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DEPARTMENT OF HUMANITIES STUDIES

The Museum without Walls

Re-contextualizing the Esquiline's Heritage through Digital Storytelling

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ABSTRACT

The Esquiline Hill in Rome represents a paradigmatic case study in the complex and often destructive relationship between urban development and archaeological heritage. The intensive building activities following the designation of Rome as the capital of unified Italy in 1870 resulted in an unprecedented density of discoveries, leading simultaneously to the creation of vast archaeological knowledge, and the profound decontextualization of the finds.

The primary purpose of this project is not merely to offer a new historical overview of the Esquiline, but to provide an essential didactic mediation designed to bridge the gap between archaeological record and public understanding. This will be achieved through the development of an application that functions as a geo-localized mapping tool for the archaeology of the Esquiline. By traversing the modern urban landscape – from Via Merulana to Termini railway station, and from Viale Castrense to Via del Viminale – users will be able to discover the numerous archaeological artifacts unearthed in this territory and visualize their original context and precise location of discovery.

A central aim is to raise awareness of the remarkable artifacts recovered here. More critically, this project focuses on the issues of dispersal and decontextualization that occurred particularly during the late 19th and early 20th centuries.

INTRODUCTION

The Esquiline Hill represents one of the most complex and stratified archaeological landscapes in Rome, yet its archaeological heritage has been subjected to a profound process of physical and cultural decontextualization. The present research addresses this topographic fragmentation through the development of a digital tool, designed to virtually recontextualize the Esquiline's dispersed archaeological record. Furthermore, this project aims to build a tool not only reserved for Academic purposes but also as an educational and navigational App for different kind of users.

To achieve this, the thesis is structured around developing methodology that moves from historical topography to digital implementation. The first phase of the research establishes the fundamental archaeological background of the Esquiline Hill. The area geographically limited by Via del Viminale, Viale Castrense, Via Merulana, and the Termini Railway station, is analyzed not to produce an exhaustive historical reconstruction, but to provide a synthetic topographical background. This passage is essential for accurately repositioning of dispersed artworks within their original, pre-excavation spatial context.

Building upon this historical baseline, the research deepens into the theoretical model of the Public Archaeology, with a specific focus on the Digital Public Archaeology. The study identifies current digital gaps in cultural heritage communication by defining the development of the discipline within the Italian and Roman context. The Esquiline serves as an ideal case study to introduce the proposed application, positioning it as a necessary, interactive evolution inside the cultural and social landscape of the district.

The creation of standardized ID Sheets for a selected number of artifacts is the clear methodological translation of this spatial and historical data. These sheets capture the dual nature of the Esquiline's heritage by accurately document the "then" (historical context, location, date of discovery) and the "now" (current museum location). This precise data architecture culminates in the development of a GIS map. This cartographic output functions as the initial visual sketch of the

application, transforming the cataloguing of artifacts into a powerful geospatial critique of the district's decontextualization and validating the didactic potential of the tool.

Finally, the research defines the conceptual and structural architecture of the digital application itself. The proposed tool, rooted in User-Centered design, is tailored to serve different User Personas: the casual tourist needing spatial orientation within Rome's complex topography; the local citizen experiencing visual habituation toward everything he's surrounded with every day; the academic student, more engaged in diving into the discovery of new artifacts, hence the bibliographic section; and the educational community using the city as an open-air classroom. Through the strategic integration of geolocated mapping and cognitive gamification, this research demonstrates how the dispersed heritage of the Esquiline Hill can be successfully transformed into an accessible, interactive, and educational digital experience.

CHAPTER 1
AN HISTORICAL FRAME

The following chapter aims to delineate a short archaeological framework of the Esquiline Hill. Its purpose is not to provide an exhaustive reconstruction, nor to engage in a critical debate over the numerous and often conflicting interpretations preserved in the literary and archaeological record. Rather, it seeks to Its purpose is not to provide an exhaustive reconstruction, or to engage in a critical debate over the numerous and often conflicting interpretations preserved in the literary and archaeological record. Rather, it seeks to offer an overview of the main aspects of the area as transmitted by the sources, with the exclusive aim of establishing a basis for the subsequent analysis. By presenting a concise outline of the etymological, topographical, and historical evidence, this chapter intends to furnish the necessary background against which the following discussion – focused on the positioning of the artworks – can be more clearly contextualized.

The investigated area corresponds to the district circumscribed by Via del Viminale (North) and Viale Castrense (South), with its longitudinal extension defined by Via Merulana on the west and the Termini railway hub on the east.

1.1. The pre-roman landscape of the Esquiline

The landscape of the Esquiline gradually took shape over millennia of historical transformations. During the Early Iron age, the area corresponding to modern Rome was occupied by clusters of huts dating to the 10th century BC. Rome as an urban entity did not yet exist; instead, it is considered of scattered protohistoric settlements concentrated around the Palatine Hill. Nevertheless, in this period we can already detect significant environmental modifications and shifts in cultural practices. A necropolis was identified at the slopes of the hill, in a marshy area that would later become the nucleus of the Roman Forum. [1]

[1] AMMERMAN 1990, pp. 628-629.

As the inhabited area expanded, it encroached upon the burial grounds, making it necessary to establish a new cemetery. Between the 9th and 8th century, when the Esquiline Hill became the new site of an extensive necropolis, it remained in use until the 1st century BC. [2] Several graves contained exceptionally rich grave goods, including weapons, which suggest the emergence of a warrior-aristocratic élite. These findings provide evidence for growing social stratification, likely connected to the transformation from a predominantly pastoral economy to a more complex and organized society.

The burial ground on the Esquiline Hill developed in relation to a strategic crossroad linking the settlement with other Latin centers of *Tibur, Gabii* and *Praeneste*, who controlled wide territories in the central Apennines and inland Campania. [3] The so-called Tomb 94 is on particular note, discovered near the church of San Martino ai Monti, containing the burial of a male individual accompanied by a helmet, a shield, and a two-wheeled chariot – funerary equipment characteristic of the aristocracies of Latium and Etruria (figg. 1a-b, 2, 3, 4). [4] The spatial distribution of the burials, especially those clustered around

Fig. 1a-b: shield with a repoussé-decorated metal sheet, its edge wrapped around a circular iron rod.

Fig. 2: hemispherical helmet with a concave profile and a continuous brim.

Fig. 3: cup with bifid handle, collared rim, slightly marked shoulder, very shallow bowl, and concave base.

Fig. 4: cup with bifid handle, slightly flaring rim, gently defined shoulder decorated with three bosses, very shallow bowl, and concave base.

After Roma dei Re 2019*, p. 433.*

[2] BUZZETTI 1995, pp. 234-235.
[3] FRAIOLI 2012, pp. 325.
[4] BARBARO, DAMIANI 2019, p. 433.

Tomb 94, offers valuable evidence for reconstructing the limits of the unified settlement, which encompassed the summit of the Oppius Hill and extended over nearly 205 hectares – surpassing many of the proto-urban centers of southern Etruria (Veii, for instance, never exceeded 180 hectares). [5]

1.1.1. The investigation of the Necropolis in the 1870s

The Esquiline necropolis was extensively investigated following the 1870 urban interventions. [6] The topographic development of the necropolis was meticulously mapped by G. Pinza, whose work revealed a high density of burials concentrated in the quarters surrounding Piazza Vittorio Emanuele. However, reconstructing the necropolis' ancient perimeter remains problematic, as it is impossible to determine if the areas lacking finds were genuinely unoccupied or simply undocumented (fig. 10).

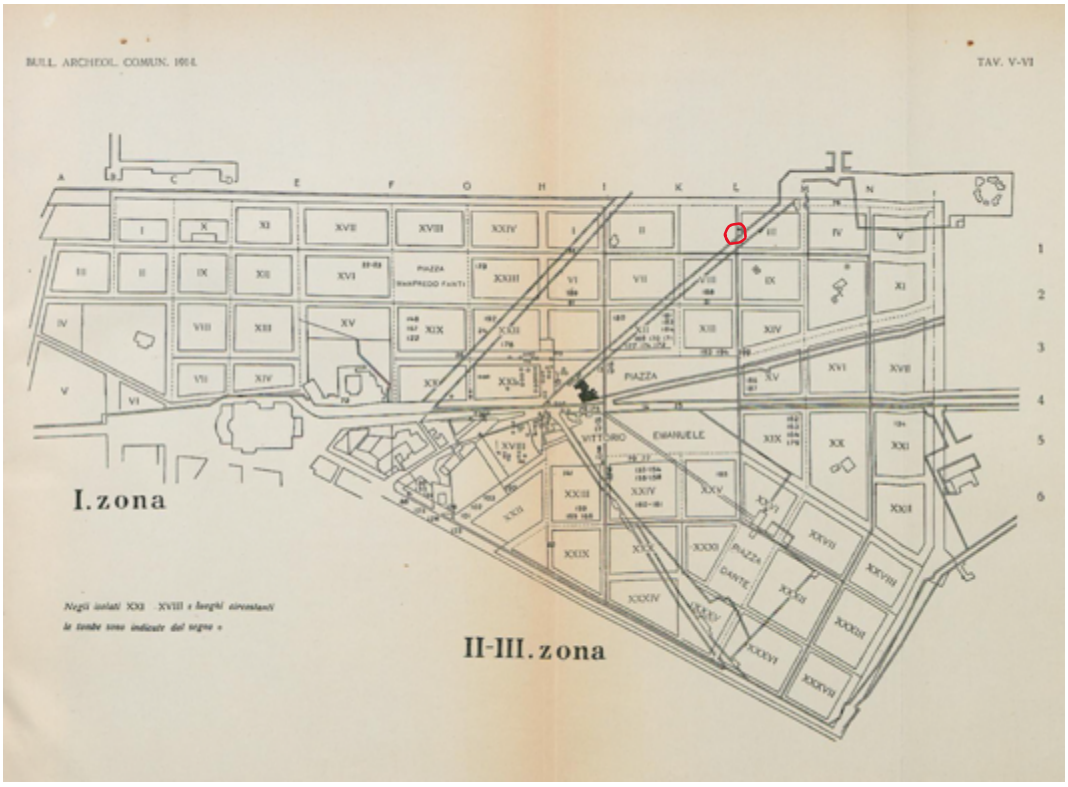

Fig. 10: location of burials with focus on the tomb called "Group 125", after PINZA 1915, 42, tavv. V,VI.

[5] DE ROSSI 1885, pp. 39-50.
[6] DAMIANI 2019, pp. 241-245.

The excavations were conducted by the *Commissione Archeologica Comunale* of Rome, under the supervision of the engineer, topographer, and archeologist Rodolfo Lanciani. He documented several of the discoveries that were made during the reconstruction of the quarter, published on the *Bullettino della commissione archeologica comunale de Roma.* In 1874 Lanciani briefly reported the discoveries of the so called *puticuli,* found during the construction of the Via Napoleone III between the churches of Sant'Antonio and Sant'Eusebio, [7] however he provided details about their structure and orientation only a year later. Unfortunately, he never achieved his aim to produce a topographical plate to demonstrate the limits and the arrangement of these mortuary pits. [8] He strengthened his theory about *puticuli* using the literary sources, connecting them to the cemetery of the poor people that was known to be located on the Esquiline, outside the Servian walls. [9]

Therefore, already in 1873, for the opening of new streets of the new neighborhood such as Via Giovanni Lanza, workers reached the pre-roman strata, and the virgin soil, discovering the first "fosse terragne", believing to have found the already known Republican cemetery. The rushed nature of the process immediately resulted in confusion and compromised data integrity. Early identifications mistakenly unified different burials under the same name, making subsequent reconstruction extremely difficult due to the scant and not precise excavation reports. Since discoveries were made in a chaotic way and aimed only at constructing new buildings, gathering adequate documentation for each section was often impossible.

I will attempt to expose the various phases of the necropolis, even if based on scant data.

The most ancient section and certainty the most intensively used, is located on the slight slope of the actual area of via G. Lanza, between San Martino ai Monti

[7] LANCIANI 1874, p. 48.
[8] LANCIANI 1875, pp. 41-43.
[9] Varr. LL, V, 25 for the use of the word *puticuli*; Hor., *Sat*. 1.8.8-16, for the designation of the area outside the Esquiline Gate as a public burial ground.

and Via Merulana. Outside the ancient city, east of the agger, lays a small valley that roughly followed the line of todays via Conte Verde. It began in the north-western sector of Piazza Vittorio, opposite Via Napoleone III and Via Carlo Alberto, and broadened eastward, approximately between the former Via di Santa Bibiana and the south-western long side of Piazza Vittorio. This topography is indicated by the distribution of the hypogeum chamber tombs, whose entrances open along the face of a slope. More precise information is provided by several profiles drawn by Lanciani and, above all, by the trial excavations conducted in the 1920s by A. M. Colini. From these data, it seems evident that around Sant'Eusebio, the valley presented a pronounced depression: virgin soil was encountered approximately 6 meters below the level of Via Napoleone III (the level of the *puticuli*), only to rise again toward the center of the Piazza and then descending at southeast. Livy (XXVI, 10, 5-6) confirms the characteristics of the territory while speaking of an episode of the second Punic war. [10]

The tombs here found constituted of individual and distinct entities, however the problem was exacerbated by the treatment of the artifacts themselves. Although municipal inspectors understood the need to describe grave goods separately, materials were mixed during transfers form one warehouse to another, leading to significant confusion and the eventual loss of integrity for numerous goods. [11] To give an idea, the objects coming from the protohistoric necropolis are 1100, but only about 70 objects are of undeniable provenance and not tampered. Their study delimited the use of the necropolis to the end of the 9th beginning of 8th century BC, until the end of 7th century BC.

At the beginning, the necropolis presented a homogeneous burial context, constituted by limited number of ornaments and few vases with fixed shapes,

[10] Liv. XXVI, 10, 5-6: "after the engagement had begun, the consuls ordered the Numidian deserters, of whom there were at that time on the Aventine about twelve hundred, to pass through the centre of the city across the Esquiline, thinking that none were better suited to do battle in the valleys and around buildings in gardens, among tombs and along roads hemmed in on every side. when some men on the Citadel and the Capitol saw them riding down the Clivus Publicius,[6] they shouted that the Aventine had been captured." (YARDLEY 2020, p. 38).
[11] MARTELLI, TALAMO 1973, p. 188.

whose composition seems to correspond to a specific funerary ritual. The ceramic is handmade with coarse doughs, and the regularity of shapes and the good cooking denote a great level of craftmanship. Thanks to a recent exhibition hosted in Rome called "La Roma dei Re", from July 2018 to June 2019, which proposes a narration through the most ancient phases of Rome, and focusing on the study of the Esquiline necropolis, it is possible to talk more about the development of the society of the VIII century BC Rome. [12]

A great example of the importance of this exhibition is the so-called "Group 125", being at the same time the most interesting, and the most emblematic complex of the Esquiline necropolis. [13] Both the location and the provenance of relieves are unsure, since the chance that some object might come from other burials of the same period is not little, even Lanciani arose the hypothesis of a context of destroyed tombs. [14]

Apart from topographical discrepancies, from this Group come from the most ancient importations, represented by the cup of *Thapsos* type (fig. 11), confirming the appearance of the Greek ceramic, together with objects belonging to indigenous tradition, starting from the Latial period III. [15] Carafa confirms and strengthen the chronology, by stating that the Latial period III (770-730 BC) represents a sort of watershed between the earlier production and those of the subsequent Orientalizing Age. However, this phase is generally regarded as an extension of the preceding Latial period IIb (830-770 BC), rather than the beginning of an entirely new cycle. This interpretation mainly derives from the fact that the emergence of an aristocratic class is recognized only from the Orientalizing period onward, while the major signs of transformation observed during the 8th century are considered evidence of the growing of social tensions that eventually led to the formation of a dominant élite in the following period.[16]

[12] DAMIANI, PARISI PRESICCE 2019, pp. 29-32.
[13] DAMIANI, FRANCO 2019, pp. 321-322.
[14] LANCIANI 1875, p. 46.
[15] FRANCO 2019, p. 323.
[16] CARAFA 1995, pp. 263-264.

Fig. 11: Skyphos of Thapsos type with decorated panel. Diluted black gaze, after Roma dei Re 2019*, p. 325.*

1.1.2. The results after the investigations

From the half of the 8th century BC, the small Latial centers start getting influenced by contacts with Greeks of the colonies and with Etruscans, with their thin bucchero vases. A clear break is denoted by the implement of prince tombs found all around Latium, together with the introduction of funerary banquets, grapes, oil, and wine. Unfortunately, limited evidence survives from the Esquiline necropolis. [17] Despite the growing network of exchanges that facilitated the circulation of imported goods, the Esquiline burial area shows signs of decline, with few tombs attested. This impoverishment is especially striking when compared to the city's own development, demonstrated by large-scale drainage works and the construction of temples decorated by Greek and Etruscan craftsmen. [18] This phase of decline persisted for nearly two centuries.

From the 4th century we encounter sarcophagi made with tufa, monolithic or slab, sometimes accompanied by black gaze vases, mirrors, glass balms. [19]
This type of burial seems to be connected to the use of chamber tombs, small hypogeic rooms, often used my multiple members of the same family. These tombs were found mostly among Via Napoleone III, and frequently exploited the characteristic tuff formations of the Roman site. As a result, they assumed the appearance of rock-cut burials, sometimes of monumental character, not dissimilar

[17] LANCIANI 1874, pp. 50-56.
[18] ALBERTONI 1983, p. 144.
[19] TALONI 1973, p. 188.

from those typical of many burial areas of southern Etruria. [20] Among these there is the famous tomb of Quintus Fabius, that will be analyzed later in the chapter. The complexity of levels encountered during the archeological studies was analyzed by Giovanni Pinza, who gave a clear distinction between each phase, identifying four of them (fig. 5): [21]

a. virgin soil referable to tombs of I and II period;
b. reports of virgin soil in which tombs of the III period were cut;
c. dump deposits, from via Carlo Alberto to via Napoleone III, where the so-called "*puticuli*" were found;
d. plan of constructions related to Augustus and Maecenas with uneven levels.

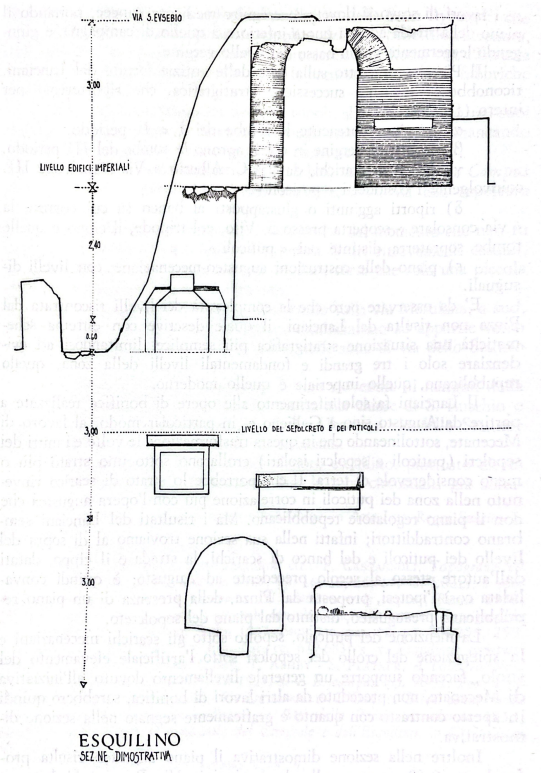

Fig. 5: stratification of Esquiline burial phases After Roma medio repubblicana, 1973, *p. 192.*

Therefore, through the first archaeological investigations conducted in the Esquiline area after 1870 by the Commissione Archeologica Comunale di Roma

[20] MANACORDA 2012, p. 103.
[21] PINZA 1915, p. 168-169: the stratigraphic sequence is valid only for the area occupied by the *puticuli* since it is not possible to analyze the situation in other areas.

under Rodolfo Lanciani, then the further discoveries by Michele Stefano De Rossi between 1883 and 1885, then Antonio Maria Colini in the 1920s, together with recent studies done on the objects found in the tombs, it is possible to draw a sketch of the landscape of the Esquiline between the royal and republican ages.

The cemetery will be in use until the Augustan age. A profund transformation of the area began when Gaius Clinius Maecenas, advisor, and confidant of Octavian (the future emperor Augustus), acquired extensive plots and oversaw the massive drainage of the area between 38 and 35 BC. [22] From this time onward, the Esquiline Hill was fundamentally transformed into an élite residential district, marked by the construction of opulent villas and expansive *Horti*.

1.2. The transformations of Republican times

1.2.1. The Early Republican period: the construction of the Servian Walls

The reconstruction of the city walls was doubtless one of the greatest changes of the Republican times, first built by Tarquinius Priscus in the 6th century BC then completed by Servius Tullius. However, in the last few years scholars have brought up a debate about the actual existence of a city wall dating back to that period. The prevailing scholarly hypothesis is currently that a unitary fortification already existed during the Archaic period. To his defensive system can be attributed the stretches of walls built of granular grey tufa blocks, which are commonly referred to as cappellaccio. These structures exhibit significantly smaller dimensions than the large blocks of yellow tufa from the Via Tiberina quarry (in the area controlled by the city of Veii), known as Grotta Oscura tufa, which characterize the majority of the surviving remains today. [23]

The definitive construction of the city walls, conventionally referred to as "Servian", is securely dated to the 4th century BC. These fortifications were built in *opus quadratum*, using large blocks of yellow tufa from Grotta Oscura. This

[22] MANCIOLI 1983, p. 187.
[23] VOLPE 2019, p. 236.

major construction project was formally financed by a tax imposed on Roman citizens for the *murus saxo quadrato* in 378 BC, twelve years after the Gallic sack (Liv. VI, 32, 1). The capture of Veii in 396 BC had made possible the intensive exploitation of the nearby Grotta Oscura tufa quarries, from which the material for the walls was extracted. [24]

The sector protecting the Esquiline was crucial, as it was designed to defend the northeastern sector of the city, area devoid of natural barriers. [25] The structure consisted of a wall approximately four meters thick and ten meters high, reinforced on the inner side by an earthen embarkment named *agger*, delimited by a smaller containment structure. According to Livy's testimony (Liv. I, 44, 3), the fortification originally planned by the king Servius Tullius provided three main elements: *agger*, *fossa*, and *murus*. [26] The *fossa aggeris* was the earliest defensive structure to be built outside the city walls, it was a wide ditch that strengthened the Servian fortifications. It was Servius Tullius who incorporated the Esquiline into the urban perimeter, dividing the city into four *regiones*: Palatina, Collina, Suburrana and Esquilina. [27] The remains of the walls found in this area are the ones in Piazza Manfredo Fanti, Via Carlo Alberto, Via Leopardi, and the trait of Termini Station (Fig. 6).

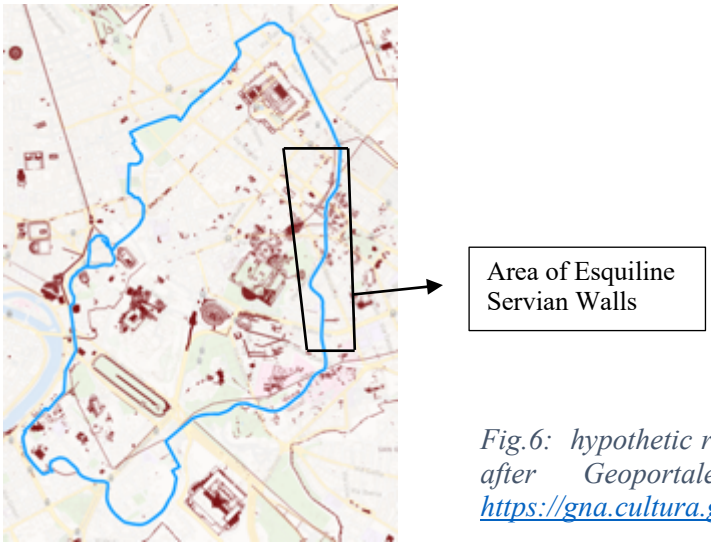

Fig.6: hypothetic reconstruction of the Servian Walls, after Geoportale Nazionale dell'Archeologia https://gna.cultura.gov.it/index.html

[24] PICOZZI, SANTORO 1937, p. 7.
[25] CIFANI 2012, p. 81.
[26] VOLPE 2018, p. 122-123.
[27] PALOMBI 1999, pp. 196-197.

The area immediately outside the *Porta Esquilina* was known as the *Campus Esquilinus*, a space that served varied functions until it was covered over in the Augustan age. A small sanctuary was located near the gate, identified with the *lucus Libitinae,* a sacred grove dedicated to Venus Libitina, goddess of the underworld and funerary rites, closely associated with the necropolis located right outside the gate. [28] This location also housed a system for keeping the census, where a coin was deposited for each list of the dead, a custom attributed to Servius Tullius. [29] It is also believed that inside the sacred *lucus* was included the cult of *Fortuna Mala*, another chthonic deity connected to the sphere of the underworld.

1.2.2. The middle Republican period: burials and domus

During the Middle Republican period (396-240 BC), the *Campus Esquilinus* became the site of public executions and burials of prominent citizens. Archaeological discoveries of a monumental tomb made with peperino blocks dating the first half of the third century, supports this interpretation: [30] the burial was brought to light in the 1875, in the crossroad between Via Carlo Alberto and Via Rattazzi and it has been attributed to the *Fabii* or *Fannii* family, based on the fresco fragment depicting an historical narration, accompanied by inscriptions identifying the individuals as *Q. Fabius* and *M. Fannius* (fig. 7). [31] The painting, which is a smaller remain of the great decorative apparatus of the burial's inner walls, is organized into four superimposed registers, depicting historical scenes featuring togate figures, and Samnite warriors identifiable by their typical equipment – hemispherical helmets with button-like knobs and

Fig. 7: fresco fragment found inside Fabii/Fannii burial. After VISCONTI 1889*, tav. XI,*

[28] COARELLI 1996, p. 326-327.
[29] RICHARDSON 1992, p. 235.
[30] ORIOLO 1999 p. 278.
[31] VISCONTI 1889, pp. 340-345.

cheekpieces, anatomical cuirasses, and gilded greaves – closely corresponding to those described by Livy (IX, 40, 1) in connection with the second Samnite war. [32] It is also true that there's a divergence of opinions about the attribution of the burial, however the painting doesn't leave much space for interpretations, which, furthermore, gives an idea about the artistic production of the painter *Quintus Fabius Pictor*, member of the same *gens Fabia*, who likely made the fresco. [33]

The Cispius Hill, by contrast, was characterized by the presence of aristocratic residences (*domus*). One such residence, terraced on multiple levels toward the *vicus Patricius*, preserved wall paintings depicting episodes from the Odyssey decorating its portico. Stylistic analysis of these frescoes, corroborated by the discovery of a fragmentary calendar predating Caesar's reform of 46 BC, suggests the *domus* was constructed in the mid-first century BC. If this spatial identification is correct, it is also possible to track down the owner of this *domus,* belonging to the distinguished republican *gens Papiria*. [34]

1.2.3. The Late Republican period: the beginning of "luxuria"

During the Late Republican period, the so-called *forum Esquilinum* occupied the area just inside the *Porta Esquilina*, where in the 88 BC, Mario's soldiers tried to resist to the siege of Sulla, unsuccessfully. [35]

Between the end of the Republic and the early Augustan age, the Esquiline was transformed by the creation of luxurious private *Horti* [36] – large estates owned by leading aristocratic families. As an example, the upper Cispius Hill hosted the

[32] Liv. IX, 40, 1 "The war in Samnium, immediately afterwards, was attended with equal danger and an equally glorious conclusion. The enemy, besides their other warlike preparations, had made their battleline to glitter with new and splendid arms. There were two corps: the shields of the one were inlaid with gold, of the other with silver. The shape of the shield was this: the upper part, where it protected the breast and shoulders, was rather broad, with a level top; below it was somewhat tapering, to make it easier to handle. They wore a sponge to protect the breast, and the left leg was covered with a greave. Their helmets were crested, to make their stature appear greater. The tunics of the gilded warriors were parti-coloured; those of the silvern ones were linen of a dazzling white. The latter had silver sheaths and silver baldrics: the former gilded sheaths and golden baldrics, and their horses had gold-embroidered saddlecloths. The right wing was assigned to these: the others took up their post on the left". (FOSTER 1926, pp. 318-319).
[33] COARELLI 1973, p. 208.
[34] COARELLI 1998, pp. 34-37.
[35] CARNEY 1961, p. 100.
[36] FRAIOLI 2012, p. 329.

Horti Lolliani, attested in the modern area of Termini Station and noteworthy as one of the few *Horti* located within the city walls, belonging to the *gens Lollia*. [37]

The Servian Walls, though having largely lost their strategic defensive function by the end of the Republic, progressively acquired a significant ideological value starting in the Augustan era. This new importance was twofold: their established trajectory continued to influence the administrative subdivision of the city, and certain gateways, such as the *Porta Esquilina*, were monumentalized, thereby enhancing the symbolic value of the *Urbs*. [38]

1.3. The imperial era and the rise of the Horti

The identity of the Esquiline drastically changed between the 38 and 35 BC due to the intervention of Maecenas, advisor, and confidant of Octavian (the future emperor Augustus). Maecenas acquired extensive plots and initiated major drainage works, which likely received imperial support, given the area's abundant water supply form nearby aqueduct intakes at *ad Spem Veterem* near the Porta Maggiore (then called *Porta Praenestina*). [39] This process buried the ancient necropolis beneath a deep layer of fill, replacing it with Maecenas' grand villa and gardens – a vast complex of fountains, sculptures, and landscaped terraces.

The discovery of these complexes was largely a by-product of the intense building activity that followed the proclamation of Rome as the capital of unified Italy in 1870. The rapid urban expansion required extensive earthworks across the Esquiline plateau, particularly around Piazza Vittorio Emanuele II, Via Napoleone III, and Via Carlo Alberto, revealing a stratified sequence of funerary and residential contexts together with the first appearance of the so-called *Horti*. [40]

Subsequent investigations – particularly those undertaken in the early 20th century and again during modern rescue excavations between 1980s and 2000s – confirmed the exceptional density of these imperial and senatorial estates.

[37] PAPI 1999, p.67.
[38] ANDREUSSI 1996, p. 323.
[39] RICHARDSON 1992, pp. 306-307.
[40] TALAMO 2008, p. 50.

Excavations near Via Giolitti, Via Mecenate, and Via di Santa Croce in Gerusalemme brought to light rich marble floors, wall revetments in opus sectile, and hydraulic infrastructures that attest the monumental character of these residences and their transformation during the imperial period. [41]

To date, at least eight major *Horti* have been securely identified on the Esquiline plateau, with limits that can be roughly outlined as follows: *Horti Maecenatis*, situated between Via Merulana and Via Mecenate; *Horti Lamiani*, extending approximately beneath the modern Piazza Vittorio Emanuele II; *Horti Liciniani*, around Porta Maggiore and the Aurelian Walls; *Horti Tauriani*, corresponding to the area near Via Carlo Alberto; *Horti Pallantiani* and *Horti Lolliani*, known through epigraphic references; *Horti Spei Veteris*, encompassing the area of Santa Croce in Gerusalemme and the *Palatium Sessorianum*; *Horti Epaphrotidiani*, overlapping with the area later occupied by the *Horti Liciniani*.[42] Despite this identifications, the *Horti* of the Esquiline are still only partially understood. Many remain known only through chance discoveries of pavements, water conduits, or marble revetments without clear stratigraphic context. Their full extent, ownership, and chronological development continue to be reconstructed mainly through comparative studies and urban excavations.

The recovered materials from the excavations testify to the luxurious nature of the *Horti* and their complex development from the Republican to Late Imperial times. Among the finds are architectural remains, including peristyles, nymphaea, cryptoporticoes, and thermal installations; decorative elements, such as mosaics, wall paintings, and floors in *opus sectile*; sculptural material, including portraits, mythological figures, and ornamental reliefs; hydraulic structures, with cisterns and lead pipes bearing imperial inscriptions, particularly from the *Horti Liciniani* and *Horti Lamiani*. [43]

[41] SEVERINO 2019, pp. 205-207.
[42] MANCIOLI, RIZZO, 1983 pp. 195-203
[43] CIMA 2008, p. 68.

From this excavations numerous findings were brought to light, encountering the satisfaction of the workers for the extraordinary presence of ancient sculptures, marbles, frescoes, and even more. In 1876 arises the chance to build a new section of the Capitoline Museum, the so-called "Palazzo dei Conservatori", dedicated to the exposition of these new discoveries. [44]

1.3.1. Horti Maecenatis

Regarding the sumptuous residence of Maecenas, the only surviving archeological evidence is the so-called *Auditorium*, a conventional designation. It is a large hall partly buried, originally covered by a vault, within its thickness a series of windows once opened, allowing natural light to illuminate the interior. The structure was built astride the Servian walls, evidently already out of use at that time. [45] The entrance was situated to the right side of the building, and it was accessed via a ramp paved in *opus spicatum*. The excavations made it possible to distinguish three spaces, which have been interpreted as a vestibule, a central hall, and a terminal exedra. [46] Six deep rectangular niches opened among the long walls of the room, while five additional niches–set at a higher level– articulated the curved wall of the apse. The niches were decorated with frescoes designed to create the illusion of windows looking out onto a garden. Despite the advanced state of deterioration, the surviving fragments allow us to infer that both the subjects depicted, and the techniques employed were analogous to those better preserved today in the niches opening along the exedra.

The original floor consisted of a fine white mosaic elegantly bordered by thin red band, ascribed to the late Republican period. A second phase of use is marked by the installation of a second pavement, realized in *opus sectile*, still visible today, together with the parietal paintings, typical of the Third Pompeian

[44] NOBILI VITELLESCHI 1886, p. 7.
[45] CIMA 2008, pp. 74-75.
[46] RIZZO 1983, pp. 225-230.

style, probably likely associated with a partial reconfiguration of the building's function, which dated to the Late Augustan age. [47]

The identification of the space as an *Auditorium* was strengthened by the discovery of several verses of Callimachus' Epigram 42 (fig. 12), preserved in the *Greek Anthology* (XII, 118).

"If of my free will, Archinus, I serenaded thee, blame me ten thousand times; but if I came unwillingly, away with rashness! Wine and Love constrained me; whereof the one dragged me, the other allowed me not to away with rashness. And when I came, I did not shout thine or thy father's name, but kissed the doorpost. If this be wrong, then I have done wrong".[48]

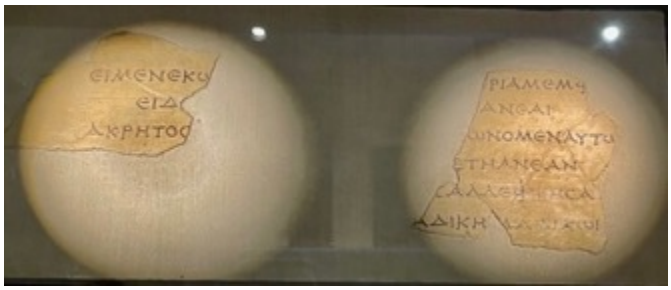

Fig. 12: Epigram by Callimachus, from the Horti Maecenatiani,on the outer wall of the Auditorium.
Rome, Musei Capitolini, Palazzo dei Conservatori, Horti Maecenatis hall, self-produced image.

It is an erudite citation that leaves no room for doubts since the articulated architectural layout of the hall corresponds closely to a *triclinium*. Yet these verses also reveal the multifaced function that the monument must originally have fulfilled, with purposes extending beyond banqueting. The space likely hosted the circle of intellectuals for whom Maecenas acted as *patronus*, functioning not only as a place for convivial gatherings but also, and perhaps primarily, as a setting for sophisticated literary and philosophical conversation. [49]

1.3.2. Horti Lamiani and Maiani

The urban transformation initiated by Maecenas defined a profound turning point on the Esquiline Hill. Other members decided to build sumptuous residences,

[47] De Vos 1999, pp. 74-75.
[48] https://www.attalus.org/poetry/callimachus2.html#42.
[49] Cima 2008, pp. 77-78.

such as the *Horti Lamiani*, situated in the modern Piazza Dante and around Piazza Vittorio Emanuele II, originally owned by *Lucius Aelius Lamia.* [50]

After the death of their respective owners, both the *Horti Maecenatis* and *Horti Lamiani* fell into Imperial ownership. The former was reportedly bequeathed to Augustus as a gift, probably in the late 1st century BC or early 1st century AD, while the circumstances surrounding the Lamian estate are less clear. It is commonly assumed that Lamia's property passed to Tiberius by inheritance, and in any case both estates were absorbed into the *patrimonium Caesaris* under Caligula between 38 and 39 AD. [51] During the same years Caligula initiated the construction of the aqueducts *Anio Novus* and *Aqua Claudia,* which were later completed by emperor Claudius. [52]

Strictly connected to the *Lamiani* were the *Horti Maiani*, which likely occupied the southern sector of the modern Piazza Vittorio Emanuele II. Their topographical and administrative proximity is confirmed by a 2nd century AD epigraphic evidence mentioning a joint imperial procurator for both estates (*proc. Maianorum et Lamianorum*). [53] Originally belonging to the *gens Maiana*, they were absorbed into the imperial property, likely under Caligula.

Under Severus Alexander, the *Horti Lamiani* became private property of the emperor. He promoted the construction of a monumental fountain known as *nymphaeum Alexandri,* now traditionally but erroneously referred to as the "Trophies of Marius", due to the two Domitian-era marble trophies placed on the structure, still visible in the medieval period. [54] The structure is a fountain serving as a *terminus* for an aqueduct, commemorated on coins of the 226 AD. It features four stories developed on four levels, with water cascaded forming small waterfalls on the lower three. The fourth level was the stage for a sculptural group displaying

[50] CIMA DI PUOLO 1996, p. 61.
[51] MANCIOLI, RIZZO 1983, p. 196.
[52] RICHARDSON 1992, pp. 11 and 16.
[53] CIMA DI PUOLO 1996, p. 62.
[54] CATTALINI, TEDESCHI GRISANTI 1983, p. 181.

images of the emperor and his wife *Sallustia Orbiana*, together with the representation of *Oceanus.* [55]

1.3.3. Horti Liciniani

Simultaneously, the Esquiline was dominated by the *Horti Liciniani*, which area probably belonged to the *Licinii* since the late Republic, as suggested by a columbarium near Santa Bibiana and an inscription near Santa Croce in Gerusalemme. [56] To understand the central role of this Horti in the emperor's strategy of ruling, on the *Porta Esquilina*, restored and monumentalized by Augustus, was added an inscription dedicated to the emperor *Publius Licinio Gallienus* and his wife *Cornelia Salonina*. The arch was presumably embellished with the statue of the imperial couple, made by Aurelius Victor, a frequent visitor of the *Horti Liciniani*.

Further defining this estate, a votive deposit was uncovered on the eastern slopes of Oppius Hill, in the area of the *Horti Liciniani*, notably a lamp fragment bearing the name of Minerva [57], which confirmed the presence of a sanctuary – later though wrongly called the Temple of Minerva Medica, due to the erroneous belief that the *Athena Giustiniani* would have been found in the proximity of the monument. The structure dates back to the 4th century AD, it presents a decagonal plan with a dome as cover with oculus. On each side, except the one of the entrance, was carved to welcome niches functioning as windows to bring light inside the room. Scholars later proposed the identification as the *Nymphaeum* of the *Horti Liciniani,* [58] Later on, along the Aurelian walls, halfway between *Porta Tiburtina* and *Porta Praenestina*, a small gate was opened which likely gave access to the *Horti,* since the road that passed through the gate lead directly to the Licinian *Nymphaeum*.

[55] COARELLI 2012, p. 257.
[56] RIZZO 1996, pp. 64-65.
[57] GATTI LO GUZZO 1978, p. 14.
[58] GATTI 1996, p. 66.

1.3.4. Horti Tauriani

The complex of the *Horti Tauriani* was likely established during the Augustan age, when the land was granted by Augustus to his loyal general T. Statilius Taurus (consul in 37 and 26 BC). the history of the estate ended dramatically in 53 AD, when Iulia Agrippina, the wife of Emperor Claudius, desiring the immense wealth and the gardens, she made him accused of *repetundae* and *magicae superstitiones*. To avoid a shameful sentence, Statilius committed suicide in 53 AD, and the gardens were confiscated into the *patrimonium Principis* (Tac. *Ann*. 12, 59). [59] Subsequently, the land was likely divided and reassigned to powerful imperial freedmen, such as Pallas (*Horti Pallantiani*) and Epaphroditus (*Horti Epaphrotidiani*). The memory of the family persisted into the Middle Ages, as the area around Porta Tiburtina was known as *Forum Tauri* or *Caput Tauri*, a toponym likely derived either from the ancient owners or from the bull skulls decorating the Augustan arch. [60]

Regarding their topography, while traditional scholarship placed the gardens in the south-eastern sector extending towards Porta Maggiore – relying on the presence of the *monumentum familiae Statiliorum* – recent archaeological evidence suggests a more restricted location. The gardens likely occupied the area north-west of the ancient *Tiburtina Vetus* road, near the church of Sant' Eusebio. [61] This theory is supported by the discovery in 1873 of two travertine boundary stones (*cippi*) bearing the inscription *CIPPI HI FINIUNT HORTOS CALYCLAN(OS) ET TAURIANOS*, which marked the division between the property of the Statilii and the adjacent *Horti Calyclani*. [62] Further confirmation comes from lead water pipes (*fistulae*) stamped with the family name found in the

[59] PAPI 1996, p.85.
[60] DE ROSSI, GATTI 1890, pp. 280-283.
[61] D'ANDREA 2021, pp. 152-153.
[62] LANCIANI 1874, p. 57; VISCONTI 1875, pp. 153-154.

same area, alongside remains of *opus reticolatum* structures, nymphaea, and neo-Attic reliefs. [63]

1.3.5. Horti Epaphroditiani and Pallantiani

The *Horti Epaphrotidiani* and the *Horti Pallantiani*, situated in the easternmost sector of the district near the area of *Spes Vetus* (Modern Porta Maggiore), were likely established through the dismantling and redistribution of earlier properties, especially the *Horti Tauriani*, following their confiscation by Agrippina in 53 AD.

From a socio-political perspective, the assignment of these lands to powerful imperial freedmen marks a significant shift in the balance of power within Rome. The *Horti Pallantiani* belonged to M. Antonius Pallas, the enormously wealthy secretary a *rationibus* under Claudius and Nero. His estate is explicitly mentioned by Frontinus (*Frontin*. *De aq.* 19-20) in relation to the maintenance of the *rivus Herculaneus* and the *Aqua Claudia,* indicating that the property extended towards the Caelian hill and the Porta Caelimontata. [64]

Contiguous to Pallas' estate were the *Horti Epaphrotidiani*, owned by Epaphroditus, the powerful secretary *a libellis* and *viator* who served under Nero, Vespasian, and Domitian. The proof of the existence of properties belonging to the imperial freedman Epaphroditus came to light in 1913 in the area of the Temple of Minerva Medica, between Via Giolitti and Via Pietro Micca: a monumental marble inscription dedicated to the freedman, remembered as *Augusti libertus*. The recent analysis of an unpublished excavation notes, found in the Gatti Archive, made it possible to identify the tomb of the character mentioned in the inscription with the remains of a quadrangular base found a short distance away, during the same excavation campaign of 1913. The dimensions of the structure were perfectly suited to accommodate an epigraph that had to exceed five meters in length. [65]

[63] LANCIANI 1880, p. 219, nr. 49.
[64] MANICIOLI 1996, p. 77.
[65] D'ANDREA 2021, pp. 199-200.

Eventually, the same lucky imperial freedmen were victims respectively of Nero (who killed Pallas in 62 AD), and Domitian (who in 91 AD had Epaphroditus banned and then assassinated). The history of these gardens, assigned by the emperors to their own men and in turn the object of violent confiscations, offers eloquent proof of the market value and political significance of the Roman gardens. [66]

1.4. Late Antiquity: cults, residences, and the Christian shift

In the middle of the 4th century A.D., according to the regional catalogues, the *Esquiliae* region was divided into 15 *vici* (neighbourhoods) with 15 *aediculae* (sacred small temples), 3,850 *insulae* (residential blocks), 180 *domus* (patrician houses), 22 *horrea* (warehouses), 75 *balnea* (thermal baths), 74 *laci* (fountains) and 15 *pistrina* (mills). [67]

The Esquiline Hill, especially during the Late Antique period, is the place where buildings dedicated to foreign cults flourished, partly because it was distant from the city's traditional temples and from the official religious and political headquarters. A great example is the temple of *Isis and Serapis*, a cult spread since the republican times. [68] The period also saw the development of elaborate funerary complexes, such as the *hypogeum* of the *Aurelii*, unearthed by archeologists along the ancient Via Labicana, identified via mosaic inscriptions in its burial chambers. This funerary complex is dated between the reigns of Caracalla and Gallienus (early mid 3rd century AD). [69]

Despite the hill's eventual abandonment due to barbaric invasions and the final suppression of pagan worship under Theodosius at the end of the 4th century AD, the Cispius Hill maintained his residential function. [70] The area was inhabited by the most prominent members of the city, such as *Iunius Bassus*, possibly consul

[66] D'ANDREA 2018, pp. 202-207.
[67] VALENTINI, ZUCCHETTI 1940, pp. 63-188.
[68] MERRIL 1920, p. 202.
[69] TOYNBEE 1971, pp. 199-212.
[70] SEVERINO 2019, pp. 9-11.

of 331 AD. His house was located between the Basilica of Santa Maria Maggiore and the *Macellum Liviae*. Only an apsidal room with decoration in *opus sectile* survives, with four preserved panels depicting hunting scenes and circus races. [71] After first half of the 5th century, the residence fell into the hands of a Romanized goth named Valila, who will donate the property to Pope Simplicius, who converted it into the church of Sant'Andrea. [72]

The Esquiline Hill offered a favorable context for the spread of Christian ecclesiastic architecture. A remarkable example is the basilica of Santa Croce in Gerusalemme, established inside the borders of the *Horti Spei Veteris*. [73] The complex originated as an imperial villa begun under Septimius Severus and completed by Caracalla and Elagabalus. [74] In the early 3rd century AD, the Emperor Elagabalus, a true enthusiast of games and chariot races, commissioned the construction of the Circus Varianus, a monumental venue comparable in size to the Circus Maximus. He further erected a temple wide and rich, to house the cult statue of the *Sol Invictus Elagabalus*, periodically transferred in ceremonial processions. [75] The close spatial relationship between the imperial palace and the

Fig. 8: plant of the Circus Varianus cut by the Aurelian walls, after https://repositar.archeositarproject.it/ui/map?

[71] FRAIOLI 2012, p. 337.
[72] KRAUTHEIMER 1937, p.65.
[73] BARBERA 2010, pp. 98-99.
[74] COARELLI 1996, p. 85.
[75] Dio Cass. (HR LXXX, 11-12): "I will not describe the barbaric chants which Sardanapalus, together with his mother and grandmother, chanted to Elagabalus, or the secret sacrifices that he offered to him, slaying boys and using charms, in fact actually shutting up alive in the god's temple a lion, a monkey, and a snake, and throwing in among them human genitals, and practicing other unholy rites, while he invariably wore innumerable amulets. But, to pass over these matters, he went to the extreme absurdity of courting a wife for Elagabalus — as if the god had any need of marriage and children! And, as such a wife might be neither poor nor low-born, he chose the Carthaginian Urania, summoned her thence, and established her in the palace; and he collected wedding gifts for her from all his subjects, as he had done in the case of his own wives. Now all these presents that were given during his lifetime were reclaimed later; as for the dowry,

circus, mirrored that between the Palatine buildings and the Circus Maximus. After Elagabalus' assassination in 222 AD by the Praetorian Guard, the property of the *Horti* was later bisected during the construction of the Aurelian walls, with portions of the villa incorporated into the fortifications for defensive purposes (fig. 8). [76]

Subsequently, at the beginning of the 4th century AD, more specific between 317 and 324 AD, the Imperial complex underwent a transformation into the *Palatium Sessorianum*, initially intended to be the residence of emperor Constantine at Rome, but which later became the permanent residence of his mother, Helena Augusta. [77] The Palatium was a multifunctional complex, divided into three distinct parts: the imperial apartments, a section dedicated to public use, and the residential quarters for the court. At the core of the monumental sector stood a civil basilica, and the palatine chapel – adapted from the villa's monumental atrium and identified with the Basilica of Santa Croce in Gerusalemme. [78]

1.5. The medieval times

If during the Late Antiquity Rome experienced the first changes in the organization of the territory, the Middle Ages brought about a far more radical shift, with many districts being abandoned in favor of areas closer to the river due to famine. Consequently, the Esquiline returned to be an isolated periphery. Furthermore, throughout the 7th and the 11th century, the area was divided between the *regiones II, III,* and *IV*. Within this fragmented territory, new divisions began to take shape, including the *campus Sanctae Agathae*, located between the *castra Praetoria* and the *Porta Tiburtina*, the *regio massae Iulianae*, roughly corresponding to the area around today's Piazza Vittorio, straddling the ancient

he declared that he had received none from her, except two gold lions which was accordingly melted down" (FOSTER 1927, pp. 460-461).
[76] GUIDOBALDI 1999, p. 305.
[77] COLLI 1996, p. 773.
[78] BORGIA, COLLI, PALLADINO, PATERNA 2008, p. 35.

route of the via Labicana and the church of saint Bibiana, and the *regio ad Caput Tauri*, situated opposite to the *Porta Tiburtina*. [79]

The strongest architectural footprint was given by the presence of numerous churches and buildings related to the Christian cult. Among the most notable monuments is the Basilica of Santa Maria Maggiore, founded in 356 AD. According to tradition, the birth of the basilica is linked to a miraculous event: a snowfall in august on the Cispius, one of the tops of the Esquiline Hill. [80] Another important site is the basilica of Santa Prassede, which traces its origins to the 1st – 2nd centuries AD: According to the early Christian tradition, the Roman senator *Pudens*, converted by the preaching of Saint Peter, hosted the apostle in his *domus*, which subsequently served as a clandestine place of worship – an early example of a *domus ecclesiae*. [81] Not long afterwards the man was martyrized, his two daughters, *Praxedes* and *Pudentiana*, built a baptistery near the house and baptized whoever wanted to receive it. After the death of *Pudentiana*, *Praxedes* built a new church, but in this period broke up the Antonine persecution and it was a massacre. [82]

The church of the Santi Vito e Modesto is a further reference point for the memories of martyrdom, due to the presence of the so-called *petra scelerata* (wicked stone), believed to be the place where heads of Christians were cut. [83] The name derives from an earlier tradition recorded in the *Passio ss. Eusebi, Marcellii et sociorum*, (dated at the beginning of the VII century), which located another *petra scelerata* near the Colosseum, where executions were said to have taken place. The Roman sepulchral epitaph housed in the church, dates only to the time of Sixtus IV, suggesting that the cult of *petra scelerata* in San Vito emerged only starting from the 1477. [84]

[79] De Spirito 1995, pp. 234-235.
[80] Anselmi 1990, p. 64.
[81] Pietri 1978, p. 11.
[82] Corbett, Frankl, Krautheimer 1967, p. 252.
[83] Odescalchi 1837, p. 9.
[84] De Spirito 1999, pp. 80-81.

By the 12th century, the Esquiline consisted of a network of churches, narrow streets, modest houses, and remnants of ancient *Horti*. The area's isolation and air quality were key factors that led to the construction of numerous hospital facilities, such as the Church of Saint Anthony, dedicated to the treatment of Saint Anthony's fire. [85]

After the Avignon Papacy (1309-1377) and the growing prominence of the Vatican area disadvantaging the Lateran one, Pope Sixtus V (Felice Peretti) undertook a major urban renewal of the Esquiline in the late 16th century. In 1589 he restored the ancient Aqua Alexandrina (later known as the *Aqua Felix*), channeling water from Palestrina to the eastern hills of Rome, thereby revitalizing the district. [86] This reorganization involved building new streets – Via Merulana, Via di Santa Croce in Gerusalemme, Via Quattro Fontane – that connected the major basilicas. Critically for the project's historical context, this development created ideal conditions for transforming the former *Horti* into extensive estates serving as suburban villas for cardinals and aristocrats – a trend that flourished throughout the 16th century. [87]

However, between the 17th and early 19th centuries, the maintenance costs of these villas – isolated from the urban core and economically unproductive – led to their progressive abandonment, and conversion to agricultural use. The only exception was Villa Wolkonskij, established around the Lateran since 1830, becoming the summer villa of the homonym family. [88]

1.6. Before the unification of Italy in 1861

The Esquiline, having been revitalized by papal urban planning, was structured around its main axes: the Via di Santa Croce in Gerusalemme, and the newly opened Via Merulana. The area surrounding the basilica of Santa Maria Maggiore was reshaped through improvements initiated in the late 16th century by Popes

[85] ARMELLINI 1891, pp. 813-815.
[86] MANTELLI, TEMPORELLI 2007, p. 78.
[87] SEVERINO 2019B, pp. 33-36.
[88] ZACCAGNINI 1976, pp. 291-297.

Gregorius XIII Boncompagni, and Sistus V Peretti, later completed by Paul V Borghese (fig. 9). [89]

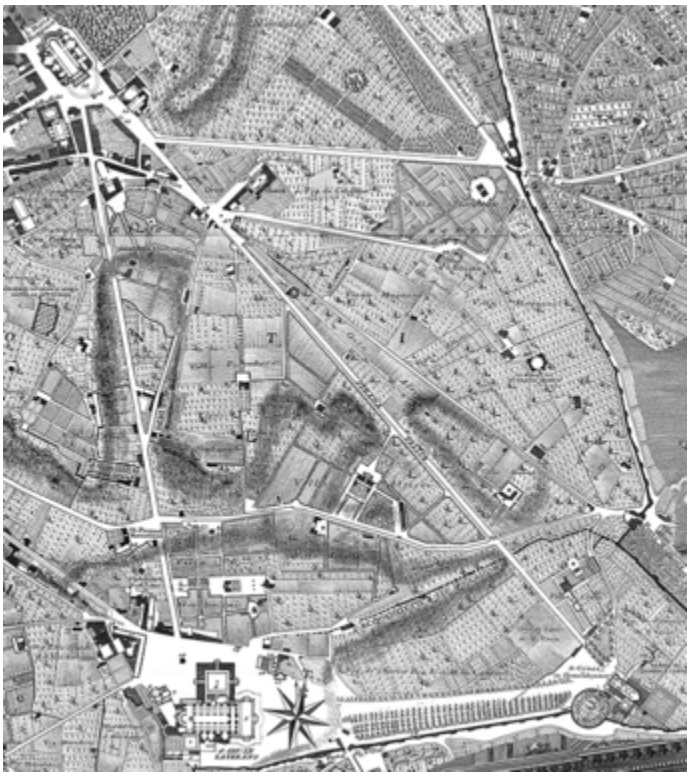

fig. 9: area of Santa Maria Maggiore after the creation of the radial system, after https://www.info.roma.it/pianta_di_roma_1748_giovan_battista_nolli.asp

Pope Gregory XIII initially oversaw the creation of Via Merulana nuova (renaming it Via Gregoriana), linking San Giovanni in Laterano to Santa Maria Maggiore. Crucially, Pope Sixtus V commissioned Domenico Fontana to establish the axis connecting Trinità dei Monti, the Liberian Basilica, and Santa Croce in Gerusalemme. Later, Paul V Borghese completed this urban scheme by regulating the north side of the square and opening new streets (such as Via Graziosa, Via Paradisi, and Via Paolina). These interventions mitigated the sharp topographical gradient, making the surrounding areas suitable for construction. The resulting radial system, attested between Santa Maria Maggiore and the Trophies of Marius, functioned as a rational system of exit from the city, directing urban routes towards the Aurelian Walls and its major gates (fig. 8). [90]

[89] SEVERINO 2019, p. 24.
[90] SEVERINO 2019, p. 37.

The Esquiline's limits were also defined by the Aurelian walls (270 AD) and its gates: Porta San Lorenzo, Porta Maggiore, and Porta San Giovanni. By modern times, these gates lost any defensive value, due to the weakened conditions of the walls, lacking slits, drawbridges, pits, gunboats. Instead, they functioned as fiscal checkpoints for incoming goods. [91] Under Pope Pius IX Mastai Ferretti, in 1846, a broad restoration program of the city walls was promoted as part of a wider urban embellishment effort.

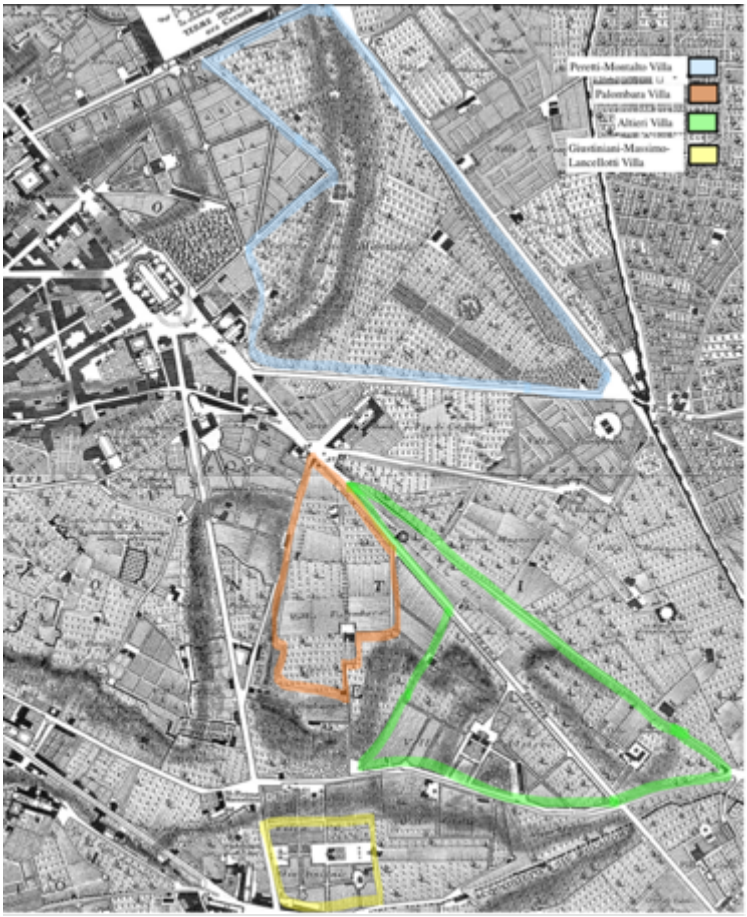

Fig. 13: location of the major Villas on the Esquiline, based on the map of G. B. Nolli after https://www.info.roma.it/pianta_di_roma_1748_giovan_battista_nolli.asp

The existence of ancient *Horti* on the Esquiline was already well known in the 16th and 17th centuries, when the area – still largely unbuilt and characterized by vineyards, cultivated fields and the imposing remains of Roman aqueducts, towers and rural structures – became the chosen setting for several patrician villas.

[91] INDRAWAN, PRILIANA 2024, pp. 4 and 6.

Apart from the major basilicas of Santa Maria Maggiore, San Giovanni in Laterano, and Santa Croce in Gerusalemme, the hill was sparsely populated. The development of these aristocratic estates reflects a renewed interest in the topography of the ancient city (fig. 13). [92]

Above the most important ones there was Villa Palombara, named after Oddone Palombara, who acquired its original nucleus in 1620, was entirely demolished to construct the modern Piazza Dante and Piazza Vittorio Emanuele II. The estate used to occupy the area between Via San Felice, Via Merulana, the church of Sant'Eusebio, and Via Labicana.

The Giustiniani-Massimo-Lancellotti Villa, bought in 1605 by Marquis Vincenzo Giustiniani, used to occupy the nowadays Via Labicana, Via Tasso and Piazza San Giovanni.

The most extensive estate was undoubtedly Peretti–Montalto Villa, considered as the most representative and best preserved of the Esquiline villas until its demolition. Commissioned by Felice Peretti (later Pope Sixtus V), the property stretched from Via del Viminale to Porta San Lorenzo and from Via Marsala to Via Depretis, encompassing a remarkably large and topographically complex area. Its celebrated "secret gardens" contributed to the villa's celebrity. Following the pope's death, the estate underwent an extended phase of abandonment before being completely removed during the redevelopment associated with the construction of Termini railway station. Only the so-called "Prison Fountain" survives today. [93]

Another major complex was Altieri Villa, located in the area limited by Via Emanuele Filiberto, Via Statilia, and Via Manzoni, between the Esquiline and the *Porta San Giovanni.* Wanted by Cardinal Emilio Altieri, nowadays it remains only

[92] CARDILLI ALLIASI 1983, p. 253.
[93] ZACCAGNINI 1976, pp. 115-117.

the casino. It disappeared also the famous labyrinth, constituting the originality of the villa. [94]

These Villas represent the culmination of a long process of development, expansion, and transformation of the Esquiline landscape. The gardens of antiquity had already attracted attention during the Renaissance, serving not only as inspirational models for artists but also as references for patrons eager to revive the ideals, aesthetics, and prestige associated with the ancient world. From the late 15th century onward, Rome witnessed an increasingly deliberate interaction between ancient remains and contemporary architectural experimentation. This dialogue often involved the reuse and the reinterpretation of ancient structures. For instance, the Soderini Garden was arranged over the Mausoleum of Augustus (fig. 14), whose circular form was exploited to shape a geometric layout, producing a roof garden organized around a central plan. [95]

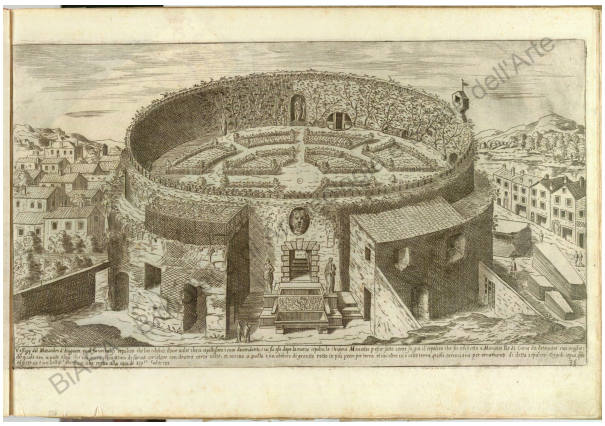

Fig. 14: E. Dupérac, Solderini Garden upon the Mausoleum of Augustus, after http://www.archeologica.librari.beniculturali.it/index.php?it/253/museum-iconographicum-db-incisioni/db_incisioni/8309

Therefore, through the 17th century, villas belonging to the Astalli, Altieri, Giustiniani, Palombara and d'Aste were established. The most extensive villa within the Aurelian walls was the Peretti-Montalto-Massimo Villa, which extended from the Diocletian baths to the west reaching the basilica of Santa Maria

[94] ZACCAGNINI 1976, pp. 152-153.
[95] MAZZETTI DI PIETRALATA 2012, p. 107.

Maggiore and to the east delimited by the San Lorenzo Gate. [96] Another significant Villa previously mentioned was Wolkonskij Villa, adjoining the Astalli Villa, near via Labicana, the Via di Santa Croce in Gerusalemme and the road connecting the homonym church with the Lateran. It is the last aristocratic Villa to be built in this area, belonging in the 1862 to the prince Alessandro Wolkonskij. [97]

Crucially, these large villas were situated directly above the former Roman Horti and the Necropolis fill, meaning the vast majority of the Esquiline's archaeological history was sealed beneath manicured Renaissance gardens, awaiting the hammer and spade of the post-Unification construction boom.

1.7. The Post-1870 Excavations and the Corpus of Findings

The establishment of the Commissione Archeologica Comunale di Roma marked the beginning of a systematic effort to document archaeological findings as excavations progressed. However, as Rodolfo Lanciani himself admits, keeping track of all the simultaneous construction sites demonstrated extremely difficult. Excavations frequently took place without the Commission's supervision – not out of deliberate omission but due to a lack of qualified staff able to supervise the work and document the structures before they were demolished. [98] From its first meetings, the Commission decided to publish a monthly report in the Bullettino della Commissione Archeologica Comunale di Roma ("BCom") to report its activities to the municipal administration, the citizens, and archaeologists, who were following the new discoveries with great interest. The journal was therefore designed to feature detailed descriptions of new findings, alongside updates on acquisitions and donations intended to enrich the Capitoline Museums' art collections. [99]

This research focuses specifically on the discoveries made in the Esquiline area, supporting the project's principal scope. The massive land leveling required

[96] SEVERINO 2019, p. 53.
[97] ZACCAGNINI 1976, pp. 234-236.
[98] LANCIANI 1890, pp. XI-XII.
[99] LANCIANI 1872, p. 4.

to plan the new district's road network led to the accidental discovery of a vast necropolis. The wide variety of tombs and grave good found here allowed scholars to identify multiple phases of use, spanning from the early 8th century BC to almost the 2nd century BC (see section 1.1.1.). Later, the land reclamation and artificial elevation carried out during the Augustan age completely transformed the Esquiline. In the imperial era, it became an exclusive residential district, dominated by the *Horti*, and villas discussed earlier. The purpose of this section is to provide a synthesis of the most significant Esquiline discoveries, supported by the cross-referencing of historical excavation reports, the consultation of digital archives, and a direct, systematic survey of the artifacts conducted *in situ* across Rome's major museums collections.

The extraordinary collections housed in the Capitoline Museums, Palazzo dei Conservatori, is essential to inaugurate this overview. [100] It is impossible to list all the masterpieces displayed, therefore a small selection of sculptures has been made to picture the richness of the Esquiline area. Primary in importance and fame is the magnificent Esquiline Venus (MC 1141), brought to light in 1874 in the area of *Horti Lamiani*. Two massive Torsos of a Triton or marine Centaur (MC 1119-1121) and the iconic Bust of Commodus as Hercules (MC 1120) belong to the same *Horti* as the Venus but were found in an underground chamber beneath piazza Vittorio Emanuele II, suggesting a deliberate attempt to hide the artwork in antiquity. [101]

The statuary complex originating from the *Horti Maecenatis*, largely recovered near the so-called Auditorium, is extraordinary as well. Belonging to this sector are the Statue of Marsyas (MC 1077), found in 1876 in Via Merulana; [102] the realistic marble Statue of a Dog (MC 1110), unearthed in 1877; [103] the refined drinking-horn fountain (*rhyton*) signed by Greek artist Pontios (MC 1101),

[100] https://www.museicapitolini.org/it/percorsi/percorsi_per_sale/museo_del_palazzo_dei_conservatori.
[101] VISCONTI 1874, pp. 245-250.
[102] VISCONTI 1876, pp. 215-216.
[103] https://www.museicapitolini.org/it/percorsi/percorsi_per_sale/museo_del_palazzo_dei_conservatori/sale_degli_horti_di_mecenate/statua_di_cane.

found in 1874. [104] Further testifying to the *luxuria* and the rich decorative apparatus of these residences are, finally, the statue of a fighting Hercules (MC 1088), which emerged in 1873 from Via Buonarroti, [105] and the monumental crater-shaped fountain decorated with the relief of the wedding of Paris and Helen (MC 1200), discovered in 1872 during investigations in the ancient area of the *Horti Tauriani-Vettiani.* [106]

The Centrale Montemartini, the second pole of the Capitoline Museums, housed another remarkable concentration of these artifacts. [107] Among its most prominent holdings are the late 19th-century discoveries such as the fresco depicting a military scene from the *Fabii* tomb (MC 1025), unearthed in 1875 near the church of Sant'Eusebio of Via Napoleone III, [108] and the contemporary paintings from the Arieti tomb (MC 2458-2459-2460-2461), found near the *Porta Esquilina*. The collection also features the case with a double-sloping lid (AntCom00455), recovered in 1888 near Piazza Vittorio Emanuele II. [109] Sculptural highlights include the Statue of a seated Maiden (MC 1107), found in 1879 near the so-called Temple of Minerva Medica, and the statue of the Muse Polymnia (MC 2135), discovered in 1928, on Via Terni within the ancient boundaries of the *Horti Spei Veteris*. [110] These masterpieces represent only a fraction of the funerary monuments, imperial portraits, and cinerary urns currently on display (for a comprehensive overview see *List 1*).

The collection at the Museo Nazionale Romano, Palazzo Massimo is equally impressive, [111] which houses extraordinary artifacts form the Esquiline's aristocratic residences, most notably the Lancellotti Discobolus (Inv. 126371), discovered in 1781 at Villa Palombara, and the parietal fresco depicting Ulysses

[104] VISCONTI 1875, pp. 119-120.
[105] https://www.museicapitolini.org/it/percorsi/percorsi_per_sale/museo_del_palazzo_dei_conservatori/sale_degli_horti_di_mecenate/statua_di_ercole_combattente.
[106] CAETANI LOVATELLI 1880, p. 119.
[107] https://www.centralemontemartini.org/en/collezioni/tutte_le_opere.
[108] VISCONTI 1889, pp. 340-350.
[109] GATTI 1888, p. 76.
[110] MUSTILLI 1928, pp. 173-185.
[111] https://mnrdigitale.cultura.gov.it/it/29/ricerca/iccd/?filter_TSK=RA&search=Esquilino&facet%5B0%5D=LDCN_ss%3A%22Museo+Nazionale+Romano%2C+Palazzo+Massimo%22.

and the Sirens, originating from the famous *domus* of Via Graziosa. [112] Furthermore, the museum preserves the pictorial friezes from the Esquiline's columbarium, found in 1875 on Via Principe Eugenio, [113] divided into four panels:

- (Inv. 1286) three mythological scenes: the imprisonment of Rhea Silvia; the exhibition of the twins on the banks of the Tiber; the prodigy of Lupercale with Romulus and Remus shepherds.
- (Inv. 1287) three mythological scenes: the consecration of Rhea Silvia as a vestal; the love encounter between the nymph and Mars; the death sentence of Rhea Silvia.
- (Inv. 1288) two mythological scenes: foundation of Lavinio; a fight between Latins and Rutules.
- (Inv. 1289) six mythological scenes: the victory of Aeneas; the escape of the Rutuli; the peace; the foundation of Alba Longa; Ascanio gives up Lavinio to his mother.

(For a comprehensive overview see *List 2*).

Finally, the epigraphic section at the Museo Nazionale Romano, Terme di Diocleziano, [114] safeguards crucial textual and religious testimonies from the district. Significant findings include an inscription recording an association of singers and actors (Inv. 124657), found at the corner of Via di Porta Maggiore and Via Statilia, [115] and a base dedicated to the god of military valor, Honos (Inv. 39890), discovered in 1872-73 on Via XX Settembre, which stands as one of the most ancient epigraphic testimonies of freedmen. [116] Notably, this collection also includes the impressive tomb inscription of the famous imperial freedman Epaphroditus (Inv. 108606), recovered in 1913 in the corner of Via Principessa Margherita (now Via Giolitti) and Via Pietro Micca. [117] Finally, the Epigraphic

[112] The complete cycle can be found in the Vatican Museums, Sala delle Nozze Aldobrandine https://www.museivaticani.va/content/museivaticani/it/collezioni/musei/sala-delle-nozze-aldobrandine/ciclo-con-scene-dell-odissea-da-via-graziosa.html.
[113] https://mnrdigitale.cultura.gov.it/it/ricerca/iccd/626093.
[114] https://mnrdigitale.cultura.gov.it/it/29/ricerca/iccd/?filter_TSK=RA&search=*.
[115] https://mnrdigitale.cultura.gov.it/it/ricerca/iccd/956.
[116] https://mnrdigitale.cultura.gov.it/it/ricerca/iccd/445.
[117] https://mnrdigitale.cultura.gov.it/it/ricerca/iccd/817.

section at the Terme di Diocleziano displays funerary and votive monuments recovered on Via Tasso. Many of these were unearthed between 1885 and 1889 during the excavation conducted by the Compagnia Fondiaria Italiana in the area corresponding to the ancient barracks of the *Equites Singulares*. [118] This specific context yielded a rich epigraphic corpus, including the cinerary altar dedicated by Titus Flavius Chrysippus to his wife Iulia Capriola (Inv. 87), and the cinerary altar of Vitalis (Inv. 74). The religious life of the military camp is documented by a series of votive altars, such as those dedicated to the patron gods of the *Equites Singulares* (Inv. 78170), to *Sabazios* (Inv. 78187), to *Silvanus* (Inv. 72454), and to various other deities (Inv. 78178), as well as an altar dedicated to Jupiter *Dolichenus* (Inv. 78193) (For a comprehensive overview see *List 3*).

1.8. The Esquiline Abroad

During the second half of the 19th century and the early years of the 20th century, the antiquities market held significant economic importance. The interest in artworks, already predominant since the 18th century, was amplified by the sale of vast collections belonging to Italian aristocratic families and by the establishment and expansion of major foreign museums. [119] A testament to the central role of the antiquities trade at the beginning of the 20th century is a letter sent in 1898 by Paolo Orsi to Quintino Quagliati, the superintendent in Taranto: *As for the ownership of the discovered objects, no law assists us; you have the right to see and study said objects, but they belong to the landowner (…) You could veto the building works, but since this would raise infinite troubles, you must reserve the full right to study what is found, and also attempt to acquire at least a small portion of the objects (…) as for the antiquities trade, it cannot be prevented.* [120]

[118] https://mnrdigitale.cultura.gov.it/it/29/ricerca/iccd/?search=equites+singulares.
[119] GATTI 2020, p. 187.
[120] GUZZO 2001, p. 544. Here the original version of the text is provided: "quanto alla proprietà degli oggetti rinvenuti nissuna legge ci aiuta; Ella ha diritto di vedere e studiare detti oggetti, ma essi sono del proprietario (…) Ella potrebbe metter il veto ai lavori edilizi, ma siccome ciò solleverebbe guai infiniti,

Throughout these years, a succession of heritage protection laws was enacted without a coherent logical framework, clearly indicating a state of regulatory hesitation, a lack of a definitive project, and perhaps an absence of genuine political will to enforce true conservation. This vulnerability is evidenced by the continuous illegal exports carried out precisely between the end of the 19th and the beginning of the 20th century. Felice Barnabei, General Director of Antiquities and Fine Arts from 1896 to 1900, fought fiercely against the dispersion of Italy's cultural heritage. In 1902, he promoted the law prohibiting the mass transfer of artworks of significant interest. Subsequently, in 1906, he chaired the Ministerial Commission tasked with drafting a comprehensive heritage protection law, which eventually became the core of the Law No. 364 of 1909. [121]

Article 1 of Law No. 364 of 1909, also known as the Rava-Rosadi Law, states: *Sono soggette alle disposizioni della presente legge le cose immobili e mobili che abbiano interesse storico, archeologico, paletnologico, paleontologico o artistico.* [122] The law takes its name from the then Minister of Public Instruction, Luigi Rava, and the proposing reporter, Giovanni Rosadi. The inalienability of things of historical interest, if belonging to territorial bodies and recognized legal entities, originates precisely with this legislation. The concept of "particular interest" became the discriminating factor for identifying privately owned cultural assets requiring protection, implemented through formal notification to the owners. Simultaneously, the dispositions aimed at conservation were more resolute and extensive compared to previous iterations: the prohibition against demolishing, removing, or modifying protected items, and the obligation for the Ministry to authorize any interventions (Art. 12), applied equally to both publicly owned real estate and for those of private property. [123]

Ella deve riservarsi pieno diritto di studio su quanto si trova, e tentare anche di avere almeno una piccola quota degli oggetti (…) quanto al commercio antiquario non si può impedirlo."

[121] DELPINO 2016, p. 147.

[122] https://www.parcoarcheologicoappiaantica.it/wp-content/uploads/2018/06/L364_1909.pdf p. 3.

[123] RANALDI 2012, pp. 23-25.

1.8.1. British Museum: the Esquiline Treasure

Naturally, this legislation was not retroactive, and could not recover the artworks that had already been exported. Consequently, numerous museums across Europe and beyond currently house artifacts originating from the Esquiline Hill. The first notable example of this dispersion actually predates the massive urban excavation previously stressed. In 1793, routine work at the foot of the Esquiline accidentally uncovered a large collection of late Roman silver vessels. Unfortunately, no original inventory of the discovery survives. The primary contemporary record is an essay by the antiquarian Ennio Quirino Visconti, who discussed in detail only the vessels he considered of major importance. [124]

Visconti used the term "treasure" to describe the deposit, hypothesizing that a private owner had intentionally assembled and hidden the collection. This interpretation formally classified the silver as a hoard, a fact that is still reflected in its enduring conventional name: the Esquiline Treasure. [125] However, scholars don't agree with this definition, since the term "treasure" refers to a collection of items of varying provenance and from different period, some of them inherited, which constitute a financial reserve, buried quickly in the face of imminent threat, and this is not the case; the Esquiline items were made within a brief time span, and twenty-two of them came from the same workshop. The presence of four statuettes depicting the four metropolises of the Empire – Rome, Constantinople, Alexandria, and Antioch – led to place the whole collection in the second half of the 4th century. [126]

Today, the core of the collection, including the iconic Projecta Casket, is housed in the British Museum in London, having been acquired through the collection of the Duc de Blacas (French ambassador to the court of the kingdom of the two Sicilies) in 1866. At that time the hoard underwent through a lot of restoration works, and in some cases even a reconstruction attempt. It is not

[124] PAINTER 2000, p. 140.
[125] SHELTON 1981, p. 13.
[126] SHELTON 1981, p. 76.

possible to determine when the restoration process took place, however it is possible to state that the treasure had definitely been restored in 1827, when a second edition of Visconti's essay carried engravings of the objects as they appear today; in the description of the Projecta Casket, Visconti called it as "partly fragmented", it appeared completely restored and in perfect conditions. [127] (for a comprehensive overview about the collection see *List 4*).

In the same period the British museum bought the treasure from Blacas' collection, a small portion of it, consisting of silver plates and *paterae*, was purchased by the French collector Auguste Dutit. These artifacts were eventually donated to the city of Paris and are now permanently exhibited at the Petit Palais. [128]

1.8.2. Ny Carlsberg Glyptotek: the Aphrodisias Statues

The formation of the collection at the Ny Carlsberg Glyptotek in Copenhagen is a prominent example of how foreign agents capitalized on the lack of strict export regulation during the post-1870 urban expansion. The Danish brewing magnate Carl Jacobsen, relying on the expertise of the German archaeologist Wolfgang Helbig as his intermediary in Rome, systematically acquired high-quality statues directly from the Esquiline construction sites. Since 1865 Helbig had been the director of the German Archaeological Institute in Rome. He often followed the excavation in person and published them in the papers of the German Archaeological Institute. He acquired for the Glyptotek more than 900 works of art, taking advantage of the Roman Nobel families, gone bankrupt through speculation, and therefore compelled to sell parts of their collections. [129]

The most relevant acquisition is doubtless the Aphrodisias Statues, reduced in pieces of marble as building material in some late antique walls that came to light during the building of a new convent for the Sisters of Cluny near Sette Sale,

[127] SHELTON 1981, pp. 19-21.
[128] https://www.petitpalais.paris.fr/en/oeuvre/esquiline-patera
[129] MOLTESEN 2002, pp. 32-33.

the reservoir of the baths of Titus on the Esquiline Hill. [130] The statues belonging to this group are five, signed by sculptors from Aphrodisias in Asia Minor, and have been dated to the 2nd century AD based on the hair, beards, and the drilled-out eyes:

1. **Satyr with the infant Dionysos** (Fig. 17) The satyr is shown dancing forwards on the tips of his toes with the infant Dionysus sitting on his shoulders, supported by his left hand. The motif of the mature man with the small child on his arm goes back to a statue of Hermes with the infant Dionysus at Olympia. Only part of the inscription is preserved. It is composed of two lines of small letters on the front of the plinth:

   ΦΛ (leaf) ZHNΩN APX[IEPEYΣ KAI ΔIA]
   ΣHMO (tatos) AΦPOΔIΣ[IEYΣ EΠOIEI]

   Flavius Zenon, high priest and 'perfectissimus' of Aphrodisias made (the statue) [131]

2. **Standing man with a Staff** (Zeus/Jupiter?) (Fig. 18) A mature man shown resting on the right leg while the left one is set slightly on the side. The head is turned to the right. It is visible the use of the drilling for the eyes and for accentuating the curls of the hair. The statue type closely resembles Poseidon (Fig. 18) except for his right arm and left foot that rests on the plinth. Of the inscription in the front, it was preserved only the last part:

   [ ] POΔIΣIEYΣ

   ... from Aphrodisias [132]

3. **Poseidon** (Fig. 19) The statue's weight rested on his right leg, his left arm was stretched out to one side, and held a trident whose point can be seen on the plinth by the left foot. The sea monster characterizes the subject as Poseidon. It has lion's paws and finny protuberances on its front. Its head is missing, but the neck is long, and it shows traces of a beard. The *ketos* is

[130] VISCONTI 1886, pp. 322-324.
[131] MOLTESEN 2002 p. 354.
[132] MOLTESEN 2002 pp. 357-358.

often seen as a companion of Poseidon. On the front of the plinth the inscription says:

ΦΛ (leaf) ΧΡΥΣΕΡΟ[Σ ΑΦΡΟ]ΔΕΙΣΙ[ΕΥΣ ΕΠΟΙ]ΕΙ

Flavius Chryseros of Aphrodisias made (this statue). [133]

4. **Helios** (fig. 20) a young man ins shown standing frontally, the weight resting on his left leg, and there stands the frint part of a horse which is rising from the water (indicated by waves). Around his neck he wears a small cloak, which covers the left breast and shoulder, and comes down his back. Around his head he wears a diadem with rays. The statue represents the Sun God with the horse representing his chariot. The inscription on the front of the plinth says:

   ΦΛ (leaf) ΧΡΥΣΕΡΟΣ ΑΦ[ΡΟΔΕΙΣΙΕΥ]Σ ΕΠΟΙΕΙ

   Flavius Crhyseros of Aphrodisias made (this statue) [134]

5. **Herakles** (Figg. 15, 16) A thick-necked man is depicted with ruffled short hair. The wide forehead is marked with deep lines and the eyebrows are arched. The full beard around the slightly open mouth is short and combed forward. The twisted animal's tail suggests that the person is represented in combat likely with a lion. The inscription runs along the front from the big toe of the right foot to beneath the left foot:

   ΖΗ[ΝΩΝ ΑΡΧΙΕΡΕΥΣ ΚΑΙ]ΔΙΑΣΗΙΜΟ

   (tatos) ΑΦ[ΡΟΔΙΣΙΕΥΣ]

   [ΕΠΟΙ]ΕΙ

   Flavius Zenon high priest and 'perfectissimus' from Aphrodisias made (the statue) [135]

[133] MOLTESEN 2002 pp. 362-364.
[134] MOLTESEN 2002 pp. 366-368.
[135] MOLTESEN 2002 p. 360.

Fig. 15 (top left): Statue of a Satyr with the infant Dionysus, after MOLTESEN 2002, p. 355.

Fig. 16 (top right): Statue of a Standing Man with a Staff (Zeus?), after MOLTESEN 2002, p. 357.

Fig. 17 (bottom left): Statue of Poseidon/Neptune, after MOLTESEN 2002, p. 363.

Fig. 18 (bottom right): Statue of Helios/Sol, after MOLTESEN 2002, p. 367.

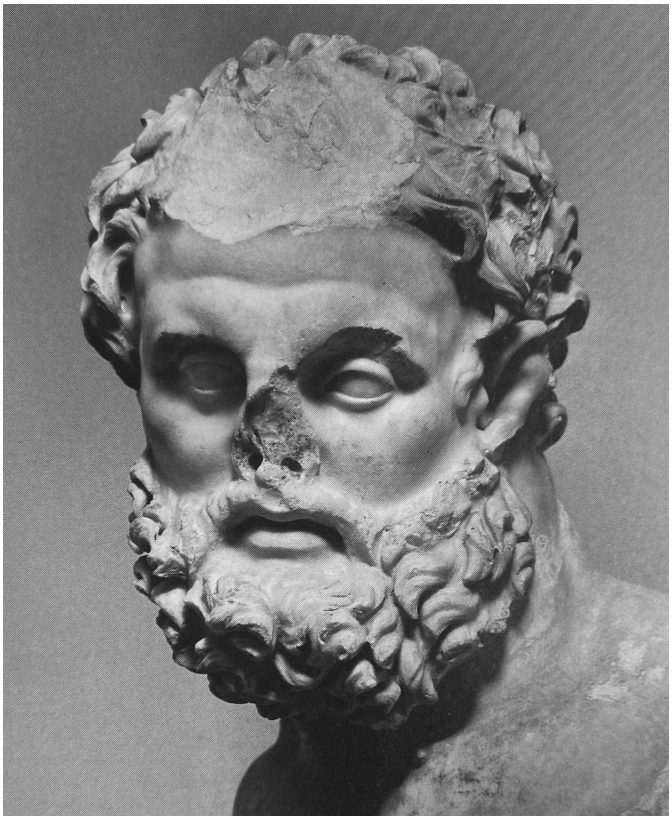

Fig. 19 (left): Head of Herakles' statue, fragmented after the 1949 restoration. MOLTESEN 2002, p. 361.

Fig. 20 (below): Feet of the Herakles' statue, with the detail of the Lion's tail. After MOLTESEN 2002, p. 360

CHAPTER 2
PUBLIC ARCHAEOLOGY AND RELATED WORKS IN THE ROMAN CONTEXT

The chapter provides a comprehensive discussion on the definition of Public Archaeology, tracing its origins, identifying the pioneers who theoretically shaped the discipline, and outlining the necessary conditions for its effective implementation. Subsequently, the analysis shifts to the Italian landscape, illustrating how Public Archaeology has spread universally, becoming an essential link between the academic field and civic society. Particular attention is dedicated to the Roman context, highlighting successful initiatives hosted in the capital.

Given the technological nature of this project, it is essential to define Digital Public Archaeology, a sub-discipline that has gained significant notoriety in recent years. Through a review of existing case studies, the chapter identifies both best practices and current gaps, which the application developed for this thesis aims to address. The focus then narrows to the specific case study of the Esquiline Hill, examining the recent efforts to valorize this fascinating district through seminal events, *in situ* enhancements, community mobilization, and digital tools.

Finally, the discussion concludes by introducing the new app, defining its specific purpose, and positioning it within this dynamic context, already rich in social and cultural initiatives.

2.1 What is Public Archaeology?

The definition of Public Archaeology (PA) is historically rooted in the Anglo-Saxon context, yet it developed along two distinct trajectories in the United States and the United Kingdom. [136] Understanding this dichotomy is essential for positioning the present study within the wider theoretical framework.

[136] MOSHENSKA 2017, p. 21.

In the US, the discipline emerged in the 1970s primarily as a response to legislative requirements for heritage protection. The pioneer in this field is Charles R. McGimsey, who in his volume *Public Archaeology* proposed the identification of the PA with the Cultural Resource Management (CRM). [137] Its primary objective was, and largely remains, the moderation of the impact of modern development on archaeological sites. In this context, the public is engaged primarily to support the preservation of threatened material remains. Consequently, public archaeology in the US is frequently viewed as a technical branch of the discipline focused on compliance and preservation rather than a theoretical critique. Nowadays, McGimsey perspective remains unchanged, focused almost exclusively on protection and education, supported by the federal government and by the single state, emphasizing the top-down approach. [138]

Conversely, the British tradition – which heavily influences this thesis – expanded the scope of the discipline far beyond management. Institutionalized academically at the University College London (UCL) by key figures such as Peter Ucko and Tim Schadla-Hall, the UK approach frames PA as a critical practice. [139] This theoretical maturity was formally consolidated in 2000 with the launch of the journal *Public Archaeology,* first international peer-reviewed publication dedicated entirely to debating the sociopolitical dimensions of the field. Still nowadays the journal includes ground-breaking research and insightful analysis on topics ranging from ethnicity, indigenous archaeology and cultural tourism to archaeological policies, public involvement, and the antiquities trade. [140] Within this framework, Schadla-Hall's seminal definition (1999) fits perfectly, identifying PA as "any area of archaeological activity that interacted or has the potential to interact with the public". [141] Unlike the American model, the British school

[137] LAZZERINI 2019, p. 173.
[138] VOLPE 2020, pp. 25-26.
[139] About the authors see SHADLA-HALL 1999, pp. 147-158; 2006, pp. 75-82; 2011, pp. 99-101; UCKO 1995.
[140] https://www.tandfonline.com/journals/ypua20/about-this-journal#aims-and-scope.
[141] BONACCHI, MOLDUCCI, NUCCIOTTI 2019, p. 12.

emphasizes the political role of archaeology, questioning how the past is constructed, consumed, and often decontextualized by contemporary society.

Generally, PA constitutes that field of studies aiming to further explore the relationship between archaeology and the public, and the relationships between the former and the contemporary society. Key words to this project are sharing, bottom-up participation, and opening, all rooted on principles as crowd, open access and open data. [142] Specifically, the practice of *crowdsourcing*, when applied to scientific research, enables the creation, integration, correction, enrichment, and aggregation of data made available by institutions or private individuals. *Crowdsourcing* facilitates the engagement of different audiences in the management and curation of museum, archive, and library collections, as well as in the generation and utilization of data capable of supporting quantitative analysis in archaeology, potentially spanning extensive geographical contexts and multiple periods. [143]

When *crowdsourcing* allows attracting venture capital online, it is also known as *crowdfunding*, consisting of the principle that the web can be used to involve a crowd of people and convince them to economically support a certain project, and exceptionally, the benefits derived from the implement of this approach overtake its primary financial nature. Consequently, successful crowdfunding operates as a form of digital word-of-mouth (often referred in literature as eWOM), relying heavily on a "two tier" mechanism of social mobilization. The engagement of the "first tier" serves as a catalyst, transforming personal social connection into a disseminating vehicle that extends the project's reach far beyond the promoter's direct sphere of influence ("second tier"). [144]

It is within this critical tradition that the present project operates, aiming not merely to "manage" the Esquiline's heritage, but to critique its historical cancelation.

[142] VOLPE 2020, pp. 18-19.
[143] BONACCHI 2014, pp. 20-21.
[144] BONACCHI, PETT, BEVAN, KEINAN-SCHOONBAERT 2015, p. 185.

2.2 The Italian context: from delay to constitutional mandate

In Italy, the response to Public Archaeology has been slower and more complex, necessitating a specific national declination. While isolated precursors existed – such as the works of De Guio in Padua and Peduto in Salerno [145]– systematic reflection on the relationship between archaeology and civil society only consolidated in the last decade. The first definition of public archaeology in Italy is attributed to Chiara Bonacchi in 2009, outlining the origins and prospects of this emerging field of study. Specifically, she underscored that while Italy lacked a formal theoretical framework, there was a significant body of practical initiatives that could be ascribed to Public Archaeology. [146] The first projects related to Public Archaeology were promoted by the group of the Florence University, led by Guido Vannini, who was in first line for the realization of the exhibition *Da Petra a Shawbak. Archeologia di una frontiera*, [147] in occasion of which a research laboratory was opened, explicitly dedicated to the public archaeology.

Vannini was also the curator of the workshop *Archeologia Pubblica in Toscana. Un Progetto e una proposta,* held in Florence in 2010, considered the first project consciously undertaken in terms of Public Archaeology. The role of PA was pivotal in the design of sensory pathways for the visually impaired (featuring tactile exhibits and Braille guides) and the development of texts developed across different cognitive levels, intended to foster constructivist learning and intergenerational engagement. Furthermore, the initiative functioned as a research laboratory, enabling the quantification of the economic and social impact of the cultural event on the territory through statistical visitor analysis. [148]

These experiences brought to the first *National congress of Public Archaeology*, held in Florence in 2012, considered as the watershed moment for

[145] VANNINI 2019, p. 302.
[146] BONACCHI 2009, pp. 341-343.
[147] VANNINI, NUCCIOTTI 2012, pp. 55-73.
[148] BONACCHI 2011, p. 104.

the discipline in Italy. This event marked the formal entry of PA into the Italian academic debate, moving beyond generic "divulgation". [149] The scientific committee of the congress adapted the British definition to the Italian landscape, stating that Public Archaeology is the disciplinary area that "researches and promotes, on a scientific basis, the relationship that archaeology can establish with civic society".

Crucially, the Italian approach is legally and ethically grounded in Article 9 of the Italian Constitution, which mandates the Republic to promote the development of culture and scientific research while safeguarding the nation's landscape and historical heritage. [150] Consequently, PA in Italy has developed with specific characteristics:

a. Institutional growth: the post-2012 period saw the rise of specialized journals, Universities, courses, and national projects (e.g., PRIN 2015), creating a fragile but growing infrastructure. [151]
b. Valorization and economics: unlike the purely political British approach, Italian Public Archaeology often intertwines with economic development. There is a strong conviction that archaeological research must transform from a public cost into an asset for socio-economic growth and cultural tourism. [152]
c. The limits of multivocality: despite the increase in educational activities and community engagement (e.g. the Poggibonsi Archedrome [153]), critical literature notes that Italian projects often remain top-down. True *multivocality* – the inclusion of diverse, non-expert voices in the interpretation of the past – remains a largely unachieved goal. [154] The project aims to address this gap by providing users with direct access to the raw data of the decontextualization process.

[149] VOLPE 2020, p. 35.
[150] FLICK 2019, p. 36.
[151] VOLPE 2019, p. 84-85.
[152] FLICK 2019, p. 38.
[153] VALENTI 2019, pp. 191-219.
[154] LAZZERINI 2019, pp. 178-181.

The editorial project Archeostorie Magazine edited by Cinzia Dal Maso is worth to be mentioned as an important indicator of this new institutional awareness. Born in 2015 and edited by the archeologist and "archeoblogger" [155] Cinzia Dal Maso, Archeostorie is the first Italian online magazine entirely dedicated to Public Archaeology and the communication of cultural heritage. [156] Unlike traditional journals or archaeological news portals, the magazine does not only report excavation updates but functions as a laboratory for reflection on the modes of narrating the past. Its editorial scope prioritizes storytelling, digital technologies, museum management, and the social impact of heritage, with the specific goal of transforming archaeology from a specialist discipline into "living matter", essential for interpreting the present and envisioning the future.

A significant, and more recent addition to this landscape, is the editorial project *Condividere l'archeologia* (Sharing archaeology), promoted by the Central Institute of Archaeology and published in the latest issues of the *Bollettino di Archeologia Online*. Moving beyond mere data storage, these publications focus specifically on the "narrative power of images", [157] exploring how technical documentation – such as photogrammetry, surveys, and 3D reconstruction – can be transformed into storytelling tools for the public. The debate hosted in these volumes validates the core premise of this thesis: that data transparency is not enough. [158] To truly engage society, archaeological information must be translated into a visual and accessible language.

2.3 Digital Public Archaeology: theory, practice, and the Roman context

Digital Public Archaeology (DPA) is a relatively recent paradigm defining a contemporary practice that encompasses studies and activities reflecting on the

[155] Term coined by herself and explained in an interview with the blog Professione Archeologo, https://www.professionearcheologo.it/il-ritorno-degli-archeoblogger-professione-archeologo-incontra-cinzia-dal-maso/.
[156] https://www.archeostorie.it/chi-siamo/.
[157] About the project see FALCONE 2025 p. 7.
[158] About this topic see FALCONE 2025; CALANDRA 2025; SERLORENZI 2025.

impact of the Internet, web platforms, and digital technologies in engaging individuals with archaeological content. [159] Driven by the rapid evolution of web technologies, DPA has expanded the potential of the discipline, moving beyond dissemination to address broader goals such as maximizing social participation, ensuring transparency through real-time feedback, and analyzing how non-professionals appropriate archaeological resources. [160]

Operationally, DPA functions through two primary models of communication. The first is the **Broadcasting model**, a unidirectional form of communication historically favored by Anglo-Saxon organizations (e.g. podcasts or early informational apps like *Streetmuseum*) which maintains a traditional hierarchical structure. The second, and increasingly dominant, is the **Participatory model**, which aims to actively involve citizens in the creation of data and interpretations. [161] This participatory shift is evident in international crowdsourcing initiatives such as *MicroPasts* (for co-producing open historical data) [162] or *GlobalXplorer* (using satellite imagery for heritage monitoring) [163], as well as in the widespread adoption of the Portable Antiquities Scheme (PAS) in the UK. [164] These projects demonstrate how digital tools can transform the public from passive consumers into active participants in the heritage process.

A successful use of DPA in Italy can be represented with the National Geoportal for Archaeology (GNA). Based on the definition proposed at the opening of the GNA this "constitutes the gathering and sharing point of data online, outcome of the archaeological investigations led on the Italian territory". [165] The GNA was born in response to the historic fragmentation of archaeological data in Italy, with the aim of creating a universal and standardized access point for the consultation and sharing of information about the heritage. [166] The prime

[159] RICHARDSON 2013, p. 1.
[160] BONACCHI 2022, pp. 78-79.
[161] BONACCHI 2017, pp. 66-70.
[162] https://micropasts.org/.
[163] https://scistarter.org/global-xplorer.
[164] https://finds.org.uk/.
[165] CALANDRA 2023, p. 1.
[166] ACCONCIA, BOI, DI GIORGIO, FALCONE, RONZINO 2019, p. 83.

objective was to create a dynamic archaeological map, open access and easily integrable, and strictly intertwined with the evolution of preventive archaeology, a discipline introduced in Italy between 2005 and 2006, which made urgent the necessity of a universal tool for the convergence of territorial data. [167]

The journey has started with the Joint Commissions of 2007 and 2009, which aimed at the creation of a National Archaeological Territorial Informative System (SITAN), with the goal of defining a methodology for territorial data acquisition and elaboration on procedure basis established in a homogeneous way, however without an immediate follow-up. [168] The turning point came with the creation of the Archaeology Central Institute in 2016 (ICA), which in 2017, with a deal between ICA, ICCU and the PIN started the concrete design of the platform. It followed the inclusion of the project into the European project ARIADNEplus (2019-2022), becoming the first platform for the international integration of spatial data, and after years of hard work under the scientific direction of the ICA president Elena Calandra, the portal finally opened in July 2023. [169]

The GNA project is a revolutionary in its own, conceived based on FAIR principles (Findable, Accessible, Interoperable, Reusable), with the aim to make the data not only consultable, but scientifically reusable. [170] Some of the important innovative aspects are:

a. Standardization and regulation: the system is based on the ICCD standards, using the MOPR (project) and MOSI (site) modules to ensure interoperability with the General Catalog of Cultural Heritage. [171]
b. Analysis of user requirements: the design was guided by a survey conducted on experts and officials based on the Cockburn method, from which it

[167] CALANDRA 2023, p. 1.
[168] ACCONCIA, FALCONE, RONZINO 2018, pp. 8-9.
[169] BOI, GABUCCI, MARUCCI 2024, p. 36.
[170] CALANDRA, ACCONCIA, BOI, FALCONE 2021, p. 29.
[171] CALANDRA 2023, p. 2.

emerged that preventive archaeology was the priority area of interest for 60% of respondents. [172]

c. Operational sustainability: to ensure constant updating, data entry is directly entrusted to those who conduct field activities, through an open source QGIS Template, instead of burdening exclusively on ministerial staff. [173]
d. The importance of "negative data": above all, the great difference from other databases is that GNA records interventions with negative outcome, crucial information for territorial planning and preventing the duplication of unnecessary surveys. [174]

While the GNA represents an indispensable infrastructural achievement for protection and research, its technical nature – primarily addressed to professionals, officials, and planners – leaves the "last mile" of the chain uncovered: direct communication to the non-specialist public. It is within this operational space that the application proposed in this thesis is situated. The project does not intend to compete with the GNA or any other DPA related to it, but to integrate it, serving as an experimental interface designed for the common citizen and visitor.

2.3.1 The theoretical Framework: visualization as cognitive tool

Within this landscape, technologies such as 3D visualization, Virtual Reality (VR), and Augmented Reality (AR) have emerged not as a spectacular attractions, but as essential tools for documentation and accessibility. Projects like *HeritageTogether* or the immersive VR experience created by *Wessex Archaeology* allow for the exploration of sites that are otherwise inaccessible due to safety or logistical constrains. [175]

[172] ACCONCIA, BOI, DI GIORGIO, FALCONE, RONZINO 2019, pp. 87-88; about Cockburn method see COCKBURN 2000.
[173] BOI 2021, min. 54:00.
[174] BOI, GABUCCI, MARUCCI 2024, p. 37.
[175] BONACCHI 2022, pp. 82-85.

However, the application of these technologies requires rigorous methodological grounding to avoid the trivialization of history. As established by international guidelines such as London Charter (2009) [176] and the Seville Principles (2011) [177] computer-based visualization must ensure intellectual integrity, transparency, and the documentation of the interpretive process. Following these principles, a digital tool – such as the one proposed in this thesis – helps visualizing the process of historical transformation. In the case of the Esquiline, where the physical context has been obliterated, digital reconstruction serves as a form of "virtual anastylosis", reconnecting dispersed artifacts with their original urban setting in compliance with scientific standards.

2.3.2 The digital turn in Rome: current trends and case studies

In the Italian context, specifically in Rome, DPA is currently undergoing a phase of intense development, characterized by a growing interest in multimedia storytelling to bridge research and valorization. [178] This approach is evident in the proliferation of "site museums" and is supported by major institutional frameworks, such as the PRIN 2015 project *Archeologia al futuro* (coordinated by Roma Tre University), which focuses on multidisciplinary storytelling for sites like the Crypta Balbi and the Aurelian walls. [179] Furthermore, the CHANGES project is currently redesigning methods for the digital transition of cultural heritage, overcoming the traditional separation between archaeology, engineering, and computer science. [180]

Several recent projects in Rome illustrate the state of the art in which this thesis is situated:

- Caput Mundi and the Colosseum HBIM: a monumental project completed in 2025 that created the first complete Heritage Building Information

[176] DENARD 2008, pp. 73-78.
[177] LÓPEZ-MENCHERO, GRANDE 2011, pp. 1-4.
[178] CAMPETELLA 2019, pp. 9-11.
[179] VOLPE 2019, pp. 84-87.
[180] https://www.teleborsa.it/News/2025/12/17/roma-tre-lancia-talk-the-changes-il-podcast-sulla-tecnologia-che-trasforma-il-patrimonio-culturale-157.html.

Modelling (HBIM) database of the Colosseum, integrating topographic and photogrammetric data for the conservation and management. [181]

- Appia Antica 39 project: a participatory excavation initiated in 2022 near the Aurelian Walls. [182] Crucially, its digital extension, Meta Versus Culturae (MVC), allows for immersive VR exploration of the site, serving as a vital historical backup for a context destined to be reburied due to the rising water table. [183] This represents a key precedent for the "digital preservation of the invisible" proposed for the Esquiline.
- Passeggiata al Celio: developed within the CHANGES program, this initiative uses interactive story maps and VR to transform archaeological data into an accessible narrative path on the Caelian Hill. [184]
- Imperial Fora App: developed and launched in 2015, it is an example of AR application that allows users to compare the current state of the ruins with diachronic reconstructions (from 125 AD to 1815). [185]

These case studies testify that digital technologies in Rome are no longer ancillary tools but essential methods for communication and dynamic conservation. The proposed Esquiline application draws from this fertile context, aiming to apply these advanced digital methodologies to a district where the invisible heritage is not just reburied, but historically displaced.

2.4 Public initiatives and the perception of the Esquiline: a Critical overview

The management of the Esquiline's archaeological heritage has undergone a significant evolution from 1870 to the present, mirroring broader shifts in museological and civic sensibilities. Analyzing these initiatives serves not merely

[181] https://www.archaeoreporter.com/it/2025/05/07/il-colosseo-in-3d-completata-in-due-anni-la-digitalizzazione-e-la-modellazione-hbim-del-monumento/.
[182] https://www.instagram.com/appiantica39/. About the excavation see DUBBINI, CLEMENTI, FIANO, LOMBARDI, RIZZO, TURCHETTA 2023, pp. 305-331.
[183] https://metaversusculturae.com/.
[184] https://passeggiatalcelio.it/ilprogetto.html.
[185] https://archeologiavocidalpassato.com/2015/11/24/roma-i-fori-imperiali-vissuti-da-protagonisti-con-la-app-imperial-fora-viaggio-nel-tempo-in-3d-e-in-realta-aumentata-passando-dai-grandi-imperatori-allunita-d/.

to compile a historical inventory, but to highlight how, despite institutional efforts, a profound disconnect remains between the artifacts and their original urban context.

The approach in the initial phase, coinciding with the extensive post-unification earthworks, was strictly preservationist. The establishment of the Commissione Archeologica Comunale (1872) [186] and the opening of the Magazzino Archeologico on the Caelian Hill (1894) [187] responded to the urgent need to rescue objects, inevitably displacing them from a topography in rapid transformation. Although the Municipal Antiquarium attempted to maintain a link with urban history, its enclosure in 1939 marked the beginning of a long period of dispersal and invisibility for the Esquiline contexts. [188]

In the late 20th and early 21st centuries, the strategy shifted toward high-profile, scholarly exhibitions. Seminal events such as *L'archeologia in Roma Capitale* (1983), and, more recently, *Horti di Roma Antica* (2008), and *Roma dei Re* (2019) [189] at the Capitoline Museums, succeeded in restoring historical dignity to the finds. However, the very nature of these "museum-centric" exhibitions unintentionally reinforced the perception of artifacts as isolated masterpieces, observable only within glass cases and detached from the daily reality of the modern district.

Parallel to these events, there have been attempts at *in situ* enhancement, though often fragmented. The opening of the Auditorium of Maecenas (now closed due to the renovation works started in august 2024) [190], the recent restoration of the so-called Trophies of Marius in piazza Vittorio (1981-1988) [191] and the exemplary case of the Nymphaeum Museum at the ENPAM headquarters (2021) – which successfully integrated the remains of the Horti Lamiani into a

[186] PARISI PRESICCE 2024, pp. 1-4.
[187] ARATA, BALISTRERI 2010, p. 269.
[188] VANNINI 2019, p. 275.
[189] About the exhibitions see NICOLINI 1983, CIMA, TALAMO 2008, DAMIANI, PRESICCE 2019.
[190] https://www.sovraintendenzaroma.it/i_luoghi/roma_antica/monumenti/auditorium_di_mecenate
[191] PISANI SARTORIO 2011, p. 60, note 9.

contemporary building [192] – represent significant exceptions. Nevertheless, these sites function as fenced-off "islands" within an urban fabric that remains largely silent about its history. As for the Auditorium, his underground nature, and the restricted access makes him an invisible monument for the visitors, and for some of the Esquiline residents. [193]

In recent years, however, a new demand has emerged from the bottom up. The activism of local associations, such as *Piazza Vittorio APS*, founded in February 2016, [194] initiatives like *Open House Roma*, [195] and the vibrant engagement on social media platforms and community groups naming *Polo Civico Esquilino,* and *Sei dell'Esquilino,* demonstrate the existence of a "heritage community" eager to reconnect with the neighborhood's past. Residents are no longer satisfied with merely viewing statues in museums; they seek the traces of history beneath their own homes.

In the current digital landscape of the Esquiline, a significant and pioneering precedent is represented by the MusEQ project. [196] It is an app launched in 2022 by GruppoMeta through a collaboration between local associations (Esquilino Vivo and Piazza Vittorio APS) and museums such as Museo Nazionale Romano and Centrale Montemartini. This application has the considerable merit of having successfully initiated the reconnection between the district's museums and the surrounding urban fabric. By creating a "diffuse museum" that intertwines cultural heritage with itineraries and local landmarks, MusEQ has played a crucial role in revitalizing the identity of the modern neighborhood, fostering a dialogue between the museum collections and the daily life of the community.

However, the specific scope of the present research requires a tool with a distinct methodological focus. While MusEQ adopts broad narrative approach, effectively blending historical storytelling with social and commercial promotion

[192] BARBERA, BARRANO, DE COLA, FESTUCCIA, GIOVANNETTI, MENGHI, PALES 2010, pp. 1-2.
[193] https://cultura.gov.it/evento/lauditorium-e-gli-horti-di-mecenate-il-verde-come-riqualificazione-urbana%202
[194] https://piazzavittorioaps.wordpress.com/chi-siamo/
[195] https://www.openhouseroma.org/info/cos-ohr
[196] https://www.museq.it/it/96/progetto

to enhance the visitor experience, the application proposed in this thesis is grounded in archaeological stratigraphy. Its primary objective is to scientifically visualize the urban trauma of the post-1870 transformation.

It is within this specific gap that the digital mapping project proposed in this thesis is situated. Currently, there is no tool capable of synthesizing these two distinct drives: the scholarly rigor of major exhibitions, and the topographical grounding sought by the local community, the application does not only disseminate data; it performs a cognitive reconnection. By virtually returning the artifact to the precise point of its discovery, it transforms the perception of the Esquiline area from a residential district to a diffuse museum, making the historical palimpsest erased by modern urbanism legible once again.

CHAPTER 3
FROM METHODOLOGY TO APPLICATION: THE ID SHEETS

The chapter develops the methodology applied for this project and proposes the creation of the ID Sheets of each artifact. The primary purpose is to present and analyze the core archaeological corpus of the Esquiline, which serves as the initial data set for the geo-localized application.

The analysis focuses on developing detailed ID Cards for one representative artifact from each defined area. These sheets will serve as a pilot model, demonstrating the precise data architecture required by the application. Each sheet will meticulously record (as far as possible) the artifact's "then and now" data: the title, the historical context, the location and date of the initial discovery, the current museum location, and the specific nature of its decontextualization.

Finally, a preliminary GIS map utilizing the analyzed artifacts will be generated. This map will function as the initial visual sketch of the application, transforming dispersed data into a powerful geospatial critique, validating the didactic and public engagement potential of the proposed tool.

3.1 Methodology behind the construction

The central phase of the project focused on transforming raw archaeological data into content that is accessible and engaging for a non-specialist audience. The simple digital transposition of ministerial catalog entries (ICCD) – rich in technicalities and morphological descriptions – would have been ineffective for the average mobile application user, whose attention span is typically limited and fragmented. To bridge this cognitive gap, the writing and graphic design methodology was guided by the principles of Public Archaeology and Museum interpretation.

As theorized by Freeman Tilden, the father of heritage interpretation, the goal is not instruction for its own sake, but the intellectual and emotional

"provocation" of the visitor, in his words: "any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile". [197] Based on this premise, each ID sheet was conceived not as static "identity card" of the object, but as a narrative device capable of connecting the past (the artifact) with the user's present-day experience.

For the drafting of the texts, a layering approach was adopted, inspired by Beverly Serrell's studies on the readability of museum labels. Serrell highlights that visitors have varying levels of interest and time available; therefore, information must be hierarchized to satisfy both the rushed visitor ("streaker") and the analytical one ("studiers"). [198] In the context of the application, this model translates into the 3-30-3 rule, adapted for the mobile interface: [199]

a. 3 seconds (the Hook): the user is captured by an evocative title and a strong image, rather than a sterile scientific designation.
b. 30 seconds (the Narrative): a brief storytelling that contextualizes the object, explaining its function or the story of its discovery.
c. 3 minutes (the Deep Dive): for the interested user, a secondary section and hyperlinks allow for the exploration of technical details, ancient sources, and bibliography.

This structure ensures that scientific content is not banalized but discovered progressively, respecting the consumption times of the digital tool.

On a linguistic level, the choice was made to apply digital storytelling techniques, transforming objects from silent artifacts into "speaking witnesses".[200] Metaphors and contemporary terminology were employed to make complex concepts of Roman society understandable, creating the semantic bridge suggested by Tilden. Furthermore, a sensory narrative was prioritized – evoking sounds,

[197] TILDEN 1977, p. 9.
[198] SERREL 1996, pp. 95-100.
[199] SERREL 1996, pp. 37-49.
[200] About digital storytelling see BONACINI 2020; BONACINI, MARANGON 2020; DAL MASO 2018.

materials, and contexts of use – to promote empathetic immersion in the historical landscape of the Esquiline.

The User Interface (UI) design had to address a specific critical issue of the Esquiline case study: the complexity of its historical stratification. For a non-expert user, distinguishing between the archaic necropolis, the imperial Horti, and the late-antique churches is complex. To solve this issue of temporal disorientation, a fixed graphic element was developed: the Chromatic Timeline. Drawing on principle of visual learning, each era was associated with a specific color and an evocative label. This tool allows the user to instantly place the artifact within the correct chronological horizon without having to memorize numerical dates, significantly improving the User Experience (UX) and the understanding of the urban context. [201]

Additionally, the timeline was designed as an active navigation tool. Each chronological label is interactive: by clicking on any specific area the user triggers a contextual pop-up window summarizing the historical and urban characteristics of that period. This feature provides immediate cognitive scaffolding, ensuring that the user never feels disoriented by the complexity of Roman history, but can easily and independently place the observed artifact within its correct temporal horizon.

3.1.1 The Concept of Gamification

The original concept of Gamification first emerged in 2002 with video game developer Nick Pelling, who founded his startup, *Conundra Ltd,* [202] with the intention of applying a user interface strategy aimed at revolutionizing everyday commercial hardware, such as ATMs and vending machines. His vision was to inject the fluid, high-speed responsiveness of video game interfaces into these devices to make digital transactions as rapid and enjoyable as gameplay. [203]

[201] About the construction of an effective digital architecture for user experience see SIMON 2010.
[202] https://www.nanodome.com/conundra.co.uk/.
[203] https://www.youtube.com/watch?v=h-bwMTR4tfg.

However, since the hardware of the era was not yet ready for such a graphical revolution, the concept remained dormant.

In 2008, the term "Gamification" makes the decisive leap from obscurity into academic literature and specialist debate. The Catalyst for this rebirth was Bret Terrill, when following the social gaming summit on June 15th 2008, Terrill published on his blog a post analyzing how traditional game developers perceived the implementation of social mechanics. In these conversations, one of the most debated topics happened to the "gamification of the web". [204] The core idea was defined as taking game mechanics and applying them to other web properties to increase user engagement.

Following Terrill's post, the term began to circulate rapidly within the prestigious computer science conferences, particularly in the field of human-computer interaction (HCI). Researchers started adopting the term "gamification" to describe experiments in which elements such as progress bars, points or avatars were inserted into productivity software or educational website. [205] This evolution culminated in 2011, when Sebastian Deterding provided the formal definition, describing it as "the use of game design elements in non-ludic contexts". [206]

Once the concept achieved full academic legitimacy, several scholars began to refine its structural application. Among the most prominent pioneers are Kevin Werbach and Dan Hunter, who categorized the foundational elements of gamified systems. After examining over 100 implementations of gamification, they noticed that the vast majority of them start with the same three elements: Points, Badges, and Leaderboards (the PBL Triad). [207] Although they're not specific elements of gamification, they can function as a starting tools. While these components represent the most visible and common layer of gamification, this research seeks to surpass these surface-level rewards to address the deeper psychological drivers of use engagement.

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[204] https://blog.bretterrill.com/search/label/gameification
[205] DETERDING, DIXON, KHALED, NACKE 2011a, p. 10.
[206] DETERDING, DIXON, KHALED, NACKE 2011b, p. 12.
[207] WERBACH, HUNTER 2012, pp. 69-72.

The approach described is strictly grounded in the Self-Determination Theory (SDT) developed by Richard M. Ryan and Edward L. Deci. [208] According to their research, human motivation is not uniquely driven by rewards (extrinsic motivation) [209] but by the satisfaction of three innate psychological needs: Autonomy (the feeling of having a choice), Relatedness (social connection), and Competence (the desire to master a challenge). [210] Therefore, the interaction design does not only aim to "buy" the user's attention with digital badges, but mostly to satisfy their need for competence: the system is built to make the user feel capable of decoding complex historical information, transforming the museum visit from a passive walk into an active demonstration of skill.

Lastly, beyond psychological needs and instructional feedback, the design of the App incorporates the visionary perspective of Jane McGonigal. She argues that the true power of games lies in their ability to provide players with "Epic Meaning" – the profound sense that they are participating in a mission far greater than themselves. [211]

3.1.2 The Timeline: from Academic Source to User Experience

The drafting of the text for the application's Timeline was conducted through a rigorous process of synthesis and adaptation, structured into three operational phases:

1. **Source selection and historical framework**. The scientific basis of this work is constituted by the reference volume G. Geraci and A. Marcone, *Storia Romana*. In this phase, the primary objective was not to isolate exclusively the turning points relevant to the specific area of the Esquiline, but rather to outline the general framework of Roman history. This

[208] The reference to Ryan and Deci's framework is to be understood form an instrumental perspective to User Experience (UX): the analysis was voluntarily limited to Basic Psychological Needs Theory (BPNT) only, functional to the justification of gamification mechanics, and does not pretend to exhaust the clinical and psychological complexity of the topic.
[209] RYAN, DECI 2017, pp. 14.
[210] RYAN, DECI 2017, pp. 242-243.
[211] MCGONIGAL 2011, p. 88.

methodological choice responds to the need to provide the user with a global narrative frame and solid historical evolution.

2. **Narrative adaptation and tone of voice**. The data extracted from the academic handbook were subsequently reworked according to the principles of US Writing. The density of academic language was "translated" into a format optimized for digital use: short texts, clear visual hierarchy, and a conversational yet authoritative tone of voice. Through the process of chunking (information segmentation), historical complexity was transformed into active storytelling, making complex passages – such as the Social War or the Tetrarchy – accessible in a dynamic and immediate way.
3. Integration of engagement and "epic meaning". Finally, in line with the theoretical framework of McGonigal, the narrative was enriched by Fun Facts and anecdotes drawn from ancient sources (such as Livy and Procopius). The inclusion of these curiosities aims to generate the so-called "Epic Meaning". By transforming historical notions into a memorable experience, the application stimulates the user's emotional connection and facilitates the memorizing of content through engagement.

With the methodological premises defined, the chapter proceeds to the operational phase: the creation of the ID sheets. The corpus of artifacts was selected based on a strategic principle that privileges narrative significance over celebrity. Ranging across various time periods and typologies, these objects were chosen for their ability to effectively represent the multi-layered identity of the Esquiline.

3.2 The Concert in Stone

The first ID sheet focuses on the Funerary Monument of the Roman Flautists (*Tibicini*), currently housed in the Centrale Montemartini (Capitoline Museums). This artifact was selected specifically because, as a recent addition to the museum layout, it currently lacks a narrative description to complement the existing technical data. The aim is not to provide a critical analysis of the relief, but to place the artifact at the center of a storytelling experience. The goal is to guide the user through the discovery of the artwork, moving beyond mere data transmission to foster active engagement and spatial-temporal orientation through the use of maps and timelines.

To enhance engagement, the ID sheet is designed as an interactive two-sided Card: the front (Fig. 20) provides a captivate Title (A Concert in Stone) to gain user's attention, and essential coordinates (Who, What, When, Where, Current Location), offering immediate context; by "flipping" the card, the user unlocks the back side, which is the storytelling layer (Fig. 21). This section explores the history of the *Tibicini* guild and their instruments, enriching the narrative with a "Fun Fact" about the first strike in history. This connection to present-day dynamics is fundamental for mnemonic retention and relatability.

As stressed in 3.2, the key feature implemented across all cards is the Interactive Timeline. This tool allows the user to clock and contextualize the specific time period of the relief, preventing chronological disorientation. Finally, a section dedicated to Sources and Further Readings caters to users seeking a deeper analysis, bridging the gap between general storytelling and academic inquiry.

Following the analysis of the individual artifact, the user is invited to navigate back to the interactive Map. Here, the focus shifts from the specific object to the broader context: the user observes the high concentration of elements discovered in the very same location as the funerary relief they just examined. The key function of the map is **contextualization**. By visualizing the spatial proximity

of various finds, the app creates a clear picture of the Esquiline's complexity. The aim is to demonstrate the area's stratification, showing how artifacts from different time periods overlap in the same urban space. To further aid this understanding, the app provides a schematic Stratification Tool for strategic areas. This feature – which will be detailed later in the presentation alongside the final map – offers a vertical, cross-sectional view of the timeline, helping the user visualize the dense layers of history that characterize the hill.

Fig.20: front side of Card number 1.

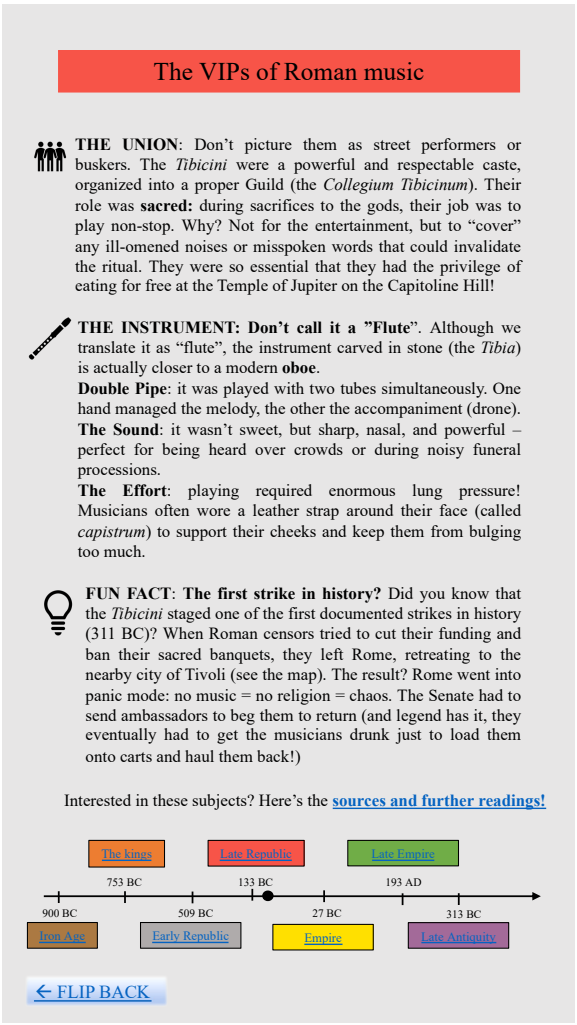


Fig. 21: Back side of Card number 1.

3.3 The Agony of the Beast

The second ID sheet focuses on the Head of a Centaur, located in the Hall of the *Horti Lamiani* (Capitoline Museums, Palazzo dei Conservatori). For this case study, the primary goal was to emphasize the aesthetic and emotional sphere of the artwork. The artifact was selected for its ability to visually embody complex art-historical concepts – such as "Hellenistic Baroque" and the Greek concept of *Pathos* – which are often challenging to communicate to an audience without the use of exclusionary academic terminology.

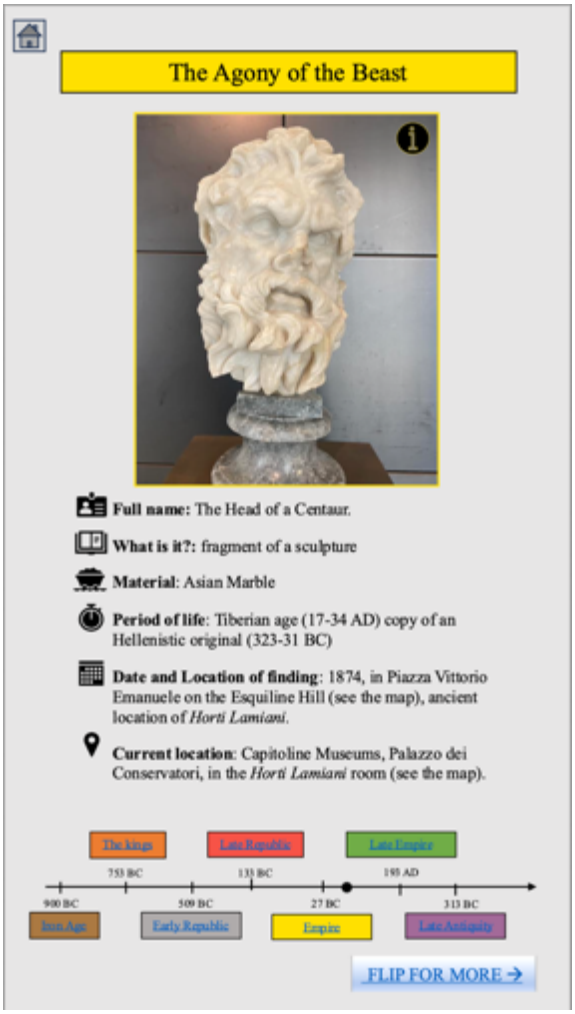
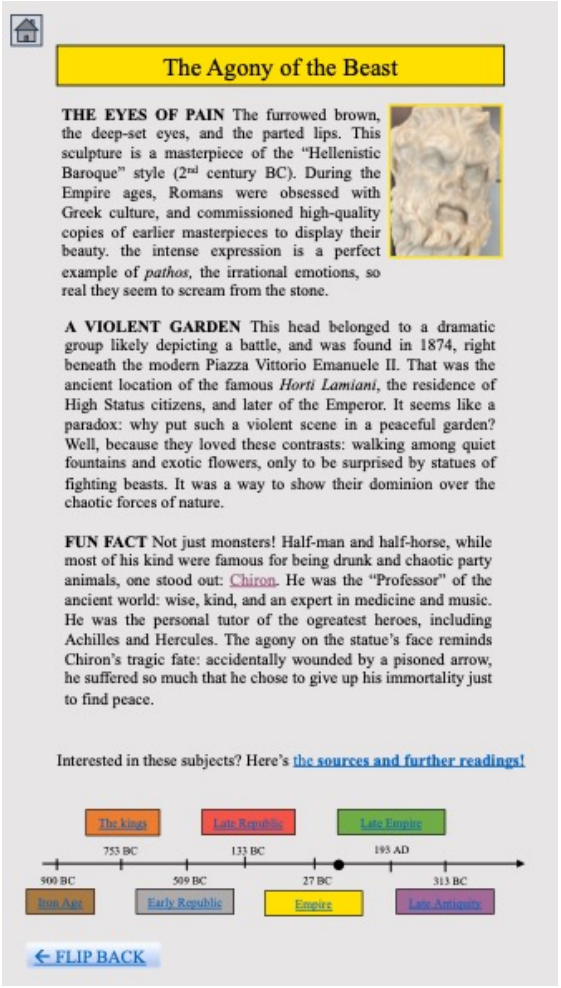


Fig. 22: Front side of Card number 2.

The design of the Card's front (Fig. 22) adopts a strategy of Iconographic Support. Since the served head alone makes it difficult for a non-expert user to visualize the dynamic action of the centaur's full body, the primary artifact is helped by a visual reference: by clicking the ℹ symbol, a picture of a full-body centaur will appear, specifically the picture of the so-called "Old Centaur" found in Hadrian's Villa at Tivoli, now located in Palazzo Nuovo in the Capitoline Museums, dated between 117-138 BC (Fig. 23). Regarding the User Interface, the positioning of essential data remains consistent with previous cards. This consistency is crucial for the app's Learnability: by encountering a familiar structure, the user reduces cognitive load and intuitively navigates the content. The only significant variation is the specific inclusion of the "ancient location", a

Fig. 23: detail of the visual support on card number 2.

pivotal data point for understanding the context, which is fully explained to the reverse side.



On the back of the card, the narrative strategy aims to engage the user through content variety (Fig. 24). The text tackles three distinct layers: the artistic style (the phenomenon of Roman copies), the environmental context (the paradox of placing a violent scene in a peaceful garden) and the mythological background. The "Fun Fact" regarding Chiron acts like a narrative hook. By revealing the tragic and wise side of the "monster", it turns a distant myth into a relatable story, making it much easier for the user to remember the artifact (Fig. 25).

The bibliographic apparatus adopts a multidisciplinary approach. Ancient sources are not limited to historical chronicles but include Ovid's poetry (Metamorphoses) to evoke the scene's visceral violence, and Pindar's lyrics to support the narrative on Chiron. Regarding the modern sources (Cima & La Rocca 1986, Pollitt 1986), provide the necessary topographic grounding and theoretical framework.

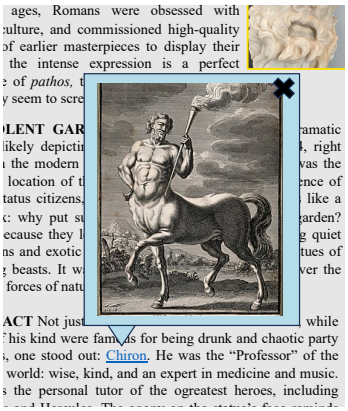


Fig. 25: detail of the interactive pop-up image.

Finally, a key feature introduced in this card is the interactive Pop-up image. By clicking on keywords (e.g., "Chiron"), the user triggers a visual gloss. This tool of contextual assistance, addresses the need to keep the user within the so-called "Flow Channel", theorized by Mihaly Csikszentmihalyi. [212] In this framework, observing an archaeological artifact constitutes a cognitive challenge. If the

[212] CSIKSZENTMIHALYI 1990 pp. 74-77.

visitor lacks the necessary skills to interpret the iconography of the Centaur – such as the meaning behind the contrast between the powerful animal anatomy and the suffering expression of the human face – the experience quickly shifts into a state of Anxiety. This frustration derives from the imbalance between the task's difficulty (understanding the artwork) and the available tools. By providing an immediate information through the pop-up, the application instantly raises the user's skill level. The intervention allows the visitor to re-engage, moving from a state of anxiety back to a condition of control and involvement (further satisfying the need of Competence of the Self-Determination Theory).

3.4 The Bleeding Stone

The third case study, titled The Bleeding Stone, is dedicated to the statue of *Marsyas* discovered in the area of *Horti Maecenatis*. While the Centaur ID sheet focused on expressing emotions with the body (*pathos*), here the UX strategy shifts its focus on material culture and contextual integration. The objective is to transform the user's perception: from a passive viewing of a mythological sculpture to an active understanding of its ideological and material function within the ancient space.

On the front of the card, the choice of image fell on the full-length figure, with a close-up of the face and torso, using the same strategy of the previous case (Fig. 26). This decision responds to a specific educational need: to guide the user's eye toward the

Fig. 26: Front side of the card number 3.

peculiarity of the material. The artwork is carved in Pavonazzetto Marble, characterized by natural violet veins. The visual narrative leverages the concept of "Lithic Poetics", theorized by Fabio Barry [213]: the Roman artist did not passively accept the material but selected it so that the veins would mimic the bruised flesh and blood of the torture. The app invites the user to recognize this Material Agency: the matter itself becomes an active part of the storytelling, making the cruelty of the myth tangible without the need for added polychromy.

On the back, the narrative goes beyond the simple retelling of the myth (the contest between Marsyas and Apollo) to focus on Contextual Reintegration. [214] Instead of presenting the statue as a generic garden ornament, the text virtually relocates it to its original position: the Auditorium of Maecenas (Fig. 27). Methodologically, it is important to state that this image was created using Generative AI tools. Therefore, it does not claim historical or archaeological reliability. Instead, it functions as a visual hypothesis or evocative scaffolding. [215] Its function is purely functional: to help the non-specialist user visualize the concept of the statue's placement in an indoor hall rather than a generic garden. This visual aid supports the narrative of the "ideological warning" by offering an immediate spatial context, without misleading the user regarding specific

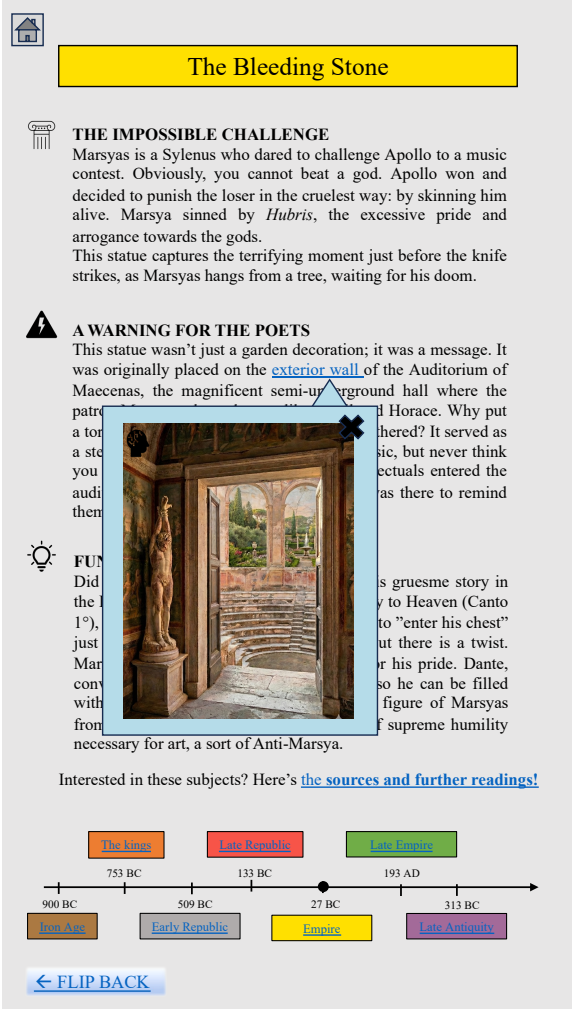


Fig. 27: Back side of card number 3, with focus on the fictional representation of the Marsyas' location in the Maecenas' Auditorium. Image realized with Generative AI tool.

[213] BARRY 2020, pp. 49-78.
[214] HÄUBER 2014, pp. 611-616.
[215] PIETRONI, FERDANI 2021, pp. 8-14.

architectural details. To address the risk of exchanging the image for an historical one, an icon  will be placed on every image generated with an AI tool.

The "Fun Fact" section represents the peak of the project's interdisciplinary approach. Instead of limiting itself to archaeology, the card creates a bridge with Italian Literature by quoting Dante's invocation to Apollo in Canto I of the *Paradiso*. The app demonstrates how the ancient image does not die with the end of the antiquity but survives, charged with meanings: the Roman Marsyas (a symbol of punishment for pride) becomes the "Dantesque Marsyas" (a symbol of the emptying of the Ego and the humility necessary for divine inspiration) [216]. This knowledge bridge enhances the cultural background of the scholastic or academic user, making archaeology relevant through literature.

3.5 The Epigraph of the Man who killed an Emperor

The fourth case study addresses a significant museological challenge: the display of Epigraphic Heritage. Latin inscriptions are often perceived by non-specialists as illegible, visually static blocks of text, a perception that risks generating low engagement and low dwell time. To counter this, the ID sheet dedicated to the inscription of Epaphroditus inverts the traditional narrative paradigm: it presents the object not as a document to be read passively, but as an enigma to be actively deciphered through a targeted Gamification Strategy.

The artifact officially catalogued as "An impressive tomb for the famous Epaphroditus" is part of the collection at the Terme di Diocleziano (Museo Nazionale Romano). The piece was discovered in Via Balilla, near Porta Maggiore, corresponding to the ancient site of the *Horti Epaphrotidiani*. The decision to include this specific inscription in the app was driven by a strategic analysis of the museum's online presence. Currently, the artifact lacks a dedicated digital record on the official website of the Museo Nazionale Romano. It is worth noting the exceptional quality of the museological arrangement at the Terme di Diocleziano. The epigraphic collection is organized by illustrating social, political-administrative, economic, and religious aspects of Rome and

[216] CASALI 2019, pp. 40-47.

the Empire, a curatorial choice that provides immediate historical context and ensures the legibility of each inscription's narrative. [217]

On the front of the card (Fig. 28), the visual approach of the artifact (a plaster cast of the original) encourages a basic form of Epigraphic Literacy, directing the user's attention not only to the words but to the specific diacritics of archaeology, such as the square brackets […], which indicate modern textual reconstruction, or a missing part of the epigraph. Through the "Tap to Translate" feature, the app breaks the dense block of text into semantic chunks, allowing the user to visually link the Latin abbreviation directly to its social meaning. The former translation proposed is the academic one, maintaining technical structure and terminology, whereas the latter has been reworked, it gets rid of the abbreviations, making the text more fluid. This is the one implemented in the app.

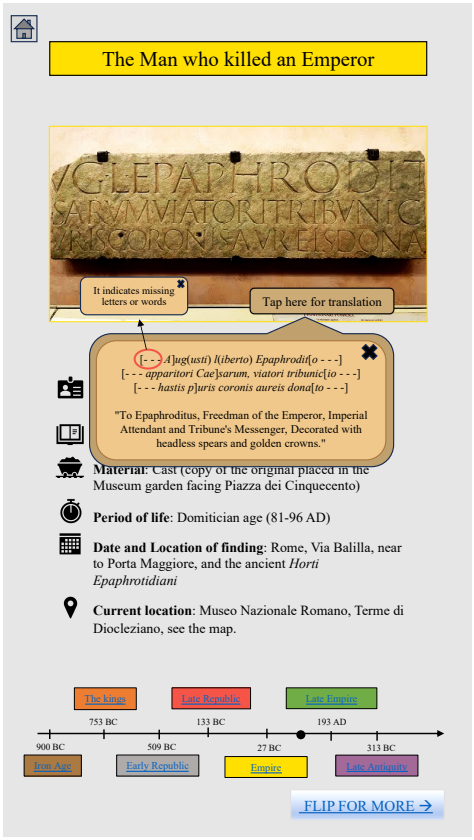


Fig. 28: Front side of card number 4, focus on interactive buttons

"[To] Epaphroditus, Freedman of the Emperor (Augustus), Attendant [of the Cae]sars, Tribune's Messenger, Awarded with [headless] spears and golden crowns." [218]

"To Epaphroditus, Freedman of the Emperor, Imperial Attendant and Tribune's Messenger, Decorated with headless spears and golden crowns."

On the back of the card (Fig. 29), the narrative abandons the technical terminology to embrace Social History. The inscription is interpreted as a "resume of power". The text highlights the central paradox: a former slave (*Libertus*) who receives high military honors (*Coronis Aureis*) without stepping onto a battlefield. This contrast serves to

[217] FRIGGERI 2003, pp. 7-8. For the analysis of the collection see following chapters.
[218] Translation provided by the author.

illustrate the phenomenon of Social Mobility in the 1st century AD and the rise of the Imperial Bureaucracy at the expense of traditional Aristocracy. Moving on, the provocative title, "The Man who killed an Emperor", linked to the "Fun Fact" section, tuns a learning moment into a captivating story where the reader feels emotionally involved and pushed to continue their exploration.

The third section of the back side is dedicated to the literal understanding of the epigraph, by analyzing the crucial words that will help decipher the stone. The User is always accompanied by a visual support helping him not losing the path, since this is a pivotal step for the activity waiting for the user to be discovered, by clicking on the  icon.

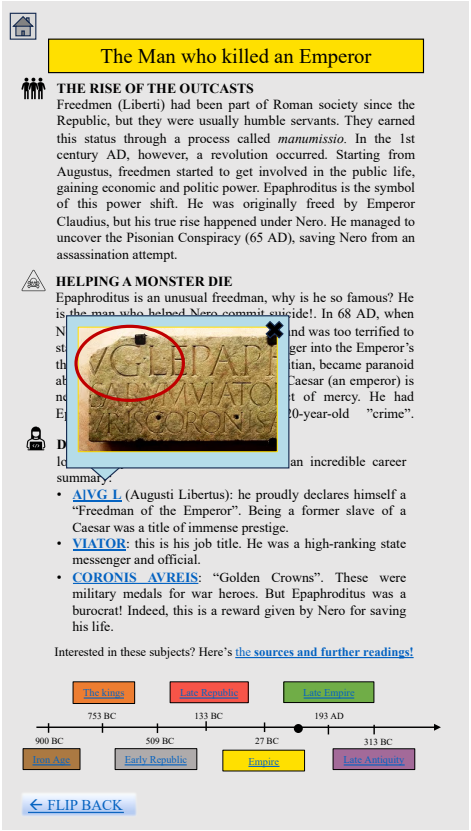


Fig. 29: Back side of card number 4, focus on interactive buttons.

The core element of the User Experience is the implementation of a "Playful Assessment" mechanism. After giving them all the information about the epigraph, the app proposes a mini game called "Latin Traps", based on the identification of linguistic "false friends" presented on the stone (*Viator, Coronis, Tribunicia*) (Figg. 25, 26, 27). This choice wasn't made for pure entertainment, rather is an application of the "Testing Effect", theorized by Roediger and Karpicke. [219] the cognitive research proves that the active effort required to retrieve the information (choosing between option A or B) secures long-term memory preservation far more effectively than passive reading. Furthermore, following Karl Kapp's principles on educational gamification, the quiz is designed as an instant Feedback Loop: Challenge (solving a semantic riddle), Action (from an observer to a decoder), and Reward/Correction (immediate feedback provides gratification – dopamine – or corrects the error without frustration – safe failure). [220] All this transforms the inscription into an interactive puzzle.

[219] ROEDIGER, KARPICKE 2006, pp. 249-255; ROEDIGER, BUTLER 2011, pp. 20-27.
[220] KAPP 2012, pp. 6-12.

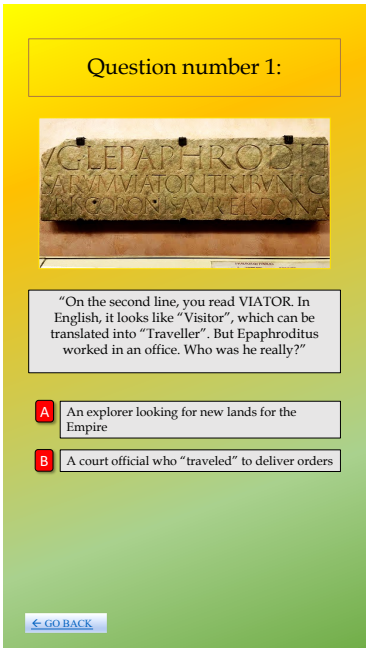


Fig. 30

Fig. 31

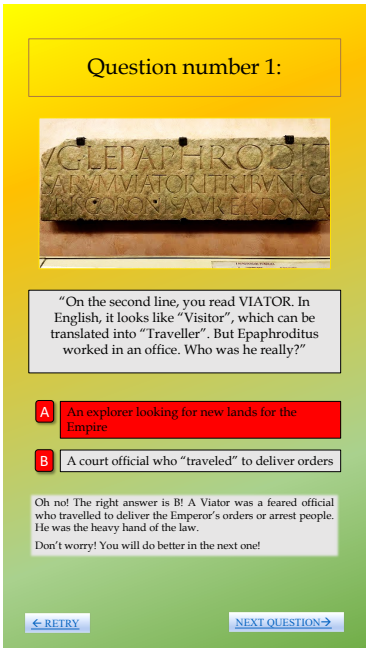


Fig. 32

3.6 The silent Muse

The next case study is dedicated to the Statue of the Muse Polymnia, found in 1928 in Via Terni, the ancient location of the *Horti Spei Veteris*. This card serves as a paradigmatic example of "vertical storytelling". Unlike other entries (such as Marsyas or the Centaur), where the narrative weight is eventually distributed among myth, style, and history, this specific card adopts a distinctly psychological and cognitive approach. The primary goal is to forge an empathetic bond (Relatability) between the user and the artifact, leveraging concepts of "introversion" and "silence" to transform a static marble figure into a living character. That is why side A of the card gives much space to different POVs of the subject that is going to be described subsequently (focus on the face and on the right side of the sculpture).

The design strategy can be resumed into two main elements: omission and scannability. A critical aspect of the interface design was the strategic management of topographical information. Although the statue originates from the archaeologically significant context of the *Horti Spei Veteris*, a deliberate decision was made to omit the complex history of this residential complex from the main body copy. This choice aligns with the foundational principles formulated by Steve Krug, where an effective interface must be "self-evident"; the user should never have to pause to puzzle over what is essential. [221] Mixing dense historical data with emotional analysis would have generated "visual noise", [222] impeding the natural behavior of the digital user who, as Krug observed, "does not read, but scans", since he doesn't need all the information, just the ones matching his interests. Scanning is how the user (meaning every person who visits a website) finds the relevant bits. [223]

Embracing Krug's logic, the application employs a strategy of progressive disclosure: contextual information about the *Horti* is removed from the primary flow to facilitate the rapid scanning of emotional content. However, in the side A of the card, the mention of *Horti Spei Veteris* will function as a clear interactive trigger (Fig. 33). By clicking on the keyword, it will pop-up the history of the *Horti*. This

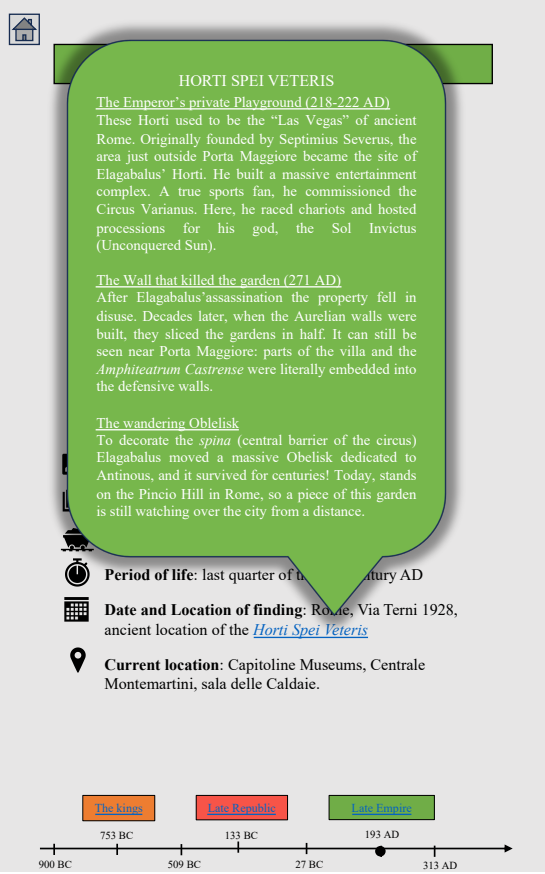


Fig. 33: Front side of card number 5, with focus on the visual trigger of Horti Spei Veteris.

[221] KRUG 2014, p. 28.
[222] KRUG 2014, pp. 61-62.
[223] KRUG 2014, pp. 39-40.

allows the user to explore the topographical context through a voluntary click, thereby removing cognitive friction and ensuring effortless reading experience.

On the other hand, side B works through multimedia addition. The primary interaction focuses on the paradox of the "silent dance" described in the 5th century AD by Nonnus of Panopolis – an abstract concept difficult to visualize. To enhance the educational impact of this section, the explanatory text is accompanied by an illustration created by Generative AI, visualizing the mythological wedding of Cadmus and Harmonia (Fig. 34). The image reconstructs the iconography described in the sources, showing Apollo playing the lyre accompanied by the Muses, Ares, and Aphrodite, but strategically centralizing the figure of Polyhymnia in the act of "tracing invisible figures" in absolute silence. This serves to concretize for the user the academic concept of the Muse as a historical precursor of pantomime.

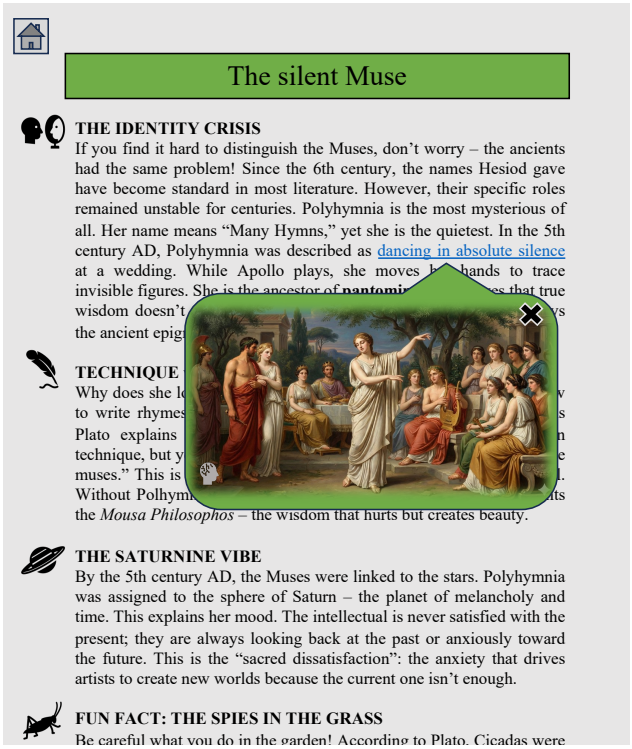


Fig. 34: Back side of card number 5, with focus on the fictional representation of the mythical wedding. Image realized with Generative AI tool.

3.7 The Daydreamer

The next case study is the Seated Maiden, located in the Centrale Montemartini, Capitoline Museums. Found it in 1879, it is a 2nd century AD Roman copy of a Hellenistic Greek Bronze. This card serves as an interesting case study for testing the effectiveness of vertical storytelling and technological interaction applied to sculpture. The communicative strategy moves beyond cold stylistic description (which the user will easily forget), aiming instead to forge an

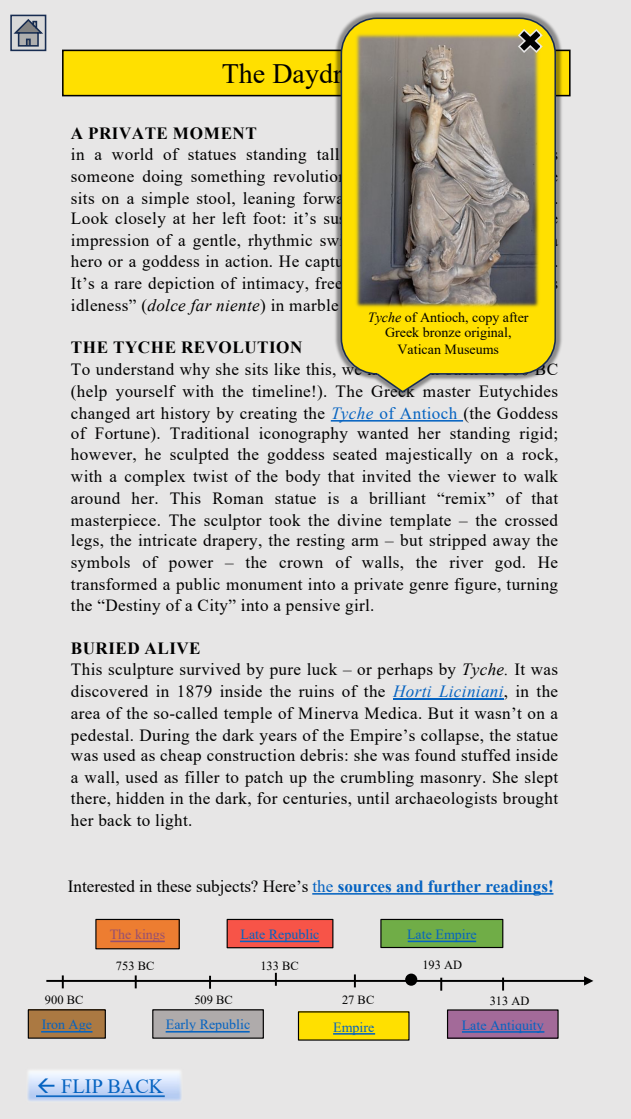


Fig. 35: Back side of card number 6, with the visual trigger depicting the Tyche of Antioch.

immediate empathic bond by leveraging a narrative that transforms a copy from the Hadrian period of a Hellenistic model into a living, relatable character.

The storytelling opens with the concept of "sweet idleness", interpreting the huddled pose, the forward-leaning torso, and the left leg left free to swing as a psychological snapshot of monotony or anticipation that bridges the gap between the contemporary user and the archaeological artifact. This approach prepares the ground for the analysis of the discovery context, which occurred in 1879, in the middle of an atmosphere of decay and reuse: the sculpture was not found on its original context but had been brutally repurposed as building material to fill one of the large niches of the so-called Temple of Minerva Medica in the *Horti Liciniani* (Fig. 35). Telling the story of how a marble masterpiece, refined in every part, ended up "buried alive" for centuries within a filling wall, adds a layer of drama that transforms the object from a simple find into a resilient witness to the collapse of the Empire.

Methodologically, the integration of a 3D model obtained through photogrammetry addresses a specific need for accessibility and contextualization. Since the application is designed to guide the user both inside the museum and during urban exploration, the three-dimensional model acts as a visual bridge.

While inside the museum gallery the 3D model aids in analyzing specific details, its utility is maximized in an outdoor setting. Imagine a user walking through Rome, standing in front of the ruins of the Temple of Minerva Medica. At that moment, despite the physical absence of the artwork, they can use the app to "summon" the statue back to its original location. The ability to virtually rotate and manipulate the object allows the user to appreciate the complex spiral torsion typical of the school of Lysippus even from a distance, granting them the freedom to explore the artwork's three-dimensionality right where it was hidden centuries ago (Fig. 36).

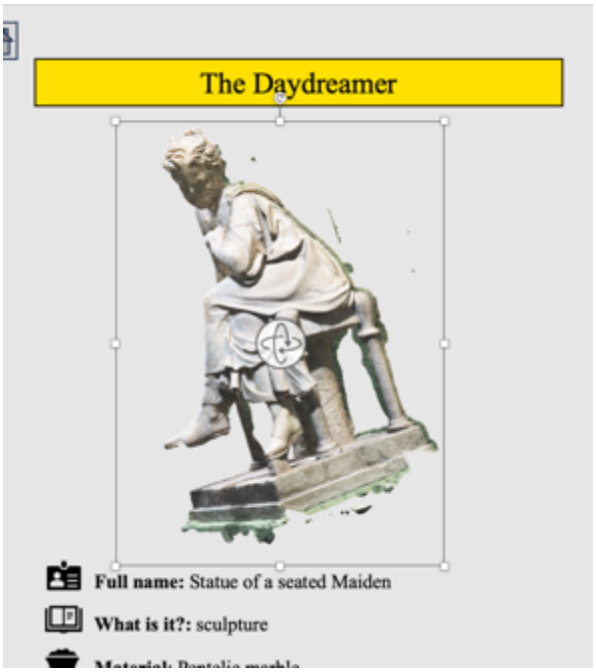


Fig. 36: Front side of card number 6, with focus on the photogrammetry.

Finally, it is essential to provide an honest assessment regarding the technical limitations of the photogrammetric survey presented in this work. The 3D model is intended as proof-of-concept rather than a high-fidelity publication asset, as the image acquisition took place under non-controlled environmental conditions. The absence of professional equipment and the reliance on standard museum lighting inevitably affected the color accuracy and the precision of the surfaces. Furthermore, a striking paradox emerges regarding the museum's current display: although scholars universally define this sculpture as a work designed for a 360° view, it is currently placed directly against a wall. This positioning rendered the back of the statue nearly inaccessible to the camera, making a complete photogrammetric acquisition almost impossible.

3.8 The Secret Garden

The decision to include this specific relief in this preliminary digital tour responds to a precise curatorial strategy that prioritize evocative value over purely aesthetic impact. At first glance, the fragment might seem marginal as it lacks human figures. However, its function is to act as an empty theatrical stage: the physical presence of the wall (*temenos*), the temple, and the sacred ribbons (*vittae*) provides the perfect visual scaffold to narrate the imperceptible – the ritual – transforming the marble into a set that the user must populate with their imagination (Fig. 37). In fact, in designing the front of the card, it was unnecessary to isolate or zoom in on specific details of the bas-relief, because the object itself structurally functions as a "detail" of a larger scene. It is a fragment that implies a lost architecture and a broader narrative, transforming the marble into a set that the user must complete with their imagination.

Fig. 37: Relief with Wall and Sanctuary

The first layer of storytelling decodes the image's syntax. The text guides the user's eye to the architectural elements that transform a simple landscape into a sacred space. The *vittae* hanging from the temple are interpreted as active "temporal signs": they indicate that the scene captures the precise moment of an ongoing festival. This detail transforms the fragment from an inert object into a document of an action, proving that the temple was a living organism "dressed" for the occasion.

The central narrative explores the identity of the invisible god: Dionysus. To visualize the foundational myth of the "double birth" (*Dithyrambos*), which is absent in the marble relief, the interface offers a targeted visual link. The image of the monumental Volute Krater by the "Painter of the Birth of Dionysus", dated 400-380 BC, has been inserted (Fig. 38). This masterpiece of Apulian pottery, discovered in 1898 in Ceglie del Campo (Puglia) alongside a twin krater and immediately acquired by the National Archaeological Museum of Taranto, offers the most detailed and "theatrical" representation of the event. Using this specific external artifact allows the user to see what the Roman relief omits: Zeus witnessing the god's birth from this thigh.

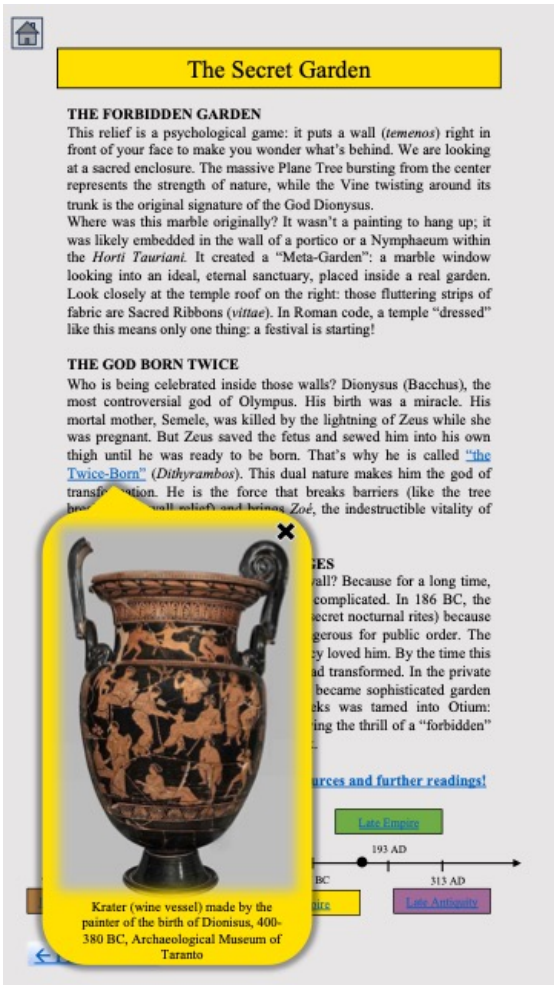


Fig. 38: Back side of card number 7, with focus on the visual support of the krater of the Painter of Dionysus.

Finally, the relief links social history to the topography of the *Horti*. The concept of secrecy evoked by the wall connects to the scandal of the Bacchanalia (186 BC) and their subsequent "domestication". The relief thus becomes material proof of how the Roman aristocracy incorporated Dionysian rites into the *Horti Tauriani*, transforming a dangerous cult into an experience of aesthetic and intellectual luxury (*otium*).

3.9 Church of Santi Vito e Modesto

The inclusion of the church of Santi Vito e Modesto on the Esquiline hill is pivotal to show the versatility of the app. Not only artifacts, but also in-place monuments, where excavation has been made and lots of artifacts were found and

put in the museums. Furthermore, it addresses the need to illustrate the concept of continuity of use in Roman urban space. Unlike musealized artifacts (decontextualized objects), this building represents a "living fossil" of the Esquiline's topographical evolution. The narrative objective is to deconstruct the church's current image to reveal its nature as an "architectural parasite", born and developed upon the structures of the ancient *Macellum Liviae* and the Servian Walls. The card narrates not just the history of a monument, but the transformation of an entire era: from a luxury imperial market to a medieval *diaconia* for the poor, to finally become the church we see today.

The interaction is designed as an architectural "X-ray". The user, positioned on Via di San Vito, frames the current façade of the church. Using a Time Slider, the interface progressively overlays the 3D reconstructive model, accessible through the interactive sentence "keep discovering!":

- Current state (0%) (Fig. 39): the 19th century façade, with the 1477 inscription, and the arch of Gallienus reduced to a single fornix, embedded in the modern urban context.
- Ancient state (100%) (Fig. 41): the dissolve effect removes medieval and modern accretions, restoring the original volume of the arch of Gallienus (*Porta Esquilina*) with three fornixes and revealing the imposing tuff-block walls.
- Sound design: although not implemented due to the complexity of the process, the experience should be accompanied by a sonic transition where the noise of urban traffic fades into the sound of rushing water (referencing the *Anio Vetus* aqueduct and the *Castellum Aquae* beneath) and the natural sound of the Horti. This concept is proposed as a hypothesis to significantly enhance user engagement.

Fig. 39.

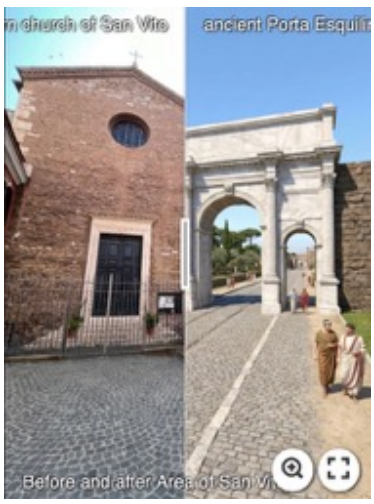


Fig. 40.

Fig. 41

The scientific narrative focuses on vertical stratigraphy, highlighting two key moments of archaeological research that allowed for the site's interpretation:

- The discovery (1973-77): restorations conducted by architect Gianfranco Caniggia brought to light the Roman basalt paving (basolato) and the remains of the *Anio Vetus* aqueduct, confirming the presence of imperial hydraulic infrastructure beneath the religious building.
- the re-reading (2025): the recent Pavi@Rome documentation campaign, directed by Prof. Elena Calandra, enhanced the visits to the underground area fifty years later. This intervention can be considered as an example of "Public Archaeology", aimed at reconnecting the local community with its subterranean roots, transforming the crypt from a storage space into an accessible historical archive.

The interactive experience designed for the complex of the church of Santi Vito e Modesto, relies on a puzzle-based logic game, conceptually titled "Urban Jenga – the stratigraphic puzzle" (Fig. 42). The core gameplay requires the user to actively reconstruct the monument's history by correctly placing four distinct, out-of-order chronological blocks, moving from the deepest archaeological stratum to the modern surface. The interactive blocks represent:

a. The Foundation Phase: the Republican Servian Walls and the ancient subterranean infrastructure.
b. The Imperial phase: the first Imperial phase, characterized by its marble paving and commercial colonnades, and by the luxurious *Horti Romani*.
c. The Medieval-Renaissance Phase: the early Christian *diaconia* and the subsequent 15th century church that structurally incorporated the Arch of Gallienus.
d. The Modern Phase: the 1900 façade reorientation and the contemporary street level of Via Carlo Alberto.

The user must drag and drop these virtual layers into the correct stratigraphic sequence on their screen. Incorrect placements result in the virtual "collapse" of the structure (Fig. 43), prompting a retry, while the correct chronological sequence permanently fuses the building's timeline and unlocks the "X-Ray" viewing mode previously explained (Fig. 44).

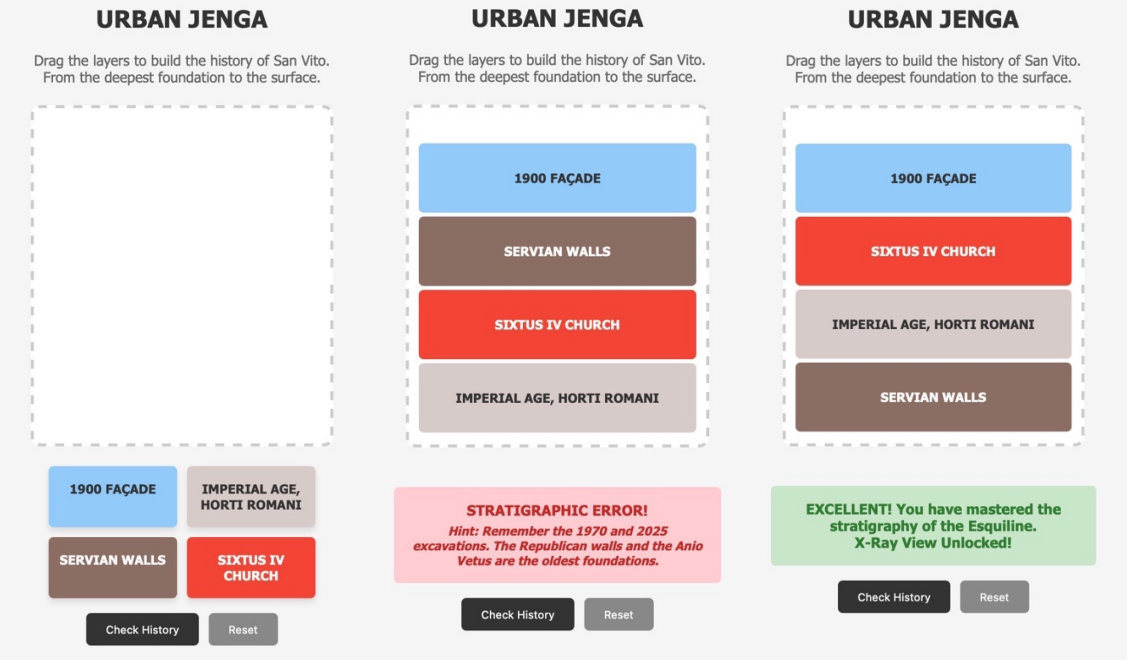


Fig. 42 *Fig. 43* *Fig. 44*

The structure of this specific minigame was developed to address one of the most complex challenges in digital public archaeology: communicating the abstract and often invisible concept of urban stratigraphy to a non-expert audience.

The Arch of Gallienus and the church of San Vito constitute the perfect example of an urban palimpsest, where the physical space has been repeatedly repurposed – from a Roman market to a Christian welfare center. Instead of providing a passive, text-heavy description of these architectural phases, the gamification mechanic forces the user to actively participate in the reconstruction process. By physically manipulating the digital layers, the user intuitively comprehends that the ancient structures did not simply disappear but serve as the literal and historical foundation of the modern city. This approach perfectly aligns with the principles of User-centered Design, transforming a complex topographical concept into an active, hands-on learning experience that bridges the gap between the visible ruins and their hidden past.

3.10 The Young Athlete

The inclusion of the Lancellotti Discobolus within the virtual exhibition addresses two crucial themes of the project: the decontextualization of ancient art and the anthropological reality of Greek sport. Unlike the architectural site in the catalogue of San Vito, this object is mobile and displaceable. It was not found in its original context but in a Private Roman residence, the Villa Palombara, [224] proving how Greek art had become a cultivated status symbol for the imperial aristocracy. The narrative objective is to deconstruct the romanticized image of the classical athlete, contrasting the aesthetic

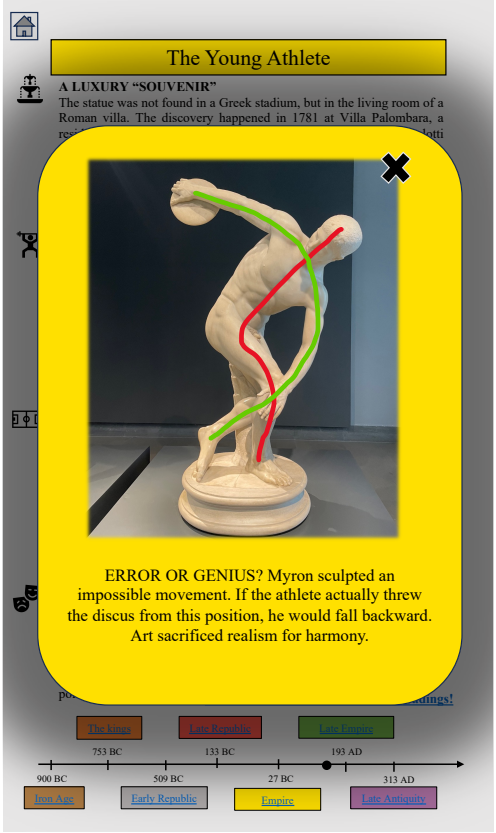


Fig. 45: Back side of Card number 9, with focus on the Discobolus picture with a superimposed vector graphic layer

[224] VISCONTI, DE LA BARTHE 1806, p. IV.

perfection of the marble with the harsh physical and social reality of ancient competition.

For the user interface, the design focuses on a precise, analytical engagement. The card features an interactive button labeled “find out more!”. When activated, the application opens a new window with the Discobolus picture with a superimposed vector graphic layer (Fig. 45). These forced lines visually trace the muscle tension and the direction of the throw. This graphic overlay is accompanied by a critical text explaining a biomechanical paradox: Myron created a movement that is physically impossible. [225] The vectors demonstrate that if a real athlete attempted to throw the discus from this exact frozen position, they would lose their balance and fall backward. This interaction is designed to guide the user’s eye revealing how ancient art sacrificed physical realism to achieve geometric harmony (*Kalokagathia*).

The content of the card intertwines together the history of collecting with the daily life of the ancient athlete. Historically, the text highlights the statue’s discovery in 1781 at Villa Palombara on the Esquiline. Its rediscovery in the villa confirms the continuation of a tradition started by Romans, who displayed copies of Greek statues to demonstrate their economic and social power. From this specific object, the narrative expands to explore the “profession” of the athlete in the 5th century BC. drawing on sources like Galen and Philostratus, the text describes the grueling preparation behind the beauty: the evolution of athletic diet, specifically the shift from figs and cheese to the high-protein meat regimen introduced by the trainer Dromeus of Stymphalus.

Finally, the experience frames the athlete as a complex social figure who traveled the Panhellenic circuit (Olympics, Pythian, Nemean, Isthmian) in search of fame and lifetime pensions, often facing criticism from intellectuals like Euripides for their perceived lack of civic utility.

[225] GARDINER 1930, pp. 157-160.

3.11 The Broken God

The selection of this last case study expresses the core mission of the App project: the digital recontextualization of artifacts that have been dispersed not only across various Roman museums, but globally. The ultimate goal is the "virtual repatriation" of archaeological finds exported over the centuries, particularly during the unregulated market boom following the 1870 excavations. The statue of Poseidon, currently housed in the Ny Carlsberg Glyptotek in Copenhagen, serves as the perfect paradigm. as part of the extraordinary group of Aphrodisias sculptures acquired by Wolfgang Helbig in the late 19th century, it was permanently separated from its original context of the Esquiline hill.

Fig. 46: Front side of Card number 10, with focus on the history of Ny Carlsberg Glyptotek

The primary interface of the card maintains the application's standard layout, featuring an image of the artifact and its essential metadata. Users can explore the sculpture from multiple perspectives by interacting with purple circles placed on the image. However, a significant change was made regarding the spatial data. Because the physical artifact is no longer in Rome, the interactive "Museum Location" button does not redirect the user to a local GPS map. Instead, it opens a dedicated sub-card briefly explaining the history of the Ny Carlsberg Glyptotek and its permanent collections (Fig. 46). This specific implementation serves as a double purpose in public archaeology:

- It encourages local Roman (or Italian) users to broaden their cultural horizons, potentially inspiring future visits to other cities in Europe (and around the world)
- It acts as a bridge for foreign users (e.g. a tourist from Denmark visiting Rome), allowing them to discover an unexpected historical link between the physical ruins of the Esquiline and the heritage preserved in their own home city.

The back side of the card abandons the rigid, traditional museum catalog format in favor of an immersive, user-centered narrative, as always structured into three distinct informational blocks. The first one presents the physical trauma of the statue, since it was found in pieces, and it misses the lower part and is supported by a modern metal armature. This translates the abstract concept of "decontextualization" into a visible, physical fracture that the user can observe. The second section clarifies the complex dynamics of the 19th century antiquities trade, explaining how agents like Helbig operated, thus providing a clear historical justification for the artifact's current location. For the third section, the narrative concludes by analyzing the most enigmatic surviving fragment: the *ketos* (sea monster) at the god's foot. By explaining the mythological function of this hybrid beast, the app transforms an otherwise incomprehensible piece of carved marble into a powerful storytelling tool about the god's dominion over the ocean's chaotic forces.

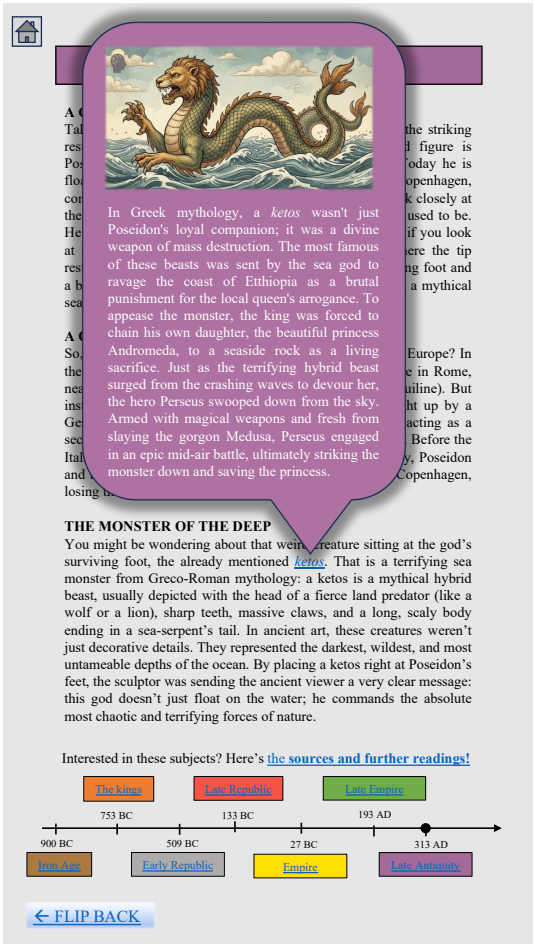


Fig. 47: Back side of Card number 10, with focus on the secondary layer introduced to represent the ketos

Finally, to further engage the user without filling the main interface with excessive information, a secondary layer of interactivity was introduced (Fig. 47). The specific term *ketos* within the descriptive text functions as an interactive hyperlink. Tapping this keyword opens a pop-up window featuring a visual representation of the sea monster. It also provides a brief, engaging digression into the myth of the hero Perseus, explaining his epic defeat of the beast to rescue the princess Andromeda.

3.12 The Map

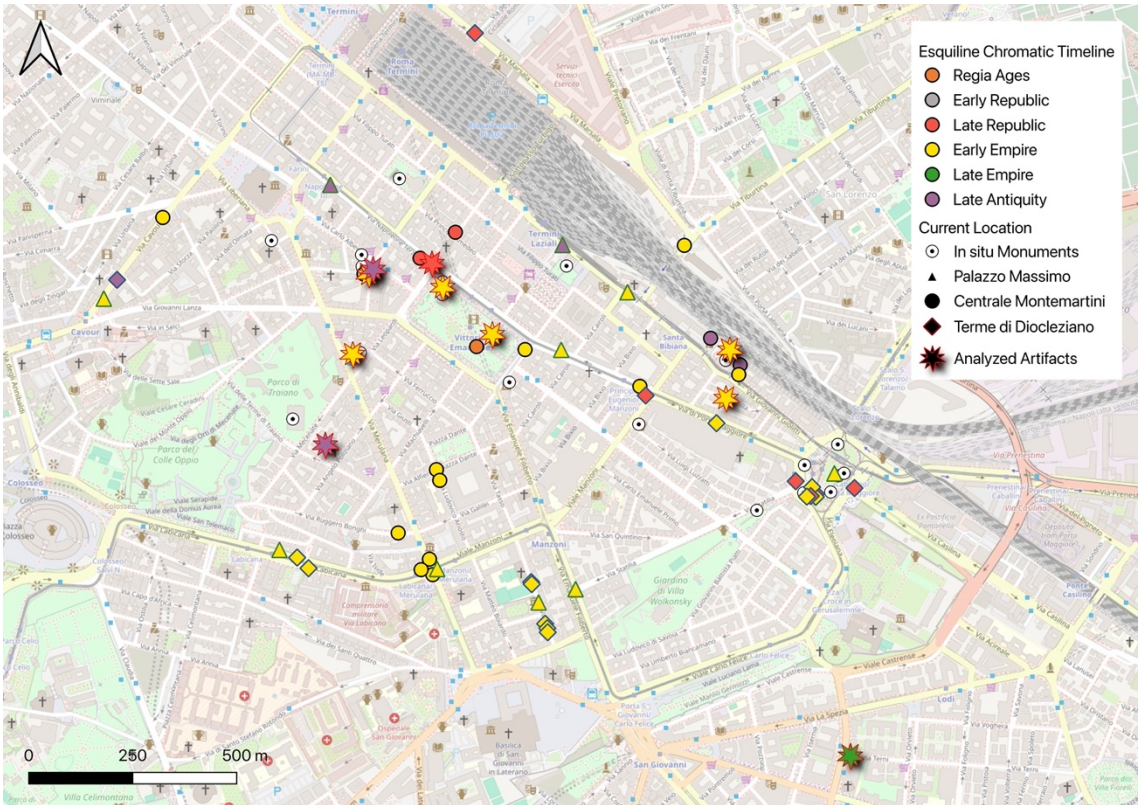


Fig. 48: GIS Mapping of the known Esquiline dispersed Heritage

The GIS map (Fig. 48) provides a comprehensive spatial synthesis of the Esquiline's dispersed heritage, incorporating not only the primary case studies but also the extensive corpus of findings detailed in *List 1, 2, 3*. Each entry has been geolocated based on historical excavation reports that preserved both the precise findspot and the chronological horizon. Indeed, not all the artifacts have been

reported since the lack of information and the difficulty on finding them. to provide an immediate visual breakdown of the archaeological dispersion, the geometric shape of each pin indicates its institutional location: the triangle for the Museo Nazionale Romano, Palazzo Massimo; the circle for the Centrale Montemartini; the diamond for the Museo Nazionale Romano, Terme di Diocleziano. The primary case studies analyzed in this research is an exception. They are represented with a star symbol, regardless of their museum affiliation. This choice prioritizes the narrative hierarchy of the application: since these specific items are linked to comprehensive ID cards, the user can access the full information about the artifact – including the current location – with a single tap on the star icon.

This cartographic output serves as a prototype of the application's interactive interface, illustrating the "maximum expansion" state of the map. In a real-world scenario, this density of data is revealed only through specific user interaction. By default, the application adopts "minimalist layer" approach: the initial view is restricted to monuments *in situ*, representing the first level of cognitive engagement for the user (Fig. 49).

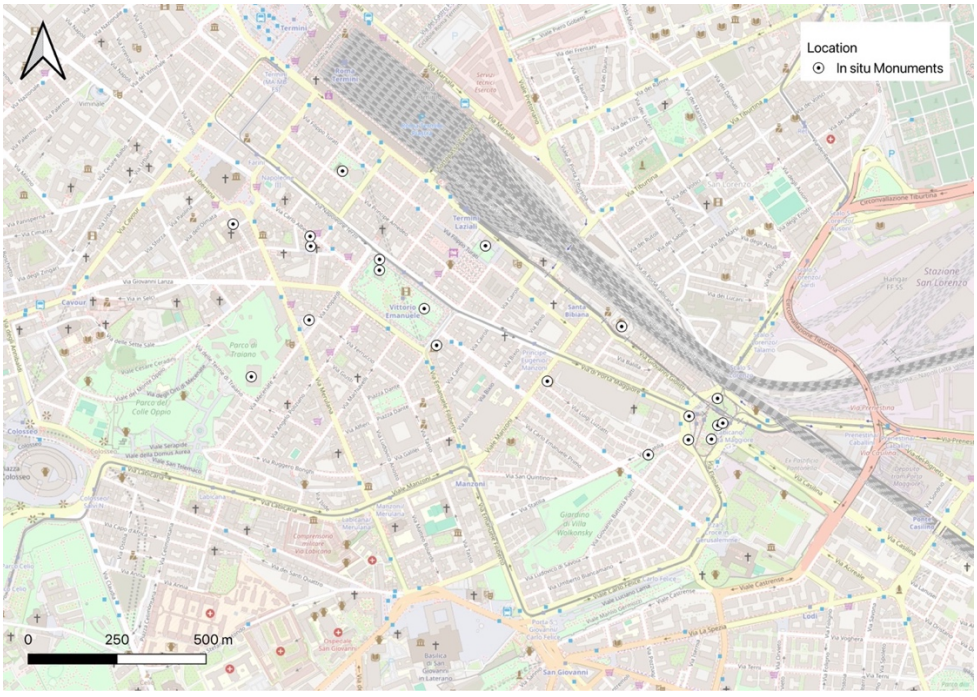


Fig. 49: GIS mapping of the Esquiline in situ Monuments

The secondary, more complex layer – the “invisible heritage” – is activated via a dedicated toggle. When triggered, the map is “re-populated” with the artifacts currently housed in the Roman Museums, effectively visualizing the historical “emptying” of the district. This dual-mode visualization is designed to mitigate cognitive overload while simultaneously providing a powerful spatial critique of the post-1870 decontextualization process.

CHAPTER 4
THE APP: CONCEPT, DESIGN AND USER EXPERIENCE

This chapter outlines the conceptual and structural architecture of the application. Moving from the methodological foundations established in the preceding sections, it analyzes the central vision of the project and the technical structure required for its implementation. Furthermore, the chapter clearly defines the specific User Personas the application is designed to serve. These include: the casual tourist, who requires intuitive spatial orientation within Rome's complex urban fabric; the local citizen, who often experiences visual habituation toward their daily historical surroundings; and the passionate student or researcher, who is provided with rigorous bibliographic tools to deepen the academic analysis. Ultimately, this chapter demonstrates how the integration of User-Centered Design, geolocated mapping, and cognitive gamification can effectively transform the dispersed heritage of the Esquiline Hill an accessible, interactive, and educational digital experience.

4.1 Project vision and core objectives

The genesis of the project is deeply rooted in a topographical and historical necessity: addressing the extreme decontextualization of the Esquiline Hill's heritage following the post-1870 urban expansion. Initially, the primary scope of this research was strictly analytical, aiming to virtually reconstruct the historical and artistic landscape of the district by reconnecting dispersed artifact to their original sites of discovery.

However, as the conceptual framework developed, the project's vision expanded significantly, shifting from a purely archaeological mapping exercise to a User-Centered approach. The ultimate focus narrowed onto the primary end-user: the tourist. The application was therefore redesigned to bridge two contrasting profiles. On one hand, it satisfies the "causal wanderer" – the tourist

who explores the city without a rigid itinerary and requires immediate, engaging visual stimuli to understand the surrounding ruins. On the other hand, it serves the "meticulous planner" – the dedicated museumgoer who seeks to establish profound historical connection between the artifacts displayed in indoor collections and the external urban fabric.

To successfully engage such a diverse audience, the core objective became the unified integration of education and entertainment ("edutainment"). The application achieves this dual global by employing a specific set of digital and narrative techniques:

- Geolocated recontextualization: utilizing GPS mapping to physically guide the user through the modern streets, revealing the invisible archaeological map beneath their feet.
- Augmented reality and Virtual repatriation: allowing users to visually superimpose missing architectural elements or museum artifacts directly onto the contemporary landscape.
- Layered storytelling: structuring the historical narrative into progressive levels of depth, accommodating both quick consumption and in-depth academic curiosity.
- Gamification and playful assessment: implementing interactive challenges and logic puzzles to transform the user from a passive reader into an active participant in the historical decoding process.

The complete functioning of the app will be developed later in the chapter.

4.2 Target audience and User Personas

In the development of Digital Public Archaeology tools, interface design must shift away from academic self-referentiality to embrace the principles of User-Centered Design (UCD). To ensure that, the App effectively addresses the needs of its audience, adopting the methodology of the *User Personas*: standard user models created to guide decisions regarding design, navigation, and tone of voice. In alignment with the objectives outlined in the previous section, the

application's architecture has been calibrated primarily around two tourist macro-profiles, characterized by diametrically opposed cognitive needs and exploration behaviors. These are complemented by a fundamental third local target.

1. **The casual Wanderer**

   Profile: this user explores the urban space without a rigid, predefined itinerary. They may not have planned specific visits to the Esquiline Hill but are pass through it (for instance, navigating around the San Vito hub). They possess a limited attention span for extensive texts and heavily favor immediate, visual learning.

   App requirements: they require an intuitive interface and captivating visual stimuli ("hooks") that instantaneously capture their attention.

   UX solution: for this profile, the App leverages geolocation-based prompts, evocative titles (e.g. "the agony of the beast"), and rapid interactions such as Augmented Reality. Features like the "X-Ray" mode or quick logic minigames (e.g. "Urban Jenga") allow this user to decode the historical palimpsest in seconds, providing immediate gratification without imposing a heavy cognitive load.

2. **The meticulous Planner**

   Profile: a methodical and culturally engaged visitor. They meticulously plan their visits to major museum institutions (such as the Capitoline Museums or Palazzo Massimo) in advance and are deeply interested in reconstructing a comprehensive historical and artistic context and masterpieces they observe.

   App Requirements: this user seeks scientific reliability data rigor, and a solid connection between the musealized artifact and the external urban fabric.

   UX Solution: the App addresses this need through the cross-referencing capabilities of its ID Sheets. While physically standing in the museum gallery, this user can use the app to initiate the artifact's "virtual repatriation", visualizing its precise excavation coordinates. The "Deep

Dive" section of the cards was specifically designed for this persona, offering detailed iconographic analysis, references to ancient sources (e.g. the mythological digression on the *Ketos*), and essential bibliography, thereby guaranteeing the academic authority of the experience.

3. **The Heritage Community**

   Profile: Roman citizens, Esquiline residents, or students who experience the district daily, often suffering from "visual habituation" toward the surrounding ruins.

   App Requirements and Solutions: for this demographic, the app functions as an instrument for cultural re-appropriation. By unveiling the invisible monumentality of the area, the App transforms a routine daily path into an act of continuous discovery, fostering civic awareness and encouragement for the preservation of local heritage.

4.3 System Architecture and User Journey

The information architecture of the App has been designed to transform the complex stratigraphy of the Esquiline Hill into a fluid navigational experience, specifically differentiated according to the visitor's physical context. Rather than imposing a single, rigid pathway, the application structures the User Journey starting from an initial bifurcation, adapting the interface to the distinct cognitive loads required by outdoor urban explorations versus indoor museum visits.

The experience starts with a contextual onboarding screen that presents the user with an immediate choice: "explore the map" (if they are outdoors) or "I am in a museum" (if they are inside an institution). This bifurcation resolves a fundamental User Experience: it separates the "casual wanderer" (who requires spatial orientation and GPS tracking) from the "meticulous planner" (who needs a focused search engine), directing each demographic to interface best suited for the specific mode of engagement.

a. The "Open-Air" interface

If the user selects the open-air itinerary, they access an interactive, geolocated map of the Esquiline area. The interface is structured across three levels of increasing complexity:

- Monumental level: displays the archaeological remains and monuments currently visible *in situ*
- Diaspora level: via a button switch (located in the top-left corner), the user can superimpose pins representing all the movable artifacts extracted from that specific area and currently housed in national or international museums. This feature visually translates the concept of decontextualization, demonstrating the extent of the ancient landscape's "emptying". The user can click on any artifact, and it will be directed to its ID sheet.
- Stratigraphic level: in areas with remarkably high density of discoveries, the map allows the activation of a vertical stratigraphic view. Utilizing the same colors as the ID cards (to ensure visual consistency), the app breaks down the historical phases of the site. This tool allows the user to approach the archaeological method, understanding how dating dynamics and complex urban evolutions are stratified within the exact same physical space.

b. The "Museum" interface

By selecting the museum option, the system deactivates the GPS map and presents a list of the primary Roman institutions involved in the project (e.g. Museo Nazionale Romano-Palazzo Massimo-Terme di Diocleziano, Capitoline Museums, Centrale Montemartini). Once their current museum is selected the user accesses an optimized search bar. To eliminate cognitive friction, the titles of the artifacts indexed in the app's database correspond exactly to the official nomenclature found on the physical museum labels. This terminological continuity guarantees rapid and efficient digital wayfinding among the gallery showcases.

The two pathways converge within the individual ID Sheets. Although the narrative body of the card remains identical, the primary interface (the front of the card) is programmed to be dynamic, adapting to the user's starting point:

- For the user originating from the Museum Interface, the card will feature the coordinates and map of the original findspot, instantly triggering the process of "virtual repatriation" back to the Esquiline Hill.
- For the user originating from the Open-Air map, the card will explicitly indicate the artifact's current museum location, serving as a direct invitation to physically continue the exploration indoors.

In both scenarios, the card architecture closes the epistemological loop of digital public archaeology, constantly and seamlessly reconnecting the movable object back to its topographical matrix.

Flipping the digital card transitions the user from spatial metadata to immersive storytelling. The core text abandons the sterile terminology of traditional museum catalogs to offer a concise narrative that socially and historically contextualizes the artifact. To prevent cognitive overload, the text features "visual triggers" – interactive micro-elements, such as explanatory pop-ups, detailed 3D models, or graphic overlays, that stimulate visual learning and maintain high user engagement without cluttering the interface.

Conceived specifically for the third tier of users – such as meticulous planners, university students, or the academic researchers – this final section provides a rigorous scientific anchor. It includes the "Sources and Further Readings" module, offering direct references to both ancient literary sources and modern scientific bibliography. This strategic inclusion ensures that while the application remains highly accessible and entertaining for the general public, it simultaneously functions as valid heuristic tool for advanced historical study.

4.3.1 Digital sustainability and the "No Waste" Principle

A crucial functional element integrated into the front interface of every ID sheet is the direct hyperlink connecting the user to the map of the GNA to pinpoint the artifact's exact discovery location. This specific architectural choice embodies the ethical and computational principle of "No Waste" in digital development. Rather than programming a redundant, proprietary spatial database from scratch – an endeavor that would merely duplicate the monumental, scientifically rigorous work already executed by the National Heritage institution – the App deliberately operates as an active, user-facing interface.

By adhering to Open Data principles, the application structurally relies on and integrates with pre-existing, high quality public infrastructure. This methodological approach not only guarantees the absolute scientific accuracy of the topographical data presented to the user but also actively promotes a sustainable digital heritage ecosystem. In this framework, existing institutional resources are wisely reused and amplified for the public, rather than wastefully replicated.

4.4 The implementation of Gamification in the ID sheets

The inclusion of game mechanics within the Application does not merely provide a generic need for entertainment, but rather operates as a precise strategy of museum didactics, commonly referred to as *edutainment*. As analyzed in chapter 3, the project consciously rejects superficial gamification based exclusively on PBL triad (Points, Badges, Leaderboards). Instead, it embraces an approach grounded in the Self-Determination Theory developed by Ryan and Deci. The primary objective is to satisfy the user's psychological need for "competence": the interface is designed to empower the user, making them feel capable of autonomously decoding complex historical information.

This vision translates into two primary interactive mechanisms, specifically designed to overcome two distinct communicative obstacles:

1. **The textual Decoding**: the first obstacle is the non-specialist public's natural aversion to dense blocks of epigraphic texts. In the ID sheet dedicated to the inscription of Epaphroditus, the App inverts the traditional paradigm: rather than immediately providing a passive translation, it introduces the "Latin Traps" minigame, centered on identifying semantic "false friends". This design choice rigorously applies the "testing effect" theorized in cognitive psychology by Roediger and Karpicke. Their research demonstrates that the active cognitive effort required to retrieve information and solve a puzzle ensures historical knowledge in long-term memory fare more effectively than passive reading. Furthermore, the system incorporates an "Instant Feedback Loop" (drawing upon Karl Kapp's instructional principles), which transforms an incorrect answer into a "safe failure" and an immediate learning opportunity.
2. **Comprehending the Palimpsest**: the second obstacle involves the challenge of communicating the highly abstract and often invisible concept of "urban stratigraphy" to an audience. The complex site of the Church of San Vito and the Arch of Gallienus is explored through the logic-based minigame "Urban Jenga". The user is required to actively drag and pile digital building blocks into their correct chronological sequence, progressing from the foundations of the Servian Walls up to the 20th century façade. This mechanism forces the user to actively participate in the stratigraphic reconstruction process. By physically manipulating the digital layers, the user intuitively comprehends that the ancient structures did not simply vanish, but rather form the literal and historical foundation of the modern city. This spatial gamification effectively bridges the cognitive gap between the visible ruins and their hidden past.

4.4.1 The Educational module: collaborative urban quests

A further stage of the application's architecture is dedicated to its pedagogical potential, specifically designed to transform the Esquiline into an

open-air classroom for schools and academic groups. Moving beyond the individual experience, this module addresses the needs for schools, facilitating a transition from a passive observation and learning to an active participation into the discovery of the ancient topography of Rome.

The core of this module is the “Educator Mode”, a specialized interface that allows instructor to create synchronized, private learning sessions. The teacher can generate a unique session code, or as it is usually called in videogames, a “Virtual Room”, to be shared with students. Once the code is entered, the application restricts the mapping area to a specific sector, such as Piazza Vittorio Emanuele II or the area around the Arch of Gallienus, focusing the student’s attention on a localized topographic context.

The interaction is built as a collaborative mission based on the principles of “Epic Meaning”, and social “Relatedness” (see 3.1.1). students are challenged to “capturing” relieves by physically reaching their original GPS discovery points. To successfully “unlock” an artifact the group must:

- Identify the findspot: use the geolocated map to navigate the precise point where the object was unearthed
- Occasionally solve the game in the card: complete the “Urban Jenga” or “Latin Traps” challenges associated with a specific site to demonstrate their understanding of the context

A key feature of this educational model is the “Digital Collection” within the user’s profile. Unlike a standard tour where information is often forgotten after the visit, every artifact successfully “captured” during the mission remains permanently stored in the student’s personal dashboard. It creates a personalized “Digital Excavation Diary” that students can consult anytime, fostering a sense of ownership over the local heritage. By turning the museum visit into a demonstration of skill and a collection of “trophies”, the application satisfies the innate psychological need for competence, ensuring that the archaeological data is not just discovered, but internalized.

4.5 Future implementation and Scalability

While the Esquiline Hill serves as the foundational case study for this project, it only represents the conceptual and structural prototype of the App. The true value of the application's underlying architecture lies in its infinite scalability. The digital methodologies developed here – specifically geolocated virtual repatriation, the dynamic Chromatic Timeline, and spatial gamification – are not strictly bound to the Roman context but are adaptable to any stratified geographical reality.

The core engine of the App is chronologically and geographically agnostic. By simply recalibrating the database parameters and the visual timeline, the application can effortlessly transition from mapping the Imperial Horti of Rome to decoding the stratified layer of any other city, becoming an intertwined thread of information. The project envisions a future where multiple civilizations and historical epochs can be navigated through the same universal, user-centered interface.

At its maximum expansion, the App is envisioned as a decentralized, open-source platform – a collaborative "Wikipedia of Stratigraphy". By integrating the crowdsourcing practices analyzed in chapter 2, researchers, local heritage communities, and indigenous groups worldwide could autonomously upload their own topographical data, ID sheets, and 3D models. In this visionary scenario, the App ceases to be a single application and becomes a global infrastructural protocol for Public Archaeology, transforming the fragmented history of human civilization into an accessible, unified, and interactive global palimpsest.

CONCLUSIONS

The post-1870 urbanization of the Esquiline has provoked a profound physical trauma on Rome's archaeological landscape, with the result of a multitude of dispersed and decontextualized artifacts. This research actively reduces this fragmentation through the implementation of Digital Public Archaeology, also by integrating topographic methodology with User-Centered design.

The main methodological achievement of this thesis lies in the translation of archaeological data into a dynamic, geospatial narrative. The creation of standardized ID Sheets, secured by GIS mapping, proved that historical databases can be adapted for public interaction without sacrificing academic rigor. The cartographic prototype developed in QGIS represents a critical advancement in heritage visualization. The application visualizes the trauma of dispersion, by allowing the user to visually shift from the current physical landscape and the huge density of "invisible" artifacts, turning a simple map into an immediate instrument of public awareness.

Furthermore, this research redefines the pedagogical potential of the urban landscape by shifting the user's ideal model from passive observation to active problem-solving. Through the concept of gamification, and the collaborative "Educator Mode", the App strengths a deep, physical engagement with the territory, ensuring the long-term retention of knowledge through the "Digital Wallet".

Lastly, this educational and structural architecture is entirely scalable. Built upon standardized digital formats (CSV datasets, uniform metadata, and WGS84 coordinates), the core engine of the Esquiline App can be replicated for other historical districts suffering from similar phenomena of urban decontextualization. In an era where cultural heritage is increasingly digitized yet often disconnected from its territory, this project offers a sustainable, scientifically grounded protocol. It proves that restoring the link between a dispersed artifact and its original

landscape is not merely an academic exercise, but an essential act of civic and cultural restitution.

LIST OF TABLES:

List. 1: Artifacts from the Esquiline, found during the excavations post 1870, housed in the Capitoline Museums, **Centrale Montemartini**

Type	Title	Date	Object Definition	Material, Technique	Provenance	N° inventary
RA	Portrait of Julius Casear	30-10 BC	Bust	Greek insular marble	Esquiline, 1874	MC 2638
RA	Funerary relief of a sacred banquet	100-50 BC	Relief	Peperino	Near the Church of San't Eusebio on Via Napoleone III, 1875	MC 1690
RA	Funerary monument of Roman flautists (Tibicines)	100-80 BC	Funerary monument	Peperino	Near the church of San Vito, 1875	MC1688, 1692, 1695, 1698, NCE 2904
RA	Fresco with military scenes	III century BC	Fresco	Painted plaster	Esquiline necropolis 1875	MC1025
RA	Paintings from the Arieti tomb	End of III century BC	Fresco	Painted plaster	Area of Porta Esquilina, 1875	MC 2459-2460
RA	Case with double sloping lid	End of VI beginning of V century BC	Funerary monument	Peperino	Piazza Vittorio Emanuele, 1888	AntCom 00455
RA	Cippus of Lucius Sentius	89 BC	Cippus	Travertine	Between Via Principe Amedeo and Via Alfredo Cappellini, 1884	MC1980, NCE2921
RA	Alabaster urn	2nd half of the I century BC	Funerary element	Alabaster	Near piazza Vittorio, 1874	AC 13249
RA	Urn of Napes, Antonina Minor's Freedwoman	End I century BC, beginning II century AD	Funerary element	Pink granite of Assuan	Along the ancient Via Labicana	MC 1324
RA	Statuette of Asclepius		Votive statue fragment	Greek insular marble	From Via S. Maria dei Monti, 1888	MC1148
RA	Head of Hera	Copy of 420 BC original	Statue fragment	Pentelic marble	From Via Labicana, 1886	MC1868
RA	Head of Perseus or Mercury		Statue fragment	Pentelic marble	From Via Labicana, 1886	MC1866
RA	Head of Harmodius		Statue fragment	Pentelic marble	From Via Labicana, 1886	MC 1864

RA	Statue of a deity lying on a rock	II century AD, copy of a IV century BC	Statue fragment	Marble from Luni	From Via Ruggero Bonghi, 1921	MC 2177
RA	Group of satyrs fighting a Giant	I century AD, copy of a Hellenistic prototype	Statue group	Marble from Asia Minor	From the nymphaeum discovered at Porta San Lorenzo 1874	MC951-952-953
RA	Statue of Hermes	I century AD	Statue	Parian marble	Found between Via Ariosto and Piazza Dante 1874	MC1128
RA	Statue of Athena Parthenos	I century AD, copy of a V century BC	Statue fragment	Marble from Luni	Found between Via Ariosto and Piazza Dante 1874	MC892
RA	Statue of Pothos and Headless statue of Pothos	II century AD	Statue group	Pentelic Marble	Found in Via Cavour 1940	MC1124
RA	Statue of a young magistrate	Late IV early V century AD	Statue	Parian marble	From the so-called temple of Minerva Medica	MC895
RA	Statue of a senior magistrate	Late IV early V century AD	Statue	Parian marble	From the so-called temple of Minerva Medica	MC896
RA	Statue of Dionysus	II century AD	Statue	Pentelic marble	From the so-called temple of Minerva Medica	Inv. AC31785
RA	Polychrome emblema with fishing scene	Late I early II century AD	Emblemata	Polychrome marble and limestone tesserae	Between Via Labicana and Via Merulana, near church of Santi Marcellino e Pietro	AC1785
RA	Polychrome emblema with herades scene	Late I early II century AD	Emblemata	Polychrome marble and limestone tesserae	Between Via Labicana and Via Merulana, near church of Santi Marcellino e Pietro	AC1785-a
RA	Polychrome emblema with Homer scene			Polychrome marble and limestone tesserae	Between Via Labicana and Via Merulana, near church of Santi Marcellino e Pietro	AC1785-b
RA	Statue of the muse Polyhymnia	150-60 AD	Statue	Parian marble	Horti Spei Veteris, Via Terni	MC2135
RA	Statue of a seated maiden	II century AD	Statue	Pentelic marble	Area of the Temple of Minerva Medica, 1879	MC 1107

List. 2: Artifacts from the Esquiline, found during the excavations post 1870, housed in Museo Nazionale Romano, **Palazzo Massimo**

Type	Title	Date	Object Definition	Material, Technique	Provenance	N° inventary
RA	Parietal fresco with Ulysses and the Sirens	I century BC	Painted plaster	Fresco	Rome, Esquiline, from a Domus located in the southern sector of the today Via Cavour, then Gorga collection	261833
RA	Lancelotti Discobolus	II century AD	Statue	Parian Marble, all round sculpture	Rome, Esquiline, Palombara Villa (1781).	126371
RA	Bottom fragments		Bottom	Glass	Esquiline	54811/ 1-39
RA	Bottom fragments		Bottom	Glass	Esquiline	54811/ 40-85
RA	Bottom fragments		Bottom	Glass	Esquiline	54811/ 86-127
RA	Bottom fragments		Bottom	Glass	Esquiline	54812/ 1-24
RA	Bottom fragments		Bottom	Glass	Esquiline	54812/ 25-40
RA	Edge fragments		Edge	Glass	Esquiline	54813/ 1-18
RA	Edge fragments		Edge	Glass	Esquiline	54813/ 19-20
RA	Edge fragments		Edge	Glass	Esquiline	54813/ 21-23
RA	Edge fragments		Edge	Glass	Esquiline	54813/ 24-25
RA	Glass fragments		Fragment	Glass	Esquiline	54815/ 1-221
RA	Glass fragments		Fragment	Glass	Esquiline	54811/ 128-135
RA	Glass fragments		Fragment	Glass	Esquiline	54811/ 136-139
RA	Antefix (15 pieces)		Antefix	Terracotta	Esquiline, Ministery of finances, then ex Kircherian.	62643-49 62976-77-79-80-91-92-93-94-95-96-97-98 63003
RA	Antefix		Antefix	Terracotta	Esquiline	54448
RA	Cup		Cup	Glass	Esquiline	54815/ 80-85
RA	Unguentarium		Unguentarium	Glass	Esquiline	54814
RA	Votive		Votive	Terracotta	Esquiline, already Kircherian	62472
RA	Votive		Votive	Terracotta	Esquiline, Statilii columbarium	62505

RA	No title		No title	Ceramic	Esquiline	54465
RA	Pictorial frieze form the Esquiline's columbary		Plaster coating	Plaster	Esquiline, Via Principe Eugenio, 1876	1286
RA	Pictorial frieze form the Esquiline's columbary		Plaster coating	Plaster	Esquiline, Via Principe Eugenio, 1876	1287
RA	Pictorial frieze form the Esquiline's columbary		Plaster coating	Plaster	Esquiline, Via Principe Eugenio, 1876	1288
RA	Pictorial frieze form the Esquiline's columbary		Plaster coating	Plaster	Esquiline, Via Principe Eugenio, 1876	1289
RA	Coating of opus sectile		Coating of opus sectile	Marble	Esquiline, basilica di Giunio Basso, 15th century	375830
RA	Panel in opus sectile with circus scene	IV century AD	Opus sectile coating	Marble, fiberglass	Esquiline, basilica di Giunio Basso 15th century	375831
RA	Aryballos	I-II century AD	Aryballos	Glass		54813/1
RA	Aryballos	I-III century AD	Aryballos	Glass		54815/53
RA	Glass	III-V century AD	Glass	Glass		8291
RA	Glass	II-V century AD	Glass	Glass		54812/39bis
RA	Glass	II-V century AD	Glass	Glass		54812/38
RA	N/I shape	II-V century AD	N/I shape	Glass		362017
RA	N/I shape	II-V century AD	N/I shape	Glass		362019
RA	N/I shape (42 pieces)	II-V century AD	N/I shape	Glass		548111/136 54812/1-40 54815/32
RA	Slab		Slab	Pink clay		62715
RA	Oil lamp	III-II century AD	Oil lamp	Clay		53893b

RA	Oil lamp	III-II century BC	Oil lamp	Clay		53893a
RA	Panel	I century BC	Panel	Plaster		10911L
RA	Panel	I century BC	Panel	Plaster		1090L
RA	Panel	I century BC	Panel	Plaster		59626 = 212316L
RA	Portrait of a young Tiberius	IV AD, copy of Hadrian period	Bust	Greek marble	From Via Giolitti	Inv. 115256
RA	Augustus as Pontifex Maximus	27BC-14AD	Statue	Greek marble (head, forearm), italic marble (statue)	From Via Labicana	Inv. 56230
RA	Cinerary urn depicting Heracles initiated to the Eleusian Mysteries	Early imperial age	Urn	Fine-grained white marble	From the area of the columbarius near Porta Maggiore	Inv. 1131
RA	Pan	Early imperial age	Statue	Mid-grained white marble	From Via Tasso, foundation of the Ministry of the interior palace	Inv. 52389
RA	Relief with Menad and goat	117-138 AD	Decorative relief	Pentelic marble	Between Via Filiberto and Via Statilia, Horti Lamiani, 1921	Inv. 126375
RA	Bust of Hadrian type	117 AD	Bust	Fine-grained white marble	From Termini station, corner of Via Giolitti around Santa Bibiana's arch, 1941	Inv. 124491
RA	Portrait of Faustina Minor	175 AD	Statue fragment	Greek white marble	Form Villa Altieri, between Via Merulana and Via Manzoni	Inv. 691
RA	Pictoric frieze from the columbarium of the Esquiline	1st imperial period (frieze) late III century AD (vaults)	Plaster coating	Plaster with paint	From Via Principe Eugenio, 1875	Inv. 1286-1287-1288-1289

List. 3: Artifacts from the Esquiline, found during the excavations post 1870, housed in Museo Nazionale Romano, **Terme di Diocleziano**

Type	Title	Date	Object Definition	Material, Technique	Provenance	N° inventary
RA	An offering to the god of military valour (Honos)	Late III century BC	Votive inscription	Travertine	From via XX settembre, ministry of finances	39890
RA	Family group with a child	75-50 BC	Funerary stele	Travertine	From the columbarium of the Statilii	
RA	Baker's wife	50-25 BC	Funerary inscription	Travertine	From piazzale Labicano, around Porta Maggiore	
RA	Association of singers-actors	Mid I century BC	Funerary block of Greek cantores	Tufa	From the corner of Via di Porta Maggiore and via Statilia.	124657
RA	The lictor Marcus Vergilius Spaerus	Mid I century BC	Funerary inscription	Travertine	Via Capua 49, around cemeteries area of Via Labicana	
RA	Funerary cippus of Ascia, f.c. of Agapema, f.c. of a family of slaves	Mid I century BC	Funerary inscription	Travertine	Porta Maggiore, between Via P. margherita and Via P. Eugenio	Inv. 39683-39682-520186
RA	A freedwoman with two patrons	I century BC	Funerary inscription	Travertine	Via Marsala cemetery	124049
RA	Contract for public works for Via Caecilia	Beginning I century BC	Slab	Travertine, chiselling	Between piazza Esedra and via XX settembre, secondary use	443
RA	An impressive tomb for the famous Epafrodito	Domitician age	Inscription	Cast	Near porta Maggiore, the ancient Horti Epaphrotidiani	45754
RA	Funerary relief dedicated by her friend Caius Domitius Agathopus to Maria Auxensis	Beginning II century AD	Funerary stone	Marble from Luni	Via Labicana	226139
RA	Cinerary altar of Didia Charis	I-II century AD	Cinerary altar	White marble	Via di porta Maggiore	75271
RA	Cinerary altar dedicated by Titus Flavius Crhysippus to his wife Iulia Capriola	Early II century AD	Cinerary altar	White marble	During excavation of Compagnia Fondiaria Italiana, 1875.	87
RA	Cinerary altar of Vitalis	Early II century AD	Cinerary altar	White marble	During excavation of Compagnia Fondiaria Italiana, 1875.	74
RA	Ara with dedication to the gods of the Equites Singulares	133 AD	Altar	Marble	Via Tasso, barracks of the Equites Singulares, 1885-1889	78170
RA	Ara with dedication to Jupiter Dolicheno	II century AD	Altar	Marble	Via Tasso, barracks of the Equites Singulares, 1885-1889	78193

RA	Ara dedicated to Sabazio	III century AD	Altar	Marble	Via Tasso, barracks of the Equites Singulares, 1885-1889	78187
RA	Ara dedicated to silvanus	II century AD	Altar	Marble	Via Tasso, barracks of the Equites Singulares, 1885-1889	72454
RA	Ara dedicated to various gods	II century AD	Altar	Marble	Via Tasso, barracks of the Equites Singulares, 1885-1889	78178
RA	Slab dedicated to the Sol Invictus		Slab	Marble	Via Tasso, 1885-1889	
RA	Burial slab of Fustus		Inscription	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of Cadmus		Inscription	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of Evenus	Mid I century AD	Slab	Marble	Porta Maggiore, Columbarium of Statilii, 1876	30568
RA	Burial slab of Gemellus		Slab	Marble	Porta Maggiore, Columbarium of Statilii	buria
RA	Burial slab of Italia		Stele	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of Nicepor	1-50 AD	Slab	Marble	Porta Maggiore, Columbarium of Statilii	33254
RA	Burial slab of Optata		Slab	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of Pilhemo		Slab	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of a cook	Late I century BC	Slab	Marble	Porta Maggiore, Columbarium of Statilii	30570
RA	Burial slab of a slave from Cilicia		Slab	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Burial slab of Nothus		Inscription	Marble	Porta Maggiore, Columbarium of Statilii	
RA	Fictile sarcophagus	Early I century AD	Sarcophagus	Clay	Porta Maggiore, Columbarium of Statilii	454
RA	Sarcophagus with garlands, cupids, satyrs	II century AD	Srcophagus	White marble	Via labicana	2002872
RA	Statue of Jupiter Aegidus	IV-V century AD	Sculpture	Parian marble	Via Cavour	324751
RA	Sepulchral slab of Caecinia Bassa		Slab	Marble	Esquiline, church of Santa Bibiana	
RA	Votive altar dedicated to Hercules	Republican times	Altar	Peperino	Anguillara Sabazia	114760
RA	Relief	I century AD	Relief	Marble from Luni		495
RA	Relief	I-II century AD	Relief	Marble from Luni		165

List 4: List of artifacts coming from the ground of the convent of S. Francesco di Paolo, in the Ruins of a Roman building in 1793

Type	Title	Date	Object Definition	Material, Technique	Current Location	Museum number
RA	Proiecta Casket	380 ca. AD	Casket	Silver and gold gilded, incised and relief	British Museum	1866, 1229.1
RA	Muse Casket	330-370 AD	Casket, flask, container	Silver, engraved, repoussé	British Museum	1866, 1229.2
RA	Paris Patera	380 ca. AD	Patera	Silver	Petit Palais Paris	ADUT171
RA	Fluted Dish	330-370 AD	Dish	Silver	British Museum	1866, 1229.3
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.11
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.12
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.13
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.14
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.15
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.16
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.17
RA	Monogram Plate	2nd half IV century AD	Plate	Silver with gilding and niello inlay	British Museum	1866, 1229.18
RA	Dish	4th century AD	Dish	Circular silver dish with a fluted rim	British Museum	1978, 1231.1
RA	Dish	2nd half IV century AD	Dish	Silver	British museum	1866, 1229.9
RA	Bowl	2nd half IV century AD	Bowl	Silver	British Museum	1866, 1229.8
RA	Flask	2nd half IV century AD	Vase	Silver, relief, incised	British Museum	1866, 1229.4
RA	Pelegrina Ewer	2nd half IV century AD	Vessel	Silver and niello, incised and engraved	British Museum	1866, 1229.5
RA	Naples Ewer	2nd half IV century	Vessel	Bronze with silver inlay	Museo Archeologico Nazionale di Napoli	
RA	Amphora	2nd half IV century AD	Vessel	Silver	British Museum	1866, 1229.6

RA	Amphora	2nd half IV century AD	Vessel	Silver	British Museum	1866, 1229.7
RA	Spoon	2nd half IV century AD	Spoon	Silver, pear-shaped bowl attached to handle with a curve	British Museum	1866, 1229.37
RA	Spoon	2nd half IV century AD	Spoon	Silver, engraved, egg-shaped bowl, damaged along axis	British Museum	1866, 1229.32
RA	Spoon	2nd half IV century AD	Spoon	Silver, asymmetrical pear-shaped bowl ends vertical in scroll	British Museum	1866, 1229.36
RA	Spoon	2nd half IV century AD	Spoon	Silver, shallow oval bowl, eight-sided handle	British Museum	1866, 1229. 39
RA	Spoon	2nd half IV century AD	Spoon	Silver, engraved, egg-shaped bowl, faint relief resembling the veins of a leaf	British Museum	1866, 1229.31
RA	Spoon	2nd half IV century AD	Spoon	Silver, incised line around interior of bowl below rim, visible graffito on bowl	British Museum	1866, 1229.38
RA	Spoon	2nd half IV century AD	Spoon	Silver, with yellow inlay? Engraved	British Museum	1866, 1229.33
RA	Spoon	2nd half IV century AD	Spoon	Silver, engraved narrow egg-shaped bowl	British Museum	1866, 1229.35
RA	Spoon	2nd half IV century AD	Spoon	Silver, monogrammed in centre of bowl engraved eith thin serif capitals	British Museum	1866, 1229.34
RA	Furniture ornament: Tyche of Alexandria	330-370 ca. AD	Furniture-fitting	Silver with gilding, decorative engraving, gilded drapery, holds fruits and sheaves of grain	British Museum	1866, 1229.24
RA	Furniture ornament: Tyche of Constantinople	330-370 ca. AD	Furniture-fitting	Silver with gilding, decorative engraving, gilded drapery, hold a patera and a cornucopia	British Museum	1866, 1229. 23
RA	Furniture ornament: Tyche of Antioch	330-370 ca. AD	Furniture-fitting	Silver with gilding, below the figure: personification river Orontes	British Museum	1866, 1229.22
RA	Furniture ornament: Tyche of Rome	330-379 ca. AD	Furniture-fitting	Silver with gilding, figure wears armlet, helmet, holds a staff and shield	British Museum	1866, 1229.21
RA	Furniture ornament: left hand	2nd half IV century AD	Furniture-fitting	Silver with gilding, hand grasping a cylinder topped with a sphere	British Museum	1866, 1229.19

RA	Furniture ornament: right hand	2nd half IV century AD	Furniture-fitting	Silver with gilding, hand grasping a cylinder topped with a sphere	British Museum	1866, 1229.20
RA	Horse-brass	330-370 ca. AD	Equestrian equipment	Silver, gilding, engraved, four alternating, incised, linked plates	British Museum	1866, 1229.27
RA	Horse-brass	330-370 ca. AD	Equestrian equipment	Silver, gilding, engraved, nine alternating, incised, linked plates	British Museum	1866, 1229.25
RA	Horse-brass	330-370 ca.	Equestrian equipment	Silver, gilding, engraved, nine alternating, incised, linked plates	British Museum	1866, 1229.26
RA	Horse-brass	330-370 ca. AD	Equestrian equipment	Silver, gilding, engraved, nine alternating, incised, linked plates	British Museum	1866, 1229.28
RA	Horse-trappings	2nd half IV century	Equestrian equipment	Silver, gilding, engraved, two alternating, incised, linked plates	British Museum	1866, 1229.30
RA	Horse-trappings	2nd half IV century	Equestrian equipment	Silver, gilding, engraved, nine alternating, incised, linked plates	British Museum	1866, 1229.29
RA	Ring	2nd half IV century	Ring	Silver, gold inlay, engraved, figure of winged victory	British Museum	1866, 1229.43
RA	Earring	13th – 14th century AD	Earring	Silver, torque moldings, silver granulates	British Museum	1866, 1229.46
RA	Earring	13th – 14th century AD	Earring	Silver, torque moldings, silver granulates	British Museum	1866, 1229.44
RA	Earring	13th – 14th century AD	Earring	Silver, torque moldings, silver granulates	British Museum	1866, 1229.45
RA	Pin	2nd half IV century	Pin	Silver, solid cast, engraved, figure of Venus at her toilet holding mirror	British Museum	1866, 1229.42
RA	Pin	2nd half IV century	Pin	Silver, round in section, cushion capital	British Museum	1866, 1229.40
RA	Fibula	2nd half IV century	Fibula	Silver, gilded, cross-bow type, free swinging iron pin	British Museum	1866, 1229.53
RA	Fibula	2nd half IV century	Fibula	Silver, bow type, round, two coil mechanism spring, hook at end of bow	British Museum	1866, 1229.55

RA	Fibula	2nd half IV century	Fibula	Silver, bow type, catch plate with vandyke moulding on edge of outer face and rounded knob	British Museum	1866, 1229.54
RA	Fibula	2nd half IV century	Fibula	Silver, bow type, ridge running at right angles to the long axis	British Museum	1866, 1229.56
RA	Fibula	2nd half IV century	Fibula	Silver, niello inlay, cross-bow type, free swinging pin, flat, elongated pin guard	British Museum	1866, 1229.52
RA	Charm	2nd half IV century	Charm	Silver, left forearm and hand grasping a flaming torch	British Museum	1866, 1229.47
RA	Charm	2nd half IV century	Charm	Silver, crouching mouse eating a piece of fruit, long tail loops around ending in a curl	British Museum	1866, 1229.49
RA	Handle	2nd half IV century	Handle	Silver, one of a pair, semi-circular arch of thick wire which curves back on its self to form two swans' heads	British Museum	1866, 1229.57
RA	Handle	2nd half IV century	Handle	Silver, one of a pair, semi-circular arch of thick wire which curves back on its self to form two swans' heads	British Museum	1866, 1229.58
RA	Terminal	2nd half IV century	Final	pewter; miniature left hand grasping short circular headed rod; incised design; back of hand: engraved depiction of a building	British Museum	1866, 1229.48
RA	Handle	VI century AD	Handle	Originally belonging to a knife, silver with gold and niello inlay	British Museum	1866, 1229.50
RA	Fragment	2nd half IV century	Fragment	From a plate or a bowl, silver with gilding, head and forequarters of a grimacing panther, fore-paws grasp the skull of a ram	British Museum	

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