census project of the monasteries of Umbria is the result of the fruitful collaboration between the Italian Benedictine Historical Center and the Umbria Region: an excellent example of synergy aimed at historical and scientific research.

The structure of the entire work *Monasteri benedettini in Umbria. Alle radici del paesaggio umbro* responds to multiple criteria. In the first volume, 90 monasteries were reviewed and selected based on their historical-artistic relevance and high landscape value, and a geographical criterion was opted for the other two books. In the second volume, 154 monasteries that arose in the dioceses of northern Umbria were registered: Città di Castello, Gubbio, Assisi – Nocera Umbra – Gualdo Tadino, Perugia – Città della Pieve; in the third volume the Benedictine monasteries of the dioceses of southern Umbria will be presented: Foligno, Spoleto – Norcia, Todi – Orvieto, Terni – Narni – Amelia.

The geographical and landscape criterion is the most suitable for drawing up the repertoire of Umbrian Benedictine monasteries, considering how the conformation of the territory influenced the spread of monastic communities and how the monks, in turn, contributed to shaping the surrounding environment.

Montecassino), edited by Filippo Caraffa, Cesena, 1981, p. 240; Puglia e Basilicata, edited by Giovanni Lunardi, Hubert Houben and Giovanni Spinelli, Cesena, 1986, XI-228 p.; Tre Venezie, fasc. I. Diocesi di Padova, edited by Giannino Carraro, Cesena, 2001, XIII-89 p., fasc. II. Diocesi di Adria - Rovigo, Belluno - Feltre, Chioggia, Treviso, Vittorio Veneto, edited by Gabriele Mazzucco and Pier Angelo Passolunghi, Cesena, 2007, XXIII-85 p., fasc. III, Diocesi di Verona, edited by Franco Segala, new ed. revised and corrected by Angelo Passuello and Giovanni Spinelli, Cesena, 2020, XIV-124

⁴ *Monasteri benedettini in Umbria. Alle radici del paesaggio umbro*, Scientific direction of Giustino Farnedi O.S.B., Repertory of the monasteries of Nadia Togni, Cesena, Regione Umbria - Centro Storico Benedettino Italiano, 2014 (Biblioteca del Monasticon Italiae, 1), XCIV-391 p., 2 papers pl., 90 ill., 90 maps.

⁵ Farnedi G. O.S.B., Togni N. 2023, *Monasteri benedettini in Umbria. Alle radici del paesaggio umbro*, Cesena, Regione Umbria – Centro Storico Benedettino Italiano, (Biblioteca del Monasticon Italiae, 2), CIX-533 p., 12 papers pl., ill. and maps.

In particular, the Umbria Region finds its backbone along the Tevere River, which crosses it from north to south to open up into the basin of the Terni territory; to the east, it is dominated by the Apennines, where the valleys connect it with the Marche; finally, to the west, Lake Trasimeno extends surrounded by gentle hills. Along the course of the Tevere, large autonomous abbeys arose which, from the Middle Ages to the modern age up to the suppressions of the 19th century, constituted extensive land holdings where they developed real agricultural businesses; among these, we remember the abbey of San Salvatore di Monte Acuto, later called Montecorona, in the municipality of Umbertide⁶, that of Santa Maria di Valdiponte or Montelabate in Perugia area⁷ and the abbey of San Pietro of Perugia⁸. Over the centuries, the monks of these institutions have contributed significantly to the management of the territory of our region; with their works of reclamation of swamps and forests, the introduction of new crops, and the rational use of the land, they have participated in the definition of the landscape that still characterizes the Umbrian countryside today. The monastic communities have also favoured the artistic development of Umbria, encouraged cultural exchanges, and supported the work of painters, sculptors, architects, musicians, and scientists, whether still young or already established and well-known.

In cataloguing the repertoire, particular attention was paid to the history of the religious communities that followed one another in the same monastic settlement over the centuries, contributing to the religious history of Umbria and its dioceses. It thus emerged that, between the 13th and 14th centuries, the so-called ‘century of the great crises’ of Benedictine monasticism began with the spread of the Franciscans and other mendicant orders. Many monastic complexes built by the Benedictines were abandoned and often handed over to emerging religious communities who needed housing structures that were already organized and had all the spaces necessary for community life and prayer. Thus, the Franciscans, Dominicans, and other Orders settled in numerous Benedictine monasteries in an extraordinary and fraternal continuity. In Umbria, the monasteries of San Crispolto in Bettona⁹, San Lorenzo in Collazzone¹⁰, Santa Maria di Vallegloria in Spello¹¹, and San Fortunato in Todi¹² passed to the Franciscans.

⁶ Umbertide, San Salvatore di Montecorona, in *Monasteri benedettini in Umbria*, I, pp. 268-273.

⁷ Perugia, Santa Maria di Valdiponte, in *Monasteri benedettini in Umbria*, I, pp. 186-191.

⁸ Perugia, San Pietro, in *Monasteri benedettini in Umbria*, I, pp. 180-185. Sulla storia di questa abbazia FARNEDI, GIUSTINO, *L'Abbazia di San Pietro in Perugia e gli studi storici*, Cesena, Centro Storico Benedettino Italiano, 2011 (Italia Benedettina, 35), XVI-567 p., 21 papers pl..

⁹ Bettona, San Crispolto, in *Monasteri benedettini in Umbria*, I, pp. 18-21.

¹⁰ Collazzone, San Lorenzo, in *Monasteri benedettini in Umbria*, I, pp. 45-47.

¹¹ Spello, Santa Maria di Vallegloria, in *Monasteri benedettini in Umbria*, I, pp. 223-226.

¹² Todi, San Fortunato, in *Monasteri benedettini in Umbria*, I, pp. 243-248.

More recently, the monastery of San Masseo in Assisi passed from the Benedictines to the Franciscan Friars Minor in 1981¹³, while the opposite phenomenon occurred in Citerna, where the ancient Franciscan convent of the Santissimo Crocifisso was handed over to the Benedictines of Santa Maria coming from Città di Castello in 1951¹⁴. Precisely because of this continuity between Benedictine and Franciscan communities, I am grateful to professors Stefano Bertocci and Federico Cioli for having invited the Centro Storico Benedettino Italiano to the Assisi Conference and for having accepted this writing of mine in the beautiful volume *Franciscan Landscapes. Conservation, Protection and Use of Religious Cultural Heritage in the Digital Era*. I hope our collaboration can continue to deepen our knowledge of Italian and European religious history and the transformations of the territory. Many monks and friars who, over the centuries, have erected monasteries and convents, built churches and bell towers, and promoted the arts, culture, and science have also contributed to defining the characteristic landscape of our regions. Our gratitude goes to all of them.

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¹³ Assisi, San Masseo, in *Monasteri benedettini in Umbria*, II, pp. 18-21.

¹⁴ Citerna, Santissimo Crocifisso e Santa Maria, in *Monasteri benedettini in Umbria*, II, pp. 88-90.

PART I

**History and Architecture
of the Franciscan Observance**



THE FRANCISCAN OBSERVANCE IN PORTUGAL. MEMORIES AND ARCHIVES

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Abstract

With the rising of several movements in the 14th and 15th centuries, seeking more authentic and rigorous forms of religious and spiritual experience, the first friars of the Franciscan Observance entered Portugal in 1392. Establishing themselves in the Rio Minho region, they benefited from papal support, but also from the patronage and protection of the Portuguese monarchs, the royal family, and the nobility. This period saw a considerable expansion of Portuguese Observance, which resulted in the foundations of a considerable number of monasteries. In this text, we intend to study the contours of this movement, based on specific historical records, the memories written in the monasteries of Matosinhos and Ínsua, during the governance of Friar João da Póvoa, a key actor of the Portuguese Observance, by the last decades of 15th century. Not only it gives precious information about several of the first Observant foundations and their communities along Minho River (Santa Maria de Mosteiró, São Paio do Monte, São Francisco do Monte, Santa Maria da Ínsua) and their way of life, as it allows to understand how these first times were seen by later generations, and the several changes observant communities went on during all the 15th century in Portugal.

Keywords: Franciscan Observance, Portugal, memories.

1. The Franciscan Observance (1329-1517)

During the 14th and 15th centuries, Portugal witnessed, as in the rest of Europe, the appearance of various religious movements that sought to live Christianity more rigorously, taking into account a renewal based on their existence in accordance with the Gospel and model of the first Christians.

The religious context of the late Middle Ages, with the Avignon papacy and the outbreak of the Schism of the West, the debates around power and authority, poverty and wealth, coherence between life and the Gospel, the role of the laity and institutional mediation, highlight and give greater importance to the aspirations of the *vita apostolica* that these movements intended to follow, in a constant relationship with the world around them (Vauchez, 1995, pp. 141-199; Rosa, 2000).

Due to this, many people found it necessary to return to a stricter understanding and fulfilment of their original spiritual intuitions and texts. And so the observant movement arose, characterised by greater rigour from all the communities. In some cases, it led to the foundation of new convents, in others the situation was resolved internally in a way that was not devoid of problems and successive attempts and changes.

The Franciscan Observance in Portuguese territory had its beginning in 1392, the year in which a bull by Boniface IX, dated 10th April, gave permission to a small group of Galician and Asturian friars minor to build a hermitage in the Province of Santiago and, in obedience to their Minister, to live there in solitude. The group consisted of one cleric, Diego Árias, and two laymen, Gonzalo Mariño and Pedro Díaz, who were soon joined by other companions and managed to build five hermitages, four of them in the Portuguese part of the diocese of Tui, closely following the course of the Minho river – Santa Maria de Mosteiró, near Valença, Nossa Senhora de Carmes in Ínsua de Caminha, São Francisco do Monte, in Viana, and São Paio do Monte, in Vila Nova de Cerveira – and one in São Clemente das Penhas, near Matosinhos, in the diocese of Oporto. All these were founded in rural locations, on the outskirts of villages, on high ground, or by the sea, if not on islands in the middle of rivers. As less clericalised communities, they valued the hermitic dimension within the Franciscan tradition, as well as the clear option for poverty, with scarce financial means, visible in the simplicity of the churches, the implements, the furniture, and the construction materials (Teixeira, 2010; Carvalho 2016, pp. 69-73; Andrade, Fontes, Rodrigues, 2020; Garcia Oro, 2006).

These small and humble hermitages were born in the context of the Schism of the West (1378-1417), with two ministers in the Province of Santiago (one obeying Avi-

gnon, the other Rome), and the tension created by the political antagonism between Portugal and Castile. They tried to subsist in a radical way of life that also strongly opposed conventual Franciscans, then dominant throughout Portuguese territory (Lopes, 1997a, pp. 75-84). The support of kings and noblemen, with their assets and privileges, made them viable. Thus, soon they became the object of continued support from the royal family and important noble families related to the royal court and the local elites.

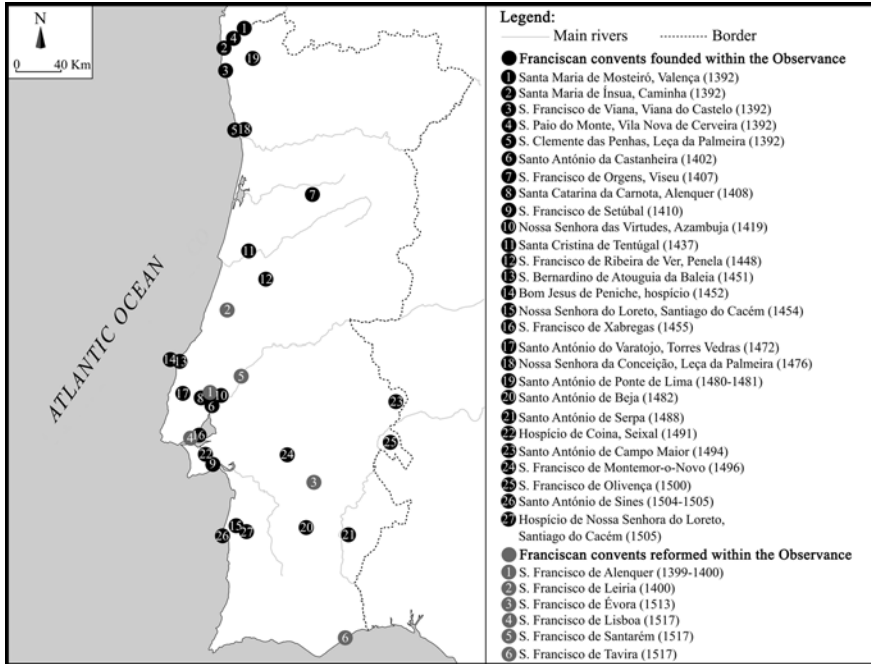
In the existing convents where observance penetrated, such as Leiria (Gomes, 1994) and Alenquer (Andrade et al., 2020), there are reports of improvement works sponsored by the royal couple João I and Filipa de Lencastre and by the court nobility (those of Ataíde, Castelo-Branco, Sousas, Chichorro, and Azevedo). The reform of both convents was ensured by the Friars Diogo Árias, Garcia Montãos, and Pedro de Alamanco. Alenquer would also be the seat of the studium or middle and higher school of theological-Franciscan studies, benefiting from the rich libraries inherited for the convent (Lopes, 1997, p. 380; Carvalho, 2018).

In fact, Leiria and especially Alenquer would be the starting point for almost all the new foundations now located in the south of the realm, between Estremadura and Beiras, with Santo António da Castanheira, in Ribatejo (1402), led by Friar Pedro de Alamancos (Gomes, 2016, pp. 349-350), São Francisco de Orens (Viseu), in 1407, founded on land donated by Gonçalves Esteves, accountant to the king in Arruda, and firstly governed also by Friar Pedro de Alamancos (Gomes, 2016, pp. 349-350); Santa Catarina da Carnota, near Alenquer (1408), founded by the Galician friars Diogo Árias and Afonso Saco (Sousa, 2016, pp. 355-356), and São Francisco de Setúbal (1410), founded on the initiative of D. Maria Eanes Escolar, daughter of João Gonçalves Escolar, exchequer of king Fernando, also with friars from Alenquer (Silveira, 2012).

Meanwhile, the end of the schism, with the election of Martin V in 1417, would open the way to clarifying the Franciscans' situation in the western part of the Peninsula. In effect, their previous separation into two obediences would result in the creation of an independent Portuguese province, called of Portugal, consecrated in the General Chapter of 1418 or 1421 (Lopes, 1997a, pp. 90-91; Coelho, 2005, p. 215). The new province was governed by Friar Gil Lobo of Tavira (Lopes, 1997b, pp. 427-429), a confessor of King Duarte closely linked to the foundation of the observant Franciscan convent of Our Lady of Virtues (Nossa Senhora das Virtudes), in Aveiras, erected after a vow made by the prince after the conquest of Ceuta (Beirante, 2004). In Tentúgal, the initiative for the installation of the friars in the oratory and the subsequent change to a convent belonged to Prince Pedro, the duke of Coimbra and regent of Portugal, who obtained, for that purpose, papal authorisation from Eugene IV in 1433 (Sousa, 2016, pp. 287-288).



Fig. 1
Franciscan
convents founded
or reformed in
the Observance
(Portugal,
1392-1517).
By Filomena
Andrade, João
Luís Fontes and
Rolando Volzone,
adapted from
Teixeira 2010.



This first phase of Observance in Portugal thus came to an end and a new cycle began in 1446, with the autonomy of the “reformed” convents, gathered under the government of their provincial vicars, subject to the respective observant vicariate general. This passage, consecrated by the Bull *Ut Sacra Ordinis Minorum Religio*, opens and sanctions a new relationship with the literate dimension, involving teaching and training, as well as greater openness to the generosity of the patrons, reflected in material investment, the granting of privileges, and the offering of assets linked to pious obligations (Teixeira, 2010, pp. 235-340; Andrade et al., 2020, pp. 56-57).

New convents were founded on succession until 1500, and between that year and 1517 only reforms were recorded. Convents were founded mainly in the south of Portugal and on the islands (Fig. 1). The following stand out: the convent of São Francisco or Santa Maria de Jesus de Xabregas which, under the patronage of the Countess of Atouguia, Guiomar de Castro, was populated by observant friars from Madeira and amply endowed by the Portuguese monarchs, later becoming the seat of the Province of the Algarves (Sousa, 2016, pp. 315-316); and the convent of Varatojo, founded on

the initiative of King Afonso V and always protected by him (Sousa, 2016, pp. 317-318). At the same time, there was also an increase in the number of works carried out in the oldest observant convents, while older establishments, situated in more isolated and solitary places, were abandoned in favour of larger houses nearer to the towns and cities.

Leon X's bull *Ite vos*, of 29 May 1517, culminated this process and signified the triumph of Observance as a perfected model form of Franciscan life, since it divided the Friars Minor into two branches (observant and cloistered), and handed over the government of the Order to the former. In that same year, the observant reform was imposed on the old convents of St Francis in Lisbon, Santarém, and Tavira (Sousa, 2016, pp. 276-277, 280, 312), adding to those of Alenquer and Leiria, and to Évora, which had been subjected to the new customs four years earlier (1513) (Sousa, 2016, pp. 309-310).

2. The Reformers and Friar João da Póvoa

In this whole movement of reform, it is important to highlight its agents, that is, the friars who, with their way of life, were the protagonists and main links in a chain that brought about a transformation to daily life in the Franciscan houses.

Besides the first founders of hermitages, the following deserve to be mentioned: still in the times of kings Fernando and João I, Friar Fernando de Astorga, royal confessor, elected minister of the Province of Santiago in 1381, still under the Avignonese obedience, kept after 1382 as minister of the Portuguese custodies, meanwhile subject to Rome. After the death of King Fernando, he became politically aligned with the Master of Avis, who, according to Fernão Lopes, accompanied him in the siege on Chaves, between January and April 1386 (Lopes, 1997a, pp. 76-79). We know that he was also attentive to the life of the Province, and that in 1384 he was at the monastery of Santa Clara de Entre-ambos-os-Rios, near Oporto, as a visitor (Andrade, 2011, pp. 420-421).

The career of another Minor, Friar João de Xira, is better documented. He had a degree in Theology, and was a confessor to João I. In 1400, he was directly involved in the reform of the convents of São Francisco de Leiria and São Francisco de Alenquer, both by royal initiative (Lopes, 1997b, pp. 426-427; Gomes, 1995, pp. 119-120 and 171; Coelho, 2005, pp. 140, 172, 180, 211, 217). His activity in the Order extended far beyond the reform of these two houses. In 1396, he is mentioned in a document from the monastery of Santa Clara de Entre-ambos-os-Rios as Master and Visitor of the Poor Clares. It was he who, in 1405, supporting Queen Filipa de Lencastre, obtained from Innocent VII the bull (12.03.1405), which authorised the transfer of the convent of Entre-ambos-os-Rios to Oporto and managed to obtain from the monarch a license for the project. He closely followed the whole process and some of the

vicissitudes of the monastery in its early years in Oporto (Andrade, 2011, pp. 418-419).

Gil Lobo, who had a degree in Theology from the University of Toulouse, joined the group of royal confessors, this time at the service of Prince Duarte, and remained a confessor during the regency of Prince Pedro and the first years of the young king Afonso V (Lopes, 1997b, pp. 427-429; Gomes, 1995, pp. 119-120; Duarte, 2005, pp. 135-137, 148, 188-189, 193-195, 205, 209; Gomes, 2006, pp. 55, 59, 114). Friar Gil Lobo is linked to the new foundations of observant houses resulting from the direct initiative of King Duarte, namely that of Nossa Senhora das Virtudes, in Aveiras, already mentioned (Beirante, 2004).

In the beginnings of the second phase of the Observance, the seasoned figure of Friar João da Póvoa stands out (Esperança, 1666, pp. 487-497; Lopes, 1997b, pp. 443-444; Carvalho, 1999; Carvalho, 2018; Teixeira, 2005; Teixeira, 2010, pp. 421-436). Born in Póvoa, Tentúgal, near Coimbra, in 1439, he entered the Convent of Santa Cristina of Tentúgal at the age of nine and took the Franciscan Observant habit there at Christmas of 1448. He was ordained a priest by 1464, at the age of 25.

He was elected discreet in a chapter of the Portuguese observance in 1464 and, in that capacity, he was sent by the vicar provincial, Friar Gonçalo de Lisboa, for the first time, to a General Chapter of the Order, in Malines. He would attend another eight of these major observant meetings in the second half of the 15th century, which made him take part in the most important decisions of the Order, always carrying out his duties with a selfless spirit of service and dedication. He was also chosen seven times as vicar provincial, between 1474 and 1505 (he was vicar for seventeen years), and was the guardian of various convents, including the convent of Conceição in Leça da Palmeira, towards the end of his life.

As a visitor, he carried out inventories and historical memoirs that attested to the state of the houses and their libraries and other aspects that contributed to the knowledge and praise of the observant life.

All his life he sought poverty and seclusion, despite being constantly called upon to take on tasks in the Order. For this reason, he often retired to the oratory of Ínsua de Caminha, which, with his support, would be transformed into a convent after works carried out in 1471. Later, he would convert it into a house of study and formation.

He also contributed to the reform of the monastery of Santa Clara in Lisbon, where he lived in the cell of the community's confessor, accepting nothing from the community. Despite a life of simplicity and detachment, he was known at court both by men of letters such as Garcia de Resende, and by courtiers who knew him as someone in the confidence of kings Afonso V and João II, to whom he was a confessor and confidant. On

29 September 1495, he wrote João II's will in his own hand, at the king's request, and was appointed one of the executors (Fonseca, 2005, p. 175).

In 1502, he had an important role in defending Observance against attacks from the conventuals, aiming to obtain the support of the royalty and Pope Eugene IV, to maintain the immunities given to the Observance in 1446.

He died in the Convent of Leça da Palmeira in Matosinhos (1506), in whose cloister he lies, buried in the common cemetery.

3. The written memories and archives

The documentary sources available for the study of Franciscan Observance in Portugal in the medieval period are particularly scarce, the result of the disappearance of the convents' archives after the extinction of the religious orders in 1834 (Mattoso, Farinha, 2002, pp. 183-415; Fontes et al., 2020, pp. 27-41).

For this reason, the handwritten memoirs that have survived are particularly important, concerning the convents of São Clemente das Penhas (near Matosinhos) and Santa Maria da Ínsua (Caminha), two of the first foundations of the observance at the end of the 14th century¹.

Written between the last decades of the 15th century and the first years of the 16th century, these memoirs have their origin in the need to record the inventories of the houses made during the visits of the provincial vicars. To these notes and various memoirs were added, sometimes about the foundation of the houses and their history, sometimes about the observant vicariate itself, created in 1446 and accompanying the death of one of its main protagonists, Friar João da Póvoa.

Maybe for this reason, we do not find any developed memoirs on the origins of the movement. Only in the book of Ínsua is the initial group of the first foundations summarised, in relation to the function of its main protagonists (Ms. ADB, fl. 30). In the case of Ínsua, two important pontifical privileges, recognising and integrating the first houses in the observance, and allowing for new foundations, are summarised (Ms. ADB, fl. 23). Moreover, it is important to refer to the keeping of this documentation in the archive of Alenquer, which

¹ The first one is at the District Archive of Oporto (Arquivo Distrital do Porto, Convento de Nossa Senhora da Conceição de Matosinhos, book 3) and has already been published (Basto, 1940), however with moot points relating to the critical dating of some inventories, which have been recently corrected (Carvalho, 2018). The other memory, only partially published, is preserved in the District Archive of Braga (Arquivo Distrital de Braga, Convento de Santa Maria da Ínsua, F 5). It is described as an inventory of the Archive of Santa Maria da Ínsua, with memories and inventories of the convent from the late 15th century. The medieval inventories of the library have been published (Carvalho, 2018). We intend to prepare the transcription, critical edition and study of both documents. From now on, we will quote them as Ms. ADP for the first and Ms. ADB for the second.

was the pivotal point in the expansion of Observance after its reformation, in the support of new foundations and particularly close to royalty and the court.

The recorded memories refer mainly to the new period of Observance, which began in 1447. In the list of chapters held between then and 1506, it is always the southern monasteries hosting the meetings of the observant vicariate, starting with Leiria and Alenquer to the nearest houses: Lisbon, Setúbal, Vila Franca de Xira, and Santa Cristina de Tentúgal. Important facts attest to the growing institutionalisation of the movement and the lessening weight of the eremitic dimension: the transition of Santa Cristina from an oratory to a convent in 1480, the passage of the community of S. Clemente das Penhas to Matosinhos between 1476 and 1478, or the foundation of the convent of Varatojo by royal initiative in 1469 (Ms. ADP, ffs. 17v-20).

The very last in the Ínsua community can hardly be considered a model: the community life was irregular; the convent was sparsely inhabited and the few friars of whom records remain for this period ended up being victims of evident mental illness (Ms. ADB, fl. 29). However, a memory has survived, exalting Friar João de Sousa and his role in the reformation of the community and the restoration of regular life in 1471, precisely the year of the visitation of Fr. João da Póvoa and of the first inventory of the convent's library (Ms. ADB).

The same is true of Matosinhos, although the past of São Clemente das Penhas is seen in a more positive way here, attesting to the affection that the local population had for it. In this case, change was due to the destruction caused by the sea to the convent built on the cliffs, leading to it being relocated (Ms. ADP, ffs. 3-4). The description of the process of dismantling the old convent, of the construction of the new house with the support of the monarchs, the nobility, and the local populations is interesting, as is the way the Franciscans attempted to promote the new church, dedicated to Nossa Senhora da Conceição, and the image commissioned for it as the centre of a new pilgrimage, thanks to the propagandised miracles performed by the Virgin (Ms. ADP, ffs. 2, 3-4, 10-10v, 33v).

The texts also show how this second Observance was built upon the attention given to the needs of the different houses, the vigilance of the general and provincial vicars, and the equipping of the communities with the essential resources for their daily life, from reconstruction or enlargement works to liturgical implements, organs, bells, and clocks. In this context, as José Adriano Freitas de Carvalho has already pointed out, books and readings played a key role (Carvalho, 2018). The various inventories show an strong policy of acquisition, production, and circulation of books to endow the community with the resources necessary for the celebration of liturgy, besides

spiritual texts, many of them in Portuguese, along with normative texts and texts in the Franciscan tradition. In this way, they tried to create an identity which came to integrate the literate dimension with the values of poverty, community life, and obedience.

The same lists and other records added also reveal the openness and attractiveness of donors and benefactors whose generosity led to significant growth in the convents' assets, the construction works carried out, the funerary chapels founded in the premises, and the number and quality of books, liturgical implements, and works of art that enriched the religious and devotional life of the friars, endowing the benefactors with added spiritual capital.

The fundamental role played by the three-year-mandated vicars provincial in the structuring of this phase of the Observance is evident from these memorialist texts, be it in their part in the general chapters, the provisioning of the houses with all that was necessary, and the regular exercise of their right of visitation. Friar João da Póvoa emerges as a central figure, because of his performance as vicar provincial, of his links to the houses in question, and his commitment to guaranteeing the communities resources. We may recall as an example the fact that he carried a book of the Gospel of St. John with commentaries, all the way from Salamanca to the convent of Ínsua.

4. Conclusions

This short overview of the history of the Franciscan Observance in medieval Portugal, of some of its main protagonists, together with the written memoirs produced in some of its convents, shows (in that they are strictly tied to larger historical contexts) how that influenced the spread and evolution of observance, and how the circulation not only of people but texts and ideals determined given points in time and space for the new foundations. Along with these aspects, the sources are particularly rich for reconstructing the networks of relationships sustaining the observant movement and the agents who enabled that. This research is yet to be carried out. Noble and anonymous benefactors, the friars who made up the communities and directed them, the royalty themselves, and the many Franciscans who served as confessors, preachers, or the agents of royal policies and diplomatic strategies intersect. It is hoped that the critical edition of these two manuscripts in the context of this project will make an important contribution in this regard.

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Abstract

The contribution traces the history of the Observance of Minorities from the origins to the sixteenth century, presenting the religious issues and theological questions at the basis of this movement in Italy during the early Renaissance. The text also introduces the case of the Tuscan convent of San Vivaldo, an exceptional observant settlement flanked by a sacred mountain imitating the plan of Jerusalem; a site that subject other historical and architectural contributions.

Keywords: Observance, Sacred Mounts, Indulgence.

1. The origins

The origins of the Friars Minor of the Observance are to be traced to the emergence of dissension between the spiritual component and the conventual branch of the *familia* founded by Francis of Assisi (Elm, 2001). Chroniclers are not in agreement as to what triggered this movement that is part of the extensive process of reform that almost all religious orders underwent, particularly in Italy, in the 14th and 15th centuries (Fois, 1985; Merlo, 1998; Fasoli, 2011; Mattei, 2013, pp. 42-48; Roest, Uphoff eds., 2016; Duval, Morvan, Viallet eds., 2018; Furlan, Trolese eds., 2022; *L'Observance*, forthcoming). However, most ancient historians and memorialists situate the beginning of the new obedience in the first half of the 14th century, at a time when Spiritual Franciscans, who believed themselves to be closer than others to the legacy of their founder, began to raise rigoristic objections.

The climate of conflict in the Seraphic family had become entrenched at least from the 1274 Council of Lyon, which had decisively curbed the most radical pauperistic groups (see Vauchez, 2005, pp. 181-88; Andenna, 2013). In 1312, Pope Clement V showed favour to the 'friars of the Community' (or *de conventu*), imposed a less restrictive interpretation of the *usus pauper*, the source of the Spirituals' grievances, and allowed the Minors to possess material goods (*Exivi de paradiso*, Council of Vienne). Pope John XXII (1316-34) would later condemn proponents of the rigid evangelical pauperism preached by radicals, since then known as the *Fratricelli*, who were involved in the dispute that emerged from the circles of Friars Minor and from the Parisian *studium* on the absolute poverty of Christ and the Apostles (*Quorundam exigit* 1317, *Sancta Romana* 1317, *Gloriosam Ecclesiam* 1318; see Squillante, 2003-04). The radical movement seemed to subside, but a number of prestigious convents, such as La Verna in the Casentino Apennines, hosted some of its exponents and preserved its original reforming spirit (Mencherini ed., 1924; Cacciotti ed., 2000; Baldini ed., 2012).

According to the *Compendium chronicarum Ordinis fratrum Minorum* by Mariano of Florence (early 16th century), the demands for literal observance of the rule came from several friars at the convent of San Francesco in Foligno. In fact, it was from this cloister that Giovanni delle Valli (†1351), a follower of Angelo Clareno, 'founder' of the *Fratricelli* (†1337), emerged in 1334. With the permission of the Minister General of the Order, he and a few companions withdrew to the San Bartolomeo hermitage in Brogliano, in the Central Apennines between Foligno and Camerino. The experience he began there did not amount to much, but in 1350 his disciple, Gentile of Spoleto, obtained the bull *Bonorum operum* from Clement VI. This allowed a number of friars to follow

the Franciscan rule *sine glossa*, that is, to the letter, and live in certain hermitages of great symbolic importance linked to the memory of the holy founder, including the Eremo delle Carceri hermitage near Assisi, Giano dell'Umbria and Monteluco (Mariano da Firenze, 1909-11, 2, p. 641). Fearing that, opposed by the Conventuals, these groups would bring about a schism, Innocent VI took the advice of his powerful legate in Italy, the Iberian Cardinal Gil de Albornoz (Pirani, 2019), and revoked the concessions that had been made to this faction of the Order (1355). However, as reported by the Observant chronicler Bernardino Aquilano da Fossa, the movement re-emerged under the direction of Paoluccio di Vagnozzo Trinci (1309-91), who, according to a later tradition, came from the noble Foligno family of the same name. In 1368, the Minister General, Tommaso da Frignano, granted them permission to repopulate Brogliano, described by Bernardino and Iacopo Oddi as a harsh place reminiscent of the desert of the Egyptian fathers. There he gathered together fellow friars wishing to lead a solitary life, who, on account of their simple dress and rough footwear, were dubbed the *zoccolanti* (clog-wearers; Bernardino Aquilano, 1902. See Sensi, 1985, pp. 19-73; Id., 1992; Id., 2004; Pellegrini, 2010, pp. 180-82). The female order of Observance was founded in the early 1370s in the Foligno area.

2. The *fratres de familia*

Decisive to the advancement of the *fratres de familia* was the backing of several noblemen in Central Italy (Sensi, 2018, pp. 101-03). In 1373 the reformer bishop Alfonso Pecha (1330-89), protector of the new community, obtained recognition from Gregory XI for nine Observant convents in Umbria and Sabina (*Provenit ex devotionis affectu*; Faloci Pulignani, 1926, pp. 36-39). In 1380 the Umbrian Minister Provincial appointed Paoluccio to be commissioner for the communities he had reformed and, on 12 February 1384, granted him authorisation to accept novices.

The Brogliano reform attained legal stability four years later, when the title of commissioner was also approved by the Minister General Enrico Alfieri. From that moment on, spaces were opened up to Observant groups in Central and Northern Italy (Cismontane) and beyond (Pellegrini, 2011). The *fratres divoti* occupied poor and often run-down shelters located in isolated areas mostly outside urban centres, although not too distant from them, on account of the pastoral ministry Trinci's followers intended to pursue (Manselli, 1989). The reformers presented themselves at that time as members of the Order authorised to follow a strict discipline of poverty, inspired by the original hermit vocation of the Friars Minor movement (Merlo, 1991, pp. 131-47; Salvestrini, 2012). The height of the development of the Observance movement came when several important personalities joined their ranks,

including Bernardino of Siena (whose ‘membership’ of the group was called into question by the Conventuals after his death), John of Capestrano and James of the Marches (see Serpico, Giacometti eds., 2012). Their acceptance of a ‘middle way’ to poverty between orthodoxy and moderation, as well as their open dissent of the rigid positions of the *Fraticelli* (as emerged from public debate in Perugia in 1373), ensured the Observants’ success with the city’s lay authorities and the Apostolic See. At the same time they turned the main components of Franciscanism into two currents that were not always clearly distinct, contrary to what has universally been suggested in the literature, where the emphasis has been on conflict (Pellegrini, 2011, pp. 10-11, 15-16; Sensi, 2018, pp. 107-08).

3. Developments in the 15th century

After several events related to the pontificate of Martin V, who approved the new ‘Martinian’ constitutions drafted and proclaimed by John of Capestrano prohibiting the use of money and instituting the renunciation of property, it was mainly his successor, Eugene IV, an admirer of the Observance movements, who confirmed the concessions so far granted, although not without some degree of uncertainty and vacillation. He appointed Bernardino of Siena as vicar general and commissioner to the Minister General for the Italian Observants; in 1446 he issued the bull *Ut sacra Ordinis Minorum religio* removing the reformed friars from the jurisdiction of the Provincials and restricting the authority of the Minister General over them to issues concerning life and correction; and he entrusted the governance of the new community to two vicars, who were to oversee respectively the Cismontane family and the Ultramontane family of common obedience. The bull also set out the possibility for friars to move from the Community to Observance, although it prohibited transfers in the opposite direction (Amonaci, 1997).

On the death of Pope Eugene IV (1447), the Community attempted to have the prerogatives that had been granted to the movement annulled. This led to intense and even violent clashes between the two factions for control of convents and hermitages, access to pulpits and the distribution of novices. Popes Nicholas V and Callixtus III made vain attempts to conciliate. Meanwhile the reformers, who had now become the majority component, began to reinterpret the origins of the Franciscan order in Observant terms (Lambertini, Pellegrini, 2010), as well as putting forward new models of holiness that were in keeping with their own perspectives (Galamb ed., 2018). With the issue of the bull *Illius cuius in pace* (or *Bulla Concordiae*) on 2 February 1456, the Minister General

was given authority over the 'Observant' vicar, but the ordinary governance of those who called themselves the *paupercola familia* of friars *de Observantia* essentially remained autonomous. In addition, the Reformed Friars acquired the right to an active voice in the election of the Minister General, whereas the Conventuals had no influence on the appointment of the three candidates to the vicariate general or potential vicars provincial (Piana, 1978-79). On the development of the Observance in the 15th century, including its cultural development, see Alf, Bianchi, Chiocchini, 2000, pp. 19-21; Labriola 2020).

Pope Sixtus IV proved to be less receptive to requests of the increasingly autonomous regular community, out of fear that the Order might split. The potential division would likely not only be formal and ecclesiological in nature, but also theological and obedience-related, as well as being driven by a conflict of identity, with both factions claiming the sole and indivisible legacy of the founder Francis (Merlo, 2003; Meyer, Viallet eds., 2005). Yet, many powerful lay potentates openly backed the Observance, with its strong moral prestige linked to intense homiletic activity at all social levels. At the same time, unrelenting was the client consolidation work taking place among the most influential members of the Roman Curia (Merlo, 1998).

4. The final split

The last attempt at conciliation was made by Pope Julius II, who had initially been a Conventual and then Cardinal Protector of the Franciscans. In 1506 he convened a general chapter and proposed new constitutions (the *Statuta Iuliana*), which, however, were rejected by the Observants. Separation was now an inevitability. On 29 May 1517, Leo X promulgated the bull *Ite vos* (also known as *Bulla separationis*), which granted the Observants the right to elect their superior as Minister General, whose authority extended to other reformed Franciscan groups (Coletans, Amadeites, Guadalupan, Clareni, Discalced).

As the Observants were more numerous than the Conventuals, the seal of the Order was given to their superior general (Fois, 1985). The 1517 papal bull also established that use of the name 'Friars Minor' was restricted to the new congregation, that is, the Friars Minor of the Leonine Union, whereas the other group was now to add the qualifier 'Conventual' to the original name (Sella, 2001; Salvestrini, 2018).

The Observants remained divided between the cismontane segment (Italy and Eastern Europe) and the ultramontane segment (Northern and Western Europe). The first foundations, initially outside the city and later within it, were progressively flanked or replaced by buildings that were simple but increasingly larger, intended for essentially cenobitic groups, although able to accommodate the movement's anchoretical heritage.

5. A 'model' settlement

One of the Observant convents in Italy that deserves special attention is an apparently secondary settlement in Tuscany that is, indeed, so singular that it created one of the most interesting experiences in the Franciscan reform in the early modern age. San Vivaldo in Valdelsa, central Tuscany, near the route of the *Via Francigena*, is a male convent, located between Florence, Pisa and Siena, and near the famous town of San Gimignano. It is part of the diocese of Volterra and originated in the second half of the 15th century (Agnoletto, Battisti eds., 1987; Salvestrini, Piatti eds., 2018). This place played an important role in the spread of the Franciscan Observant movement because of the 'holy mountain' built by friars close to their settlements during the 16th century, thanks to a papal indulgence of 19 February 1516 (Cardini, Vannini, 1983; Amonaci, 1997, pp. 194-205; Pacciani, Vannini, 1998). The Minorite and Observant matrix of San Vivaldo sanctuary and its declared intention to evoke the life of Christ and the spiritual topography of Jerusalem are a reminder of the Ottoman Turks' conquest of Palestine led by Sultan Selim I (1516), who took over from the Mamelukes. In fact, as is well known, this political change had important consequences for the Franciscan Custody of the Holy Land and the possibility of making a pilgrimage from Europe to Jerusalem (see Gómez, García Ayoso eds., 2021). San Vivaldo thus became one of the destinations of 'alternative pilgrimage' to the Holy Land, that is, one of the sacred mountains where the faithful could gain indulgences and have direct contact with the places of Jesus's life, while still in the land of their birth (Rusconi, 1982; Benvenuti, Piatti eds., 2013; Cañal, 2022, pp. 46-53). The sacred mountain of San Vivaldo today consists of 18 chapels (there were originally 25), each of which contains terracotta sculptures depicting the main elements of the Passion. This is a fairly accurate topographical reconstruction of Jerusalem and other places mentioned in the Gospels, in keeping with an artistic and architectural typology that we find elsewhere in Italy, especially along the section of the Alps closest to Protestant regions, but also in Poland, France, Spain and Latin America (Gensini ed., 1989). San Vivaldo is an unusual case, in that it is one of the earliest Christological sanctuaries of this typology that would spread during the Catholic Reform, and because the spatial distribution of its chapels closely reflects the layout of Jerusalem, of which it is meant to be a miniature reconstruction.

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MODULATION AND ALLEGORIES IN THE FRANCISCAN MOTHER-CHURCHES OF SAINT FRANCIS AND SAINT CLARE IN ASSISI

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Abstract

Digital measurement of the double Basilica of St. Francis (start 1228) and the single Basilica of St. Clare (start 1257) in Assisi, revealed a common modulated design based on the ancient roman foot standard equal 0,296 m. The dimensional and spatial analysis led to the discovery of many biblical and Christian allegories included in the arithmetic's and geometries, meant for edifying Christian society. These tangible messages based on the antique Egyptian and Greek ideas about the structure of the cosmos and the harmony in the world, christianised by the Church Fathers and the scholastic philosophers, demonstrate the 'sacral' character of both Franciscan sepulchral churches. The master builders also integrated in the Lower Saint Francis church some reminding from the mythical King Salomon's Temple of Jerusalem, as well as from the Saint Sepulchre church with the tomb of Christ in that same 'holy' city. The St. Francis Upper Church as well as the St. Clare sepulchral Church include several numeric and spatial symbolisms referring to biblical citations and Christian concepts such as the course of the natural light symbolising the presence of God or the particular disposition of the tomb as a tangible sign for the Christian belief in rebirth. Further metric and structural analysis revealed many new details on the building chronology, the evident influence from the Anglo-Norman and French architecture and the transition from late Romanesque into early Gothic style in both churches.

Keywords: Assisi, Basilica St. Francis, Basilica St. Clare, allegoric design, sacred geometry, number symbolism.



Fig. 1
 (left) Saint Francis
 Basilica, Assisi
 (1228-1253),
 (right) Saint Clare
 Basilica, Assisi
 (1257-1265).

1. Preamble

The Basilica of Saint Francis and the Basilica of Saint Clare, each of them custodian of the physical remains of the two Saints of Assisi, are called ‘mother-churches’ of the respectively first and second Franciscan Order; for that reason they served, since their construction in 1228 (Saint Francis) and 1257 (Saint Clare), as the privileged worldwide models for many Franciscan churches. For that same reason, it is fair and legitimate to start the F-ATLAS of Franciscan church buildings with the study of this two or even three churches as Saint Francis is a double church including two quite different one-nave halls of about the same area, one built on top of the other, without any internal connection. The church of Saint Clare, started 30 years after the beginning of St. Francis, is already the first follower of the Saint Francis Upper Church, even adopting a slightly smaller modulus and a more sober design. The first St. Francis Church (= the lower one) is spiritually the most important one as she holds the tomb of the Saint; the second St. Francis (upper) Church was conceived only after two years with the specific function as the new central church of the Franciscan Order, in substitution of the small and modest Porziuncola chapel where Francis lived and died. This implied substantial modification of the project already in progress, and the superposition of a second church as well as the planning of the convent on this same Collis Paradisi, the name given at the new site by pope Gregory IX, initiator and commissioner of the project. The project, started in 1228 as a middle great traditional Umbrian romanesque commemorative church for pilgrimage purpose only, was extended with a second structurally and artistically quite innovative church (the first gothic in Italy) inspired by the Anglo-Norman and Central European examples. Such change caused a lot of technical modifications, a.o. doubling

of the foundation, reinforcing of the already built walls and a new concept for the vaulting system between the lower and future upper church. From those years onwards, the church project grew continuously to reach his present volume (except the new crypt of XIX century) in the first half of XVI century as the new and very visible center of the young Franciscan Order (De Naeyer, 2020, p. 120 ff).

The construction of Saint Clare stayed within his initial and single intention as a commemorative church for pilgrimage with the tomb of the Saint placed under the main altar between apse and nave hall. Although the astronomic orientation of Saint Clare results opposite from Saint Francis and shows some particular deviations regarding the incidence of light and the design and proportions of the west-façade, the architectural concept follows very closely the model of Saint Francis Upper Church. Also the building chronology, apart from the 30 years difference from the start, seems similar: also the present Saint Clare (without the crypt from XIX century) grew at least in three different construction phases, starting with a first one consisting of the apse, the crossing, the south transept and a nave-hall of only two bays; this church was used for hypothetically some 50 years, and followed by the extension with two more bays and six flying buttresses, and a third phase dealing with the nord transept and the lower part of the west-façade.

As said, the metric analysis of the three churches (the double Saint Francis and the single Saint Clare) revealed the design based on the common metric standard of the papal roman foot equal 0,296 m and not the local longobard assisian standard of 0,513m, fixed on the wall of the central Public Tower of the City of Assisi in 1348.

As the architect of Saint Francis is not known, the use of the Roman metric standard and the doubtless respect for his commissioner pope Gregory IX, suggest a design of the project within the papal offices in Rome. The realization of the project, some 200 km distant from Rome, was organized by the then General Minister of the Order, Father Elias, and the concrete stone-laying was consigned to one or more travelling master-builders companies.

The building chronology was not that flat and strait lined operation of circa 25 years from the start to the consecration of the main altar for Saint Francis (1228-1253), nor the even less acceptable 8 years for Saint Clare (1257-1265), but a much longer period including several changes of mind during the works and above all, several important extensions of the project. The construction of Saint Francis church in his present volume and decoration, including the two piazza's in front of the entrances but excluding the excavation of the new crypt from 1819-1824, took about 300 years (up to ca. 1540); the construction time for Saint Clare in his present form, also without the 19th century new crypt, is estimated on circa 200 years, ending ca. 1450 (in both cases without any convent and monastery buildings).



Fig. 2
Design sources of XIII century: Holy Bible, Vitruvius, Villard, metric standards from 1348 on the Torre del Popolo in Assisi.



2. Medieval church design and the identification of the architectural modulus

Procedures and criteria on medieval church design are often surrounded by secrecy and mysteriousness. This is not without reason as very less is known about this matter, and the so-called secrets of the building site, i.e. not only the technics, the use of instruments or the treatment of materials, but also the creative dimension such as the design criteria about beauty or ugliness, the rules for good proportion, some few calculation methods (mainly graphostatics based on practice and experience), and especially the intangible meaning and/or correlation between form and content (=symbolic value) were transmitted orally from the master to the trainee during many years of apprenticeship. Nevertheless, some information can be deduced from the only two basic architectural sources: the ten books by Vitruvius (1st century) which are a synthesis of the antique building science from Egyptian up to roman times, and still very present in both Franciscan projects, and the small sketchbook by Villard de Honnecourt (13th century) with mainly figurative sculpture design but also a few architectural indications.

However, the most important information on the intangible dimension, i.e. the symbolism in the medieval church building praxis is found in the study of the Greek philosophers, the Jewish-Hebraic bible texts and their Christianized interpretation by the Church Fathers and scholastic philosophers.

‘Omnia in mensura et numero et pondere disposuisti – Thou hast ordered all things in measure, number and weight’ (Book of Wisdom 11: 21). This King Salomon’s verse indicate the essence of ‘sacred’ geometry and arithmetic’s. As said, the arithmetic of numbers, as present in quantities or dimensions, and the geometry of forms and structures were the preferred instruments for communicating with the unlettered Christian society and for making the abstract religious concepts tangible.

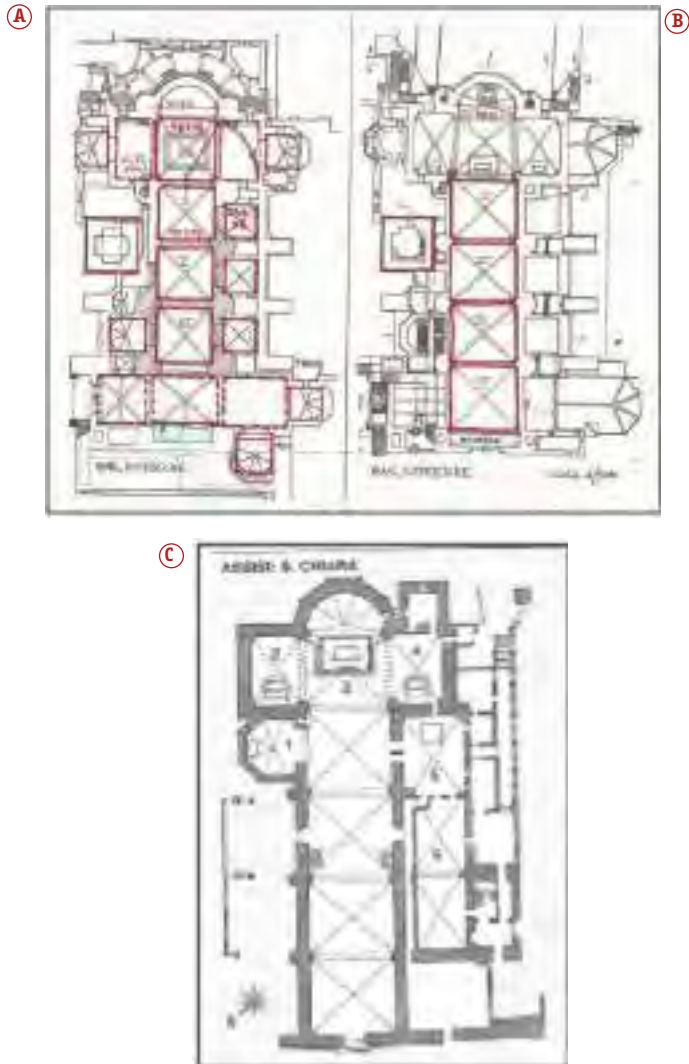
They also continued the ancestral conviction that no human building could disturb God’s divine creation and cosmic harmony. Within this context each number, sequence

of numbers and proportion as well as each geometric figure gained a specific allegoric capacity, often in combination with the way to compose that number (e.g. the Fibonacci progression 1, 1, 2, 3, 5, 8, 13, ... or the tetractys sequence $1+2+3+4=10$ with 10 considered a perfect number), or in combination with the property of the figure (e.g. the equilateral triangle as a symbol for one God unifying three equal persons).

This contribution is limited to the detection and short presentation of some arithmetic and geometric allegories incorporated in the design of both Franciscan mother-churches, starting with the identification of the architectural modulus, the metric key in the design of the all project. Normally the modulus is given by the width of the choir where the clergymen or –women meet eight times a day to pray and sing the ‘hours’. In absence of such choir (which is the case in both Franciscan churches) it will be the opening of the apse or the width of the nave to define this modulus. Within the tolerances of medieval structures and the settlements during 800 years history and some 25 mayor earthquakes (fortunately with no damage, except the last one of 1997) both churches have been preserved in a quite authentic state, and we measure a apse opening in St. Francis of ca. 11,84 m and in St. Clare of ca. 10,65 m. The conversion of those dimensions, after checking on different mayor dimensions such as global length, width and height of the nave, structure of the bays, and confronting with alternative possibilities, learned that both projects were designed using the foot-length of the roman Constantinian basilicas equal approximately 0,296 m which result in a theoretic St. Francis modulus of 40,00 feet and a St. Clare modulus of 36,00 feet. Both are most plausible as the number 40 ($=2 \times 4 \times 5 = 4 \times 10 = 5 \times 8$) appears more than 100 times in the Holy Bible and is composed by most symbolic factors; the number 36 ($= 3 \times 12 = 2 \times 2 \times 3 \times 3$) is not that much cited in the Holy Bible, but is also highly symbolic in his factors and seems intentionally being reduced with 10% as a sign of respect to St. Francis, founding father of all Franciscan Orders.

3. Conclusion

We refer to our forthcoming book for all further architectural and structural details on Saint Francis and Saint Clare, but already this small selection of design characteristics illustrate that no detail within both projects was or is accidental but filled up with a unexpected richness on tangible and intangible values, according the ‘best practices’ of the medieval master-builders.



⬆ Fig. 3

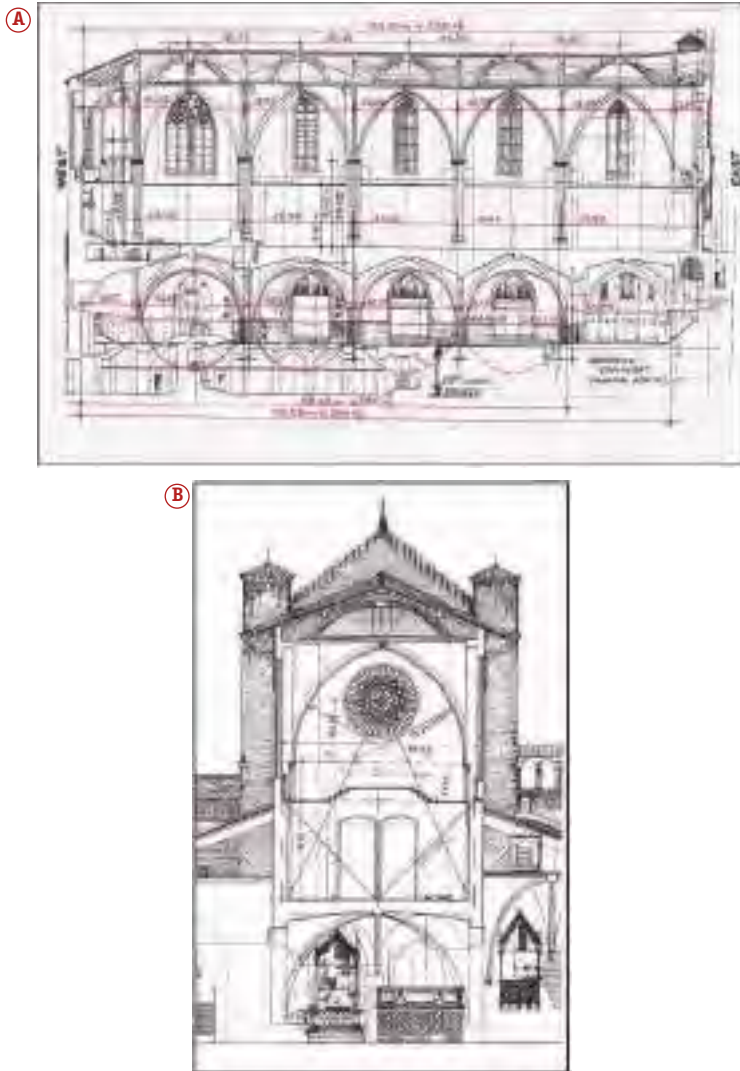
Confrontation of the groundfloor of the three churches (drawings from G. Rocchi 1982 / annotations by author)

A. St. Francis Lower Church; B. St. Francis Upper Church; 3 C. St. Clare.

Common characteristics: design ad quadratum (symbol for walled city of Jerusalem; Garden of Eden; ...); modulated: (rf = roman foot = 0,296m) A = rf (40x40) / B = rf (46x40) / C = rf(36x36); south and north aisle of transept A shows the 'divine' proportion

The hecatompedon (= rf 100 / symbol for perfection) : A : global internal length from apse to end of 3d nave-bay = 2x100 rf / length of transept = 100rf / B : internal = pr 250 / C. total length external = pr 200 : transept = pr100

Numeric quantity canon: A = 3 (symbol for Holy Trinity) / B = 5 (symbol Pentecost = Whitsunday) / C=3.



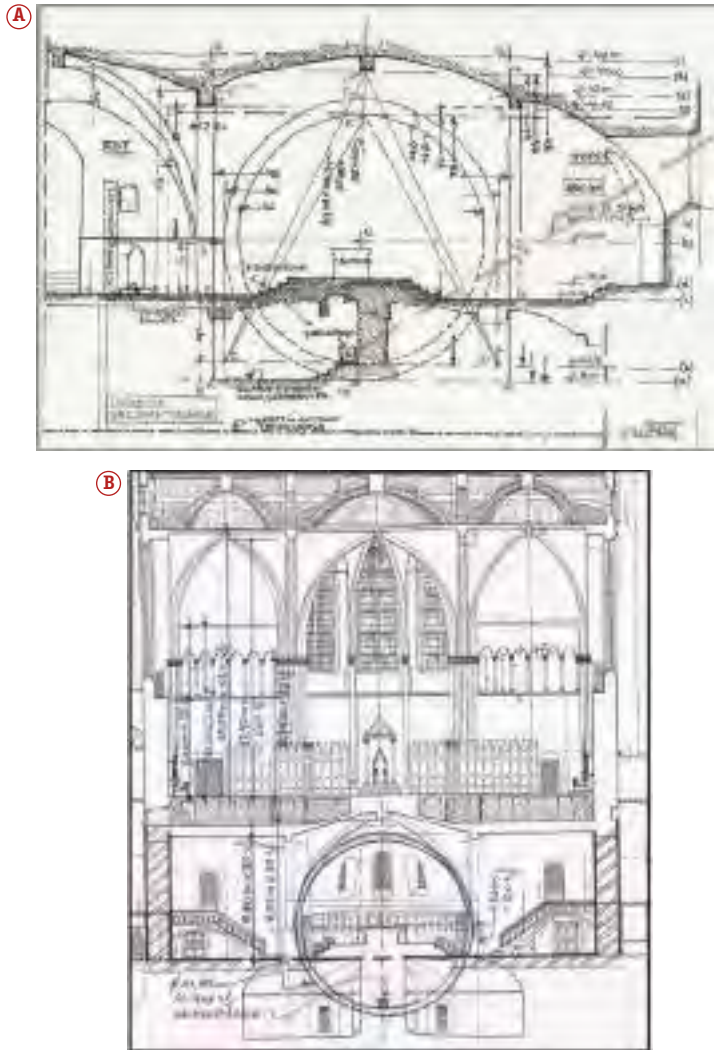
↑ Fig. 4

Altimetry modulation in both St. Francis Basilica's : longitudinal + transversal section (drawings from G. Rocchi, 1982 / annotations by author)

4 a: lower basilica: design ad circulum (symbol for divine infinity): double sequence of four spheres, one with diameter rf 40,00 and nadir on the same quote of the tomb of St. Francis (i.e. vicinity between the Saint and the pilgrim), and one between pavement and crossing of diagonal ribs with diameter rf=33 (double three and also the age of death of Christ) + height of transversal rib intrados = rf 27 (=3x3x3) / width of rib = rf 2,7

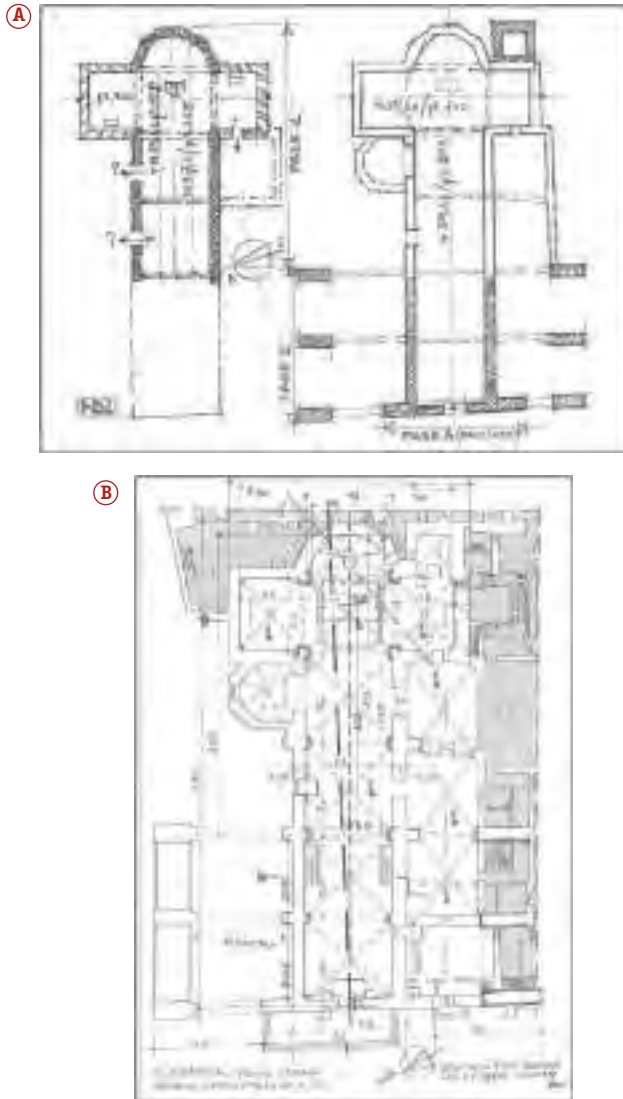
The horizontal cornice separating vertical and vaulted surfaces signs rf 9 (= 3x3)

4 b: upper basilica: design ad triangulum, equilateral as symbol of one God in three persons. Height of passage champenois signs rf 25 (=5x5 / double Pentecost symbol) and the height of the impostes of the 5-lobbed columns signs rf 33.



↑ Fig. 5

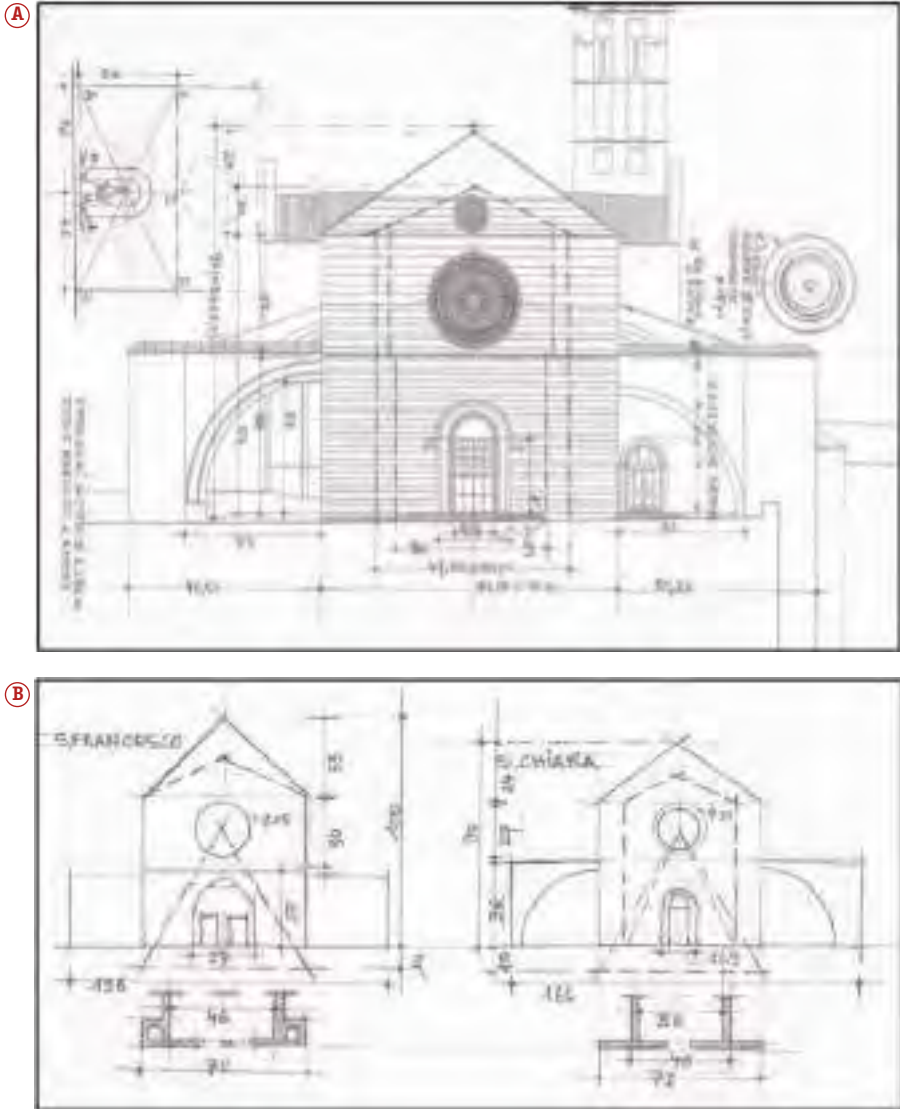
Double allegoric composition round the tomb of St. Francis, including the full space of the crossing: A. a virtual diophantic (i.e. with proportion $\sqrt{\phi}$) sphere representing the infinity of the cosmos with the tomb of the Saint integrated in the nadir under the main altar (meaning well-structured infinity, exclusivity, holiness, protection) with a gradual rising of architectural quotes from the tomb to the vault fresco St. Francis Glorious, analogous with the design of the Rotonda at the St. Sepulchre of Jerusalem and a symbolic Jacobs ladder (Gen. 28, 11-19), as allegorical for rebirth at the Last Judgement. Note also the orientation of apse and altar towards west, i.e. setting of the sun or moon rising (symbol for death) // B. transversal section: modulated altimetry in Upper Church: rf 25/30/33/40/60/63.



⬆ Fig. 6

St. Clare: groundfloor and probable phasing in the church construction (plan: Marcucci e Ass.,2021 & author)

Numerical modulation of mayor dimensions [bay 1 & 2 = rf (36x36) / bay 3 & 4 = rf (36x30)] and deviation of the longitudinal axis to indicate the astronomic orient with further prolongation versus the choir-chapel of the Clare Sisters (clausura).



⬆ Fig. 7

Modulated north-west façade of St. Clare (A) and schematic confrontation with east-façade of St. Francis (B).

The metric and design parallels are obvious, a.o. the global width of both façades are respectively of 70 and of 72 equal to the number of disciples sent by Christ to preach in the world according Luc. 10, 1-9 (also one of the main missions of the Franciscan fathers). All dimensions and even the number of alternating stripes of white and rosa stone layers include allegoric messages.

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**REPARA DOMUM MEAM. THE BASILICA OF SANTA
MARIA DEGLI ANGELI IN ASSISI AS AN EXAMPLE OF
SUSTAINABILITY ANTE LITTERAM**

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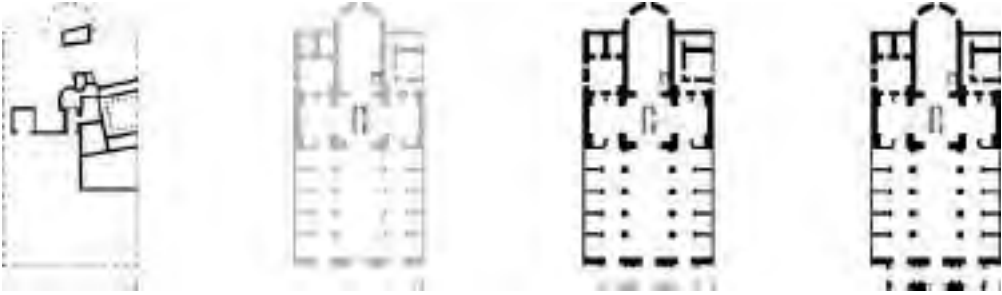
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Abstract

The article delves into the relationship between Franciscan architecture and environmental sustainability, with a focus on Galeazzo Alessi's design of the basilica of Santa Maria degli Angeli in Assisi. Alessi incorporated two existing Franciscan structures, the Porziuncola and the Chapel of the Transito, into the new basilica, using them not only as the core of the building but also as a unifying element in the architecture. Through a geometrical analysis of the basilica's plan and longitudinal section, the study proposes that the dimensional features of the Porziuncola and the Chapel of the Transito were utilized by Alessi to create two geometrical modules: a rectangular and a square one. These modules were then repeated in designing the entire building, establishing its dimensions and rhythm. The article concludes by emphasizing the importance of "building within the built" in Franciscan architecture and its relevance to contemporary environmental sustainability issues.

Keywords: Santa Maria degli Angeli, sustainability, proportional analysis.



↑
Fig. 1
 Chronological outline of the main architectural phases of construction of Alessi's basilica. 1 Franciscan settlement, 2 Construction of the basilica (Galeazzo Alessi), 3 Construction of the new façade (Cesare Bazzani), 4 Current state. Graphic elaboration by the authors.

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Fig. 2
 Axonometric Exploded View of the Basilica of Santa Maria degli Angeli in Assisi: in red the Portiuncola and the Chapel of the Transito, in turquoise the façade (Cesare Bazzani) and in white the basilica (Galeazzo Alessi). Graphic elaboration by the authors.

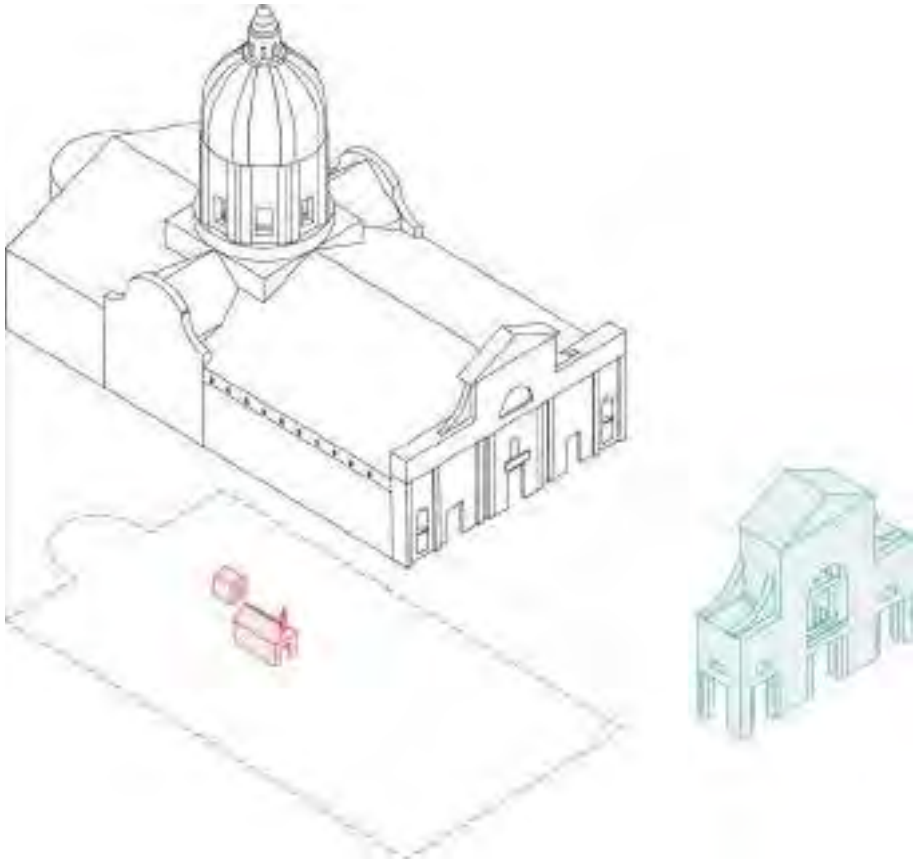
1. Franciscanism and environmental sustainability

As Pope Francis' words in the encyclical *Laudato si'* make abundantly clear, Saint Francis was an advocate-precursor of both ecology and environmental sustainability issues¹. Just as the Cantic of the Sun celebrates in itself the values, not only spiritual, of a new way of interpreting man's relationship with the environment and creatures, Franciscan architecture celebrates in itself the need to preserve memory without making a *tabula rasa* of pre-existences, exemplified by the call to Francis by the crucifix of San Damiano: "*Francisce vade et repara domum meam, quae, ut cernis, tota destruitur!*" (Bonaventura, 1263, I: FF 1038). Probably, the basilica of Santa Maria degli Angeli in Assisi is the Franciscan architecture that most validates this interpretation, as it embodies an exemplary specimen of both respect for the *genius loci* and the vocation for 'building within the built': two founding principles of environmental sustainability in architecture.

On the other hand, the place where the basilica stands is not just any place, but a strongly spiritual place, which Francis chose as his home because it was frequented by 'celestial spirits' and the site of 'an ancient cemetery destination, which consecrated *ab antiquo* the place where a Benedictine monastic building was later to be built'² (Scotti, 1989, p. 17) (Fig. 1). Just as the image of the basilica is not just any image, it is a strongly iconic image, which stands out from every vantage point and calls forth the contribution of great artists (from Giovanni di Pietro known as 'lo Spagna' to Friedrich Overbeck to Domenico Bruschi). This inspired not only Giosuè Carducci, author of a sonnet composed from a small balcony of Saint Peter's basilica in Perugia, and yet capable of joining religion, art and landscape with a pantheistic vision – "*Frate*

¹ "I believe that Saint Francis is the example par excellence of care for the vulnerable and of an integral ecology lived out joyfully and authentically" (Francesco, 2015, p. 11).

² "Un'antica destinazione cimiteriale, che consacrava ab antiquo il luogo dove più tardi sorse una costruzione monastica benedettina" [translated in english by the authors] from now on [tba].



Francesco, quanto d'aere abbraccia/questa cupola bella del Vignola/dove incrociando a l'agonia le braccia/nudo giacesti su la terra sola!" (Carducci, 1889) – but also and above all saint Bernardine of Siena, there the protagonist of impassioned sermons aimed at relaunching the principles of primitive Franciscanism, whereby “it was not only the friars who entered the city to preach spiritual and material pacification, but it was the people who flocked to the holy place of Franciscan memories”³ (Scotti, 1989, p. 22). Hence the idea of erecting a church building to accommodate the crowds of the faithful without completely erasing the pre-existing buildings: an idea that prompted Galeazzo Alessi, on the strength of the experience gained during the drafting of the plan for the organisation

³ “non erano solo i frati a entrare in città per predicare la pacificazione spirituale e materiale, ma era il popolo che accorrevà al luogo santo delle memorie francescane” [tba].



Fig. 3
Archaeological stratifications around the Portiuncola (taken from Romanini, 1989 p. 54). Graphic reworking from Mearelli (2006-2007).

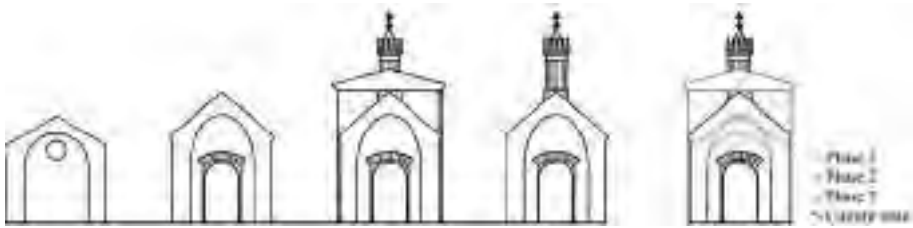


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Fig. 4
Architectural interventions on the Portiuncola chapel. Phase 0 Benedictine construction, phase 1 rebuilding of the roof by St Francis, phase 2 superfetations linked to the Franciscan cult, phase 3 current state restored by Alessi. Graphic reworking from Mearelli (2006-2007).

of the Sacro Monte of Varallo in Valsesia, to incorporate the most significant finds by protecting them with an imposing basilica-reliquary in the form of a Latin cross with a semicircular apse. The basilica is organized, from a constructional point of view, into three naves and founded, from a compositional point of view, on a dome placed at the intersection of the main nave and transept and superimposed on the relic-Portiuncola like a canopy to emphasise the sacredness of the architectural object (Belardi et al., 2013). Hence also the idea, embodied in the project drawn up by Cesare Bazzani in the 1920s, to amplify the visual presence of the main façade without erasing the pre-existing 16th century façade. Producing an evocative visual transparency that was enhanced in the late 1950s by Giuseppe Nicolosi with the addition of a long pedestrian square conceived as a *promenade architecturale* (Belardi, 2002) (Fig. 2).

2. Pre-existences as an ordering element: the Portiuncola

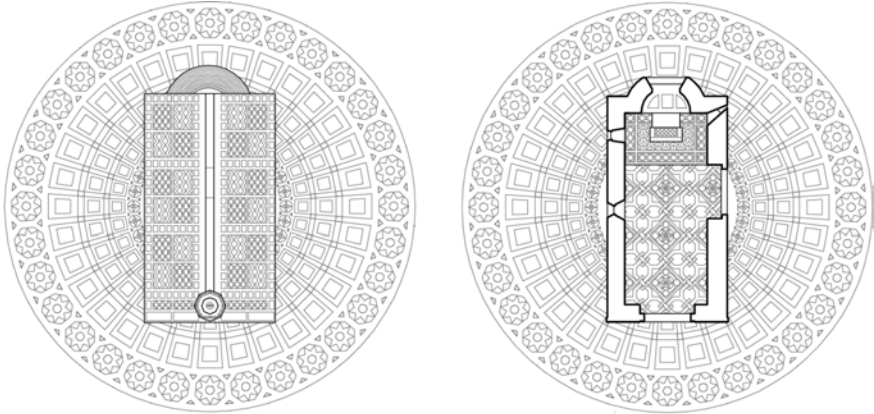
The episode of the calling of Francis represents the turning point in the saint's conversion. Francis thus seems to incarnate the figure of the saint-architect, for whom the calling translates into a design operation on both a spiritual and a concrete level. Starting from this symbolic episode, the saint undertakes an authentically holistic reconstruction: of the Church as an institution from the moral point of view and of the ruined churches (San Damiano, San Pietro, Santa Maria of Portiuncola) from the material point of view.



Among these, the saint chose the Portiuncula as his home and the permanent seat of his community. The reconstruction of the chapel is not the only fundamental episode in the life of Francis that takes place in Santa Maria degli Angeli: in fact, visitors to the Portiuncula are granted the indulgence of the *Perdono d'Assisi* and in the immediate vicinity is the Chapel of the Transito, the site of the saint's death. Thus, not only the most important facts of the saint's life, but also the fundamental characteristics of the Franciscan cult are gathered here. Galeazzo Alessi chooses the "*parva et paupercula domus*" (Romanini, 1989, p. 56) as the architectural relic par excellence, which he decides to place, in its extreme and mortal poverty, at the core of the precious reliquary that contains it. This 'optical contrast' (Scotti, 1989, p. 25), which exalts the one (the relic-Portiuncula) and the other (the reliquary-basilica) of the elements that compose it, feeds the suggestion of austere sobriety that characterises the chapel, as modest in form as it is grand in symbolic value. Its morphology goes through a series of evolutionary phases (figg. 3, 4) that intertwine with the other places of Franciscan memory in Santa Maria degli Angeli and testify to the stratification of epochs, forms and ways of using the space, once again reaffirming the principle of reuse implemented continuously throughout history. On top of the Romanesque church, with a single rectangular hall concluded by a small apse and covered by a double-pitched roof with a full arch intrados, Francesco built a space of greater height, with an internal archiacute vault. To the Portiuncola other buildings began to be added according to a process of progressive accumulation that was completed in the 15th century, when the chapel was the fulcrum, main but not exclusive, of a complex of buildings of larger dimensions and lasting characteristics. The meagre original volume was enriched by a large semicircular choir at the back, a loggia from which the indulgence of forgiveness was given to the faithful, and a Gothic-style aedicule dedicated to the *Madonna del Latte* at the pinnacle of the façade. Superstructures destined to be removed in the process of inclusion in the basilica, which sealed a circular path leading the Portiuncola back to its original nakedness, protected by its new majestic shrine. Moreover, very effectively, since the precious chapel remained unharmed both after the catastrophic earthquake



Fig. 5
Stone decorations
of the floor, roof
and interior of
the Portiuncola.
Graphic
reworking from
Mearelli (2006-
2007).



of 1831-1832, after the alternating transformations of its container, and after the new earthquake of 1997, when it was restored⁴, bringing to light the rich geometric decorative apparatus that characterises the two pitches of the stone roofing⁵ and discovering large fragments of the lost Perugino's fresco depicting the Crucifixion. The architectural survey of the chapel carried out in 2006⁶ organised the sources into an organic framework, summarising the evolutionary stages of the building, restoring its architectural-geometrical features and focusing specifically on the decorative apparatus of the flooring and roofing recently brought to light. What emerged were representations of rare expressiveness, whose manifest evocative power encompasses a complex theory of symbols, testifying to a solid interweaving of formal and conceptual relations, which makes the Portiuncola both the measure and the generating centre of the space that surrounds it (Fig. 5).

opposite page
Fig. 6
Hypothesis of the
compositional
concept adopted
by Galeazzo
Alessi for the
planimetric
dimensioning of
the basilica of
Santa Maria degli
Angeli. Graphic
elaboration by
the authors.

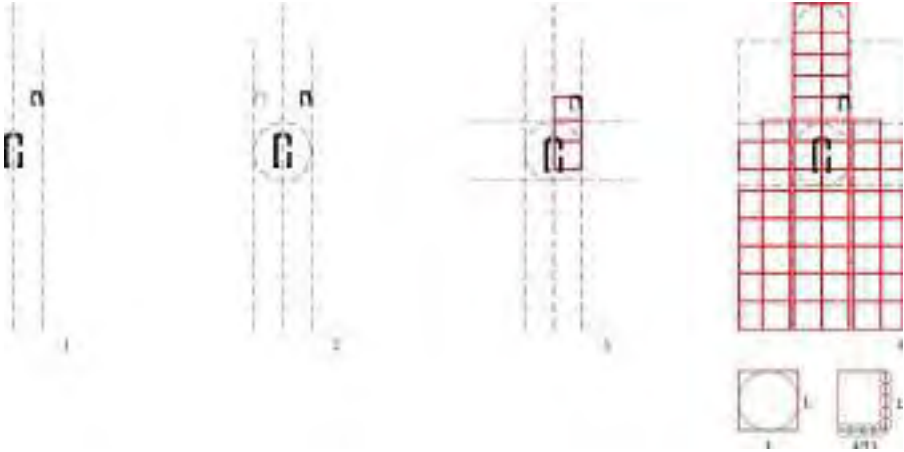
3. The Alessian basilica: building on the built

The contrast between the magnificence of the 16th century basilica and the simplicity of the Franciscan Portiuncola has marked the debate on the church of Santa Maria degli Angeli for years. The 'anti-urban', almost hermit-like attitude held by Francis and his first followers (Scotti, 1989) was transformed in front of the "cardinals who flocked here [...]"

⁴ The work, entrusted to the COOBEC company of Spoleto and coordinated by Bernardino Sperandio, was completed in February 1998 and involved the conservative and aesthetic restoration of all the architectural and decorative components, both internal and external.

⁵ In a side scene of the wooden altarpiece painted by Ilario Zacchi da Viterbo (Annunciation and Stories of the Perdone, 1393), the two-tone decoration of the Portiuncola roof is clearly recognisable.

⁶ The architectural survey of the Portiuncola was the subject of Silvia Mearelli's three-year degree thesis in Civil Engineering (2006-2007).



and all of Alemagna, and Gaul, Spain [...] Rome, the patrimony of St Peter's, Tuscany"⁷ (Fortini, 1940, p. 290). In this sense, to welcome pilgrims, Galeazzo Alessi (Perugia, 1512-1572)⁸ conceived a hybrid space, in which the central plan and the longitudinal plan coexisted (Ackerman, 1975), in which coexisted the harmonious iteration of the nave, marked in an austere manner by the use of the Doric order, and the dissonant boldness of the dome, emphasised strikingly by the verticality of the drum. The project for the basilica of Santa Maria degli Angeli is mentioned as far back as 1663 in archive documents, from the analysis of which we tend to attribute the design of the basilica and the dome, completed in 1678, to the Perugian architect (Cavalagli, Gusella, 2012; Bartolini Salimbeni, 2008; Vignoli, 1989). The church has a Latin cross plan with three naves, with five chapels for private worship aligned along the two side naves and a transept that does not protrude and echoes Alberti's Etruscan templum with a single barrel-vaulted nave (Morolli, 2006, pp. 112-114). The Alessian layout is punctuated by the rigour of the Doric order that scans the naves and that, together with the white colour of the plaster, characterises the interior space, designed at the same time as a liturgical hall and as a monstrance shrine to house the Portiuncola. In the balance of the composition (Fig. 6), the Perugian master's desire to attribute a privileged position to the Portiuncola itself stands out: the dome towers above it, confirming its centrality and exalting the hybridisation of the circular and rectangular plan.

⁷ "cardinali che qui accorrono [...] e tutta l'Alemagna, e la Gallia, la Spagna [...] Roma, il Patrimonio di San Pietro, la Toscana" [tba]

⁸ On the figure of Galeazzo Alessi see (Lotz et al., 1975). On the Umbrian works of Galeazzo Alessi see (Belardi, 2012a; Belardi, 2012b; Martini, 2016).

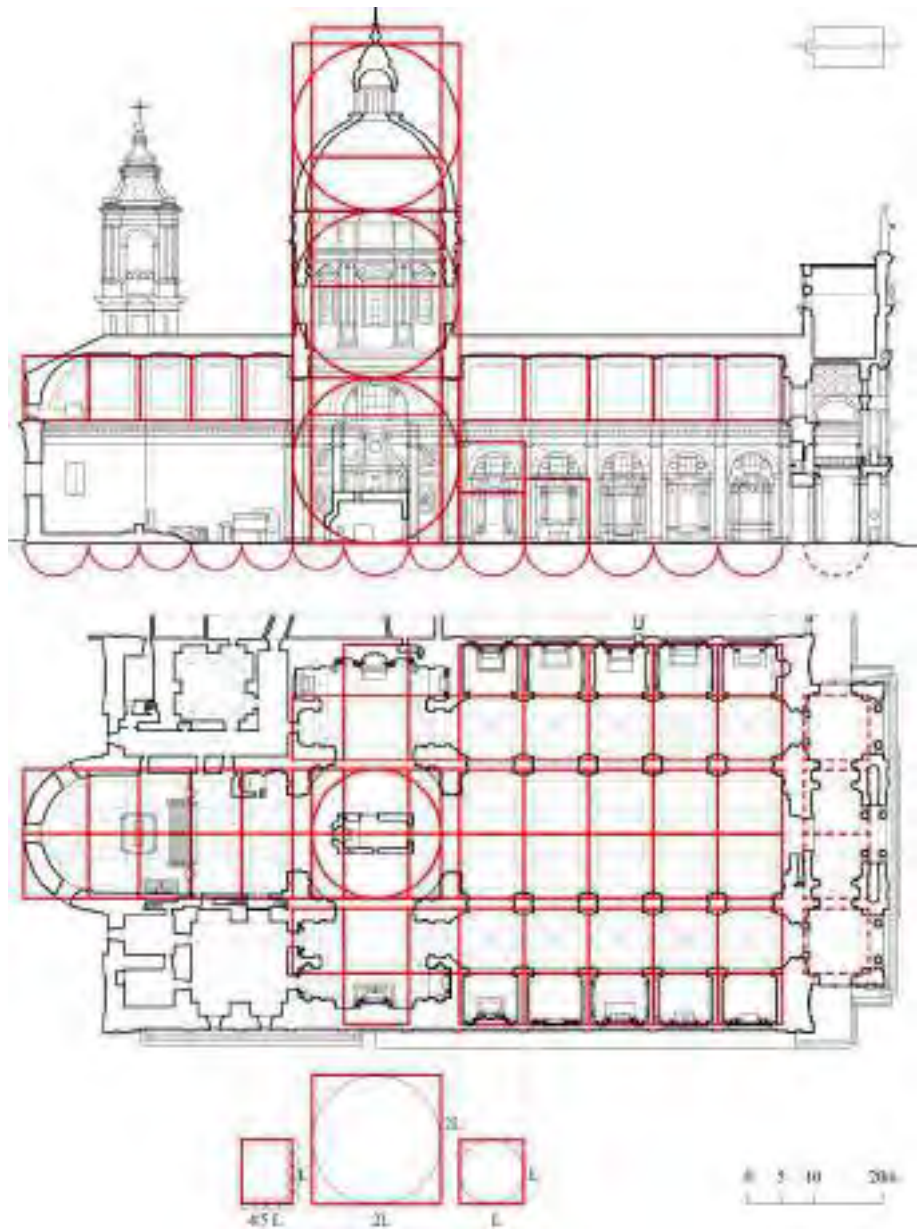
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Fig. 7
Proportional analysis that highlights the modularity of the basilica of Santa Maria degli Angeli in plan and elevation. Graphic reworking from Martini (2016).

In this perspective, the diameter of the dome itself is greater than both the width of the main nave and that of the transept, and the vaulted space extends towards the four arms of the Latin cross plan and the vaulted space extends towards the four arms of the Latin cross plan. It is therefore configured as the authentic pivot of the daring composition and, as if to reaffirm this role, it is deformed until it assumes an extraordinary verticality, embodied by the drum-attic ensemble that exceeds in height, and at the same time raises, the actual dome. The architectural surveys highlight how the Portiuncola-tholobate-dome system represents the pivot of Alessi's composition (Martini, 2016).

The prominence that Alessi gives to the Portiuncola is a conscious choice that departs from the conformation of the first Franciscan settlement, which provided for the veneration of episodic chapels related to the life of the saint without a clear hierarchy. The Portiuncola and the Chapel of the Transito were originally rotated by about 10° and the convent of San Bernardino was not aligned with the plan of the former, but with the latter, to emphasise the human nature of Francis who had chosen to die on the bare earth (Romanini, 1989).

The re-evaluation of the figure of Francis following the Tridentine Council places greater emphasis on his work as the re-founder of the church than on his characteristics of mortality and humility. The choice of Alessi, who takes the Portiuncola as the compositional matrix of the basilica, sharing its axis of longitudinal development, is probably traceable to these same principles. At the same time, Alessi welcomes the Chapel of the Transito and assimilates it into the new system, correcting its alignment following that of the Portiuncola. Alessi conceives a system determined by the dual relationship between the two chapels, to which it seems reasonable to attribute an ordering role of the entire composition.

The surveys conducted and proportional analyses (as shown in Fig. 7) enable us to discern two distinct modules: a square one and a rectangular one. The square module is defined by two roughly equal distances, the length of the Portiuncola and the distance from the Portiuncola to an axis passing through the right side of the Chapel of the Transito. The space from the apse of the Portiuncola to the Chapel of the Transito, included, can be divided into two equal rectangular modules that share the longer side with the square module. Both the square and the rectangular modules are found reiterated in the design of the plan as well as in the architectural division of the elevation and the dimensional definition of the dome.



4. Concluding remarks

In the palimpsest of transformations and reuses that the Santa Maria degli Angeli complex has undergone over the centuries, Alessi's Basilica remains the most iconic landmark. Alessi realised a disruptive building with respect to the architectural tradition of the site, defining a new and precise interpretation and reinterpretation of the Franciscan *genius loci*. Despite the novelty of the architecture, the basilica is materially and ideally built on the pre-existing structures that are made the ordering principles of the architectural layout. Thanks to a clear vision and a rigorous compositional organisation, Alessi offers future generations an example of architecture that, without renouncing its contemporaneity, intended as the ability to unite the times of history, embodies, *ante litteram*, the highest definition of sustainable architecture.

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THE FRANCISCAN RECONSTRUCTION OF THE CHURCH OF S. FERMO IN VERONA IN THE ARCHITECTURAL CONTEXT OF THE VENETIAN GOTHIC (13TH-14TH CENTURIES)

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Abstract

The article deals with the reconstruction of the church of Saint Fermo Maggiore in Verona, implemented by the Franciscans between the 13th and 14th centuries. Thanks to the precise research of Gianpaolo Trevisan and the 3D digital surveys carried out between 2016 and 2018, it was possible to establish the architectural diachrony of the church starting from the Romanesque foundation of the Benedictines in 1065. The Franciscans replaced the Benedictines in 1261 and transformed the church: they extended and raised the entire construction making it a single-hall one, dominated by the immense wooden ceiling with an upturned ship's bottom. On the other side, the Friars Minor maintained the wide Romanesque crypt, which follows the whole length of the church. The church of Saint Fermo became a structural counterpoint to the mother basilica of Saint Francesco in Assisi, qualifying as an unusual protagonist in the Venetian Gothic architectural context.

Keywords: Church of Saint Fermo Maggiore in Verona, Gothic Architecture, Franciscans.

opposite page

Fig. 1

Verona, Basilica of Saint Fermo. Plans of the crypt and the monastery (Survey: Geogrà, 2016-2018. Courtesy of: Parish of S. Fermo, Diocese of Verona).

1. The Benedictine architectural site (11th century)

The monastery of Saint Fermo Maggiore in Verona stands on a Roman cemetery area, outside the ancient *Porta dei Leoni* (called *Porta Sancti Firmi* in the Middle Ages). The early Christian basilica (5th-6th century) had a long rectangular plan: in this cemetery basilica, as narrated by the *translatio* of saints Fermo and Rustico, the bishop Annone (750-772) placed the remains of the two martyrs and built a semicircular sanctuary (*confessio*) with an altar for the relics (*arca saxea*) (Hudson, 2004).

The early Christian building was used until the 11th century when the Benedictines took over from the secular clergy. The monks rebuilt the church from the ground up: an inscription on a pillar of the crypt recalls that the building site began in 1065. The Romanesque church no longer exists, but the current building still respects its perimeter. The construction consisted of three main structures: the underground crypt, the church and an *avant-corps* (Trevisan, 2008).

The crypt has a floor plan with four naves and five apses in stepped lay-out (Fig. 1). This particular Cluniac planimetry (*chevet échelonnée*) derives from Burgundy, but was also widely used both in a series of churches in the 11th century in the north-western Po valley area (Fruttuaria abbey, Acqui cathedral, Bobbio cathedral, Saint Giusto a Susa) (Trevisan, 2013, pp. 60-65) and in Tuscany, in the ancient cathedral of Saint Reparata in Florence. The crypt of Saint Fermo is so large that it is erroneously defined as the 'lower church', qualifying it as an autonomous architectural space. From an architectural and liturgical point of view, however, it is a crypt not separated from the church which had the function of monumental repository for the relics of saints Fermo and Rustico (in northern Italy, the only crypt of such large dimensions is that of Saint Sepolcro in Milan, founded in 1030). All the architectural and decorative elements of the crypt refer to Roman antiquity: tapered pillars, molded frames and reused capitals. The walls alternate bricks and stone with a great color effect: this particular two-tone, used for the first time in Saint Fermo, became the main feature of Veronese Romanesque architecture in the 12th century (Fig. 2).

The Romanesque church was a basilica with three naves divided by pillars (major and minor) and was preceded by a forepart which had privileged burials near the relics of the two martyrs. Along the walls there were pentagonal buttresses (one of the most widespread elements of Veronese Romanesque architecture), which suggest the original existence of transverse arches to support the wooden roof (Trevisan, 2004a, pp. 247-250).

The eastern elevation was restored between 1905 and 1914: at that time the two southern apses were completely rebuilt by replicating the two northern apses.

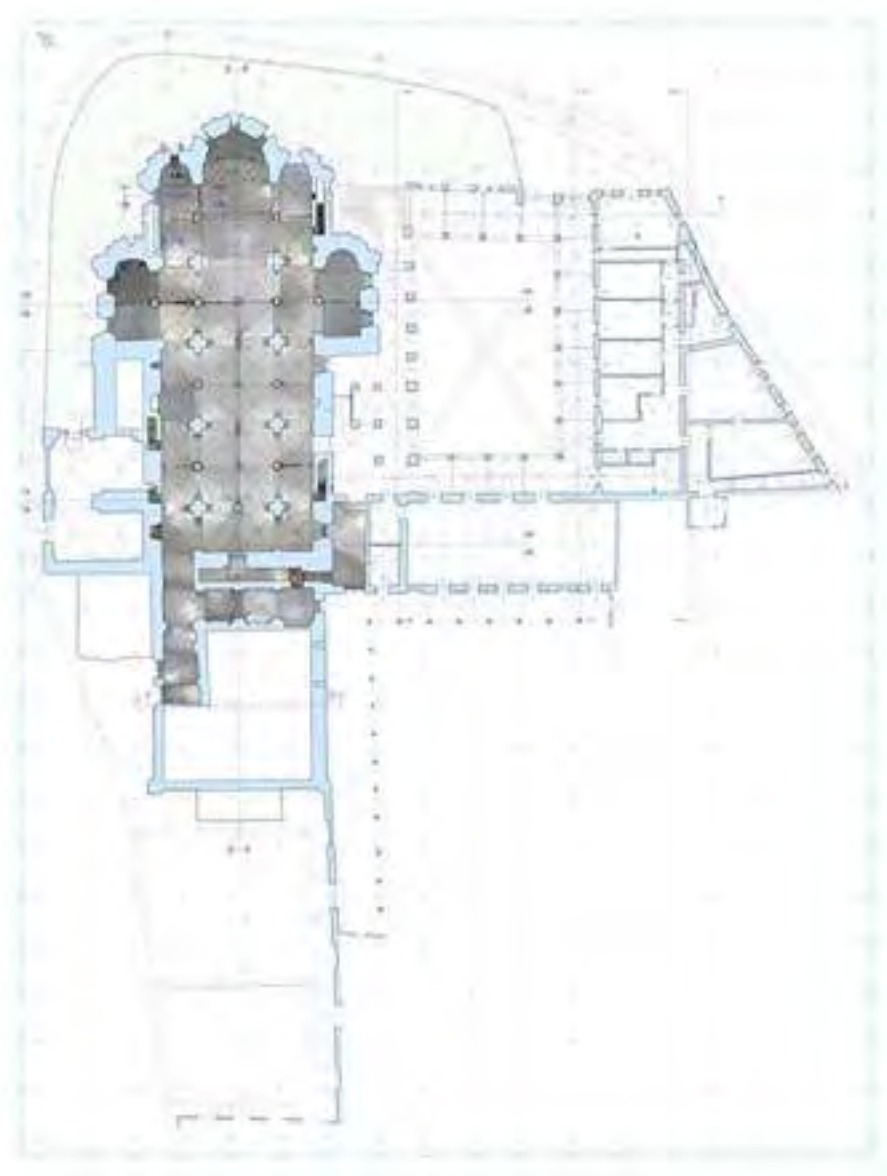




Fig. 2
Verona, Basilica
of S. Fermo. The
crypt (photo:
Angelo Passuello,
2022).



Therefore, only the lower portion of the main apse and the two northern hemicycles belong to the Romanesque church, with double arched arches and classical Corinthian capitals with Venetian influences deriving from the construction site of Saint Marco in 1063 (Trevisan, 2016, pp. 98-99).

The elaboration of constructive ideas coming from different directions was the hallmark of the builders active in the building site of Saint Fermo: the city of Verona, indeed, was at the crossroads of the main ways for cultural exchanges among the Po valley, the lagoon area and the northern-Europe, with which Verona has always had a special relationship. The maximum expression of European references, however, was achieved in the architectural complex of Saint Lorenzo (beginning of the 12th century), a direct emanation of the basilica of Saint Fermo, which marked the transition from Proto-Romanesque to mature Romanesque architecture (Passuello, 2018, pp. 191-202).

opposite page
Fig. 3
Verona, Basilica
of S. Fermo.
Cross section
(east side) and
orthophoto of
the eastern
front (Survey:
Geogrà, 2016-
2018. Courtesy
of: Parish of S.
Fermo, Diocese
of Verona).

2. The Franciscan architectural site (13th-14th centuries)

In 1261 the Franciscans officially acquired the monastery of Saint Fermo and started an impressive construction site that lasted until the mid-14th century. Thanks to the researches carried out by Gianpaolo Trevisan (2004b, pp. 175-182) and the graphics produced by the 3D laser-scanner digital survey made between 2016 and 2018 during the



opposite page
 Fig. 4
 Verona, Basilica
 of Saint Fermo.
 The wooden
 ceiling with an
 upturned ship's
 bottom (photo:
 Angelo Passuello,
 2018).

conservative restoration of the wooden ceiling (orthophotoplans of sections and elevations in scale 1:50, published in this article for the first time), it is possible to precisely define the architectural interventions implemented by the friars.

The first phase (1261-end of the 13th century) concerned the eastern sector of the church: the walls of the *chevet* were raised and the imposing triumphal arch was built. The triumphal arch served as a link between the central nave, which was raised and lengthened at a later time, and the main apse, which was subsequently rebuilt. Furthermore, the round arches giving access to the side chapels were opened (Fig. 3). The works continued with the construction of the large lateral arches of the transept, using a masonry that alternates stone and brick on the sides facing the interior of the hall. While the three internal naves were being dismantled, the construction site continued from east to west, raising the side walls to the height of the transept arches.

In this period, the religious functions were celebrated in the crypt, which always maintained its liturgical function and was never altered in its original structure. To access the hypogeum, the friars opened a large portal with an ogival arch in the southern side of the church (late 13th century): that passage directly connected the crypt to the cloister, which certainly existed in 1275 and of which, today, what remains is only the eastern side with a large pointed arch portal in stone and bricks and round double-arched windows with paired columns and rounded capitals. The second phase (1314-1327/32) had as protagonists Guglielmo da Castelbarco, who financed the ambitious project to complete the church, and the friar Daniele Gusmari. Their portraits in the triumphal arch are the most visible testimony of their role in the architectural construction site, which has 1314 as its starting year, mentioned in an inscription next to Gusmari's portrait. The new work plan represented a variant of the previous construction site. The new central polygonal apse was built, with large quadrangular buttresses surmounted by triangular pinnacles and spiers. The most important innovations, however, were made in the roof system of the church: the immense wooden ceiling with an upturned ship's bottom was built in the central nave. This ceiling is truly exceptional for its incredible structure formed of sixteen trusses in red larch 54 m long (Frustoli, Soardo, 2009) (Fig. 4). Cross vaults were built in the presbytery and in the transept, with the consequent elevation of the surrounding walls. Even the sides were raised with a brick masonry and were enriched with variegated decorations: stone friezes with trefoil arches and diamond-shaped frames, brick friezes with circles and crosses. The church was lengthened by about 24 m starting from the Romanesque façade, incorporating the ancient *avant-corps* and reaching the current volumetric and longitudinal development (Fig. 5). A walkable partition wall, about



4 meters high, was built to divide the space reserved for the religious from that reserved for the worshippers: this structure crossed the nave transversely and was in direct communication with the convent, to the south (De Marchi, 2007, pp. 138-141). The construction of the new façade, completed by 1327, was the end of the second phase of the works, even if some finishes (cusps, crowning elements, sculptures) were carried out in the third decade of the 14th century, until Gusmari's death in 1332. The façade exceeded the western elevation of the ancient *avant-corps* by about 8 m (Trevisan, 2007, pp. 143-146) and has a profile with two salient features. The front is divided into three horizontal parts: in the lower part there is the large splayed round arched portal, flanked by polylobed blind arches and single lancet windows with pointed arches and double columns. In the intermediate part, characterized by a two-tone masonry that alternates stones and bricks, there are four large trefoil windows that illuminate the interior of the church. Finally, in the upper part, there is a trifora flanked by two circular windows and a series of hanging arches under the slopes of the roof (Fig. 6). The façade, while using typically Gothic decorative forms, in its structural polychromy is still linked to the Romanesque building tradition, which was never abandoned even in the Gothic era.



Fig. 5
Verona, Basilica
of Saint Fermo.
Longitudinal
section (north
side) and
orthophoto of
the northern
side (Survey:
Geogrà, 2016-
2018. Courtesy
of: Parish of Saint
Fermo, Diocese of
Verona).



opposite page
Fig. 6
Verona, Basilica
of Saint Fermo.
Cross section
(west side) and
orthophoto
of the façade
(Survey: Geogrà,
2016-2018.
Courtesy of:
Parish of Saint
Fermo, Diocese of
Verona).





3. The architectural context

When the Franciscans took over from the Benedictines in the custody of the venerated remains of the martyrs Fermo and Rustico, they had a building that recalled in an exemplary way the two superimposed churches of Saint Francesco in Assisi, which keep the remains of the founder of the Order (Bourdua, 2004, pp. 32-70). For this reason, the friars did not modify the large Romanesque crypt, which was the memorial of the relics of saints Fermo and Rustico, but concentrated only on the reconstruction of the church according to the new Gothic architectural canons: an immense hall with a protruding transept and an eastern with three large arched chapels (Fig. 7).

This architectural scheme spread from the second half of the 13th century in the Veneto region with multiple variations. As in other Italian regions, the Gothic architectural style took hold in Veneto thanks to the architectural feats of the mendicant orders: for the Franciscans and Dominicans, however, Veneto played a role of considerable significance. In Padua, indeed, the minor friars founded the great basilica dedicated to saint Antonio, a favorite pupil of saint Francesco, who died in Padua in 1231. The basilica of Saint Antonio is one of the major sanctuaries of Christianity: with its complex structure, it demonstrates the transition from the Romanesque to the Gothic style, incorporating heterogeneous forms and influences over a very long time starting from 1235.

The church, with a cruciform plan, was the first vaulted building in the Venetian mainland after the 11th century. In 1263 the tomb of saint Antonio was transferred to the presbytery, but the construction site continued with the erection of a second transept, the ambulatory and the new choir, where the tomb was placed in 1307.



Fig. 7
Verona, Basilica
of S. Fermo. The
interior of the
church (photo:
Angelo Passuello,
2022).



The choir, inspired by the Gothic creations of *Ile-de-France*, was damaged in 1394 and rebuilt by 1424, and included an ambulatory with a triforium, a series of radial chapels and two towers.

Before the emergence of churches with vaults, in Veneto the single hall with three apsidal chapels had an extraordinary fortune: this architectural form, in its constructive essentiality, responded to the ideals and liturgical needs of the friars. The oldest structure of this type is Saint Giustina in Monselice (Padua), which dates back to the second quarter of the 13th century.

From the second half of the 13th century similar churches were built in most of the Venetian cities. The constructions were implemented with the addition of chapels with polygonal termination in the presbytery: examples are Saint Francesco in Treviso (1260), which is the closest comparison with Saint Fermo, and the Eremitani in Padua (1276). In these churches the height between the main chapel of the choir and the side chapels is almost equal, so as to obtain uniform lighting in the eastern sector. The enormous appeal of the Dominicans and the Franciscans in the Venetian cities, indeed, imposed the creation of ever larger ecclesial spaces which, with the erection of cross vaults, welcomed more the models of the French Gothic. In Vicenza, the Dominicans built the church of Saint Corona (starting from 1260) with vaults and flat-topped presbytery chapels; in the same city the Franciscans began the construction of Saint Lorenzo (starting from 1281), a cross-shaped basilica with cross vaults and a three-room choir with polygonal apses, which follows Cistercian plans.

The prototype of Saint Lorenzo had a large following especially among the Dominicans, who supplanted the Franciscans in the role of promoters of Gothic architecture with vaults in the Veneto region: examples are Saint Agostino in Padua (1290), Saint Anastasia in Verona (1290) and Saint Nicolò in Treviso (1303). The Gothic style arrived in Venice late, due to the cultural ties of the lagoon city with Byzantium, which were strengthened after the Fourth Crusade and the conquest of Constantinople in 1204. Around the middle of the 13th century, the domes of Saint Marco were enlarged as a response to the modern project of the basilica of Saint Antonio in Padua. In the enormous cross-vaulted mendicant basilicas of Saint Maria Gloriosa dei Frari (starting from 1330) and of Saints John and Paul (starting from 1333) the architectural form of Saint Nicolò in Treviso was emulated: the main choir had a height equal to those of the naves and transept, increasing the luminosity of the eastern sector (Dellwing, 2010, pp. 50-110).

In conclusion, the builders of the Franciscan reconstruction of Saint Fermo demonstrated great skills, inserting themselves as protagonists in the cultural context of the Gothic Veneto: they were able to vary some architectural and decorative parts, which demonstrate an enrichment during construction between the first and second construction phases (the alternating use of windows with pointed arches and single or double lancet windows with polychrome arches; the north transept is decorated only with intertwined arches, while the south one is decorated with a pattern of circles and crosses and has soaring spires, like the main apse). Furthermore, the builders used diversified decorative models: the crossed arches are of Lombard origin, while the cusps and pinnacles are of transalpine origin. The Franciscans commissioned a hybrid architecture that masterfully blends the Veronese Romanesque tradition (crypt) with Gothic innovation (church) and, for this reason, has no punctual comparison with other mendicant buildings in Northern Italy.

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OS SANCTOS REYS. MEMORY OF THE PRACTICES AROUND
THE TOMBS OF THE FOUNDERS OF SAINT CLARE MONASTERY
IN VILA DO CONDE

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Abstract

Founded on the lands of Teresa Martins and Afonso Sanches, Saint Clare Monastery marked the history of Vila do Conde since its beginnings in the 14th century. By choosing the sacred place as their cemetery and instituting the celebration of liturgical practices for the salvation of their souls, the memory of the founders endured. In modern times, the fame of the legends about their apparitions and the miracles that God wrought through their intercession grew, giving rise to immaterial and devotional practices by the Poor Clare community and the population that gathered around the tombs of the *Sanctos Reys* to thank them or ask for graces. By analyzing documental sources and Franciscan chronicles and tackling the collected information with bibliography, the present work seeks to find the trail of these practices and rescue an important historical chapter of the Monastery and the city from the dust of time.

Keywords: Saint Clare Monastery in Vila do Conde; Afonso Sanches and Teresa Martins; Devotional and liturgical practices.

1. Introduction

Located at the top of a hill, next to Ave River, Saint Clare Monastery imposes itself and dominates the landscape and surrounding territory of the Portuguese coastal city of Vila do Conde. The colossal neoclassical building stands out, at first glance, for its scale and architectural quality. Next to it, there is an older late-medieval church, built in the 14th century by Afonso Sanches de Albuquerque, illegitimate son of King Dinis, and by Teresa Martins, his wife¹. Assuming the role of founders and patrons of a Poor Clares Monastery, on lands that belonged to them, they covered it with donations and benefits, instituting obligations of regular worship, masses and prayers performed for the salvation of their souls, when they were to be buried in a galilee, outside the church. These determinations, written and stipulated on the Monastery Founding Charter, were maintained throughout the history of the community (1318-1893), with few changes made by the nuns. Fueled by local traditions, the fame of the *Sanctos Reys*² and the miracles that God worked through their intercession expanded, attracting people to their tombs and to the interior of the funerary chapel built for them in the 16th century. A stage for liturgical celebrations and immaterial devotional practices, this sacred space evokes the memory of the founders and the faith of those who turned to them to thank or ask for graces.

The present work seeks to find the trail of these practices that were left behind by the Franciscan friars on their chronicles and by the documentation of the Monastery. What importance did the liturgical and devotional dynamics celebrated around the tombs of the founders have and how did they mark the history of Poor Clare's and Vila do Conde communities? Recent historiography has devoted attention to Man's attitudes towards death, its rituals and the beliefs that underlie them, producing high quality studies mostly related to the Middle Ages. During this period, we witnessed the promotion of contact between the world of the living and that of the dead, valuing the experience of death as the beginning of a new life: one that, similar to the example of Christ, would be reserved for the blessed soul. The victory over death and the immortality of the soul, perennial and surviving the perishable body, was symbolically affirmed in the Eucharist. However, the fear of a wandering fate and Purgatory conditioned the development of rituals that, through the intercession of the living, would guarantee the salvation of the souls of the deceased.

To the Liturgy of the Dead – absoute, viaticum – and to the funeral procession, as pre-

¹ On the life of the founders you can read: Soledade, 1726; Pizarro, 1997. And about the founding of the monastery: Andrade, 2011.

² Translates as Holy Kings.

sented by Marta Miriam Ramos Dias (2013, pp.157-162), one could add the institution of perpetual suffrage by founding a Chantry or, even, an annual celebration known as Anniversary: essentially, the dead “wanted to be prayed for and prayed effectively” (Burgess, 1987, pp. 191). As for the burial site, the resting of the body close to the sacred space of the church was desirable, and one way that nobles could guarantee these procedures was through donations or the patronage of a holy house.

2. The wishes expressed on the Founding Charter

On the 7th of May 1318, Afonso Sanches de Albuquerque and Teresa Martins met before a group of witnesses to celebrate the founding document of the Saint Clare’s Monastery in Vila do Conde³. The desire to found this house of Poor Clares dates back to 1314, when “the founders, while in their castle in Vila do Conde, dreamed for three nights that, from that same place, there was a staircase wrapped in odorous and clear smoke, that touched the sky” (Esperança, 1666, p.165). Interpreting this dream of Jacob (Génesis 28:10-12) as a divine revelation, the couple began the necessary steps to build there a monastery and for their burial to be authorized in that same place; such would be granted, says Esperança (1666, p.172), by the Pope John XXII in 1319. However, in a gesture of humility, they did not want their tombs to be placed inside the church:

“because the burial inside the churches seems to us, that it is only for holy men or men that are very close to God. And because our tombs are not equivalent to altars or as high as they are, we didn’t want to lie down inside the church or place our tombs there” (ANTT, Livro 2 de Além Douro, fl.73v)⁴.

ordering, for this reason, the construction of a galilee, where they and their familiar lineage could be buried.

The concern with the salvation of the souls, so present in the late medieval context as we’ve established, was decisive: the founders ordered four chaplains to remain in the monastery, whose main task was to sing four daily masses: one at the main altar of the nuns; a second for King Dinis; a third for Afonso Sanches de Albuquerque and a fourth for Teresa Martins. After the couple’s death, the service ought to be performed in the place where they were buried (ANTT, Livro 2 de Além Douro, fl.72).

The requested ritual is very meticulous, instructing that, in the masses dedicated to the

³ The original is lost. However, the content was safeguarded through a transcript that can be consulted at Torre do Tombo National Archive (from now on referred as ANTT), in Livro 2 de Além Douro, fl.69v to f.74v.

⁴ Translated by the author.

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Fig. 1
 The Founder's
 Chapel. Saint
 Clare Church, Vila
 do Conde (Photo
 taken by the
 author, 2021).

founders, the chaplains should mention their names and ask those present to pray the Pater Noster for the souls of the three people mentioned above. After the prayer, a chaplain should throw holy water over their tombs, saying over them the prayers that were said over those who have died (ANTT, Livro 2 de Além Douro, fl.72v). The concern to write down these procedures in detail reveals a vivid awareness of the functionality and effectiveness of the rituals' performativity, as writing is also action, itself with legal value, which would have to be fulfilled and guaranteed by those to whom the founders left, in addition to their heritage, the care of their bodies and souls.

3. The Modern Times

At the turn of the 15th to the 16th century, Vila do Conde underwent major political, economic, and social transformations. Saint Clare Monastery was not oblivious to the winds of change. Following a bulla issued by Pope Leo X, in 1517, taken effect from the time of Abbess Isabel de Castro (1518-1543), the monastery was reformed in the Observance (Esperança, 1666, pp.189-191; Ferreira, 1925, p. 25). This Abbess was associated with the construction of a funerary chapel, dated 1526, where the tombs of the founders and those of two of their children, who died, according to tradition, at a very young age, would be placed together. A place of memory, the family pantheon reaffirms the monastery's antiquity and authority, legitimized by the presence of the noble lineage that had established it. The connection of the founders with the Portuguese Royal House can explain the delivery of money to build and finish an unspecific chapel, commissioned by Portuguese monarchs (ANTT, Livro 4 de Além Douro, fl.181; Esperança, 1666, p. 172). Still, Isabel de Castro's action was preponderant: she was present, in 1525, during the inquiry carried out at the request of King João III, about the destruction of the galilee and the state of the tombs. The inquirer witnessed and reported to the King the beginning of the works on the funerary chapel (Ferreira, 1925, pp. 32-34).

The new times and the changes brought about by them seem to have been enough to justify alterations to the determinations of the founders, relocating their tombs inside the church (Fig. 1). The scenography of this funerary space, the iconographic program – with scenes from the Cycles of the Infancy and Passion of Christ, and miracles of Saint Francis and Saint Clare – carved on the tomb chests, implying a tour around them to appreciate all the episodes, along with the dramaturgy of the ceremonials, would appeal to prayer and piety. The remembrance of the memory and importance of the legacy that the founders bestowed on the Poor Clares remained ever present.

In August 1548, following a visit by the General Minister of Saint Francis Order to the



monastery, a set of guidelines on the administration of income and expenses of the community, known as *Estatutos*, was drawn up. In the beginning of the document, and justifying the need to draw up these recommendations, the Minister urges the Abbes:

“whatever it is, at whatever time, that each year on the eve of Saint Clare or on the day, you are obliged to call the preacher who is to preach to inform him truly and distinctly of the obligations that this house has to the lords who founded and built it. And begging him, and entreating him very much, that at the end of his sermon, with ornate and discreet words, according to the case for the further edification of the people, the forces and substances of the things and benefits that the said lords to this house perpetually left to declare, by so that, coming to the memory of all such perpetual alms and such great benefits, the nuns themselves are encouraged to praise Our Lord, and to commend the souls of said lords more effectively in their prayers. And generally, the people be edified and moved to more virtue and devotion of the said house and monastery” (ANTT, OFM, PP, CSVC, liv.27, fl.2)⁵.

What can be inferred from this is that the feast of Saint Clare marked a solemn moment of perpetuation of the memory of the founders by the Poor Clare’s community and by the population of Vila do Conde. Esperança (1666, p. 179) confirms it, when he wrote that, on that day, in the afternoon, the exequies of Afonso Sanches de Albuquerque and Teresa Martins were held, and the following day masses were said⁶. This friar also reports that, out of devotion, the faithful broke the tombs, taking bones that they esteemed as sacred relics – the information provided by the chronicler must be read cautiously.

4. Conventional and unconventional immaterial practices

4.1. Mirabilia and the founder’s beatification process

The consulted chronicles told us of legends that were transmitted, by tradition, about the apparitions of the Monastery founders, who revealed themselves to warn the nuns of situations in which they could be in danger or to help them in cases of need. In *Memória dos Infantes*, Soledade recalls the virtues of the founders and the Christian modesty of the clothes and thick cloth textiles that are found uncorrupted in their tombs (1726, pp. 80-81), discreetly alluding to properties that allow these fabrics to be considered contact relics.

The desire to present a process to the Roman Curia so that the beatification of Afonso Sanches de Albuquerque and Teresa Martins could be obtained was a reality in

⁵ Transcribed and translated by the author.

⁶ Also Soledade (1726, p. 101-102) states that the exequies began in the afternoon of August 12th and ended in the morning of August 13th.

which, in 1722, the Abbess Joanna do Deserto do Amaral and the Archbishop of Braga, Rodrigo de Moura Teles, were involved (Soledade, 1726, pp. 114-117). The *Direção para os processos dos Servos de Deus D. Affonço Sanchez e D. Tereza Martins Fundadores do Mosteyro de Santa Clara de Villa do Conde*⁷ dates from the previous year. This document consists of a notebook listing seven main subjects and the witnesses that must be questioned when carrying out the process. From the outlined guidelines, a survey was carried out to ascertain the esteem that the people of Vila do Conde had for the founders, whom they called *Sanctos Reys*. It was then followed by an inquiry into the search for their relics and shrouds, both in their tombs and outside them (ANTT, OFM, PP, CSCVC, mç.20, doc.100, fl.1).

Witnesses would also be asked about the devotion of the people on the day of the exequies and the practice of begging the priests to say gospels over their heads to remedy their pain. The monastery's community was also targeted, inquiring about supplication to the founders in times of need, as well as the performative practices running in the lower choir, praying the Pater Noster and the Ave Maria for their souls (ANTT, OFM, PP, CSCVC, mç.20, doc.100, fl.1v). The description of these subjects provides us with clues about some immaterial practices that, at least, would be reputed to be common, justifying their inclusion in the survey's list of questions. At the end, the document ends by listing cures to which the miraculous result is attributed to the founders' intercession.

4.2. The maintenance of liturgical celebrations in the church and funerary chapel

The costs of maintaining the masses required by the founders justified their registration in the Monastery's revenue and expense books. In the *Mappa dos Bens, e Rendas do Mosteiro*⁸ which, in 1790, the Corregidor of Barcelos gave to Queen Maria I, can be read that the four masses are fulfilled in the church, one sung and three prayed, with the Pater Noster in their offering. The custom of throwing holy water on top of the tombs remains, however, not by the robed priest, as it is understood to be against the ritual. The practice of praying the canonical hours had ceased due to the embarrassment it caused the choir and the spiritual exercises done by the nuns. However, it was replaced by the delivery of income to form a four-member choir at the Church of Saint John the Baptist in Vila do Conde (ANTT, OFM, PP, CSCVC, mç.3, doc.24, fl.23). To these expenses, it was also added a daily mass for the founders and their son, and an Anniversary, with

⁷ Translates as: Direction for the processes of the Servants of God D. Affonço Sanchez and D. Tereza Martins founder's of Saint Clare Monastery at Vila do Conde.

⁸ Translates as: Map of Assets and Income of the Monastery.

general masses, attended by the friars of Saint Francis and the clergy. The importance of the persistence of these practices for the Poor Clares community is demonstrated by the intransigent way in which they defend them, declaring that they cannot be replaced without scandal, since they were imposed by the founders (ANTT, OFM, PP, CSCVC, mç.3, doc.24, fl.23 & fl.23v) and for the care they took with the maintenance of the funerary space over the centuries.

5. Final considerations

Through the information collected in the documentary sources and in the consulted chronicles, we were able to trace a path that leads us to conclude that the liturgical and devotional practices carried out, over time, around the tombs of the founders of the Saint Clare Monastery were not only of great importance and held a strong presence in the daily life of the Poor Clares community, its chaplains and the Franciscan friars, but also had a profound impact on the lives of many inhabitants of Vila do Conde. More than a curiosity, the careful study of these immaterial and performative practices reveals itself as a method of approaching the intangible realities associated with the past and history of a place.

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CONVENTETS IN THE CROWN OF ARAGON (13TH - 16TH CENTURIES)

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Abstract

This paper is about *conventets*, the Catalan word used by the sources to refer to small friaries at the spiritual service of Poor Clare' nunneries in the crown of Aragon between the 13th and the 16th centuries, and it owes its existence to the proposals suggested by Drs. Blanca Garí, Núria Jornet-Benito and Maria Soler within the F-ATLAS project with regards to the need of studying the evolution of both Franciscan branches, masculine and feminine, and the impact Observance made in them. Its objective is to bring up a small contribution to throw some light upon the phenomenon of *conventets* to finally see, in the case of Pedralbes, how the instauration of Observance affected the life of that small friary.

Keywords: Franciscans, Poor clares, observance, friaries, nunneries, Aragon; conventet, Pedralbes, Manresa, Balaguer, *cura monialum*.

1. Introduction

This paper is about *conventets*, the Catalan word used by the sources to refer to small friaries at the spiritual service of poor Clare' nunneries in the crown of Aragon between the 13th and the 16th centuries, and it owes its existence to the proposals suggested by Drs. Blanca Garí, Núria Jornet-Benito and Maria Soler within the F-ATLAS project with regards to the need of studying the evolution of both Franciscan branches, masculine and feminine, and the impact Observance made in them. Its objective is to bring up a small contribution to throw some light upon the phenomenon of *conventets* to finally see, in the case of Pedralbes, how the instauration of Observance affected the life of that small friary.

2. Panoramic vision of the topographic and spiritual linkage of Franciscan friaries and Poor Clare' monasteries in the crown of Aragon (13th - 16th centuries)

The first generation of Franciscan friars and Poor Clare nuns in the crown of Aragon settled during the lifetime of Francis and Clare, which corresponds to the reign of Jaume Ist (1214-1276). With the king's assistance, the order established itself in his land and associated itself to the development of towns and the recapture of land towards the south of the eastern coast of the Iberian Peninsula (Webster, 2013, p. 363).

From the first foundations, in most locations where a friary was established, soon after a nunnery was founded nearby (Costa et al, 2017, p. 477), with respect to which friars assumed the *cura monialum*, the spiritual care of the nuns. In the foundational period of the order, nuns stayed under the spiritual care of friars. That was the reason for Poor Clare' nunneries to settle close to Franciscan friaries. It is important to consider the basis of the structure and operating way of religious communities to understand it, as well as the religious rule and the life of the founders; it becomes then logical to find common patterns, without ruling out exceptions. Francis, in his *Forma Vitae*, which constitutes the centre of the rule written by Saint Clare, comes up with the proposal of a fraternal relationship between friars and nuns, committing to "always provide the nuns, by himself and by means of his brothers, a loving care" (Omaechevarría, 2004, pp. 206). In San Damiano, the first convent of Poor Clare' nuns, the papacy tried to formalize this fraternity under its own supervision, entrusting the *cura monialum* to the friars (Gregory XI, 1227) and trying to put the new nunneries under their jurisdiction (Innocent IV, 1245). The first period of quick expansion of friaries and nunneries was followed by a period of decadence and reforms; by the 14th century there were factors that wore away the Order

extraordinarily. Dissent about poverty, the focal point in all the reform movements, worsened the situation. Some reforms were carried on from within, dividing the friars between conventuals – demanding more community life and the mitigation of poverty – and observants – who demanded the pure observance of the rule, returning to its foundational objectives (Monreal, 1971, p. 65).

The conflict ended up with the Observant reform, started in 1334 by Juan de la Valle in the friary of Brogliano, aiming to a mendicant life, refusing to own properties and goods and considering that friaries needed to have a reduced number of members (Monreal, 1971, p. 66). Conventualism and Observance kept positions very far away from each other: their controversy deeply shook the Order until 1517, date of the *'Ite et vos'* letter by Pope Leo 10th, which legalized the existing cleavage. Observants denounced conventuals for their alleged relaxation in the observance of the Rule. King Ferdinand the Catholic (1479-1516) exclusively supported the Observant reformers. The Catholic King and Queen themselves started a reform in 1493, approved by the Pope, which imposed the passage from conventualism to observance. A second period of reforms inflicted from outside took place with Philip the 2nd and Pope Pius V, with the instruction given by the Pope that conventuals were to gather with observants, thus extinguishing the conventuals' friaries. Between 1566 and 1568, Philip the 2nd received from Pope Pius V wide facilities for the reformation of Franciscans in the crowns of Castille and Aragon. The reform program for religious orders meant the promotion of observant movements. The situation was similar all over Europe. In 1567 the king allowed the observants to eject all conventuals out of the province. Lots of unsolved doubts remain on the incorporation of conventual Franciscan friars and nuns to the Observance. Was there any active resistance? According the canonist Navarro in a 1568 letter to the king, over one thousand conventual friars rejected to join the Observance; with regards to the nuns, the fact that many of them went under episcopal jurisdiction may be seen as passive resistance to Observance (Fernández, 2019, p. 419).

3. Case studies of three conventets located in or next to nunneries in the crown of Aragon

After this panoramic vision of Franciscanism in the Crown of Aragon and the linkage between friaries and nunneries from the 13th to the 16th centuries, we shall focus on the study of three cases of Poor Clare' nunneries in Catalonia within which what documentation calls a *conventet* of friars is located. The *conventet* may be defined as a small building within the ensemble of the nunnery inhabited by a reduced community of friars fully dedicated to the spiritual service of the nuns. In these cases research has so far determined that no masculine

opposite page
Fig. 1
 Aerial view of
 the conventet
 in Pedralbes at
 the end of 20th
 century.

community was established nearby before and so it was with the foundation of the *conventet* that the *cura monialum* was possible.

These are the *conventets* of Pedralbes, Manresa and Balaguer. Jill Webster states that it has not been possible to establish any kind of link among the three *conventets*, but rather they seem to respond to a “practical solution so that friars could attend the spiritual needs of the nuns” (Webster, 1994, p. 927). With regards to this, I would like to leave an open question: 1) if we consider the case of Pedralbes as an exception to the usual pattern of new foundations, being a royal foundation outside a big city like Barcelona, where there already were a nunnery and a friary; 2) if we consider that the sources do mention clearly the existence of a friary in Balaguer on the same location where later on the nunnery was established (Boadas, 2014, p. 290); and 3) if we consider that Manresa, the third case where a *conventet* is documented, may be a situation of non-existence of a previous friary but where the presence of Franciscan friars is documented in town decades prior to the feminine foundation; could we not think, by the same internal logic of the foundation of Poor Clare nunneries, that these established themselves in these two towns because there already existed a project of a prior masculine foundation? And, because the friary did not materialize, a small community or conventet remained at the spiritual service of the nuns? This is a quite an opposite hypothesis to Jill Webster’s (Webster, 2000, p. 74), as she deduces that there might have existed more *conventets* in other places, so far unknown. But I consider that the question I am leaving open does respond more accurately to the own internal logic of the Second Order in the context we are studying. The feminine foundations in which a *conventet* is documented followed the Urbanist rule, which did not consider the friars responsible of the material care of the nuns, but only of their spiritual care.

Considering these premises let us now study the three documented *conventets*.

3.1. Santa Maria de Pedralbes’ conventet

Sources about this nunnery and its *conventet* are abundant, as the medieval archive has been fully preserved.

The feminine monastery of Pedralbes was founded with the intervention of queen Elisenda of Montcada, wife of Jaume II, who acquired some land in 1326 outside the city of Barcelona but still fairly close to town. The first community was formed by fourteen nuns come from the monastery of Saint Anthony and Saint Clare in Barcelona. The masculine branch participated actively in the foundation of the monastery. The future abbess had obtained in 1326 from the general vicar authorization so that the friars



established at the convent in Barcelona could act as confessors and enter the cloister to celebrate the liturgy.

The 1334 ordinances seem to mark a substantial change (Monreal, 1971, p. 22), dictating that four friars had to reside within the monastery; hence, they began to be maintained in all their needs, same as the priests who were living in the monastery from the beginning. But it is at the 1341 ordinance where we can read the first specific mention of a “hospice built close to the monastery (*un hospici edificat prop lo Monastir*)” (Monreal, 1971, p. 24) where six friars ordained in sacris lived. It is interesting to see how the convent is called ‘hospice’ (Monreal, 1971, p. 91), indicating most probably that it exercised, along the *cura monialium*, hospitality and charity tasks. This is the same name that refers to the *conventet* in Manresa.

It looks clear that it is all about undertaking the commitment by Francis of Assisi that friars would spiritually serve the nuns (Webster, 1987, pp. 127-129), as chapter VI of the rule of Clare says, referring to the ‘form of life’ written by Francis for the nuns promising to always take ‘loving care’ of them (Omaechevarría, 2004, p. 283). The factor that might have determined the construction of a residence for a reduced number of friars within the nunnery might have been the physical distance of the friary with regards to Pedralbes in a time where friars used to walk to meet their obligations of spiritual attention and service

opposite page
 Fig. 2
 Image of the Poor
 Clares' nunnery
 by 1659, when
 the conventet
 no longer
 existed but it
 was supposed
 to have been
 located. Detail
 of Balaguier
 Catalogne prise
 le 19e octobre
 1645. Institut
 Cartogràfic de
 Catalunya.

to the nuns. These friars depended on the nunnery and promised obedience to the abbess (Castellano, 1998, p. 176), but, along with that, the friars living in the *conventet* legally depended of the province' father, within whose jurisdiction they seem to have represented a small community on itself, although depending from the main Barcelona friary, since we may read in the sources that the conventet had its own guardian or superior (Castellano, 1998, p. 174). Anna Castellano states that "the friars and priests living in Pedralbes depended totally on the nuns" (Castellano, 1998, p. 177), considering that "in practice, one may see it as a double monastery" similar to other medieval double communities such as Fontevault. To me, though, the structure and functioning of the *conventet* does not look similar to a double monastery (Pernoud, 1980, pp. 175-216).

3.2. Santa Clara de Manresa's conventet

Dr. Araceli Rosillo states that Manresa had a Poor Clares' nunnery, which was built out of the town walls, next to Saint Blase and Saint Lazarus' chapel; construction started by the end of 1322 and ended in 1327 (Rosillo, 2016, p. 135). The sources show that 'some Franciscan friars' lived close by this chapel; Jill Webster considers this presence confirmed since 1292 (Webster, 1987, p. 136), but in spite of that, the evidence seems to point to the fact that by the time the nunnery was built, a friary had not been yet erected in Manresa (Rosillo, 2013, p. 173). For Jill Webster, it seems possible that the feminine branch succeeded to establish a nunnery here, but the friars could not, and hence, the presence of these few friars in Manresa was due to the existence of the nunnery, and not the other way round (Webster, 1987, pp. 129, 132), even though dates do not match this theory. She states that these friars served the nunnery (Webster, 1987, pp. 127-129), which is what finally happened; but if we consider the dates sources show, it looks that the nunnery was established in Manresa because there were already friars trying to erect a friary; they did not succeed and, instead, they ended up erecting a conventet and taking spiritual care of the nuns. According to the sources, the friars living in Manresa were under the jurisdiction of the Custody of Barcelona (Webster, 1987, p. 129), whilst the nuns were under the obedience and jurisdiction of their confessor (Sanahuja, 1959, p. 815). From the two friars that documents mention for the year 1322 (Rosillo, 2013, p. 177), without a friary and providing spiritual service to the nuns, the masculine community linked to the nunnery grew up to 49 documented friars (according to documents dated in 1373 and 1396). This, according to Dr. Araceli Rosillo confirms the 'logic and necessary existence' of a conventet (Rosillo, 2016, p. 258), which appears mentioned in



a document dated in October 1401 whereby “some bedsheets are donated to the confessors of the Poor Clares to be used in case of sickness or by some other friars passing by Manresa, hosted at the confessor’s house, located next to the nunnery”. Rosillo states that, according to the document, “the space does not seem too big, but big enough to host itinerant friars” (Rosillo, 2016, p. 258). I would just like to state that the number of friars does not correspond with the concept of the *conventet* seen in Pedralbes, but apparently they were mostly ‘itinerant friars’. Araceli Rosillo states that “given the location of the monastery, right along the way to Barcelona, it could be said that this *conventet* was a kind of religious hostel for friars who travelled between Girona and Barcelona preaching; and, together with that, it hosted a small community of two or three permanent friars that assisted the nuns. Documents also show that it seems that some of these permanent friars were ordained; but this was not always the case, which made the presence of priests necessary to celebrate liturgy and administer sacraments (Rosillo, 2016, p. 264). The beneficiaries and other priests attending the nuns spiritually owed obedience to the abbess (Rosillo, 2016, p. 268).

3.3. Santa Clara de Balaguer’s conventet

Balaguer’s Santa Clara’ monastery was established in 1351. Jaume I, count of Urgell, had died in 1347 and his testament stated the foundation of a nunnery in the city of Balaguer, in

which church he was to be buried. His wife and executors obtained the parish church of Santa Maria de Almatà, documented since 1094 and located in the old side of the town, close to the castle where the counts of Urgell lived. Margarida de Montcada, who had entered the monastery of Corpus Domini in Naples in 1322, was called by her aunt, queen Elisenda of Montcada, to carry on the foundation in Balaguer (Triviño, 2020, pp. 418-425). This author mentions that “there existed still the project of a conventet of friars, like in Pedralbes, dedicated to the spiritual service of the nuns”. This small friary seems to have served the nuns until the suppression of the conventuals in 1557 (Triviño, 2020, p. 426). This *conventet* is documented, even if sparingly, and what seems more likely is that, even though the reasons and the process are not yet known to us, a friary seems to have existed in Almatà previous to the nunnery and the conventet. Agustí Boadas states that “the date of foundation of Sant Francesc de Balaguer, or friary of Almatà, which he identifies with the conventet, is very old, but unknown” (Boadas, 2014, p. 290). Hence, it looks like there was a friary prior to the nunnery, and it would have not been initially a *conventet*. It is still unknown what happened to this convent, but P. Sanahuja already considers it a *conventet* according to sources dated in 1372, located next to Santa Maria d’Almatà, serving spiritually the nuns the same way that happened in Manresa and Pedralbes. There seems to be an important time lag here: how could Sant Francesc de Balaguer, located in Almatà, be a *conventet* when there were no nuns in Balaguer until 1351? This case is quite confusing. P. Sanahuja states that the convent was shot down during the 1413 besiege and never rebuilt (archaeological remains of this building have not yet been found), whilst Victoria Triviño states that the *conventet* operated until 1557, disappearing when the Observance was established in Balaguer. This is an important point as we try to investigate whether Observant reform was the reason for the end of conventets. We saw that it was not so in Pedralbes and it is not clear here, since 1557 meant the end of conventualism in the crown of Aragon but there was already an observant friary in Balaguer since 1446, Santa Maria de Jesús. Documents do not mention whether the observant friars served the nuns in any way, so we need to leave this question open to further research.

4. Observant reform and the Pedralbes’ conventet

According to Monreal (Monreal, 1971, p. 52), the friars at the Pedralbes’ *conventet* belonged to the conventual branch within Franciscanism. There was a first attempt of observant reform in the nunnery in 1409 (Castellano, 2006, p. 153), which was resisted by the nuns. Sources mention that the six friars staying at the *conventet* in 1426 were all

conventuals. That same year, the nuns were excommunicated, *ferendae sententiae*, due to their disobedience to the Apostolic commandments (Monreal, 1971, p. 67), which did not include either the abbess nor the friars, who could not enter the enclosure during the time the nuns were excommunicated, not to be excommunicated themselves too.

Immediately, the abbess allowed the friars to celebrate Mass in the *conventet* as long as the excommunication persisted (Monreal, 1971, p. 68). In 1431 observants strongly protested against the mitigation of poverty allowed to the conventuals; it seems that the nuns were willing to join the observants, whilst they had no problem for the friars at the conventet being conventuals (Monreal, 1971, pp. 68-69). From the second half of the 15th century onwards, the problems between Observance and Conventualism that were shattering the order had a very clear presence at the Pedralbes' *conventet*. In his four volumes work about the Pedralbes' conventet, Monreal states that "news about the same are incomplete" (Monreal, 1971 p. 69), but most probably, the latent tension between the province minister and the *conventet* friars violently exploded in 1466, when conventuals were forced to leave their residence (Monreal, 1971, p. 71), while at the same time the nuns were again excommunicated, all based upon transgressions against the closure. In 1472 a group of nuns and friars were already back in Pedralbes. After this break, that included a war, the *conventet* had both conventual and observant friars living together (Monreal, 1971, pp. 73-74), a situation that most probably created internal conflicts. Finally, with the intervention of King Ferdinand the Catholic, the conventet was assigned to observant friars. It seems though that the tension did not end and Pope Julius II submitted the house to the friars' province authority, leaving their previous dependence from the Pedralbes abbess without effect (Castellano, 2006, p. 153). After the *conventet* was submitted to the observants, the house entered in a long period of peace until the 19th century. Nothing is said about the cura monialium, so it appears it continued (Monreal, 1971, p. 84).

5. Conclusions

The conclusions that Costa, Sancho and Soler reach in their 2017 research (Costa et al., 2017, pp. 482-483) are valid for this introductory study: the general pattern of foundation of Poor Clares' nunneries in Catalonia between the 13th and 16th centuries was to erect a house where there was already a friary: out of the seventeen censured nunneries, thirteen follow this pattern. The four exceptions to the rule are Pedralbes, Manresa, Balaguer and Conques, a very singular case which we have not studied here since there is no information it had an associated *conventet*. It seems then that the reason for the existence of a *conventet* was the need of spiritual care to be conducted by Franciscan friars, condition that

looks fundamental to their religious identity. With regards to the question on whether Observance had influences on the cura monialum or it could have meant the end of *conventets*, the most cautious approach as of now is to leave the question open.

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THE CONVENT OF SAN FRANCISCO IN PALENCIA .
THE GRAPHIC TRACE OF A HISTORY IN CONSTANT CHANGE

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Abstract

The convent of San Francisco in Palencia was one of the largest religious complexes built in the city. With a history of almost 800 years, it seems almost impossible to speak about Palencia's history without mentioning San Francisco. However, after almost eight centuries of life, the incidents of time have made that only a small part of what once was the largest convent in the region persists. In the same way, there has not been either much documentation about its history to this day. Perhaps for this reason, despite being located in the centre of the city, its history is still unknown for many inhabitants of Palencia. Thus, thanks to the documentation and descriptions that we have, and making an analysis of the remains existing today, we will be able to know with greater accuracy the history of this great Franciscan convent.

Keywords: San Francisco, Palencia, graphical analysis, convent, history.

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Fig. 1
 Schematic reconstruction of the plan of Palencia at the end of the 13th century, with the area occupied by the convent of San Francisco shaded in yellow (Represa Rodríguez, A. 1980).

1. Introduction

In the past, many mendicant convents became large complexes built at the gates of cities, with vast tracts of land around them. An example is the Convent of San Francisco in Palencia of which, due to the passage of history, a small part has come down to us.

Despite the past importance of the building, not much original documentation has been preserved, precisely due to the evolution of the complex itself (fires, wars, sales and other looting). The main sources of information are therefore historical studies in the form of articles or books. In addition, there is a complete absence of current graphic documentation.

In this text, we want to rescue the memory of this building, key in the urban development of Palencia, studying all the historical processes that have taken place on it, organizing them temporarily, and analyzing their causes and consequences to graphically observe its evolution.

2. Applied historical analysis

2.1. The previous scenario: historical background to the foundation (1212-1246)

To contextualize the foundation of the Monastery of San Francisco, we must temporarily place ourselves in Palencia at the beginning of the 13th century. During that time, and under the guidance of its lords, the bishops, the town had reached its peak of splendor; it was also in 1212 when King Alfonso XII founded the first '*Studium Generale*' in this city, thus becoming the first higher education center in Spain and one of the first in Europe. Legend has it that the foundation itself was due to a visit by the Saint of Assisi in 1214; however, historical sources seem to affirm that the convent would be founded a few decades later. The works of the old church would be carried out between the years 1219 and 1230 (Villa Calvo, 2012, p. 270); news about the founding of the convent, for its part, are limited to a brief by Pope Innocent IV issued in León in February 1246, and promoted by Tello Téllez de Meneses, bishop of Palencia. This document empowered the primitive church to give way to the current one (Calderón, 1676, p. 2).

2.2. The foundation of the convent: origin and early years (1246-1529)

The insertion of the monastery on the urban grid came from its own conception. Like the great majority of the mendicant monasteries, these used to be located outside the city walls, in its immediate vicinity, on the edge of the roads; in Palencia, it would be the one from Burgos (Fig. 1), which entered the town through the door of the same name (Represa Rodríguez, 1980, p. 391).

The years after the foundation of the Monastery of San Francisco were of great prosperity



Tab. 1
Principal events
of the period
1246-1529.

Year	Event
1247	Foundation of the Convent of San Francisco in Palencia
1286	Celebration of General Courts
1491	Mandate of the Catholic Kings to house the municipal archive
1496	Adoption of the regular observance by the friars
1510	Possible date of construction of the choir

(Tab. 1). The alms of the nobles and pious of the city contributed to such a growth that in 1260 it would become the Head of Custody, being under its jurisdiction some of the most important convents in the region (Martínez González, 1989, p. 88).

However, in the mid-15th century a stage of decline began, largely due to the growth of the nearby city of Valladolid, which had become the main political center of the area. The episcopal see of Palencia was also losing power against other ecclesiastical institutions. In 1433, the friars of Valladolid would adopt the regime of regular Observance, which would catapult the importance of their convent. The monastery of Palencia would adopt this regime in 1496, within the set of reforms promoted by the Catholic Monarchs (Rojo Alique, 2007, p. 471). Despite the loss of its hegemony, its importance remained latent; in 1518, after the constitution of the province of La Purísima Concepción, the convent was the head of the province for a century, until it was moved to Medina de Rioseco in 1622.

2.3. And unprecedented transformation: the first changes and reforms (1529-1659)

On September 1st, 1529, the convent executed a deed of resignation from the so-called ‘*Campo del Azafranal*’, and ceded these lands to the City Council for the construction of a public square due to “the favors they had always received from their nobility, who did the walls that divide the Convent from the square” (Calderón, 1676). After obtaining these lands, the city of Palencia would also obtain the privilege of ‘free market’, which guaranteed tax exemption from commercial transactions (Tab. 2).



Tab. 2
Principal events
of the period
1529-1659.
opposite page
Tab. 3
Principal events
of the period
1659-1808.

Year	Event
1529	Assignment of the so-called ‘ <i>Campo del Azafranal</i> ’
1565	Remodeling of the main chapel
1568	Deed of endowment of the chapel of the Sarmiento
1580	Fire: the wooden ceiling is damaged
1584	Replacement of the wooden ceiling of the main nave
1592	Finishing of the construction of the ‘ <i>Casa de Comedias</i> ’ (current theater)
1656	Sale of the chapel of skulls

Year	Event
1659	Second great fire: destruction of part of the roof
1660	Sale of land to the brotherhood of the 'Virgen de la Soledad'
1662	Sale of the old refectory to the Venerable Third Order
1664	Reconstruction of archives, library and other buildings
1667	Sale of land in the atrium to the brotherhood of 'Desamparados'
1675	Transfer of land to the Municipality
1720	Construction of the interior cistern of the current cloister
1732	Inauguration of the altarpiece of the main chapel
1740	Donation of a chapel to the brotherhood of 'San Francisco'
1755	Lisbon earthquake: the convent of San Francisco is not damaged
1758	Chapels of 'Soledad' and 'Desamparados' become regulated by the convent
1787	Assignment of land for the Real Estate

On the other hand, from the middle of the 16th century, works of some importance began to be carried out inside the monastery. Already in the year 1511 the reconstruction of the main chapel (which had remained unchanged since its foundation) had begun. This new chapel stood out mainly for its star-shaped ribbed vaults and warped transepts, with a pictorial decoration that covered its entire surface and for the altarpiece of its main altar, made of half-size relief and occupying the entire front of the presbytery, today missing. After a fire in 1580, which would destroy part of the roof of the temple, the reform process would intensify, with the renovation of the roof. Thus, the roof was replaced by plaster and brick vaults, in conjunction with the new classicist fashion of the time; the roof of the side chapels would also be raised and would rise to the height of the roof of the new main chapel, to unify and harmonize the interior of the church.

2.4. The resistance after the catastrophe: the years after the great fire (1659-1808)

One of the most relevant events in the history of the convent, which also caused the loss of most of its archive, was a great fire that took place in 1659, which would destroy it to a large extent. Thus, in the following years, a series of property and land sales were carried out, in order to obtain funds to undertake the reform of the complex (Tab. 3).

In 1660, a piece of land, at the entrance of the church, would be sold to the Brotherhood of 'Virgen de la Soledad' for the construction of a chapel. Later, in 1662, the sale of the old refectory was carried out in favor of the Venerable Third Order, which had previously been offered to the Brotherhood of 'Jesus Nazareno', without fruitful negotiations. Both chapels are still preserved nowadays. Two years later, thanks to the funds obtained from



Tab. 4
Principal events
of the period
1808-1835.

Year	Event
1808	The friars are expelled from the convent by Napoleonic troops
1809	Reduction of convents: their assets are confiscated as national assets The convent of 'San Francisco' is closed
1813	French troops leave the convent of 'San Francisco'
1814	Restoration of the absolutist regime of Fernando VII
1820	Liberal Triennium (1820-1823). The 'law of regulars' imposes a drastic reduction of convents
1823	End of the Liberal Triennium: the convents are returned to religious orders

these two sales, added to that of another piece of land for the Brotherhood of the 'Desamparados', the demolition of the ruins and the first reconstruction works began. The main written source of the time, Calderón (1676, p. 5 et seq.), recounts how the new church "is so different from the old that it should be called a new foundation". The description of the new work talks about the demolition of most of the complex, except for the main cloister and the hall. On the other hand, after this reform, land and property exchanges continued. In 1675, the City Council ceded two parts of land to the convent; in 1787, the convent would give up a part of the corral after the factory for the Real Estate.

2.5. The beginning of the decline: napoleonic invasion and its consequences (1659-1808)

After the signing of the 'Treaty of Fontainebleau' in 1807 between Spain and France to achieve the invasion of Portuguese lands, Napoleonic troops penetrated the Iberian Peninsula. Palencia, due to its geographical location, was chosen as a support point for the French Army located in Valladolid. Due to the lack of space for the Army to stay, the French decided to requisition the facilities of the convents of San Pablo and San Francisco to convert them into barracks.

At the beginning of 1809, the new King José Bonaparte decided, in addition, to suppress religious convents and reduce them to one third; a few months later, he would promulgate a decree for the closure of all the convents and the confiscation of all their assets, which came to be considered national assets. This fact had catastrophic consequences for numerous works of art.

The convent of San Francisco, therefore, would be closed, remaining open to the public only the temple. According to Barreda Marcos (2008), the convent "came out the worst off from the years of French occupation", and was finally abandoned by them in 1813 (Tab. 4). The recovery of the entire complex would come with the restoration of

opposite page
Tab. 5
Principal events
of the period
1836-1878.

Year	Event
1836	Confiscation of Mendizábal. All convents are closed and the assets confiscated
1839	Public offices are moved to the ex-convent of San Francisco
1847	Demolition of a bullring that had been built in the corral area of the convent
1848	Another wooden bullring is built
1850	The accessory part of the convent is cede to 'House of Expósitos'
1868	Arrival of the Jesuits in the city of Palencia
1877	Bishop of Palencia authorizes the permanence of the Jesuits in Palencia

the absolutist regime of Fernando VII in 1814. With the establishment of the 'Liberal Triennium' in 1820 the second exclaustator essay would arrive; the monastic and mendicant orders would then be suppressed, and the convent would not be returned until 1823.

2.6. The final sunset: the confiscation of Mendizabal and its consequences (1835-1878)

The arrival of the liberal revolution brought with it a series of reforms in the convents that prolonged the confiscation process that was already taking place in Spain (Tab. 5). In 1836, a decree forced the closure of the convent of San Francisco due to the Carlist disturbances. A short time later, a new decree ordered the general suppression of all religious convents and the confiscation of their assets. The church of San Francisco, despite this, continued to be used for worship.

The convent was handed over in 1838 to civil institutions for public function: "after serving as a barracks for the *'quintos'*, it housed the offices of the Treasury Delegation, Provincial Council and Civil Government, and the bullring was built in its corral" (Revuelta González, 1992). The precipitation in the installation of the public organisms had an impact in the consequent reform of the convent, with serious cave-ins of some zones, and the disappearance and demolition of many others; it also entailed the construction of new buildings on the convent grounds.

2.7. A new opportunity for the convent: the stay of the Jesuits (1878-2018)

In the second half of the 19th century, a time of profound religious restoration arrived in Spain, with the revival of religious communities; one of the principal ones was the Society of Jesus. In Palencia, this renewal was fundamentally promoted by the bishops; in 1868 the then head of the Diocese would promote the arrival of the Jesuits to take care of the parish of the Cathedral. In 1877 the authorization for their stay would be renewed and, finally, a year later, he would grant them the use of the church of the old convent of San Francisco. During the last years of the 19th century, the Jesuits would undertake various



Tab. 6
Principal events
of the period
1878-2018.

Year	Event
1878	The complex of San Francisco is granted to the jesuits
1904	Realization of the choir rose window
1915	The Jesuits receive perpetual usufruct of the church of San Francisco
1919	The construction of the new residence of the Jesuits is concluded
1932	The government of the Second Republic orders the dissolution of the Society of Jesus: the Jesuits abandon their residence in Palencia
1937	The Jesuits return to the convent of San Francisco
1950	Construction of the new 'Kostkas' and 'Luisés' facilities
1960	Construction of the Treasury office building
1968	Construction of the School of 'San Francisco Javier'
1978	Last great reform of the temple and annexed dependencies
1992	San Francisco declaration as BIC (Good of Cultural Interest)
2011	Restoration of the main cloister
2018	Jesuits abandon San Francisco

reforms necessary for the maintenance of the temple (Tab. 6). In the first decade of the 20th century, and especially from 1915 on, in which they were granted perpetual usufruct of the church, more far-reaching reforms were undertaken, as well as the construction of the residence for the religious in the street 'Martínez de Azcoitia', projected by Jacobo Romero. In 1932, the government of the Second Republic ordered the dissolution in Spain of the Society of Jesus; they would leave their residence (remaining the church to worship), and would not return until 1937.

In the years after the war, there was a boom in numerous associations linked to the church. In 1950, the new facilities for 'Luisés' and 'Kostkas' were inaugurated in the premises of the old convent, built in a very deteriorated area. At the end of the 50s, two chapels of the church that were threatened with ruin were demolished, and an access was opened from the side street. In subsequent years, the main reforms were at the urban level, with the opening of new streets at the expense of the convent land; this would go from the four initial cloisters (Fig. 2), at the cost of the demolition of the two rear ones, to the current one, leaving another integrated in the Treasury Delegation building (Fig. 3).

Few works have taken place since then, except those of the building's own maintenance. This has experienced its loss of importance in the city, at the same time that the order that ran it, the Jesuits, was turning off its presence. Finally, they would abandon it in the year 2018, and the church would definitively pass to the Diocese.

opposite page
Fig. 2
View of the four
original cloisters,
in the 1949
photoplan, with
the historical
area occupied
by the convent
shaded in yellow
(Delgado Huertos,
2012).



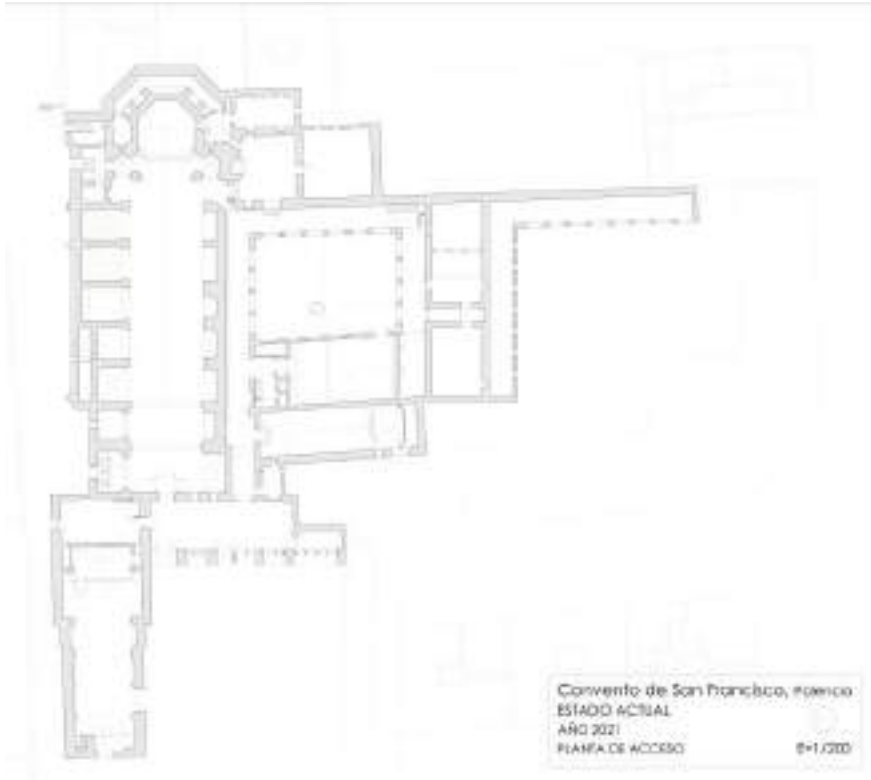
3. Conclusions

Regarding the historical events that occurred in the convent of San Francisco, it is worth noting the importance and hegemony of Palencia in the moment of its conception. The social consequences of the loss of power in the city after the Late Middle Ages had a great impact on the mendicant orders. In this way, the sale of spaces was the first germ of a reduction of land that lasted during the later centuries.

The irreparable consequences of the great fires that occurred during the 16th and 17th centuries produced great changes and reforms. Subsequently, the political-social events



Fig. 3
Current plan of
the remains of
the convent of
San Francisco
(Escudero Peral,
2021).



that occurred in the 19th century as the French invasion and the confiscation of Mendizábal ended up diminishing the convent heritage, not only of San Francisco, but of many other convents in the region.

The return of the religious communities at the end of the 19th century and the beginning of the 20th gave stability to the building, and, despite the numerous reforms that took place during these years, the dependencies of the convent served as a space for numerous activities that allowed the use and conservation of many of these spaces.

Currently, the observation of the current state of the building allows us to know not only the historical evolution of the spaces and the elaboration of hypotheses about its old conception, but also a current reflection on how to preserve the extensive existing heritage for future uses.

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**AFFINITIES BETWEEN THE THIRD ORDER REGULAR OF
SAINT FRANCIS OF PENANCE AND THE FRANCISCAN
OBSERVANCE. THE MONASTERY OF SANTA CATALINA DE
MONTEFARO (GALICIA, SPAIN)**

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Abstract

The Galician monastery of Santa Catalina de Montefaro was built in 1392, under the patronage of the powerful nobleman Fernán Pérez de Andrade. The friars of the Third Order Regular of Saint Francis of Penance (TOR) received it to live there rigorously following the spirit of the Rule of Saint Francis. This reforming branch of the Franciscan Order, which shows several aspects in common with the Observance, remained autonomous from its inception, until the 19th century. In this paper we will, first, deal with the origins and development of both the TOR and the Observance in Galicia, examining their settlement and diffusion in this territory. We will then analyse the church and the monastic spaces of Montefaro, setting their typologies against other observant and conventual buildings in order to show the relevance of this Galician example. Additionally, we will provide a reconstruction of the medieval façade of Montefaro's church, which has been designed on the basis of a combination of material remains and documentary sources, together with a series of comparative analysis.

Keywords: Third Order Regular of Saint Francis of Penance, Observance, Montefaro.

1. Affinities and differences. Observance and Third Order Regular in Galicia

In the last decades of the 14th century, two communities of friars coexisted in Galicia, both aspiring to live the spirit of the Rule of Saint Francis in all its rigour and showing a similar evolution in the early days. The *frades da prove vida*, or *frades dos oratorios*, were incorporated into the Observance in the second half of the 15th century. The friars of the Third Order Regular of Saint Francis of Penance (TOR) remained autonomous until the exclaustation of the 19th century.

The scarcity of sources makes it difficult to study both groups, but it is possible to outline the affinities and singularities of each orientation. Among the affinities, it is worth mentioning that both groups maintained the rigorous observance of the Rule of St. Francis; in all the monasteries there were ‘mass friars’ with theological training and sacred orders and lay friars, even illiterate ones. The number of friars in each community ranges from a desirable minimum of four in the friars of the friaries of the provender of life to a larger number in the tertiaries, with communities of around ten or twelve friars.

Among the singularities, it is observed that the TOR presents a great organisational freedom in each convent, while maintaining another substantial difference by allowing the friars to own property. These friars combined the ascetic life of prayer and penance with the work of assisting the poor, the sick and pilgrims.

We know the names of the most important figures of each group, founders of oratories and convents. Among the *frades da prove vida* we can highlight fray Gonzalo Mariño, fray Diego Arias and fray Pedro Diaz (de Nemancos?) (Ríos, Fraga, 2020, pp. 5-8). Among the TOR friars, the essential figure is fray Afonso de Melide, founder of the monasteries of sancti Spiritus de Melide and of santa María a Nova de Santiago, as well as fray Diego Fernández, founder of Vilalourete and fray Lopo de Manteiga, founder of Montefaro.

The religious and political context in which these friars became involved was the Western Schism. The crown of Castilla opted for obedience to Avignon, while the Portuguese crown remained obedient to Rome, in 1381. The friars were torn between obedience to their monarch and following a pope. The example of Friar Afonso de Melide is illustrative of this dilemma. A friend of the Roman pope Urban VI, he was in Rome at the time of the schism and helped Urban VI to flee from his adversaries. On his return to Castilla, he gave evidence to the monarch John I in 1380, who had convened an assembly of the clergy in Medina del Campo to discuss the

schism. In this dilemma, Friar Afonso remained obedient to Avignon, which followed the Crown of Castilla. On the other hand, Fray Gonzalo Mariño maintained his obedience to the Roman pope, while remaining in Galicia and founding oratories in both Galicia and Portugal at the same time. As a result of this situation, the Portuguese Franciscan convents were separated from the province of Santiago, forming the new province of Portugal (Lopes, 1985, pp. 349-450). The friars who promoted the provender life were also accepted in the kingdom of Portugal, under Roman obedience, and their Galician foundations would have to wait for Benedict XIII's bull of 1407 to be legitimised (Ríos and Fraga, 2020).

2. Establishment in Galicia of the Third Order Regular of Saint Francis of Penance (TOR)

The presence of tertiary friars in the Hispanic northwest must be traced in its beginnings in groups of laymen and ecclesiastics who aspire to live the Gospel in their daily life, communities of beguines or confraternities that promote a spiritual and charitable life around hermitages or chapels and hospitals (Temperini, 1995, pp. 5-44; 2017, pp. 325-376; Perarnau, 1979-80, pp. 619-633; García Oro, 1987, I, pp. 187-252). Their origins, chronology and promoters remain unknown due to a lack of documentary sources. Their existence is only recorded when they became regular tertiaries and requested their approval by bishops and pontiffs – Nicholas IV, 1289 – from the second half of the 14th century onwards.

Foundations with contemplative, pastoral and hospitaller dedication can be observed, which are not always mutually exclusive. The establishment of these houses must be related to the preferential attention to one or other of these dedications. In this way, the activity of the friars can be oriented only to prayer and penance, or it can be combined with pastoral care of the faithful and hospitality. The contemplative aspect is linked to the original eremitic roots of this Franciscan spirituality; and also to a deep-rooted tradition in Galicia and the Hispanic northwest, which is linked to early medieval eremitic settlements.

In the convents of Santa María a Nova – through the hospital of regular tertiaries of Santa Cristina in Santiago – Melide and Montefaro there is an important dedication to hospitality, an aspect that inevitably raises the question of the pilgrimage to Santiago. The friars provided the poor, the sick and the pilgrims with material aid and a spiritual contribution, which took place in a sacred space, sometimes in a simple altar in a small room, or in adjacent chapels or churches (Ríos, Fraga, 2022). Once these communities were constituted, they needed the approval of the diocesan bishops and pontifical confirmation – canonical foundation – for their institutional consolidation. The tertiaries immediately submitted themselves to the

authority and control of the prelates in order to avoid the pressure of the Franciscans; the action of the bishops was not limited to approval, but they actively supported most of these initiatives.

The pontifical briefs are a fundamental source for establishing the canonical foundation of the regular tertiary houses. Of special relevance for the Hispanic communities are those granted by Benedict XIII, since the tertiaries needed to obtain the approval of their foundations from the Pope of Avignon. Thus in 1395 it was granted to Vilalourente and in 1396 to Montefaro, Melide and Santiago. Also in 1395, he granted indulgences to help in the construction of the oratory of San Esteban on the 'island of Baiona' (today the Cíes Islands), highlighting his dedication to the eremitical and austere life (Eubel, 1904, pp. 304-313; Cuella, 2009, p. 61).

However, there are sometimes other sources that allow us to reconstruct their earlier trajectory, anticipating this chronology by several years (Ríos, Fraga, 2018). The first tertiary convent in Galicia and the Hispanic northwest is Sancti Spiritus de Melide, in the diocese of Mondoñedo. Convent, church and hospital are erected between 1372 and 1381, but the tertiary settlement exists at least since 1363. San Martiño de Vilalourente, in the same diocese, was founded in 1374 in an unpopulated area near the town of Mondoñedo. In the diocese of Tui, around the hermitage of Santa Marta, near the town of Ribadavia, the presence of a tertiary community is recorded in 1380, which crystallised in the foundation of Santa María de Valparaíso (Eubel, 1904, pp. 129-130). In 1390, the convent of Santa María a Nova was founded in Santiago, on the initiative – as in Melide – of Fray Afonso de Melide, in close collaboration with the Compostela archbishop Juan García Manrique and his chapter (Fraga and Ríos, 2014).

After the conclusion of the Western Schism, the Roman pontiffs continued to support these foundations with new general confirmations and granted their recognition to other new ones throughout the 15th century. The 16th century was a changing period: some tertiary houses were at their peak, others were transformed or disappeared, and a few others were newly founded. In 1522, on the occasion of the election of the Visitor General, a total of 15 tertiary convents, probably the most important or consolidated in the kingdom, met in Santa María a Nova de Santiago. The absence of the Galician contemplative communities of Cíes and A Barcia, as well as that of Valparaíso, is striking. In the second half of this century, the order was on the verge of disappearing due to the great reform of the Church that was implemented as a result of the Council of Trent (1545-1563) and which the monarchy actively supported.

3. The monastery of Santa Catalina de Montefaro

It initially existed as a tertiary community around the chapel of Santa María de Chanteiro, which was established at an uncertain date in the course of the 14th century.

They were undoubtedly driven by the desire to return to the *vita evangelica* and the *vita apostolica*, in the image of the Saint of Assisi and his companions in the slum of Rivortorto or around Santa Maria degli Angeli, la Porziuncola. Their spiritual work was accompanied from the earliest times by the assistance to the hospital of Sancti Spiritus de Pontedeume, the first service that had been entrusted to them by the knight Fernán Pérez de Andrade and which he would later extend by also entrusting them with the care of the hospital of San Bartolomeu de Betanzos. In 1390, this knight extended the estate of the hermitage of Chanteiro, which it is said that La Merced had already rebuilt at its own expense.

From this initial settlement, and under the protection of this nobleman, the tertiaries began the process of creating a new monastery in 1392, under the patronage of saint Catherine of Alexandria on the summit of Montefaro. This convent is one of the last artistic enterprises linked to the patronage of Fernán Pérez de Andrade and is another example of his decidedly Franciscan preference. His role is also attested to by an epigraph on the border of the Andrade coat of arms (now in the Archaeological Museum of San Antón, A Coruña). It is a roboratio that specifies: ESTE M(oesteiro): FEZO: FERNAN: P(ere)S: DANDRADE: AN/NO D(omin)NI: MCCCXCII. The archbishop of Santiago, Don Juan García Manrique, granted his licence to the convent in 1393: he authorised its construction, the constitution of its community in accordance with its constitutions, the organisation of the sacraments in the church and granted exemption from parish jurisdiction. He also annexed the hermitage of La Merced de Chanteiro to the convent with all its properties and tithes and granted the possibility of burials in the convent church. Three years later, Pope Benedict XIII sanctioned the archbishop's concessions with the bull of 12 January 1396 (Vaamonde, 1909, 80-81; Eubel 1904, VII, 304; Fraga et al., 2019, pp. 143-172).

The first friars to promote the Montefaro convent were Friar Diego Fernández and Friar Lopo de Manteiga. The Papal Brief of 1396 addresses Friar Lopo as minister of the Montefaro community (Eubel, 1904, pp. 304). As part of their pastoral work, the tertiaries administered the sacraments in the parish church of Santa María de Miño. Papal confirmations are always granted on the condition of safeguarding parochial rights in order to try to avoid conflicts, but sometimes these were unavoidable. The licence granted by the Mindonian bishop to Montefaro over the parish of Miño was ratified by the pontiffs Benedict XIII (1403) and Martin V (1422), although it was now limited to its sixth part due to conflicts with its parish rector (Eubel 1094, pp. 321-322; 572).

The new monastery of Montefaro benefits from the donation of a considerable patrimony that will help its maintenance until the exclausturation of the 19th century. To ensure its subsistence, the tertiaries received donations from its promoter and many other social agents, obtaining different goods that were distributed from the land of Bezoucos to Miño. In 1396, Fernán Pérez de Andrade granted them goods that had belonged to the Order of the Temple and had been received by the nobleman (part of the parish of Santa María de Miño and the reserves of Miño and Bemantes). The following year he gives the friars the lordship of the town of Mugarbos and later he grants them other donations.

4. Monastery and church in Montefaro. Spaces, typologies and meanings

On 26 May 2000, the monastery of Santa Catalina de Montefaro, ceded to the *concello de Ares* (A Coruña), was declared an Asset of Cultural Interest. From this date onwards, the actions for its restoration were undertaken by the architectural firm Crecente y Asociados, commissioned by the Xunta de Galicia and the *concello de Ares*. The master plan was drawn up between 2008 and 2009, in which we participated with the research and drafting of the historical-artistic reports. Under the direction of Crecente y Asociados, various rehabilitation tasks were carried out, including the restoration of the Cabildo space and the creation of the Interpretation Centre with the installation of scattered medieval pieces, as well as the recovery of the kitchen, etc. Based on the preserved medieval structures, it has been possible to reconstitute the medieval temple and convent, as well as to approximate the organisation of the initial spaces. The modern period renovations renovated the cloister and a first floor in the 17th century, rebuilt the main chapel, raised a new tower and a vestibular space called the Cabildo, which involved replacing the medieval doorway of the temple with a new doorway; the kitchen and western courtyard were enlarged between 1708 and 1718. These interventions did not alter its medieval organisation or the dimensions of the original structure. After the exclausturation, from the 19th century onwards, it was occupied by a Coastal Artillery Regiment: old spaces were refurbished, and new works were carried out starting from the western courtyard.

The documentation generated by the military engineers provides information that allows us to delve deeper into its medieval morphology. In their projects and work reports they show great sensitivity towards medieval and modern art in all their interventions; they preserve rediscovered historical-artistic materials, most of which were

handed over to the *Comisión de Monumentos Histórico-artísticos* (today in the *Museo Arqueológico Provincial de San Antón* (A Coruña)).

This casuistry has allowed us to reconstitute the medieval complex to a large extent. The comparative analysis with other TOR and Observant monasteries, which share a similar morphology in Galicia, has made it possible to investigate the medieval monastery and church and their transformations throughout history.

4.1. Santa Catalina de Montefaro: definition of monastic spaces

The monasteries of the TOR and Observants built in Galicia in the last quarter of the 14th century and the beginning of the 15th century are defined by their austerity; their size is smaller than the Franciscan conventual and Dominican monasteries built in the 13th-14th centuries. In the Papal Briefs they are called *domus*, a term alluding to the simplicity of their first settlements. When the tertiaries raised their houses *ex novo*, the term *moesteiro* is usually used, indicating a consolidated structure that does not imply greater amplitude. The conventual enclosure of Montefaro is referred to in the Briefs of Benedict XIII as *domus* and *monasterium* indistinctly, while in Galician documentation the term *monastery* is used; this is recorded in the licence granted in 1393 by Archbishop García Manrique to found and build “*apar de montefaro... un monestereo de la orden tercera de san francisco*” (a monastery of the Third Order of Saint Francis). It is also mentioned in Fernán Pérez de Andrade’s will of 1397 and in the *roboratio* that accompanies Andrade’s coat of arms to inform of the nobleman’s promoterate, mentioned above (Ríos and Fraga, 2019). The typology of the conventual dependencies of Montefaro must have been austere, preserving the structure of the monastic tradition. At the end of the 14th century, the documentary sources mention the conventual spaces in a cursory manner, without a specific specification. The Brief of Benedict XIII (1396) states that the friars received from Andrade “*domibus et aliis necessariis officinis, ad usum vestrum et successorum vestrorum*”. This is the most common formula in the pontifical documents addressed to the tertiaries that reflects the image of these small enclosures.

The medieval structures preserved in Montefaro, the documentary and cartographic sources, as well as the comparison with other monasteries, allow us to consider the organisation of the spaces of Santa Catalina and their dimensions. The house had a cloister that organised the space. Rebuilt in the 17th century, it preserves the structures and walls of the medieval masonry bays, making it possible to calculate the approximate area of the cloister and of the monastery. The cloister courtyard measures ca. 240 m², a far cry from the dimensions of the conventual Franciscan monasteries that doubled their cloister dimensions (ca.

484.8 m², 443.1 m², 314.6 m² respectively in the Franciscan monasteries of Ourense, Lugo and Viveiro) and closer to the measurements of the observants of Trasouto (ca. 306 m²). This consideration demonstrates the concern maintained by the medieval tertiaries to avoid constructive excesses and a departure from the conventual orientation of the Franciscans (Ríos, Fraga, 2018, p. 195). A drawing of the monastery of Santa Catalina made by the cartographer Bernardo Gómez ca. 1639 shows the cloister, probably already renovated, as well as the inclusion of a new fountain at its central point. Around this cloistered space are the medieval outbuildings and church (Archivo General de Simancas, MPD 62, 004). The tertiary and observant friars maintained the monastic tradition of the *claustrum* as an image of paradise, the microcosm mirror of the macrocosm for the monk. It was also the organising element of the monastic space. Originally, it was probably only an enclosure intended to isolate the friars from the world, as Francis advised his companions who remained in the eremitical branch (Guerra, 2003, pp. 104-105). The utilitarian rooms were arranged around this space, as we have studied in other research. In the eastern bay, the convent of Montefaró had the bell tower and the chapter house and, taking advantage of the unevenness of the terrain, a utilitarian room whose function is unknown, perhaps the hostelry as in Vilalourete, or perhaps the cellar according to the plan of 1895 (Archivo General Militar de Segovia, sec. 3^a, div. 3^a, leg. 502).

The refectory, *sala de profundis* and kitchen were located on the northern wall, an arrangement reused by the army in the 19th century.

The west sector of the cloister has been significantly modified over time. It was probably the site of the medieval friars' dormitory and the porter's lodge. The dormitory was moved to the upper floor in modern times. The monastery of Vilalourete rebuilt its old cloister between 1687-1695, showing that the distribution of the spaces was very similar to Montefaró; the only variation is in the kitchen, which in Vilalourete was located between the chapter house and the refectory (Gómez Darriba, 2020).

The medieval dormitory of the Galician tertiaries began as a common space, as can be seen in the documentation of Vilalourete in 1395 (Eubel, 1904, p. 304); it soon evolved and was divided into cells (*celulas*) for the brothers, unlike the conventual Franciscans. At the beginning of the 15th century, Vilalourete had individual cells, probably separated by wooden partitions (Graña, 1990, pp. 265-267; 304-307). Thus, the orientation proposed by the Poverello in the Rule for the hermitages was maintained: "let each one have his own little cell where he prays and sleeps" (Guerra, 2003, pp. 104-105). (Guerra, 2003, pp 104-105).

The study of the observant convent of Louro has suggested the use of individual cells with the same typology (Pérez, 2018).

4.2. Montefaro, *ecclesia cum campanili, campana*

In 1396, the pontifical brief reported that the noble Fernán Pérez de Andrade had ordered to raise for the tertiaries of Montefaro *unam ecclesiam cum campanili, campana* (Eubel, 1904, p. 304). In Galicia, sections of the factories of the tertiary and observant temples of the Middle Ages have been preserved. The analysis of their structures and the comparison between them allows an approximation to their dimensions and typology. Among them, the Montefaro building stands out, offering exceptional documentary and graphic sources that facilitate its reconstruction.

From the analysis of its construction and the planimetry produced since 1895, it is possible to affirm that the plan of the tertiary church had a single longitudinal nave, without transept, an apsidal chapel with a quadrangular plan and a smaller width than the nave. In elevation, the medieval main chapel was covered with a pointed barrel vault or ribbed vault. This space was transformed at the beginning of the 18th century. The conjecture about its medieval typology is based on the comparison with the tertiary temple of Louro and some nearby parish churches such as San Nicolás de Neda, both raised at the beginning of the 15th century (Pérez, 2018; García, 2010-2011). The nave was covered with a wooden frame and was organised into three bays, visible on the outside of the north wall, compartmentalised by the buttresses. Each bay had a flared window with a pointed profile (drawing by Bernardo Gómez, 1639; 1897 photograph by Pascual Rey). This temple morphology is also similar to the temples of the Second Orders of the Mendicants, Poor Clares and Dominicans, especially those built at the beginning of the 15th century (Santa María de Valdeflores, Viveiro), since the former had a hemipolygonal main chapel and, therefore, greater complexity than the tertiary and observant orders. This same typology is common in the architecture of the TOR in other Hispanic settlements.

The dimensions of the tertiary and observant temples in the Hispanic northwest are related to the type of small/medium church according to the classification proposed for the Galician mendicants (Manso 1993, I, p. 98). Thus Montefaro maintained an approximate length of 20.75 m. (after the military occupation, 26/28 m.); its medieval dimensions are similar to the Observants (Louro, ca. 23.82 m.; Trasouto, ca. 21 m.) and to parish churches (San Nicolás de Neda, ca. 21/22 m.) (García, 2010-2011); closer to the mendicant churches of the Second Orders than to the Dominican and Franciscan conventual churches. They are therefore considerably different from the Galician conventual

Franciscan and Dominican churches (long churches, between 38 and 57 m.).

The interior of the church was conceived as a multi-purpose sacred space. The possibility of administering the sacraments and the recitation of the divine offices made it necessary to place the choir of friars in the main chapel and its surroundings, to raise altars for the worship of different devotions – to place altars in the church of the said monastery and in each of the chapels where the friars could sing and celebrate masses – which seemed to distance itself from the recommendations of Saint Francis to his brothers to celebrate a single mass a day (Vaamonde, 1909).

Four medieval arcossolia were located in the nave of the church at the end of the 19th century; only one remains. There were undoubtedly numerous burial places, some of them mentioned in medieval documentation, which may be recovered in future restoration campaigns.

In contrast to the Franciscan churches, which mostly used a simple belfry, the presence of a bell tower has been noted in tertiary churches as one of their identifying signs (Vilalourente, Melide) (Ríos and Fraga, 2018). As can be seen in the drawing by Bernardo Gómez, ca. 1639, the Montefaro tower was located in the northeast corner, flanking the apse.

In 2019, the *concello de Ares* commissioned Crecente y Asociados S.L., to study the medieval doorway of the church, requested our work to propose a hypothesis of its reconstitution based on the fragments preserved in the Museo Arqueológico de San Antón and in the Montefaro Interpretation Centre. The task seemed impossible. However, the memoirs of the military engineer Enrique Vidal y Rúa offered important clues to achieve our objective, through his comments and mentions of the pieces found, embedded in the wall after the interventions of the modern period. The analysis of some of the preserved pieces facilitated the establishment of the hypothesis. The doorway of the temple maintained the sequence of musical and liturgical angels, an ideal theme for the entrance door to the church, given its consideration as a metaphor for the Heavenly Jerusalem (Fraga et al., 2019).

It is not typical of the Middle Ages to include angels in a doorway without alluding to sacred figures. The angels exalt Christ as the Redeemer and the Virgin as a sharer in her Son's mission. Undoubtedly, the doorway had a tympanum whose theme must have been Marian, since the documentation alludes to an altar-chapel dedicated to the Virgin Mary. In addition to the fact that the Order maintains an intense Marian devotion, the origin of the community was built around the chapel of Santa María de

opposite page
Fig. 1
 Proposed
 reconstitution
 of Montefaro,
 Galicia, Spain
 (Drawing:
 Ricardo Pérez,
 following
 indications from
 Fraga, Ríos,
 Barral, Crecente
 and de Santiago.
 Crecente y
 Asociados S.L.,
 commissioned by
 Concello de Ares,
 2019).
[http://cabi.com/
 es/estudo-hi
 storico-e-da-
 ilustracion-
 da-portada-
 gotica-de-santa-
 catarina-de-
 montefaro\](http://cabi.com/es/estudo-historico-e-da-ilustracion-da-portada-gotica-de-santa-catarina-de-montefaro/)
 © Concello de
 Ares.



la Merced de Chanteiro. Saint Catherine, the main patron saint of the monastery, was also to figure in the chapel.

Some references, such as the tertiary tympanum of Santa María a Nova in Santiago and the churches of Betanzos, helped to suggest the tympanum with the image of the Virgin Mary with the Child on her lap in high relief. It would be accompanied by the figure of saint Catherine of Alexandria, perhaps praying, flanking the Virgin. Her symbol, a wheel, could balance the tympanum's figuration on the other side of the Virgin. This image is justified by iconographic precedents in the collegiate church of Santa María do Campo in Coruña, whose north tympanum depicts the martyrdom of Saint Catherine with the wheels. Recently, during the refurbishment of the kitchen, the symbol of the Martyr was rediscovered, of medieval origin, reused in the later work.

5. Conclusions

The friars of the TOR present spiritual and organisational affinities with the observants in their origins, but also some singularities. The study of the monastery of Santa Catalina de Montefaro highlights the assistance to the sick, the poor and pilgrims as a service proper to the tertiaries in the hospitals of Pontedeume and Betanzos, which differentiates them from the observants.

Their promoter Fernán Pérez de Andrade III, concerned about the maintenance of their memory and salvation, commissioned the friars to offer prayers and masses *pro anima*. His Franciscan fondness and Marian devotion is reflected in his support for various other foundations.

In the dynamics of the TOR in Galicia, the monastery of Montefaro shares a morphology common to the first generation of houses raised by the Observance. The singularity of this monastery lies in the conservation of structures and documentation that allow a reconstitution of the medieval morphology of a tertiary convent.

The town *concello de Ares*, concerned about its conservation, promotes its declaration of BIC, as well as various actions for its rehabilitation that it commissions to Crecente y Asociados. In the last two decades, various actions have been undertaken for the maintenance of the building that must necessarily have continuity, given the deterioration of an architecture that has not yet been able to be fully restored due to lack of subsidies. A commendable task is that undertaken by the *Asociación de Amigos del monasterio de Santa Catalina de Montefaro*, who fight for the preservation of this heritage, promoting initiatives for its social use.

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**RE-NARRATING CULTURAL HERITAGE IDENTITY. THE
CHURCH OF THE NATIVITY IN 'TRATTATO DELLE PIANTE
ET IMAGINI DE I SACRI EDIFICII DI TERRASANTA'
OF BERNARDINO AMICO AND DIGITAL HISTORY-MAKING
REPRESENTATION**

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Abstract

The study presented here is part of a broader research aimed at defining content for museum spaces by analysing and comparing systems of representation (past and present) of the city of Bethlehem. The paper intends to compare the drawings of the Basilica of the Nativity published in 1610 (authorised in 1609) and 1620 within Bernardino Amico's 'Treatise' and current forms of digital representation. These representations allow for an imaginary journey (already undertaken by the recent bibliography) into the complexity of Franciscan architecture. Furthermore, Amico's drawings invite a comparison with modern languages of graphic description of space and a reflection on the current need to re-signify ideological-religious representations (the Treatise encouraged new crusades to ensure access to the Holy Land for Christian pilgrims). Historical reflection, drawing analysis and digital survey, with virtual reconstruction and printed prototyping, become functional to the attempt of an innovative interpretation for the re-narration of identity, both of intangible and architectural Cultural Heritage.

Keywords: Architectural history, Digital Representation, Basilica of Nativity.

opposite page
 Figg. 1-2
 Frontispieces
 of the *Trattato
 delle piante et
 imagini...*, 1609
 (left), 1620 (right)

1. Introduction

The value of the idea of the Basilica of the Nativity as universal cultural heritage has always shaped the rhetoric and histories of Franciscan architecture in the Holy Land¹. In addition to the objective, often weak, current international policies for the protection of historical monuments, it would be necessary to aim at the patrimonialisation of the urban context in which the Basilica is inserted. The need for documentation and preservation of the tangibility of an extraordinary architectural work and its intangible memory can become vital for the future of local communities. In this sense, the study of the representations edited by the Franciscan friar Bernardino Amico, first in 1610 (on frontispiece 1609) and then in 1620, can be the starting point of a research project related to the contents of a musealization (Figg. 1-2).

These should use digital representation as a tool for the re-telling of an identity of the intangible cultural heritage and at the same time of the tangible architectural heritage. Of course, our re-narration of identity intends to unhinge the notion of ‘identity as an insuperable barrier’ (Prosperi, 2016), and rather wants to emphasize the concept of multi-identity of a place considered sacred. It is possible to narrate this multi-identity as the existence of a deep ‘level of the individuality’ belonging to different collectivities, and therefore to be protected as a shared and shareable heritage. The representations in Bernardino Amico’s *Trattato*, one of the first illustrated volumes to disseminate the monuments of the Holy Land, are not conventional images, precisely in the sense given by Eco regarding the cultural comparison of images (Eco, 2011).

Indeed, we can consider such representations, on the one hand, in their analogical mode, and on the other, in a cultural interpretation mode. The hypocoicons – in Peirce’s sense – of the Basilica of the Nativity thus become composite elements of iconism and indicial similes. With the Amico’s *Trattato*, born with the politico-devotional objective of proposing a guide to the places in the Holy Land, we have the first co-presence of texts and images of the Christian monument in a complete form of hypocoicons.

At the present time, when the already difficult historical and geopolitical context has been further enriched by issues related to the advance of the uniform culture common to all the world’s peripheries, the city of Bethlehem has retained that multi-identity character, born well before the spread of the stereotypes of identities created by religious powers first, colonial later. Then as now, the use of the Basilica of the Nativity’s images can

¹ This contribution is the result of a joint work of the authors: for the final draft, however, paragraphs 1, 2 are due to Massimiliano Savorra, and the paragraphs 3, 4 are due to Silvia La Placa, who also edited the English translation and iconographic apparatus.



therefore be traced back to the political purpose of spreading a new way of conceiving a monument with different identities. A local and at universal memory museum, such as the one being established in the city of Bethlehem, should be aimed at disseminating an idea. This idea was born precisely from the representation of the par excellence multi-identity artefact and its diachronic and synchronic context.

2. Bernardino Amico and the 'Trattato delle piante et imagini de i sacri edificii di Terra Santa'

Franciscan architect belonging to the Observant Friars Minor, Bernardino Amico of Galipoli (1576?-1620?) arrived in the Holy Land in 1593. Here he held various positions in the Franciscan hierarchy. For six months he served as Custos in Bethlehem and in 1596 he was called to preside over the Custody of the Holy Sepulchre. A year later, as chaplain of the merchant community in Cairo, Amico was sent to Egypt. During his stay in the Holy Land, the friar systematically documented the architecture of the main holy places of Jerusalem and Bethlehem (Shalev, 2011).

Friars were perpetually burdened with obligations related to the maintenance of buildings and the accompaniment of not well prepared convoys of pilgrims arriving from the West.

For this reason, friars found themselves locked in a conflict concerning rights and privileges against their Eastern Orthodox rivals. The latter often succeeded in recruiting the Ottoman authorities of the Holy Land to their side. The Franciscans began a campaign to publicize and promote the cult of the Holy Land in Europe, with the aim of obtaining moral and financial support. In Amico's time, the Franciscans had assumed a pro-Iberian position, which combined diplomatic campaigns with the trafficking of relics and with the publication of images of sacred places. Already in the Renaissance period, the phenomenon of publications for the description of the Holy Land sanctuaries spread:

“These books sought to stir their readers to action in a variety of ways: some, by enumerating the eye-popping indulgences earned by pilgrims to the Holy Land; others, by dramatizing the Holy Land's suffering at the hands of its Muslim rulers. Above all else, however, this literature sought to paint a vivid picture of the Holy Places as they actually appeared to contemporary travelers, inviting readers to imagine themselves transported on an arm-chair or 'mental' pilgrimage through the streets of Jerusalem” (Beaver, 2013, p.57).

As Richard Krautheimer clarified, since the Middle Ages, descriptions, representations and copies served to reproduce the visual aspects of the model, a mirror of the symbolic content (Krautheimer, 1988). But the numerous medieval buildings, especially late ancient, Byzantine and Romanesque were conceived, often without reference images, as a copy of a known archetype, such as the Basilica of the Holy Sepulcher or the Basilica of the Nativity. For this reason, the replicas turned out to be the result of an imitative practice that reflected a cultural hierarchy (which depended on symbolic value). At the end of the sixteenth century, a book printed with images and detailed measurements of the Christian sanctuaries of the Holy Land was intended as a guide for pilgrims and a handbook for architectural design. Back in Italy in 1598, Amico thus worked on the publication of a book which was approved in 1609. The first edition (March 28, 1610, on the title page MDCIX) was dedicated to Philip III, king of Spain (k. 1598-1621), while the second (1620) to Cosimo II dei Medici, Grand Duke of Tuscany (k. 1590-1621)². The volume that Amico gave to the press could have belonged into the genre of travel publications, like those of Breydenbach. However, it represented the first attempt to illustrate in an almost objective way the Holy Land pilgrimages places. The illustrations were the result of precise measurements and surveys carried out in the field by the author himself (Beaver, 2013).

Based on his own drawings, the friar decided to have the engravings done, first by Antonio

² For a philological comparison of the editions of Amico's *Trattato*, present in various institutions and libraries, see a future more in-depth study.

Tempesta for the Roman edition, and then by Jacques Callot for the Florentine one. Amico's *Trattato* consists of a systematic and accurate documentation of Christian traditions and monuments.

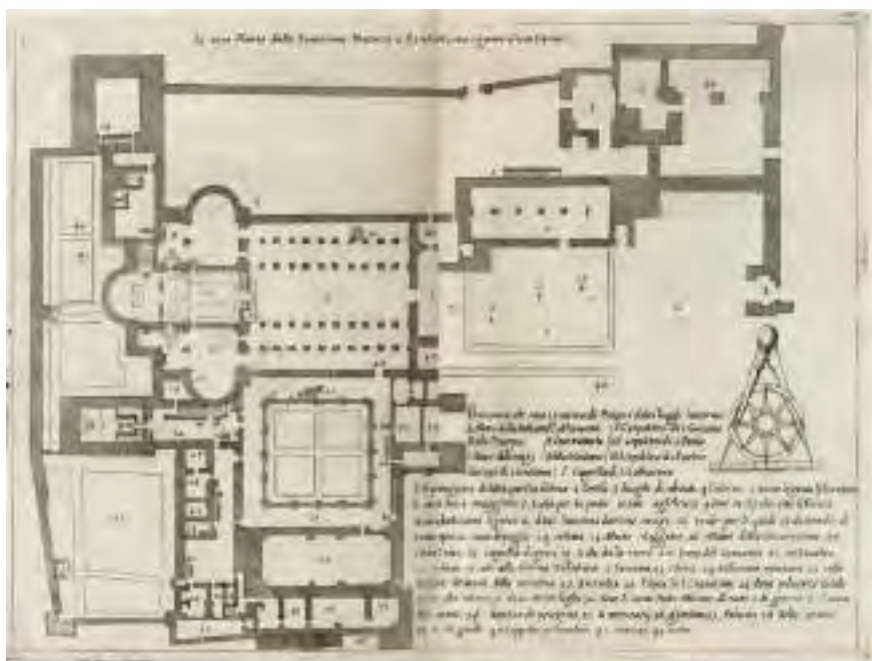
The publication censuses the monuments and memories of the Franciscans, and for this reason it could also be considered as a prime example of promotional monastic mapping and documentation. However, Amico explains the aim of his *Trattato* from the very first pages. In the preface to the first edition, Bernardino exhorts Philip III of Spain to begin a new crusade to ensure Christians access to holy places and to protect the Franciscan Custody. Also, in the second edition, Amico emphasizes the same aim for Cosimo II. Guided by a visual logic, the *Trattato* takes the form of a commented architectural investigation of the Christian Holy Land.

The architectural representation assumes a particular power for Amico, as, he thought, this was capable of inspiring in the reader the devotion towards the pilgrimage churches. It has been recognized that this notion of power is the same as the basis of the concept of 'virtuality', the 'virtus' capable of generating specific effects (Summers, 2003). Although in the early modern age there was no formula to indicate what we now define as 'virtual', the book suggests the importance that certain perspective views assumed in the narration of places (Blair Moore, 2021). Amico's documentation methods and types of drawing and surveying tools are not known (Shalev, 2011).

However, he applies some strategies of perspective representation, coordinated between internal and external, or sequential. These define particular effects which not only facilitate the reader in understanding the spaces, but allow him, in a certain sense, to 'enter' the illustrated building (Zorach, 2007). The Basilica of the Nativity in Bethlehem is the first building that Amico presents in his *Trattato* (Fig. 3-4). In the description of the Church, the reader finds explicit allusions to the expressive power of the architectural renderings. Once the layout and dimensions of the rooms have been presented in plan, Amico inserts a perspective view of the complex in the text which, in its three-dimensionality, appears almost to emerge from the page. Furthermore, the textual description invites the reader to concretely imagine the architecture, closing one eye and fixing the open one on the central point of the illustration. Amico even suggests turning the book from side to side, to maximize the effect of tangible architecture (Blair Moore, 2021). The friar applies the refined use of Renaissance language in the architectural representation, following the specific desire to facilitate in the pilgrim the impression of actually moving, through the drawing, in the holy space.



Fig. 3-4
Plan and
foreshortened
perspective view
of the Basilica
of the Nativity
in Bethlehem.
The images were
taken from the
1620 edition of
the Trattato.



The details represented, as well as the information about the number of spaces and their sizing, contribute to the process of imaginative reproduction of the complex. Thus, the highly foreshortened perspective of the architectural system of the Nativity becomes, even in the two-dimensional support of the paper print, a real model of the site. This model allows pilgrims to examine the multiple internal passages. Amico's survey, rendered with meticulous detail in the planimetric drawings, also allowed the production of wooden scale models of the Nativity Church (Shalev, 2011). The refinement of the documentary and textual techniques applied by Amico on sites of considerable complexity, makes him a forerunner of the current techniques of representation for the virtual use of spaces.

3. Analog and digital comparisons

In recent years we are witnessing an exponential growth of technologies and the number of digital products related to the field of representation. The analysis of the urban and architectural heritage today makes use of new tools and methodologies, aimed at understanding and transmitting not only the structures but also the historical-cultural values they represent. The instrumental and methodological evolution in the field of drawing is in part closely connected to the wide diffusion of innovative techniques applied to the documentary and survey process. Nowadays, by applying the appropriate acquisition and post-production methods, 3D laser scanner tools, 360° cameras and drones allow to obtain three-dimensional duplicates of complex morphologies that are metric and geometric highly reliable. Innovations in the documentation of Cultural Heritage find maximum communicative expression when associated with inclusive fruition methods, which range from the systemisation of platforms and applications for Virtual and/or Augmented Reality, up to the solid prototyping of the documented artefacts.

The study of historic architecture in the Holy Land is confronted with the representations of orientalists in the communicative value of symbols and holy places. Since 2014, the University of Pavia and the University of Florence have conducted numerous researches on the monumental complexes of the Middle East for the development of analysis and documentation systems of the architectural heritage. The architectural survey campaign of the Basilica of the Nativity in 2014, financed by Piacenti S.p.a, and the urban survey campaign of the historic center of Bethlehem in 2018, financed by AICS within the project "3D Bethlehem-Management and control of urban growth for the development of heritage and improvement of life in the city of Bethlehem", has made it possible to structure a highly reliable three-dimensional database (Fig. 5) of the city (Parrinello, 2019). Numerous investigations were developed from the database at different levels, with the aim of narrating the

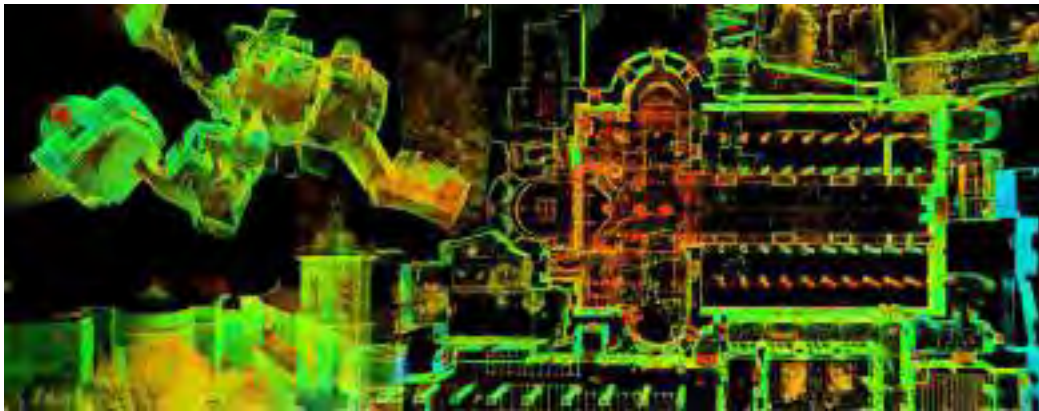


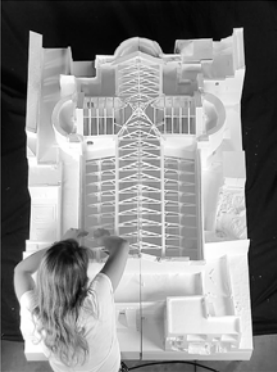
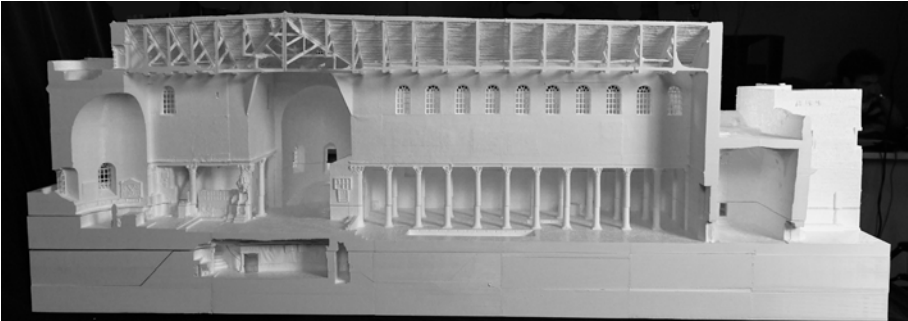
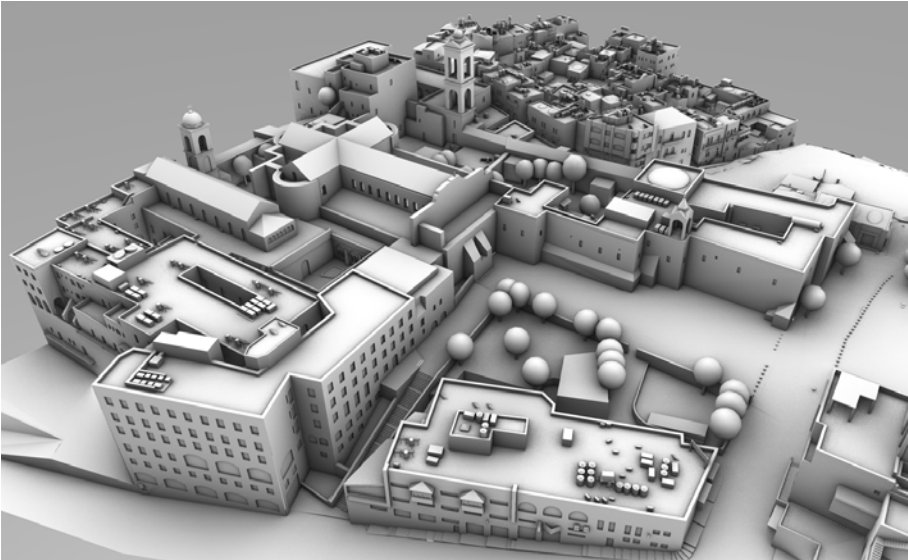
Fig. 5
Views of the point cloud of the Nativity Church. The image is processed by the DAda-LAB research group of the University of Pavia.

Fig. 6
View of the 3D model (Rhinceros software) of the Nativity Church complex and its urban surroundings. The image is processed by the DAda-LAB research group of the University of Pavia.

Fig. 7
View of the 3D printed model of the Nativity Church. The image is processed by the DAda-LAB research group of the University of Pavia.

Basilica of the Nativity current conformation through drawing, and of being able to convey the cultural and religious aspects that qualify it. The acquired information was processed and reconfigured into interactive NURBS and mesh models (Fig. 6). On the one hand, the results made it possible to define three-dimensional environments of critical synthesis of the heritage and to start experiments aimed at structuring virtual scenarios, for the remote use of monumental complexes (Picchio et al., 2019); on the other, the results have led to the printed prototyping of concrete three-dimensional models, in a process that goes from the real, to the digital, to the real (Fig. 7). The replicated physical model is certainly one of the most effective and accessible representation tools for the morphological and cognitive reading of architecture. Its dimensions, in scale with respect to reality, allow the user to understand, even only on a tactile level, the composition and complexity of the built heritage.

Despite the experiments made possible by the digitization techniques of architecture, over four hundred years later, drawing continues to take the form of a privileged methodological structure for analysis, understanding, and cultural promotion. Compared to the drawings published in the Treatise, digital brings numerous advantages both in terms of reduction of acquisition times in relation to the amount of information obtainable; and in terms of being able to quickly configure a large number of heterogeneous outputs. Current technologies allow the user to achieve the goal of virtual interaction with the environment, which Amico suggested through the skilful use of perspective. At the same time, however, these technologies lead to a progressive loss of imaginative capacity.



4. Conclusions

From the vigorous and immediate representations of the Amico's *Trattato*, to the forms of virtual and tactile fruition created by the researchers of the University of Pavia, the use of the image intends to constitute new and enhanced ways of narrating the monument. Both products, the engravings and the digital models, are the result of an elaboration, which arises from a scientific and rigorous process of analysis of real space. The history of measurement, in its sense of a set of practices, tools and related meanings, shows how (apparently) objective representations are not enough to make explicit the cultural changes that qualify a specific reality over time. The continuous growing research on the theme of drawing for the communication of heritage is proof of this. Measurement is rather configured as a verification action, performed with instruments that increasingly tend to obtain a precise and accurate value, to allow the researcher to analyze and control what is around him. However, there is a knowledge that is not necessarily quantitative but at the same time fundamental to understanding places. A design action was launched within the SMART BETHLEHEM project for the definition of a new museum space, with the ambition of being able to preserve and transmit over time the multi-identity character that has qualified Bethlehem since its origins. In this re-configured space, the historical memory of the city will be collected, starting from the new forms of dissemination and enhancement of the Basilica, par excellence multi-identity architecture, and interactive representation of the urban system. Both products, the engravings and the digital models, are the result of an elaboration, which arises from a scientific and rigorous process of analysis of real space. The history of measurement, in its sense of a set of practices, tools and related meanings, shows how (apparently) objective representations are not enough to make explicit the cultural changes that qualify a specific reality over time. The continuous growing research on the theme of drawing for the communication of heritage is proof of this. Measurement is rather configured as a verification action, performed with instruments that increasingly tend to obtain a precise and accurate value, to allow the researcher to analyze and control what is around him.

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THREE CLOISTERS, TWO CHURCHES AND A TOWER. FROM COLEGIO DE MISIONES DE SAN JOAQUIN TO CONVENT OF SAN FRANCISCO IN CALI, COLOMBIA (1751-2010)

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Abstract

The founding of Colegios de Misiones on the American continent was a response to the growing secularization of both the missions and the native doctrines in the viceroyalties of New Spain and Perú and sought to reverse the decline in the regular clergy (Abad Pérez, 1992). In practice, the activities of the Colegios de Misiones were divided between “popular preaching, the conversions of infidels, and the spiritual ministry in the towns where they were established” (Mantilla, 1986, p.18). The desire to have a convent for Franciscan friars in the city of Cali (Colombia) dates back to the 17th century (Zawadzky, 1937), but the first stage of construction began in the second half of the 18th century, reaching an entire block near the end of the 19th century. Currently (2023) the Franciscan convent of San Joaquín de Cali includes three patios or cloisters with two floors each, two churches, and a bell tower in the southwestern corner of the convent block (the Torre Mudéjar). With the aid of historical research and the use of 2D and 3D digital drawings and video made especially for this writing, this contribution aims to address a brief history of the complex from the 17th century until the first decade of the 21st century, when an extensive historical and architectural survey was made by the CITCE Research Center, Universidad del Valle, in view to distinguish the building complex of the Franciscan Order as a national monument of Colombia.

Keywords: Franciscan Order, Colegios de Misiones, Latin America, Gobernación de Popayán, Cali.



Fig. 1
 Franciscan
 convent of Cali,
 2009. View from
 the southwestern
 corner. In the
 foreground, the
 Mudéjar Tower
 and the Chapel of
 La Inmaculada.
 (Source: Kimmel
 Chamat Archive.
 Courtesy of
 Constanza Cobo
 Fray).

1. The Spanish-American Franciscan missions, 16th-18th centuries: evangelizing in the New Continent

Facilitating the integration of the natives into the colonial social structure has been one of the principal goals of the religious organizations that have migrated to American territory since the first third of the 16th century. To ensure their safety and to start their education, the caciques' and principal chiefs' children were initially sent to convents. Such a strategy was believed to speed up his conversion to Christianity. The main mode of indoctrination was catechesis, instruction on religious subjects through questions and answers. In addition, children were taught to read, write, sing, and obey the rules of 'corporal police' and social.

With the expeditions of Fray Juan de San Filiberto, around 1527, the Franciscan presence began in the territory of what is now Colombia. However, the Order was established around 1550 by organizing its headquarters in Bogotá and Tunja, and the 'Custodia de

San Juan Bautista' was run by Fray Jerónimo de San Miguel. The Custody was subordinated to the Province of the Twelve Apostles of Lima, later joining the Province of Santafé of the New Kingdom of Granada, erected in 1565 (Abad Pérez, 1992, p. 219).

The founding of Colegios de Misiones on the American continent was a response to the growing secularization of both the missions and the native doctrines in the viceroyalties of New Spain and Perú and sought to reverse the decline in the regular clergy (Abad Pérez, p. 145). The Colegios de Misiones, which had been used successfully in Italy and Spain, were:

“(…) houses where the religious were formed for the apostolate among the faithful [,] with a very hard regime in study and prayer, where [,] well-founded in piety and doctrine, they were ready to affirm and awaken the dormant faith of the Christian faithful” (p. 121).

In practice, the activities of the Colegios de Misiones were divided between “popular preaching, the conversions of infidels, and the spiritual ministry in the towns where they were established” (Mantilla, 1986, p. 18).

During the 18th century, one of the main promoters of the creation of the Colegios de Misiones in the Province of San Francisco de Quito was the Commissioner of Missions, fray Fernando de Jesús Larrea Dávalos (1699-1773). In 1753, he created the Colegio de Misiones de Nuestra Señora de las Gracias de Popayán, by exchanging it with the Colegio de San Bernardino de Pomasqui. In that same year, he consulted the Council of the Indies to obtain permission to found the Colegio de Misiones of Cali (Fig. 1); Carlos IV signed the Royal Certificate of Approval in 1756 (Zawadzky, 1947, p. 85; Mantilla, 2000, p. 605). 1757 was the year of the formal creation of the College, although its construction only began in 1760 (Arboleda, 1956, pp. 300-301); the first buildings were inaugurated in 1764 (Zawadzky, 1947, p. 107). In 1768, the General Minister of the Indies formally constituted the Colegio de Misiones, naming Father Larrea as its first guardian (1768-1772), and supported the definitive formation of the *discretorio*, with which, at least within the regulations, the College it could already start working on (Siabato, 1926, p. 143; Zawadzky, 1937, p. 17; 1947, pp. 85-96).

The Colegios of Popayán and Cali were subordinated to the Province of San Francisco de Quito. Quite a few conflicts soon arose regarding the jurisdiction of both Colleges for the collection of alms, which led to the temporary suppression of the College of Cali in 1771 (Mantilla, 2000, p. 663).

In April 1863, during the second government of Tomás Cipriano de Mosquera and the development of the law ‘on national police in the matter of cults’, the government of the United States of Colombia seized religious and civil properties that were not circulating in the real estate market (‘dead hands goods’), to sell them and obtain resources for the

operation of the State, or to distribute the land of rural properties among small owners. Very few of the expropriated buildings were returned to their former occupants. In most cases, the buildings located in urban areas were destined to serve the different dependencies of the national order: schools, customs, prisons, barracks, hospitals, governorships, and courthouses.

The Colegios were not exempt from such regulations. In Popayán it was not necessary to apply it, since its College of Missions had already been extinguished. The Franciscans of Cali were expelled from the College, which led to the extinction of the institution (Mantilla, 1986, p. 45). In 1868, the Council of Cali made a request to the Congress of the United States of Colombia, arguing that “Mosquera’s decree exempted from the dispossession of religious, churches, and buildings intended for the service of the institute, such as episcopal houses, schools, etc., and the Cali building was from its foundation [a] College of Missions” (Siabato, 1926, p. 152). Upon receiving an affirmative answer in 1871, the Council subdivided the complex and gradually returned the buildings to the Franciscan community between 1871 and 1886 (Zawadzky, 1937, p. 18; Palacios, 1896, p. 50; Lopera, et al., 2000, pp. 10-11; Siabato, 1926, pp. 144-152).

In 1897, Pope Leo XIII declared the definitive suppression of the Colegio de Misiones; the General Minister of the Franciscan Order separated the Colegio de Misiones de Cali from the jurisdiction of the Comisaría del Perú, subordinating it to the Franciscan Province of Santa Fe de Colombia, and turning it into a convent (Zawadzky, 1937, p.15).

In the 20th century, two of the main activities of the now convent of San Francisco de Cali were suppressed: the chorister school, and the novitiate. The first was transferred to Bogotá in 1924; the second, which restarted work in mid-1887, was finally closed in 1956, when it was decided to move it to Ubaté, near Bogotá (Siabato, 1926, pp. 154-158; Mantilla, 1986, p. 28). Although it had a baccalaureate for those children who were not yet of novice age, the Minor Seminary or Seraphic College, this educational institution also moved outside the convent, first to the north of the city, and later to the south, on land from the ‘La Umbría’ farm, Pance sector, where in 1970 the University of San Buenaventura Cali would be born.

2. The Franciscan convent complex in Cali, Colombia: background, history, and transformations, 1751-2010

The desire to have a convent for Franciscan friars in the city of Cali dates back to the 17th century; according to Zawadzky (1937),

“(...) the [Royal] Lieutenant, Juan] Palomino [Tello de Meneses,] had bequeathed funds to found a convent of the Order in the city. And they even started the factory, which was later abandoned for reasons that we have not been able to specify exactly” (p. 15).

This was confirmed by Arboleda (1956):

“(...) in the middle of the 17th century, an attempt was made to establish a Franciscan convent in Cali; a building was started for this purpose, but then (sic) it was demolished (...) the Royal Lieutenant, Palomino, who had left a sum in his will for such a religious house, declared the clause for the demolition null and void. to which we allude, in 1671” (p.260, note 1; pp. 195, 202-203, 214, 235, 237).

The available information does not offer any indication of the site where the ill-fated convent began to be built. Already in the 18th century, and even without having the Royal Certificate that authorized him to erect the Colegio de Misiones de Cali, Friar Larrea entrusted the choice of plots to one of his subordinates, who decided on a location to the west of the city, on the hill where the chapel of San Antonio was already erected. Larrea rejected such a choice, citing the inconvenient location of the plots concerning the city center, given their distance and the relative difficulty of accessibility; and he leaned towards the purchase of other lands, located within the founding trace. However, by the time the Franciscans established themselves in Cali, more than two centuries had passed since the founding of the city, and the land had already been largely distributed. As a result, the complex was close to the square, but not on it. It was about

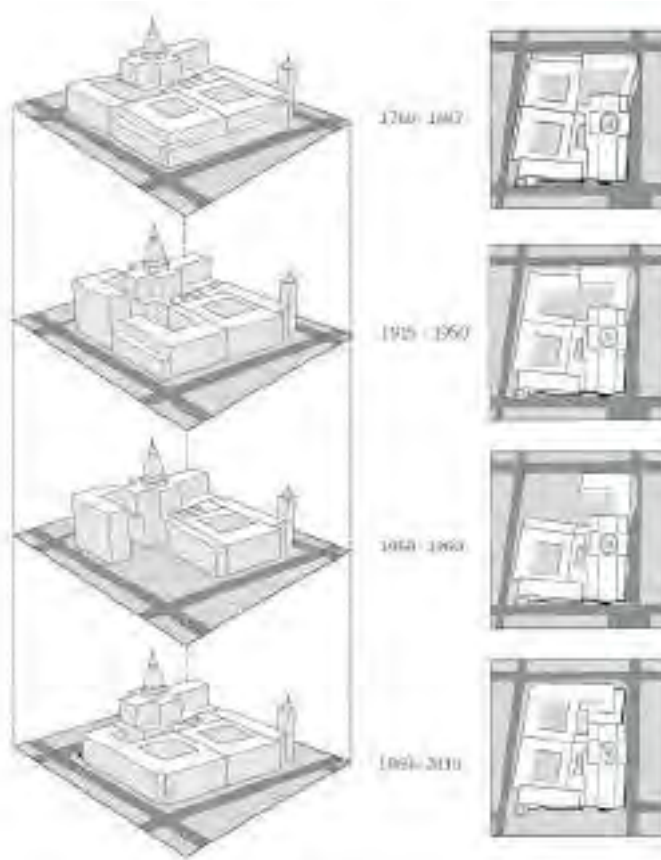
“(...) two plots of land that his part has, and owns in the layout of this city[,], which are [of] one block in length, and a half in width, more or less, that its boundaries are[:] on the upper part[,], near the middle[,], with lots belonging to the Maestre [de Campo] Don Francisco Vivas, and Micaela Ordóñez[,], deceased[;] on the lower [part][,], middle street[,], with lots belonging to Mr. Maestre de Campo and Real Ensign[,], Mr. Nicolás de Caicedo, and Mr. Vicente Palacios[;] on one (sic) side [,], middle street[,], with the house of Don Pedro del Valle and Doña Ignacia Garcés, and on the other side with the house of Toribia Peláez (...)”¹.

Currently (2023) the Franciscan convent of San Joaquín de Cali includes three patios or cloisters with two floors each, two churches, and a tower in the southwestern corner of the convent block (the Torre Mudéjar), which serves as a bell tower. The two churches are

¹The deed was made on July 29, 1751, as recorded in the Chapter Books that rest in the Historical Archive of Cali, Notary Public Fund, First Notary, Volume 25, year 1751, folios 59v-61r.



Fig. 2
Franciscan
Convent of Cali.
Changes in the
complex, 1760–
2010. Aerial
views from the
northwest,
and top plans.
(Source: 3D
drawings by
Gabriela Lucio,
2023, based on
AutoCAD 2D
plans
prepared by the
CITCE Research
Center, 2007).



perpendicular to each other; the oldest one shows its main façade facing west, while the main façade of the most recent church, San Francisco, faces south. The complex is completed by an unfinished service patio and an accommodation wing in the northeast corner (Fig. 2). Since 2004, the latter has been declared as a national monument (República de Colombia, Ministerio de Cultura, 2004).

The oldest part is made up of the cloister on the southwest corner, the chapel of La Inmaculada, and the Torre Mudéjar, whose construction was completed around the third quarter of the 18th century.

It is not known when the cloister on the northwest corner was built; according to Fray Alberto Lopera, it was built on the old orchard and stables of the convent, and temporarily performed novitiate functions (Lopera, 2002). This cloister already existed around 1890, because it was mentioned in the report that the guardian Ignacio M. Sans ad-

dressed in 1890 to the General Minister of the Franciscan Order. In 1957, its eastern side had already been demolished. As for the cloister that existed in the northeast corner, it is known that it was completed at the end of the 19th century (Siabato, 1926, pp. 154, 158). In 1942 it was still standing, but by 1957, it had already been replaced by a five-story building. Around 1897, the cloister of the sacristies was built (Sebastián, 1965, pp. 53-54), which articulates the chapel of the Immaculate Conception and San Francisco.

In the course of the 20th century, the complex experienced substantial architectural changes that had an impact on the interior and, to a lesser extent, the exterior look of the buildings. The configuration of the cloisters remained more or less the same until the beginning of the 1950s when typological and scale changes were introduced.

A photograph from before 1915 showed a construction with a single-pitch roof, attached to the eastern wall of the Torre Mudéjar and running along the southern façade of the convent church practically up to the side entrance. Its date of origin is unknown, but by 1917, it had disappeared. When the reform of the convent church was still in its early stages, on June 7, 1925, there was an earthquake that damaged the Franciscan complex block and partially collapsed the cupola of the church of San Francisco. The dome was demolished and replaced by another, according to the design of the firm Borrero & Ospina, completed in 1927 (García Vásquez, 1965, p. 25).

According to García Vásquez, “in 1927 (...) another strong seismic shock tried to crack the structure of the isolated [Mudéjar] tower, whose interior was reinforced with iron rings” (1965, p. 25). This intervention included the construction of concrete reinforcement beams linked by metal bars.

On the occasion of the preparations for the celebration of the fourth centenary of the founding of the city of Cali, to be celebrated in 1936, the IV Centennial Board contracted Pedro Alberto Acuña, a renowned artist, for the execution of several works in the Franciscan complex. The first of these consisted of making the railing of the lateral atrium of the Chapel of La Inmaculada (García Vásquez, 1965, pp. 3-6). The largest interventions were carried out on the side façade of the old conventual church, on the exterior façades of the San Francisco church, and on the San Francisco Tower (Torre Mudéjar):

“(...) the restoration of the Torre Mudéjar of San Francisco basically consisted of removing the layer of lime cloth that had been applied to the exterior façade, exposing the brick figures; [the] figure was copied from one of the bricks and [was] built as a parapet in the upper openings with the supposed purpose of providing security (figure). Subsequently, [the] drapery was also removed from the Church of San Francisco, and [was] built a façade [in brick] for the old chapel [...], unifying the appearance of the entire complex on Carrera Sexta. The new “neomudéjar” appearance of [the side façade of] the chapel included a pointed horseshoe arch in its keystone (...)” (Ramírez et al., 2000, pp. 95-97).

opposite page

Fig. 3

Franciscan Convent of Cali, Changes in the complex, 1760-2007. View from the northwest. The video is linked via a QR code. (Source: 3D drawings by Gabriela Lucio, 2023, based on 2D AutoCAD plans prepared by the CITCE Research Center, 2007).

Fig. 4

Franciscan Convent of Cali, Changes in the complex, 1760-2007. View from the southeast. The video is linked via a QR code. (Source: 3D drawings by Gabriela Lucio, 2023, based on 2D AutoCAD plans prepared by the CITCE Research Center, 2007).

The Torre Mudéjar kept the original yellowish color of its walls until the 1936 intervention, which stripped it of the plastering and left the brickwork visible.

In 1956-1957, 9th Street was expanded, demolishing the one-story block that faced the street and the original entrance. Around 1969, a wing of the convent on Carrera Quinta disappeared.

For the 450 years of the foundation of Cali, between 1983 and 1984, the recovery works of the Franciscan Convent were promoted. The purpose was to allocate part of it for a museum of religious art. The building in the northeast corner of the block was demolished. There, the construction of rooms for the friars and a public square that adjoined the rear façade of the church of San Francisco was planned. The design of the proposal was entrusted to the firm Lago & Sáenz; the works were not completed, and remain unfinished even today (2023). The last of the interventions carried out in the current Convent of San Francisco de Cali consisted of a partial repair of the roofs in the old cloister of the College, which was carried out by the *Escuela Taller de Popayán* in 2007.

Some of the buildings and cloisters built during that long period of time enriched the architecture of the Franciscan Order complex, but others really did not, regarding their size, scale, and style (figures 3 and 4). In the seventies of the 20th century, and in order to meet the growing maintenance costs, some friars thought that it was very convenient to demolish the entire complex to build a commercial space that would give them a stable income and at the same time leave a smaller sector of the block to accommodate the new convent facilities. Fortunately, they did not achieve their objective. Today, besides the richness of its Spanish and Moorish Colonial style of the original cloister and bell tower, and the Neoclassical architecture of the new church of San Francisco, the Franciscan complex of Cali is the only one in Colombia that still fulfills its original purpose as a convent, which is why, even today (2023), the preservation of the entire block is essential and necessary as a brave testimony of its time.

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CHURCH AND CONVENT OF SAN FRANCISCO IN CARTAGENA DE INDIAS. ITS EVOLUTIONARY PROCESS OVER TIME

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Abstract

Cartagena de Indias, Colombia, will forever be a city admired for all the charm that surrounds it; its landscape, its history and its buildings are evidence of this. Its history denotes a nuanced landscape with magnificent buildings in which the convents and churches, buildings of great historical and architectural relevance, are symbols of the Catholic faith, the one that, in colonial times, the Spanish conqueror imposed on this territory, so that it was reflected, through it, in the modest and simple buildings that are a vital part of the cultural landscape that they make up today. Under these considerations, the first religious order that planted foundations in this territory, for the purpose of attracting souls for the Christian faith, was the religious community of San Francisco de Asís. Its passage through time and its architecture are today the reason for a host of stories that we will recreate through this document.

Keywords: Seraphic ensemble, architecture, heritage.

1. Gethsemane, Land of Independence, place of the seraphic ensemble

History plays a fundamental role in the development of all the evolutionary processes of the human being, involving the collective construction of their thinking in favor of their well-being and beliefs. With these purposes, architecture as an applied technical social science¹, has the particularity of leaving its mark over time, becoming a perennial heritage. This is the case of the old convent and Church of San Francisco located in the traditional and historic neighborhood of Getsemaní in Cartagena de Indias, Colombia.

Cartagena de Indias, historical and cultural heritage of humanity (UNESCO, 1984), is a territory of insular origin made up of two islands, today territorially united. One of them, the founding city of 1533, located to the north of the Colombian Atlantic coast, bathed by the waters of the Caribbean Sea and to the south, the *Arrabal*² de Getsemaní, so called in memory of the *Huerto de los Olivos* in Jerusalem, a territory that The undersigned, author of the book *'Old Church of San Francisco, its history and its architecture'* (2016), called it 'Land of Independence' because absolute independence and the creation of the sovereign State of Cartagena de Indias were gestated there, on 11th November 1811. Well, this territory will be the place chosen by the Seraphic Order as the ideal site for the construction of the Temple and convent of its community, becoming the first (Porto Cabrales, 2000, p. 38) to establish a convent in Cartagena of Indias from 1555. In the search of having a building that would serve to render religious worship, the Seraphic Order built a convent and temple of reeds and palm under the invocation of Our Lady of Loreto. Thus begins a process in which not only a religious temple is built, but also transforms the landscape with a church that will stand out in the distance, as a way of conquering that other peripheral territory called Gethsemane, in a remote connection from the founding city, but which builds a new urban image with a remarkable landscape in the distance. Later, with the passage of time, the chapel of Veracruz (1606) and the Church of the Third Order (1735-1757) were annexed to form the monumental complex of the Franciscan order as a 'Franciscan' landscape of high aesthetic and symbolic value.

¹ Zabaleta Puello. Ricardo Alberto (2019), *Architecture in Cartagena de Indias, its Heritage Assessment*. Instituto of Heritage and Culture of Cartagena – IPCC, (p. 56).

² Masculine noun. Neighborhood outside the enclosure of a population or on its periphery, especially one whose population has a low economic level. Synonyms: suburb, neighborhood, neighborhood. Taken from: <https://es.wiktionary.org/wiki/arrabal> Accessed on 03.5.2023.

2. Historical Review of the old church of San Francisco – Evolutionary process

As already mentioned, the seraphic group became the first religious community founded in Cartagena de Indias, it was in the year 1555, as reported by the chronicler Juan de Castellanos (1589) in his work: *Elegies of Illustrious Men of the Indies*.

2.1. His origins

By the middle of the 16th century, Cartagena de Indias was made up of two islands; the main one with the name of Karamairi which, in the Caribbean language, means ‘Land of Crabs’, today the historic center of Cartagena. The other island, *Ximaní* – today, Getsemaní – located to the south of Karamairi, would be the founding place of the San Francisco church, turning out to be a simple construction made of wood and a thatched roof. In 1559, it was destroyed by pirate attacks by Martín Cote and Juan Beauteemps, forcing the Franciscan community to make a second and definitive foundation. At the initiative of the Secular Cabildo and with the support of Dean Juan Pérez de Materano, owner of the island of Ximaní at that time, he carried out the definitive construction of the temple in the same place (Marco Dorta, 1960; p. 37). In a royal decree dated October 10, 1570 in Madrid, it is stated, according to the testimony of Fray Alonso de las Casas, that in addition to the church, the convent “had begun to build more than seven years ago” and the work was on hold for lack of alms. At that time, the monastery was reduced to a ruined bohío inhabited by the friars and a church “half fenced with boards and the other half with reeds”, which needed “to finish encircling the board” (Marco Dorta, 1960; p. 37).

Dean Materano will become the benefactor and protector of the community and in compliance with a royal decree that so ordered, at the end of March 1572, Governor Fernández de Bustos, together with masons and builders, visited the monastery to inform the Council of the Indies of the works and their cost. The Spanish historian Enrique Marco Dorta (1960) in this regard tells us:

“He needed a ‘stone room for bedrooms, refectories and service of the said convent’, ‘one hundred and thirty feet long and thirty-six feet wide with corridors and the thickness of the walls and main room, and at a height of eleven walls’; it was necessary that the church ‘se acave de cercar de tabla’; and was equally necessary ‘cercarse el dicho convento de paredes de piedra, porque hasta gora no está cercado, para que estén los frayles en la clausura’. The total cost of these works was estimated at five thousand five hundred pesos” (Marco Dorta, 1960; p. 68).

opposite page

Fig. 1

Photo of the seraphic complex, architectural plan of the San Francisco church. Cartagena de Indias, Colombia. Source: (Ricardo Zabaleta Puello).

2.2. Definitive construction of the church of San Francisco

A letter from Governor Fernández de Bustos addressed to His Majesty the King in 1579 gives an account of the direction of the works, referring to the fact that the master Simón González was in charge of them and that the church had been completed, leaving the room where the religious lived ready, as well as the fence of the cloister. At the same time, she requested that the convent be paid the five hundred pesos that she had been granted. The church becomes masonry, conceived as a solid and slender building built with enduring materials such as stone and brick. The temple was built using this traditional technique without changing the original layout. For the last half of the 16th century, according to documents dated in 1594, the Cabildo makes a request to the King for the construction of the church, in which it is also highlighted that by 1596, the work was ‘far ahead’ (Marco Dorta, 1960; pp. 68-69), the foregoing tells us allows us to elucidate the final stage of its construction and that of the adjacent convent. A plan from 1597 attributed to Master Master Simón González that was sent to the Court by Governor Don Pedro de Acuña, reveals the architecture of the complex for the first time: three naves, one central and two lateral, separated by seven columns on each side. of the central nave. Likewise, the octagonal-shaped head of the church forming the main chapel and its apse. On the gospel side, a square space and on the epistle, the fenced lot corresponding to the convent property. For the year 1695, Fray Alonso de Zamora describes the convent as the best in the city: “a building with a beautiful church and cloister, with very capable offices, orchards and delicious views of the bay and bridge” (Marco Dorta, 1960; p. 69). The concept of Fray Pedro Simón in this regard is praiseworthy: “It is the best and most well finished that the city has, capable of forty or fifty religious, although the ordinary ones that there are for being a stopover for all of Peru and a port for this Mainland, there is always a very large number of religious, with whom they go with great punctuality day and night to divine worship” (Aristizabal Giraldo, 1998, p. 9).

2.3. Modifications to the original trace

A 1716 plan made by the engineer Juan de Herrera y Sotomayor, reveals some modifications to the original layout of the Franciscan temple when the octagonal shape of the apse disappeared to give it a more regular appearance by turning it into a square space as it is today. The space destined for the gospel is occupied by the chapel of La Veracruz, later demolished in the 1940s. The contact point between the chapel and the church is notable, which occurs through semicircular arches, which They have been enabled thanks to the restoration project that is currently being carried out throughout



the seraphic complex. And precisely to be able to talk about this set, it is necessary to refer to the emergence in 1735 of the church of the Third Order with which it is complemented.

2.4. Independence and new uses in the seraphic complex

Despite a first cry for independence given on November 11th, 1811, which started from the atrium of the church of San Francisco, absolute independence would come on October 10th, 1821 when the Spanish authorities surrendered before the Colombian troops; new events would begin for the seraphic complex and, in particular, its infrastructure will be used for different and new uses. In this evolutionary process, the Franciscan monumental complex, once fully constituted in 1735, after its original construction in 1555, after being destroyed by the French pirates Martin Cote and Juan de Beautemps in 1559 and rebuilt in 1579, undergoes transformations due to diversity of uses, among others; military barracks for patriots, asylum for poor girls, cigar factory (1840), hat factory (1846), women's prison (1870), beggars' asylum (1906), Normal School for Boys, housing, merchandise warehouse, warehouse of crafts, headquarters of the Circle of Workers of San Pedro Claver that used the temple in ruins for cinematography, and in recent years, the main headquarters of the Rafael Nunez University (Porto Cabrales, 2007, p. 187), which generated changes in its spatial infrastructure.

opposite page
Fig. 2
 Plans of the
 seraphic complex,
 architectural
 plan of the San
 Francisco church.
 Cartagena de
 Indias, Colombia.
 Source: (Ricardo
 Zabaleta Puello).

3. Decline of the convent and church of San Francisco

3.1. Law of Confiscation of Assets of Dead Hands, 1861

Another of the vicissitudes that the Franciscan religious group experienced occurred in 1861 when it passed into the hands of the Central Government during the presidency of the dictator General Tomás Cipriano de Mosquera by virtue of the Law for the Confiscation of Assets of Dead Hands, a law that consisted of the suppression of any religious building, “and in general any establishment and foundation that has the character of perpetual or indefinite duration” (Article 2, Law of 1861), with the purpose that their properties pass to the State.

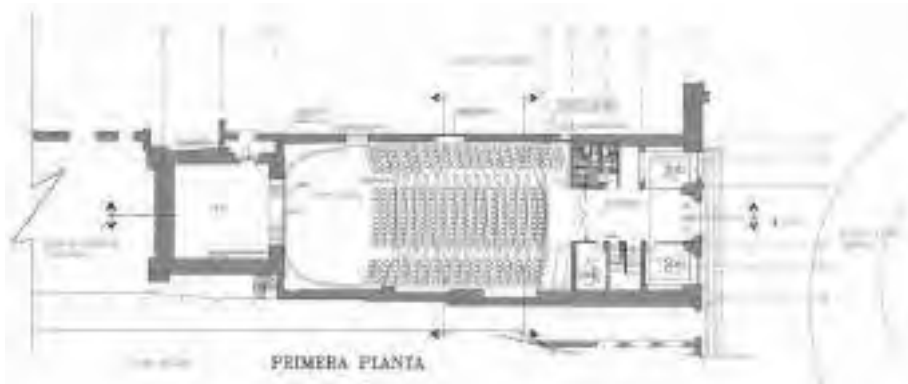
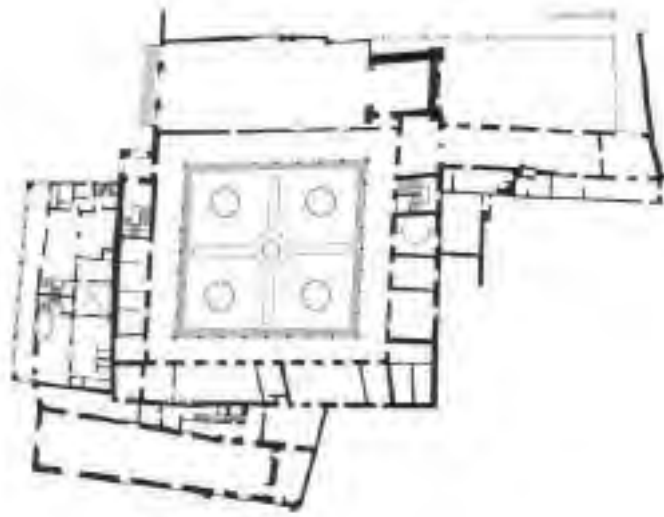
The application of this law would bring about the gradual decay of the seraphic complex, given that the fact of being occupied for uses other than the one for which it was designed, generated modifications that altered its spatial distribution, endangering the urban image that is part of the landscape in which is immersed. By the 1940s the complex was in ruins, however, they were declared a Historic Monument in 1944 by the Cartagena Academy of History.

4. Church of San Francisco, its architecture

The seraphic complex is part of the buildings of the regular clergy with a cloister-type convent temple (central patio) and a church made up of three naves, an apse with a square head in strong stonework separated from the naves by a main arch that spatially defines the main chapel covered with a hemispherical vault supported on pendentives. With a Renaissance façade with marked Baroque influence, it stands out in the landscape for its singular pediment, the sculptural belfry and Tuscan façade in visible ashlar stone.

5. Seraphic set, from decadence to ‘stage’ a new story

By the 1940s, the old church of San Francisco was in a deplorable state, as only its main façade, its perimeter walls, the head or apse with its main arch and pendentives that support the only ‘half orange’ dome that once remained. the colonial era still exists. It was during the government of President Mariano Ospina Pérez (1946-1950), when the Nation handed over the cloister and the church, through a loan contract, to the Circle of Workers of San Pedro Claver, an institution managed by the Society of Jesus, with whom A new recovery opportunity is born for these buildings. The convent will be the headquarters of this foundation and the old church, by 1953-54, would become the Claver Theater, a movie theater that for 48 years



would be the cinematographic delight of many generations of Cartagena.

By 1980, the former Claver theater would pass into the hands of Cine Colombia S.A., who modernized it and baptized it with the name of Teatro Colón, which would continue to this day offering the best films of the moment, closing its doors and lowering the curtain in the year 2001, being abandoned. Curiously, it was declared a National Property of Cultural Interest – BIC – by the Ministry of Culture in the year 2000.

5.1. Seraphic set, Intervention Project, Four Seasons Hotels, its enhancement, 2018-2023

A new opportunity from 2018 values all its characteristics, spatial distribution and all the formal language that identifies it as BIC, as well as strengthening the cultural landscape that together with the neighboring buildings it forms. The Four Seasons hotel project, with a Colombian investment of close to 100 million dollars, returns its splendor in symbiosis with new technologies that will allow it a new use that will guarantee, as a formula for its safeguarding, its projection and history over time.

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THE FRANCISCAN ENSEMBLE IN SÃO PAULO. CONVENT AND CHURCHES

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Abstract

F-ATLAS proposes to bring together researchers interested in the Heritage of the Franciscans in the Italian and Iberian world. Integrating the group with examples from Brazil in the colonial period seems to us an opportunity to include networks scattered beyond European borders in the debate, seeking to understand the capillarity and processes of circulation and appropriation of the canonical of the Religious Order in American soils, as well as to analyze its process of invisibilization in latitudes where urbanization dynamics are more intense. Focusing on the Convent and Churches of the First and Third Order of the City of São Paulo, we propose to analyze the architectural complex, investigating particularities of the tectonic agency, with a focus on materials, techniques and constructive systems, based mainly by the iconographic collection inherited by the Ramos de Azevedo, Severo & Villares Technical Office, belonging to the FAUUSP Library, responsible for the demolition of the convent for the construction of the Faculty of Law, in 1932.

Keywords: Franciscan Ensemble, São Paulo, 19th-20th Centuries.

opposite page

Fig. 1

Planta da Cidade de São Paulo e seus Subúrbios, Eng. Carlos A. Bresser, 1844-1847. Fundação Biblioteca Nacional.

1. The Franciscan Ensemble in the Contemporary Landscape

Located in the heart of a metropolis of 12 million inhabitants, the Franciscan ensemble remaining from the colonial period is partially mischaracterized and lies in front of Largo de São Francisco. Still lacking detailed investigations, it is an example of resilience. It has adapted and survives in the heart of the megalopolis and resists although invisible by the neighboring skyscrapers, alluding to the Lusitanian past amid the surrounding landscape radically metamorphosed between the 19th and 20th centuries. Incredible to imagine how it survives in the historic center of São Paulo among rare examples from the colonial period. The church of the First Order and Third Order of São Francisco remain from the original complex. The front churchyard keeps the toponymy alluding to the Lusitanian past, affectionately called Largo de Francisco.

The set located on the slopes of the hill between the Anhangabaú and Tamanduateí rivers makes up one of the vertices of the triangle, whose points are marked by the three religious orders that settled around the city from the 17th century: Franciscans (on the right), Benedictines (on the left) and Carmelites (above).

However, the Church and Monastery of São Bento were demolished and rebuilt in an eclectic style at the beginning of the 20th century and the Convent and Church of the First Order of Carmo were demolished at the same time, leaving only the Third Order of Carmo in a very mischaracterized ambience. In this sense, the Franciscan ensemble stands out as the most complete remaining of the colonial period in the central area of São Paulo and precisely for this reason deserves attention and conservation, because permanently at risk, despite its charm and resistance to the passage of time. On the slope of the historic hill, the complex resists in front of the Largo de São Francisco in between the effervescent life of the Faculty of Law created in 1827 and installed in the convent in 1828. A beautiful perspective allows framing the Churches of the First and Third Order of São Francisco on Rua de São Bento, borders the Benedictine church at the opposite end.

2. Historical contextualization of the Franciscan complex

In the colonial period, the set was monumental and visible from those who entered the city on the side of the Anhangabaú river.

Together with the Carmelites and Benedictines, the Order of São Francisco began its activities in Brazil at the end of the 16th century, operating in the village of São Paulo only from the 17th century onwards. Vila de São Paulo de Piratininga has its foundation linked to the Jesuits in 1554, becoming a village in 1560 and a city in 1710.



The arrival of the other religious orders only dates from the period of the Union of the Iberian Crowns, under the leadership of the Spanish Crown (1580-1640). Seven Franciscan friars settled in São Paulo in 1639, initially housed in the Church of Santo Antônio, located on Rua Direita, another colonial example still existing in the landscape of the current Praça do Patriarca. In 1642, on land donated by the Chamber of São Paulo, they settled at one end of the hill, on the slopes of the Anhangabaú River, building the Church of São Francisco de Assis and the Convent of São Francisco and São Domingos, inaugurated in 1647. In the middle of the 18th century, the church underwent a major renovation, which gave it the baroque external features it has today. The conventual church gained the galilee – an archaic dependence maintained by tradition by the Franciscans – and a bell tower. The ‘*Ordem Terceira da Penitência*’ dates from 1676, as usual, with a chapel initially connected by an arch to the conventual church, whose works were completed only in 1736, in a space today comprised between the altarpieces of São Miguel and the Immaculate Conception.



Fig. 2
Franciscan complex with colonial features, 1862. Photograph by Militão Augusto de Azevedo. Ramos de Azevedo Collection of the FAUUSP Library. Es19_0117_8.



It lasted for decades until it was expanded in 1783 to become an independent church. The Igreja das Chagas do Serafico Pai São Francisco da Venerável 'Ordem Terceira de São Francisco da Penitência' (Third Order of São Francisco) was inaugurated in 1787, with a plan in the shape of a cross. In the final phase of the works, it was decided that the *façade* would be an extension of the convent church and that the former chapel, with an octagonal plan, would be transformed into a transept. It is one of the only examples with a polygonal plan in São Paulo (the other is the Igreja da Luz). The authorship of the two projects is linked to Friar Galvão, who belonged to the Order of the Franciscans, a good draftsman friar with aptitude for architecture, today canonized. The Church of the Third Order and the First Order were listed by CONDEPHAAT in 1982. Both facades display a beautiful perspective. Photos by Militão Augusto de Azevedo, from 1862, reveal the complex, the churchyard, the crossing and the perspective obtained from the street of São Bento. The churchyard at the time named Largo do Capim was actually a dirt floor with the cross in the center. The lightness and baroque accent of the frontispiece of the churches result from the undulating pediment, the oculi, the more generous openings and

opposite page
Fig. 3
Franciscan ensemble coated with neoclassicist language after the fire of February 16, 1880. Ramos de Azevedo Collection of the FAUUSP Library. Es19_0121_3.



a simulating bell tower. Comparatively, the convent was much more austere, with full spaces predominating over empty spaces and a huge cloister in the middle. Rammed earth (*taipa de pilão*) – the predominant construction technique in São Paulo at the time – made large openings unfeasible and required the presence of a roof with wide eaves to protect the walls from rainwater. Note that the bell tower had a simple wooden structure. At the end of the 19th century, a fire destroyed part of the convent and chapel, which were later rebuilt. The convent was enveloped (*encamisado*) with a brick façade in a neoclassicist style, with the roof hidden by a platband. The Convent of São Francisco, in addition to housing the friars, housed the Faculty of Law since 1828. The program was distributed over two floors: on the first floor were the classrooms, the washbasins, the academic center and the garden; on the second floor, the library, the Hall of Honor, the Ballroom, the Board of Directors and the Congregation Room. The convent was demolished in 1932 and the new headquarters of the college was designed in neocolonial language by the engineer Ricardo Severo (1933-1938), a member of the Ramos de Azevedo Severo & Villares Technical Office, harmonizing with the churches in aesthetic language although presenting a characteristic clearly more monumental.



Fig. 4
Ramos de
Azevedo
Collection of the
FAUUSP Library.
Es19_0126_7.



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Fig. 5
The thick
rammed earth
structural walls
of the colonial
convent are
visible at
the time of
demolition.
Photograph
dated 2/23/1933.
Ramos de
Azevedo
Collection of the
FAUUSP Library.
Es19_0114_3.

Fig. 6
Stone and lime
foundations
on arcades
supported
the original
convent. Ramos
de Azevedo
Collection.
Photograph
dated 2/23/1933.
Collection of the
FAUUSP Library.
Es19_0116_1.

The convent gave way to the new headquarters of the Faculty of Law, built in reinforced concrete and brick masonry and thus much more monumental than the previous buildings. The ornamentation recalls elements from the colonial past, such as wavy pediments, pinnacles and lintels typical of neighboring Baroque churches. But in practice they are appliqués made of artificial stone and stucco.

3. Tectonic issues: materials, techniques and traditional building systems

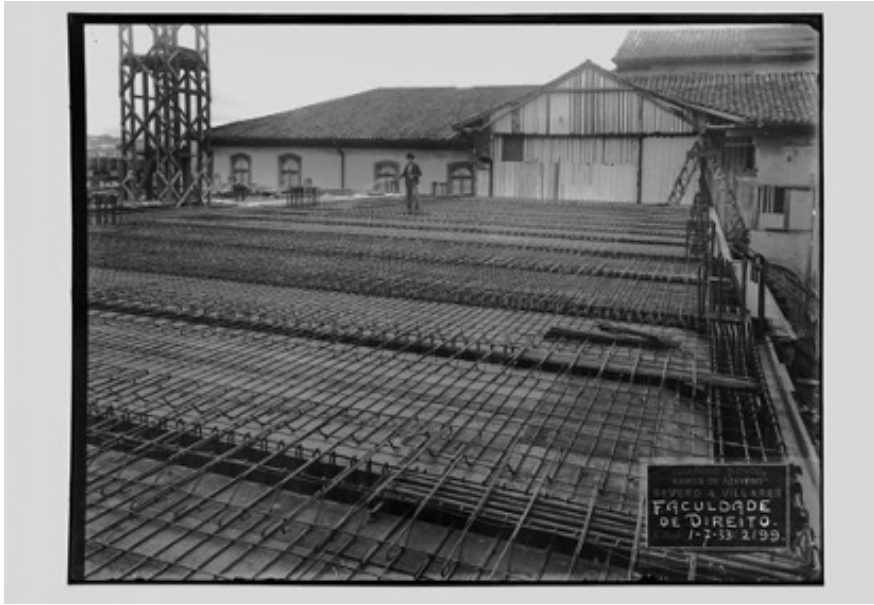
The images from the Ramos de Azevedo, Severo & Villares Technical Office Collection, belonging to the FAUUSP Library, show the entrails of the construction site, revealing the coexistence of mixed, archaic and modern techniques, in the heart of the megalopolis. The Franciscan complex is thus an architecture class.

A hundred glass negatives document the demolition and make it possible to analyze tectonic issues related to the São Paulo Franciscan complex. The original construction technique is rammed earth (*taipa de pilão*) with a stone base – common in the city of São Paulo in the colonial period, which gives it robustness, a certain air of austerity and the predominance of full spaces over empty spaces. The thick rammed





Fig. 7
New reinforced concrete structure borders the rammed earth churches and wooden fences on the side walls, the result of renovations and additions carried out over time. Ramos de Azevedo Collection. Photograph dated 7/1/1933. Collection of the FAUUSP Library. Es19_0114_7.



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Fig. 8
A complex wooden roof crowned the former colonial convent behind the ledge. Ramos de Azevedo Collection. Collection of the FAUUSP Library. Es19_0115_4.

Fig. 9
Ramos de Azevedo Collection of the FAUUSP Library. Photo from 11-11-1935. Es19_0120_2.

earth (*taipa de pilão*) walls and the entire structural system can be seen in the convent's demolition process. But one can also note the use of mixed techniques, with some load-bearing walls also made of stone and others of brick masonry, and normally the one on the upper floors of *taipa-de-mão* (*pau-a-pique*). The foundations stand out deep and the wooden covering shows a complex rigging of the roof to lay the cape-and-channel tiles typical of the Portuguese world, with wide eaves to protect the rammed earth walls from rainwater. The first phase of the demolitions involved the block facing Rua Riachuelo.

The new block was built in reinforced concrete and flanks the body of the First Order church, seen from the side with wooden slats on the side gable and roofs with generous eaves to protect it from the rain. Some of the convent's interior walls were made of half-timbered brick masonry. The complex structure of the wooden roof covering, hidden by the parapet, shows how the roofing system of buildings in São Paulo was during the colonial period. The convent was demolished and gave way to the new Faculty of Law building, built from 1933 to 1935. Contradictions of Eclecticism in Brazil, the old colonial convent gave way to the faculty in neocolonial aesthetic language. Next door, the churches stand relatively well preserved over time.



opposite page
Fig. 10
Ramos de
Azevedo
Collection of the
FAUUSP Library.
Photo from
15-04-1932.
Es19_0112_4.

The Church of the First Order is in a worse state of conservation, with intermittent and poorly articulated interventions; the Igreja da Ordem Terceira, on the other hand, deserved a more careful restoration headed by the DPH (Department of Historic Heritage of the Municipality of São Paulo), being closed for restoration in 2008 and reopened in 2014. As for Largo de São Francisco, today nothing remains of the old churchyard where the Franciscan cross stood. The entire area underwent remodeling in 1934, with the terrain being altered to ease the steep slope of the Vale do Anhangabaú. With that, steps and even a retaining wall were necessary to give access to the churches, which, in some way, harmed the complex.

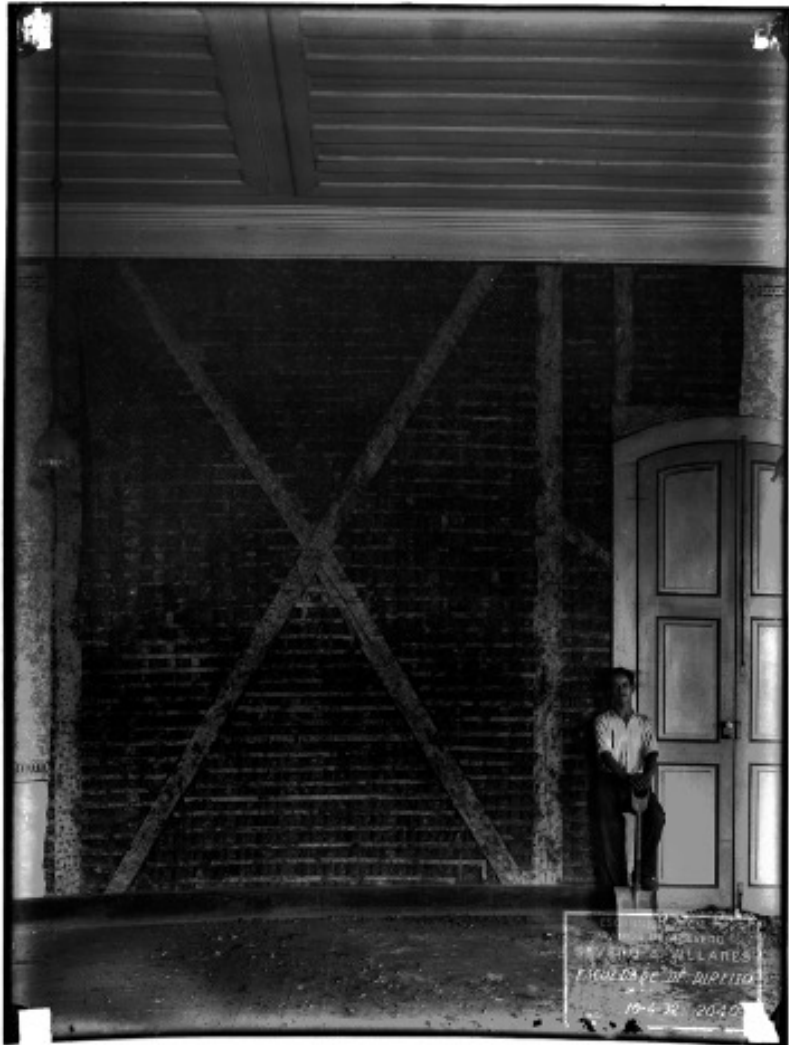
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PART II

Digital Survey and Documentation of Cultural Heritage



FRANCISCAN LANDSCAPES. RECORDING AND MONITORING EUROPEAN RELIGIOUS ARCHITECTURAL HERITAGE

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Abstract

The 'F-ATLAS - Franciscan Landscapes: the Observance between Italy, Portugal and Spain' project focuses on documenting and preserving the Cultural Heritage of Italian-Portuguese-Spanish Franciscan Observance sites, a crucial aspect of European culture influenced by Saint Francis of Assisi. Many of these architectural complexes have lost their original purpose and significance. This contribution describes the methodology used in the project that, combining traditional and innovative techniques, aims to evaluate the current condition of these sites and to create a comprehensive '*atlas*' for conservation and promotion of this important heritage. Special attention is given to peripheral and abandoned areas, emphasizing their historical and cultural significance. By developing a network of cultural and sustainable tourism, the project seeks to connect and unite scattered cultural assets, raising awareness and passing on traditional values. This study, in particular, reflects on the historical origin of Observance in Italy, emphasizing the evolution of architectural typologies over time. The collaboration involves European institutions with expertise in remote sensing, historical analysis, and cataloging, contributing to a holistic understanding of the cultural heritage under consideration.

Keywords: Franciscan Observance architecture, digital survey, sustainable tourism.

1. Introduction

The spiritual heritage left by saint Francis of Assisi (1181/82-1226) is a defining aspect of European culture and endures through his rules, spiritual writings, and mendicant friars' orders. Throughout the late medieval centuries, mendicant friars' impact in shaping urban and rural landscapes has been widely acknowledged. F-ATLAS project aims to examine the network of Italian-Portuguese-Spanish Franciscan Observance sites to create comprehensive documentation for preserving, safeguarding, and promoting this scattered Cultural Heritage. However, many architectural complexes have lost their original purpose and significance. Nowadays, a significant part of this heritage is disseminated in remote locations. The importance of these buildings, coupled with their integration with the surrounding landscape and territories, brings to light the challenges faced by peripheral and abandoned areas. By identifying these critical areas, the project aims to create a map to address these issues. The F-ATLAS initiative proposes a methodology combining traditional and innovative techniques to evaluate the current condition of this mendicant network, with the ultimate goal of creating an 'atlas' of comprehensive documentation and knowledge that can be utilised to conserve, protect, and promote this valuable Cultural Heritage. The primary objective is to enhance the management and monitoring of architectural complexes that have lost their original purpose and significance. Particular emphasis is placed on the Cultural Heritage in peripheral and remote areas, which demands special attention for preserving and conserving its historical features and demo-ethno-anthropological significance, integral to European culture. By developing a network of cultural and sustainable tourism, achieved through the adaptive reuse of these heritage sites following UNESCO Cultural Heritage guidelines, F-ATLAS seeks to connect and unite the scattered cultural assets. This approach aims to raise awareness and pass on traditional values. The collaboration among researchers from diverse countries and fields of expertise contributes to an interdisciplinary approach, fostering a shared language and methodology necessary for implementing collaborative and reproducible protocols (Bertocci et al., 2023a). The operations were carried out within a European research initiative: Italy, represented by the University of Florence, brought expertise in remote sensing and digital surveying; Portugal, represented by ISCTE - Instituto Universitário de Lisboa and Universidade Católica Portuguesa, contributed with historical and technical competencies; Spain, represented by Universitat de Barcelona, played a crucial role in cataloguing the case studies and constructing a GIS system to manage the vast data. Several associated partners, such as Regione Umbria and Ordo Fratrum Minorum, also supported the project.

2. Brief historical notes on the origin of the Observance in Italy

The landscape of numerous Italian and European cities is characterised by the presence of Franciscan convents, which were constructed by the Franciscans and can be categorised into three leading architectural families, each adhering to specific canons and typologies. The term *conventus* originated from the idea of a ‘gathering’ or ‘conference’, which also referred to the architectural structures encompassing the church and all the nearby residential buildings. The conventuals represented the oldest branch of the friars and played a significant role in constructing buildings during the twelve-fourteenth century.

These convents marked the transition from the early period when friars were itinerant to when they formed regular communities devoted to following the principles of Francis. Usually the convents of the Observant friars are distinguished from those of the Conventuals for greater sobriety of the buildings: the settlements are usually located on the fringes of urban centres to encourage the friars’ industriousness and preaching. Still, there was no shortage of examples of small convents or hermitages located in marginal or remote regions to encourage spiritual contemplation. The *de familia* or *de observantia* friars lived in hermitages or simple dwellings within small towns, strictly observing the *Regola* (Rule) without additions or interpretations (Cottini et al., 2023). In 1368, the Observance movement was officially established by Paolo Trinci from Foligno, who, together with a small community, retreated to the hermitage of Brogliano near Foligno (Bernardino Aquilano, 1902). During the 15th century, the Observants gained a certain level of independence (Amonaci, 1997).

In 1517, thanks to Pope Leo X, they fully separated from the conventuals and formed the second Franciscan family branch under the name of *Regularis Observantia* (Fois, 1985). A significant reform emphasising eremitic life was initiated by Matteo Da Bascio in 1525. Those friars who joined this reform were known as the Friars Minor of Eremitic Life, later recognised as the Capuchins. Eventually, in 1619, the Capuchins achieved complete autonomy as an independent order (Amonaci, 1997).

The events of modern and contemporary history have profoundly affected regular religious communities, and the buildings intended for them have been subject to spoliation and transfer of ownership or, in some cases and especially in suburban areas, also used for local agricultural production or left in a state of ruins due to neglect. The interventions collected in this volume give an overall picture of the historical events that led to the birth and spread of the Movement in Italy and other European countries.

This study has contributed to the knowledge of the most widespread forms of Observant architecture, with reference also to the peripheral or marginal areas of the territories af-

ected by the project, constituting a corpus of historical evidence once linked by solid ties with the territories themselves. This *corpus* also comprises case studies of interest for developing future strategies of possible valorisation about the connections between territories, distant but structured according to common logic. The development of the Order's settlements in Europe has followed the ancient road connections, the stages of development of local society and culture within the framework of European society between the Middle Ages and the modern age. It still shows exciting aspects that could contribute to the development of greater sustainability of tourism in terms of reducing environmental impacts and disseminating knowledge of shared cultural values.

3. Research methodologies

Data gathering operations were aimed at obtaining sufficiently comprehensive documentation that allowed the selected case studies to be analysed and related to each other, to assess the spread of possible architectural types, modes of use and relative state of preservation, and to evaluate the possible impact within the territorial context, both in terms of history and current situation. One of the objectives of the project was to outline a territorial framework for the development of the order's settlements in the territories of Umbria (Italy), Portugal and Spain that could form the basis for contributing, with subsequent phases of analysis that may be carried out, to the formation of an overall picture of the phenomenon (Bertocci et al., 2023a).

The use of digital technologies for data collection and management has characterised the entire course of the project. The project itself it is based on the opportunities offered by current digital tools in the fields of remote sensing, photographic and photogrammetric documentation, and georeferenced management of census, infographic, historical and documentary data. The chosen architectonic and environmental complexes are emblematic case studies related to the main issues affecting the architecture of the Franciscan Observance, identified during the analysis carried out by data-sheet census.

The resulting database can be used by the relevant administrations and political decision-making bodies, including any interested stakeholders, as needed: as a tourist route, as a study of the development of specific artistic and architectural features of conventual complexes aimed to the compatible conservation, as a set of best practices for the enhancement and possible compatible reuse of abandoned convents, and finally as a virtual space for the remote enjoyment even of architectures that are not directly accessible.

3.1. Digital survey campaigns

Below is a summary of the main digital surveys carried out over the three years of research development on the buildings cases study of the project. In August 2020, the Italian team first visited and surveyed some Franciscan places of worship: Eremo delle Carceri in Assisi, San Bartolomeo convent in Foligno, Santissima Annunziata convent in Gualdo Tadino, San Francesco in Monteluco convent in Spoleto and San Francesco a Monteripido convent in Perugia. The fieldwork involved analysing the case studies to make a datasheet census regarding the complexes' history and architectural and surrounding landscape features. Accurate photographic documentation of all the case studies was taken with digital cameras, drones and 360° cameras, along with a laser-scanner digital survey of the Eremo delle Carceri (Bertocci, 2022; Cottini, 2022a; Cottini, 2022b) and the San Bartolomeo convent (Bertocci et al., 2023b; Bertocci, Cioli, 2023).

Since the 1st of July 2020, ISCTE-IUL has carried out a preliminary census and case studies mapping. Once the thirteen case studies have been identified in the Portuguese territory – supported by the literature review, cartographic and toponymic consultation and analysis, and interviews with local people and entities – a preliminary location map was compiled, constituting a support tool for future field visits. The first four Observant settlements along the Minho River have been selected for deeper analysis: Santa Maria de Mosteiró in Valença, Santa Maria da Ínsua in Caminha, São Francisco de Viana in Viana do Castelo, São Paio do Monte in Vila Nova de Cerveira.

In February 2021, the Italian team visited and worked in a relevant Franciscan place of worship: Basilica Papale di Santa Maria degli Angeli in Porziuncola, in Assisi, Perugia, while in April 2021 they carried out the documenting operations in the Sacro Speco di Narni, Terni (Cioli, Lumini, 2021). The fieldwork, in addition to the digital survey operations, involved live streaming of the in situ procedures for the students of the remote F-ATLAS International Seminar – March-May 2021 (Ferrari, Cottini, 2021). The Italian team also visited Convento di San Francesco in Stroncone, Terni (Bordini et al., 2021) and Convento di SS. Annunziata in Amelia, Terni, to obtain quick photographic documentation and gather information for the datasheet census. In June 2021, the Italian and Portuguese teams worked in Convento de Nossa Senhora de Mosteiró in Cerdal (Volzone, Ferretti, 2022), in Convento de São Francisco do Monte in Viana do Castelo (Cioli, Cottini, u.p.) and in Convento San Payo in Vila Nova de Cerveira. A laser-scanner digital survey was made of the external and internal spaces of Convento de Nossa Senhora de Mosteiró and Convento de São Francisco do Monte to obtain a 3D point cloud. In addition, an accurate photographic campaign of the case study was taken

with digital cameras and a drone. For the Convento San Payo, a quick photographic campaign was made of the external spaces and the church, with reflex cameras and a drone. In August 2021, the Italian team worked in Romita di Cesi in Terni, Umbria, Italy (Cottini, Becherini, 2023), carrying out a laser-scanner survey and a photogrammetric survey with SfM technique, with digital cameras and a drone. In September, the Italian and Portuguese teams performed the same operations in Santa Maria da Ínsua, in Caminha, Portugal (Cottini, 2022b; Becherini et al., 2022; Volzone et al., 2023). The first week of digital survey operations in Spain was performed in November 2021. On the occasion of the survey campaign, a workshop was conducted with eight students from the University of Florence on the theme of digital laser-scanner and photogrammetric survey in the conventual complex of Sant Miquel d'Escornalbou in Tarragona (Soler Sala et al., 2023). The second week of digital survey operations in Spain was implemented in February 2022, when the Italian and Spanish teams conducted a survey campaign. Instruments such as laser scanners, digital cameras, drones and GNSS antennas were used in Convento Franciscano de Chelva, Valencia.

4. Reflections on the architectural typologies of the Observance convents

The project aimed to examine the standard features of the settlements under investigation to determine whether or not the existence of architectural typologies by referring to the fundamental census of Observance convents carried out in the Tuscan territory by Amonaci (Amonaci, 1997). Starting from the history of the first followers of Francis who, complying with the Rule, preached in open spaces and churches then retreated to shelters on the edge of urban centres, and analyzing the first results of the the project cases study, we can define some typical characteristics of the buildings and the territorial context and environments examined. The first phase of the early 13th century is characterised by the use of existing caves and buildings, such as the Porziuncola and San Damiano in Assisi, with few necessary interventions (Lunghi, 1986; Giacometti, 2014).

“These structures, called loci or locelli, are located in the woods or caves dug into the rock or close to cliffs. The loci were therefore made up of huts made of branches and branches that could refer to an aggregated community structure often exploiting pre-existing rock hermit sites or abandoned pre-Christian places of worship. The Minorite movement spread in central Italy with extraordinary rapidity, influenced by the figure of Francis. Still, soon there was the need to overcome the eremitical phase and to settle in stable locations, closer to urban or rural communities” (Amonaci, 1997).

A second phase, after the impulse given to the order by San Bernardino da Siena, began in the second half of the 14th century with the spread of the regular *Observantia*, which in Umbria found a particularly fertile ground: the increase in followers led to the use, with reorganisation, of *romitori* or small convents linked to the memory of Francis, and in 1380 Paoluccio Trinci was appointed commissioner of twelve observant convents of the Seraphic Province. Starting from this period, numerous sites were expanded with buildings of small size. These sites were particularly dear to the franciscan tradition and mainly related to the hermits that began to constitute themselves in conventual *cenobi*, such as the Eremo delle Carceri in Assisi, Speco di Narni, Greccio and La Verna in Tuscany (Lunghi, 1986; Giacometti, 2014).

With the development of the Order in the 15th and 16th centuries, numerous settlements began to evolve through the construction, restoration and rebuilding of churches and convents in the city and the countryside. This is the case of the Basilica of Santa Maria degli Angeli in Assisi, started in 1569 by the will of Pius V, which incorporates the Porziuncola (Scotti, 1989). Another example is the convent of San Bartolomeo in Foligno, which is a paradigm of the adoption by the Reformed community of the schemes of the *cenobites*, developed starting from the organisation of the Benedictine typology adopted in most of the analysed conventual settlements. The representations in the Altobellian manuscript, as Amonaci write in his research publication (Amonaci 1997), allow us to outline common typological orientations of the Franciscan builders for the churches and convents of the Order. Churches can have a single nave and square choir structure with trussed roofs with, or without, a false wooden ceiling. Usually, the presbytery space is slightly raised. In some buildings, we note the presence of a single side aisle or nave, which houses numerous secondary altars, usually added in the sixteenth century. Typically, the choir, one of the most important places for the friar's community in the church, has square or rectangular plants; the circular one is more rear and, in all settlements, is separated from the nave of the church by the main altar structure named *tramezzo*. Regarding the convent, reference is generally made to the classic scheme of the *cenobites* with four buildings' arms articulated around a central cloister, usually porticoed on all four sides. On the one hand, there is the church, tangent to the cloister, arranged preferably, but not exclusively, to the north. On the opposite side are the kitchens with accessory rooms. On the normal side of the church, in correspondence with the head cross, the refectory and, when present, the chapter house.

In the fourth arm are the other service areas, the dormitories and the cells on the upper floor. Common places are in the most extreme corner of the building, namely the wash-



Fig. 1
Aerial view of
the Eremo delle
Carceri, Assisi
(photo: Marco
Medici, 2020).



houses and latrines. Inside the cloister is a well with an underground cistern, the primary water source for the community and adjacent to the convent, a small enclosed garden, a source of livelihood for the community. All this, however, is achieved with a tone of greater simplicity and smaller dimensions than the previous large conventual constructions. Usually, the dimensions of the cloister are contained between fifteen and twenty meters per side, and the length of the church is proportionate to it, equal to the longer side of the cloister plus about a third for the choir's development.

The church is small and does not stand out visually from the convent. It presents some innovations, such as the presence of a second nave or side chapels and is almost always covered with vaults. The choir is separated from the hall by a partition that contains the high altar in its architectural articulation. An essential element is the porch in front of the facade that functions as a resting place and meeting place; it gives access to both the church and the monastery and can occasionally welcome travelers and pilgrims. In many cases, the convent is also attached to the 'forest', a forest of tall trees that the friars use as a timber reserve to preserve the ideal contact with nature. As we have previously seen, the kitchen garden is protected by a boundary wall, and

opposite page
Fig. 2
Aerial view of
the Convento di
San Bartolomeo
(photo: Marco
Medici, 2020).



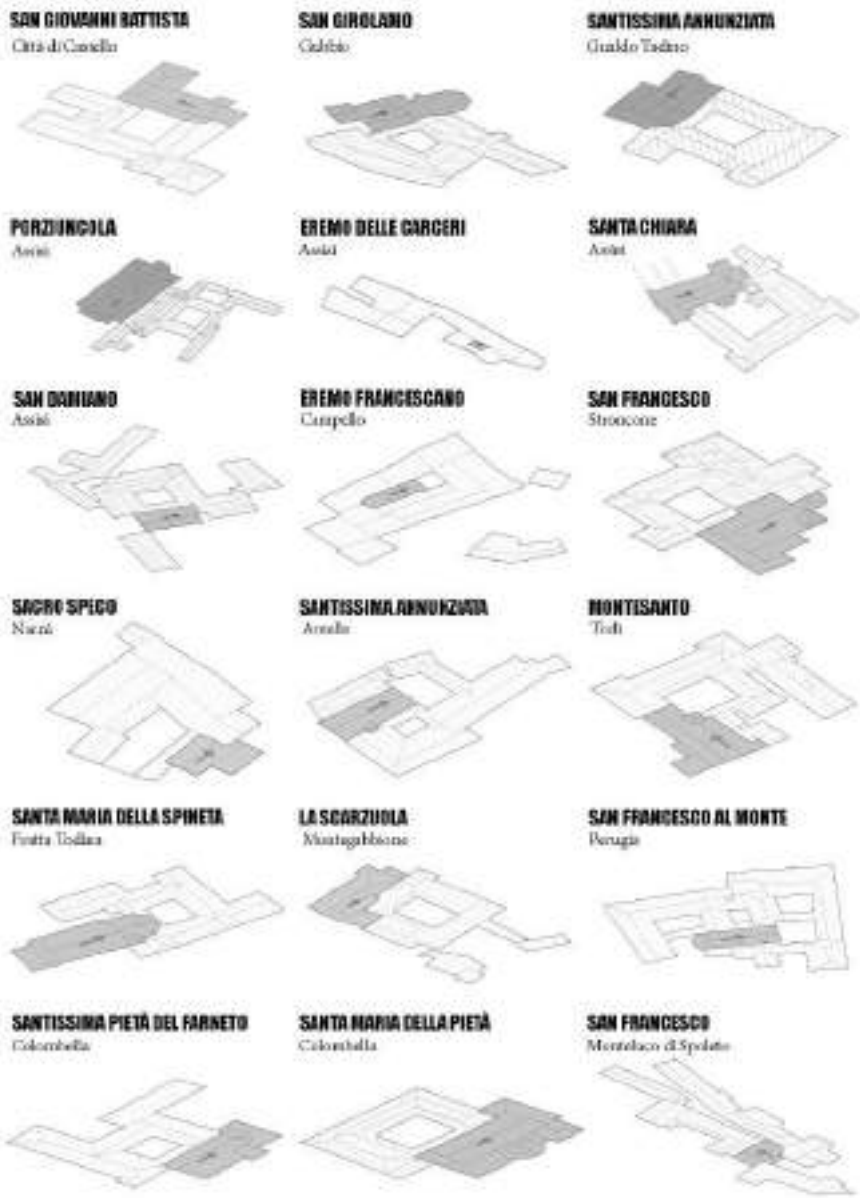
the wood and the proximity of a water course or a spring are features common to the two settlement typologies (Bertocci, Cioli, 2023). For the European historical events, many of the Franciscan architectural complexes that have come down to us, particularly those located in marginal areas, as often the convents of the Observance, have lost their functions and original values. Many of these settlements are in a state of neglect, resulting in a loss of the identity of the places. Their strong link with the landscape and the surrounding area makes them critical strategic points for developing tourist and hiking routes that contribute to rediscovering places rich in history and culture. For these reasons, the architecture of the Franciscan Observance was chosen as an emblematic example of coexistence between architecture and territory, reflecting an integral part of European culture.

5. Conclusions

The development of integrated and coherent approaches to the preservation of tangible, natural and intangible cultural Heritage considers the interdependence of the various disciplinary areas, not by limiting the study of cultural heritage to the built one but also by considering its social value to the community. It is essential to consider the cultural con-



Fig. 3
Summary of the architectural typologies founded in the case studies of the F-ATLAS project (credits: Michela Cabiddu).



text and the active communities within the territories under investigation, which must be involved in the governance strategies through a participatory and community approach. The dissolution of the religious orders occurred primarily in the 19th century. The consequent abandonment and sale by the State of significant assets, in addition to climatic factors, disasters — such as the recent earthquakes in central Italy — have determined the precarious conservation conditions of many of these buildings, which therefore require the definition of current and sustainable strategies for the conservation and management of this heritage today highly vulnerable. These complexes, which often remain in a decentralised position to urban centres, and their close connection with the rural landscape and the surrounding area exemplify in an emblematic way the problems of peripheral or marginal regions and contribute to the definition of a critical map.

The project, in conclusion, also aims to reach some proposals related to the development of new strategies for the use of Heritage through ICT (Information and Communication Technologies) and innovative methods of exploration and interaction with the Cultural Heritage, such as, for example, through the identification of equipped cycling and hiking routes. The expected results will foster awareness of European citizenship based on shared values and common goals and promote a better understanding of European history based on the importance of this physical heritage, ‘architectures of the spirit’ with intangible values and naturalistic aspects of great interest.

The growing need for remote access to information, which became apparent during this pandemic period, combined with the urgent need to develop more forward-looking and sustainable tourism management tools, make the data acquired from digital surveys not only valuable databases for the management and knowledge of the Heritage but also potential dissemination tools, thanks to modern technologies related to E-tourism and Virtual Tourism (Augmented Reality and Virtual Reality technologies), which are considered powerful means of cognitive communication.

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**DIGITAL SURVEY FOR THE INTERPRETATION OF THE
BASILICA OF SANTA MARIA DEGLI ANGELI IN ASSISI.
FROM THE PORZIUNCOLA OF SAINT FRANCIS TO THE
BASILICA-RELIQUIARY OF GALEAZZO ALESSI**

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Abstract

The following work was developed in the framework of the F-ATLAS Franciscan Landscape project by conducting part of the studies analysing the Basilica of Santa Maria degli Angeli and the architectural relics it contains and exalts. The analysis, based on a careful investigation of the current state of the building, is intended as a further contribution of knowledge to retrace the pivotal points of the evolution of the Porziuncola and the Franciscan settlement that grew up around it up to the days of Pope Pius V, who commissioned the architect Galeazzo Alessi in 1569 to build a basilica worthy of reviving the importance of the mendicant orders. The study involves interpretative hypotheses of Alessi's project based on the digital survey of the basilica, which provides an adequate cognitive framework for further investigation.

Keywords: Integrated digital survey, Franciscan relics, cultural heritage.

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Fig. 1
Basilica of
Santa Maria
degli Angeli
(photo: Pietro
Becherini).

1. Digital survey of the Basilica of Santa Maria degli Angeli

The present work was developed in the framework of the F-ATLAS Franciscan Landscape project (Bertocci et al., 2023; Bertocci et al., 2020; Cioli et al., 2022) by conducting part of the studies analysing the Basilica of Santa Maria degli Angeli and the architectural relics it contains and exalt (Fig. 1). The Marian sanctuary in fact stands as protector of the symbolic places in the life of Saint Francis: the Porziuncola, mother church of the Franciscan observance, the Chapel of the Transit, place where Saint Francis died, and the Chapel of the Roses, built on the spot where the saint's cell was located.

The digital survey, aims to understand the value of the architectural and ecclesiastical heritage, represents a process of understanding that increases the knowledge regarding the building structures under study. Today, digital documentation is essential for developing a knowledge and enhancement project consonant with the architectural and structural peculiarities of the investigated site.

For these reasons, implementing adequate investigations to obtain a truthful representation of the building under consideration is crucial. In the specific case of the Basilica of Santa Maria degli Angeli in Assisi, the subject of this study project, bibliographic surveys, and archival research accompanied the laser scanner and photogrammetric survey documentation. The data collection campaign for the digital survey took place on several occasions starting in 2021 and was conducted by the F-ATLAS project team led by Prof. Stefano Bertocci of University of Florence.

The study, based on a careful investigation of the current state of the building, is intended as a further contribution of knowledge to retrace the pivotal points of the evolution of the Porziuncola and the Franciscan settlement that grew up around it up to the days of Pope Pius V, who commissioned the architect Galeazzo Alessi, in 1569, to build a basilica worthy of reviving the importance of the mendicant orders.

The analysis involves interpretative hypotheses of Alessi's project based on the digital survey of the basilica, which provides an adequate cognitive framework for further investigation. In February 2021, an integrated laser scanner and photogrammetric digital survey campaign was carried out, which was subsequently deepened with a further photogrammetric survey campaign in January 2022, to obtain reliable digital data on the architectural and decorative features of the case study. The survey of the Basilica required several phases. A preliminary investigation provided the drawing of overall sketches to understand the structure's volumetry and the survey's campaign design. A more detailed analysis of the architectural surfaces, supported in the accessible portions by direct survey operations of details, is necessary to understand the articulation of the construct, also

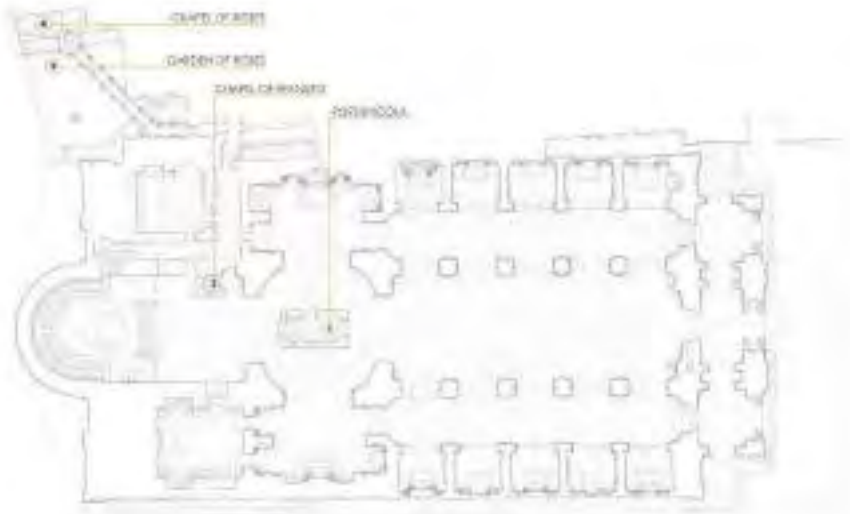


decorative, of the complex internal architectural apparatus. The laser scanner survey campaign provides reliable three-dimensional digital data, and the photogrammetric SfM survey delivers chromatic and material data necessary to produce bi-dimensional drawings. The digital survey results are the point cloud, obtained from the laser scanner survey, which provides precise dimensional data representing a digital twin rich in morphological information. The 3D model documents measurements of the surveyed object faithfully. The orthoimages obtained from processing the photogrammetric survey, documents detailed material and chromatic data, helping analyse the state of conservation and the understanding of the decorative component. This orthoimages have to be accurately optimised and post-produced to obtain the final photoplanes.

The final drawings, aimed at the traditional technical bi-dimensional representation of the Basilica, were realised through the critical interpretation of the digital survey data. The drawing phase begins by importing the orthoimages obtained from the software Leica Cyclone — a program for reading and managing point clouds — into Autodesk AutoCAD. The processed drawings represent the morphometric basis for the analysis produced, maintaining the accurate morphology of the surveyed object. The data obtained from Leica Cyclone are then complemented by photographic orthoimages, i.e. textured orthoimages, exported from 3D models derived from the photogrammetric SfM survey. This methodology allows the representation of an overall image of the architecture, from the main architectural and structural elements to the discretisation of the complex decorative apparatus.



Fig. 2
General plan of
the Basilica of
Santa Maria degli
Angeli. Graphic
reworking from
Claudia Cerbai
(2023).



The drawings of the Basilica required various scales of representation and different graphic methods to bring out the best conformation and details of the elements under analysis. The entire Franciscan complex is depicted on a scale of 1:50 to highlight the relationships between the various elements — both in plan and elevation. The sections on the side aisles look to the side chapels of the Basilica required a more detailed scale, allowing a better appreciation of the decorative apparatus. These drawings were drawn up using textured orthoimages. Finally, the relics of the Basilica — the Porziuncola, the Chapel of Transito and the Chapel of Roses — were represented with detailed drawings at a scale of 1:20, exploiting the colour data of both the point cloud and orthoimages and using two-dimensional representation methods and 3D models.

2. The basilica-reliquary

The Basilica of Santa Maria degli Angeli was built to exalt and protect the symbolic architecture of the life of saint Francis (Fig. 2). The project, however, gravitates mainly around the Porziuncola, the mother church of the Franciscan Observance, proposing “the idea of the church within the church, of the humble object of devotion exalted, almost a relic in a shrine”¹(Mancini, 1989, p. 13). Saint Francis chose the Porziuncola as

¹ “L’idea della chiesa nella chiesa, dell’umile oggetto di devozione esaltato, quasi reliquia nella teca” Translated by the author.

the Order's fixed point because of its location sufficiently isolated from the city and the trade route leading to Assisi, thus allowing him and his disciples to get deeply in touch with the nature surrounding them.

The church also acquired a symbolic value, becoming an emblem of the new order of values desired by saint Francis, who emphasized the importance of the bond of belonging to the world and union with the territory. Quoting a concept expressed by Tommaso da Celano in *Vita II*, it is nice to think at the name Porziuncola as a particle of the world. Saint Francis, a humble man devoted to poverty, “chose a particle of the world for himself and his companions”² (Tommaso da Celano, 1247) to serve Christ in a “place that was to fall to a lot of those who longed to possess nothing of the world”³ (Tommaso da Celano, 1247). Initially, the Franciscan settlement developed with small, modest dwellings around today's rose garden. This place was the scene of the roses' miracle, after which an indulgence was granted.

In the years when saint Francis was still active at the Porziuncola there is evidence of the construction of a structure commissioned by the municipality to house the friars (Fig. 3). The construction of this house was done without Francis' consent. It is said that the saint even wanted to demolish it, as the dwelling did not at all reflect the guidelines for the organisation of the settlement, because of its size, much larger than the huts of the friars and its proximity to the Portiuncula. Because of its ownership by the municipality, neither saint Francis nor his successors could ever remove it. It was part of the Franciscan settlement until it became one of the remains currently contained in the Basilica (Romanini, 1989).

With the death of saint Francis, the settlement evolved. The gradual increase in the number of disciples and faithful who settled or made pilgrimages to Santa Maria degli Angeli decreed the need for more prayer space. Two other places of adoration of the saint's life were added to the Porziuncola: the Chapel of the Transito, built on the site of his death, and the Chapel of the Roses, built on the spot where tradition defined his dwelling place. The Porziuncola, the Chapel of Transito and the Chapel of Roses became fixed points in popular devotion and underwent embellishments and connections to facilitate the prayers of the devout. The Franciscan settlement, from a small hermitage, thus became a place of broad appeal to the faithful while preserving the simplicity of the original elements.

The major transformation to the Franciscan settlement occurred in the second half of the 16th century in the Postridentine period. The Council of Trent in 1563 re-proposed the lives and actions of saints as exemplary models of Christian behaviour, first and foremost

² “scelse una particella di mondo per se ed i suoi compagni” Translated by the author.

³ “luogo che doveva toccare in sorte a coloro i quali bramavano non possedere nulla del mondo” Translated by the author.

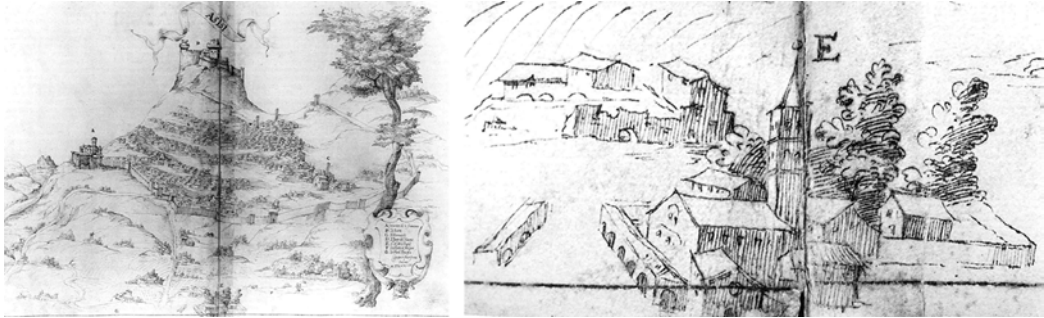


Fig. 3
Franciscan settlement with the house built by the municipality. C.colopasso, XVI sec., *Le piante et i ritratti delle città e delle terre dell'Umbria sottoposte al governo di Perugia*, Biblioteca comunale Augusta, Perugia.

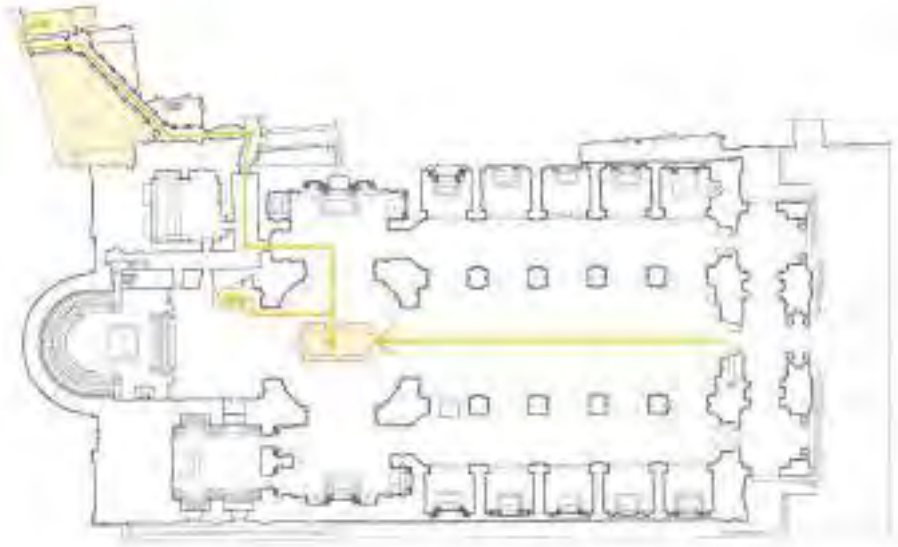
saint Francis. However while the theoretical concepts of life were taken up, the architectural ideas derived from the Council took an opposite direction to those of Francis. The saint favoured poor architecture, useful only to satisfy practical and functional needs. At the same time, the new vision of the Church went toward monumental architecture with rich forms and decorative apparatus. Pope Pius V also moved along this line, making the construction and restoration of religious buildings the pivotal point of his pontificate, linking it to the revival of the ancient mendicant orders, which at that time seemed to be overpowered by the strength of the new 16th century orders. This included the commission to build a Papal Basilica that would honour the sacredness of saint Francis' birthplace, so in 1569, the construction of the Basilica of Santa Maria degli Angeli began, according to a design by Galeazzo Alessi.

As well as on a spiritual level, it was also crucial for Pope Pius V to create a landmark in the area capable of guiding pilgrims to the holy site. Alessi responded to this need by creating a unified volume from which the great dome would rise majestically, making the Basilica stand out in the valley skyline.

Internally, Alessi's project was based on two pivotal points: the exaltation of the Porziuncula as the focal point of the Basilica and the connection of the pre-existing. Alessi, in fact, designed a spiritual pathway that would allow the pilgrim to retrace the steps of saint Francis: from the mother church to the place of his death, to the garden that witnessed the miracle of the roses, to the chapel built on the site of the saint's abode (Fig. 4). The ideal reference for the renovation of Santa Maria degli Angeli is found in the Sanctuary of Loreto, built around the Holy House to exalt and protect it. "In Assisi, the Porziuncola was to remain isolated, in its medieval appearance, at the centre of the major cross of the new basilica"⁴ (Scotti, 1989, p. 25).

opposite page
Fig. 4
Plan of Basilica of Santa Maria degli Angeli and link between relics. Graphic reworking from Claudia Cerbai (2023).

⁴ "Ad Assisi la Porziuncola doveva restare isolata, nel suo aspetto medievale, al centro della crociera maggiore della nuova basilica" Translated by the author.



Therefore, a large hall was planned so that the Porziuncola, fitting inside the church as the relics of saints fit inside reliquaries, would be even smaller, humbler and poorer. The architecture itself mirrors the central concepts of the Franciscan Rule. In addition, the skillful use of extremely bare and simplified structural forms and the massive use of white in the central nave still reflect the poverty of the Order and create an evocative environment capable of channelling all the attention of the pilgrim entering the Basilica to the fulcrum symbol of Franciscan Observance and the Basilica itself.

2.1. The relics

The Basilica designed by Galeazzo Alessi stands as the protector of the treasures of Santa Maria degli Angeli, not only of the Porziuncola but also of the Chapel of the Transit, the place where saint Francis died, the Chapel of Roses, built on the site of the saint's cell, and the remains of the house built by the municipality, contained in the crypt. However, these elements, seen as relics contained in the theca, must be subjected to a deeper conceptual analysis, as the term 'reliquiae' can take on a double meaning (Romanini, 1989). In the first case, the relic is understood as an '*avi memoriae*', i.e., an element that has undergone modifications and additions due to the continuous experience of environments in an emotional manner.



↑
Fig. 5
 Porziuncola.
 Graphic
 reworking
 from Claudia
 Cerbai (2023).

This type of relic is constantly evolving, and changes become part of the object due to the emotional and affective nature that inspires the interventions.

The Porziuncola, the generating and gravitational centre first of the Franciscan settlement and then of the Basilica, is the element that has undergone the most changes over time, both structurally and in its decorative apparatus (Fig. 5).

The Chapel of Roses, built in two stages, takes its name from the garden that hosted the Miracle of the Flowering Roses in January, when the indulgence for the Porziuncola was then granted (Fig. 6). In 1260, at the behest of st Bonaventura of Bagnoregio, general of the Order, the first nucleus was built on a square plan, occupying the site where saint Francis' hut once stood. The room consists of two overlapping compartments: the lower one housed the relics of the first followers of saint Francis (Benvenuto di Bonveglio, 1834) and currently houses the remains of some beams that were part of the pulpit from which saint Francis announced the indulgence, while the upper one was used as a chapel.

In 1440, during the saint Bernardine of Siena's vicariate period, an additional room was built in front of the original chapel to allow the faithful to enjoy what had become a memorial shrine to the saint's cell. The entire chapel was frescoed in the early 1500s by Tiberio d'Assisi. In the original core, the painter depicted saint Francis surrounded by the first 12 companions and the Order's main saints. While in the antechamber, Tiberio illustrated the walls with a cycle of five episodes representing the key events that led from the roses' miracle to the indulgence proclamation.

The story begins with st. Francis penitent among brambles to drive away demonic temptations, brambles that in the second episode turn into roses despite the harsh

opposite page
Fig. 6
 Chapel
 of Roses.
 Graphic
 reworking
 from Claudia
 Cerbai (2023).



winter. During of the miracle, the angels appeared, urging saint Francis to go to the Porziuncola, where the saint was rewarded with a heavenly vision of Christ and the Virgin Mary. At this moment, saint Francis requested an indulgence for all the faithful who would invoke it to the Portiuncula. In the fourth episode, Francis is shown in the audience with the pope, with roses bearing witness to the miracle that took place, to ask for earthly confirmation of the indulgence. Finally, in the last episode, the saint proclaims indulgence to the crowd.

Thus, in the case of both the Porziuncola and the Chapel of Roses, the superfetations to the original object become part of the relic itself, surviving over time.

As for the Chapel of Transito, there are two hypotheses on its origins (Fig. 7). The former claims that the chapel was originally a room in the infirmary of the primitive convent where Francis have spent his last days before his death; it was used as a shrine after his death. Others, however, claim that the chapel was entirely built after the saint's death at the point of his transit since many scriptures state that Francis died "naked on the bare earth". The second theory is supported by archaeological studies, based on excavations carried out inside the Basilica between 1966 and 1967. From these, all the chapel's walls rest on foundations built on virgin soil, apart from the west wall grafted onto a pre-existing masonry. According to A. M. Romanini, this would be the only relic that identified the saint's place of death, as he hypothesised that only the wall fragment embedded in the wall of the Transit belonged to the old infirmary. If so, since the death of Francis, "the tract of bare land extending, then in fact still bare and undeveloped, immediately east of the wall was venerated as *Francisci reliquia*"⁵ (Romanini, 1989). Up to and including the "construction of a special chapel, intended in some way to better concretise the cult

⁵ "Venne venerata come *Francisci reliquia* il tratto di nuda terra che si estendeva, allora di fatto ancora nuda e vergine di costruzioni, subito ad Est del muro" Translated by the author.



↑
Fig. 5
 Chapel of
 Transito. Graphic
 reworking from
 Claudia Cerbai
 (2023).

in the eyes of the public, creating ex novo a Francisci reliquia in stone”⁶ (Romanini, 1989). This hypothesis would, therefore clearly place the chapel within the concept of *avi memoria*, that is, the relic experienced in an emotional way.

Another element that characterises the affective bond with relics is the burial places. The wish of the faithful to be buried near the relic is a typical sign of a devotional nature. In fact, many sepulchres have been identified around the Porziuncola and the Chapel of Transito. The relic, however, can also be understood as a remnant, i.e. an archaeological find. This is the case of the house of the municipality, as it does not appear as a relic because of the distance said Francis always kept from this building. No remains of devotional chapels or burials have ever been found around this structure. The dwelling, reserved for the friars who came to visit the Porziuncola and the assemblies, had a rectangular floor plan, rose on two floors and was entirely in keeping with the usual forms of secular hospitality architecture, which is why Francis’ intervention in this project has always been ruled out (Romanini, 1989).

Currently, the crypt built under the apsidal area of the Basilica contains the remains of the foundations and flooring of the original core.

⁶“Costruzione di un’ apposita cappella, destinata in qualche modo a meglio concretizzare il culto agli occhi del pubblico, creando ex novo una Francisci reliquia in pietra” Translated by the author.

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HISTORY AND CONSTRUCTION CHRONOLOGY OF THE CONVENT OF SAN VIVALDO IN MONTAIONE (FI)

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Abstract

The Complex of the Sacred Mountain of San Vivaldo is located in the Commune of Montaione (FI) in Val d'Elsa, on the extreme south-western outskirts of the Florentine province, in a place of historical and barycentric importance compared to the geographical triangle formed by the cities of Florence, Pisa and Siena. In 1984 it was declared a National Monument and today represents the most characteristic and relevant artistic emergency of the municipal territory of Montaione. It is an essential cultural and spiritual point of reference and a tourist destination for the Val d'Elsa and the province of Florence. The municipal territory extends over a vast hilly area, and the settlement of Montaione is already attested in Etruscan and Roman times by numerous finds. In the Middle Ages, there was a widespread fortification throughout the territory, promoted mainly by the families of Cadolingi and Gherardeschi, as well as by local lords; among the most important castles emerged precisely that of Montaione, which became the town hall and is remembered for the first time in the act of donation in 981 as belonging to the Diocese of Volterra. After various vicissitudes and events, in 1370, it was included in the countryside of Florence, becoming the seat of Podestà.

Keywords: Convent, Sacred Mountain, San Vivaldo, F-ATLAS, Documentation, Research, History, Construction chronology, Friars Minor, Franciscan



↑
Fig. 1
 General overview
 and location of
 the Complex of
 San Vivaldo.

1. The territory of Montaione and the San Vivaldo Complex

The Complex of the Sacred Mountain of San Vivaldo is located in the Municipality of Montaione (FI) in Val d'Elsa, on the extreme south-western outskirts of the Florentine province, in a place of historical and barycentric importance compared to the geographical triangle formed by the cities of Florence, Pisa and Siena (Fig. 1). In 1984 it was declared a National Monument and today represents the most characteristic and relevant artistic emergency of the municipal territory of Montaione. It is an essential cultural and spiritual point of reference and a tourist destination for the Val d'Elsa and the province of Florence (Fig. 2). The municipal territory extends over a vast hilly area, and the settlement of Montaione is already attested in Etruscan and Roman times by numerous finds. In the Middle Ages, there was a widespread fortification throughout the territory, promoted mainly by the families of Cadolingi and Gherardeschi, as well as by local lords; among the most important castles emerged precisely that of Montaione, which became the town hall and is remembered for the first time in the act of donation in 981 as belonging to the Diocese of Volterra. After various vicissitudes and events, in 1370, it was included in the countryside of Florence, becoming the seat of Podestà (Angelelli, 1875).

2. Birth and historical evolution of the Sacred Mountain and the Convent

The first evidence that we find in the area under study is the church of Santa Maria in Camporena in the Bosco Tondo (1185-1187 ca.), belonging to the Diocese of Volterra, granted by Pope Urban III to the friars of the Cross of Normandy, a congregation probably affiliated to the order of the Humiliated (present on site since the end of the twelfth century), which we suppose to be a group of hermits.

opposite page
Fig. 2
 Aerial view
 of the Sacred
 Mountain and
 the Convent.



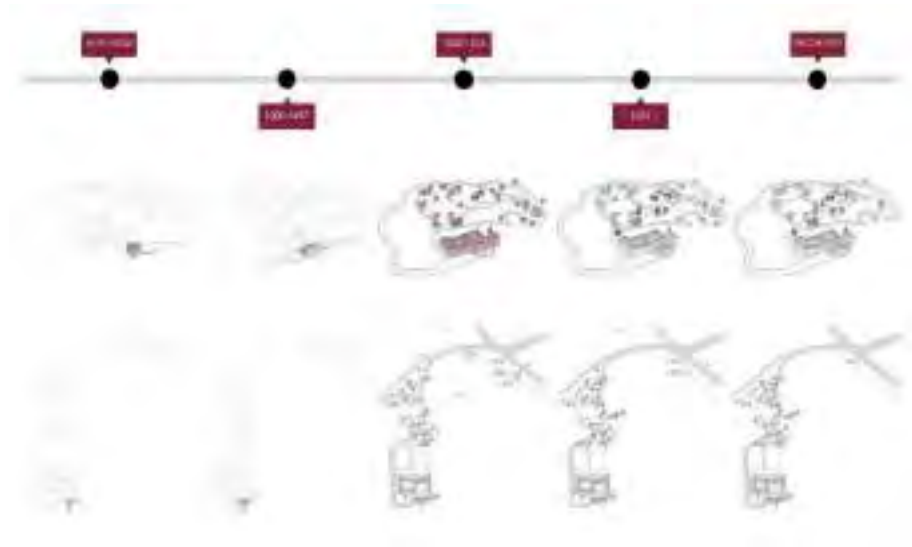
The news tells us about a hermitage known as *locus Sancti Vivaldi* since 1220, while in 1224, a small church with an adjoining hermitage (*Sancta Maria del Romitorio*) is documented. Following various events from the twelfth to the fourteenth century, the Selva di Camporena was home to small hermit communities. Between 1326 and 1375, the church was built, a possible extension of the oldest one, and this later led to a great religious fervour fed by the various hermits who succeeded each other in the custody of the place. In 1477, however, the traces and sources of the hermit group present until then in the place were lost, so the church and hermitage were presumably abandoned until 1497 when the Franciscan friars acquired them (Salvestrini, 1997).

opposite page
Fig. 3
 Construction
 chronology of
 the Complex of
 San Vivaldo.

Fig. 4
 Abacus and
 location of the
 Chapels of the
 Sacred Mountain.

Later, the late tradition inaugurated by the Franciscan Fra' Mariano da Firenze, to whom we owe the collection of information on San Vivaldo contained in his *Trattato sul Terz'Ordine dei Frati Minori* drawn up at the beginning of the 16th century, has it that the saint, originally from San Gimignano and a Franciscan tertiary, retired around 1300 to a hermitic life in the Camporena wood. Leaving aside the doubts about the reliability of the source, underlined by Francesco Salvestrini (2020), about ten years after the death of San Vivaldo (presumably occurred in 1320), a small church guarded by some hermits of the Third Franciscan Order was built in correspondence with the Chestnut place of hermitage of the Blessed according to the text by Fra' Mariano da Firenze.

This should correspond to the first chapel on the right entering the Church. Later, in 1405, the Compagnia di San Vivaldo was founded, and then (no later than 1446) the church of Santa Maria in Camporena and the oratory were rebuilt. In the middle of 1400, after various disputes, the custody of the Saint's relics came under Montaione's jurisdiction. Still, the quarrels led to the decline and crisis of the Sanvivaldino complex. Only in 1487 the fortunes of the complex rose again, entrusting the place to the Observant Franciscans. From the testimony of Fra' Mariano, the Convent was erected under the direction of Fra' Cherubino Conzi from Florence, and the construction of the convent began in 1499 and ended around 1512 (Fig. 3). It was with Fra' Tommaso da Firenze, the second guardian of the convent but already a friar in Crete and certainly in the Holy Land where the Franciscans have always played the role of custodians of the Holy Sepulchre, which also happened the construction of the Sacred Mountain of San Vivaldo. It was a set of small chapels that recalled Jerusalem's holy places and were inspired by the complex of Varallo Sesia, already founded in 1493. The construction of the complex of San Vivaldo took place between 1500 and 1515; it dates back to 1516, the brief pontificate of Leone X, who granted an indulgence to visitors of the chapels and which is one of the most important documents for the reconstruction and history of the Jerusalem of San Vivaldo (Ghilardi, 1921; Piatti, Salvestrini, 2018). In designing San Vivaldo, Fra' Tommaso had to use the stories of pilgrims and travellers' diaries, such as that of Francesco Soriano, a detailed report on the Holy Land entitled *Jerusalem traslata*. The project was executed rigorously, adopting the Gerosolimitan system as orientation and model, with the intention of topomimesis. Taking advantage of the orography of the places, the deep gorge to the friars became the Valley of Jehoshaphat around which the entire complex was arranged: Bethlehem to the west with the church, the Temple Esplanade to the north, to the top the hill of Calvary, and finally to the south an ideal Mount of Olives (Cardini, Vannini, 2009).



opposite page
Fig. 5
 Main facade of
 the Church.

Fig. 6
 View of the
 central nave of
 the Church.

The contribution of lay clients in the construction of the complex was also decisive because they financed the work, and the names of the patronages are visible on the various chapels (Alamanni, Pitti, Gaddi, Mannelli, Lambardi, etc.). The chapels, with thirty-four original *loci*, already mentioned in the number of twenty-two in the apostolic visit of 1576, are currently seventeen, but only thirteen date back to the original project. The architectures propose classical canons of typically Florentine character, inspired by examples of contemporary architecture: inside these are the plastic groups in terracotta, in tune with the taste and devotion of Franciscans. These three-dimensional illustrations, accompanied by the symbolic character of the architecture, perfectly evoke the reconstruction and understanding of historical events, which are fulfilled in the entire path formed by the individual chapels (Fig. 4). The main source of study of the Complex of San Vivaldo is the Map of the Relations of the convent¹, drawn up in the first half of the seventeenth century and in which the then-existing chapels are indicated. From this, one can understand how a progressive departure from the Gerosolimitan model had already been initiated. From this, one can understand how a progressive departure from the Gerosolimitan model had already been initiated. The construction of new chapels, some of which are already documented in the Map and related to the Marian cult (for example, those of the Visitation, the Annunciation and the Flight into Egypt) or built following the popular push (see the chapel of the Pious Women), shows the affirmation of religiosity of a counter-reformist type that tends to abandon the sense of the Jerusalem pilgrimage in favour of a devotion linked to the *imitatio Christi* (Cardini, Vannini, 1980).

3. The complex of San Vivaldo

3.1. The Church

The church responds to the typical Franciscan model and is characterised by a structure that merges and, in some cases, overlaps with the previous buildings (see the original chapel of Santa Maria del Romitorio). The building was built at the same time as the chapels of the Sacred Mountain, although in the following centuries it has undergone various transformations. The simple facade, on which the coat of arms of Parte Guelfa stands, has in the centre an oculus with stained glass restored in 1938; it is preceded by a portico with five arches set on octagonal pillars in pietra forte, restored during the sixteenth and seventeenth centuries.

¹ Preserved in the Archive of the Convent of San Francesco in Florence.



opposite page
Fig. 7
 The Convent
 in the Historic
 Cadastre of the
 Tuscany Region
 (1832-1835).

To the left of this is the convent's cloister, while on the right is a niche with three terracotta statues dating back to the early sixteenth century. The portico is closed on the right by a votive chapel erected on the occasion of the sixth centenary of the death of San Vivaldo (13-16 May 1920) (Fig. 5). The church's interior has a single nave with a lowered vault that ends with the presbytery and the choir (wholly rebuilt in 1751), both rectangular and covered with vaults: all marked according to the rigour and essentiality of Franciscans. On the right wall is the Chapel of San Vivaldo square plan with a lowered vault where, within a glass urn dating back to 1601, the holy relics are kept enclosed in a terracotta statue representing the same. Continuing always on the right side to about half of the nave, you enter an environment on which three chapels open: the first on the right is the one in which there is a group of terracotta painted representing the Pietà, at the centre the chapel dedicated to Saint Francis with the presence of a neo-medieval aedicule (1926), and at the end on the left is the chapel of the Nativity scene with painted stucco altar and wooden statues. The church's central nave also has four altars (one on the right side and three on the left side) and ends with the high altar on which there is a wooden Crucifix from the early sixteenth century (Fig. 6). Through an opening on the left of the presbytery, you reach the sacristy and access to the crypt, composed of a small room below the main altar. The bell tower completes the church structure, in a position adjacent to the right wall of the presbytery and ending with a bell cell with four bells (16th century) and a crowning spire rebuilt in 1803 (Amonaci, 1997).

opposite page
Fig. 8
 Aerial zenithal
 view of the
 Convent.

3.2. The convent

The original construction of the Convent of San Vivaldo dates back to the early sixteenth century. Still, in the following centuries and especially in the eighteenth century, several extensions have led to the current appearance (Figg. 7-8)

From a first constructive chronological analysis of the complex, compared with the reading of the available archive documentation and with the various bibliographical sources, we can assume that the convent complex in the early sixteenth century (1499 late seventeenth century) developed around the large cloister and a smaller courtyard adjacent to the cloister itself, located southeast of the church (Figg. 9-10). On the ground floor, on the west side of the cloister, preceded by the loggia with pillars, were the rooms of the sacristy, the pantry and the canova, the latter in communication with the ample space of the refectory that had a loggia² overlooking the vegetable garden – today no longer

² The loggia is visible in the drawing of the ground floor plan present in the documentation of the Map of Relations conserved in the Archive of the Convent of San Francesco in Florence





Fig. 9
View of the main
cloister of the
Convent.



present – incorporated in the volume of the building. On this side, there were also the kitchen, the rooms reserved for the workers of the convent and the service annexes. On the east side were the rooms of the woodshed, the stables, the guesthouse and the headquarters of the Compagnia di San Vivaldo where the Tertiaries met. On the first floor were the dormitories of the friars and the library that opened onto the cloister through two loggias; also above the headquarters of the Compagnia di San Vivaldo were placed the guest rooms of the Tertiaries with separate access. Finally, at the boundary of the north side of the minor courtyard, a porch overlooking the square connected in the corner to the one present along the church's facade. In the eighteenth century, through the chronicles of the guardian friars, we have news of many restoration and renovation works carried out on the church: the altars were marbled, the choir was enlarged with new stalls, the organ was made (1739), and the marble altar was erected in the presbytery. But the most critical transformation of the whole building occurred in 1764 when a retreat for the novitiate was established in the convent: the loggias of the façade adjacent to the church square were closed, and the cells for the novices were obtained on the first floor, including the rooms of the old guesthouse; in the west wing of the convent

opposite page
Fig. 10
View of the main
cloister of the
Convent during
the survey.

Fig. 11
Aerial view from
the north-east of
the Convent.



was housed the new library. In 1786, however, due to Leopoldine laws, the Compagnia di San Vivaldo was suppressed, and the rooms destined for the headquarters were freed and reused as a remittance. Later, due to the Napoleonic suppression, the convent was closed (13 October 1810) and passed into the custody of Count Girolamo Bardi, while the church remained the property of the religious. Only in 1824, with the reopening of the place and the new settlement of the friars, were restored the chapels of the Sacred Mountain and the Church, while between 1830 and 1840, renovations were made to the premises of the convent and changes to the facades that brought the complex to its present appearance. The refectory was expanded to include the room in the corridor, and the old kitchen became a connecting space with the new kitchen, which was enlarged towards the garden. Changes were made to the south wing with the creation of a series of rooms attached to the kitchen: on the west corner, the cellars (instead of the old loggia of the refectory) and towards the east corner, the oven room, while next to the workspaces a barn was built. On the first floor of the same wing, the dormitory was enlarged with other cells, and a new staircase was made to access the same floor starting from the corridor in front of the refectory. Finally, the rooms were renovated above the rooms to the east that were once intended for the Compagnia di San Vivaldo. In 1866, following a new suppression, the entire convent complex was auctioned with all the furnishings, while the church remained open for worship under the custody of the friars. In 1877 the convent returned in possession of the friars, and in 1897 the last substantial modification to the building is documented, that is, the realisation of the east arm's second floor destined to accommodate seventeen new cells (Fig. 11). In the fifties, the Franciscan seminary was definitively closed with the decline in vocations. The number of friars present in the conventual structure has been reduced more and more with the passing of time, leading both to the degradation of many of the convent environments and the lack of restoration and maintenance works in the whole complex (Amonaci, 1997).

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**DOCUMENTATION AND VALORIZATION OF CONVENTS OF
MINOR ORDERS AND THE MOST IMPORTANT PILGRIMAGE
SITES IN TUSCANY. THE CASE STUDY OF SAN VIVALDO IN
MONTAIONE (FI)**

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Abstract

The complex of the Sacro Monte and the Convent of San Vivaldo is considered one of the most interesting places of pilgrimage in Tuscany. Its location is of high landscape value, and in 1984, it was declared a national monument. San Vivaldo represents one of the most significant points within the network of places of pilgrimage and devotion represented by the Sacred Mountains. The complex today consists of the Church, the Convent and eighteen chapels located in the green around the convent complex, which, in the original project (first quarter of the sixteenth century), ideally reproduced the Holy City of Jerusalem. The convent and church were built at the beginning of the 16th century. The complex was studied by designing a 3D digital survey using the appropriate technologies to provide the metric, morphological and material knowledge necessary for the property's documentation, preservation and enhancement

Keywords: Sacred Mount, San Vivaldo, F-ATLAS, Documentation, laser scanner 3D, SfM, friars Minor, Franciscan



Fig. 1
General plan
of the complex
of San Vivaldo,
the Monastery
and the Sacred
Mount's chapels.

1. Introduction

The project for the survey and enhancement of the site of San Vivaldo is part of the European project 'F-ATLAS – Franciscan Landscapes: the Observance between Italy, Portugal and Spain' (<http://www.f-atlas.eu>), with the participation of the Department of Architecture of the University of Florence (DiDA), the ISCTE-IUL of the University of Lisbon, the University of Barcelona and the UCP-CEHR of the Portuguese Catholic University. The project is developed within the JPI-CH program (Joint Programming Initiative in Cultural Heritage). It offers technologies and methodologies of analysis and research to assess the conservation conditions of the Italian-Portuguese-Spanish Franciscan mendicant network. This research aims to create an 'atlas' that documents the level of knowledge of the monuments concerned to prepare strategies for their conservation, protection and promotion of the sites under study (Parrinello et al., 2017).

opposite page
Fig. 2
Picture of San
Vivaldo in the
surrounding
landscape.

The Franciscan complex of the Sacro Monte and the Convent of San Vivaldo in Montalcino (FI) is considered one of the most interesting places of pilgrimage in Tuscany. Because its position is of high landscape value, in 1984, it was declared a national monument.



It is also a spiritual, cultural and tourist reference point for Valdelsa, the whole Province of Florence, and the neighbouring provinces of Pisa and Siena. Finally, the site of San Vivaldo represents one of the most significant points within the network of places of pilgrimage and devotion represented by the Sacred Mounts.

San Vivaldo today consists of the Church, the Convent entitled to San Vivaldo and eighteen chapels located in the green around the convent complex, which, in the project of the original plant (first quarter of the sixteenth century), ideally reproduced the Holy City of Jerusalem.

The chapels host inside plastic groups depicting episodes of the life of Christ that occurred in the places of the Holy City and Palestine.

In some cases, the formal, stylistic and architectural peculiarities of the chapels directly refer to the memory and description of the buildings of the Holy Land. The chapels that form the route of the Sacred Mount of San Vivaldo were not randomly located within the wooded green area. Still, this place was chosen for its specific geographical similarity with Jerusalem's territory, and the Gerosolimitan model's topography was repeated (Ghilardi, 1895).

The convent and the church were built in the early sixteenth century: the first intervention was the construction of a devotional chapel in honour of San Vivaldo. To this were added, in several stages, the structures of the church and the convent until the construction and expansion of the Franciscan seminary occurred in the nineteenth century (Amonaci, 1997).

opposite page
Fig. 3
Environmental
section of the
Sacro Monte.

2. Working Method and Survey Project

In conserving monuments, a method of intervention is necessary to allow the broadest possible vision and knowledge of the good. In this regard, our research team, for several years, prefers to establish collaborative projects with a large multidisciplinary study group. The study of the complex was addressed through the design of a 3D digital survey using the appropriate technologies to provide the metric, morphological and material knowledge necessary for the documentation, safeguarding and enhancement of the good (Arrighetti et al., 2019). At a later time, the events of the factory on how it developed were taken into account, evaluating the stratigraphies of the walls, especially concerning the part relating to the monastery (Pancani, Bigongiari, 2020) and any structural problems it has reported (Paradiso et al., 2014). The research on the documents and the analysis of the events that have contributed to the evolution and current state of the complex of the sacred mountain will be a comfort to give a sufficiently accomplished cognitive framework to possibly proceed with actions to maintain the recovery and enhancement of the site.

The survey was carried out within the framework of the research programme 'F-ATLAS – Franciscan Landscapes: the Observance between Italy, Portugal and Spain' (<http://www.f-atlas.eu>), a European project developed within the JPI-CH programme (Joint Programming Initiative in Cultural Heritage). This program uses methodologies of analysis and knowledge to assess the current state of the Italian-Portuguese-Spanish Franciscan mendicant network. With this work, it is planned to create an 'atlas' of metric-morphological documentation, which can provide adequate tools to improve knowledge for the conservation and protection of the studied assets.

The work was dealt with in annual steps, during which the individual factories of the San Vivaldo complex were examined.

The complete survey of the eighteen chapels that make up the complex of the Sacred Mount was made, and the survey of the church and the convent has been completed. The Chapels were surveyed during the spring of 2021 during a pandemic; a tiny group of surveyors worked there to limit any possible infections. The work, however, was conducted with extreme care, and the first results were summarised in Greta Safina's dissertation (Safina, 2021). The first phase of the survey was realised with a laser scanner Z+F 5016, very versatile instrument with excellent data regarding the quality of the point cloud with outstanding performance of accuracy and precision. The device has a refined HDR (High Dynamic Range) photographic capture system (Safina, 2021), thanks to which it has been possible to make high-definition scans with a very high texture quality.



The general point cloud, relative to the survey of the chapels of the Sacred Mount, has seen the recording of all the scans of the interior with that more general of the exterior through a path of work that would retrace a path that we can assimilate to a closed polygonal topographic type (Banterle et al., 2009).

With this work method, it was possible to verify that there were no errors greater than 1.5 cm at the time of registration, with checks carried out regularly at each step and/or group of scans recorded. However, further checks on the complete point cloud were carried out to certify the overall quality of the survey. Thanks to the features acquired by the new versions of the Leica Cyclone©software, it was possible to compensate for any minor errors that emerged, dividing them among all the scans (Pancani, 2017). This feature allowed to correct small but significant errors between the various recordings.

The laser scanner survey was followed by a SfM (Structure from Motion) photogrammetric survey (Rinaudo, 2017) used inside the church for the realisation of photomodels through the acquisition of the images of the altars decorated with polychrome terracotta inside the chapels. A first SfM (Structure from Motion) aero-photogrammetry was also performed with a drone DJI Mavic2 Pro, which detected the territorial context on which rise the Chapels. However, for the survey of the eighteen chapels, which represented the nucleus of the first significant campaign, a point cloud was obtained that, together with the qualities of the small buildings, contextualised the insertion in the surrounding landscape. On the other hand, this need has become indispensable to assess the location of the chapels of the sacred mount and to compare them with the position that the various stations of the Passion of Christ have in their original place in Jerusalem (Verdiani et al., 2014).

In the 1:50 scale restitution of the chapels of the sacred mountain, all the profiles of the buildings have been accurately described, together with an accurate photogrammetric restitution of all the internal and external surfaces. Moreover, with particular care, the terracotta sculptures representing the passion of Christ were represented. The orthophotoplanes have been realised using SfM photomodelling methods, to realise which the 3DZephyr software has been used.



Fig. 4
The cloud of points of the laser scanner survey of the San Vivaldo convent.



opposite page

Fig. 5
Restitution of the survey, above Plan of the ground floor, under Section E-E', goes through the cells of the friars.

In the spring of 2022, the San Vivaldo monastery complex was surveyed. The survey was made with a laser scanner Faro M70, a light and handy tool, with which 551 scans were made, acquired with an average mesh of about 7 mm. In this case, the scans were carried out without the relative acquisition of the photographic images. The survey produced a considerable amount of data, stored, recorded and processed in a file of 175 GB. Again, the laser scanner survey was subjected to an accurate verification and certification protocol. For the realisation of the orthophotoplanes, a photomodeling with SfM technique was performed. In this regard was used a drone (UAV Unmanned Aerial Vehicle, unmanned aircraft) DJI mavic 2 pro and DJI mini 3 pro (Arbeid, Matteoli, 2021).

The mesh model was scaled both with the GPS data derived from the aerial images and later, for a refinement of the data, the data of the laser scanner survey were used. For the restitution, the ortho-images extracted from Cyclone were used, first for realising the plans and the interior sections of the church and monastery. For these elaborates, the same graphical methodology has been used in the restitution of the chapels of the Sacred Mount, with the realisation of the drawn profiles and the orthophotoplanes extracted from the mesh-model textured suitably scaled and calibrated on the point cloud.

3. Conclusions

The Valdelsan plan was accurately recorded in its component of the architectural complex of the convent and the chapels and its orography and topography. The Sacred Mount has been compared with the historical plan of Jerusalem, particularly that of

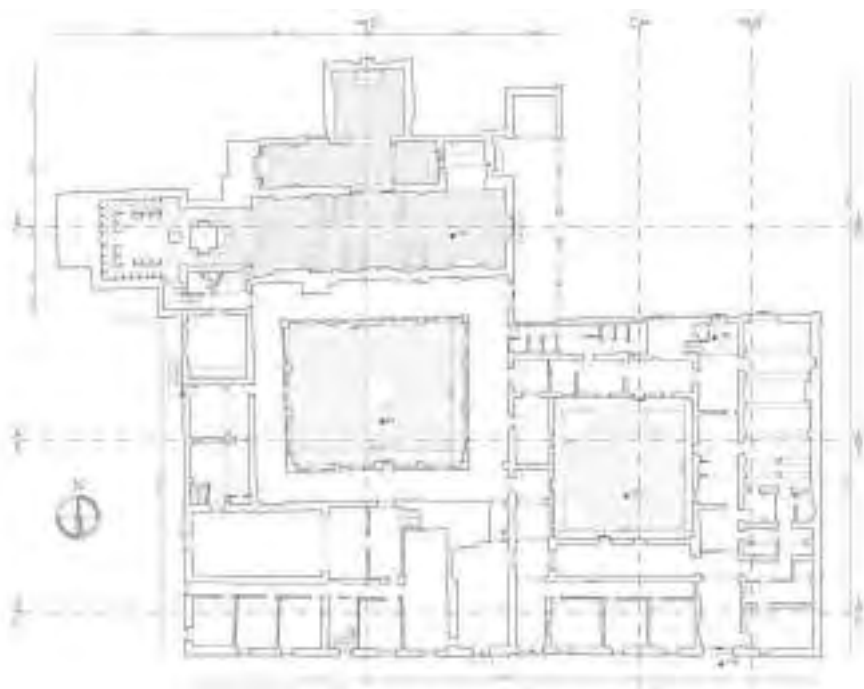




Fig. 6
The two drones (UAV Unmanned Aerial Vehicle, unmanned aircraft) DJI Mavic 2 pro left, and DJI mini 3 pro right, at work.

opposite page
Fig. 7
Section A-A', cuts the convent through the two cloisters.

Fig. 8
South prospect of the monastery with Ortophotoplan.

Fig. 9
East prospect of the monastery with Ortophotoplan.

the 15th century, especially going to read and verify the travel reports published in the 13th-14th centuries. However, the aspects that emerged from the research carried out in San Vivaldo were also evaluated; particular attention was paid to the entire spectrum of documentation, the area's orographic conformation, and the chapels' arrangement on the ground, their architectural events.

The small temples, different in shape and size, were distributed in the space near the convent, particularly on the wooded hill south of the convent and along the road leading to the nearby village of San Vivaldo. The disposition is organised in an order that repeats the dislocation and sequence of the sanctuaries venerated in Jerusalem; so that the conformation of the sacred mountain is not due to chance but is based on a project that refers to the precise correspondence of the complex to the intentions of its creator, and in line with the arrangement of the holy places in the city of Jerusalem. In the end, the metric-morphological and material survey was dealt with, allowing us to start making interesting assessments on the conformations of the sacred mountains and the actual topomimetic correspondence in the realisation of the Tuscan Sacred Mount. At the same time, the documentation and the representations of the property have provided us with an indispensable framework for preserving and enhancing the monument.





Fig. 10
The
superimposition
of the plan
of Jerusalem
scaled on that
of San Vivaldo
to compare its
coincidences.



Fig. 11
West prospect
of the
monastery with
Orthophotoplan.



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THE CONVENT OF SAN NICOLA IN ARISCHIA. SURVEY AND KNOWLEDGE

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Abstract

The convent of San Nicola, standing on a site of a former Cistercian grangia upon a hill between the villages of Arischia and San Vittorino, in the L'Aquila territory, appears to be characterized by remarkable stratification and modification phenomena. Through the architectural survey, carried out with digital technologies as well, the aim of the paper is to analyse the architectural features, also carrying out interpretative speculations regarding its historical phases.

Keywords: digital survey, laser scanner, interpretative models, Cistercian architecture, heritage.

opposite page
Fig. 1
San Nicola
convent in its
context (photo
by the authors).

1. Introduction

The building of the convent of San Nicola in Arischia matches the settlement of the Observant Friars, dating back to 1460. The building stands on the site of a former Cistercian *grangia*¹ called San Benedetto alle Carfasse (Bartolini Salimbeni, 1993, p. 104), upon a hill between the villages of Arischia and San Vittorino, convenient to paths leading up to the Capannelle pass from the Aterno Valley, passing the Gran Sasso through the Adriatic Sea at one end, and connecting Arischia with L'Aquila and the Genca meadows at the other.

The foundation of the convent has to be framed in the so-called Franciscan 'revival' in the 15th-16th centuries, at the hands of the Franciscan Observant Friars, whose origin in Abruzzo can be related to the foundation of the convent of San Giuliano in L'Aquila in 1415. The spread of the Order in the region was quite fast, so much that at mid-15th century almost twenty settlements had been built in the region.

The San Giuliano itself isn't that far from the San Nicola, indeed is directly linked to it through the sheep trail connecting the Madonna Fore church and the settlements of San Severo and Capo La Piaggia. The positioning of the San Nicola is in keeping with the Franciscan's settlements dynamics during 13th and 14th century that, compared to the priors centuries ones, used to spot sites outside the populated areas (Fig. 1): the reasons behind this choice can be traced back to considerations about the cultural issues inspiring the Reformation, aimed at a throwback to a concept of life more tight-fitting with the Franciscans' original spirit, so including less involvement in social and economic dynamics of the settled areas and the search for places more akin to the original hermitages; it also may be practical reasons for this choice, such as the difficulties in finding suitable areas into the villages with land to farm as well (Bartolini Salimbeni, 1993, p. 110). The foundation of the San Nicola fits into these dynamics, thereby these practical reasons may be behind the choice of re-using a Cistercians abandoned '*grangia*'. The convent of San Nicola appears to be characterized by remarkable stratification and modification phenomena, and through the architectural survey, carried out with digital technologies as well, the aim of the paper is to analyse the architectural features, also carrying out interpretative speculations regarding its historical phases.

2. The building

In keeping with the buildings of the 15th and 16th century in the region, the building has moderate size. The several irregularities of the layout, the alignments and the wall

¹ A sort of farm in the Cistercian order



thickness highlight how much the structure is affected by pre-existences and outcome of various transformation operations. It appears to be set up on a path leading from the valley to the top of the hill, running through the western branch of the porch, getting out at its rear and proceeding towards the meadows and the city of L'Aquila at the east. The settlement is characterised by two main blocks: the convent and the church (Fig. 2). The convent shows an irregularly rectangular cloister, 15x17 meters roughly.



Fig. 2
The church (photo
by the authors).

The eastern and western branches of the complex, with similar transverse width, are not parallel. The orientation of the eastern part may have been influenced by pre-existences, suggested by the underground of the church, accessible from this part; the western part may be aligned to the path running through the complex.

The southern branch of the convent is wider than the western and eastern ones. The south-west corner is characterised by irregular expansions.

The church stands at the north side, separated by the convent's perimeter on the main front as well as on the eastern one. Therefore, there is a widening at the entrance of the complex, limited by the façade of the church at the east side and by an entrance porch at the south.

In accordance with the architectural features of the Franciscans' churches, the San Nicola is a single-nave church, with three bays covered by ribbed vaults, and the altar filtering a choir with flat ceiling, less wide than the nave. The church was probably reconfigured around 1632 and restored in 1714, after the 1703 earthquake, with the Baroque apparatus completed in 1757 (Antonini, 2001, p.251). Beneath the church, between the nave and the presbytery, there's the aforementioned underground compartment, accessible by the nave in the eastern branch of the convent.

Where the current configuration is broadly ascribable to the Observant Order (1560), the chronology of the complex is quite more complex. Actually, from the 1350 is already known that the convent was rebuilt by Antonio Battista Gaglioffi during the settlement of the Franciscan Friars.

Nevertheless, the first mentions are dating back to 986 and 1153, when the expressions ‘*ad illud Cafagium*’ and ‘*Laur. in Fasso*’ appear, related to a previous Benedictine and Farfense monastery, from which the complex would probably derived the ancient dedication to San Benedetto.

Thereafter, this dedication is occurring in three documents dated 1257, 1303 and 1321 respectively, related to a Cistercian monastery (Antonini, 2001, p.251). It consists of the monastery of San Benedetto prope Aquilam, founded – along with Santa Maria Nuova in L’Aquila (1292) – by the Cistercian abbey of Santa Maria di Casanova (1191-1197) in Villa Celiera (Buratti et al., 1980, p.58), after dependent on the monastery of Santo Spirito d’Ocre. Mentioned in 1309, the year of foundation is unknown, so it can be related to the years between the end of the 13th century and the beginning of the 14th (Clementi, 1991, p.34). The new economics procedures based on product exchange are attributable to the Cistercians that, as consequence of the soil remediation activities in the area, integrated lowland crops with mountain breeding, leading to a massive upturn of the transhumance between the summer pastures of the Abruzzo’s mountains and the winter ones in the Tavoliere delle Puglie. Indeed, between the end of the 12th century and the first half of the 13th, the Cistercian order settles in Abruzzo and – under a rigid dependence mechanism – arise in the L’Aquila territory the abbeys of di Santa Maria di Casanova (1191-1197) and Santo Spirito d’Ocre (1222-1248)².

3. The architectural survey

Over the years the convent of San Nicola has been subject of direct and indirect survey campaigns (Docci and Maestri, 2009; Bertocci and Bini, 2012). With the aim of verify the previous plans (Fig. 3) , in 2017 has been carried on a TLS survey, using a phase difference laser scanner Leica HDS6200, integrated with an external photographic kit (Gaiani, 2012; Bianchini, 2014).

The station points have been chosen in order to minimize the shadow areas due to internal shape factors e.g. the cloister’s columns, as far as to external interference factors like the vegetation. Thus, the 21 station points were distributed as follows: 12 at the exterior of the building, one of which in the cloister; 3 in the interior of the church; 5 along the corridor and the main rooms. The smaller halls, like the former cells of the convent, have been integrated with direct method, in particular with trilateration. In order to ease the registration operation of the single scans, Black and White 6” Tilt&turn targets have been used, making sure

² About the Cistercian settlements in the L’Aquila area in particular see Clementi (1976; 1991). About Cistercian architecture in Abruzzo, see Buratti et al. (1980), Bartolini Salimbeni and Di Matteo (1999).



Fig. 3
The direct survey
(elaboration by
the authors).



opposite page
Fig. 4
The point cloud,
visualized in
reflectance value
(elaboration by
the authors).

that at least three of them were visible from two adjacent station points. The instrumental resolution chosen was the 'High' one, corresponding to an increase of azimuthal and zenithal angle of $0,036^\circ$, leading to a point density of 6,3 mm at 10 m of distance from the scanner. On the other hand, for the exterior scans, along the west wall of the convent, considering the greater dimensions, a 'Highest' resolution was chosen, characterized by an angular increase of $0,018^\circ$ and a point density of 3,1 mm at 10 m. For the photo shoots have been used a reflex camera Nikon D5100 equipped with a fish-eye optics, mounted with a pan head on the same tripod previously used for the scanner. In each station point 9 photos were taken, of which 8 on the horizontal and one pointing upwards.



The post-processing of the acquired data was carried out into the software Cyclone, while for the photo processing have been used PTGui Pro, for the spherical panoramas, and Pano2QTVR, for its conversion to cubic panoramas.

The merging of the single scans was carried out through automatic registration operations, based on the detection of the targets installed during the survey campaign. To the metric and point reflectance values, was added the RGB colour data obtained from the spherical panoramas. Thereby the total point cloud of the convent (Fig. 4-5) was obtained, to be analysed with the aim of realizing the restitutive model, result of a critical interpretation of the numerical point model.



Fig. 5
The point cloud, visualized in RGB (elaboration by the authors).



opposite page

Fig. 6
Graphical interpretative models, plan (elaboration by the authors).

Fig. 7
Graphical Interpretative models, elevation and sections (elaboration by the authors).



In particular, the point cloud was sectioned with proper clipping planes placed through the most significant points, in order to identify the architectural elements composing the building and so to realize the graphical interpretative models in the traditional form of plans, elevations and sections (Docci et al., 2011) (Figg. 6-7-8).

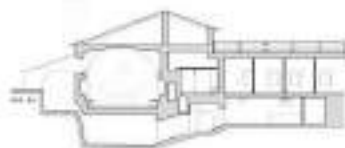
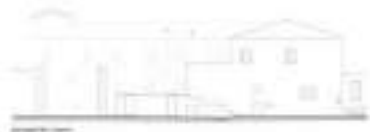




Fig. 8
Graphical
Interpretative
models,
constructive
sections
(elaboration by
Luca Vespasiano).

opposite page
Fig. 9
Metrological and
proportional
analyses
(elaboration by
the authors).

4. Historical phases

The overall setup shows a remarkable irregularity, as highlighted by alignments and wall thickness rarely regular, even in enclosed areas of the complex.

Nevertheless, on the basis of the dimensional characters and the metrological and proportional analyses (Centofanti et al., 2015) (Fig. 9), four main parts can be discerned: the main branch of the convent, the eastern one, the church, and the south section.

The large hall characterising the western branch – the first one at the right after the convent entrance – shows measures relatable to the Roman foot (0,2948 m), still widespread in the area during late antiquity: the room has a dimension of 50 x 12 feet, the *monofore* – especially the west ones – are 3 feet wide. Also the western side of the porch has 50 Roman feet of extension.

On the other hand, the east part dimensions are relatable to measures experienced in Cistercian buildings of the territory, as the Carolingian foot of 0,333 m and the so-called Byzantine foot of 0,315 m (Brusaporci, 2011). Especially in the San Nicola is possible to find the use of a 0,32 foot, that is a slightly wider Byzantine foot, relatable



to the Cistercian constructive knowledge: the entrances to the two compartments have an approximate size of respectively 4 and 2,5 feet, and again 4 feet the width of the passage leading to the stairs going under the church. The main room measures 10 x 35 feet. Particularly interesting is the underground room beneath the church, 15 feet wide, while in the window we found a width of 5 roman feet. Cistercian measures are again detectable in the passage extending the first branch of the corridor running along the cloister perimeter and leading to the rear space of the complex, measuring 5 Byzantine feet. An overall redesign of the complex can be ascribable to the Cistercian phase and, for analogy with other Cistercian complexes as the Santo Spirito d'Ocre and Santa Maria al Monte, it can be identified a rectangular layout with a golden-ratio-based dimensioning. Such rectangle, giving due consideration to the irregularities, would have a shorter edge of 70 Byzantine feet. Thereby, it may be hypothesized that in the Cistercian phase the complex would show a quite similar conformation to the Santo Spirito d'Ocre, closed towards the outside, maybe with the church standing on the main eastern room, linked through the stairway to an underground crypt, somehow similar to Santa Maria ad Cryptas in Fossa.

Finally into the San Nicola church, in its western and north-western spaces – being them clearly expansions of the complex – modern measures can be identified, such as a slightly longer Neapolitan span of 0,275 m. In particular, the church hall has a 30 x 55 spans longitude, and the choir roughly 25 spans.

The church itself, the more regular element in the complex, has non-parallel side-walls, probably being affected by the beneath pre-existence. Regarding the complex history, it may be hypothesized to relate such underground space to the original religious settlement, probably Benedictine as suggested by the small window width.

5. Conclusions

According to the restitutive-interpretative models, result of the survey, have been analysed architectural features, metrology, proportions, alignments and wall thickness. Such analyses allowed to deepen the archaeological overview of the complex and to develop interpretative hypothesis for the historical-critical analysis³ (Brusaporci et al., 2021, Centofanti et al., 2022). In the light of the aforementioned analyses, the overall layout of the convent may be ascribable to a Cistercian background. Starting from the XV century, at the hands of the Franciscan Observant's settlement, a series of relevant modifications took place, especially when building the present-day church.

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³ A masonry analysis would have suggested useful information, but the plastered surfaces did not made this study possible.

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INTEGRATED DIGITAL SURVEY TECHNIQUES FOR THE DOCUMENTATION OF THE ARTISTIC HERITAGE OF THE FRANCISCAN OBSERVANCE: THE PICTORIAL CYCLE OF THE INDULGENCE OF PORZIUNCOLA BY TIBERIO D'ASSISI

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Abstract

The European project 'F-ATLAS – Franciscan Landscapes: Observance between Italy, Portugal and Spain' aims to develop methodologies for managing cultural heritage in the digital era. This paper focuses on the documentation and analysis of frescoes depicting the indulgence of Porziuncola by Tiberio d'Assisi in two locations: the Chapel of Roses in the Convent of San Fortunato in Montefalco (Perugia) and the Basilica di Santa Maria degli Angeli (Assisi). Integrated digital survey techniques, including laser scanning and photogrammetry, were employed to acquire metric, morphological, chromatic, and material data. This data permitted the creation of accurate digital reconstructions, enabling qualitative and quantitative analysis of the frescoes. The project highlights similarities and differences in their execution and composition, shedding light on Tiberio d'Assisi's artistic process. This paper underscores the importance of integrating advanced technologies to understand historical artworks' creation and conservation methods.

Keywords: Tiberio d'Assisi, integrated digital survey, frescoes.



Fig. 1
Chapel of Roses,
Convento di
San Fortunato,
Montefalco (PG).



1. Introduction

This work is part of the wide-ranging European project ‘F-ATLAS – Franciscan Landscapes: Observance between Italy, Portugal and Spain’ coordinated by the University of Florence with the co-participation of the University of Barcelona, the Portuguese Catholic University and the University of Lisbon (ISCTE-IUL).

The project aims to develop methodologies, protocols and tools for the management and enhancement of cultural heritage in the digital era and to define a strategy of documentation and knowledge for conservation, protection, reuse, and promotion, which consider tangible, intangible, and digital heritage (Bertocci et al., 2023). The methodology applied in the project starts from the macro-scale of investigation concerning the architectural and landscape context to a micro-scale concerning the cultural and artistic aspects. This contribution focuses on the documentation through the integrated digital survey techniques (laser-scanner and photogrammetric) for the analysis and preservation of the frescoes that constitute the pictorial cycle about the episodes of the indulgence of Porziuncola made by Tiberio d’Assisi for the Chapel of Roses in the convent of San Fortunato in Montefalco (Fig. 1) and the Basilica di Santa Maria degli Angeli in Assisi (Fig. 2). These frescoes are of great importance because they provide information about the appearance of the Sanctuary of Santa Maria degli Angeli and the events of the Franciscan order at the time of their realization. Also noteworthy is the digital survey outputs’

opposite page

Fig. 2
Chapel of Roses,
Basilica di Santa
Maria degli
Angeli, Assisi.



contribution to analyzing the techniques and methodologies Tiberio d'Assisi employed in representing scenes, adjusting them to the diverse morphology of their respective locations.

2. The pictorial cycle of the Indulgence of Porziuncola by Tiberio d'Assisi

Re-proposing in the Chapel of Roses at the Porziuncola (1516), a cycle of frescoes already painted at the Convent of San Fortunato in Montefalco (1512) must be linked not only to the instruction of pilgrims on the essential changes that were taking place in those years within the Franciscan order that would lead in 1517 to the division between minors and conventuals, decreed by Leo X with the bull *Ite Vos*. Indeed, the Indulgence of Forgiveness had become for the friars, who identified themselves with the reform initiated by Paoluccio Trinci, an identity principle to be contested with the rival Conventual friars (Lunghi, 2019). The pictorial cycle of the Indulgence of Porziuncola, painted by Tiberio d'Assisi, follows the narration of Michele de Berardi da Spello and is composed of five episodes (Figg. 3-4):

- (A) saint Francis penitent visited by the angels: this first scene shows saint Francis who, in order to flee the lure of the devil, threw himself naked among the thorns of a bush;
- (B) the angels guide saint Francis to the Porziuncola: saint Francis, holding two small bunches of red and white roses – in honour of Christ and the Virgin – is guided by the two angels in the direction of the Porziuncola;



Fig. 3
Comparison
between the first
four episodes
painted in the
Chapel of Roses
in Montefalco (on
the left) and in
Santa Maria degli
Angeli (on the
right).

A



B



C



D



opposite page

Fig. 4
Comparison
between the
episodes E
painted in the
Chapel of Roses
in Montefalco (on
the left) and in
Santa Maria degli
Angeli (on the
right).



- (C) Christ, through the intercession of the Virgin, appears to saint Francis, who has placed the two bunches of flowers on the altar of the chapel;
- (D) saint Francis requests Honorius III to approve the indulgence: Honorius III receives the white and red roses from saint Francis as a sign of the miracle that took place in Santa Maria degli Angeli;
- (E) saint Francis proclaims the indulgence at the Porziuncola: saint Francis preaches the indulgence to a crowd of pilgrims gathered in front of the Porziuncola.

To compare the two pictorial cycles, it is first necessary to describe the spaces in which they are located: the Chapel of Roses in Santa Maria degli Angeli stands on the site where, according to archive documents, a small site was identified as the cell of saint Francis. According to the studies conducted by C. Cenci, the oldest information on this chapel dates back to 1344. This small building was not involved in the demolitions due to the renovation of the Basilica ordered by Pope Pius V and entrusted to Galeazzo Alessi that began in the second half of the 16th century, probably due to its decentralised location. The chapel consists of two spaces of different sizes, covered by a lowered barrel vault and entirely frescoed by Tiberio d'Assisi. The larger one adjoins the original chapel, and the smaller one houses a liturgical altar located on a higher level and overlooks another space that, over time, has become a memorial shrine (Lunghi, 2019).

On the other hand, the Chapel of Roses in Montefalco is located on the left side of the four-sided portico preceding the entrance to the church. It is a small space covered by a low-hipped vault and entirely frescoed by Tiberio d'Assisi.

At the Porziuncola, Tiberio d'Assisi replicated the episodes already painted in Montefalco without significant variations, except for adapting the compositions to the different format of the panels, vertical in Montefalco, horizontal in Santa Maria degli Angeli. The painter also revised the reading direction of the pictorial cycle, with the one in Montefalco being read from left to right and the one in Santa Maria degli Angeli read from right to left.

In both chapels, saint Clare of Assisi and saint Elizabeth of Hungary, saint Ludwig of Toulouse and saint Anthony of Padua, saint Bonaventura of Bagnoregio and saint Bernardine of Siena are represented and arranged in the panels in pairs. On the wall behind the altar in the Chapel of the Roses in Santa Maria degli Angeli, there is a representation of saint Francis with his companions, this representation is not present in Montefalco. In both chapels, the Eternal is depicted on the vault.

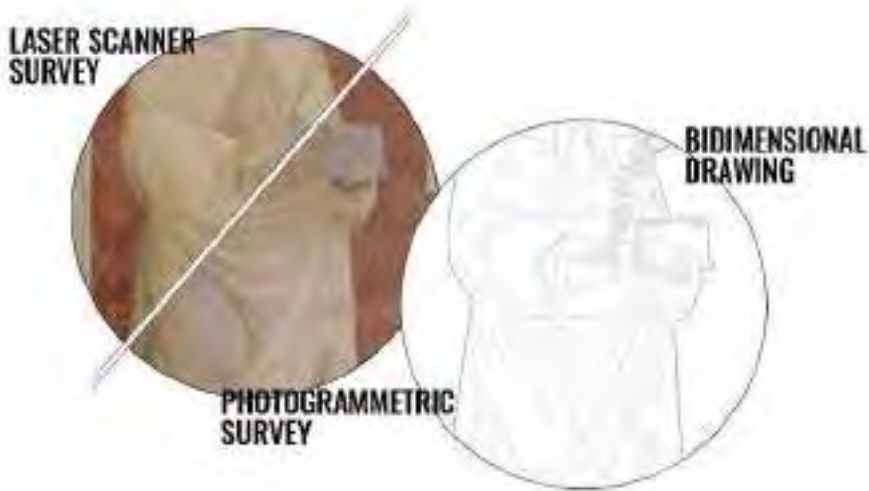
Therefore, the two pictorial representations are the only substantial differences between the last episode (E), in which saint Francis proclaims the indulgence at the Porziuncola. In realising the second pictorial cycle, it is assumed that Tiberio d'Assisi reproduced a realistic setting of the Sanctuary of Santa Maria degli Angeli when the frescoes were painted in 1512. In the episode of the proclamation of the indulgence, it is evident a further expedient used by Tiberio d'Assisi: that of reusing the same drawing used in Montefalco upside down in the arrangement of the figures, perhaps to make it more responsive to reality. From a stylistic point of view, the frescoes are perfectly consistent with Tiberio d'Assisi's painting style, which is very close to that of the great painters of his time, particularly Perugino and Pintoricchio, from whom he derived the foundations of his painting style, although he was not directly their disciple (Bordini et al., 2021).

3. Digital survey and documentation of the frescos

The digital documentation of the Chapel of Roses in Montefalco and Santa Maria degli Angeli and its decorative apparatus was conducted by integrating various techniques and technologies. These were integrated into the acquisition phase and the results, aiming to obtain 2D and 3D elaborations for multidisciplinary applications and analyses (Bertocci et al., 2019).

The integrated digital survey techniques allow the acquisition of a considerable amount of data and the implementation of verification operations for their accuracy. In particular, laser scanning techniques enable the acquisition of information regarding the metric and morphological components of the architectural object under examination. In parallel, photogrammetric surveying – using the Structure from Motion methodology

opposite page
Fig. 5
The data of the point cloud, the texture obtained from the photogrammetric SfM survey, and a detail of the two-dimensional drawing.



– enables the acquisition of data concerning the chromatic and material components, which is crucial in documenting decorative apparatuses, especially frescoes.

Following the digital survey campaigns, to develop a reliable digital reconstruction of the decorative apparatus, a process of vectorization of the pictorial decoration and the architecture in which it is inserted was carried out, obtaining reliable two-dimensional drawings and graphical representations (Parrinello, La Placa, 2019).

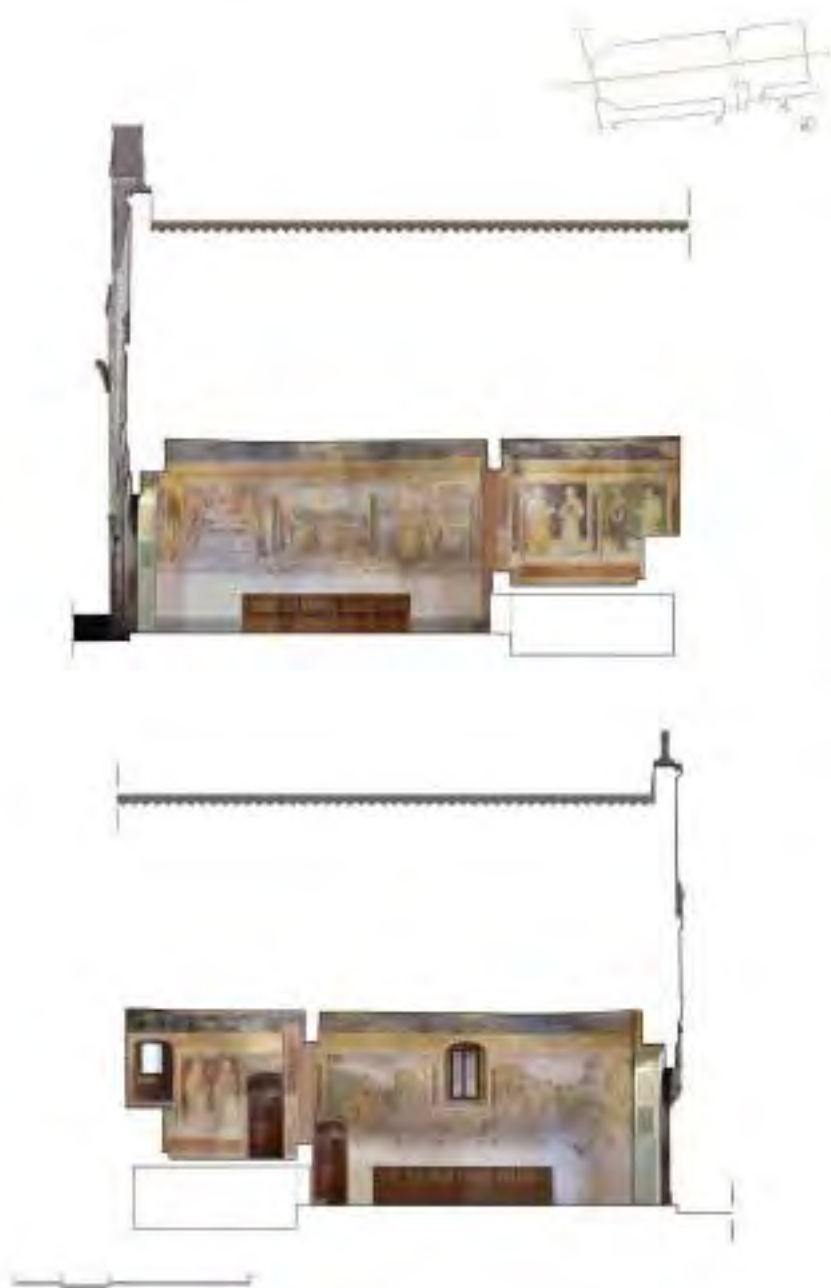
The generation of reliable elaborations from both a qualitative and quantitative perspective formed the basis for subsequent analyses and considerations on the frescoes and their methods of execution. The digital documentation was elaborated following a methodology that included a preliminary phase conducted on-site, aimed at planning the digital survey activity to facilitate the acquisition and subsequent management of data during the processing phase. The principal methodology used for survey operations was employing TLS (Terrestrial Laser Scanning) technology. For the acquisition of metric and morphological data, a Faro CAM Focus^M 70 laser scanner with phase-difference technology was used, through which a series of successive scans were performed, with a common point overlap of at least 50%. Thanks to an integrated HDR camera, it was possible to integrate chromatic data with the metric and morphological data, thus obtaining a highly descriptive point cloud. The acquired data was subsequently imported into specific point cloud management software, Leica Geosystems Cyclone, through which the main phases of filtering, registration, certification, and processing of the global point cloud were developed (Forgione et al., 2022).

opposite page
Fig. 6
Longitudinal section of the Chapel of Roses in Santa Maria degli Angeli (credits: Claudia Cerbai).

The global point cloud is obtained through a visual alignment procedure involving identifying and overlapping homologous points between adjoining scans through rigid rotations and translations. The global 3D point cloud represents the metric basis from which essential data for creating two-dimensional drawings, such as plans and sections, were extracted (Bordini et al., 2021). In parallel with the development of laser scanner surveys, detailed photogrammetric survey campaigns (SfM) of the decorative apparatus of both Chapel of Roses were carried out, aimed at integrating the metric-morphological data derived from the TLS point cloud with a product capable of representing, through mapped 3D models, information on the appearance and conservation status (Forgione et al., 2022) of the frescoes under study. Two digital cameras were used for photographic acquisitions, a Canon 1100D and a Pentax K1, equipped with an 18-55mm lens. Photographs were acquired based on the characteristics of the environment to be documented, taking into account the lighting conditions used to calibrate the camera parameters. According to the acquisition methodology, the photographs have been captured sequentially and maintaining a minimum overlap of 50% between successive photographs (Pancani et al., 2022).

Data acquisition was performed in RAW file format, which keeps colour information for later processing in a specific colour space (Pamart et al., 2017). Images were calibrated by taking a preliminary photograph and inserting a colour checker into the scene. The photographs were subsequently calibrated using Spider Checker® software. The set of balanced and colour-corrected images, saved in .jpg format, was loaded into 3D modelling software (Agisoft Metashape). Most digital processing pipeline steps, camera calibration and orientation, dense point cloud generation, polygon mesh surface reconstruction, and texture mapping were performed fully automatically. After setting up a local coordinate system, the same SfM photogrammetry software automatically generated an ortho-photomosaic from the rasterized close-range image data as a projection onto the best-fit plane (Grifoni et al., 2017). Once the high-poly textured 3D model was obtained, it was referenced and calibrated using coordinates of homologous points extrapolated from the laser scanner survey. This procedure allowed the integration of the two digital survey methodologies, resulting in mapped 3D models with a high level of reliability (Minutoli et al., 2020). By meticulously refining and discretizing the point cloud data, wireframe graphical representations of plans, elevations, and sections at a scale of 1:50 were created (Fig. 6).

These wireframe drawings were subsequently used as the basis for calibrating the orthographic images developed by exporting ortho mosaics from Agisoft Metashape



SAINT CLARE_ OVERLAP HYPOTHESIS (VERIFIED)



↑
Fig. 7
 Hypothesis
 of overlap of
 the figure of
 Saint Clare and
 identification
 of the main
 differences.

software. The data obtained from the photogrammetric survey was integrated, and it became possible to carry out a detailed re-drawing of the frescoes at a scale of 1:10, enabling a comparison of the frescoes and considerations on the methodologies of their creation, as described in the following paragraph. The entirety of the acquired data and subsequent elaboration constitutes a fundamental basis for examining and interpreting the frescoes created by Tiberio d'Assisi in the Chapel of Roses in Montefalco and Santa Maria degli Angeli, considering both their morphological and chromatic aspects.

4. Analysis methodology and conclusions

This section will describe the results obtained by comparing the frescoes executed in the Chapel of the Roses in Montefalco and Santa Maria degli Angeli by Tiberio d'Assisi. It was chosen to consider two sample cases – the representation of Santa Chiara and episode B in which the angels guide saint Francis to the Porziuncola – to illustrate a methodology applicable to the entire decorative apparatus. The analyses rely on two-dimensional drawings at a scale of 1:10 made through the precise rendering of data obtained through the integration of laser scanner survey and photogrammetric survey of the internal surfaces of the two chapels. These surveys have allowed the identification of portions of decorations with overlapping profiles and have demonstrated

opposite page
Fig. 8
 First overlap
 hypothesis of the
 episode B and
 identification
 of the main
 differences.

EPISODE B_ FIRST OVERLAP HYPOTHESIS (NOT VERIFIED)



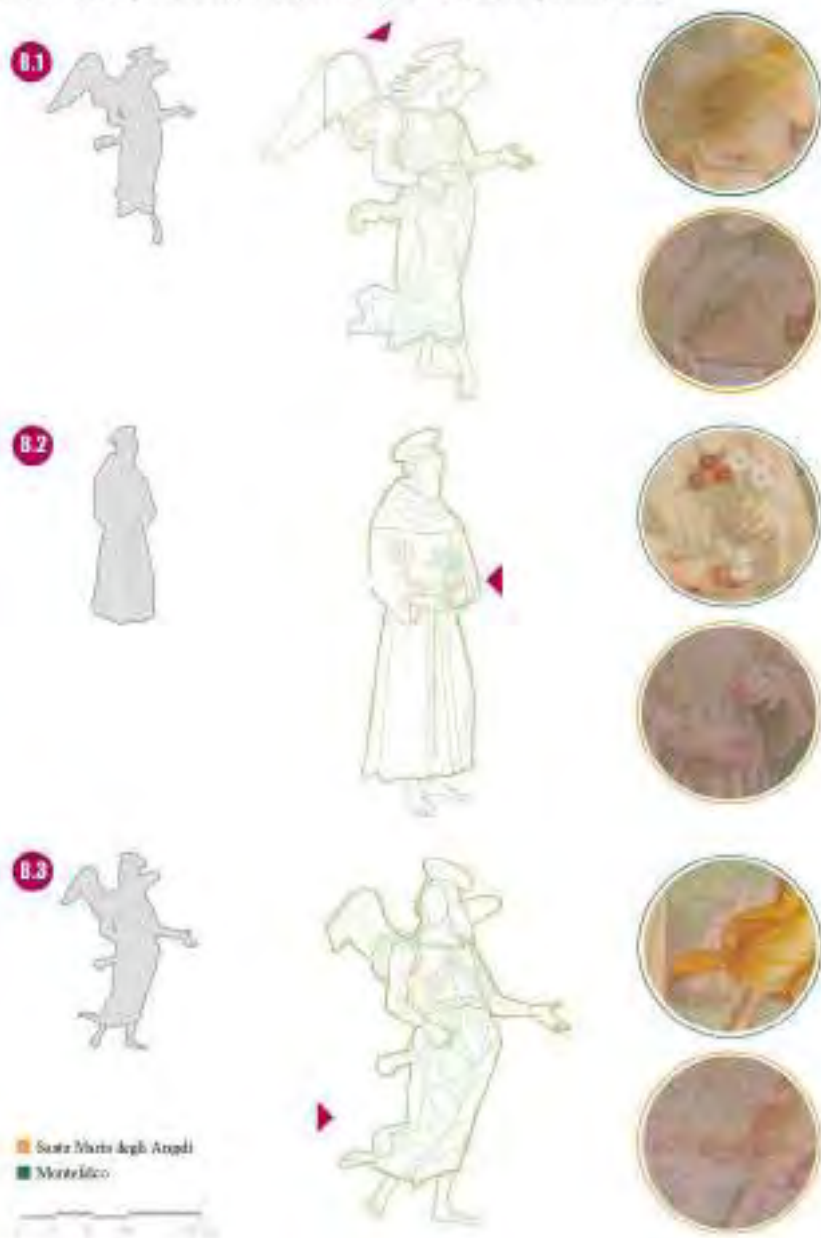
the use of the same preparatory drawings or templates to impress reference incisions and profiles on freshly applied plaster. As described in Figure 7, the overlap between the two drawings representing Santa Chiara corresponds almost perfectly. The main differences are found in the right part of the fresco, particularly concerning the drapery of the dress and the lilies that the saint holds in her hands. In the Montefalco fresco, there are three lilies, while in the one in Santa Maria degli Angeli, there are four. Given the almost total correspondence of the main lines, the hypothesis of using the same preparatory drawing can be verified.

Regarding episode B, an overlap was first made, assuming the use of a single preparatory drawing representing the three figures. As described in Figure 8, this hypothesis is not verified, as overlapping one of the three figures results in the misalignment of the other two. Therefore, we proceeded with the overlap, assuming the use of three preparatory drawings, one for each figure. As in the previous case, this hypothesis verifies the correspondence of the principal lines, especially in the overlap of drawing B.1. The main differences are recorded in the upper part, in the representation of the hair and in the wing, which in the case of Santa Maria degli Angeli is fully represented, while in the case of Montefalco is only partially represented due to the shape of the frame. As for drawing B.2, the main difference is that in the representation in Santa Maria degli Angeli the two small bunches



Fig. 9
Second overlap
hypothesis of the
episode B and
identification
of the main
differences.

EPISODE B_ SECOND OVERLAP HYPOTHESIS (VERIFIED)



of red and white roses are not depicted, but the hands are in the same position. Figure B.3 almost perfectly corresponds; the only substantial difference is found in the lower part of the dress. So in this case, the second hypothesis of overlap, which suggests the use of three preparatory drawings, can be considered verified. In conclusion, with the updating of the technologies at our disposal and the integration of proven methodologies in various areas of the analysis of wall paintings, it is possible to take further steps of definite interest from the point of view of scientific research and, specifically, to clarify the operating methods and working phases (Bertocci, 2023). This contribution underscores the importance of defining an operational methodology for the study and analysis of pictorial representations and how this can serve as a crucial tool for their preservation and enhancement.

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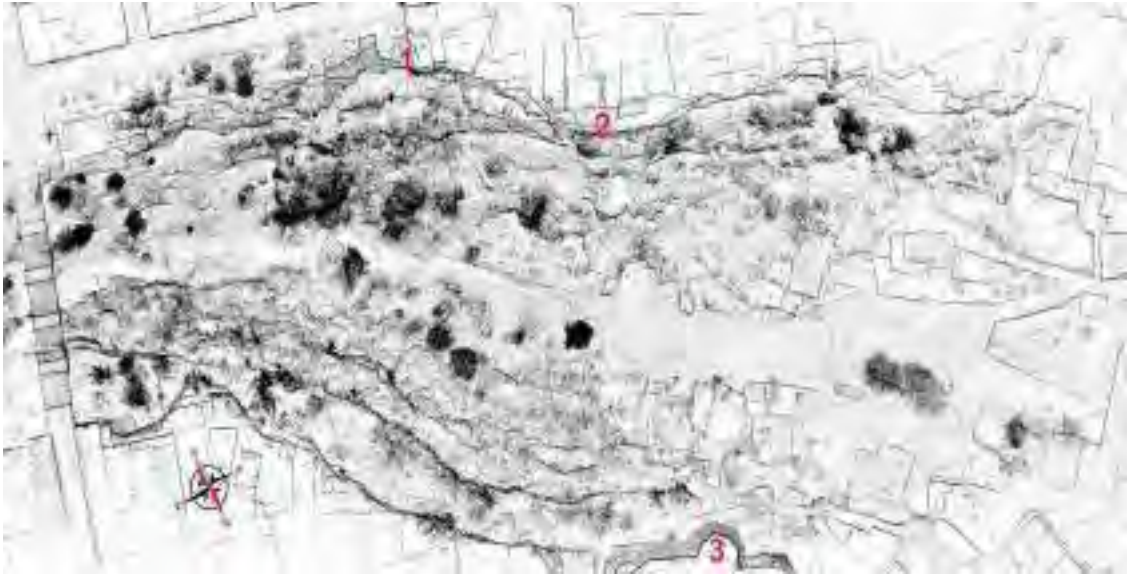
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Abstract

Numerous ravines characterize the Murgia territory, extending from Puglia to Basilicata. In that of Saint Mark, in Massafra, in the village of Santa Marina, we find the House of the Igumeno, a residential building with unusual architectural features. The graphic documentation, unpublished, supports the previous archaeological annotations and helps to highlight some episodes. The 2014 geomatics documentation was produced within the framework of PRIN 2010/13 and is the only documentation of the 3D model. Given the current inaccessibility of the places, it is the only document that allows the knowledge and promotion of the building to be preserved in question and the village to which it belongs.

The building is part of the more extensive survey on the landscape of the hamlet of Santa Marina and Saint Marc, a site investigated in the Crhima-cinp European project. We have extracted the data from the three-dimensional data to guarantee a complete and detailed description of the village in question and the ravine leading historical and artistic monuments.

Keywords: Igumen rupestrian house, geomatics documentation, archaeological survey.



↑
Fig. 1
 Saint Marc ravine. The Saint Marina hamlet. 1 Saint Marina Church, 2 Igumen House, 3 Castle X-XVIII, 4 Garibaldi bridge. Riegl Point clouds. (By Francesco Tioli).

1. Introduction

Broad and deep crevices with steep walls characterize the Apulian-Lucan plateau. In these regions, the calcarenites, excavated for millennia by water, have welcomed into their bowels entire villages from the Paleolithic to the 17th century and in some territories, continuously until the 1950s. With the Provisions for eliminating unhealthy dwellings, Law 640/1954, the cave dwellings and their villages were abandoned.

However, the solicited cultural attention for the Rupestrian Habitat heritage, which highlighted the city of Matera, the capital of European Culture in 2019, as its leading exponent, has supported the promotion and enhancement operations for the cave living structural-environmental recovery. The appreciation of some complex buildings is underway in the Matera area and, sporadically, in some Apulian cities.

On the last southern offshoots that descend in steps towards the Gulf of Taranto, in the theatre centre of the Murgia, is Massafra. Numerous ravines furrow its territory, mainly in a north-south direction. These houses the rupestrian settlements¹: aggregations of more or less deep rooms; sometimes, complex sites, line up along the terraces or rough paths that characterize the valleys' steep slopes.

opposite page
Fig. 2
 The hamlet cliff: spatial nexus between the Saint Marine Church (1) and Igumen House (2). Riegl Point clouds. (by Francesco Tioli).

¹ The excavation type characterises buildings and urban structures; they can be distinguished in natural cavities, rock shelters, rupestrian, and underground towns.



“A hard daring and out-of-the-ordinary scenario, with peaks and holes, with a green’ hundred shades and a hundred caves... Like a fossil animal, a fossil is this carved rock, but so parsimoniously that, to climb to the crypts, there will be no steps, but treads in the stone, exact and breathless treads, which allow you to keep vertical, much more than the steps. They are so natural that you can climb without realizing it: you lift your foot, and it comes in on its own, like a slipper” (Brandi, pp. 110-11)².

Among the ravines of this territory, there is that of Saint Mark (Fig. 1), which divides the urban centre in half. It was inhabited until the seventeenth century: in November 1603 and January 1608, great water overflowed and made the hamlets dangerous. (Jacovelli, 1983; Dal Miglio, Desiderio, 2019) Following these events, the population abandoned the sites, which were used, over time, for quarrying and saltpetre production. Its cliffs are home to meaningful rock structures. Among these, we find the ‘*Igumen house*’ (Fig. 2).

The architectural dignity links the building to the *Igumen* Anselm presence, Head of a Greek Church monastic community, who, as the legend of Margheritella narrates, seems to have resided in the Saint Marc ravine³ (Fig. 1) (Gallo, 1916).

² Over time, this happy walk was lost due to neglect. In 2021, it was no longer possible to access, for example, the ‘home of the igumen’; walls of blackberries obstructed the paths. From the village of Santa Marina you can visit, with a guide, only the area set up as an archaeological park.

³ Around the year one thousand, a certain Magician, Gregùro, would have lived in the Madonna Della Scala ravine with his daughter, the sorceress Margheritella, or Magarella. Captured by a Greek Catapano, she was handed over

opposite page
Fig. 3
 Santa Marina Church. Longitudinal section through the left apse. On the wall and pilaster, we see three Santa Marinas; still, in the bema we see traces of the Pantocrator's great fresco. Point clouds (by author).

Fig. 4
 1 - Plan Igumen House.
 2 - Entrance detail. Faro Point clouds (by author).

How much truth there is in the tale is hard to confirm; however, how the archaeological data interacts with the oral tradition data cannot be ignored.

The *Igumen* house is inserted in a medieval context dated to a period before the 11th century: the village of Santa Marina (Figg. 2-3). This religious building dates to the 7th-8th century due to the 'logette' tombs in the area in front of the church and the dedication inscription in the central apse. This inscription for the diachrony of the diffusion of the *Consuetudo Bononiensis*, dating with incoming and outgoing days of the month, which is attested starting from the 5th-6th century (Caprara, 2015) would confirm the dating also supported by the accessory rock structures concerning the worship hall, fovea/cistern and possible monastic cells.

2. On the Igumen House annotations⁴

From the literature⁵, the *Igumen* House is a nucleus of two hypogeums located in the upper part on the southeastern slope of the ravine of Saint Mark (Figg. 1-2), on the southwestern edge of the archaeological park of the rock settlement of the village and church of Santa Marina, of which it belongs as part. Other cavities are located on the lower levels: quarrying and collecting saltpetre has significantly compromised their integrity. On the right, towards the ravine valley outlet, shortly after the *Igumen* House, we find only a tiny nucleus of hypogea around the rock church of San Biagio⁶, which the flood of 1603 strongly compromised.

The collapses, which have happened over time, have compromised the ravine front urban and architectural organization reading and that of the individual buildings. We can reach the house from the bottom of the ravine (Dalmiglio, Desiderio, 2019) and, with great difficulty, the way to the archaeological area. The nucleus is marked with the

to some inhabitants of the area, who intended to burn her alive. From the Gravina di San Marco, the hegumen Anselm intervenes to help her, and the innocent Margheritella is freed and saved. The legend is linked to the local toponymy with the toponyms Grotta di Mago Greguro, Uschiferri, Corno Della Strega and Seguita Cristi, and finally, the "house of the Igumeno". Although evocative, the toponymical correspondences between material and immaterial sources can conceal some truths. The legend is handed, down in a 1916, historical essay by Gallo V. The scholar traces the documentary references of a Latin manuscript; the witch puts the date around the year one thousand.

⁴ Monument co-ordinate: 40.586636, 17.112406.

⁵ An accurate and detailed description of the evolutionary phases of the building is due to Dal Miglio and Desiderio, 2019: pp. 221-252, who, like myself, were motivated to study by Roberto Caprara. Already in 2001, he complained of the absence of a detailed study of this unique system of hypogea (Caprara 2001: 92). Of the House of the *Igumen* there were then only brief descriptions in Jacovelli 1960: p. 27; Abatangelo 1966: 189-190; Jacovelli 1981: pp. 25-26 to which was added a summary treatment in Castronovi 2005: pp. 37-42.

⁶ From Jacovelli brief description, we know that the rock church of St Blaise "is close to the Saint Mark ravine, immediately after the *Igumen* House. It has three small naves with flat vaults, with arches supported by pillars and flat walls" the annotation of "an artefact in calcarenite which vaguely hints at a mullioned window is fascinating. It is in a room "obscured by the presence of a large boulder that remained embedded in the floor following the last landslide of 1936".



number 18 in the project *Le Grotte Parlanti* and has two units, sub 1 and sub 2. Following the numbering of Dalmiglio and Desiderio, sub 1 is made up of rooms 1-4, 6 and 7, while sub 2 from room 5. We will divide room 1 into three parts: 1-1A-1B (Fig. 4). On the elevation of sub 1, looking to the right, we find five steps, a quarter of a spiral, dug into the bottom of a probable small silo. The staircase leads onto a small bumpy floor (1B), laterally to the antechamber (1A) and at a higher level. This space has undergone considerable alterations.

We point out a corbel with a residual arch attachment in the corner of the sidewalls. This could be a prelude to a small *arcosolium*, which has been lost, with an accurate sculpture atypical for Massafra. On the southeast wall, we find a rock cabinet (1b) with recesses for shelves. There is a rectangular recess on the cabinet with a longer extension, perhaps a housing for a closing beam. Furthermore, there are traces of an arch, which separated the antechamber from the *arcosolium* and the vaulted room (Fig. 4.2).



Fig. 5
Igumen House.
Section S0.
Room 1 and 2;
tank niches 6.
Point clouds (by
author).



The original arrangement of sub 1 consisted of the small quadrangular room (1A) with a lowered barrel vault, and of which traces remain, and the room (1) with a lowered cross vault⁷. On the western wall of the latter, there is a large rectangular niche (1a) with a segmental arch punctuated by a central square pillar preserved in the stone material. Behind the post, a recess of the exact dimensions of the niche has been created.

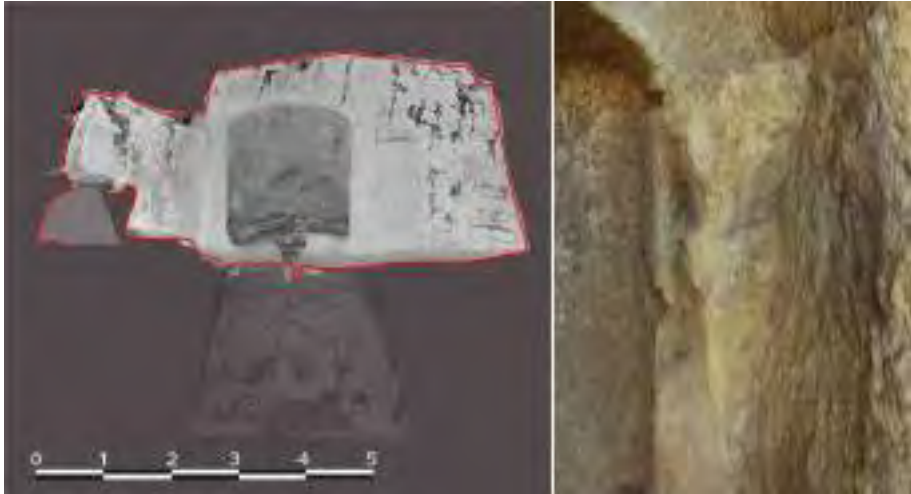
On the same west wall, the trace of the ancient floor can be reconstructed through the marks left by the excavation tools. The walking surface was at the height of 125 cm higher than the current one (Fig. 5). On the eastern wall, on the external front, we find a stairway (S1) which climbed straight up, of which a few steps remain in the lower section and interrupt on void due to a series of rocky detachments⁸. In a subsequent phase, with the communication between rooms 1A and 1B, a rectangular well, now plugged up, once connected to the plateau above was opened on their roof. In the thickness of its external wall, there is a small window splayed towards the inside, today preserved

opposite page

Fig. 6
Igumen House:
a - Section SE
room 2;
b - arcossolium
corner corbel,
room 1B. Point
clouds (by
author).

⁷ The vault has a rampant impost on the east wall, towards the sixth of the cross vault. Dalmiglio and Desiderio believe that the solution follows the flight of stairs that has been lost. However, we could also hypothesize that the solution was functional for the lighting of compartment 1, excavated afterwards from compartment 1, or that it was thus modelled in the remodelling for the reception of the well.

⁸ It is uncertain that the S1 staircase belongs to the first phase and that the higher steps were lost with the subsequent floor level lowering. On this wall, we find a niche for oil lamps immediately behind the external wall, flush with the arrival of the steps, and a second one, slightly lower down, immediately after the transept shutter. This is not reported in the archaeological report. Therefore, both could be reached by raising the hand only from the original floor level.



only in its upper portion. The window light was about 50 cm outside and 90 cm on the side. In its architrave, we find a further opening with a vertical trend⁹.

On the northeast wall, doors 1G (f4) and 1H (f5), opened in successive stages, connect rooms 1 and 1A with room 5 respectively. Two pilasters, of which only the NE one remains, departed room 1 from the next room 2¹⁰. This room was smaller than the current one in height and transversal extension. On its back wall, excavations traces indicate that the southwestern wall was enlarged in stages; different processes characterize the ceiling attachment and the northwest edge. In the first phase, the roof had a lowered cross configuration; the edges hints can be seen at the start of the northeast pilaster and the beginning of the northwest small wall.

⁹ Assuming that the wall and the window were contemporary with room 1 (Dalmiglio and Desiderio, 2019: 224), we should think of a ventilation system as we find in some underground structures on the island of Santorini (Crescenzi 2012). We usually find these systems in cave buildings consisting of several rooms excavated in sequence in the depth of the rock. This solution requires a ventilation and lighting system.

This would suggest that there were at least two other rooms initially.

¹⁰ The pilaster and part of the nearby wall may have been demolished to remodel and accommodate the space for accessory 7.

opposite page

Fig. 7

Igumen House.
NE section: room
5; tank niches 3
and 6.

3. Notes on the survey and elaboration data¹¹

During the 2014 campaign, in the context of the PRIN 2010/13_2023/2015 and 2021, the UniFI RU documented the Village of S. Marina by integrating the LIDAR data of the valley with the architectural ones.

The alignment and composition of the numerous scans made it possible to reconstruct the archaeological park's existing structures fully. Its virtual model allows the interdisciplinary reading of the area, the individual units and their undercurrent relationships. The researchers documented the terraces ravine landscape south of the Garibaldi Bridge as an urban structure. The valley's complex morphology required using a Riegel VZ 400 long-range scanner. The drafting of a single environmental model, consisting of 26 scans of the area and over 130 scans performed for the architecture of the Village of Santa Marina archaeological park and the *Igumen* House nucleus, conducted by Faro phase variation scanners Focus 3D, required an accurate post-processing work for their alignment and aggregation.

This strategic data integration, choice of 3D scanner tools, digital modelling, cataloguing and investigation of these architectures was deemed essential to address a systematic study to document a cultural heritage that is disappearing and changing along with its habitat. The degradation caused by anthropic pressures, centenary abandonment of sites and natural causes threaten and change this environment.

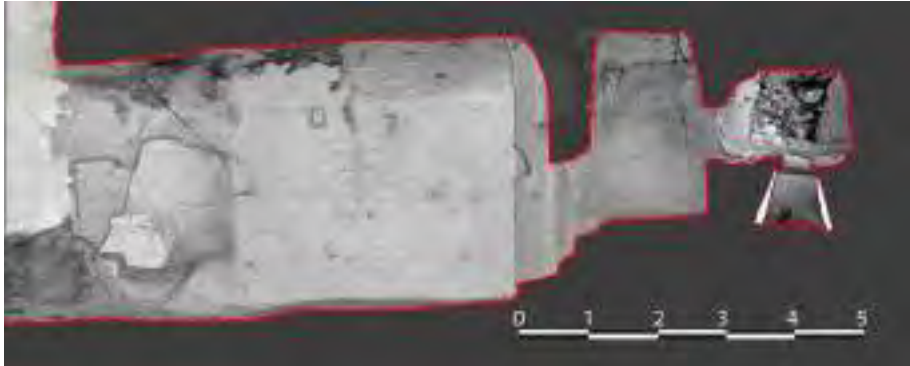
The landscape digital data processing constitutes a three-dimensional map, a relational geographic database of the on-site documentation campaigns and the interdisciplinary studies still in progress.

The nature of rocky settlements makes the data management produced by the laser scanner particularly difficult. The roughness and extreme irregularity of the articulated surfaces, the collapse of the fronts and the luxuriant vegetation prevent data acquisition in some areas. Furthermore, the limited time available for the execution of the various operations has required continuous scans. Therefore, acquisitions without uniformity of light exposure have produced the juxtaposition of well-lit images with others with poor or excessive lighting. Initially, we grouped the clouds by macro

¹¹ Acknowledgement. The work was carried out within the: PRIN (2010-2011), (2013-2015), directed by Disbec - UniTUS, chief Andaloro M., and supported the UR - DIDA's one, chief Crescenzi C., is to document the Rupestrian Cultural Heritage, a fragile heritage intended to dissolution. Survey 2014. Landscape survey: C. Crescenzi, Da Frassini L., Masotto G., Scalzo M, Tioli F., Giustiniani C.

Seminary Cultural Rupestrian Heritage in the European Area, chief Crescenzi C., DIDA-UniFI; Archaeological Park St. Marina, survey 2020-21: Baldacci A. Crescenzi C., Balducci F. Quadrelli L., Nicoli L., Valeria Sellitto.

The municipality of Massafra and the Tourist Office supported the work. The active participation of the Jacovelli E. Archaeogroup Association and the Mastrangelo G cultural and logistic contribution made the activity in the area easier and possible.



areas, aligned and recorded them with the Recap PRO program, manually identifying the homologous natural points (points identifiable on the rock itself). We have cleaned the documentation projects of the Archaeological Park and the *Igumen* house from the noise disturbing elements, silhouettes of people, burnt or out-of-control points on the edges of the cuts, moved vegetation, etc. The accuracy of the operations and the cleaning of the clean points has returned an accurate virtual three-dimensional model, which allows observing in detail the various signs on the walls, such as chippings and lesions, in addition to the paintings in the Church of Santa Marina.

From the 3D model, we have taken out the traditional 2D representations for the plans drafting, the elevations and sections, axonometric and perspective views. Having identified the section planes for each image to be carried out, very high-resolution snapshots were created to preserve the details of the surfaces; the operation was repeated for each scan file involved in the processing, and each was performed several times with less defined pixilation to obtain a homogeneous coloring of the image. The final drawing, processed in Photoshop, merges the snapshots after controlling the exposure and, in some cases, makes shadows, contrast range, and brightness to get a homogeneous result.

4. Conclusions

The report reopens the comparison of the *Igumen* House chronological interpretation. The further in-depth analysis would be needed for entrance areas and the silo niches' architectural elements¹². The data survey, open to researchers, will bring new vitality to

¹²The typology present in this building is not widespread in Massafra, and I have not found it even in the archaeological area of Vitozza in Sorano. However, they are present in the archaeological site of Göreme (Benucci et al., 2017) and Santorini. Even the typology of the front of the arched caves, not included in this report, which insists on the front of this ravine glacis, is unconventional. This typology, with the wall front in cut stone, is always present in Santorini.

the study and interpretation of this habitat. Furthermore, the 3D scanner survey confirms its effectiveness as a good tool for data analysis and reflection over time and the possible synergy of integration between surveys conducted in different periods and with other acquisition data techniques and instruments, and as a support for the redevelopment and enhancement of the area.

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SURVEY OF THE STATE OF CONSERVATION OF THE MONASTERY OF SANT MIQUEL D'ESCORNALBOU IN TARRAGONA (SPAIN) THROUGH DIGITAL, ANALYTICAL AND IR TECHNIQUES

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Abstract

The IRT survey is one of the most widely used techniques to monitor buildings, manufacts, masonry, and cultural heritage in general. In this contribution, this technique is applied to the Monastery of Sant Miquel d'Escornalbou (Tarragona, Spain). The monumental complex has undergone to architectural transformations over the centuries, and the functionality of this place is closely linked to the domination of the territory, Vatican schemes and industrial, political and military interests. Today, the state of the art of the monastery represents a challenge in the conservation field because of the natural decay of the original parts and the prolonged absence of maintenance works. The present work aims to investigate the historical-constructive events of the monastic complex through historical sources and digital surveys useful to understand the main architectural-structural problems necessary for a possible conservative intervention. At this first stage, recognition using Non-Destructive Techniques (NDTs) based on imaging systems such as a combination of IR thermography, photogrammetric surveys and visual inspection is preferable. According to these techniques, it is possible to discover not only degradation phenomena like: structural defects, biodegradation, air cavities, raising dampness phenomena, water infiltration, but also a stratigraphic documentation of the monastic complex. The synergy of the imaging techniques allows the reading of the construction phases of the monastery and guide subsequent analytical studies useful to identify the nature of the local stone used for the construction of the buiding.

Keywords: Infrared thermography, Photogrammetry SfM, stratigraphic documentation.



Fig. 1
Aerial panoramic
image of the
monastic complex
of Sant Miquel
d'Escornalbou
and the valley
(acquisition
credit: Pietro
Becherini).

1. Introduction

The castle-monastery of Sant Miquel d'Escornalbou is located near the town of Riudecanyes (Baix Camp, Tarragona), Spain (Fig. 1). Thanks to its privileged location on top of a mountain and the fortified walls that surrounded it, the complex originated as a military fortification, first Roman then Arab, then, in 1686, it became a convent for Franciscan missionary fathers, until 1907, when an important exponent of the Catalan Renaissance, Eduard Toda, began the castle's final renovation converting it into a private residence (Sanabra Ramos, 2021).

In this scenario the monastery has been chosen as an emblematic example of coexistence between architecture and territory, reflecting an essential part of European culture of the Franciscan Observance. This research is part of the European project F-ATLAS – Franciscan Landscapes the Observance between Italy, Portugal and Spain, which aim is to study the Franciscan Observance network and to find effective strategies for the conservation, protection and promotion of this important heritage. The work provides the development of a documentation protocol through operations of digital relevance, which represent the fundamental basis for the critical analysis of architecture and its link with the human and natural context (Bertocci et al., 2023; Soler Sala, 2022).

2. Materials and Methods

2.1 Integrated digital techniques (Laser scanner 3D and Photogrammetry SfM)

The survey campaign was approached by exploiting the integration of traditional and computer-based tools for surveying and data processing. These included the use of technology offered by 3D laser scanners and the acquisition of photographs for the reconstruction of photogrammetric models. For the Terrestrial Laser Scanning survey an Imager Z+F 5016 static laser scanner was used, which acquires up to 1,000,000 points per second at a maximum distance of 360 meters with horizontal rotation of 360° and vertical rotation of 320°. It offers precision even at long distances (2/3 mm accuracy) and is equipped with an HDR camera that returns well-balanced color data (Soler Sala et al., 2023). At the same time, a photographic campaign through digital cameras and drone was carried out to obtain a three-dimensional model and photoplanes of the monastic complex by the Structure from Motion (SfM) technique (Cottini, 2022). These elaborates are essential to integrate the variations in color and surface pattern, and especially to superimposed the thermographic data useful to complete and optimize the historical and conservative framework of the monastery (Martin et al., 2022; Morena et al., 2021).

2.2 IR Thermographic survey

Among the non-Destructive Techniques, the Infrared Thermography (IRT) represents a valuable tool for the investigation of architectonic structures (Grinzato, et al., 2002; Balaras, et al., 2002). This technique exploits the property that each material spontaneously emits electromagnetic radiation in the infrared range in relation with its temperature. The electromagnetic radiation is carried out recording the infrared radiation emitted by a particular detector (infrared camera) (Burnay et al., 1998).

The IRT technique is used to investigate the structure and composition of walls by detecting the different inertial thermal behavior of materials. The surface temperature of the wall is influenced by the internal heat propagation, which in turn is influenced by environmental conditions and by the emissivity of each material. A variation of such conditions, either natural (passive mode) or artificially induced (active mode), causes a thermic disequilibrium that can be easily visualized through the infrared camera. (Paoletti et al., 2013). IRT has been adopted on wall of Sant Miquel d'Escornalbou as a preliminary screening procedure together with the photogrammetric investigations. In particular, the inspection was starting with the aim of detecting degraded areas and then move on to the recognition of defects in the masonry in order to estimate the state of conservation of the monastic complex and the structural remakes made during the centuries (Brizzi et al, 2022).



Fig. 2
 Left) Aerial image of the monastic complex of Sant Miquel d'Escornalbou with the IRT investigated areas highlighted in blue. Right) thermographic long-range shot using thermal camera (credit: Sofia Brizzi).

The FLIR thermal camera, model T540, with a resolution of 464x348 pixels, thermal sensibility of (NETD) <math><30 \text{ Mk}</math> a 30 °C (optic lens of 42°) di 50mK, temperature range from -20 °C to +350 °C, and accuracy of $\pm 2\%$, was used to produce thermal maps. Values for ambient temperature, relative humidity, distance to target area, and relevant emissivity of target surfaces were used as controls (FLIR Systems AB). IR images were analysed using FLIR software (*Thermal Studio*). The IRT survey was done in the façades shown in Fig. 2, by performing close and long-range investigations, i.e. by detecting the temperature respectively near and far with respect to object.

2.3. X-ray powder diffractometry (XRPD)

In order to investigate the mineralogical and petrographic characterization of mortars between the church ashlars and the stone used for the construction of the monastery, the XRPD analysis was carried out (Cobirzan, 2014; Vettori, 2016). The nature of the stone was also essential to determine the exact emissivity of the material for the correct reconstruction of the thermograms of the IR survey. X-ray Powder Diffractometry (XRPD) was employed on powders to determine the mineralogical composition using a powder X-ray diffractometer (Cu anticathode ($k= 1.54 \text{ \AA}$)), under the following conditions: current intensity of 30 mA, voltage 40 kV, angular range $3^\circ < 2\theta < 70^\circ$.

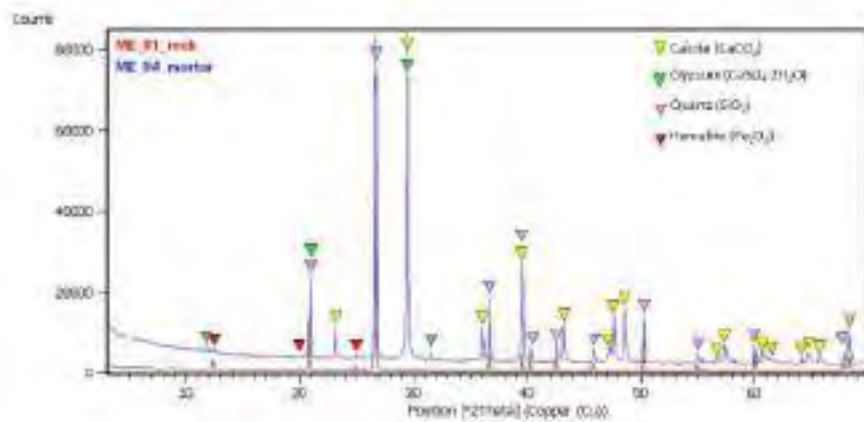
3. Results

3.1. X-ray powder diffractometry (XRPD)

Through diffractometric analysis, it was possible to observe that the local stone samples analyzed show the same composition, consisting of the prevailing quartz mineralogical association, which is followed by the presence of iron minerals (hematite), feldspars

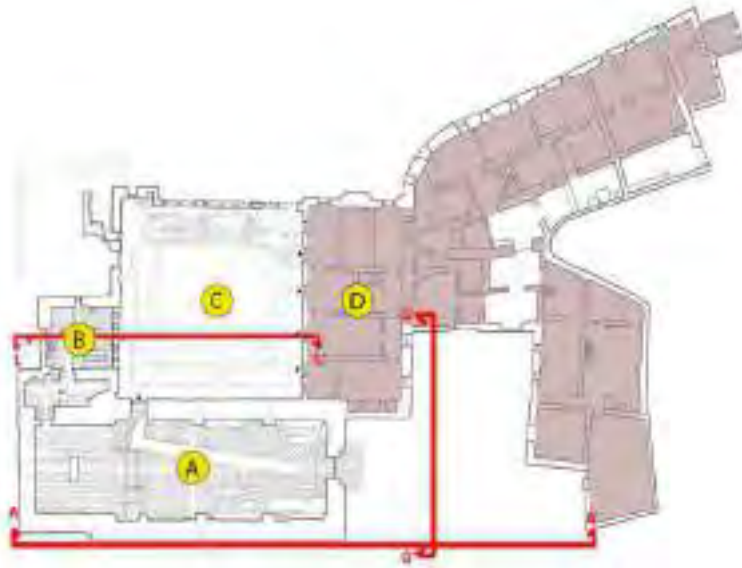
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Fig. 3
 Diffractograms of samples ME_01_rock and ME_04_mortar.

Fig. 4
 a) Degradation of the stone in the cloister of the monastic complex b) Stereo-microscopy observation of the sample ME_04_mortar; c) Stereo-microscopy observation of the sample ME_01_rock.



**Fig. 5**

General plan of the complex with the indication of the main rooms: A- church of Sant Miquel; B-Chapter room; C- Cloister; D- Manor house and the elevations object of this work (section A-A', G-G', L-L').



(albite and microcline), micas (muscovite), and clay minerals (kaolinite), (Fig. 3). These results, based on macroscopic and microscopic examination together with, the degradation forms of the stone (alveolisation, chemical-physical erosion and exfoliation, (Fig. 4) and mineral-petrographic investigations, show that the local stone, which characterises the entire monastery complex and valley, is a sandstone with siliceous cement. Iron ores (hematite) are responsible for the reddish color that characterizes the entire valley. It should be noted that, in order to differentiate the sandstones in question more precisely, analyses of the clay fraction $< 4 \mu\text{m}$, which could have provided indications of the ancient quarries of provenance, and petrographic thin section analyses capable of determining grain size and texture, would have been appropriate to deepen the study. As for the mortar, it shows the presence of calcite, quartz and gypsum, with smaller amounts of hematite as well, demonstrating the use of local stone as an inert in the mortar mix of the ashlar bedding (Fig. 3).

3.2. Integrated digital techniques (3D laser scanner, photogrammetry SfM and IR thermography)

In order to support the data merging operations between geometric and radiometric data, a complete 3D metric survey was necessary to obtain the geometric base, which

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Fig. 6
North-West side of the church of Sant Miquel d'Escornalbou. Above: VIS and IR photoplans. Below: two close-range thermograms and the historical photo. (Sanabra Ramos, 2021) (acquisition credits: Sofia Brizzi, elaboration credits: Simone Alinari).

represents the starting point for the subsequent data fusion operations (Lerna et al., 2012). The VIS photoplanes in Fig. 5 are obtained through the laser scanner and photogrammetric survey, and they are used to construct, in scale, the IR photoplanes of the building façades. The results, combined to historical photos, allow a stratigraphic reading of the monastic complex and all the reconstruction works carried over the centuries.

The emissivity of the local stone, which, according to the XRD results, has been classified as a sandstone rock with silicate cement, is 0.67 at 40 °C. The façades investigated in this work are shown in the map of Fig. 5, while the numbers 1 and 2 shown in drawings of Figg. 6-9, represent the location of the most relevant thermal discontinuities seen in long and close range modality. Some elements were identified in relation with the structural remakes made during the centuries:

- In Figure 6, the presence of a side chapel in the North-West side, demolished in 1907 by Eduard Todà (Sanabra Ramos, 2021), appears. The comparison of this image with the thermographic survey shows the presence of an arch between the second and third windows of the church, probably dating back to the opening of the old chapel. The presence of abundant biological patina and rising capillary moisture from the ground is also evident.

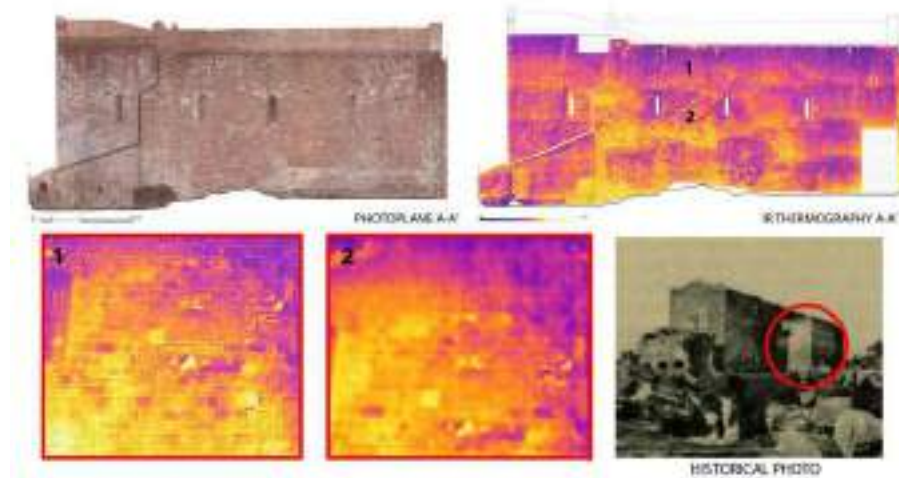




Fig. 7
Frontal façade
of the church
of Sant Miquel
d'Escornalbou.
Above: VIS and
IR photoplane.
Below: two close-
range thermograms
and the historical
photo (Sanabra
Ramos, 2021).
(acquisition
credits: Sofia
Brizzi, elaboration
credits: Simone
Alinari).

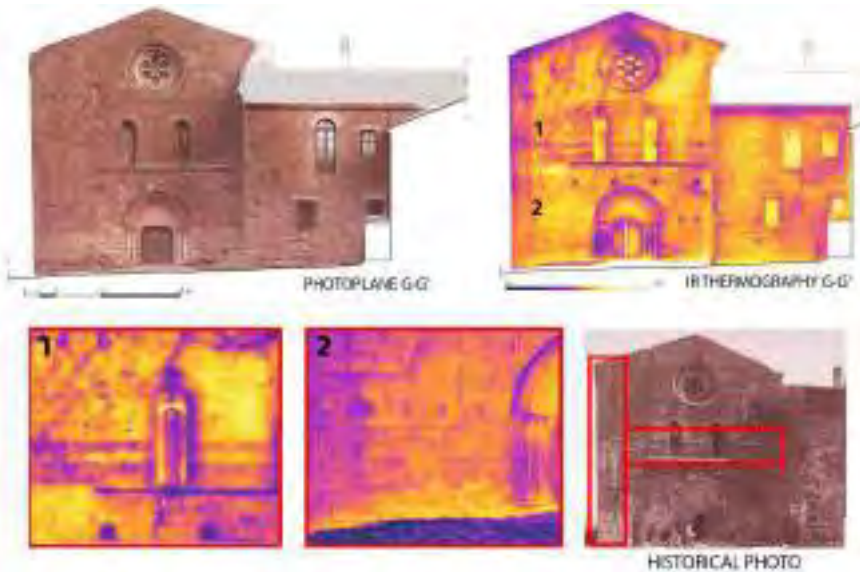
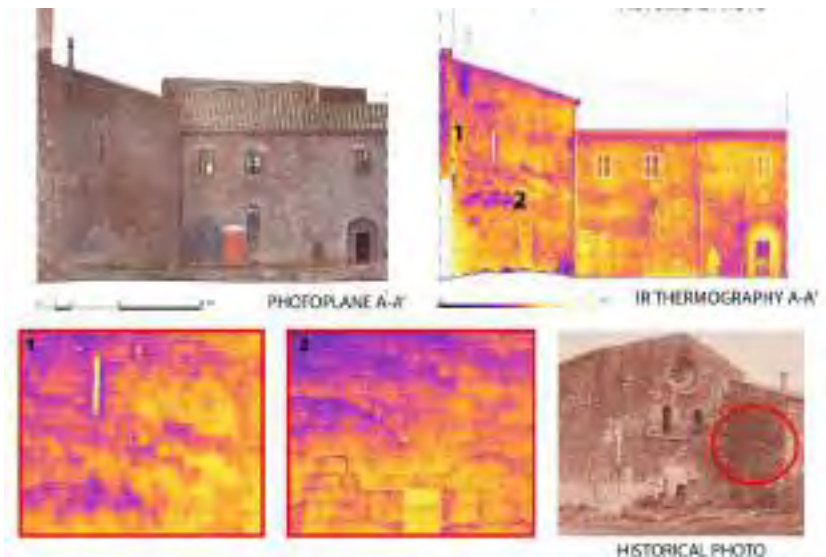
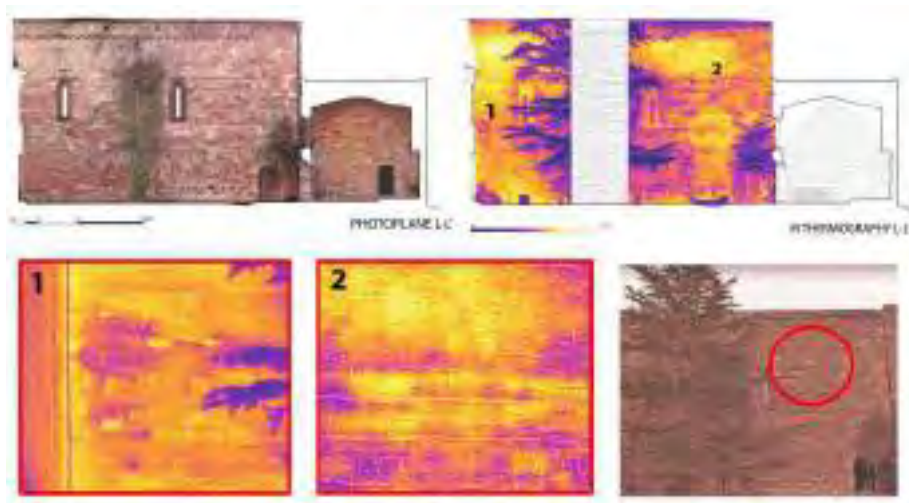


Fig. 8
North-West façade
of the church
of Sant Miquel
d'Escornalbou.
Above: VIS and
IR photoplane.
Below: two close-
range thermograms
and the historical
photo (Sanabra
Ramos, 2021).
(acquisition
credits: Sofia
Brizzi, elaboration
credits: Simone
Alinari).



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Fig. 9
South façade
of the church
of Sant Miquel
d'Escornalbou.
Above: VIS and
IR photoplane.
Below: two close-
range thermograms
and Vis close range
photo (acquisition
credits: Sofia
Brizzi, elaboration
credits: Simone
Alinari).



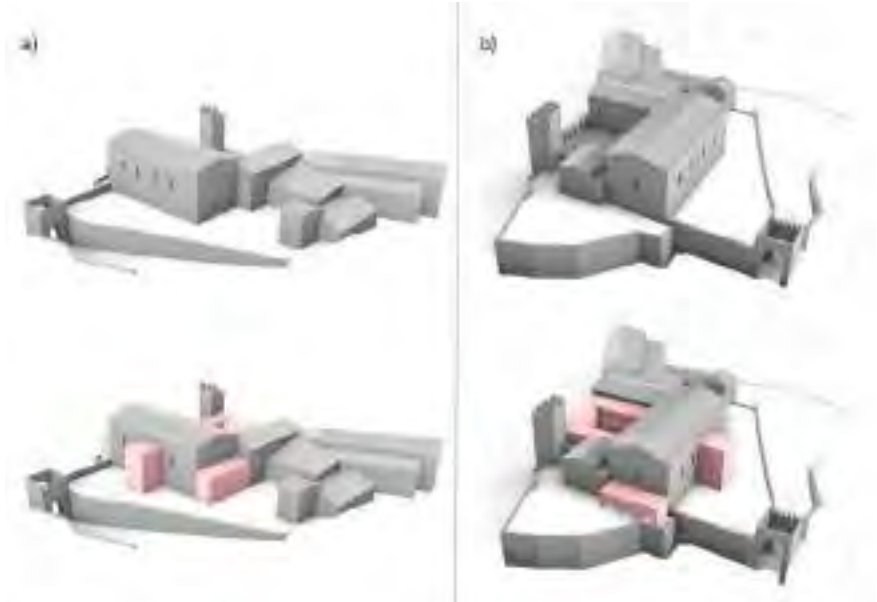
- On the frontal façade in Fig. 7, two horizontal bands are visible at window height: they are the trace of an inclined pitch of the roof of an ancient narthex, as confirmed in the North-West façade (Fig. 8), where the two thermograms show the trace of the inclined pitch of the narthex and its arches.
- In the South elevation of the church, the two horizontal bands detected on the frontal façade are still visible: they run along the entire masonry and represent the beginning of the roof pitch of the ancient loggia inside the cloister (Fig. 9). Highlighted by the number 1, a presumed ancient access door to the church from the loggia cloister to the church is also visible.

4. Discussion and Conclusions

The IRT survey, linked to the integrated digital survey, provides a useful approach to obtain a stratigraphic reading of the monastic complex and to focus sampling for laboratory investigations useful to better characterize building materials and their degradation. The multidisciplinary research enabled the reading of some ancient architectural elements, such as: traces of an entrance narthex on the front of the church, an ancient chapel in the North- West façade and a two-level covered loggia inside the cloister. In Fig. 10, a 3D model reconstruction (made using Rhinoceros software) provides a view of the current state of the monastic complex and, highlighted in pink, all the elements detected in this work.



Fig. 10
 a) North-West
 3D model view
 b) East 3D
 model view
 of Sant Miquel
 d'Escornalbou.
 Above: current
 state of the
 art. Below:
 reconstructive
 hypothesis
 before the 1907
 restoration.
 (elaboration
 credits: Simone
 Alinari).



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TEJEDA MONASTERY, GARABALLA (CUENCA, SPAIN).
TESTING METHODOLOGIES FOR GRAPHIC SURVEY

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Abstract

The monastery of Tejada is located in the village of Garaballa, in the province of Cuenca (Spain). The construction dates back to 1581, although some parts, such as the bell tower, were rebuilt in the 20th century. It was a monastery of the Trinitarian Order, although as a result of wars and redemptions it passed several times into civilian ownership. At present, the church is still open for worship, and the part attached to it has been converted into a hotel. The rest of the monastic buildings of this great monastery have been abandoned or converted into houses. The main objective of the research study is to determine the most accurate graphic survey methodology to perform an integrated survey of the entire monastery. For this purpose, we have selected two parts of the complex with different characteristics that will allow us to find an appropriate method and standard for the survey to be carried out.

Keywords: Monastery; graphic survey; standards for the survey.



Fig. 1
Monastery of
Santa Maria de
Tejada. Interior
gallery courtyard
2 (right).

1. Introduction

The monastery of Tejada is located in the village of Garaballa, in the province of Cuenca (Spain). Its origins are related with the Virgin of Tejada apparition in 1205. Right after was founded, in the immediate surroundings, the first sanctuary and convent complex by the Trinitarian Order, having evidence of the existence of a cloister – at least – in this first monastery (Martínez García, 2002). This conventual complex was located by the Ojos de Moya riverside, clearly an adverse siting, as the river overflows were constant, until a great flood in 1516 took place, seriously damaging the church as far as the rest of the convent's facilities. Nowadays it is possible to find only few vestiges of this first monastery, due to the subsequent overflows and the re-utilization of its material in other constructions (Fig. 1).

After the loss of this monastery, the decision of building another one quite upwards was taken, in a best secured site, and this is how in 1581 the new and current Monastery of Tejada was completed. Since this Trinitarian construction, Garaballa Town has been settled and nowadays counts barely 70 inhabitants.

The Monastery has suffered several damages throughout its history which have left a mark on the construction; among other significant events, it was affected by the Spanish War of Independence (19th century) and The Spanish Civil War (XX century), when the friars were expelled or shot, and the monastery was re-converted into an hospital; or the 19th century's expropriations leading to a division and so the creation of new owners and uses.

In the present day, we can found a series of buildings with different histories. In Fig. 2 we can see four courtyards, and how the church in the courtyard 1 go across the courtyard two heading to the courtyard three with its chancel.

opposite page
Fig. 2
Orthoimage
with the the
designation of
the courtyards.
Google Earth.



The whole complex is clearly divided in two parts; a first one, including the church, that is conserved in a quite-well state, and the courtyards 1 and 2, corresponding to the two main cloisters of the monastery (being the cloister 1 not finished). This part, recovered for the church after the Spanish Civil War, suffered an important intervention at the beginning of the 20th century to be reconverted in a hotel; being that fact undoubtedly cause of some alteration of the original constructive configuration, on the other hand it allowed the monastery to reach our days with a certain degree of historical unity. On the other side, courtyards 3 and 4 have stood divided in private properties, existing some parts in state of absolute ruin and partially collapsed, and others reconverted in housing or warehousing.

2. Aim of the study

The research study's aim is to determine the most accurate graphic survey methodology to accomplish the Monastery integrated survey, according to the required standards and specifications for every case of study (Rodriguez-Navarro et al., 2022a). This choice was mainly based on two factors: the conservation status, the structural system, and the employed materials in the construction. The first case of study is the courtyard 2 (Fig. 3). This is a cloister with a nearly square layout (12,45 m x 13,65 m) surrounded at two levels by a covered gallery with a sequence of groined vaults. This gallery incorporates several lounges, currently transformed into living rooms and bedrooms. The four facades composing this cloister are composed at the ground floor by a complex of four openings, topped by semi-circular arches, being at the first floor further divided in two smaller openings, also topped with the same



↑
Fig. 3
 Courtyard
 2 (left) and
 courtyard 4
 (right).

type of arch, having in this part a total of eight openings per façade. Its walls are built with well-carved ashlar. At the center, a well finishes off the cloister. Upon three of its four sides, the complex presents a gabled arabic tiled roof, so remaining the fourth side majorly covered with the church's roof. This cloister suffered several interventions over the years, so it reached our days in an excellent state of conservation. The second case of study is the courtyard 4 (Fig. 3). After the confiscation, this area became private property, which derived in plenty of modifications as a result of the successive owners' exigencies. All those reformations almost affected the entire courtyard, except the northwest corner, where it is possible to appreciate the original arches covering the galleries surrounding this courtyard, featuring it as a cloister. From its reading, as far as from the morphology, still deductible from the other facades, it can be assumed that this courtyard was delimited at the ground floor by a series of openings topped with low arches, differently distributed along its facades as consequence of its rectangular layout. In general, this courtyard conservation status is quite poor.

The constructive system and materials used in this part's building are simpler and more austere with respect to courtyard 2, so it can be supposed its storage, service, and barn usage, as it can be also hypothesised that it was the hostelry. This cloister shows the traditional regional constructive technique in walls, arches, and the floor slabs surrounding the courtyard, built in wood, compacted soil and plaster, where it's shown the masonry only in the ground floor columns and its capitals. In this way, the north and south facades would be organised at the ground floor a starting from two lowered arches, whereas the

opposite page
Tab.1
 Photogrammetric
 model values.

east and west facades would be composed of three at the ground floor and five at the first floor. The ground floor's arches are delimited by stone columns topped by a capital carved from the same material, whereas at the first floor are organised starting from columns built with muds and plaster, as far as with plastered wood.

3. Methodologies and results

An integrated architectural survey has been carried out in two courtyards (2 and 4) focusing on one façade for each one, with Terrestrial Laser Scanner (TLS) methodology and the photogrammetric (SfM / IM) (terrestrial and aerial) one.

3.1. Terrestrial and Aerial Photogrammetry

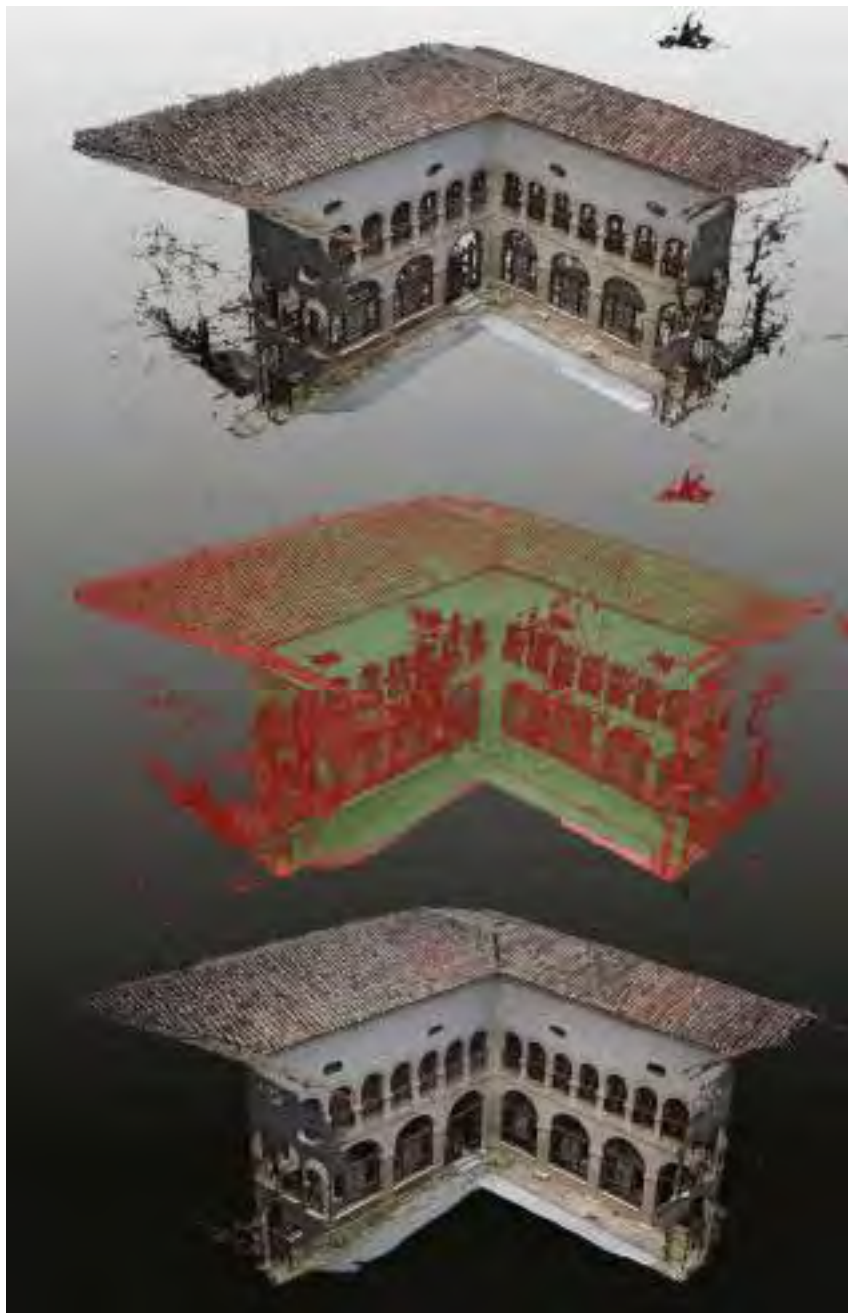
In courtyard 2 the terrestrial campaign has been carried out with a camera Nikon D800E, taking photographs not only from the ground floor but even from the first-level windows that face the façade object of study. For the aerial campaign, has been used a drone DJI Mini 2, equipped with an integrated camera of 12 MP (Rodriguez-Navarro et al., 2022b). It is clear how much the aerial takes can be useful in order to acquire the roofing system. Finally, after the dense cloud computation and cleaning, was carried out the generation of the textured mesh, which led to the orthoimage of the façade.

Courtyard	Dense cloud points	Orthoimage dimensions [px] / Resolution (mm/px)	Number of photos	Façade area (m ²)
2	4.806.567	16000 x 9537 / 1.24	434	132
4	6.841.394	16000 x 7051 / 1.53	127	104

Thereafter, courtyard 4 was treated in a similar way, except for the camera used in the terrestrial campaign, being in this case a Sony RX100II, attached to a telescopic pole in order to obtain higher point of views without having to tilt (De Luca, 2011). For the aerial campaign has been used a drone DJI Mini 2, equipped with an integrated camera of 12 MP. It is clear how much the aerial takes can be useful in order to acquire also the roofing system. The postproduction was performed in Agisoft Metashape, dividing the project into two chunks (terrestrial and aerial), with the aim of blending the two point clouds, maintaining the best parts of each one (Tab. 1). In this respect, within the computation of the dense cloud was also computed the confidence value for the points, which is to be used for semi-automatic filtering of the resulting cloud from the digital noise (Fig. 4).



Fig. 4
Cloud filtering
using the point
confidence
value. Agisoft
Metashape.



opposite page
Fig. 5
Cloud registration.
Leica Cyclone
Register 360.



3.2. Terrestrial laser scanning

The next step was the digital survey of the same facades using the TLS technique with a Leica RTC 360, equipped with three integrated cameras of 12 MP, which assign RGB information to each of the acquired points, providing more realistic and intuitive numeric models. Furthermore, an integrated inertial system (Visual Inertial System) allows the clouds to be registered automatically, using also four integrated cameras meant for that.

While the photogrammetric process is carried out only in the exteriors of the studied facades, using the laser scanner process was chosen to take the interiors. Nevertheless, it was only possible in courtyard 2, because the interiors of courtyard 4 were in bad condition, and unallowed interior access. On the other hand, the 3D laser scanner was used in the adjacent semi-outdoor access space.

Considering the morphology of the building and its dimensions, to obtain a homogeneous cloud with shadow areas minimised (Bianchini et al., 2015; Clini et al., 2019), the scans were taken at low resolution (12 mm @ 10 m), performing a total of 25 scans in courtyard 2 (interior / exterior) and 15 scans in courtyard 4 (exterior / semi-outdoor access space).

After data collection, the different clouds are registered in the software Leica Cyclone Register 360 (Fig. 5). Finally, was obtained the two point clouds with 221.609.221 and 111.641.312 points respectively (Tab 2).



Tab. 2
TLS model values.

	Minimum Accuracy m	Cloud Overlap	Registration Strength	Links between stations	Number of points
2	0,003	55 %	82 %	56	221.609.221
4	0,004	72 %	71 %	55	111.641.312

3.3. Integrated survey and results

The point of the integrated survey is to perform critical restitution, in this case in terms of information augmentation (Guidi et al., 2010), whereas each sensor provides a unique load of information, and the integration is intended to extend the spatial and temporal coverage of the system.

The TLS point clouds will be very reliable data in terms of precision and accuracy, to be best used analysing the geometric features of the case of study. Having also scanned interior parts adjacent to the analysed facades, was obtained information about the relations between them in terms of section drawing. On the other hand, the photogrammetric mesh and the orthoimages are a huge amount of data in terms of chromatic information, beyond the fact that the aerial data is able to give us information about the roofing system, usually hard to obtain with a terrestrial technique.

Finally, after composing images merging a different kind of available data (TLS cloud orthographic views, SfM integrated terrestrial/aerial cloud) the drawing process was based on them, meant as critical restitution leading to a bi-dimensional interpretative-restitutive model (Centofanti, 2018) (Fig. 6, Fig. 7).

4. Conclusions

In the monastery it is possible to identify two parts, clearly differentiated, due to its monastic function as far as to the building materials and its state of conservation. The first part would be placed around the church, with nobler materials, in which were carried out restoration intervention that, even though altering something in its morphology, allowed it to reach our days with an acceptable state of conservation. This part is made up of the current hotel and the church. The second part is the one generated around the courtyards 3 and 4, where the use of vernacular materials and the lack of maintenance have significantly affected it.

In order to establish the methodology to be applied in the global survey of the monastic

opposite page

Fig. 6
Critical restitution
of the integrated
survey, courtyard
2.

Fig. 7
Critical restitution
of the integrated
survey, courtyard
4.



complex, we took as sample two facades: one from the first cloister (courtyard 2) which allows us to test with issues generated by elements as glasses, interiors with white walls and vaults, metallic elements, the tree at the centre of the cloister, and also a significant height, topped by the arabian tiled roof; and another in the second cloister (courtyard 4), where we found elements covering the direct vision of some elevations (vegetation, construction utilities, etc.), partially collapsed elements and a roofing system with a variety of materials.

We used the photogrammetry SfM/IM in the exteriors due to the following reasons: it facilitates us a result with a texture showing further information for the surface's analysis, allows to obtain a complete vision (without shadow areas) of the whole façade and the roof system, through the use of the telescopic pole and a mini-drone, possible to use in the courtyard's inner. Nevertheless, in the interiors we used the 3D laser scanner because of the complexity which would imply performing it through photogrammetry SfM/IM due to the white surfaces and the elaborate spaces' shapes. Finally, the results of these two survey methodologies are integrated through the 3D scanning of the whole complex, allowing us to assurance of high metric precision.

Regarding the required standards, it is worth noting that in this survey we're performing a data acquisition (photogrammetric as well as through 3D scanner) at relatively short distances, ranging from 3 to 7 metres, which allowed us to use cameras with down to 12 MP (drone DJI Mini 2) and scanner takes of 12 mm at 10 metres, obtaining a resolution of 3 mm/px, providing us an optimal standard for the formal analysis of the building and the production of its plans at 1:50 scale.

In this first test we have already noted the importance of the architectural survey and the amount of information provided. Indeed, many elements have already been found inviting us to start to state solid hypothesis about the morphology of the cloister 2 (courtyard 4), research study that we have in progress.

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**INTERDISCIPLINARY PERSPECTIVE IN THE POST-EARTHQUAKE
RESTORATION OF MONUMENTAL RELIGIOUS BUILDINGS. THE
FRANCISCAN CONVENT OF SAN GUILLERMO DE TOTALAPAN IN
MEXICO**

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Abstract

Cultural heritage buildings are invaluable remnants of history and culture, necessitating preservation against human and natural threats. Earthquakes, particularly in seismic-prone regions, pose severe risks to these structures due to their historical construction methods predating modern seismic codes. Monumental buildings, despite their unique attention, face higher vulnerability due to their size. Safeguarding these structures is vital for transmitting cultural heritage to future generations. This requires compatible strengthening interventions, often implemented reactively post-earthquake. A case study on the San Guillermo de Totolapan Franciscan monastery in Mexico, damaged in the 2017 Puebla earthquake, exemplifies the need for proactive restoration and structural improvements. An international interdisciplinary research mission aimed to understand the monastery's structural issues and proposed restoration methods. Despite subsequent restoration work deviating from these recommendations, the study underscored the importance of evaluating architectural and structural consistency and seismic performance to prevent future damage to cultural heritage.

Keywords: restoration, cultural landscape, Unesco site, Mexican monasteries.

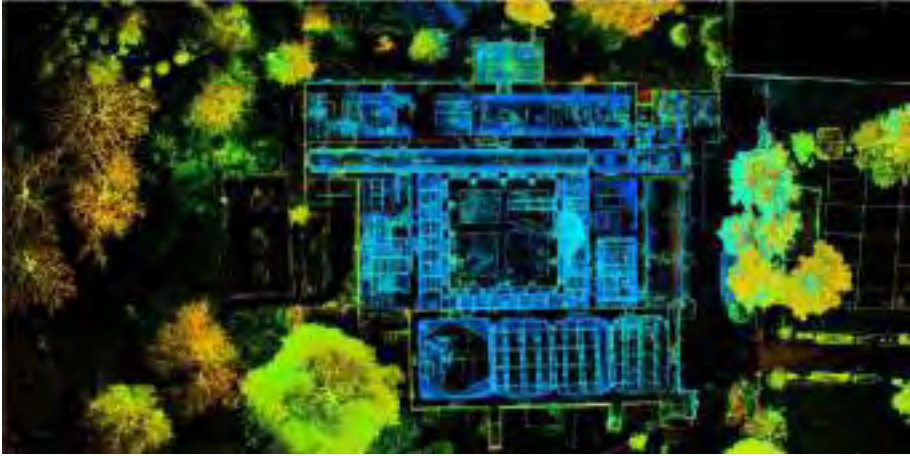


Fig. 1
Degradation
survey and
analysis.

opposite page
Fig. 2
Planimetric view
of the point
cloud of the
whole complex.

1. Introduction

Cultural heritage buildings constitute important bequests from the past, both from historical and cultural perspectives. To this aim, they need to be preserved and maintained towards human and natural hazards. Within this context, earthquakes represent one of the most catastrophic events. In seismic prone areas, the relevant hazard of the territory is combined with the significant vulnerability of constructions and the unquantifiable exposure of goods. Dealing with the seismic risk, as the seismic codes have been introduced only in the 20th century, most of the historical constructions all over the world have been realized following empirical concepts. Hence, these buildings tend to suffer heavy damage during the most severe seismic events. Concerning the monumental structures, although the specific constructive attention that these buildings received, they are particularly vulnerable due to the scale effect given by their significant dimensions. Because of these considerations, it is worth noting that the seismic mitigation of



these buildings constitute an important target of contemporary societies in order to transmit cultural heritage to the future generations. To this aim, compatible strengthening interventions need to be planned and designed. In the worst case scenario, the interventions are not realized as preventive measures, but they follow the occurrence of a seismic motion hitting a territory. In this case, large parts of the cultural heritage may be threatened by artistic and structural damage, so that the interventions will concern: i) the refurbishment of the initial architectural and logistic conditions; ii) a structural improvement in order to guarantee a better performance in case of a future earthquake. In this study, we present an interdisciplinary research conducted on a Franciscan monastery in Mexico, San Guillermo de Totolapan, located in Morelos State. The building suffered heavy damage after the 2017 Puebla earthquake. The ground motion led to the collapse of the central cupola of the church, a partial collapse of a corner tower of the facade as to significant damage to the whole complex. An international mission devoted to interdisciplinary research was realized in order to investigate the monastery and finalized at proposing those methodological indications for a compatible restoration. A diagnostic campaign based on different steps was carried out based on a cognitive approach targeted at understanding the investigated good. Although the conducted restorations have followed an alternative path without accounting for the evidence of the research carried out by the international team, the study of San Guillermo de Totolapan became the occasion to investigate the architectural and structural consistency of the monastery, as to assess its performance under seismic motions, in order to understand the main features that led to the occurred damage.

opposite page
 Fig. 3
 Perspective view
 of the point
 cloud of the
 whole complex.

2. San Guillermo de Totalapan, Morelos

2.1. Territorial localization and historical evolution

The Convent of San Guillermo Abad consists of a church and a monastery composing the structural aggregate of the Convent. It is considered a historical monument by the Mexican people since 1946 when it was included in the '*Ley Federal sobre Monumentos y Zonas Arqueológicas, Artísticas y Históricas*' on August 26th.

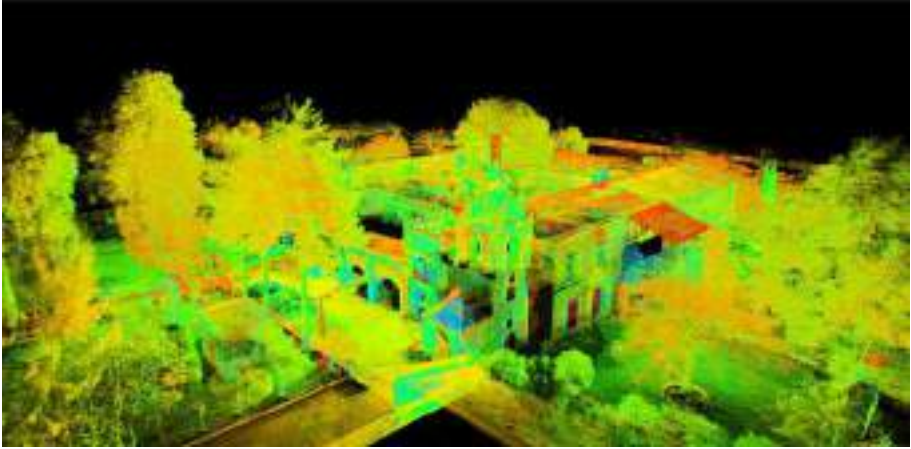
Since 1994 it is recognized as a World Heritage Site by UNESCO, together with the other fourteen monasteries belonging to the '*Primeros Monasterios del Siglo XVI en las Laderas del Popocatepetl*'. In fact, the monastery is part of a series of Franciscan structures realized at the beginning of the 16th century by the Franciscan orders in the wide territory around the Popocatepetl volcano, in the states of Morelos and Puebla. These complexes were built to evangelize large numbers of indigenous; to this aim, the Franciscan tried to merge some of the local sacred elements with the architectural project, first of all the Popocatepetl volcano which is visible from every monastery.

From a distributive and formal point of view, the San Guillermo convent is characterized by architectural elements recalling the 16th century ecclesiastical architecture, such as the squared cloister, the outdoor spaces, the garden dedicated to activities involving the local population and the orchard, which represented a place for meditation, for work and subsistence.

The whole complex, including the exteriors, measures approximately 31.000 square meters, while the built area alone measures approximately 3.700 square meters. From a structural perspective the building has been realized adopting a single building technology, i.e. a bearing wall system made of simple local volcanic stones and mortar slaked lime. The vaults are made of the same materials, as visible from the cracks caused by the 2017 earthquakes.

2.2. Architectural evidence

The convent consists of several spaces with different functions that have undergone many changes over time. In particular, the following elements can be identified: the entrance-garden, the portico, the Church, the Convent, the Clock Tower. The complex is characterized by an enclosed and regular space all around the church and the monastery, which makes the plan of San Guillermo convent clearly visible inside the Totalapan village context. The external courtyard of the religious building was an integral part of the prayer rituals, which the pre-Columbian peoples carried out outdoors (Bertocci et al., 2020).



The church represents the northern element in the structural aggregate of the complex. It is characterized by a single nave surmounted by barrel vaults with lunettes at the presbytery. The nave is subdivided into three arches that discharge on square section columns leaning against the perimeter walls. In correspondence of the presbytery, the structure points out a hierarchised and elevated system, aimed at replicating the effect of the central cupolas at the intersection of the transepts. Between the unloading columns of the arcades, niches embedded in the walls are highlighted, with the presence of small altars realized between the end of the 17th century and the beginning of the 18th century.

The church is characterized by the presence of the Choir, located on the upper floor and reachable through external stairs. The façade is simple but well-balanced, consisting of a central arch that serves as the main entrance, framed by two slender circular towers erected on square bases. Just above them, in correspondence with the inner choir, there is a circular rose window with visible ashlars and the figure of St. Augustine. Before the earthquake, the façade ended with a sail that unfortunately collapsed. The rest of the complex is located on the southern side of the church. Adjacent to the main facade of the ecclesiastic construction, a two-level portico is visible. The latter is formed by three lowered arches supported by polygonal section columns and covered by single barrel vaults made of lava stone ashlars of variable size. In ancient times the arches were buffered to prevent direct access to the convent and they have been reopened during a restoration in 1964. According to the local population this is the first open chapel used by the Augustinians to begin the process of evangelisation while they were building the church and the rest of the premises, but considering the position of the main entrance this is improbable.

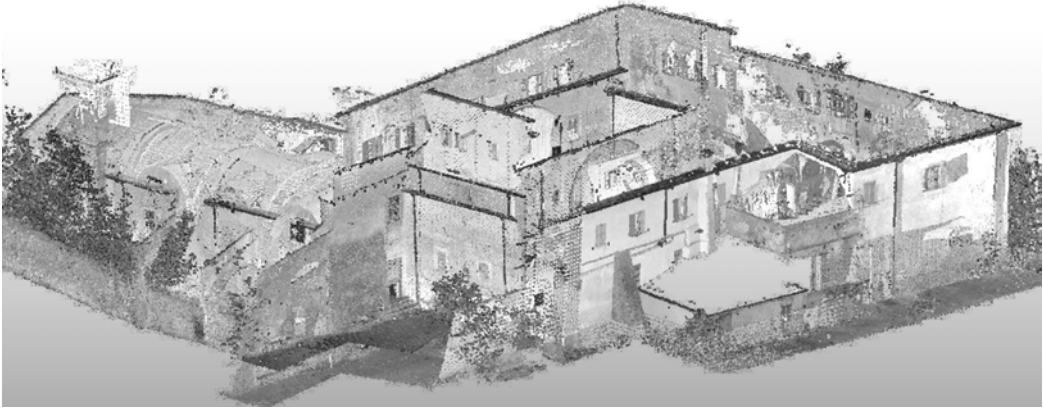


Fig. 4
Orthoimage
of the main
elevation of the
complex.

Directly connected to the portico and the church, there is the rest of the monastery. The convent is mostly organized around a central courtyard, with distributive corridors serving the different rooms of the constructions. These can be accessed through three entrances, the first two to the west, one from the portico, the other from the garden near the clock tower, and the last one to the east directly from the orchard. The whole ground floor is addressed to operational activities and religious functions. On the upper level are the bathrooms, the library, a dining room and the dormitories of the novices and superiors. The whole complex is characterized by geometrical decorations made in the plastered surfaces of the masonry walls. On the outside, regular stones are drawn on the facades; in the inside, more riched decorations are exhibited, with plastered surfaces of the vaults characterized by polychrome decorations.

3. Interdisciplinary research

The 2017 Puebla earthquake struck on the 19th September 2017 in the Puebla state, in Mexico country. The estimated magnitude was about 7.1 Mw and was clearly felt in large part of the country. The seismic motion led to over 6000 injured, with over 300 people killed and numerous buildings collapsed. In 2018, an international mission between the Consulate of the Italian Republic, the University of Florence, the Instituto Nacional de Antropología e Historia (INAH) and the Universidad Nacional Autónoma de México (UNAM) was promoted, in order to investigate the San Guillermo de Totolapan after the earthquake. Therefore, an survey campaign was carried out.

In order to propose compatible restorations and effective strengthening interventions a detailed knowledge path has to be done. The latter has been made developing a multidisciplinary approach consisting of geometrical, historical, material and structural data's acquisitions. The cross correlation of the different expertise has finally allowed a comprehensive understanding of the complex, its main structural deficiencies and its historical evolutions. It is worth noting that, even in case of absence of specific constructive or historical information on a construction, the building itself allows obtaining the most significant knowledge. This is particularly true in case of an earthquake. In fact, the decorative apparatus of the complex would have discouraged the execution of destructive tests to reveal the structural consistency of the system. Nonetheless, the seismic motion has led to a diffuse severe damage, with the cracks permitting to understand the structural discontinuities of the system given by volumetric additions occurred along the centuries.

3.1. Architectural survey

Concerning the geometry of the monastery, a digital survey using range based and image based technologies was carried out in order to obtain a 3dl pointcloud database. Proceeding with a fast campaign, in only one week of investigations the following acquisitions have been collected: 407 high resolution scans (37 of which were acquired by INAH Morelos); About 3.000 photos; 200 total station reference points.

The interpolation of the laser scanner data was fundamental to guarantee the geometrical reliability greater than cm of the whole complex, while the photographic data was fundamental used to create photogrammetric textured models for the mapping of the lesions and of the main instability. Thanks to this it was possible to appreciate all the phenomena caused by the seismic event, such as the out-of-plane mechanisms, the collapse failures extracting elevation maps (Bertocci et al., 2018).

3.2. Material degradation

The geometric survey has been later integrated to photogrammetric acquisitions targeted at documenting the current state of conservation from a material perspective, pointing out the structural crack patterns along the different parts of the structure. These studies have permitted a specific focus on the material degradation. This concerned those degradations of materials active before the earthquake and due to neglect and lack of maintenance, as well as purely anthropogenic causes such as engraved decorations to increase the adhesion surface of a future layer of plaster. In general, widespread phenomena such as the presence of moisture, biological attack, scabs, the presence of vegetation, have been pointed out.



Fig. 4
Degradation
survey and
analysis.



In particular, on the external facades, various deterioration due to the percolation of rainwater were highlighted, which have favored the widespread formation of biological attacks and swelling of the plaster layer, in some cases causing it to detach.

Thanks to the collaboration with DiaCon S.r.l., Spin-off of the University of Florence, it was possible to carry out an extensive thermographic survey. The latter allowed, to put in evidence some problems not visible to the naked eye, such as for example ashlars dislocated on the rose window above the access to the main façade of the church, as well as other problems related to masonry technology.

3.3. Structural evaluation of damage

The previous steps were finally integrated in order to assess the structural damage of the aggregate. To this aim, the Sheet for the structural damage evaluation to cultural heritage church model published by the Italian Department of Civil Protection together with the Ministry for Cultural Heritage has been adopted. Although this system has been conceived for the churches on the Italian territory, given the architectural traditions of these constructions which came from the European style, it has allowed a first evaluation of the complex. The structure is divided according to its main macro-elements in order to

opposite page
Fig. 5
Survey sheets
for the different
macroelements of
the monastery.



consider the different portions that activate the mechanisms. At the same time, for each one of them, the system associates the different cracks to predetermined levels of damage, classified between Damage 0 – no damage, to Damage 5 – Collapse. A maximum number of 28 macro-elements are available, involving the different parts of an ecclesiastic complex (the facade, the transept, the apsis etc.). In Fig. 05 some examples of the in-situ sheets that have been realized during the campaign are shown. Considering the whole complex, a final index of 0,74 was obtained, indicating the level of damage suffered by the structure. This number was computed as a ratio between the sum of the damage grades for the different macro-elements of the system and the maximum number achievable based on the number of considered mechanisms. The obtained value indicate a general heavy damage of the structure. As we can see for the previous figures, many parts of the monastery collapsed and many cracks passed through the bearing structures from one side to another. The outcomes of this phase were two: i) indicate the serious level of damage of the system; ii) understand the structural features of the aggregate, its historical evolution and structural units. In fact, whenever a masonry system was not realized together with careful corner connections between the orthogonal walls, the structural detachments of the buildings have been highlighted by the seismic excitation. This leads to structural damage and to the occurrence of the failure out-of-plane mechanisms.

3.4. Rethinking San Guillermo

Rethinking a refurbished San Guillermo de Totolapan complex would have regarded a series of issues which recall the ideological questions of the restoration interventions. How to intervene? Should the original architecture be reintegrated in its original configurations? Should the evidence of the earthquake be marked as traced in the restorations? In addition, many vaults made of incoherent stone structures and mortar collapsed. How these systems be realized in order to fulfill the architectural features of the building still guaranteeing adequate safety levels?

Unfortunately, many of these questions have not been answered, as a series of interventions and restorations have started tout-court refurbishing the old architectural system of the building. If this can be arguable from the point of view of a restorer, this is also debatable considering the need of seismic improvements that the system has exhibited. To the author's opinion, when the cultural heritage is at stake, in order to have compatible interventions the restoration should be carefully pondered. Although this may require time to investigate and understand the structural consistency of the system, is the only way to conduct robust research aimed at proposing appropriate interventions.

4. Conclusions

This research produced a preliminary restoration design for the whole complex, that according to INAH could have been used to ensure an international and multidisciplinary approach for the Heritage conservation, in particular Totolapan. In 2019 a series of conferences organized by INAH in Mexico City have been made, in order to show Mexican architects and firms the european approach to restoration. Our project was presented but the work in the monastery was already began not following our suggestion, and receiving many critical advise by the experts invited. Anyway our project showed the possibility of the integrated approach in the restoration of Mexican Heritage Building.

Credits

This contribution could not have been made without the work of many people. Between them, out acknowledgements go to Prof. Roberto Sabelli, Prof. Stefano Bertocci, Reynaldo Esperanza Castro, Dr. Chiara Palazzi, the Italian and Mexican students that attended the in-situ investigations.

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DIGITAL DOCUMENTATION TECHNIQUES FOR PLANNING RESTORATION WORKS IN THE BASILICA OF NATIVITY

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Abstract

The study and documentation project of the Nativity Church involved the use of digital technologies – combined with non-invasive diagnostic analysis – for the production of digital database and technical drawings useful for the planning of the restoration works. Starting in 2015, the joint LS3D Laboratory of the University of Florence and the University of Pavia, together with the DAda-LAB and PLAY Laboratories of the University of Pavia, have provided the Piacenti s.p.a restoration company – entrusted with the work- 3D survey with point clouds, 3D models and technical drawings describing the state of conservation of the surfaces down to a scale of 1:1. This heterogeneous documentary corpus constituted an accurate cognitive basis to initiate specific investigations and more conscious conservation projects, aimed also at documenting the restoration works for the complex promotion.

Keywords: 3D survey, Digital Database, Basilica of the Nativity.



Fig. 1
Some historical photos framing the basilica of the nativity in the Bethlehem landscape.

1. The Basilica of the Nativity conservation project

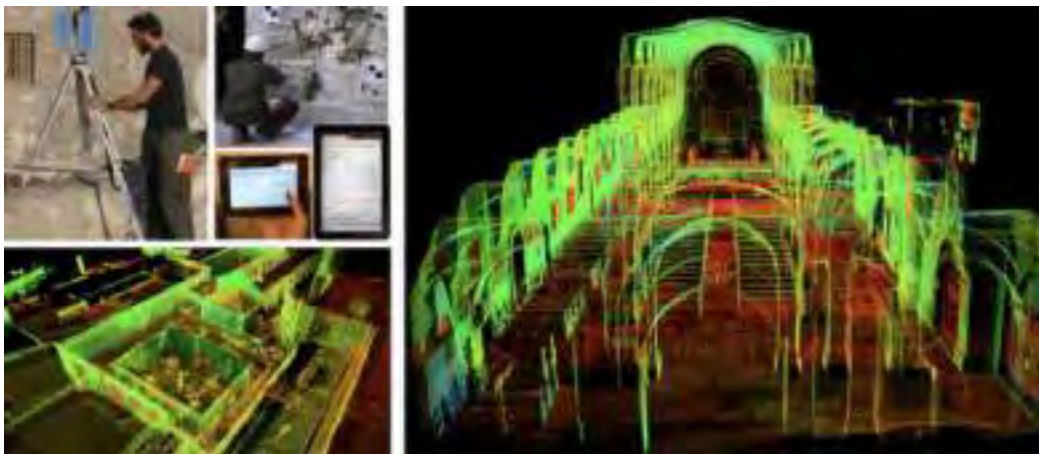
The Basilica of the Nativity is one of the oldest Christian churches, built around 330 on the initiative of Emperor Constantine I and mother Elena on the ruins of a pagan temple built in the period of Hadrian on the places where the early Christians celebrated the birth of Jesus, and enlarged and restored in the sixth century by Emperor Justinian I. (Bagatti, 1952) (Fig. 1).

The complex has undergone several expansions and modifications both in the Crusader period and in the later ottoman centuries, presenting today as a complex system of volumes and structures that are divided into the Franciscan monastery, the Orthodox monastery, and the Armenian monastery; the three complexes are located around the walls of the ancient basilica. (Bonavolontà et al., 2002; Repellini, 2013). The site is nowadays the only one protected by UNESCO in Palestine, so it is in the highest consideration of the government both for religious and touristic economy reasons (Parrinello, 2022). The church itself, which needs urgent interventions aimed at his conservation, is now under the rule of the several institutions that has been uncharged of the multi-confessional and multi cultural monuments of the Nativity Church.

opposite page
Fig. 2
The Basilica of the Nativity and the magnificent mosaic apparatus.



The great roof structure of the Nativity Church has come to us in the worst conditions: water infiltration, microbiological and insects attack of the wooden structures. An Italian restoration company, Piacenti s.p.a. (Italian Company) won the tender announced by the Palestinian National Authority and began the works on September 2013, of the roof system and of windows system of the upper part of the main nave, and on August 2014 has begun the restoration of the external stones, of the narthex, and of the interiors plasters and wall mosaics (Fig. 2). The first working phases, starting from the whole project study, was based on the 3D laser scanner architectural survey. The technicians and the restorers carried out the first general decay and diagnostic survey, integrated by archaeological considerations, of all the artistic surfaces of the Church. An extreme accurate diagnostic survey was carried out to study the structure and the history, to develop the best way to restore the roof itself. The restorers' teams alternated the trusses interventions and the purlins and boards replacements. Technicians and restorers specialized in the conservation of stones and plasters have begun acquiring technical, photographic, metrical data of the Church walls. After the survey and state of conservation mapping, some tests were carried out for cleaning and grouting. The restoration of the mechanical proprieties of the narthex vaults was necessary, given the



↑
Fig. 3
 The integrated digital survey's on-site activities and data processing for producing 3D point cloud databases.

long wait after the propping works made to support the vault. The narthex study was conducted without the propping disassembling; the first work phases were the inspection of the extrados of the vault in order to verify the presence of cracks and structural failures, operating an archeological excavation, cataloguing the paving stones and the evidences funded at different levels (Fig. 3).

2. The critical interpretation of the architectonic structure in architectural drawings

To define the image of the complex, the quality of the masonry, and each architectural environment, the execution of a drawing was planned, allow ordering, in a physiological map of the building, the representation of quantitative and qualitative information of the space of the place. The drawing expresses the relationships that define the architectural structure through the use of a hierarchy of signs that orient the reading of the graphic text, and highlight a structure to which it is necessary to refer when you intend to deal with a critical analysis related to the interpretation of the context. When the drawing results from a survey procedure on an artificial place, the data obtained by the investigations are collected and processed by the surveyor sum to these aspects of the order the requirement for a metric dimensional control. This information, fully filled with meaning, is subsequently used as the container of the data acquired through the researches. Therefore, while we are doing a survey, it is necessary to identify and define only certain qualities of the objects.

opposite page
Fig. 4
 Colorimetric drawings obtained from integrated data survey, that constitute the base for analysis and mapping of the decays.



It would be impossible to reproduce all the qualities, unless realize a copy of the object is identical to the original. So a survey always requires the analysis of the different qualities of an object, the selection of those considered significant, and finally, the synthesis of all of them made through a graphic model. We can subsequently have a survey for historical knowledge, a survey for the restoration, a survey for archaeological documentation, a survey for cataloging, a survey for formal and dimensional knowledge, and, finally, an experimental survey aimed at the didactic activity or rather aimed to the comprehension of instruments and methods (Fig. 4).

3. Detailed digital survey for mosaics documentation

At the time of Saint Elena construction, in 313 A.D., the Church interiors were completely covered with mosaic decorations. Approximately two thousand square meters of mosaics decorated the walls, of which only two hundred are still visible today; the floors were covered, as well as the entire walkable surface up to the cave of the Nativity. The methodological approach for the decorative mosaic surfaces of the Basilica was aimed at devising a program of actions for the production of reliable photogrammetric outputs at the micro-scale level (1:1). With the will to promote a documentation process for the management of mosaic tiles,



Fig. 5
Floor mosaics
and data
acquisition
process for
2D and 3D
representation.



such digitization technologies require a high level of metric and colorimetric accuracy, in order to develop a multilevel reading of the digital data that has been obtained.

For this reason, the survey activities had been conducted at different investigation levels: one in detail, which allows to understand the geometries and materials of the individual tiles, and a larger one, useful to globally understand the design of the mosaic surface and contextualizing it within the excavation space or in a specific spatial context. The documentation project has been conducted in two different periods: a portion of the wall mosaics, representing an angel, has been documented in 2014 during the restoration of the Church wooden roof; six floor mosaics have been documented in two survey campaigns, one in January and the other during August 2019. The documentation campaigns are configured as a pilot case to test acquisition methodologies that can be replicated on the entire investigable mosaic surface, besides a methodological protocol that can be tested on other contexts. The goal, in addition to the creation of detailed ortho-images, is the digitization the surfaces in order to perform computations on the individual

opposite page
Fig. 6
Ortho-image and
semi-automatic
vectorization
process of white,
black, and
polychrome tiles
of pavement
mosaics.



tiles. To have a textured model, readable for vector drawing, the orthomosaic generated by SfM was used as a reference.

The SfM model was oriented via three-dimensional model built from the laser scanner point cloud, not suitable for a detailed reading of the edges of the tiles. Aiming at the structuring of very highdetail colorimetric representations for the vectorization of the individual mosaic tiles, the generation of ortho-mosaic from SfM methods, and then the integration with 2D photogrammetry, is optimal. This is due to the possibility of orienting the models obtained by integrating with the data from TLS in space, having the possibility of texturing the model and proceeding directly on it for the tiles tracing (Doria et al., 2020). The shooting mode for SfM was conducted in two

different ways according to the size of the mosaics, extended over the entire portion for those of limited dimensions (with the longer sides within 4 m in length as mosaic C, E, F) and dividing into smaller portions for the mosaics with larger extension. (Fig. 5).

The quoted wire used to partition the mosaics during the flat photogrammetric campaign was maintained for the SfM photogrammetry, to maintain the references between the two acquisition methods. In this way it was possible to correct the photographs taken previously on the basis of the ortho-mosaic made at this stage. The existing lighting of the central nave was used, with uniformly distributed lamps in order to obtain a diffused light. The 3D models obtained were elaborated to obtain mesh and texture and were scaled thanks to the surveys carried out in the field through target in common with the laser scanner point cloud. The space-oriented model allowed to export high-quality ortho-mosaic for system documentation that became the base on which to set up the semiautomatic vectorization work for the definition of the tiles borders. Digital representations, two-dimensional or three-dimensional, are now widely used both for the planning of restoration processes and for the creation of digital information archives. This protocol allows to produce different types of outputs, from two-dimensional drawings to 3D models, which can be used effectively in valorization activities, but also as analysis instruments for the heritage management. The survey and documentation process carried out led to detailed documentation of the mosaic apparatus of the Basilica, in which 1:1 scale managed ortho-images can be the basis for all types of future interventions. Through a mapping of each individual mosaic tile and 3D models of the deformation of the support structure (soil or masonry), it is possible to set interventions, restoration and maintenance work, as well as supporting tourism and information activities (Fig. 6).

4. Comparing digital survey technologies applied to the conservation and restoration processes

The continuous evolution of techniques for surveying and 3D modeling based on sensors and the development of ever more efficient systems for displaying digital data highlight the added value of using these methods in the context of architectural documentation. The technological solutions available nowadays at the disposal of the architectural survey offer numerous opportunities for conducting documentation projects in the field of Cultural Heritage, both as regards the time of the primary survey, or rather the phase of metric data acquisition, and as regards the question of representation for objects of archaeological, artistic, architectural interest.

It is an integrated and multi-disciplinary approach of techniques and technologies that make up many different approaches to determine the multi-scale surveys, which place a phenomenon to its context, where all the data and results of a survey converge into a single and well-defined reference system. Digital techniques and technologies offer the possibility of obtaining new products not only from survey activities but also in the representation and the vision field, to have an accurate metric description of the architecture, structures, and artifacts; they constitute powerful instruments for the analysis of objects in support to the conservation and restoration. The acquisition and the processing of data must be made following appropriate methods, taking into consideration the characteristics of each technique both in terms of inherent capabilities, such as accuracy and format of the data, and for mutual integration, to incorporate all the products in a shared database (Parrinello et al., 2019), useful for many applications, for example, documentation of the decay, studies of the stability of structures, etc. The photogrammetric survey, alone or integrated with laser scanning, with their products such as ortho photos, returning three-dimensional vectors, and Digital Surface Models with or without the application of texture, are important instruments for the study of the image of the surfaces, materials, and structural analysis, combining accurate metric information with a high-quality photographic description (Dell'Amico, 2022). Finally, the knowledge of a site can be facilitated by exploring virtual reality techniques using visual reality techniques based on photographic data, lead to the creation of databases on the three-dimensional dynamic heritage, implying the addition of a new layer of information and the subsequent planning of the digital archive capable of taking into account the 3D data for both the geometry and morphology of the detected object (useful for protection and conservation), as well as actual containers of helpful information for the management of the site (information once the restoration and scientific purposes) or for the public enjoyment in the museum environment through virtual reality. The 3D model is one of the most effective ways to understand the spatiality of complex environments that can not be perceived with the eyes nor effectively described by the orthogonal projections. The possibility of using three-dimensional models, also for purposes of simple documentation and representation, such as for feedback of structural type or related to diagnostics of the materials and the state of degradation (Parrinello et al., 2016), opens an essential window on the adoption in the close range of methods of data fusion and image analysis for example related to satellite remote sensing, combining the information given by the sensors operating in the optical field and the one given by others, such as thermals or in-kind multispectral rooms, or the instruments for geophysicist survey.

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Integrating historical research with technological progress opens exciting possibilities to create comprehensive digital archives, virtual reconstructions, and immersive experiences that can bridge the gap between the past and the present.

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