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Digitally Documenting the Transformation of the Eternal City. Cities in Text: Rome

Documentar digitalmente la transformación de la Ciudad Eterna. Cities in Text: Rome

Documentação digital da transformação da Cidade Eterna. Cities in Text: Rome

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Mapas, Arquitectura, Aplicación para móviles, Forma urbana, Historia urbana

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Abstract | Resumen | Resumo

Historical guidebooks and maps of Rome provide both an architectural narrative and a snapshot of the city at distinct historical moments. The Historic Urban Environments Lab at the University of Notre Dame (HUE/ND) combined these resources to create *Cities in Text: Rome*. This interactive research tool was designed to analyze the complex layers of the Eternal City. It provides access to the digital representation of guidebooks produced in the sixteenth, seventeenth, and eighteenth centuries. These works have been transcribed, translated, and linked with historic and present-day maps, photographs, and drawings presented on a website and mobile application (hue.nd.edu). The project led to several discoveries, including identifying the existing remains of Rome's medieval residential façade porticoes, which were measured, drawn, and mapped. The work contributes to an understanding of the evolution of Rome's cityscape, including its medieval fabric wholly ignored in these guides but still visible today.

Las guías y mapas históricos de Roma proporcionan una narración arquitectónica y una instantánea de la ciudad en distintos momentos históricos. El Laboratorio de Entornos Urbanos Históricos de la Universidad de Notre Dame (HUE/ND) combinó estos recursos para crear *Cities in Text: Rome*. La herramienta de investigación interactiva se diseñó para analizar los complejos estratos de la Ciudad Eterna y nos permite acceder a la representación digital de guías publicadas en los siglos XVI, XVII y XVIII. Estas obras han sido transcritas, traducidas y vinculadas a mapas, fotografías y dibujos actuales e históricos que se presentan en el sitio web y en una aplicación para móviles (hue.nd.edu). Gracias al

proyecto se hicieron varios descubrimientos, como la identificación de las ruinas de pórticos de fachadas residenciales de la Roma medieval que se midieron, dibujaron y cartografiaron. El trabajo ayuda a comprender la evolución del paisaje urbano de Roma, incluida su fábrica medieval, completamente ignorada en esas guías pero que sigue siendo visible en la actualidad.

Os guias e mapas históricos de Roma fornecem tanto uma narrativa arquitetónica como um retrato da cidade em momentos históricos distintos. O Laboratório de Ambientes Urbanos Históricos da Universidade de Notre Dame (HUE/ND) combinou estes recursos para criar *Cities in Text: Rome*. Esta ferramenta interactiva de investigação foi concebida para analisar as camadas complexas da Cidade Eterna. Permite o acesso à representação digital de guias produzidos nos séculos XVI, XVII, e XVIII. Estas obras foram transcritas, traduzidas e associadas a mapas, fotografias e desenhos históricos e actuais, apresentados num website e aplicação móvel (hue.nd.edu). O projecto levou a várias descobertas, incluindo a identificação dos vestígios dos pórticos da fachada residencial medieval de Roma, que foram medidos, desenhados e cartografados. O trabalho contribui para uma compreensão da evolução da paisagem urbana de Roma, incluindo o seu tecido medieval, que é totalmente ignorado nestes guias, mas ainda hoje é visível.

Introduction and Methodology

Cities in Text: Rome provides access to historic travel literature and the buildings and monuments they describe virtually. Few cities are as well documented as Rome. Hundreds of travel guides were produced from the 15th to the 19th century encouraging informative tourism. These antique guides are underutilized today – primarily due to lack of availability. Most are housed in rare book collections

Figure 1: Digitally layered view of the Porta del Popolo taken from the Via Flaminia, combining Giuseppe Vasi's engraving and contemporary photography (HUE/ND)



at academic institutions. By physically removing barriers to their usage, Rome's development can be visualized chronologically in the form of a website and mobile application. The digital platforms allow its users to view Rome dynamically, peeling back its layers and experiencing its urban and architectural renovation through three hundred years of history (Fig. 1). The unique combination of historical texts (in Italian and English), digital images, and mapped itineraries allows one to unravel Rome's complex history.

To construct a robust resource capable of displaying content from various points in time, the team partnered with the Library of the American Academy in Rome (AAR). Three historical guides to the Eternal City were selected from the AAR's Barbara Goldsmith Rare Book Room and digitized. The books include Bernardo Gamucci's *Le Antichità della Città di Roma* (1565), Federico Franzini's *Descrittione di Roma Antica e Moderna* (1643), and Giuseppe Vasi's *Itinerario Istruttivo Diviso in Otto Giornate* (1777). These specific works were chosen for the quality of their scholarship, observations, illustrations, and itineraries. When examined together, they provide a comprehensive verbal and visual account of the city's monuments. These include the villas, gardens, vineyards, ancient ruins, temples, baths, aqueducts, palaces, churches, cafes, religious convents, monasteries, schools, colleges, seminaries, boarding schools, hospitals, hospices, and prisons.

Once the books were selected and digitized, each text's daily itineraries were then physically mapped on-site with handheld GPS units. Photographs and videos were taken along



Figure 2: Drawing of the Church of S. Niccolò in Arcione, demolished in the first quarter of the nineteenth century Drawing by Madeline Fairman, HUE/ND)

the paths outlined in the texts. Moreover, students made drawings of the buildings identified by each of the authors that are no longer standing today. The students undertook extensive library and archival research to find historical

drawings, photographs, and other essential material to represent the demolished structures accurately (Fig. 2). The books were then transcribed in Italian and translated into English (Fig. 3). The data collected and produced during the first phase of the project was then used to create the website and mobile application content.

To accurately visualize the topographical changes that emerged in the city from the 18th century to the present day, the team chose to layer a contemporary city map and satellite views with Giovanni Battista Nolli's *Nuova Pianta di Roma* (1748) (Fig. 4). Nolli created the first authentic portrait of a city with this work, capturing Rome's essence like no other *veduta* (view) of its time, providing precise measurements of the most iconic ancient, Renaissance, and Baroque monuments. Moreover, it conveys Rome's medieval remnants, much of which was destroyed following Italy's unification and well into the first half of the 20th century, especially in the *rioni* (districts) of Monti, Sant'Angelo, and Campitelli. The ichnographic plan remains one of Rome's most accurate surveys ever realized and precisely documents the city's complex palimpsest while celebrating the overall architectural and urban achievements manifest in the metropolis throughout its history. What boldly emerges in Nolli's plan is the contemporary city's unique relationship with its ancient past. Nolli's work is an ideal record to digitally overlay with the present-day city map to allow users of the website and mobile application to toggle between the Rome of today and the 18th century (Fig. 5). The plan is a perfect companion to Vasi's *Itinerario* because it depicts the city at the exact moment it is being described. The Rome of Nolli and Vasi was much different from the metropolis observed and described by Gamucci and Franzini, yet utilizing Nolli's map together with the 16th

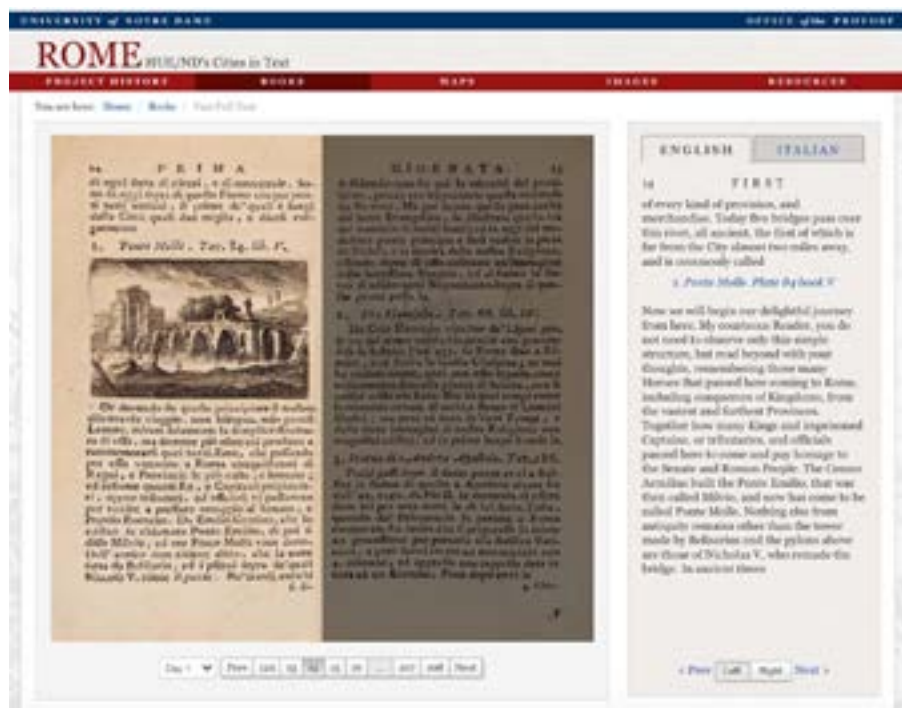


Figure 3: Giuseppe Vasi's digitized text with Italian transcription and English Translation of the Ponte Milvio (HUE/ND)

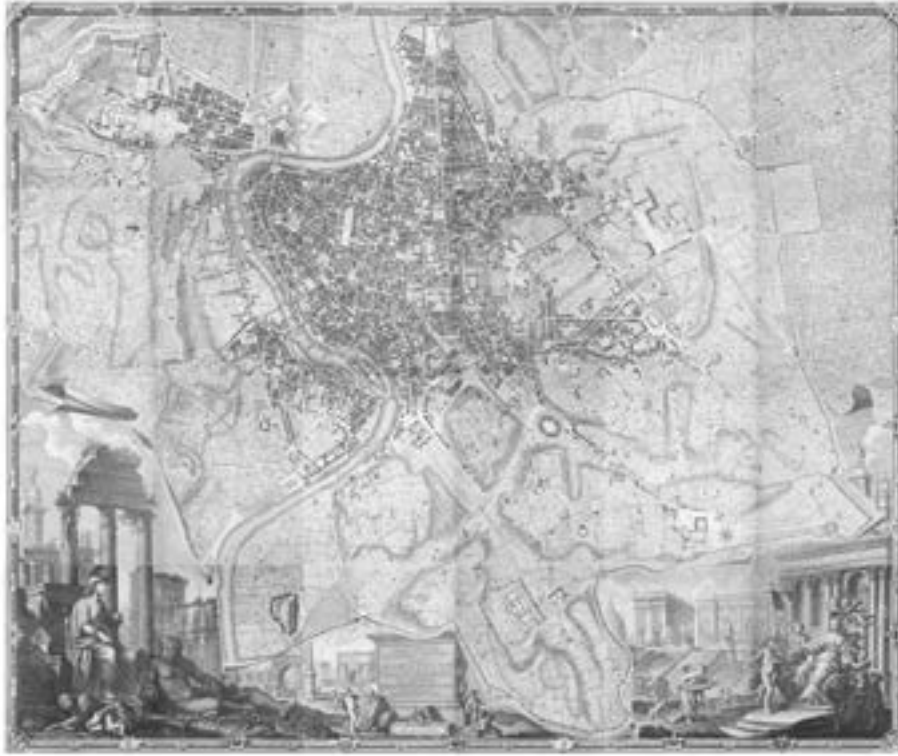


Figure 4: Giovanni Battista Nolli, *Nuova Pianta di Roma*, 1748 (HUE/ND)

and 17th-century author's texts, one can see how much the physical landscape of Rome evolved over the centuries. The team is currently adding additional map layers from other centuries to make the topographic transformation over time easier to identify.

Roman Guidebooks and Urban Topography

Rome, the Eternal City, has captured the imagination of travelers for over two millennia. From its ancient ruins to its sacred Christian monuments, visitors have flocked to this famed metropolis to study its art and architecture. Guides to the city's wonders were produced as early as the 8th-9th centuries CE, such as the Einsiedeln manuscript, which included a collection of Latin and Greek inscriptions, followed by twelve itineraries that traversed the center of Rome and several extramural sites. Four of the itineraries begin at St. Peter's Basilica, indicating that the manuscript would have been written for pilgrims. Accommodations and other charitable facilities were concentrated in the Borgo near the Basilica, making it an epicenter for medieval travelers (Liverani 2013: 25-28). The manuscript also described the city's walls and Easter ceremonies, ending with a small collection of poems and epitaphs. The Einsiedeln manuscript was one of the first records chronicling ancient and Christian monuments (Blennow 2019: 33).

In the 12th century, the *Mirabilia Urbis Romae* (Marvels of the City of Rome) provided visitors with essential information about its complex history, including its classical

remains and Christian monuments. It was divided into three main sections. The first of which organized buildings by type, including palaces and temples. The second part was dedicated to tales from pagan and Christian Rome. The third provided an itinerary that listed monuments encountered along one's journey, beginning at St. Peter's, passing through the center, and ending in *rione* Trastevere.

After 1420 when Pope Martin V re-established the papacy in Rome, learned visitors descended on the Eternal City in increasing numbers to study its antiquities. Flavio Biondo published his guide, *Roma Instaurata*, in 1446 in response to the growing interest in the study of Rome's built history. Biondo's text was the first to reconstruct the ancient city and included modern buildings. The book was arranged both topographically and typologically. These historic guides offer a unique glimpse into the past, allowing contemporary readers to understand how the city was viewed, traversed, and analyzed historically. The itineraries were primarily concentrated within the metropolis's walled confines, with few excursions beyond them to visit famous pilgrimage sites. These guides established a standard for describing the Eternal City and its ancient and Christian monuments, often overlooking its most ubiquitous feature, its residential fabric. The lack of documentation of the city's medieval domestic architecture in these historical guides and those chosen to develop *Cities in Text: Rome* prompted the team to pay particular attention to and document this elusive feature of Rome's architectural heritage. Leading to the identification of Rome's semi-hidden porticoes, which the team documented and mapped, contributing a visual record of these historical structures as they stand today.

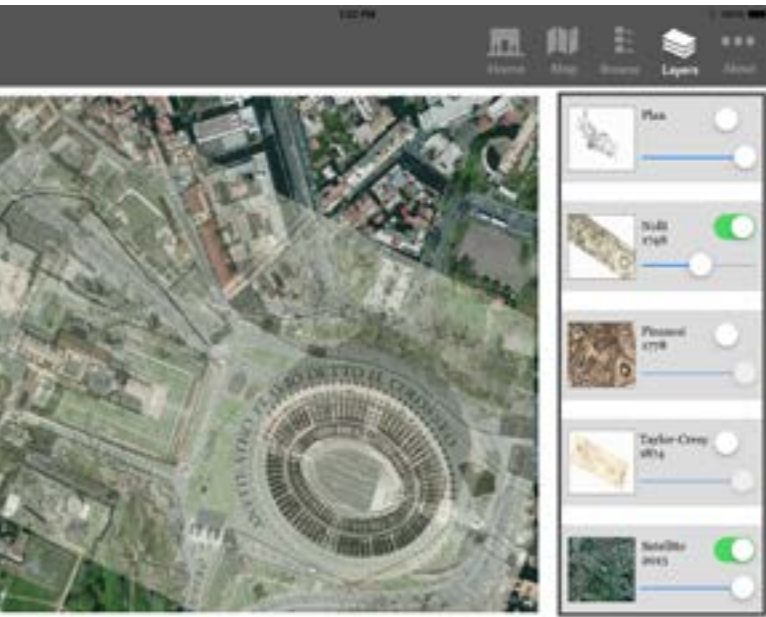


Figure 5: Layered Rome map depicting the Colosseum area today with Nolli's map of 1748 (HUE/ND)



Figure 6: Giuseppe Vasi's itinerary, indicating the sites covered inside and outside the Aurelian Walls. Each red dot is numbered and corresponds to the monuments described in Vasi's texts. The red line indicates the path between each place discussed in the eight days of itineraries found in the text (HUE/ND)

A vital aspect of this project was on-site data collection. The team surveyed each of the itineraries outlined in the three texts. Over 200 kilometers of Rome was traversed by foot in fifteen days, covering sites both inside and outside the city's walls to faithfully reconstruct the authors' urban experience intended for their readers. Of the three texts documented, Vasi's was by far the most comprehensive and instructive itinerary, which recorded over 400 monuments and urban spaces, which fluidly brought readers through

the city's center and its surrounding countryside (Fig. 6). Unlike Gamucci and Franzini, Vasi's curated tour included famed structures and newly built prisons, workhouses, hospitals, and theaters. He even invites people to leave the city's chaos behind to enjoy the surrounding countryside, villas, and pilgrimage sites while indicating gastronomical delights at cafes and restaurants.

Vasi's guidebook was the most innovative as it served as the second publication of a four-part opus dedicated to Rome, which included his 1. *Delle Magnificenze di Roma Antica e Moderna* (1742-1761) 2. *Itinerario Istruttivo Diviso in Otto Giornate* (1763 and 1777) 3. *Propsetto della Alma Città di Roma* (1765) and 4. *Nuova Pianta di Roma* (1781). Vasi first experimented with typology as the organizing principle of his *Magnificenze* comprised of ten books organized by subject; he then used topography to arrange his eight-day guide to Rome. He masterfully links the sites visited in his *Itinerario* back to his previously published *Magnificenze* and its 250 incredible views of Rome. The *Itinerario* and its seventy-four small-scale *rametti* served as a portable supplement to his more prominent and expensive *Magnificenze*. His famous *Propsetto* is a sweeping panorama of the city, which he indicates in his guide, was taken from the highest point of the Corsini Palace's gardens. It provides a numbered index of 390 items displayed in the view. The structures identified were divided into eight days to corresponds with his previously published *Itinerario*. Vasi's last and least appreciated work was his *Nuova Pianta di Roma*, a large format pictorial map of the city first published at a much smaller scale in his *Itinerario* (Fig. 7). Vasi's guide served as the hinge of his entire artistic oeuvre dedicated to Rome's documentation and visualization.

Figure 7: Giuseppe Vasi's Rome map with twenty locations numbered to orient his readers (HUE/ND)



Preliminary Findings. Identification of Architectural and Urban Transformation with *Cities in Text: Rome*

Combining the digitized texts of each travel guide, including their illustrations and mapped itineraries, the website and mobile application provide easy access to the visualization of the transformation of the appearance of Rome's monuments and urban form. In some cases, the guides capture famed structures' disappearance from the cityscape, including the Trevi Fountain (designed by Leon Battista Alberti), the Septizodium, and the Arco di Portogallo to name a few. In their description of the Trevi Fountain, Franzini and Vasi provide illustrations of Alberti's 15th-century design (Fig. 8). In the 17th century, Alberti's fountain was eventually demolished to make room for Bernini's creation of a new sculptural embellishment to terminate the celebrated water source (Pinto 1985: 13). Bernini's unfinished project was then redesigned and completed by Nicola Salvi in the 18th century. The Trevi Fountain design by Salvi was completed merely a few years before the first edition of Vasi's *Itinerario Istruttivo* and is shown as complete in Nolli's map even though it was still under construction while he was surveying Rome (Fig. 9).

Gamucci and Franzini provided documentation of ancient structures that are no longer standing today, including the Septizodium. The wall fountain was erected by the emperor Lucius Septimius Severus at the Palatine Hill's base in 203 CE. The three-story columnar façade served as a grand visual terminus to the via Appia (Fig. 10). The remaining portions of the Septizodium were pulled down some twenty years after Gamucci's publication in 1588 by the architect and engineer Domenico Fontana following Pope Sixtus V's orders to demolish the ancient remains. The entire work was gone by 1589, with its salvaged material reused in other architectural projects throughout the city, including the chapel Sixtus V built in the basilica of S. Maria Maggiore (Coarelli 2014: 155). Despite the monument's disappearance, Vasi stops at the former location of this ancient structure on day five of his itinerary, describing its three orders of columns, some of which were made of porphyry and others fluted marble. He notes that the structure threatened to collapse during Sixtus V's time, which led him to dismantle the ruin and use the salvaged material for other works (Vasi 1777: 308-309). The text and images of the Septizodium provide vital historical records of the monument's appearance and insight into the materials used in its construction. The guides also provide valuable information regarding the importance of the monument's position in antiquity, which provided a visual terminus for a significant urban artery.

In book three of Gamucci's guide, readers are introduced to the Arco di Portogallo (Gamucci 1569: 151-152) (Fig. 11). The arch was one of three that spanned the Via Lata (present Via del Corso) and located at the intersection Via delle Vite. It was demolished in 1662 to amplify and regularize the street; a plaque now records its original location (Coarelli

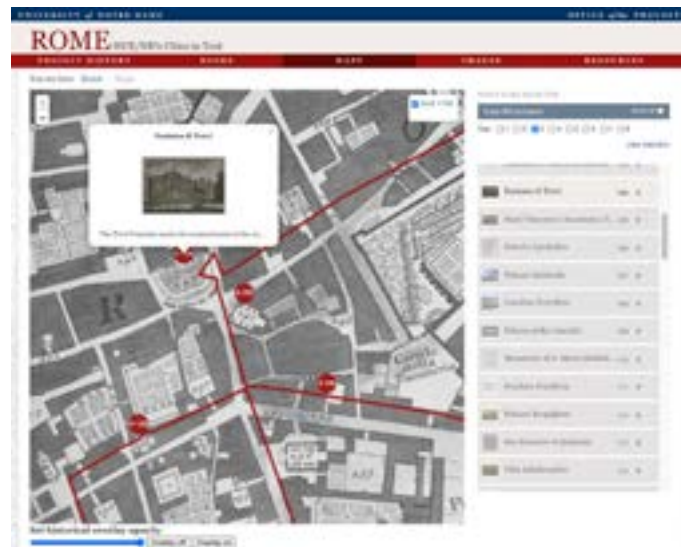
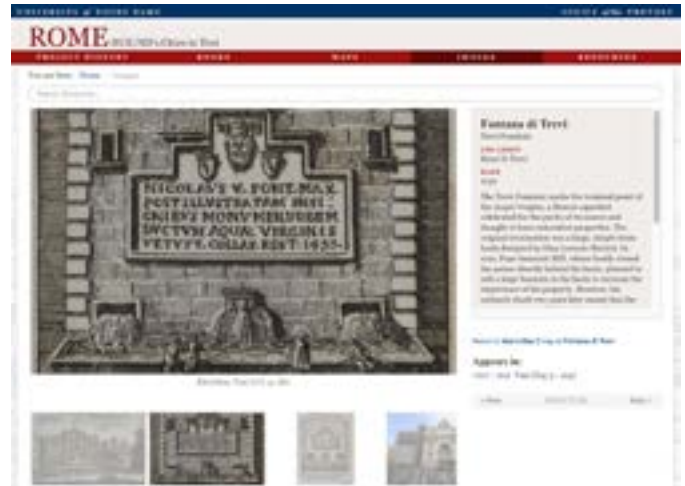


Figure 8: Giuseppe Vasi, view of the wall fountain in the Piazza di Trevi attributed to Alberti, 1777. The fountain was demolished in the previous century, yet Vasi utilizes existing drawings to give the fountain a sense of scale and monumentality (HUE/ND)

Figure 9: View of Nicola Salvi's Trevi Fountain identified in Vasi's itinerary indicated on the Nolli map (HUE/ND)

Figure 10: View of the Septizodium at its former location at the Palatine Hill base (HUE/ND)



Figure 11: View of the Arco di Portogallo at its former location along the Via del Corso (HUE/ND)

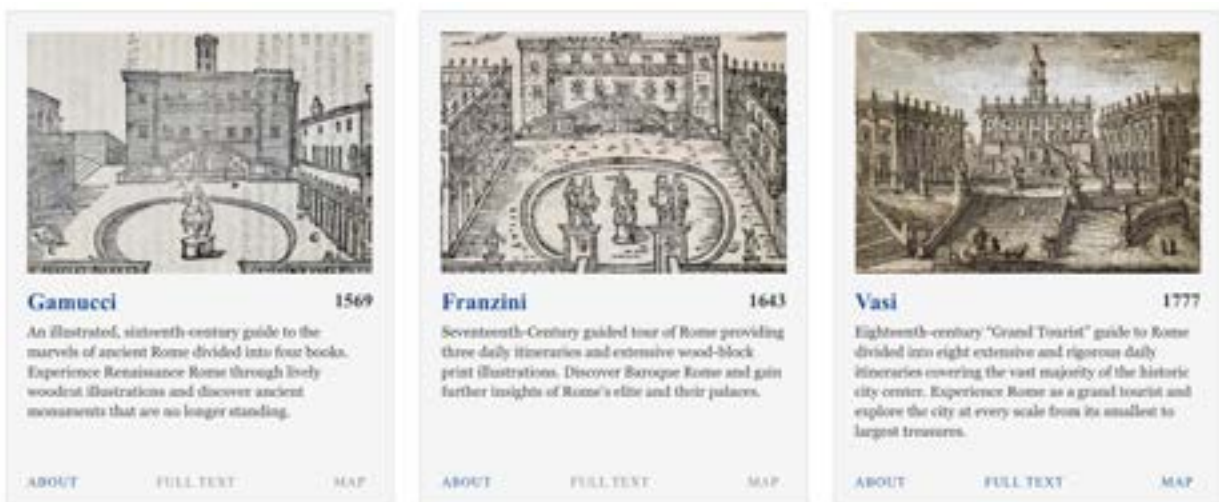
2014: 255-257). The two relief panels that adorned the arch included scenes of the emperor Hadrian's exhortation and his wife Sabina's apotheosis. They were later moved to the Museo dei Conservatori, as Vasi indicated during his guided tour of the newly opened museum on Capitoline Hill (Vasi 1777: 66). The discussion of the Arco di Portogallo in the text of all three authors underlines its significance as an ancient architectural feature situated along the Via del Corso that is now lost.

Gamucci's texts combined with the illustrations produced by his collaborator and compatriot Giovanni Antonio Dosio provide a record of Rome's transformation at a critical point in history when major building campaigns were being executed following the city's sack in 1527. The period's exciting building activity is expressed in the description and visualization of the Capitoline Hill produced some

months before the publication of the first edition of the guide in 1565 when Michelangelo transformed the famed site. Michelangelo was initially asked to design a new oval base for the ancient statue of the Roman emperor Marcus Aurelius, moved by Pope Paul III from the Lateran to the Capitoline in 1538 and then commissioned to redevelop the entire piazza and its surrounding buildings. Dosio's woodcut includes the piazza's balustrades which Michelangelo already completed between 1561 and 1564. The piazza's oval steps executed in 1564 are also shown with the equestrian statue of Marcus Aurelius on its newly designed base situated in the center. The medieval facade of the Palazzo Conservatori is maintained even though its demolition had already begun in 1563. Michelangelo's new facade was not yet completed, and rather than depict a construction site; the author chose to represent the medieval portico of the old palace facade (Ackerman 1961: 54-74). Michelangelo's double ramp stair in front of the Palazzo Senatorio was executed from 1544-52 and described in Gamucci's text down to the architect's use of the Doric order framing the central niche and the ancient sculptures repositioned to accentuate the new architectural centerpiece. However, the facade of the Palazzo Senatorio was not yet complete and still retained its medieval battlements. The *Cities in Text: Rome* website and mobile application allow one to move between Gamucci, Franzini, and Vasi's images and description of the Capitoline Hill while having additional access to modern scholarship and views of the site (Fig. 12).

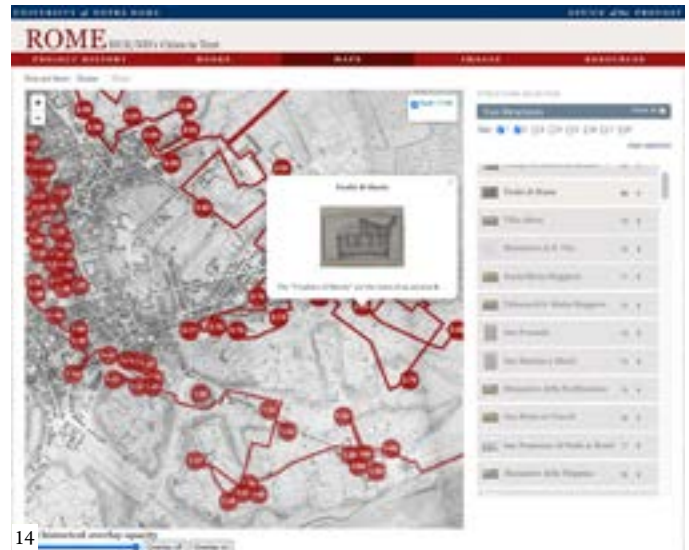
Moreover, Michelangelo's use of ancient sculpture in the decoration of the Capitoline Hill, such as the Trophies of Marius, can be found in both Gamucci and Franzini's text situated in their original location before the illustrious architect removed and recycled them in his architectural project (Fig. 13). Franzini even provides a hypothetical reconstruction of their original appearance. By identifying the actual location of the Trophies of Marius and Michelangelo's subsequent removal and reuse of the

Figure 12: Gamucci, Franzini, and Vasi views of the Capitoline Hill (HUE/ND)

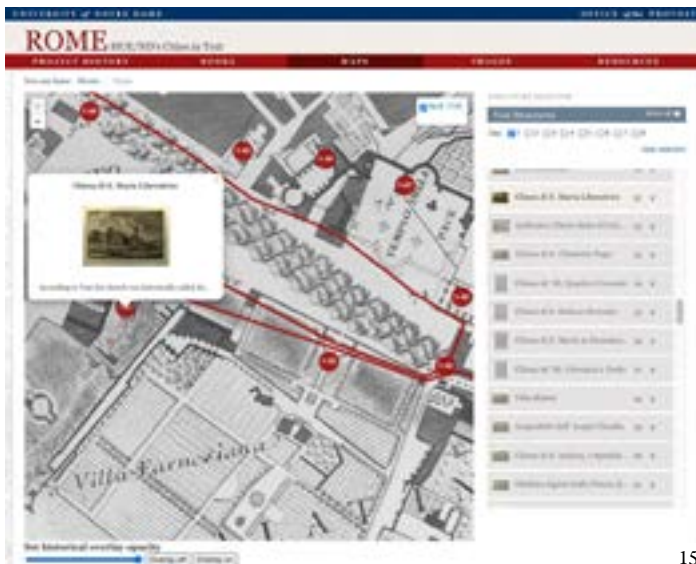




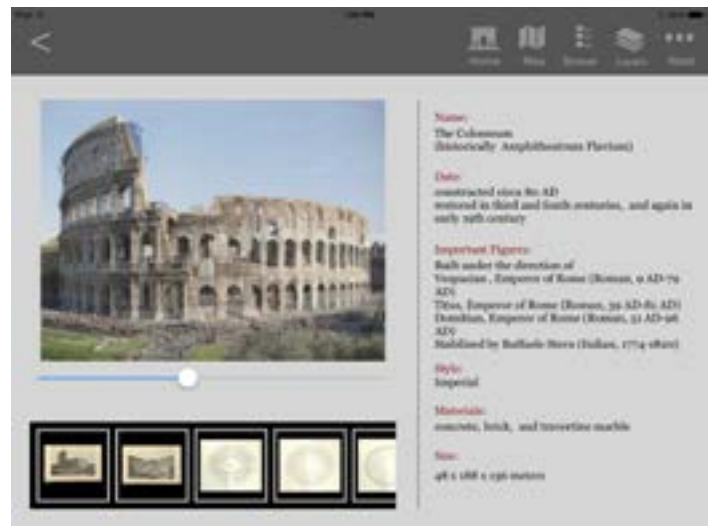
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14



15



16

Figure 13: Gamucci's view of the original location of the Trophies of Marius (HUE/ND)

Figure 14: The Trophies of Marius's original location on the Nollì map, located at the present-day Piazza Vittorio Emanuele II

Figure 15: Church of S. Maria Liberatrice in the Roman Forum, now demolished (HUE/ND)

Figure 16: View of Giuseppe Valadier's restoration of the outer ring of the Colosseum with transparency feature on, showing how the Colosseum looked before his intervention (HUE/ND)

ancient sculptures, one can better understand the treatment of antiquities in Renaissance Rome and how they were dismantled and reused for later building projects (Fig. 14).

Rome's seven pilgrimage churches' architectural evolution is also visible when comparing Franzini and Vasi's illustrations. Franzini's drawings were produced before many of the city's medieval facades were masked by 17th and 18th-century architectural interventions. Moreover, one can quickly identify the countless religious structures that were eventually destroyed, including their locations and appearances, mapped on the website and mobile application (Fig. 15). What becomes immediately apparent when working with this historic data on-site or when examining these texts alongside a contemporary

map is the extent of Rome's later architectural and urban transformation in the 19th and 20th centuries. Giuseppe Valadier transformed Rome's most prominent structures and urban spaces in the first quarter of the 19th century. With *Cities in Text: Rome*, this often overlooked architect's restoration of the Ponte Milvio and its bridgehead, design of the Piazza del Popolo, and restoration of the Arch of Titus and Colosseum are easily identifiable (Fig. 16). The extensive acts of *sventramenti* carried out following Italy's unification and well into the first half of the 20th century are immediately apparent, as is the city's urban expansion both within and outside the city walls.

In addition to capturing visual remnants of Rome's urban fabric that are now lost, the authors of these texts, such

Figure 17: Giuseppe Vasi, illustration of Plautilla Bricci's Villa del Vascello. The Villa is the one to the right of the scene with twin towers (HUE/ND)



as Vasi, identify artists and architects that have somehow fallen under the radar of architectural scholarship. One name rediscovered in the early 1990s by scholars who have identified her drawings in archival records held in Rome and Turin is the celebrated Roman Baroque architect and painter Plautilla Bricci (1616-1705). Unlike Bricci's principal patron, who denied her the credit she deserved for her design of his Villa del Vascello (completed 1665; destr. 1849), Vasi credits her as the architect of the Villa (Fig. 17). He also celebrates her painting and architectural design of the chapel of S. Luigi in the French national church of S. Luigi dei Francesi (Vasi 1777: 252 and 384). He gave credit and recognition to the first woman to practice architecture whose name and work have survived to the present day (Lollobrigida 2017: 19). Bricci's inclusion in Vasi's text is merely one example of many that underline how little his guide has been studied over the centuries, where one of architectural history's most compelling practitioners has remained unobserved while existing in plain sight.

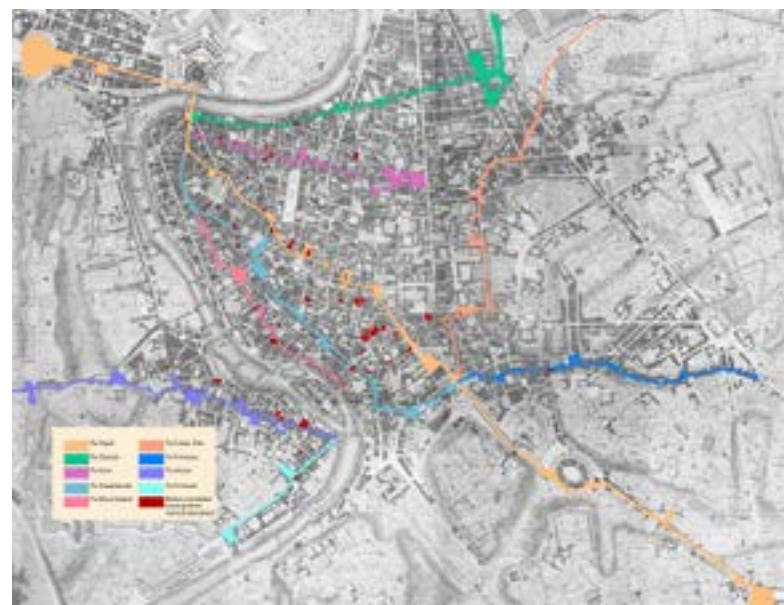
Potential Uses of *Cities in Text: Rome*. Documentation of the Architecture Left Out of the Guidebook Tradition: Discovering Rome's Medieval Residential Façade Porticoes

The *Cities in Text: Rome* website and mobile application are not merely an online index of architectural and urban data but also an analytical research tool that can lead to significant discoveries. During the development of and subsequent utilization of the website and mobile application, the team became increasingly interested in the parts of Rome's urban fabric that were continuously edited out of the historical texts and illustrations examined in this study. Noting that medieval residential architecture was almost entirely ignored. Further inquiry into a specific medieval building type frequently encountered during the project's documentation phase led to the team's

identification of fifty-six extent residential façade porticoes within the Aurelian Walls in eleven *rioni*. Moreover, twenty-six of these structures were identified in eight *rioni* in historical records and archeological reports housed in the Archivio di Stato di Roma (ASR), the Museo di Roma, and the Archivio Segreto Vaticano (ASV). Finding there to be a lack in historical documentation of the façades of these existing medieval structures, each of these buildings was measured, drawn, photographed, mapped, and ready to be added to the resources section of the *Cities in Text: Rome* platform.

Identification and mapping of the visible remains of Rome's medieval residential façade porticoes and those documented in historical views and archival sources contribute to a greater understanding of the primary urban sequences and processional routes along which these porticoes stand. Examining this mixed-use building type reveals the extensive commercial activity present in medieval Rome (Fig. 18). At the architectural scale, a clear

Figure 18: Ancient and medieval street networks with medieval residential façade porticoes visible and demolished in red (author's drawing overlaid on Nolli map)

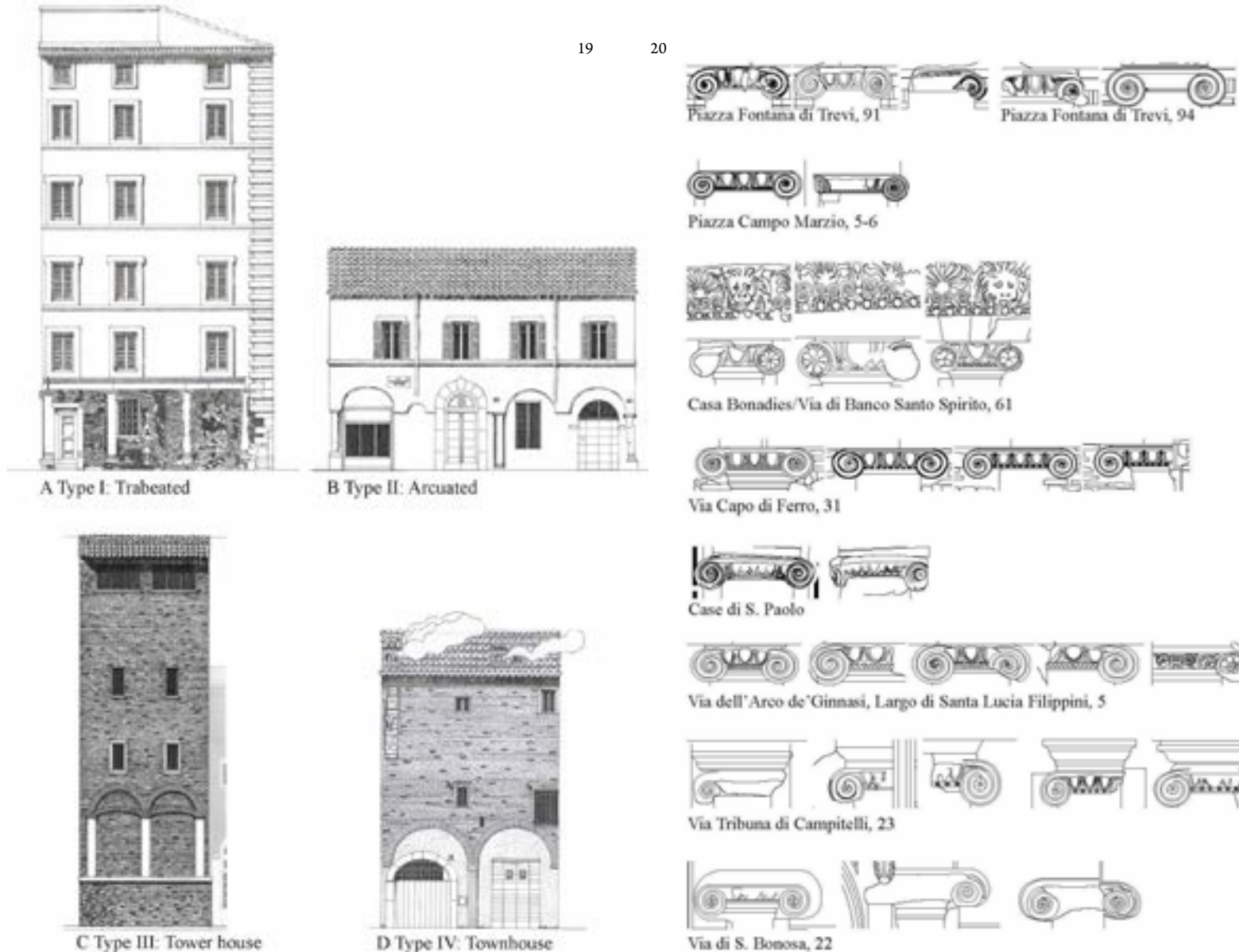


and comprehensive construction culture is visible and not limited to residential architecture but carries over to churches and other religious and civic structures. Analysis of these buildings resulted in the author's identification of four distinct subtypes of residential porticoes (Fig. 19). The reuse of ancient *spolia* reworked by medieval masons was systematized and cohesive when examined as a group. Construction patterns also emerged, illuminating medieval building culture and the quantity of certain ancient Roman materials such as large blocks of white marble used for architraves, capitals, and bases. The Ionic capital's frequent use appears to be executed by skilled masons that attempt to communicate the ancient precedent they took inspiration from (Fig. 20).

Type I of the four distinct categories or subtypes of residential porticoes recognized in this study is the trabeated one and is most likely the earliest form of residential colonnade constructed in Rome (Figs. 21-22). The oldest extant example of a similar type of residential structure is the Casa dei Crescenzi, built between 1040 and 1065 by Nicolò di Crescenzo (Barbanera and Pergola 1997: 301). The sophisticated use of *spolia* along the surface of the building indicates a conscious effort by the owner of the house to visually display fragments from ancient buildings in a celebratory manner to underline the social status of the Crescenzi family while emulating antique Roman buildings. Eight existing trabeated residential porticoes were identified in seven *rioni*, built a century after the Casa dei Crescenzi. According to Patrizio Pensabene and Lorenzo Quilici, the most probable precedents for these domestic structures are Catholic churches' narthexes built in Rome during the 12th and 13th centuries; thus, these trabeated examples can also be dated to around the same period. Examples include the narthexes of San

Figure 19: Four distinct types of residential façade porticoes were identified

Figure 20: Collection of Ionic capitals that were identified in this study



Giovanni e Paolo, San Giorgio in Velabro, and San Lorenzo Fuori le Mura, dating from the 12th century (Pensabene 2009: 80). The architectural elements common to these religious structures also exist at the residential scale and include adherence to the use of Ionic capitals. There is only one example of a trabeated portico in the case studies examined that does not exclusively use Ionic capitals and includes a simply carved Composite one at the corner of the building (Via di S. Bonosa, 22). Medieval builders would have been employed in ecclesiastical and domestic architecture projects during this period, using similar details and construction methods to develop sacred and secular buildings. As indicated at the Casa dei Crescenzi, classical elements and *spolia* included along the facades of buildings underlined the wealth and elevated status of the owner whose building they adorned as they did for the churches of the period.

Classical proportions associated with the use of the ancient Ionic order were not found in the medieval examples

noted in this study. Only an architrave is present with a sometimes ornately carved cornice. Column shafts also lack the necessary relationship of base diameter to the overall height of the order and its entablature. Horizontal blocks of white marble were taken from ancient Roman buildings and re-carved to provide a coherent decorative system in several of the structures identified in the study. In the example of the Casa Bonadies and the house on Via Capo di Ferro, ancient buildings' carved cornices were reused. The white marble of the Ionic capitals was taken from ancient buildings but re-carved by medieval masons. Only in a few cases was material taken directly from late antique buildings without significant modification, such as those found at the Palazzo Mattei in Trastevere. The Ionic capitals' carving's regularity and orderliness clarify that specific workshops were responsible for their production. Only a few examples in this study depart drastically from the standard model of an Ionic capital in Rome, including those found at the Casa Bonadies and one of the capitals of the Palazzo Ginnasi (see Fig. 20). The single-shaft stone

Figure 21: Trabeated porticoes: A. Casa Bonadies/Via di Banco di Santo Spirito, 62 B. Via di Capo di Ferro, 31 C. Via dei Giubonnari, 64 D. Via di S. Bonosa, 22



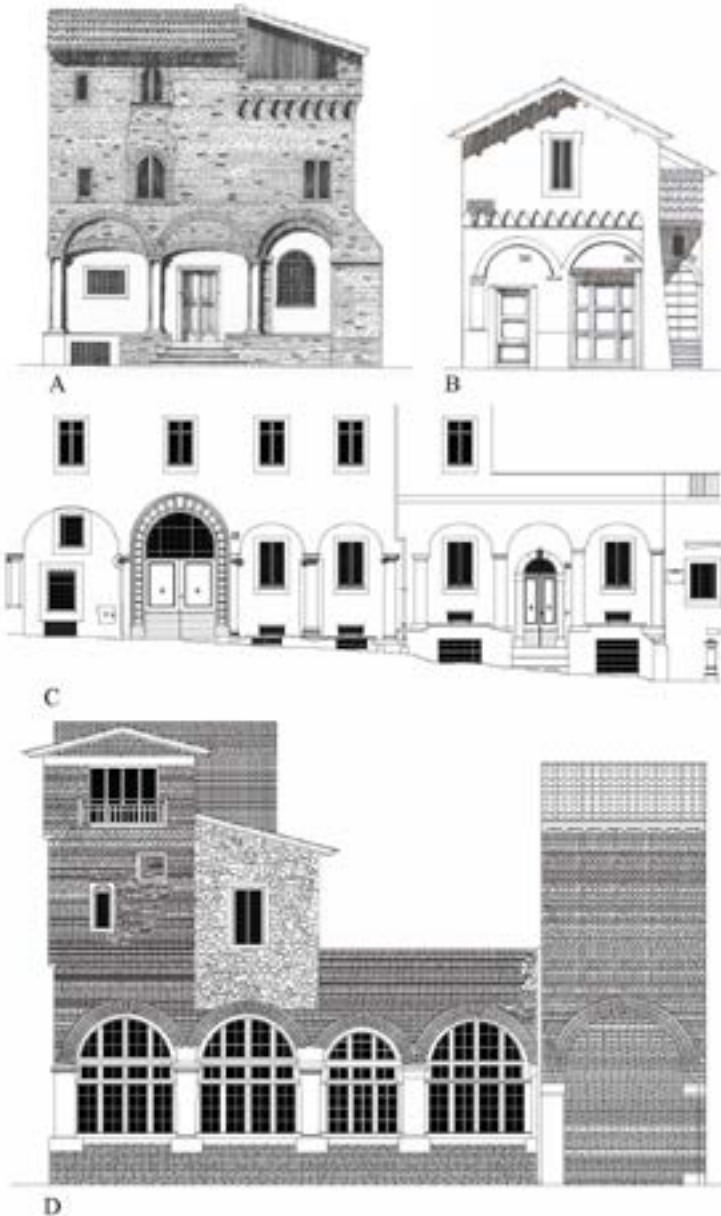
Figure 22: Trabeated porticoes: A. Piazza Fontana di Trevi, 91, 91 B. Via dell'Arco de'Ginnasi, Largo di Santa Lucia Filippini, 5



columns were taken directly from ancient monuments and carved or adjusted only slightly to meet the needs of the new buildings they adorned. The abundance of grey granite columns found in this study signifies this material's prolific use in ancient Rome. The other reused materials commonly found in the column shafts examined in this study were red granite and *cipollino* marble. Ancient column bases were often used as-is from antiquity or are currently not visible. The examples of carved medieval column bases were either simple plinths or variations of those from antiquity.

The observance of a specific architectural language along residential facades in Rome in the 12th and 13th centuries appears to have been a strict priority, manifest in both religious and residential structures. According to Alberti, "The portico of the highest citizen ought to be trabeated,

Figure 23: Arcuated porticoes: A. Piazza di Santa Cecilia, 19 B. Via della Lungaretta, 160-161 C. Via Tribuna dei Campitelli, 23, 23 B. D. Case di San Paolo, 4-7



and that of the ordinary man arched; both should preferably be vaulted" (Alberti 1988: 300). Alberti's observations were based on the building practices he was familiar with that were most prevalent in the 14th and 15th centuries. As Pensabene notes, trabeated porticoes' cost was higher due to the difficulty in procuring marble or stone members long enough to span the entire length of a portico uniformly. The arcuated portico in brick, on the other hand, was much cheaper and easier to make and absorbed irregularities in the size of openings and heights of columns better than its trabeated counterpart (Pensabene 2009: 80).

Type II is referred to here as the arcuated portico. It was made of a series of brick arches that run along the façade of a residence, supported by single-shaft columns with either Ionic capitals, a carved abacus, or a combination of the two (Fig. 23). Like the first type, the arcuated portico has its equivalent in medieval church construction and is still visible today along the façade of Santo Stefano Rotondo. Of the medieval residences examined in this study, twenty-five existing arcuated porticoes were recognized in seven *rioni*. The arches either spring from an Ionic capital or a simple abacus and, in some cases, an impost block. As noted by Pensabene, the arcuated system of porticoes from antiquity to the Middle Ages was a much more affordable construction method. The brick arch was thus cost-effective and flexible, accommodating irregularly sized openings. Column shafts were always made of despoiled materials, and single-shaft stone columns were either short and stout or tall and slender. In some cases, ancient column bases were employed; in others, medieval builders carved new ones. Columns sit directly on the ground or a base or are elevated on a marble slab.

Type III, the tower-house portico, is found at the base of medieval towers, creating an arcuated permeable base to an otherwise defensive and closed structure. In this study, two of these were noted and located in two *rioni* (Fig. 19C.). Type IV, the townhouse portico, comprises two arched openings supported by a single-shaft column capped by an Ionic capital or carved abacus (Fig. 24). According to Piero Tomei, this is the residential type from which the Renaissance *casa a schiera* (townhouse) emerges. It is datable to the end of the 14th to the first half of the 15th century. Five examples of this type were found in two *rioni*. Of the fifty-six structures discussed, seventeen could not be classified under any of the subtypes mentioned due to the fragmentary nature of the portico elements that are visible, the rest being hidden beneath layers of stucco.

Renaissance approaches to palace design in the 15th and 16th centuries, coupled with city planning efforts focused on the widening and straightening streets, as visible in Rome's historical guides in this study and visible in the Nolli plan, wholly altered the medieval fabric of the city. These developments led to the widespread closure of private residences' façade porticoes and the relocation of

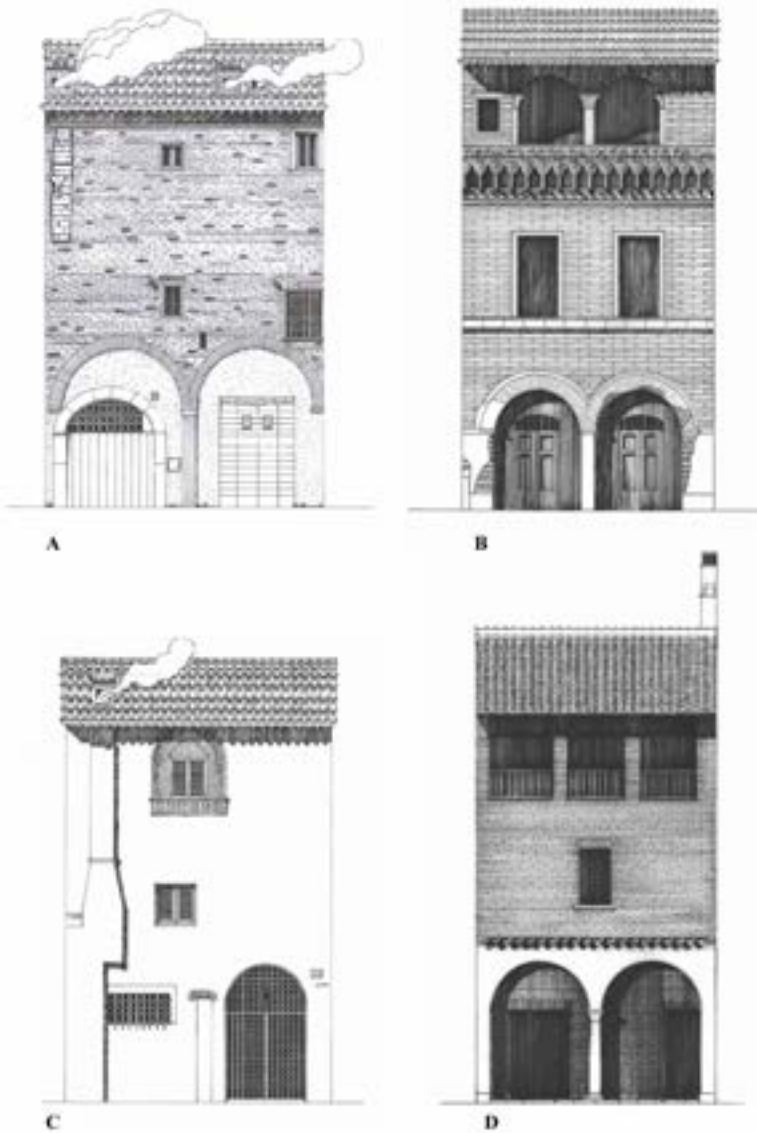
semipublic space into the courtyard. This transformation permanently altered the physical fabric of the city and its relationship with domestic life.

Conclusion

Cities are not built in a day. They are the result of years of development and change. No other city in the world expresses this concept more clearly than Rome. Thousands of years of continuous urban development make Rome one of the most important centers for studying the built environment. *Cities in Text: Rome*, the website and mobile application, allows users to rediscover the Eternal City while providing a visualization of its monuments as they stood in the 16th, 17th, and 18th centuries. The digital tool allows one to experience Rome's complex transformation with the click of a button while standing in front of the

historical monument or urban space they are studying or from anywhere in the world. Over 400 of Rome's sites are documented, geo-located, visualized, and accessible electronically. The project aims to provide a digital research tool for studying the built environment while stimulating new research questions and discoveries. The HUE/ND team's documentation of these guidebooks revealed a lack of representation of Rome's medieval residential architecture. In response, the team chose to explore one of the least familiar features of medieval residential architecture in Rome, the façade portico, contributing to the first systematic documentation of these historic structures' existing remnants. The results of this research will soon be shared in the website's resources tab, allowing one to gain a better understanding of a building type that has continued to evolve over the centuries with the city itself, standing the test of time while remaining overlooked and almost completely forgotten.

Figure 24: Townhouse porticoes: A. Via Arco della Pace, 10 B. Via dell'Orso, 11 C. Casa della Fornarina, Via di Santa Dorotea, 20 D. Casa di Fiammetta, Via dei Coronari, 157



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Biography | Biografia | Biografia

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She is an Assistant Professor in the School of Architecture at the University of Notre Dame. She teaches architectural design courses, advanced graphics, and documentation of historic sites in Rome, Italy. She also organizes and teaches courses in China, introducing students to traditional Chinese architecture and urbanism. She has worked on the documentation of World Heritage Sites in Italy and India, including the Roman Forum and the Mughal tombs of Akbar and Itmad-ud-Daula in Agra, India. She is also the co-director of the Historic Urban Environments team at the University of Notre Dame (HUE/ND). The research team is currently working towards completing the project Cities in Text: Rome in collaboration with the American Academy in Rome.