

AN HISTORICALLY-INFORMED APPROACH TO THE CONSERVATION OF VERNACULAR ARCHITECTURE: THE CASE OF THE PHLEGREAN FARMHOUSES

E. Fiore ^{1,*}, S. Iaccarino ¹

¹ Università degli Studi di Napoli “Federico II” - fiorersilia@gmail.com, s.iaccarino@hotmail.com

Commission II - WG II/8

KEY WORDS: Naples, Farmhouse, Landscape, Suburban area, Restoration, Valorisation

ABSTRACT:

Landscape is always the object of countless mutations: some of them disrupt its identifying features; others leave intact its original traits. Vernacular architecture is linked closely to the vocation of its landscapes, especially agricultural ones: this is the case of Pianura, a neighbourhood in the Phlegrean western suburban area of Naples, where the remains of vernacular architecture and its connections to agriculture are still traceable among the unstoppable process of building speculation which, since the 1960s, has torn up the rural fabric. In this uncontrolled development of the modern city, the architectural heritage of the farmhouse has shown its resilience: although parts of it appear to have been completely engulfed by the uncontrolled expansion of the city, in as many cases farmhouses have endured time, degradation, and indifference towards their historical value. In the heart of the neighbourhood, the masseria, with all its recurring features, remains the most widespread housing model, despite more recent interventions. Through the study of the history and architectural features of Masseria S. Lorenzo, this contribution aims to identify possible guidelines and strategies for the conservation of the material and immaterial values of these examples of vernacular architecture, putting them on a restoration and re-functionalisation path that is mindful of their past heritage and future potential.

INTRODUCTION. A STUDY FOR THE PHLEGREAN FARMHOUSES

This contribution seeks to offer methodological criteria in dealing with the restoration and valorisation of the vast architectural heritage of farmhouses in the Phlegrean area of Naples. These proposals will emerge from an accurate study of the local history and landscape and will culminate in the identification of the typological constructive peculiarities of the Phlegrean farmhouse (*masseria flegrea*).

This analysis will provide the basis of an historically-informed valorisation project of a case study, the *Masseria San Lorenzo* in Pianura: starting with a bibliographical and historiographical investigation, supported by on-site readings of the architectural artefact, conservative intervention criteria will be proposed that are suitable for a large-scale valorisation of the site. These criteria may provide the inspiration for broader considerations on the conservation and enhancement of a heritage still struggling for recognition.

1. THE VERNACULAR ARCHITECTURE IN THE PHLEGREAN AREA OF NAPLES: HISTORICAL AND TERRITORIAL ANALYSIS

1.1 Origins of Phlegrean farmhouses

The urban system of the Phlegrean Fields includes a large area stretching from the Gulf of Pozzuoli to the western suburban districts of Naples. This landscape is characterized by a lively volcanic activity: geologically, in fact, it corresponds to a large caldera in a state of quiescence whose geographical borders are marked by the hills of Posillipo, those of the Camaldoli, the northern reliefs of the crater of Quarto, the ancient acropolis of Cuma and Monte di Procida (Figure 1).



Figure 1. *Mappa Topografica della città di Napoli e de' suoi contorni*, G. Carafa Duca di Noja, Naples, 1775. The rural system of the Phlegrean area

While, on the one hand, the geological nature of this territory has shaped its orography, on the other it has affected the settlements that have sprung up along the fertile slopes of these hill systems since ancient times. In fact, since the classical era, settlements have developed, in the form of widespread rural urbanisation, along some important routes: the *via Consolare Campana* (*Consularis Puteolim Capuam*) and the *via Antiniana*, which connected the ancient port of Campania with the city of Capua and the fertile surroundings of the *Ager Campanus*, all the way to the capital, Rome.

Close to the main routes of exchange, the landscape was therefore characterized by rural settlements, drawn in by the fertility of the soil on the hilly slopes, which were soon anthropized and terraced for vine growing.

* Corresponding author

The soil was also a source of construction materials, especially Neapolitan *yellow tuff* and *piperno*: many quarries can be found between Quarto, Soccavo and Pianura, some of which are still active today (such as the tuff quarry located in Quarto and the piperno one located in Pianura). The possibility of extracting and employing these Phlegrean stony materials typologically characterises the built heritage of these areas.

The lushness of the soil, accompanied by full availability of construction materials, has therefore given rise to a widespread rural system based, in the classical era, on the model of the *villa rustica*, and eventually represented, starting from the middle ages, by the rural farmhouse. Following the fall of the Roman Empire, the Phlegrean Fields underwent a phase of decadence, because of the migration of economic activities from the Phlegrean axis towards the centre of the city of Naples.

A revival of this area would only come thanks to the fundamental role played by monastic orders, who were capable of giving a new impetus to agricultural production and to the life of these territories. In the district of Pianura, the presence of the religious body of the Jesuits was heavy: their traces are attested in at least three farms of the neighbourhood.

Phlegrean farmhouses all carry the traces of the historical evolution so far mentioned: it is usual to find in the walls of these buildings some signs of *opus reticulatum* or other remains of nymphaeums, tombs or colombariums, due to the extensive re-employment and integration of Roman archaeological rests within the new structures.

This stratification makes the historical, cultural and testimonial value of these vernacular architectures all the more significant.

1.2 Phlegrean farmhouses through the evolution of the contemporary city: the case of Pianura, in Naples



Figure 2. The landscape of Pianura: orography and urbanization

This contribution focuses specifically on the farmhouses located in the landscape of Pianura. This district can be considered the largest one of the western area of Naples, located in the south of the Camaldoli hill (Figure 2). The neighbourhood was an independent municipality until 1926, when it was incorporated in the metropolitan area of Naples. Since the 1960s, following an intense phase of unauthorized construction encouraged by the granting of easy building permits, the territory of this district has undergone dramatic transformations, replacing the rural fabric of orchards, chestnut groves and vineyards with intensive residential buildings of poor architectural quality.

Despite this extensive process of deletion of the rural identity of the landscape, the Phlegrean farmhouses are still traceable within the dense urban fabric: the heart of the old *casale* complex right beside the Church of S. Giorgio, with its series of two-storey farmhouses and typical gooseneck stairs and arched loggias, still stands out over the recently built city-centre of Pianura. (Figure 3). Inevitably, these architectural remains have undergone reckless transformations to adjust to the needs of their current owners, from the coating of original surfaces with cement plasters to the abusive addition of elevations, verandas and curtain walls disrupting the original layout.

In addition to the farmhouses embedded in the urban fabric, there are many other isolated farmhouses that, having been abandoned, lay in ruins. Although this condition sheltered them from the unfortunate adaptations that would have disrupted their original layout, it led to a state of degradation and instability that hints to complicated conservation issues.

How can we intervene on a heritage that fights every day for its acknowledgement and what are the criteria and actions to put in place for a valorisation process that includes the Phlegrean farmhouses into the modern metropolitan network?



Figure 3. Farmhouses in the urban texture of Pianura

2. IDENTIFICATION OF THE TYPOLOGICAL CONSTRUCTIVE PECULIARITIES OF THE PHLEAGREAN FARMHOUSE

The second important step to formulate this contribution has been the comprehension of the phlegrean farmhouses' peculiarities. The rural architectural heritage of the phlegrean area appears to be characterized by recurring features, resulting from the localization in a volcanic area and from the constant re-use and reference to Romanic structures.

“Grafting on the pre-existence” is precisely one of the conditions that has allowed the spatial and material characteristics of primordial rural houses to endure over time, until today. From the systematic reading of different Phlegrean farms it emerges how the reuse of Roman era ruins and their adaptation to new uses has ensured the survival of this specific type of rustic dwelling. Roman archaeological remains such as colombariums and nymphaeums have changed their original function, becoming, within the new rural complexes, spaces destined to agricultural production.

Accordingly, the typological analysis of the Roman era *villa rustica* allows to understand the origins and spatial conformation of the Phlegrean farmhouses that developed later. The layout is based on some rules that are direct consequence of the needs dictated by agricultural production: for example, production and residential environments were usually arranged around a closed court, the centre of the *villa*; sometimes there were isolated environments used to host recreational activities.

The development of Phlegrean farmhouses follows these same rules: the main volume, where residential environments are located, is the one characterized by access to the road and the one to which other volumes may be juxtaposed, resulting in closed court complexes, open court complexes, or “L” layouts, thus generating an array of types differing only for the number of volumes and their arrangement.

The most common type is the closed courtyard farmhouse, generally consisting of a main building that is divided into two levels: the lower one is usually intended for production cycles and daytime activities, while the upper level houses the night quarters. A characteristic element of connection between the two levels is the typical *goose-necked* external open staircase, joining the internal courtyard with a walkway to the rooms on the upper level, often creating a porch supported by arches in the lower level. The other three sides of the courtyard are characterized by the presence of stables, cellars, and warehouses linked to production activities.

There is also a link between the typology of the farm and its ownership, as the most significant examples of farmhouses with closed courtyards are those owned by monastic orders. For instance, *Masseria S. Lorenzo*, a typical example of a closed courtyard farmhouse, was owned by the Jesuits.

Other typical layouts included the open courtyard, where several rectangular volumes overlooked an open internal space (the farmyard). In other cases, we can see the addition of tower elements, as in the typology of the fortified farmhouse, developed since the XV - XVI century for the defence from brigands (Di Bonito, 1984) and usually found in hilly areas: an example, always located in Pianura, is *Masseria degli Spadari* (Figure 4).



Figure 4. *Masseria degli Spadari*, fortified farmhouse in the neighbourhood of Pianura

This farmhouse also bears the traces of a purchase from noble landowners, attested by the decorative elements and evident references to noble architecture, such as spiral staircases in *piperno* located in the residential volume.

While residential spaces often bear the traces of transfers of ownership, production spaces (the oven, the cell, the warehouses, the well, the cistern) are the ones where the reuse of pre-existing Roman buildings, with their vaults (barrel or sail), tuff walls, *pozzolana* mortar and beaten *lapillus* floors, is more evident.

The typological features common to Phlegrean farmhouses are also reflected in their “construction techniques” (Pane, 1928) (Figure 5).

From a comparative reading it emerges that the most recurrent floor structures are wooden floors and double-pitched trusses for the roof, often covered with Neapolitan tiles. The use of circular section beams in chestnut (but also poplar or beech), today affected by serious conservation criticalities ranging from simple rotting to collapses, is widespread.

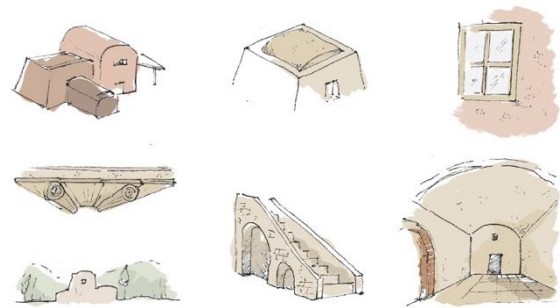


Figure 5. Architectural features of Phlegrean farmhouses. ©sketches by S. Iaccarino

Wall facings are usually made of natural stone, obtained from the nearest quarries, leading to the ample use of Neapolitan yellow tuff (Aveta, 1987), *piperno* and *pozzolana*, usually covered with plasters and mortars similarly composed of *pozzolana*, *pomice* and *lapilli*, all materials of clear volcanic nature. The use of *cocciopesto*, derived from pulverized brick materials, in these aggregates leads to the presence of plaster with a typical pink surface colour. Bricks are also usually employed as consolidation and reinforcement elements in correspondence of arches and cantons.

These walls can have different textures depending on the construction period. From a direct analysis of the farms it appears that the walls dating from the 16th - 17th centuries have irregular layouts, with the presence of pontoon holes placed at regular intervals. This type of brickwork was often rubble masonry. The walls dating from the 18th - 19th centuries, on the other hand, show textures of tuff stones arranged according to “horizontal applications, spaced about half a palm away, corresponding to the height of a single stone” (D’Aprile, 1999).

The system of recurring elements characterising the Phlegrean farmhouse is the story of a *modus operandi* that has endured over time and is still readable today: the permanence of this vernacular system has determined what Emilio Sereni describes as “the *inertia* of the agrarian landscape” (Sereni, 1961), whose evolutions turn out to be significantly slower than the incessant evolution of the contemporary industrial city.

3. CASE-STUDY: THE MASSERIA SAN LORENZO IN PIANURA (NA)

3.1 Origins and foundation

Until the second half of the eighteenth century, the *masseria* (Spano, 1979), with its complex layout based around the needs of the local agricultural economy, occupied a large part of the Phlegrean territory.

This territory was an ideal location for this type of productive architecture, as it was characterized by a strong presence of monastic orders, which provided a source of raw materials, techniques and types of cultivation.

The territories characterised by this rural productive system were especially the areas where the presence of the Carthusian monks of San Martino and the Compagnia del Gesù was stronger (corresponding to the current districts of Pianura, Soccavo and Quarto). These monastic orders owned a vast system of cultivated areas and built-up areas including: the *Masseria Grande*, a very large and currently densely built area close to the *Casale degli Sbirri* and Monte Sant'Angelo; the *Masseria Pignatiello*, between Pianura and Soccavo, of which only the toponymy remains (Falcone, 2014); and finally, the *Masseria San Lorenzo* located in Pianura, along Via Montagna Spaccata (Figure 6).

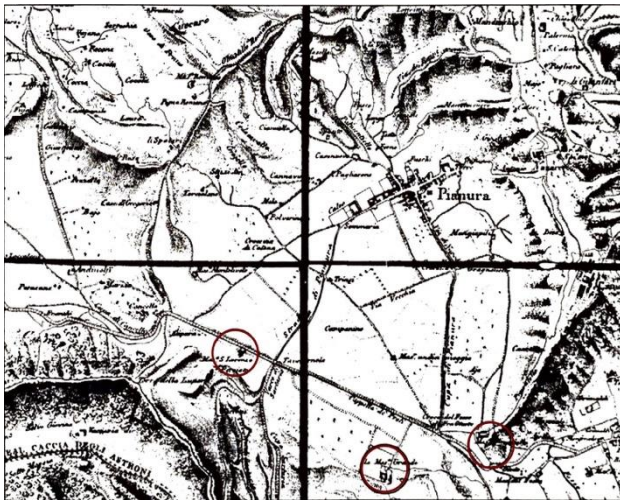


Figure 6. Carta Topografica Rizzi – Zannoni, 1794 Location of three Jesuit farmhouses in Pianura

The first traces of *Masseria San Lorenzo*, built by the Jesuits of Naples around the 17th century, can be traced back to the *Fondo Azienda Gesuitica*, where we read of a “masseria San Lorenzo (...) bought on 16 January 1647 by the Carthusians fathers of S. Lorenzo della Paluda for 15.600 ducats” (Belli, 1982). In the same document, the Masseria is also described as “located in the suburbs west of the city, near Pozzuoli” (Belli, 1982), but the absence of toponyms or other farms with the same name in Fuorigrotta and Pozzuoli, leads to believe that the complex was considered, at the time, an appurtenance of the Pozzuoli territory (Croce, 1925).

The expulsion of the Jesuits from the Kingdom of Naples in 1767 and the suppression, in 1799, of seven monasteries by the Bourbon government, followed by the requisition and forfeiture of all assets of religious orders by the French sovereigns led to the loss of power of the monastic orders, culminating in the definitive suppression of all religious corporations in 1808.

The Masseria San Lorenzo was probably auctioned and purchased by a Neapolitan nobleman, probably Nicola Taccone Marchese di Stilzano, Major Treasurer of the Kingdom of Naples and President of the Royal Chamber under Ferdinando IV. According to oral sources, an inscription, which has currently disappeared, was still readable on the walls of the masseria, with the title of the aforementioned “Marquis Taccone”. He will be succeeded, in the ownership of the rural building first by the Del Gaudio family and then by Baron Luigi D’Andria, who will sell the farm and its annexes to the Maritime Works Company (SOM), from which the current owners, descendants of the ancient local settlers, will purchase it, putting an end to the restructuring of the farmhouse and the agricultural exploitation of the property.

Located on a site slightly higher than the main road (via Montagna Spaccata), *Masseria San Lorenzo* is organised around a rectangular courtyard, along which the surviving residential and service blocks are arranged (Figure 7).



Figure 7. Masseria San Lorenzo, Pianura (NA)

Access to the building takes place on *via San Lorenzo* through the large piperno portal on the left side of the north-west elevation. The portal leads, through two rooms covered by vaults made of lapillus and tuff, called *lamie*, to the internal courtyard and the main block, consisting of two overlapping orders of arches, leading, on the ground floor, to the service areas and the stables and, on the upper floor, to the living quarters, creating a porch covered by the characteristic dome vaults made up of clay elements, called *carusielli* or *mummarelle* (Rutigliano, 1996), arranged in concentric circles (Figure 8).

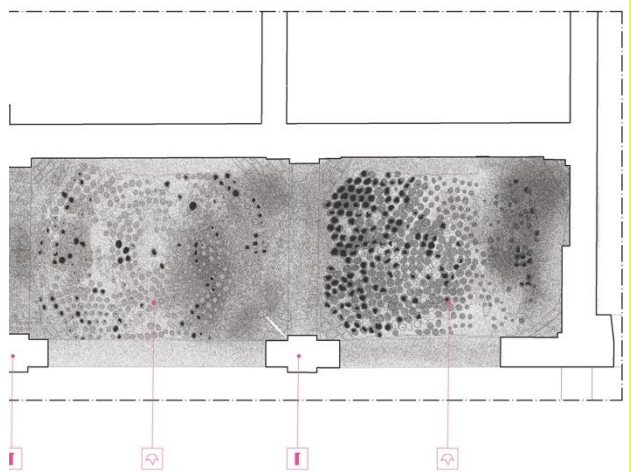


Figure 8. Conservation status of *Masseria San Lorenzo*: vaults with *mummarelle* located in the porch of first level.

©Restoration project of Masseria S. Lorenzo (NA), G. Coppola, M. De Rosa, F. Guarracino, M. Iengo, F. Ridente, Course or Laboratorio di Restauro architettonico, R. Picone a.a. 2018/19

These dome vaults greatly affect the structural response of the building and constitute a vulnerability factor which should be properly investigated, focusing the research on the construction techniques typical of vernacular architectures.

These architectures are made of walls built with traditional local materials and techniques, such as tuff, limestone and crushed stone, sometimes accompanied by fragments of brick. The blocks, rough-hewn and irregular in shape, are tied by means of lime mortar, with fragments of brick and limestone splinters.

The oldest part of the farm, dating back to the second half of the seventeenth century and still retaining its original layout from the Jesuit era, is the block that encloses the courtyard to the south-west. All the service areas and those pertaining to the work of the fields were probably located on the lower level, such as the characteristic *palmeto*, a place for the crushing of grapes, covered by a high barrel vault. The upper floor consists of a series of rooms, covered by wooden floors (in a poor state of conservation), accessible via a series of stairs located on the south-west elevation.

3.2 Analysis of conservation status and structural failures and guidelines for a historically informed approach to conservation

Because of the long abandonment, instability and degradation phenomena afflicting the structures and architectural surfaces are widespread. In particular, the Neapolitan yellow tuff cladding, now exposed, have been heavily affected by external agents, rising several conservation issues (Figure 9).

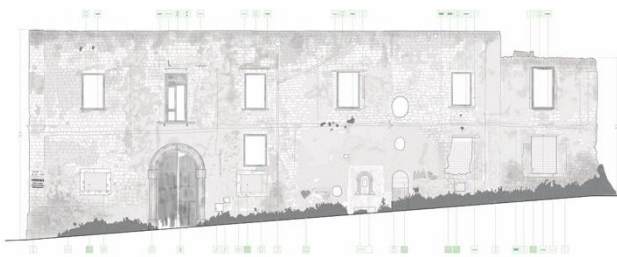


Figure 9. Conservation status of *Masseria San Lorenzo*: main façade. ©Restoration project of *Masseria S. Lorenzo* (NA), G. Coppola, M. De Rosa, F. Guarracino, M. Iengo, F. Ridente, Course or Laboratorio di Restauro architettonico, R. Picone a.a. 2018/19

From the analysis of the materials and the interpretation of the crack pattern of the *masseria*, several families of flaws were identified: the crushing of the walls at the beams juncture, due to an increase in the burdens still weighing on the building, a differential collapse of the foundation, due to the poor bearing capacity of the soil (Astroni's lithosome) and the insufficient size of the foundation.

An additional structural problem is represented by the insufficiency of the load-bearing wall which, due to its age and morphology (given the clear prevalence of the voids over the solids) caused collapses and expulsion of the building materials in the most stressed areas, bringing the farmhouse to statically unfavourable conditions.

The horizontal surfaces, consisting of wooden floors in chestnut beams with a circular section, are in an advanced state of degradation, with localized phenomena such as fracturing and rotting (biological colonization). Consolidation interventions must be designed with the aim to maximize the farmhouse values.

For architectural surfaces, the main degradation phenomena consist in the degradation of the Neapolitan yellow tuff, a porous and brittle material, which exposed to the action of external agents has developed issues of alveolisation, erosion, surface deposits, pulverisation of binding mortars and efflorescence and biological patinas on the decorative elements in *piperno* brought by rainwater seepage. In fact, the issues of ascending damp on the ground floor and washout on the upper ends of the masonry are evident, denounced by the strong presence of weed vegetation (Figure 10).



Figure 10. Conservation status of *Masseria San Lorenzo*: section of the court. ©Restoration project of *Masseria S. Lorenzo* (NA), G. Coppola, M. De Rosa, F. Guarracino, M. Iengo, F. Ridente, Course or Laboratorio di Restauro architettonico, R. Picone a.a. 2018/19

A mindful and historically aware intervention will be crucial for the restoration and valorisation project of *Masseria San Lorenzo* in Pianura, considering the specificity of materials and construction techniques employed.

The starting point for a conservation project of rural architecture is the acknowledgement of such architecture through a systematic census on the territory that identifies typologies, morphologies and recurring features, as well as distinctive building materials and construction techniques. Only after a systematic and in-depth study of these characteristics, will it be possible to determine the guidelines and intervention strategies for the conservation and restoration of rural architecture.

4. CONCLUSIONS. METHODOLOGICAL CRITERIA

The analysis of historical building techniques, settlement typologies, housing morphologies and recurring features in rural architecture, together with a deep understanding of the historical stratification, constitute an indispensable step towards a correct approach to the conservation of these buildings.

The conservation of rural architectures is often complicated by their surroundings: the fury of housing speculation has engulfed the territories once gravitating around the farmhouses, changing the entire rural environment. Rural buildings themselves are now abandoned in a state of ruin or transformed to adapt to the changed housing needs.

The valorisation of this built heritage must consider new intended uses that are compatible with the historical agricultural destination and original layout of the farmhouse, which is reasonable especially in light of the enduring agricultural vocation of this landscape. In this sense, the acknowledgement of rural architecture may encourage the development of a local agricultural economy, including the production of praised Phlegraean wines.

In this perspective, any intervention should be minimal, in order to maintain the original vocation of the artefacts as much as possible, and the preservation of original materials, such as tuff and piperno, and that of traditional construction techniques, such as beaten lapillus, lamia and vaulted roofs, becomes a priority.

In an endangered cultural landscape such as the Neapolitan suburban area, it is imperative to set up restoration policies that preserve traditional values. To do this, a careful mapping of the artefacts, an assessment of their state of conservation, and a classification of their recurring features becomes crucial for an historically aware restoration project that takes an ethical approach towards the values connoting the vernacular Phlegraean farmhouse, according to the criteria of minimum intervention, reversibility and distinctness.

As a vehicle of the historical heritage of the landscape in which it is embedded, the Phlegrean vernacular architecture becomes evidence of the national and international concern for cultural landscapes as a result of the combined action of man, nature and architecture, as attested by the recent declaration of the wine-growing landscapes of Langhe, Roero and Monferrato in Piemonte as UNESCO heritage sites.

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