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# The Casa della Regina Carolina (CRC) Project, Pompeii: 2022–2023 Field Seasons

*Caitie Barrett* • *Kathryn Gleason* • *Lee Graña* • *Annalisa Marzano* • *Kaja Tally-Schumacher*

*With additional contributions by:*

Evan Allen - Simon Barker - Maurizio Bartolini - Hilary Becker - Joel Bellviure - Jessica Feito - Roberta Ferritto - Dafna Langgut - Emily Lime - Paolo Mighetto - Mark Robinson - Jan Sevink - Katie Tardio - Courtney Ward - Cole Warlick

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**Riassunto**: *Il* Casa della Regina Carolina (CRC) Project *a Pompei ha per oggetto una grande casa,* Pompei VIII 3.14*. Lo scavo del suo giardino ha lo scopo di esplorare il modo in cui i giardini domestici romani influenzavano le esperienze quotidiane delle persone che vi vivevano e lavoravano. A seguito di una precedente pubblicazione in* FOLD&R *sulle prime due campagne di scavo (2018-2019), questo articolo presenta i risultati delle campagne 2022-2023. La nostra ricerca multidisciplinare in questo sito ci sta permettendo di ricostruire le interazioni tra esseri umani e piante nell'antica Pompei; di ridefinire i confini della* Casa della Regina Carolina*, che abbiamo scoperto essere collegata in antico all'edificio adiacente* VIII 3.15*; e di riconsiderare la gamma di attività, potenzialmente sia commerciali che residenziali, che si svolgevano nello spazio abitativo complessivo di* VIII 3.14-15*. I nostri ritrovamenti fanno luce sui giardini romani non solo come spazi di socializzazione dell'élite, ma anche come luoghi di lavoro e di esperienza per le classi inferiori. Infine, sosteniamo che i giardini offrono un'opportunità per arricchire i dati sulle attività materiali, permettendoci di esplorare non solo le interazioni tra esseri umani e oggetti, ma anche tra esseri umani, piante e animali domestici.*

**Parole chiave**: Pompei, archeologia dei giardini, archeologia ambientale, archeologia dell'abitare, esperienze mutisensoriali, vita quotidiana delle classi inferiori, ruolo di piante e animali.

**Abstract***: The Casa della Regina Carolina (CRC) Project at Pompeii documents a large house, Pompeii VIII 3.14 ('Casa della Regina Carolina'), and excavates its garden in order to explore the ways that Roman domestic gardens shaped the everyday experiences of the people who lived and worked within them. Following an earlier publication in FOLD&R of our first two field seasons (2018–2019), this article presents the results of our 2022–2023 field seasons. Our multidisciplinary research at this site is enabling us to reconstruct human-plant interactions in ancient Pompeii; to redraw the boundaries of the 'Casa della Regina Carolina', which we have found was connected in antiquity to the adjacent building VIII 3.15; and to reconsider the range of activities, potentially commercial as well as residential, that took place in the combined dwelling space of VIII 3.14-15. Our findings shed light on Roman gardens not only as spaces of elite socializing, but also labor and non-elite experience. Finally, we argue that gardens provide an opportunity to enrich discussions of material agency by enabling us to explore not only human-thing interactions, but also the activities and agency of domestic plants and animals.*

**Keywords***:* Pompeii, garden archaeology, environmental archaeology, household archaeology, multisensory experience, non-elite experience, plant and animal agency.

*Fig. 1. Location of the Casa della Regina Carolina (VIII 3.14) within Pompeii (adapted from a map created by the Pompeii Bibliography and Mapping Project). The footprint of the house is outlined in red, with black fill.*

## Introduction

The Casa della Regina Carolina (CRC) Project at Pompeii explores the ways that Roman domestic gardens shaped the everyday experiences of the people who lived and worked within them. Excavations have taken place from 2018–2023, with a study season in 2024. The project is jointly sponsored by the University of Bologna and Cornell University and co-directed by Annalisa Marzano, Kathryn Gleason, and Caitie Barrett, with Gleason serving as field director from 2018–2023 and Marzano serving as field director from 2024 on; the assistant directors are Lee Graña and Kaja Tally-Schumacher. We are documenting a large but mostly unpublished house, the 'House of Queen Caroline' (VIII 3.14), and excavating its garden. The site is located in Region VIII, insula 3, between the Forum and the Theater at the corner of the Vicolo della Regina and the Vicolo dei Dodici Dei (Fig. 1). The original domestic assemblage that was found in the 19th century, and only minimally described in existing publications, is now largely lost. In its absence, the garden provides one of our best opportunities to study ancient dwelling practices in this household – from elite leisure activities (e.g., strolling, outdoor dining, or viewing ornamental horticulture) to the labor that may have been performed by enslaved workers (e.g., garden construction, cultivation, and irrigation). Therefore, our project asks what activities took place in this garden, and what they can tell us about Roman gardens as spaces for social, economic, and cultural performance. Besides asking how these built and cultivated spaces reflected ancient behaviors and attitudes, we also seek to ask how they might have helped *shape* behaviors and



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attitudes. The recent 'material turn' in archaeological theory provides impetus for a new emphasis on object agency.[1] Our project seeks to build on these existing conversations about 'material agency' by adding a new focus on the agency of living, but non human, beings within Roman society. To that end, we explore how domestic planted spaces shaped life at Pompeii. In what ways did these simultaneously material and living environments create both affordances[2] and constraints for their inhabitants? This paper presents the results of our 2022 and 2023 seasons[3] and the ways in which this new evidence advances our understanding of the ancient house and garden.

## History of Work at the Site

The house was largely exposed during the periods of Bourbon and Napoleonic rule and takes its name from Queen Caroline Bonaparte Murat (r. 1808–1815).[4] The early explorations did not employ stratigraphic methods and were minimally recorded,[5] although documentation of the house by the royal architect, François Mazois, produced an accurate floor plan of the house, as well as a detailed perspective drawing of the *atrium*[6] (Fig. 2). Both Mazois and Ernst Breton noted that the house was connected by a door to VIII 3.15.[7] Other architects visiting the house in subsequent years also drew plans with notes.[8] However, by the time that Fiorelli's numbering system for Pompeian houses was implemented, the wall between the two units appears to have collapsed and was rebuilt without the door, leaving only a single step on the east side of the wall, as careful examination today indicates.

In the years after its discovery, the house was well-known for its vivid paintings. Some of these are visible in the perspective drawing by Mazois (Fig. 2b), and many others are recorded in watercolor reproductions by other artists, such as Francesco Morelli, Carolo Cataneo, Pietro Bianchi, and Antoine-Marie Chenavard.[9] However, most of these paintings – which were left in situ – faded away in subsequent decades and were lost over the course of the 19th century.[10] The decorative scheme of the house also involved extensive use of marble,[11] including polychrome marbles of diverse origins, currently undergoing study by Simon Barker and Courtney Ward. For example, Room 11 featured marble wall revetment and a *sectilia* (*opus sectile*) pavement; it is one of only a handful of rooms throughout

[1] GELL 1998; HICKS 2010; HODDER 2012; FERNÁNDEZ-GÖTZ *ET AL.* 2021.

[2] On affordances (the potential of things to facilitate certain actions or outcomes), see GIBSON 2015 (1986), 119-136.

[3] Selected 2022 field season results were previously presented, in abbreviated form, in BARRETT *ET AL.* 2023. In addition to updating those findings and synthesizing them with the results of the 2023 field season, the present contribution also aims to present a more cohesive and wide-ranging interpretation of the site.

[4] For a summary of the history, see GARCÍA Y GARCÍA 2023.

[5] E.g., DYER 1867, 314-317; FIORELLI 1875, 326. See further discussion in BARRETT *ET AL.* 2020.

[6] Paris, Bibliothèque Nationale de France, Le département des Estampes et de la photographie, RES GD 12(E), published in BATALLA-LAGLEYRE 2021, 106, fig. 13.

[7] MAZOIS 1824, 50; BRETON 1855, 316; see also CLARKE *ET AL*. 1832, 94-95.

[8] MAZOIS 1824, 50; CLARKE 1832, 94-95. Other plans of the house were created by Jean-Baptiste Cicero Lesueur, at an uncertain date in the 19th century (LESUEUR n.d., pl. 7), and by Antoine-Marie Chenavard in 1861 (CHENAVARD 1861, vol. 3, pl. 94). On the 19th-century plans and other documentation of the house, see GARCÍA Y GARCÍA 2023, 21–38. The plans of Mazois, Lesueur, and Chenavard were recently republished in BARRETT *ET AL*. 2023, fig. 4; please note that the captions for 4b and 4c in that publication should be switched.

[9] BALDASSARRE 1995, 87-94; CHENAVARD 1861, 120.

[10] GELL and GANDY 1817-1819, 193; DYER 1867, 316.

[11] The term 'marble' is used here for any hard stone capable of taking a polish. Ancient names for marbles, where known, have been adopted. However, the 19th-century names created by the Italian *scalpellini* have also been included for reader convenience. Details of all the stones mentioned in this paper can be found in Oxford, University Museum of Natural History, Corsi Collection of Decorative Stones, published online by Monica Price and Lisa Cooke: <www.oum.ox.ac.uk/corsi> (21.09.2024) and in Siena, Museo di Storia Naturale dell'Accademia dei Fisiocritici, Collezione di Marmi e Alabastri di Roma e sue adiacenze, catalogued by Lorenzo Lazzarini, and now published online: <http://www.musnaf.unisi.it/marmi.asp> (21.09.2024).



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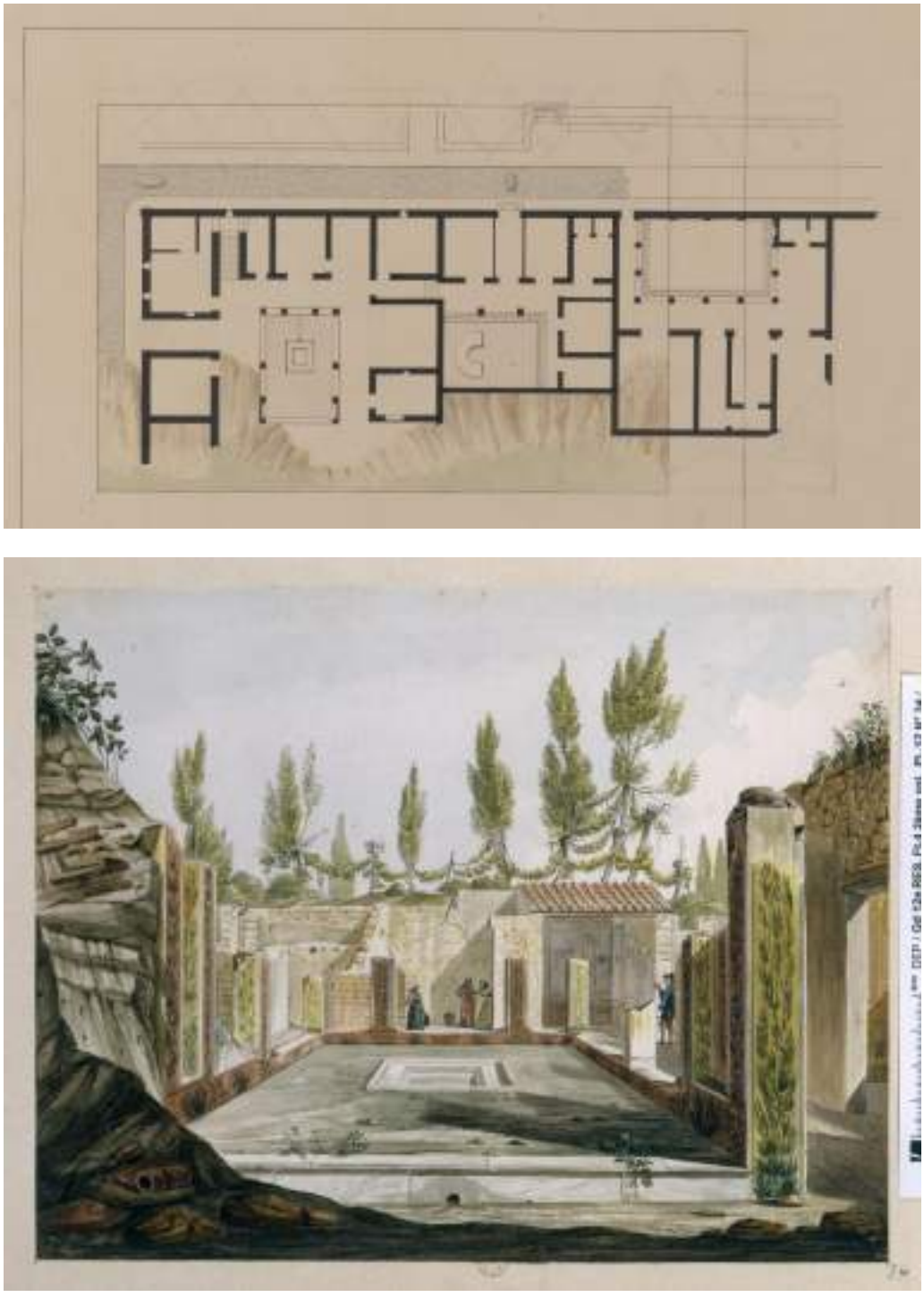

*Fig. 2. Historical plans and images by François Mazois, early 19th century. (a) Plan of the house, showing connection between VIII 3.14 and VIII 3.15. Mazois' plan is oriented to the south (with the "Vicolo della Regina" at the top), and the northern half of the house, containing the garden, is shown as unexcavated. (b) View from the southern edge of the otherwise still unexcavated garden of VIII 3.14, looking south through Room 3 into (from left to right) Room 8, Room 7 (in which three people are shown standing), and Room 10. Closer to the foreground, the doorway into the yellow-painted Room 11 is visible at the far right. For a house plan with labeled room numbers, see Fig. 3. (Mazois 1824, pl. XII, figs. 1, 3; © Bibliothèque Nationale de France)*



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*Fig. 3. Plan of VIII 3.14 and VIII 3.15 (adapted from an* insula *plan created by the Archaeological Park of Pompeii, with additions and modifications by Yaniv Korman).*



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the houses of Pompeii with both types of decoration.[12] The original decorative motif of the floor can be reconstructed from the extant mortar preparation layer. It consists of a simple square lattice module (QRQ[13]); however, the marble was spoliated (most probably in antiquity[14]), and we can now only speculate about its appearance. The mortar preparation layer includes shims of *marmor carystium* (cipollino), *numidicum* (giallo antico), and *luculleum* (africano), and it is possible that the scheme also employed these marble types, presumably juxtaposed to provide chromatic contrast. The pavement of the neighboring Room 9 is poorly preserved, but indications in the surviving mortar preparation layer suggest that the central section held a *sectilia emblemata* mosaic. The other marble features include the white marble-lined impluvium in *Atrium* 3 and a cement pavement with mixed inserts of local limestones and marble in Room 12. This latter pavement included *marmor phrygium* (pavonazzetto), *chium* (portasanta), and *numidicum*. The use of such mixed materials suggests a Third Style date e.g., approximately contemporary with the Augustan to Julio-Claudian periods.

The first excavations of the garden area took place in 1839–1840, revealing a walled space that contained two large shrines.[15] The more architecturally elaborate of the two shrines was built against the center of the north wall and appears to have formed a visual focal point for the garden. It features four marble steps leading to a raised podium with a Fourth Style marble pavement in polychrome *sectilia*. Here again Barker and Ward have noted the use of multiple types of polychrome marble, including *marmor numidicum*, *marmor phrygium*, and white and gray marble. The steps of the platform are flanked by two marble herms whose heads are now lost. When the herms were excavated in 1839, the heads were still present; Bernardo Quaranta characterizes them as 'bellissime teste' of marble and specifies that one was bearded.[16] A marble candelabrum, which also no longer survives, was originally found broken on the steps. On top of the platform, a marble statuette of Diana (also now lost) was originally placed on a marble table. A marble *thymiaterion* stood nearby. According to Heinrich Wilhelm Schulz's 1841 report, other finds in the garden included a marble head of Jupiter, many other fragments of marble, and an unspecified quantity

[12] BARKER 2021, 74–76, Table 1; see also DE VOS and DE VOS 1979, 87, notes 26 and 27. In total, wall revetment can be found in at least 26 domestic structures in the Vesuvian area: four in Herculaneum, 19 in Pompeii, and three in the villas at Oplontis and Stabiae. The revetment is generally applied only to the lower zone of a wall, with only two extant examples covering middle and upper zones with total heights over 3 m. At Pompeii, in addition to the CRC, wall revetment appears in seven houses in Insula VIII 2 (e.g., 14–16, 23, 18, 28, 29–30, 34) as well as the Casa del Citarista (I 4.5), Casa delle Vestali (VI 1.7), Casa di Sallustio (VI 2.4 ), Casa dell'Ermafrodito (VI 7.18), Casa di Apollo (VI 7.23), Casa dei Dioscuri (VI 9.6), Casa degli Amorini Dorati (VI 16.7), Casa dei Capitelli Colorati (VII 4.51 and 4.31), Casa di Fabio Rufo (VII 16.22), Casa del Centenario (IX 8.3–6), and Casa di Bacco (VII 4.10). However, not all of these also feature *sectilia* pavements in addition to the wall revetment.

[13] The standard classification of *sectilia pavimenta* (which is adopted here) is that of F. Guidobaldi (cfr. GUIDOBALDI 1985, pp. 173-174, Table 1). Guidobaldi's scheme classifies *sectilia pavimenta* by whether or not they are composed of marble ('marmorei' or 'non marmorei'), and by modules based on Roman feet: small ('piccolo modulo'), medium ('modulo medio'), and large ('grande modulo'). Each of the defined classes is further subdivided based on geometric forms: squares, rectangles, triangles, lozenges, hexagons, and combinations of these shapes. The geometric shapes are identified by abbreviations with alphanumeric symbols – i.e. Q = quadrato (square) and R = rettangolo (rectangle) – which indicate the design or pattern. The QRQ scheme, therefore, consists of a central square bordered on the left and top sides by rectangles, with a small square where the two rectangles meet. See GUIDOBALDI 1985, 196–200, figs. 17 and 18, type A, for 'opus sectile a modulo quadrato reticolare semplice (QRQ).' The pattern can be found elsewhere: e.g., the domus della Fortuna Annonaria (V, II, 8) at Ostia, Villa Adriana at Tivoli, and Domus SE Insula 30 at Aosta.

[14] Future research will investigate the nature and date of spoliation of the floors in Room 9 and Room 11, and the possible implications for whether the house was undergoing partial renovation in 79 CE.

[15] On these excavations, see SCHULZ 1841; QUARANTA 1839, 1840. Further information from the 1839 excavations appears in the excavation daybooks published by FIORELLI in *Pompeianarum antiquitatum historia* (1862, 372-374, 1864, 153-155). Those daybooks identify the house by its location near the Casa del Cinghiale, rather than using any of its subsequent conventional names.

[16] Quoting QUARANTA 1839, 78; see also QUARANTA 1840, 95.



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of bronze vessels.[17] More details appear in two reports by Quaranta, who refers to a number of additional bronze tools, other bronze objects and ceramic objects, all similarly missing today.[18]

As long as the wall paintings remained well preserved, the house was part of the tourist route and appeared in guidebooks in various languages. However, after the fading of the wall paintings, the house was forgotten by the mid-19th century, and it is even noted as reburied on Fiorelli's plan of 1868 (published in Dyer's 1867 update of Williams' earlier survey of Pompeii).[19] Dyer's book still includes a description of the house, but he does not include it in his list of recommended tours at the end.

By the early 20th century, we have evidence of some renewed activity at the site. A balloon photograph, dated to 1910, gives the impression that the garden was planted as a vineyard at that time.[20] Fifteen years later, Tatiana Warscher's 1925 guidebook recommends a visit to the house, which Warscher describes as having a restored garden.[21] That garden is discernible in a dirigible photograph dated to 1920–1930.[22] The photo shows a quadripartite plan with paths edged in low hedges, and a low pine in the center. This garden was subsequently refreshed in 1946 with tile-edged beds, details of which are visible in photographs taken by Warscher.[23] Some of the tiles themselves predate the beds they were used to line. At least one bears a stamp datable to 1890–1932,[24] raising the possibility that some of these tiles had already been used in an earlier 20th century incarnation of the garden. Others appear to be ancient tiles repurposed as edging for the modern garden beds.[25] During subsequent years, a vineyard was planted in the western half of the garden, as Wilhelmina and Stanley Jashemski recorded on a visit in 1959.[26] By the time the Jashemskis returned in 1971, the garden was overgrown, but it also featured some additional plantings: two sorb trees (*Sorbus domestica*) flanking the central shrine, an olive tree where the vineyard had previously been located, grapevines growing up each of two telephone poles, and the cut trunk of the original umbrella pine (*Pinus pinea*), now replaced by a younger tree of the same species.[27] Some of these later 20th century plantings still survive onsite today, including the central pine tree, sorb trees, and an olive tree (see Fig. 3 for the locations of vegetation onsite today). The overgrowth in the Jashemski's photographs was such that no visible sign remained of the earlier 20th century formal paths, and Wilhelmina Jashemski concluded that the garden 'was excavated so many years ago that it is no longer possible to find evidence of root cavities.'[28]

[17] SCHULZ 1841, 121; see also FIORELLI 1875, 326.

[18] QUARANTA 1839, 77–78; 1840, 95–96. Quaranta's descriptions of the bronze tools are often opaque and call for further investigation and interpretation; our archival analyses are currently ongoing.

[19] DYER 1867, map at end of the book.

[20] Balloon photo of Pompeii, scale 1:1000 (ARCHAEOLOGICAL PARK OF POMPEII 2021 [1910]).

[21] WARSCHER 1925, 191–192. After 1890, the Italian authorities promoted the full reconstruction of ancient houses, including their gardens; these were restored where possible along the lines of the ancient plantings, as in the House of the Vettii (DE CARO 2015, 19). Nonetheless, VIII 3.14 does not reappear on tourist itineraries, except that of Warscher.

[22] Aerial photograph: GUAITOLI 2003, 422.

[23] Getty Archives, Vander Poel Collection, Box 151.

[24] On the stamp, see BARRETT *ET AL.* 2020, 22-23, fig. 24.

[25] BARRETT *ET AL*. 2020, 22.

[26] JASHEMSKI, unpublished daybook 1, 1959, p. 37.

[27] JASHEMSKI, unpublished daybook 1, 1971, p. 4. notes the visit and photographs without comment. See photographs by S. Jashemski, 8.21.71-8.23.71 (Wilhelmina and Stanley Jashemski Archives, University of Maryland). The new pine is visible on a postcard by Interdipress (Napoli), Aerofoto n. 34667, Sept 24, 1971.

[28] JASHEMSKI 1979, 133.



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Occasional excavations took place throughout the 20th century, as well as periodic programs of conservation.[29] Various excavations used the site for pottery washing until the Great Pompeii Project, which undertook a program of conservation and recording in region VIII that led to the reopening of the Casa della Regina Carolina to the public in March 2016.[30]

## The Casa della Regina Carolina Project

Our project is the first stratigraphic excavation in this house. In 2018, we began with a feasibility study that involved the use of ground-penetrating radar (GPR) to locate buried remains, the documentation of standing architecture and topography with total station survey, photogrammetry, and LiDAR scanning, and the excavation of several initial test units that established the basic stratigraphy of the site. Subsequently, we held more extensive field seasons in 2019, 2022, and 2023. Findings from our excavations include the remains of at least 32 ancient plantings (the remains of planting pots, root cavities, and planting pits), pathways, architectural remains, and wall paintings.[31]

Excavations in 2022 and 2023 focused primarily on the stratigraphy associated with the garden destroyed in 79 CE (Fig. 3). We are approaching completion of excavation in open areas that will not endanger the mature trees. Future excavations will continue in the same areas and progress down to earlier levels. Our new results are generally consistent with the phasing we published from our previous excavation seasons.[32]

To summarize that chronology briefly, the earliest levels yet reached involve two initial phases in the 2nd–1st centuries BCE (the so-called Samnite period), at which time the current site of VIII 3.14 was occupied by at least two, and possibly three, separate and smaller dwellings. These likely took the form of smaller houses oriented east–west, rather than north–south. Within the garden of the current VIII 3.14, extensive ancient quarrying activities during the Roman period have removed much of the earlier architecture associated with these houses (see further below). Architectural features from the 2nd–1st century BCE houses are best preserved around the perimeter of the garden, near the enclosure walls, where quarrying was less intensive than in the central area.[33] However, the standing architecture at the southern end of the current VIII 3.14 appears to preserve the general outline of one of these houses, albeit with substantial changes due to subsequent remodeling (see further below). The footprint of the current property VIII 3.15 may occupy the former position of a peristyle attached to this earlier *atrium* house (see further below). Plans and descriptions of some of the excavated architectural features belonging to this phase have been published in previous interim reports.[34]

These earlier, east–west-oriented houses were unified into a single property sometime in the first century CE. At this time, the owners of this property appear to have demolished most of the standing architecture north of Room 3 in order to clear space for a large garden. The evidence for this event, with detailed discussion of specific excavated features and standing architecture, has been published in previous communications.[35] We have no data

[29] See the following data entries in the Sistema Informativo Archeologico Vesuviano (SIAV): nos. 00020316, VIII 3 14; 00022980, VIII 3 14; 00023227, VIII 3 14; 00000666, VIII 3 14.

[30] Great Pompeii Project, Regio VIII: OSANNA 2019.

[31] For publications of previous season results, see BARRETT 2020 (on the 2018–2019 seasons); BARRETT *ET AL.* 2023 (a brief report on the 2022 season).

[32] BARRETT ET AL. 2020; BARRETT *ET AL*. 2023.

[33] See, e.g., the features preserved adjacent to the northwestern enclosure wall in BARRETT *ET AL.* 2020, figs. 5, 6.

[34] BARRETT *ET AL*. 2020, 2023; for plans, see BARRETT *ET AL*. 2020, figs. 5, 6.

[35] BARRETT *ET AL.* 2020, 12–16; BARRETT *ET AL.* 2023, 259. For evidence suggesting that the Roman-period aedicular corner shrine may have been rebuilt on an earlier foundation, see BARRETT *ET AL*. 2020, 12–14.



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*Fig. 4. Wall painting in situ in Trench I, at the southeast side of the garden of VIII 3.14, in 2022. The fresco, whose preserved portion features light-colored vegetal elements on a dark ground, appears to date to the earlier (pre-earthquake) first century CE phase of the house. At the base of the painted plaster are the remains of a floor paved with white mosaic tesserae. (Photo: Caitie Barrett - Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

*Fig. 5. Subfloor and some surviving white mosaic tesserae in situ at the base of the painted wall in Trench I, at the southeast side of the garden of VIII 3.14, in 2022. (Photo: Caitie Barrett- Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*



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at present on the owners' identities or relationships (or lack thereof) to the inhabitants of the earlier, smaller version of VIII 3.14, whether in the Samnite period or in the earliest years of the Roman *colonia* at Pompeii.

The present publication will focus primarily on the subsequent phases of activity at this house, and the interpretations presented below will deal largely with the unified property as it existed in the first century CE. However, we are currently planning a new sequence of field seasons to explore the earlier history of this site. The projected 2025–2027 seasons will seek, among other things, to fully expose the earlier architecture underneath the Roman garden; to establish the occupational history of the site prior to the earliest remains currently recorded; and to investigate the urban history of Insula VIII 3 from a longer-term perspective. Future publications will relate the changing history of this *insula* to larger neighborhood-level and city-wide developments at Pompeii, including Sulla's conquest of the city in 89 BCE and the subsequent social, economic, and political developments associated with Pompeii's transformation into a Roman *colonia.*

Subsequent to the initial construction of the garden, we see evidence for a major phase of recovery and reconstruction, probably connected with the aftermath of an earthquake.[36] It has historically been common to attribute seismic damage at Pompeii to the well-known earthquake that damaged the site in 62 CE. More recent research has shown that earthquakes were common at Pompeii, and while the 62 CE earthquake is the best documented in ancient textual sources, we cannot automatically assume that all earthquake damage at Pompeii is attributable to that event.[37] However, in the case of our site, datable finds suggest that the 62 CE quake is indeed a good candidate for the event that precipitated this phase of reconstruction (see further below).

Before rebuilding, workers appear to have conducted extensive quarrying activities. In the north and south areas of the garden (Trenches A and J in Fig. 3), we found the edges of large pits. These probably relate to ancient quarrying to recover older volcanic paleosols and yellow ash containing white lapilli from a much earlier Vesuvian eruption, the 'Mercato eruption' (ca. 8000 years uncal BP). These deposits were valued for their pozzolanic properties, enabling the production of strong earth mortar. Their quarrying is attested across Pompeii in various periods.[38] Our research suggests these deposits may also have played an important, and previously unknown, role in agriculture and horticulture (see below). As noted above, these quarrying practices appear to have removed much of the pre-Roman-period architecture in the central areas of the garden, so that our best preservation of 2nd/1st century BCE walls and floors is close to the garden enclosure walls.[39] After the workers finished quarrying for paleosols, they filled the resulting pits with coarse rubble and spread a half meter of finer, well-sorted debris over the site as the subgrade for the garden. Such leveling fills were employed in the creation of most Roman gardens within urban or architectural settings, in order to raise the level and/or create a level, well-drained surface.[40] The latest datable artifacts in this leveling fill are Neronian in date,[41] providing a *terminus post quem* for the rebuilding which is compatible with the 62 CE earthquake as precipitating event.

The leveling fill from the garden includes large quantities of construction debris, including the collapsed remains of plastered, frescoed walls. Some of this material may come from local neighborhood rubbish deposits, which were commonly repurposed in Roman settlements to serve as sources of construction fill.[42] It is also possible that some of the contents of the garden fill layers came from earlier structures within the current footprint of VIII 3.14 itself, especially as regards the remains of fallen walls and other debris that could have been generated by the 62 CE

[36] On post-earthquake recovery and remediation efforts in Pompeian gardens, see LIME, forthcoming. On archaeological evidence for renovations at Pompeii more generally, see now ZUCHTRIEGEL *ET AL.* 2024.

[37] ALLISON 2004, 17–19; on seismic activity at Pompeii, see now SPARICE *ET AL.* 2024.

[38] ELLIS *ET AL*. 2015, 18–19; ROBINSON 2019, 226-243; ROBINSON *ET AL.* 2020, 111; POEHLER 2023, esp. 418, 420-421.

[39] BARRETT *ET AL*. 2020, figs. 5, 6.

[40] GLEASON and PALMER 2018.

[41] BARRETT *ET AL*. 2020, 16–17.

[42] On discard practices at Pompeii and the curation and reuse of certain types of rubbish for construction purposes, see DICUS 2014; cf. BOOZER 2023, esp. 207–208, on parallels from Roman Egypt and cross-culturally.



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earthquake. Several pieces of evidence suggest an immediate local origin for many wall and floor fragments in the leveling fill. Many of the fresco fragments join together, and their edges are sharp rather than worn, suggesting they have not been transported from a faraway location.[43] Wall painting fragments still *in situ* on the walls of the garden (Fig. 4), uncovered during our 2022 excavations, are a close match for the decoration of some of the fresco fragments within the leveling fill and seem to belong to the same decorative program. Additionally, fragments of mosaic flooring, still *in situ* on the same walls (Fig. 5), match fragments of similar flooring found within the leveling fill. As a result, we hypothesize that at least some of the leveling fill from the garden consists of reused debris from the previous phase. Hilary Becker's X-ray fluorescence analysis of the wall painting fragments indicates that calcium carbonate, red ochre, cinnabar, red lead, yellow ochre, green earth, Egyptian blue, and carbon black were the primary materials used in the painted wall decoration, but red lead, lead white, and green earth were also employed.[44] In addition, some of these pigments were mixed (e.g., cinnabar and red ochre, Egyptian blue with a calcium carbonate or red ochre), so the combination of pigments further expanded the artists' palettes. The extremely bright colors of the fresco fragments (Figure 6), many of which are remarkably well-preserved, also suggest that these wall remains were not exposed to air and weathering conditions, or to repeated episodes of redeposition, for long before they were reburied. As a result, we may hypothesize that some or much of the painted wall plaster from the leveling fill could have derived from collapsed walls of an earlier first century CE phase of what is now house VIII 3.14.

The leveling fill also included many objects consistent with domestic material culture, such as ceramics, fish and animal bones, crafting equipment for textile manufacture (loom weights, spindle whorls, and bone needles), glass counters, and objects of adornment such as hairpins and bone needles (Fig. 7). Some finds attest to metallurgical production (a clay casting mould and slag). Also present in the leveling fill was evidence for domestic renovation, including pigments (various shades of ochres[45] and a ball of Egyptian blue, clay paint pots for holding pigments, and two fragments of a painting palette with yellow, maroon, and white pigments). Of special note is a fine sardonyx cameo (currently under study by Emily Lime) which appears to represent a goddess or potentially a female member of the Julio-Claudian family in the guise of a goddess (Fig. 8). While damage to the cameo has obscured the attribute in the figure's upraised left hand, a comparable cameo from the 'Villa of Anteros and Heracleo' at Gragnano suggests that the figure is holding a branch.[46] While we cannot with certainty situate these artifacts within earlier phases of VIII 3.14 itself, it is likely that they at least derive from the general neighborhood around this house.

Above the subgrade, workers deposited just over 30 cm of topsoil across the site. This is the level that the earlier excavators discovered in 1839 and 1840 beneath the volcanic lapilli. In the centuries since, considerable damage has been done to this garden level (Fig. 9), and, as a result, few of the artifacts from our excavations can be readily tied to life in the last years of the garden. However, in garden archaeology, the soil *is* the artifact.

[43] As suggested to us by the Pompeii Archaeological Park conservator Paola Sabbatucci (personal communication, 2022).

[44] As determined by the analysis of fresco fragments discovered in 2018-2019, 2022-2023 using X-ray fluorescence. Future archaeometric analysis, using other tools (e.g., FTIR, Raman spectroscopy, SEM-EDS, and X-Ray diffraction), may be able to isolate further pigment varieties (e.g., among the white carbonates: calcite, aragonite, and dolomite).

[45] Including one pigment that was a mixture of red ochre and calcium carbonate (a pre-mixed dusky rose color ready for use). For comparable pre-mixed pigments in Pompeii and Rome, see BEESTON and BECKER 2013 and BARALDI *ET AL.* 2015.

[46] Naples Archaeological Museum, inventory number 26775; DI MASSA 2000, 45. A photo is easily accessible on *Pompeii in Pictures*: https://pompeiiinpictures.com/pompeiiinpictures/VF/Villa_004%20Stabiae%20Capella%20di%20San%20Marco.htm.



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*Fig. 6. Fragmentary wall paintings from the leveling fill beneath the final ancient phase (79 CE) of the garden of VIII 3.14. (a) Inv. no. 175.0013, Trench I. (b) Inv. no. 76.0009, Trench B. (c) Inv. no. 307.0018, Trench P. Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden*



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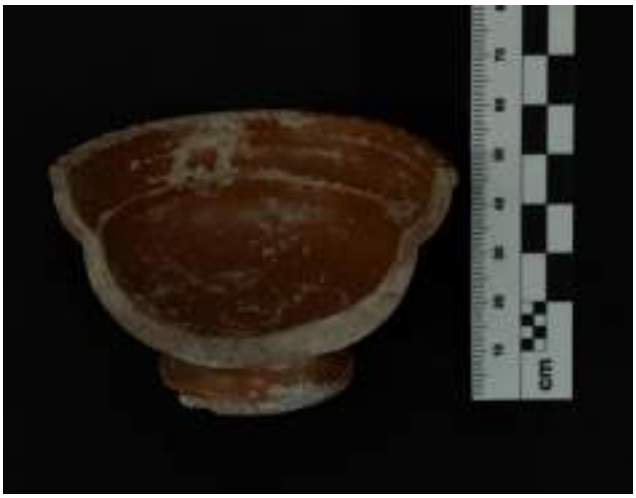


*Fig. 7. Selected artifacts from the leveling fill beneath the final ancient phase (79 CE) of the garden of VIII 3.14: (a) loom weight; (b) bone needle;(c) worked bone hairpin terminating in a hand motif; (d) stamped South Gaulish terra sigillata cup (Dragendorff 27b, Conspectus 31), late Augustan to early Tiberian. (Photos: Max Meyer- Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*



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*Fig. 8. Sardonyx cameo depicting a figure in profile (Photo: Caitie Barrett- Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

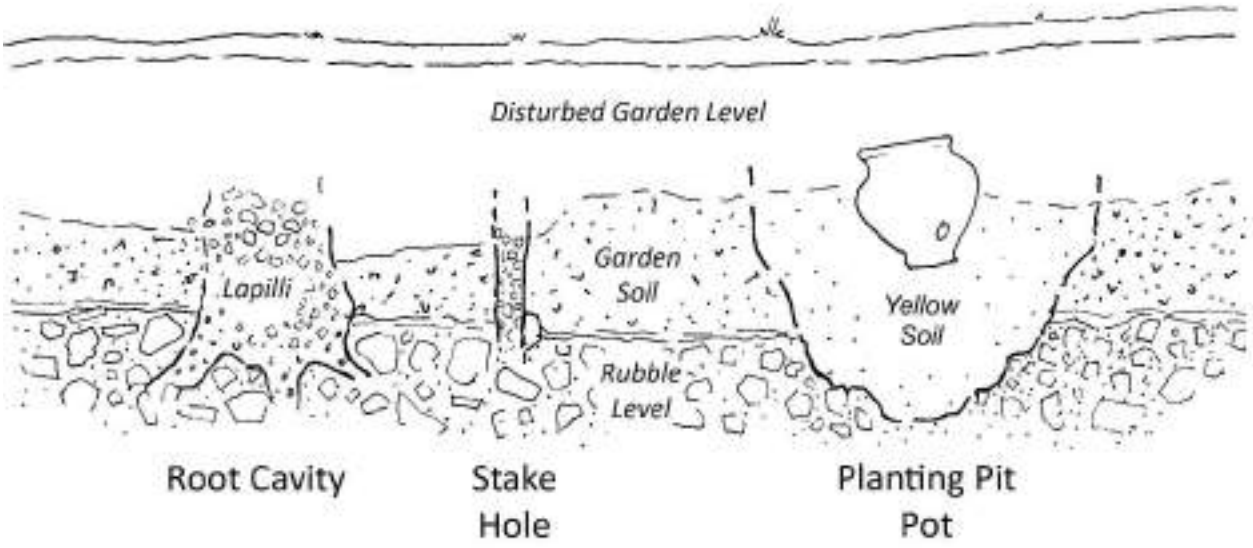


*Fig. 9. Composite diagram of preserved planting features (not to scale). This drawing is a schematic image illustrating a range of features commonly encountered at the site, rather than depicting a particular excavated context. (Drawing: Kathryn Gleason)*



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*Fig. 10. Planting pot (*olla perforata*, inv. no. 309.0001; see also Fig. 11) in situ, adjacent to a post hole filled with lapilli. The pot is situated within a deposit of compact yellowish soil within a planting pit. Excavated in Trench V, 2023. (Photo: Caitie Barrett- Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

In excavating many of our trenches, we have found that the very bottom of the ancient garden level is, in fact, preserved in many areas of the site, revealing a range of planting features. Furthermore, a new application of micromorphology is now enabling us to detect garden surfaces, path fragments, and cultivated soils in even the most damaged areas.[47] This is promising news for those concerned that the modern replanting of gardens at Pompeii must have precluded preservation of ancient garden features.

The features we have located in the preserved bottom zone of the garden soil are indicated in Figure 9, a composite schematic diagram that illustrates examples of a range of features typically encountered on our site. We have the bases of about 30 root cavities, some of which we have been able to cast.. In other instances, the soil has become too dry to preserve the walls of the cavity. We also have been able to identify several post or stake holes for light fencing or trellises. Finally, we have identified planting pits, dug to receive plants either in pots or as bare root stock (Fig. 10).

[47] The analyses were conducted by Laura Magno in 2019 and by Rowena Banerjea in 2022 and 2023: see BARRETT *ET AL.* 2023, 258.



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Reconstructing human–plant interactions at Pompeii

In antiquity, Campania was renowned for its remarkable soil fertility, and it was also a major center for the development of new varieties of fruit and vegetables.[48] Our findings add further dimension to this region's ancient reputation, suggesting that cultural knowledge and training may have enabled skilled gardeners to further exploit and intensify the potential of the local natural resources of Campania.

Ancient sources praise the fertility of the volcanic soils around Vesuvius,[49] and chemical testing supports those claims. Ancient garden soils in Pompeii and the Vesuvian region are characterized by favorable chemical characteristics; they are rich in nitrogen, phosphorus, and potassium, and they possess exceptional water-holding capacity and drainage.[50] The soil of the VIII 3.14 garden would likely have comprised such local soil, with an admixture of material derived from demolition activity, and so would likely have retained a high fertility. Nonetheless, within this general garden soil, our excavators also noted smaller deposits of distinctive yellow soils with some white pumice lapilli. These appear to have been used to fill the pits around the plants.[51] Mark Robinson, using a hand lens, identified these as quarried and redeposited paleosols containing ash from the 'Mercato eruption'.[52]

*Fig. 11. Planting pots (*ollae perforatae*) from the VIII 3.14 garden. (From left to right: inv. no. 309.0001, Trench V; inv. no. 231.0002, Trench H; inv. no. 56.0001, Trench C.) (Photo: Cole Warlic Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

[48] MARZANO 2022, 198-220.

[49] Strabo 5.4.8; Virgil, *Georgics* II.217-225; Pliny, *HN* 18.110; Dion. Hal. 1.37.2; Florus, *Epitome* 1.16.3-6.

[50] FOSS, ESSINGTON, and STEWART 2016, 55-59.

[51] These soil deposits are under further study by Lee Graña, Evan Allen, and Yajing Zhao.

[52] Pers. Comm. July 2023. Foss also noted different paleosols in different gardens, some from the Avellino eruption in origin, others from the Mercato eruption (FOSS 2002, 69). Without excavation, he was unable to account for the variation. The House of Polybius had a 'well-developed Mercato paleosol,' while the Pompeii Orchard had a 'complete Avellino paleosol' (FOSS 2002, 69).



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Why did gardeners desire this special soil for the plants in the planting pits, when the soil of the garden bed would already have been fertile? The horticulturalist of the Archaeological Park of Pompeii, Maurizio Bartolini, has done preliminary soil tests, detecting high levels of potassium and other nutrient minerals.[53] In fall 2023, he conducted replicative experiments with a soil mixture that contained about 30% of our yellow soil. He found the germination/rooting rate and survival of seeds and cuttings to be exceptional. These preliminary results lead us to hypothesize a heretofore unknown ancient application of Mercato paleosols at Pompeii: namely, as a way of enhancing the establishment and growth of new plantings. This discovery suggests a new reason (supplementing the other reasons already known) for the intensive ancient interest in quarrying for this soil, and thus another explanation for the numerous quarry pits that archaeologists so often encounter when excavating gardens or other open areas at Pompeii.[54] In addition to its other uses as a construction material, this soil may also have played an important role in ancient agricultural and horticultural practice. Given the extent and prominence of gardening at Pompeii (more than 520 gardens within the city[55]), this finding has significant implications for understanding household and urban economies. Our ongoing research on the ancient soils also includes an integrated study of the physical and chemical soil properties of various ancient garden features, including paths (with more compacted soils) and presumed planting areas (with more porous soils). Within these different ancient soils, we are investigating the potential presence of biomarkers which might provide indications of the former vegetation of the garden. To this end, we are pursuing (1) gas chromatography mass spectrometry (GC-MS), conducted by Boris Jansen, and (2) shotgun DNA analysis of soil samples, conducted by Flavio De Angelis. The GC-MS study seeks to identify evidence of organic compounds (primarily lipids), some of which may be associable with specific plant genera. The shotgun DNA analysis seeks to determine whether ancient DNA can indeed be identified in the soils, and, if so, whether that DNA can be linked to particular types of plantings. Simultaneously, Jan Sevink is studying the physical and chemical characteristics of the soil, both assessing its overall chemical composition and conducting trace element analyses, including the major heavy metals. He is also testing the moisture capacity of ancient soils from our site in order to establish their relative capacity to retain water. Ultimately, we seek to put the results of the lipid and DNA analyses, as well as the physical and chemical study of general soil characteristics, in dialogue with other information on the plant composition of the garden: namely, preserved macrobotanical remains (under study by Jessica Feito), palynological evidence (under study by Dafna Langgut), and ancient textual and visual evidence for the vegetation and design of Roman gardens. By comparing these multiple lines of evidence, we hope to attain deeper insights into the plantings and uses of this ancient garden.

In association with these pits containing yellow soil enriched by the ash of the Mercato eruption, we typically find the remains of planting pots (*ollae perforatae*), both as whole pots *in situ* and as fragments (Fig. 11, Fig. 12).[56] These small perforated pots, typically 12-23 cm in height with a hole in the base and three holes in the sides,

[53] The chemical and physical analyses were carried out by Agri-B10-Eco Laboratori Riuniti srl in Pomezia (Rome) in August 2023. The samples contained 1688 ppm of potassium (C.S.C. analysis: potassium = meq 4.32, saturation 20.2) and also high levels of calcium (ppm 3080; C.S.C. analysis: meq 15.40, saturation 72.1). The testing of 'normal' soil samples taken in various areas of the Archeological Park of Pompeii and the Roman villas of Stabiae consistently had potassium levels equal to 700 ppm and 2240 ppm of calcium. Magnesium levels, on the contrary, were similar: 140 ppm for the 'yellow soil' from our excavation and 142 ppm in the samples taken by the Park across the site of Pompeii and other Vesuvian archaeological sites. We are very grateful to Maurizio Bartolini and Paolo Mighetto for sharing with us the results of these tests.

[54] On the frequency with which archaeologists encounter quarry pits for soils containing Mercato ash, see most recently POEHLER 2023, esp. pp. 420-421.

[55] JASHEMSKI 1993, 21-252, plus the numerous gardens found since Jashemski's publication.

[56] BARRETT *ET AL.* 2020, 19-21.



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were used for propagating plants by seed, cuttings, and aerial layering[57] (Fig. 11). In 2024, Joel Bellviure conducted a fabric analysis on all the *ollae perforatae* from the 2022-2023 seasons. These included both whole vessels and sherds, for a minimum vessel count of 15. All but one vessel[58] shared the same fabric with a ferruginous matrix and a major presence of pyroxenes and plagioclase, as well as a rarer presence of possible olivine, granitoid nodules, and rounded foraminifera; elongated mesopores are also parallel to the walls. Some traces of reduction during firing also point to the stacking of the vessels in the kiln. The origin of the fabric is Vesuvian, and it is identical to the clay and temper generally used for cookware at Pompeii and the Bay of Naples.[59]

Typologically, the pots belong to Macaulay Lewis' Type A,[60] and tentatively to a new subtype that we are provisionally defining as Type A2.[61] Volumetric analysis conducted on a photogrammetry-generated 3D model of the best-preserved pot (inv. no. 56.0001, Fig. 11) has shown that it could contain about 0.71 liters of soil. The standardization of shapes and production technique allows us to hypothesize that all the pots could have originated in the same, presumably local, workshop. This need not have been a workshop specializing in *ollae perforatae* per se. In fact, the use of a cooking fabric for the vessels suggests that the workshop's primary business may well have been the production of cookwares.

Roman potters typically specialized in either utilitarian or fineware pottery, and the evidence from Pompeii suggests that different kinds of clay and temper were used in each case.[62] Other evidence for local utilitarian ceramic production at Pompeii includes the discovery, some time around 1763–84, of 109 cooking pots – all typologically similar to each other – piled near the Herculaneum Gate.[63] However, the physical location of the workshop that produced those pots is unknown, and it is likely that multiple ceramic workshops existed in the area. The examination of other planting pots from Pompeian gardens indicates that the same fabrics are shared across multiple forms, pointing to the existence of multiple workshops and/or morphological evolution over time.[64]

Although ancient sources (e.g., Cato, *De Agricultura* 52) state that the vessels were broken before being placed in the ground, archaeologists excavating around Pompeii and the Roman world have found that, in fact, the pots were often left intact. Leaving the pot intact may have been intended to constrain root growth for the skilled pruning necessary to miniaturize plants via the art of *ars topiaria*, as is attested in ancient garden paintings and in root-bound pots found at Oplontis and other gardens.[65] One of the cracked but otherwise intact planting pots from our excavations (inv. no. 56.0001, discussed above; Figure 11) contained root cavities that suggested both air layering (as indicated by a cavity down the middle of the pot) and possibly also dwarfing (cavities along the wall of the pot and pooled in the base, suggesting that the roots were pot-bound).[66] Together, these features provide evidence for skillful plant tending by specialist gardeners.

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[57] On planting pine nuts or citron layers in *ollae perforatae*, see Pliny, *HN* 17.64; on extensive use for layering, see Cato, *De Agricultura* 51, 55, 133; Pliny, *HN* 17.97-98, uses the term *vasa fictilia*. These pots are found extensively around Pompeii, Italy, and the Roman Empire generally. See summaries in JASHEMSKI 1992, 371-391 and MACAULAY LEWIS 2006; MESSINEO 1984.

[58] The exception is two fragments of the same white-coated vessel (inv. no. 105M.0001 and 195.0018); the white coating might point to the use of salt water in the clay.

[59] For a summary of Pompeian fabrics, see PEÑA and CALLUM 2009. See also SCHNEIDER *ET AL.* 2010; GRIFA *ET AL.* 2021. The same fabrics had already been described for planting pots by DI GIOVANNI 1996, 90.

[60] MACAULAY LEWIS 2006, 211, fig. 2A.

[61] BELLVIURE, LIME, *ET AL*., forthcoming.

[62] PEÑA and CALLUM 2009.

[63] DI GIOVANNI 1996, 90, n. 32: 'un rinvenimento di ben 109 vasetti, tutti delle stesse dimensioni, impilati a serie di sei, in un luogo imprecisato 'fuori Porta Ercolano,' dove è noto un piccolo quartiere ceramico.' See also FULVIO 1879, 280.

[64] See MACAULAY LEWIS 2006, 208–210.

[65] GLEASON 2019, 231; LANGGUT *ET AL*. 2024, 12–16.

[66] See BARRETT *ET AL.* 2020, 19–20, fig. 20.



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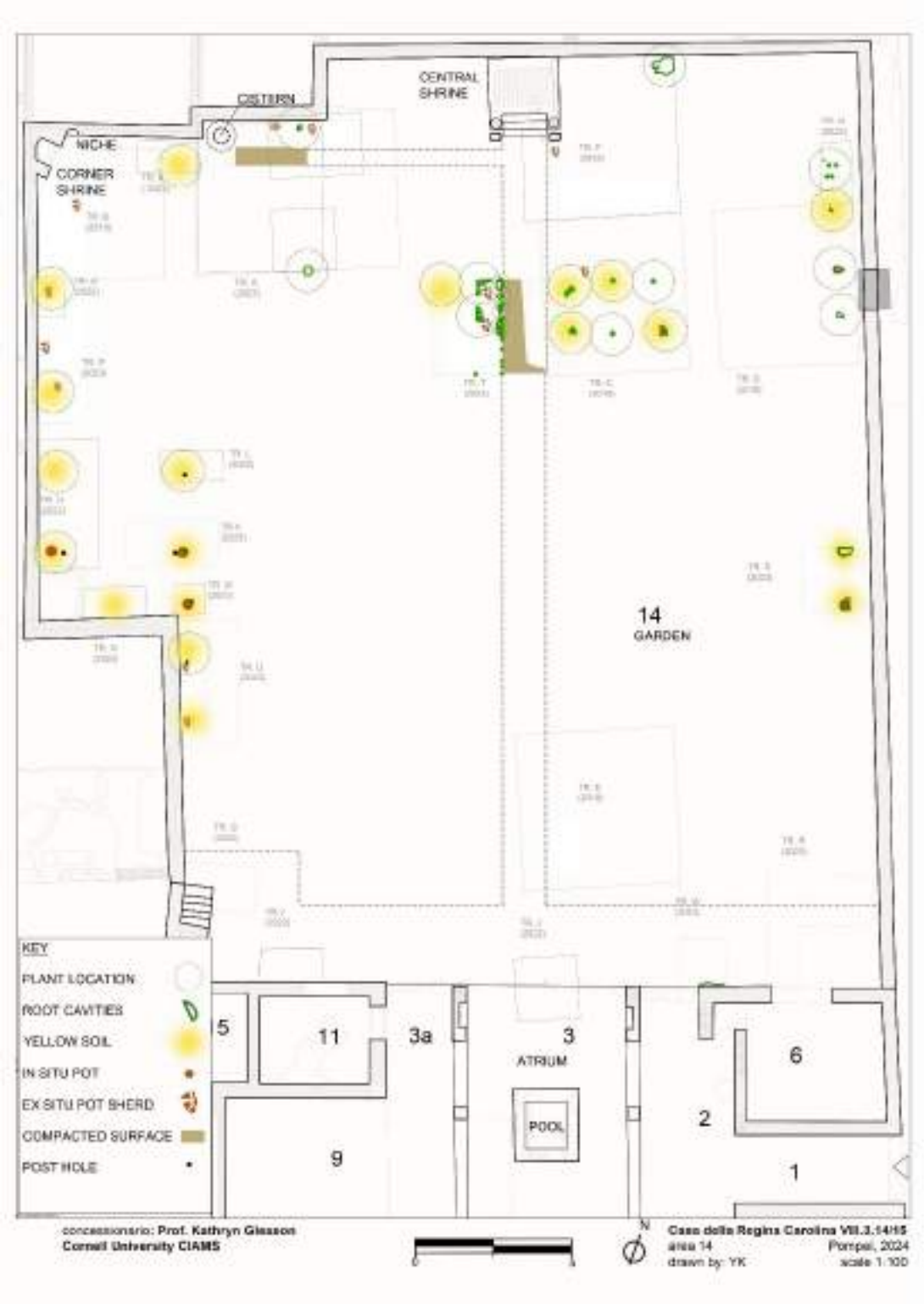


*Fig. 12. Plan of VIII 3.14, showing the locations of excavated plant remains and associated features within the 79 CE garden. Features include the locations of root cavities (in situ); excavated planting pots (in situ); sherds from additional planting pots; yellow soil deposits, which frequently appear in association with root cavities or planting pots; and surfaces of compacted soil which appear to represent the remains of paths. (Plan: Yaniv Korman)*



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Our finds of planting pots and root cavities have allowed us to identify an exceptional number of plant locations in the garden (Fig. 12). Recent planting evidence found along the east, west, and north walls, together with our earlier finds, suggests an orderly but not rigid layout of plants on a grid of about 4 Roman feet. In 2023, we also found the first direct archaeological evidence of an ancient path along the central axis between the house and the central shrine. A portion of this north-south path is clearly preserved in Trench T, and if it followed a straight line towards Room 3, as we propose (Fig. 12), then it should originally have intersected with Trenches E and J as well. However, modern activity in the upper levels of those trenches (connected with modern cultivation as well as, in the case of Trench J, the 20th–century restoration to the floor and threshold of Room 3) has caused too much damage for the path to be clearly detectable there today. Nonetheless, parallels from comparable walled gardens with preserved plantings suggest that we should reconstruct this path as originally extending across the full north–south axis of the garden. Other walled gardens with preserved plantings, such as the Casa di Octavius Quartio (II 2.2), Casa del Bracciale d'Oro (VI 17.42), Casa di Pansa (VI 6.1–2), and Casa di Epidius Rufus (IX 1.20/30), feature an axis from the house extending across the full length of the garden, articulated with a path, water feature, or planting bed.[67] Therefore, despite the damage from modern cultivation at the southern end of our site, we reconstruct our path along the full axis between the house and the shrine. This north-south path probably connected with east-west paths at the north of the garden, as indicated by the remains of a compacted earthen surface which we encountered at similar elevations along the northwest side of the garden (discovered in Trenches A and K in 2019 and 2022) (Fig. 12).

Provision of water for the garden has proven less clear than it first appeared. In 2019, along the north wall of the garden, we located a cistern with a basalt puteal. The puteal was originally constructed in the second or early first century BCE phase, and its height was subsequently raised via a rough masonry addition when the Roman-period garden was installed. However, in 2023, we excavated the fill of the puteal, and the complete absence of lapilli suggests that the cistern was out of use at the time of the eruption. Furthermore, stratigraphic excavations in 2022 demonstrated that the masonry tank visible today in the west area of the garden is also modern. The remaining evidence for water sources comes from the house interior, where Mazois was able in 1824 to see signs of piped water to the fountain in the *atrium* and the *puteal* of a cistern beneath.[68] The fountain no longer survives, and the cistern, if present, is currently inaccessible for examination as a result of early 20th-century restoration work.[69] Nonetheless, the remains in VIII.3.14 may suggest the possibility that tower 11 of the aqueduct system may have been functioning shortly before the eruption. Tower 11 was built after the earthquake, although it lacks the travertine accumulation that might confirm it had been working.[70] If tower 11 were functional, it might have provided water to the house via lead pipes (no longer evident) or via the fountain at the corner.

The macrobotanical remains, analyzed by Jessica Feito, come (with some exceptions) largely from the leveling fill underneath the garden. Finds from those contexts cannot themselves tell us what plants later grew on the surface, nor, as is more usual, testify to the use of domestic refuse for fertilizer.[71] However, we do have preliminary pollen evidence for the vegetation on the garden surface. Our project palynologist, Dafna Langgut, has developed a technique for extracting pollen grains not only from soil but also from ancient wall plaster.[72] A recent

[67] Path arrangements in market gardens or vineyards do not always have this strong relationship to the house (see, e.g., the market garden in VIII 6.4–5). However, gardens of such types constitute a different kind of context.

[68] MAZOIS 1824, 49. ESCHEBACH (1993, 365) interprets the area at the top of the stairs south of the atrium as a raised tank, but this interpretation requires further investigation.

[69] Excavators in 1931 explored the so-called atrium (Room 3) but sealed their work with a thick layer of concrete, preventing confirmation: see photo D00114940 in the Open Pompeii archives (ARCHAEOLOGICAL PARK OF POMPEII 2024).

[70] For a summary of views concerning the functioning of the aqueduct system, see KEENAN-JONES 2015, and for tower 11, in particular, see p. 199.

[71] On the use of domestic refuse for fertilizer, see JANSEN 2000, 37-50; JASHEMSKI 2002, 6-28; JASHEMSKI 2007, 487-498.

[72] LANGGUT 2022; LANGGUT *ET AL*. 2024; see further BARRETT *ET AL*. 2020, 10–11.



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comparison between these two methods (extracting pollen from garden soil vs. extracting pollen from plaster) showed that the plaster better represents the actual plants that grew in the garden, both because of better preservation, and because the plaster also preserves pollen from plants that are characterized by low pollen dispersal efficiency.[73] Insect-pollinated species do not disperse far from their origin, so the presence of their pollen likely attests to plants that actually grew in this garden.[74] Other indicators of local provenance can include small clumps of pollen embedded in the plaster. A full presentation of the palynology results is currently in preparation. However, some preliminary indications of plants that grew within the garden include olive (whose pollen was still found in clumps), walnut (which has a heavy pollen grain and does not travel for a long distance), and grape (which also has a low pollen dispersal efficiency). These plantings would have been both productive and decorative. All of these above may be securely identified as growing within the walls of VIII 3.14. Pollen of the cabbage family (*Brassicaceae*) was also identified. Tracing herbaceous pollen to the genus/species level is usually difficult. In southern Italy this family is highly diverse, comprising numerous genera and species; some are used as crops and others as ornamentals, and yet others are merely common weeds[75]. Further investigation may illuminate this issue.

Some other plants are present in the pollen record, but their relationship to VIII 3.14 is not as certain as those above, because they are wind-pollinated plants whose pollen grains might potentially disperse quite far from their original location. These include, for example, conifer trees such as pine, cypress/juniper, fir, and cedar. Some or all of these conifers may well have grown onsite too, but we cannot be certain; their pollen may be telling us more generally about the vegetation of the surrounding insula. To summarize, the preliminary results of the pollen study have shown that the garden featured a mix of productive species, ornamental shrubs and fragrant perennials.

On the larger neighborhood context, we may also compare the macrobotanical remains from the leveling fill. Many of these appear to represent the remains of food waste, as discussed below in our consideration of evidence for dining practices (see 'Multisensory and Embodied Experience'). These plants did not necessarily grow within this particular garden, but they do provide evidence for diet and vegetation within the region more generally. As discussed further below, archaeobotanist Jessica Feito has identified macroremains of olive (*Olea europaea)*, fig (*Ficus carica),* walnut (*Juglans regia*)*,* and *Brassica* sp., which includes cabbages and black mustard. The presence of *Brassica* provides an intriguing counterpart to the pollen evidence.

## Discussion

### Redrawing the boundaries of the 'Casa della Regina Carolina': adding VIII 3.15

Our archival studies of surviving information from the earliest excavations at this site have revealed, as noted above, that house VIII 3.14 was originally connected to the structure known today as VIII 3.15.[76] During our study season in 2024, we were able to supplement these archival studies by initiating a first survey of the area of VIII 3.15, including wall studies (conducted by Roberta Ferritto and Caterina Assoni), total station survey (led by Joseph Nigro), ground penetrating radar (led by Larry Brown) and cleaning of the garden area, but without conducting any subsurface excavation. We hope to follow up on this initial study by excavating within selected areas of VIII 3.15 in summer 2025.

[73] LANGGUT *ET AL*. 2024.

[74] GRÜGER 2013, 361–365; LANGGUT 2022.

[75] VIGNOLA *ET AL*., 2022; LANGGUT *ET AL*. 2024.

[76] Little is known of the original excavations of this house, but those excavations must have taken place prior to the 1820s at the latest. Mazois' plan (Fig. 2a in the present publication), which was published in 1824, shows the house as completely excavated. Carlo Bonucci also refers in 1827 to the sigma-shaped *stibadium* as a place where visitors to Pompeii can sit and rest (BONUCCI 1827, 159).



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Drawings and descriptions dating to as late as 1861[77] consistently portray the property at VIII 3.14 as connected to VIII 3.15 by means of a flight of steps (see Figs. 2a and 3, and compare Fig. 13 for the site today). The lowest step remains in situ today. Furthermore, it may have been possible in the early 19th century to walk directly into 3.15 from 3.14, as appears to be implied in Carlo Bonucci's 1827 description of a visit to the site.[78] However, a published plan from 1868 shows the two areas as separate houses.[79] A possible explanation for this discrepancy, and the subsequent scholarly treatment of VIII 3.14 and VIII 3.15 as separate houses, is that the wall between the two units could have collapsed and been rebuilt without the door. Given that the two areas received separate designations in Fiorelli's system of house addresses, any such restoration must predate the institution of Fiorelli's address system in the 1860s. However, our findings confirm that the two houses should be understood as one at some point in antiquity, as also concluded recently by Laurentino García y García and anticipated previously by Irene Bragantini.[80]

*Fig. 13. Photogrammetric model from drone photography, looking north at VIII 3.15 (left) and VIII 3.14 (right). Other adjacent houses in the* insula *are shoè'ìì'ìì'ìì'ìì'0wn in grayscale. (Image: Fawzi Doumaz).*

[77] CHENAVARD 1861, Vol. 3, pl. 94.

[78] BONUCCI describes a visit to VIII 3.14 (which he calls the 'Casa di Adone'), and then speaks of being able to see the columns of the 'vicino Gineceo' – by which he means 3.15, because he describes this area as containing a sigma-shaped 'triclinio ricurvo' – from within the 'Casa di Adone' (1827, 158–159, quoting p. 159; see further discussion below on the sigma-shaped *stibadium* in VIII 3.15). He then says 'Noi c'inoltrammo alquanto, e prendemmo riposo sul triclinio ricurvo (a *sigma* C)' (1827, 159). This description seems to imply that Bonucci was able to directly access 3.15 from within 3.14 without having to go back out into the street first.

[79] DYER 1867, foldout map. However, some subsequent publications still refer to a connection between 3.14 and 3.15. For example, Breton's 1870 *Pompeia* describes the buildings as belonging to a single house which 'se compose de deux habitations distinctes communiquant entre elles' (BRETON 1870, 496).

[80] GARCÍA Y GARCÍA 2023, 28–30, 44. BRAGANTINI (1998, 396) had earlier described the two structures as 'probabilmente' unified originally, and believed that they had already been separate in the last final ancient phase.



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The original unity of the two structures is further supported by Roberta Ferritto's analysis of the distinct building techniques represented within the wall between the two units. These techniques indicate the presence of two different phases. The *opus incertum* wall is made of stones of travertine (commonly called Sarno limestone), Neapolitan yellow tuff, lava cruma, basalt (commonly called lava), and sporadic fragments of *cocciopesto*, bricks and tiles bonded with mortar. This wall abuts the lowest step (0.94 x 1.52 m; visible height: *ca.* 12 cm), and therefore, the step/staircase was prior to the wall. In addition, to the north and in the center of the wall, there are two *opus latericium* quoins[81] which have been cut and covered by the wall; these therefore were built during the first phase. Based on the building techniques and their correlation, we have identified two different phases. The first phase included the stair connecting the two units and the two *opus latericium* quoins. In the second phase, the *opus incertum* wall was built, cutting and covering the stairs and quoins, which lost their original function.

These results suggest that 3.14 and 3.15 may have been separated during their final ancient phase, but connected in an earlier period. Ongoing research by Roberta Ferritto and Caterina Assoni will study the phasing of the walls in more detail and address the question of precisely how the connection between VIII 3.14 and VIII 3.15 might have changed over time. Prior to the first century CE, as noted above, the current area of VIII 3.14–15 seems to have been occupied by up to three smaller houses oriented east–west. At that time, the space currently occupied by VIII 3.15 may have been part of the most southerly of these structures. Its location might suggest a peristyle garden at the back of an *atrium* house with a doorway at entryway 14, an *atrium* in Room 3 of VIII 3.14, and a *tablinum* in Room 9 of VIII 3.14. Subsequently, the reworking of VIII 3.15 into a different type of space might be connected to the first-century expansion and remodeling of VIII 3.14, or to the recovery and rebuilding efforts after the earthquake, or both (or indeed might represent a separate phase of activity). Excavation in VIII 3.15 in summer 2025 should provide more evidence to evaluate these hypotheses.

Much of the ground plan of VIII 3.15 is devoted to a garden with a masonry *stibadium* (Fig. 14). The semicircular *stibadium* (3.5 m in diameter) is in fact the only known dining installation of this form at Pompeii; other outdoor masonry dining installations at Pompeii take the form of triclinia with rectangular benches.[82] The garden and *stibadium* were surrounded by a portico supported by pillars with a low pluteus wall, allowing entrance only in the NW corner. In the late 19th century, Dyer was able to detect traces of two other pillars 'destined apparently to support a trellis' in the center of the court, above the *stibadium*.[83] The *stibadium* may originally have been associated with a table, but if so, that has not survived.[84] It may also have once possessed a water feature. At some point between 1819 and 1832, William Gell sketched this *stibadium* – which he captioned as 'Triclinium in the Regina Carolinas Scavo [sic]' – and described the feature as 'In the open air with a Watercourse round it' (Fig. 15).[85] Today, evidence of this water feature – or of its source, since none of the early reports on VIII 3.15 note a fountain or cistern – is difficult to discern. A photo published by Henry Thédenat in 1910, facing the *stibadium* from the center of the garden and looking east, shows no sign of any visible channels on the interior of the *stibadium*.[86] However, if the

[81] The bricks have a thickness of 3–3.5 cm, and they correspond to Type B in the typology of COVOLA *ET AL.* (2022, 101), indicating non-local production.

[82] As noted by SOPRANO (1950, 306). On the use of the term *stibadium* for sigma-shaped benches, see subsequently DUNBABIN (1991; 1996, 70-72 n. 22, 72 n. 30), *pace* AMEDICK 1993; 1994, 112-115.

[83] DYER 1867, 316.

[84] SOPRANO 1950, 307. DYER suggests that a monopodium table may have been originally present (1867, 316), but if so, it was no longer preserved by 1950 (SOPRANO 1950, 307).

[85] A facsimile of the drawing, with caption, is published in DESSALES 2019, 276. BRETON (1870, 498) provides another early sketch of the *stibadium*, but without reference to any water features.

[86] THÉDENAT 1910, 85, fig. 50. The accompanying text (THÉDENAT 1910, 84) misidentifies the house address as II 3.15, but the photograph and description are clearly of VIII 3.15.



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*Fig. 14. Garden with remains of masonry stibadium (at right) and water channel (foreground) in building VIII 3.15, facing north. (Photo: Caitie Barrett* - Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden*)*

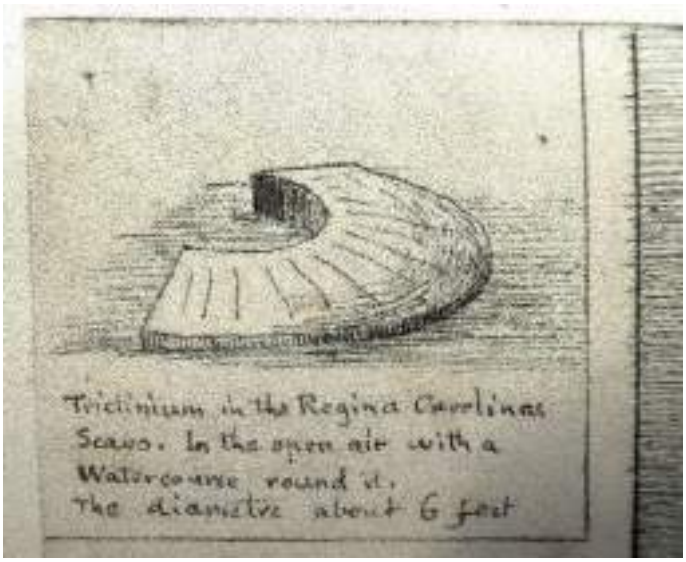


*Fig. 15. Drawing by William Gell, datable between 1819 and 1832, depicting the stibadium (characterized in Gell's caption as a 'triclinium') in the garden of VIII 3.15. (© Bibliothèque de l'Institut national d'histoire de l'art; previously published as Dessales 2019: 276.)*

exterior of the *stibadium* were indeed encircled by a water channel, that feature would be well paralleled in many outdoor triclinia at Pompeii and elsewhere.[87] More likely, however, Gell's 'Watercourse' was simply a reference to the water channel on the south and west sides of the garden. This channel is clearly visible on some 19th–century plans (e.g., Fig. 2a), and cleaning of

[87] See most recently BARRETT 2019, with a survey of previous bibliography on pp. 137-138, n. 271. Most of the other examples feature water channels *within* the benches of a masonry triclinium, but in this case, the sigma shape of the *stibadium* may have advocated for a different form.



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the garden area in summer 2024 revealed its surviving remains (Fig. 16).[88] Such water channels or gutters are ubiquitous in Pompeian gardens.[89]

The rooms adjacent to the garden-*stibadium* are poorly preserved today, but this interior space may have included additional dining facilities; Fiorelli characterizes room 4 as a *triclinium*.[90] Food preparation facilities, in the form of a hearth, were also present. Fiorelli also identifies a hearth and a latrine at the left of what he sees as 'un grande ambulacro' opening from the street.[91] Steven Ellis has observed a similar association between hearths and latrines in some of the larger bars of Pompeii.[92] These structures are no longer clearly discernable in VIII 3.15, but a poorly preserved masonry feature in the southwest corner of Room 3 (Fig. 3) likely represents their remains. Further excavation seasons will investigate this possibility.

Some other aspects of the architecture of VIII 3.15 in the first century CE remain unclear. Today, the doorway from the street leads onto what currently seems to be a single large hall. However, the southern area of the structure was likely separated into a greater number of rooms than currently appears to be the case (Fig. 3). Nineteenth-century plans, such as that of Mazois in 1824 (Fig. 2), depict rooms 1, 2, 3, and 9 as divided by north-south walls that are no

*Fig. 16. Remains of the water channel at the foot of the western pluteus wall of the garden in building VIII 3.15, facing north. (Photo: Caitie Barrett - Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

[88] See MAZOIS 1824, pl. 12, fig. 1; LESUEUR n.d., pl. 7.

[89] DESSALES 2013, 188-189; VON STACKELBERG 2009, 39; BARRETT 2019, 210.

[90] FIORELLI 1875, 326.

[91] FIORELLI 1875, 326. Traces of these features appear to survive today in the southwest corner of VIII 3.15, where the remains of poorly preserved masonry are still detectable; however, excavation will be necessary to clarify the nature and extent of the features.

[92] ELLIS 2018, 74-75.



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longer visible today.[93] These walls had vanished by 1875 at the latest, as Fiorelli already describes the space as 'un grande ambulacro.'[94] Ground-penetrating radar survey and further excavation will investigate the possibility of locating the foundations of the north-south walls, should they survive beneath the present surface.

The confirmation of the original unity of VIII 3.14 and VIII 3.15 raises questions about the functions of VIII 3.15 after the separation of the two structures. One possibility for the use of VIII 3.15 in its final phase is residential. In 1824, Mazois observed that 3.15 has all the features of a complete house.[95] Today, the disappearance of the walls between rooms 1, 2, 3, and 9 has caused the architecture of 3.15 to look more unusual. However, there is nothing about the architecture of 3.15 which would be incompatible with dwelling, especially if the 19th-century records of those walls are accurate.

If VIII 3.15 retained a residential function after the severing of its connection to VIII 3.14, it may have become a completely separate property at this point, with VIII 3.14 and VIII 3.15 associated with different households.[96] Alternatively, it is possible that the owners of 3.14 could have retained some measure of control over 3.15, using this structure as a functionally and spatially separated, but still socioeconomically connected, unit. For example, the house could have been a rental property. Multiple houses at Pompeii include functionally separable areas, as indicated by features which Bettina Bergmann summarizes as 'exterior stairs, separate entries, and self-contained suites.'[97] These are often interpreted as rental units, given the abundant textual and other evidence for rental properties in the Roman world.[98]

Besides rental, other types of semi-separate dwelling are also conceivable. For example, VIII 3.15 could have served as a residence for extended family, similar to a modern 'in-law unit.' Another, though in this case less plausible, possibility involves use by enslaved workers. Within the Casa del Menandro, Jens-Arne Dickmann has identified as many as six discrete, spatially separated dwelling areas which he associates with enslaved domestic staff.[99] The relative absence of preserved decoration in VIII 3.15, which lacks the frescoes or mosaic floors that once adorned 3.14, could be consistent with intended use by a non-elite group. However, outside of very large dwellings such as the Casa del Menandro (which occupies almost an entire *insula*), enslaved workers did not usually have their own *domus*-like living spaces. Recent discoveries suggest they were more often required to sleep in storerooms and other out-of-the-way spaces within the *domus*.[100] Display-oriented features such as the garden and *stibadium* would be unexpected within an area intended for enslaved people's use. Additionally, if the occupants of 3.15 were expected to work within 3.14, the owners of the latter house would not have wanted to sever the connection between the two buildings.

[93] Besides MAZOIS (1824, pl. XII, fig. 1b), see also LESUEUR n.d., pl. 7; CHENAVARD 1861, Vol. 3, pl. 94.

[94] FIORELLI 1875, 326.

[95] MAZOIS 1824, 2, 50 (though he also sees 3.15 as linked to the main house of 3.14). Writing a few years later, BONUCCI (1827, 159) refers to VIII 3.15 as a 'Gineceo,' thus seemingly imagining it to represent the 'women's quarters' of 3.14. BRETON describes 3.14 and 3.15 as two distinct 'habitations,' albeit connected to each other (1870, 496). DYER (1867, 316) proposes that 3.15 constituted 'a small but separate establishment' which 'could have been made such by merely closing up the door of communication.'

[96] On the 'house' (as an architectural unit) versus the 'household' (as a socioeconomic unit), see most recently BARRETT 2023, 2–7.

[97] E.g., BERGMANN 2012, 232.

[98] On rented dwellings, see PIRSON 1997, 1999; BERGMANN 2012, 232–233; ELLIS, EMMERSON, and DICUS 2023, 351. For a rental advertisement at the Praedia of Julia Felix at Pompeii, see *CIL* 4.1136; and for recent excavations in and around the Praedia, see now ANGUISSOLA and OLIVITO 2022.

[99] DICKMANN 2012.

[100] For an extraordinarily well-preserved example, see ZUCHTRIEGEL and CORBINO 2023. On the challenges of identifying sleeping areas for enslaved people within Roman households, see JOSHEL and PETERSEN 2014, 72–73, 79, 165–169, 235–236 n. 126.



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*Fig. 17. Sketch depicting the perspective of an ancient viewer standing to the south of VIII 3.14, Room 3 (so-called atrium, subsequently renovated into a triclinium), gazing north through Room 3 into the garden and toward the central shrine. (Drawing: Yaniv Korman)*

Another possible set of uses for VIII 3.15 in the first century CE is commercial. Fiorelli identified it in 1875 as a *caupona* (a term that suggests use as a restaurant and/or hotel[101]), and some subsequent scholarship has repeated that identification.[102] The building does not have a counter of the type that Steven Ellis takes as definitive for the identification of shops and bars.[103] However, a commercial identification for VIII 3.15 remains a plausible hypothesis for future study. Again, in this scenario, the proprietors of such a business might either be completely unrelated to the late first-century owners of 3.14, or they might still retain some connection to the larger household. A

[101] On the semantic range of *caupona* and related Latin terms, and for a critical discussion of standard typologies of Roman shops, bars, and restaurants, see ELLIS 2018, 29-84.

[102] FIORELLI 1875, 326-327; JASHEMSKI 1993, 211.

[103] Cf. ELLIS 2018.



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commercial function for VIII 3.15 would also be compatible with a simultaneous residential function, as the proprietors of a *taberna* could also live there. There are many parallels elsewhere at Pompeii for the attachment of bars and restaurants to houses.[104] Future seasons of fieldwork on our project will investigate the possibility of a commercial or mixed commercial/residential function for VIII 3.15 during its final phase of use.

Changing uses of space in VIII 3, 14: from an *atrium* to a garden dining room

Garden space was central to both VIII 3.14 and VIII 3.15. Whether VIII 3.15 was a commercial or residential establishment, the finest dining area – the best table in the house, so to speak – would have been the *stibadium* in the garden. The unusual architectural form of this *stibadium*, plus its possible associations with a trellis and even a water feature, would have made for an impressive and pleasant dining and/or drinking experience.

In VIII 3.14, too, the garden was the showpiece of the house. Planted space occupies more than half of the footprint of 3.14, and the interior rooms had strong visual links with the garden. What is more, at least one of those interior rooms appears to have been modified to create an even more direct relationship with the garden. An important conclusion from our work at this site concerns Room 3, which is usually identified as an *atrium*.[105] During the 2nd/1st century BCE phase, when the area of the present VIII 3.14–15 was divided into multiple houses oriented in an east–west direction, this space would indeed have been a 'Corinthian' *atrium* (that is, one with more than four columns).[106] However, at some point within the first century CE,[107] the owners of the now greatly expanded VIII 3.14 renovated this space substantially. Low walls now blocked the intercolumnar spaces between the pillars, allowing access only from the garden.

This modification meant that the only way to get in or out of Room 3 was now through the garden. It would no longer be possible to walk directly from the *fauces* (Room 1) to the *atrium* (Room 3), or from the *atrium* to the *tablinum* (Room 9; see Fig. 3 for all room locations). In order to access Room 9 from the house entrance, one would need to walk *around* Room 3 in one of two directions: either taking the southern corridor (4) that led around and outside Room 3, or taking the eastern corridor (2) that led into the garden, then walking west through the garden past Room 3, and then walking south via the western corridor (3a). Either way, the walls encircling all of the *domus*-facing sides of Room 3 meant that any *tablinum*-bound visitor would need to bypass that space entirely. This substantial alteration to the usual flow of movement within Roman *atrium* houses would have significantly complicated the attempt to use Room 3 as a traditional atrium. To be sure, because the *pluteus* walls are so low (no more than approximately 30 cm in height), there was still intervisibility between Room 3 and Room 9, and it would still have been theoretically possible for guests to collect in Room 3 while waiting to meet with a *patronus* in Room 9. However, the walls are high enough to pose a serious inconvenience to rapid physical mobility between the two spaces. As a result, the introduction of this feature suggests that a free flow of movement between Rooms 1, 3, and 9 was not at this time a major priority for the house owners.

Rather, their higher priority appears to have been creating a direct spatial, functional, and visual relationship between Room 3 and the garden. The garden was now the only space from which someone could enter Room 3, or into which someone could exit it. Visual cues, both two-dimensional and three-dimensional, also reinforced this

[104] ELLIS 2018, 62-76.

[105] E.g., BRAGANTINI 1998.

[106] On 'Corinthian atria,' see Vitr. 6.3.1; SIMELIUS 2022, 16-18. For the identification of this particular room in VIII 3.14 as a 'Corinthian' *atrium*, see MAZOIS 1824, 49 and BRETON 1870, 496.

[107] It is not yet clear whether the changes to the *atrium* took place in the earlier first century (when VIII 3.14 was first expanded to the north in order to acquire the large garden space), or subsequently, as part of the renovation and expansion phase that we associate with the aftermath of the 62 CE earthquake. Future research will address this question, as well as the nature of the original north wall of the *atrium* and of VIII 3.14 in general. The original north wall has proved difficult to identify via either GPR or excavation, although the extent of ancient quarrying activities to the immediate north of Room 3 suggests the possibility of ancient spoliation.



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spatial relationship, as the decorative scheme of Room 3 emphasized (painted images of) lush greenery and (real) flowing water. As Mazois' watercolor[108] (Fig. 2b) demonstrates, the pillars surrounding this room were painted with vegetal motifs, and the interior of the *pluteus* was painted with shrubs and greenery.

In sum, the remodeling of the *atrium* suggests that the inhabitants chose to adapt this space to become an extension of the garden. In connection with this development, Room 3 may also have been repurposed as a dining space. The blocking of intercolumnar spaces is attested in many houses of Pompeii and often seems to have been practiced during the city's later years to create a contained semi-outdoor dining space.[109] Dining rooms opening onto gardens were ubiquitous in the city.[110]

The early excavation date of the interior part of the house, including this room, means that it is not possible to test this hypothesis against artifactual or faunal finds. However, the architectural and visual reframing of this space in its final ancient phase appears more compatible with the functions of a *triclinium* than with those of a traditional atrium. Within a space that was itself bedecked with vegetal imagery and flowing water, diners could take in the sights, sounds, and smells of the garden. They could also gaze upon the shrine of Diana, which appears to have been connected axially to the triclinium via an earthen path and direct visual access (Fig. 17).

## Dwelling and beyond: the flexibility of Roman domestic (and other) spaces

As a result of all these developments, the 79 CE incarnation of the 'Casa della Regina Carolina' was in some ways an unusual house. In this final phase of its ancient existence, VIII 3.14 was no longer an *atrium* house of the type that is often considered standard at Pompeii.[111] The garden is also atypical in some ways. It is among Pompeii's largest domestic planted spaces (over 730 square meters), but it is neither a peristyle nor a commercial garden. It also has not one, but two, large shrines, whose juxtaposition raises questions about the nature of ritual performance in this space.

In light of the unusual aspects of the house's architecture, we might ask whether a domestic function is still the best or only explanation for this structure. It was not uncommon for houses at Pompeii to be repurposed for other uses, including commercial and retail functions.[112] Additionally, it is possible that the adjoining VIII 3.15, which was formerly connected to VIII 3.14, may in its latest phase have functioned as a bar or restaurant. These features might prompt us to reconsider the nature of VIII 3.14 as well. Was the 'Casa della Regina Carolina' indeed a *casa* at all, in its final ancient phase?

There are multiple conceivable scenarios for how VIII 3.14 could have been functioning in 79 CE. However, while the architecture of this building certainly does not fit the classic model of the *atrium* house, there is also nothing about the structure or finds that is inherently incompatible with domestic use. Many other Pompeian houses are also associated with attached or adjacent bars or restaurants,[113] which in some cases were likely owned and

[108] BATALLA-LAGLEYRE 2021, 106, fig. 13. Original watercolor in Paris, Bibliothèque Nationale de France, Département des Estampes et de la Photographie, RES GD-12(E)-FT4.

[109] DESSALES (2013, 342-344) also notes the blocking of the intercolumnar walls in the CRC *atrium* during its final ancient phase. DESSALES similarly observes that this development must have changed the functions of the space, so that it must no longer have functioned as an *atrium* in the traditional sense (2013, 343). She does not, however, draw the conclusion that the space may have come to function as a dining area.

[110] BARRETT 2019, 115, 126–127.

[111] On Pompeian houses, see (inter alia) WALLACE-HADRILL 1994; DICKMANN 1999; ALLISON 2004a; Part 4 of DOBBINS and FOSS 2009.

[112] E.g., BERNARDI and BUSANA 2019, 231. MAIURI thought that such repurposing was a late development caused by the 62 CE earthquake (1942, 216-217). Much subsequent scholarship has challenged this proposed causal link with the earthquake, instead presenting the close links between residential and commercial uses of space as more typical of long-term practice at Pompeii (see most recently ELLIS 2018; ELLIS, EMMERSON, and DICUS 2023, 280).

[113] See *supra*, n. 104.



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perhaps also run by the people who lived in the houses. Additionally, 'nonstandard' house plans at Pompeii are more common than we might guess from many introductory textbooks or overviews of Roman houses.[114] This is especially the case in the area around VIII 3.14: that is, Pompeii's crowded downtown area, located within the oldest part of the city. Neighborhoods and buildings in this area often reveal lengthy histories of reoccupation and remodeling, and many structures deviate from the '*atrium* house' plan.[115]

Furthermore, there are good parallels for the remodeling of houses around gardens in particular, and for the transformation of Pompeian *atrium* spaces into domestic gardens in the first century CE. Multiple Pompeian homeowners seem to have attempted, around the same time as in VIII 3.14, to introduce plantings into atria or to convert atria into gardens.[116] Wilhelmina Jashemski suggests that this development was made possible by the introduction of the aqueduct, at which time many Pompeians 'no longer depended on the rain water gathered in the impluvium and stored in the cistern. In such houses the impluvium frequently became a pool fed by a fountain.'[117] Other first-century renovations at Pompeii also aimed to expand the size and prominence of gardens within houses. The Casa di Octavius Quartio (II 2.2) featured an *atrium* converted into a garden, as well as a comparably large walled garden laid out axially, with parallel walks for strolling.[118] The early plans of the garden at the Villa of Diomedes, by La Vega (1774), Pâris (1774), and Destouches (1817), depict an analogous centrally located triclinium and axially aligned plantings in repeating rows, akin to the planting locations that we have discovered in front of the large shrine at the Casa della Regina Carolina.[119] Regarding the relationship between gardens and dining, another good example comes from the Casa dell'Efebo (I 7.10-12), which was similarly created from the unification of two originally separate dwellings and was seemingly under renovation in 79 CE to incorporate yet another house (I 7.19).[120] Following the unification of the first two houses, much of the southern half of I 7.10-12 came to be – as in the northern half of VIII 3.14 – occupied by a large garden.

The Casa dell'Efebo garden actually closely resembles the VIII 3.14 garden in certain other ways as well. Both are encircled by solid walls rather than a peristyle, and as at VIII 3.14, the central visual focus in the Casa dell'Efebo garden is a free-standing aedicular structure at the far end of the garden (Fig. 18).[121] And in the case of the Casa dell'Efebo, the domestic function of the space is well documented. The Casa dell'Efebo was excavated in the 1920s by Amedeo Maiuri, almost a century later than the excavations of the VIII 3.14 garden. As a result of this later excavation date, the finds from the Casa dell'Efebo were much more thoroughly recorded and published, and

[114] On other house types, see, e.g., NAPPO 1997; WALLACE-HADRILL 1997, 219-223; ALLISON 2007, 276-277.

[115] See, e.g., the total absence of *atrium* houses in insulae VIII.7 and I.1 (ELLIS, EMMERSON, and DICUS 2023, esp. p. 5), and see also the discussion of the 'Casa di Acceptus e Euhodia' (VIII 5.39) in BARRETT 2019, 275-280. On debates over the urban history of the so-called *Altstadt*, see ELLIS 2011; POEHLER 2017, 22-52; VAN ROGGEN 2017.

[116] ANDERSSON 1990, 213-214; JASHEMSKI 1993, 9-10, 78; GEORGE 1998; DICKMANN 1999, 301-312; GROS 2002, 65-67, 72; DESSALES 2013, 333-348 (with a discussion of the CRC *atrium* on pp. 342-344). See also MAIURI 1929, 170–172, for an early discussion of the introduction of fountains and other decorative water elements into atria, although he does not focus on plantings per se.

[117] JASHEMSKI 1993, 9; see also APPLETON 1987, 183.

[118] JASHEMSKI 1993, 78-82; VAN BUREN, 151-153, pls. 11-13.

[119] DESSALES *ET AL.* 2020, Fig. 13.

[120] MAIURI 1927; ALLISON 2004B, s.v. 'Casa dell'Efebo'; BARRETT 2017, 296, 301; BARRETT 2019, 142-144, 151.

[121] On the layout and material culture of the Casa dell'Efebo garden, see BARRETT 2017; BARRETT 2019, 141-181. The aedicular structure in the Casa dell'Efebo is a fountain rather than a shrine, but its architectural form is very similar to, and clearly based on, that of an aedicular shrine.



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*Fig. 18. Masonry triclinium and aedicular fountain in the House of the Ephebe (I 7.10–12), facing south. Water flowed from the aedicular fountain into a channel that ran between the triclinium benches. (Photo: Caitie Barrett - Under concession from the Ministero della Cultura – Parco Archeologico di Pompei; any reproduction or duplication is strictly forbidden)*

their character appears to be entirely domestic.[122] One of the closest parallels at Pompeii to the VIII 3.14 garden is thus clearly situated within a dwelling space.

Another close parallel to the VIII 3.14 garden comes from a domestic context outside Pompeii: the 'House of Diana' at Cosa. Both houses featured a walled, non-peristyle garden with a central, herm-flanked shrine that contained a statue of Diana.[123] Elizabeth Fentress in fact cites the Casa della Regina Carolina garden as a parallel for the garden at Cosa, noting a 'similar arrangement featuring a small addorsed shrine and a pair of sentinel herms on either side of its steps.'[124] The Cosa shrine was associated with a statue of Diana and a dedicatory inscription to Diana.[125] The 'House of Diana' also includes a niche in the garden rear wall, which may furnish a possible parallel to the secondary shrine in the northwest corner of the VIII 3.14 garden.[126]

[122] For the excavations and finds, see MAIURI 1927. On the artifactual assemblage, see ALLISON 2004b, s.v. 'Casa dell'Efebo'; BARRETT 2017; BARRETT 2019, 141-181.

[123] On the 'House of Diana' at Cosa, see FENTRESS 2003.

[124] FENTRESS 2003, 52.

[125] For the inscription and statue, see FENTRESS 2003, 45-54.

[126] On the niche at Cosa, see FENTRESS 2003, 43 (expressing uncertainty about the niche's potential decorative or ritual functions). The shrine in the northwest corner of the VIII 3.14 garden is itself associated with, and partly built over, an older wall niche. The relationships between the VIII 3.14 corner shrine, wall niche, and central shrine are complex and will be discussed in a future publication.



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The upsurge of interest in planted spaces in first-century Pompeii certainly testifies to the cultural and social value of gardens, and, in particular, to their perceived value as places of elite socializing and competitive display. On a more practical level, this burgeoning of domestic gardens was also made possible by the Augustan-period introduction of an aqueduct to Pompeii.[127] Now that water was more readily available, homeowners could cultivate water-intensive plantings at a larger scale than before. And because elaborate plantings still involved great expense, domestic gardens became a highly desirable – and, for those with sufficient resources, fairly readily available – way to display one's wealth and sophistication. The plants themselves might be expensive to acquire, and might in some cases come from long distances afar;[128] the aqueduct water might itself cost money, in that access to the aqueduct may have been leased from the city;[129] and perhaps most of all, the labor of skilled gardeners would have been a highly prized resource, as will be discussed further below.

So the reorientation of VIII 3.14 around its garden, and the remodeling of the *atrium* into a garden dining room,[130] is in fact less atypical for Pompeian (and Roman) domestic space than it might at first appear. These developments can be understood as continuous with broader trends, paralleled at other houses and at other sites. However, the reworking of the *atrium* might still seem surprising in light of the traditional importance of that space for Roman social rituals. The *atrium* and *tablinum* are often understood as essential prerequisites for the reception of clients as part of the daily *salutatio* ritual. Without a traditional *atrium*, would the inhabitants of this house have become unable to receive clients, and thus unable to act as community leaders and to position themselves socially and politically?

However, this question's premise – that the social ritual was not possible without the architectural form – is dubious, as 21st-century scholarship has questioned rigid one-to-one equations between specific architectural forms and specific activities inside Roman houses.[131] The uses of domestic space appear in practice to have been much more flexible than such assumptions imply. Although in general people seem to have treated gardens as a more 'private' part of the house, accessible to invited guests rather than members of the public, those invited guests might have included individuals connected to the homeowner by relationships of *negotium* as well as *otium*. For example, at the 'Casa del Gemmario' (II 9.2) – a Pompeian building which seems to have combined both domestic and commercial functions – the garden may have been used for receiving customers as well as for private socializing.[132]

Given the evidence for atria taking on more garden-like features in the last years of Pompeii, we might indeed ask whether gardens might have (at least sometimes) also taken on more *atrium*-like functions. At VIII 3.14, might the garden itself have been used for receiving guests waiting for an audience with their patron? The rearrangement of the house's rooms would have meant that the garden was now the largest circulation space in close proximity to Room 9 (Fig. 3), whose position is consistent with that of a *tablinum*.[133] And given the evidence for walking paths, the garden actually provides some similar affordances to a traditional *atrium*, in that it would have permitted guests to gather and circulate within an enclosed space. The typically paratactic painted decoration

[127] JASHEMSKI (1979, 54) notes that 'after the aqueduct made water readily available, the use of pools, fountains, low formal plantings (which required more water), and statuary completely changed the character of many gardens.' On the question of whether the aqueduct was still functioning in 79 CE, see supra, n. 70.

[128] On the importation of exotic plants, see now MARZANO 2022, esp. pp. 50-87.

[129] On the probable leasing of aqueduct water, see RICHARDSON 1988, 55, 62.

[130] Future research is necessary to address the question of whether the remodeling of the *atrium* would have been carried out in the earlier first century CE, when VIII 3.14 was first expanded to the north in order to gain a large garden space, or whether this would have taken place at a later date, as part of the renovation and expansion of the garden in the wake of the 62 CE earthquake.

[131] See especially ALLISON 2004a.

[132] BARRETT and BELLUCCI 2022, esp. pp. 103-104.

[133] At any rate, it is located in the position where we would expect to find a *tablinum* when the pre-renovation Room 3 was still functioning as an *atrium*. Additionally, the spacing of the original piers of Room 3 serves to frame Room 11 from the vantage point of the house entrance, suggesting an attempt to create an axial view from the doorway, through (what would have originally been) the *atrium*, into the *tablinum*.



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schemes of atria suggest that visitors were expected to circulate around the room while waiting for an audience,[134] an arrangement also consistent with the widespread social practice of strolling in and around Roman gardens.[135] And while the appearance of garden-like features in Pompeian atria[136] has received more attention so far than the appearance of *atrium*-like features in Pompeian gardens, there are parallels both at Pompeii and beyond for the latter, too. Michele George has studied the appearance of peristyle-like features in Pompeian atria, and she relates this phenomenon to 'a more dramatic change in Roman domestic architecture after Pompeii, in which the *atrium* became ancillary to a central peristyle or was abandoned altogether.'[137] At Pompeii, George proposes that the Casa degli Amorini Dorati (VI 16.7) and the Casa dei Vettii (VI 15.1) provide early examples of this phenomenon. As she observes of these houses, 'The relative size of *atrium* to porticoed garden effectively rendered the *atrium* an antechamber to the peristyle, which was also the focus of the largest and best decorated rooms….'[138] Jens-Arne Dickmann has also observed a breakdown in the distinctions between *atrium* and peristyle space in first-century Pompeii, as well as a general reorientation of social functions toward peristyle space.[139] The VIII 3.14 garden does not take a peristyle form per se, but nonetheless, we propose that its scale, decoration, and prominence within the domus can similarly be understood within a social world in which traditional distinctions between different types of domestic reception space were starting to dissolve.

None of the finds from VIII 3.14 appear to compel an interpretation of this unit as a commercial space. If the garden of VIII 3.14 had been repurposed as a public restaurant, as may actually be possible for VIII 3.15, then we would expect to see a much greater quantity of ceramics and other finds associated with the storage, preparation, and serving of food.[140] Our ability to characterize the finds from the 1840 excavations is unquestionably limited by the lack of fine-grained detail in those publications. However, the 19th-century excavators did note a few ceramics and bronze vessels,[141] so if such objects had been present at the scale of a commercial restaurant, it seems unlikely that this would have gone entirely unmentioned. (By contrast, the even earlier, undocumented excavation of 3.15 – which appears fully exposed already in Mazois' plan of 1824, and whose excavation appears to have generated no published report whatsoever – makes it harder to argue from silence about the absence of recorded finds from this structure.) Additionally, the architecture of VIII 3.14 does not include obvious affordances for large-scale commercial dining, as the former *atrium* is the only built dining space that opens onto the garden. Nor does the site furnish evidence for other types of commercial activity common within the houses of Pompeii, such as workshop production, which is frequently associated with distinctive archaeological signatures.[142]

It is not impossible that VIII 3.14 might have served as a meeting site for a *collegium* or other collective association,[143] as opposed to – or in addition to[144] – being the dwelling place of a *familia*. However, the physical meeting places of *collegia* and other associations are often hard to identify archaeologically, and most of the existing

[134] On the frequently paratactic decoration of *atria*, see LING 1991, 68-69; LEACH 2004, 54; CLARKE 2007, 39.

[135] On walking in Roman culture, see O'SULLIVAN 2007, 2011; in gardens, see TALLY-SCHUMACHER and NIEMEIER 2016.

[136] See supra, n. 117.

[137] GEORGE 1998, 99.

[138] GEORGE 1998, 99.

[139] DICKMANN 1999, 301-331.

[140] For the architecture and material culture of restaurants and bars at Pompeii, see ELLIS 2018; ELLIS, EMMERSON, and DICUS 2023 (esp. pp. 78-81).

[141] QUARANTA 1839, 1840; SCHULZ 1841.

[142] E.g., FLOHR 2012, 2013; FLOHR and MONTEIX 2020; EMMERSON *ET AL.* 2024.

[143] On collective associations at Pompeii, see LIU 2008.

[144] As SLATER points out, Roman associations could meet not only in purpose-built structures, but also in temples and 'probably also in porticos, *cauponae*, and private houses' (2000, 496). BRUNETTI more recently makes the same point as well (2024, 178, 181-182).



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securely or plausibly identified examples are quite different from VIII 3.14 in ground plan and other features.[145] There is thus no real evidence to support the hypothesis of a *collegium*, even if we cannot categorically rule it out.

To be sure, commercial and domestic functions often coexisted at Pompeii (even within traditional *atrium* houses[146]), and VIII 3.14 certainly could have been similarly multifunctional, serving as a dwelling place while also hosting professional or social activities for a larger audience than that of the household itself. The potential presence of an affiliated *taberna* (VIII 3.15) would actually make more sense, and has better parallels, for a *domus* rather than the meeting place of an association. And of course, even when they were not associated with purpose-built workshops or *tabernae*, wealthy houses still hosted professional activities via the patron-client interactions and other forms of *negotium* that they facilitated.

Our future work at and around VIII 3.14 will continue to investigate the full range of activities that took place within the building we know as the Casa della Regina Carolina. The garden's closest parallels come from domestic gardens, and at the current time, the most plausible interpretation for VIII 3.14 itself appears to be as a residential site. At the same time, the changes to the site over the course of the first century CE attest to the flexibility of Roman uses of space (both residential and otherwise), and to the increasingly high cultural, economic, and social value that ancient Pompeians placed on planted space in particular. Additionally, the multiple interpretive possibilities for VIII 3.15, which may ultimately have become either a completely separate residence, a rental income property, or a *taberna*, provide an opportunity for exploring the frequently close associations of commercial and residential space at Pompeii.

## Multisensory and embodied experience

Current research in the field of sensory archaeology is beginning to explore Roman cities as sites of multisensory experience.[147] Gardens are ideal case studies for this subject, because they were purposefully designed to appeal to as many senses as possible. In our garden, the plants that we have identified archaeobotanically would have created seasonally varied views, fragrances, and even tastes (as with, for example, the olives, walnuts, and grapes). Acoustically, part of the garden's effect must have been the relative *absence* of sound. Even today, with the house in ruins, the garden is significantly quieter than the streets outside, whose tourist traffic may bear some comparison to the urban crowding that would have once characterized this busy region of Pompeii's downtown.[148] With the urban soundscape muted, people could have detected quieter, gentler sounds: for example, the gurgle of the fountain, the rustle of vegetation, the songs of birds, and the hum of insects.

Dining would have been another source of intense sensory experiences for visitors to this garden. As discussed above, Room 3 may have been used as a triclinium, and gardens themselves were often sites for outdoor dining at Pompeii. The VIII 3.14 garden does not contain any built masonry triclinia, but those were not necessary for taking meals in gardens. Many gardens may instead have featured wooden triclinia, although, as Espen Andersson observes, the evidence for such perishable structures would have been overlooked in early excavations at Pompeii.[149] The 1839–1840 excavation reports refer to a large quantity of nails, studs, and other metal objects found in the garden of VIII 3.14.[150] Some of these may have been attachments for wooden furniture, such as benches.

While we have not found any remains from meals held in this particular house in 79 CE, we do have archaeobotanical and zooarchaeological evidence for dining practices in Insula VIII 3 more generally. These data may

[145] For an attempt at a typology (none of whose manifestations particularly resemble VIII 3.14), see BOLLMANN 1998, but see also the critical remarks of SLATER (2000, esp. p. 496).

[146] See, inter alia, FLOHR 2012.

[147] E.g., PLATTS 2020, 2022; cf. BARRETT 2019, 15, 38, 179.

[148] On Pompeian traffic, see POEHLER 2017.

[149] ANDERSSON 1990, 226; see further BARRETT 2019, 127–128.

[150] QUARANTA 1839, 1840.



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help shed light on what kinds of food would have contributed to dining experiences in and around this garden. The leveling fill underneath the garden includes a range of macrobotanical and faunal remains, under study respectively by archaeobotanist Jessica Feito and zooarchaeologist Katie Tardio, which appear to derive from food waste. The leveling fill was created as part of the construction of the garden, so its contents do not come from meals held within that garden itself. However, the contents of such fills were typically sourced locally,[151] so they do provide evidence for vegetation and diet within the general neighborhood of house VIII 3.14 at some time between 62 and 79 CE. Food plants such as olive (*Olea europaea)*, fig (*Ficus carica),* and walnut (*Juglans regia*) have been recovered from strata associated with the construction of the garden, and all of these represent common dietary components in the region. The presence of *Brassica* sp., which includes cabbages and black mustard, may indicate herbaceous plants consumed as vegetables or flavorings.

Additionally, a large percentage of the recovered animal bones from all excavated pre-79 strata come from household food waste measuring less than 1cm in length. As with the macrobotanical remains, faunal remains from the 62–79 CE garden construction strata (Phase 3) allow us to reconstruct at least a portion of the diet of this neighborhood. There are also a smaller number of remains from the pre-62 deposits that paint a picture of earlier dietary habits. Deposits from all of these periods contained the common Mediterranean domesticates (sheep, goat, cattle, and pigs), along with chicken and hare remains. Of animals consumed for their meat, pigs, sheep, and goat were by far the most represented species, a finding that aligns with other dietary patterns in both Pompeii and the region. Not only were these species commonly eaten in antiquity, but their bones also show direct evidence of butchery through cut and chop marks, especially the pigs and caprines. Similar patterns are seen in both elite and non-elite assemblages from the Italian peninsula.[152]

In addition to the mammal and bird remains, fish bone remains have also been recovered from most of the trenches. Under study by Lee Graña, these remains consist mostly of fragments smaller than 1 cm and extracted from environmental samples. Of the 670 recovered fragments of fish bone, 192 are diagnostic. Of these, 93 fragments were recovered from Roman deposits, while 99 fragments were from modern garden surfaces, albeit largely from the early excavations of the 18th-19th centuries and therefore likely disturbed ancient deposits. Over twenty species of fish have been identified, with an additional thirteen approximations to genus and fifteen to family ranks, largely represented by small individuals and dominated by Sparidae (family of sea breams and porgies). The assemblage is consistent with fish remains recovered elsewhere in Pompeii[153], though, as a whole, larger than the average assemblage in the city not relating to processed fish products.[154] The species are also consistent with those identified in mosaics throughout the city (e.g., at the Casa del Fauno and House VIII 2.16), representative of local fauna that may have been caught in the bay of Naples and sold fresh.[155] Those which stand out in our assemblage are the Moray eel (*Muraena helena*) and large examples of a drum (*Umbrina* sp.) and seabass (*Dicentrarchus labrax*), which, alongside the variety of small fish, are indicative of a varied and indeed somewhat extravagant fish diet. Further study of the macrobotanical and faunal material from VIII 3.14 is ongoing, and will, we hope, provide more nuanced insights into the diet of first century CE Pompeii.

The two shrines provide additional opportunities for sensory and bodily experience through ritual performance in the garden. To be sure, a feature such as the central shrine, which takes the form of a miniature temple and originally contained a statue of Diana, would have conveyed messages of social display as well as piety; this large, marble-clad structure, richly decorated with statuary and a *sectilia* mosaic, would have communicated

[151] See supra, n. 42.

[152] MacKinnon 2004; Ciaraldi and Richardson 2000.

[153] Reese 2002, 279-290.

[154] This is likely a result of the intensive sampling strategy used onsite and the absence of such in earlier excavations. A total of 680 fragments have been recovered, of which 205 are diagnostic. Larger assemblages, as yet unpublished, may have been found elsewhere in Pompeii (see Emmerson *et al.* 2023, 211) and have been recorded in Herculaneum (Nicholson *et al*. 2018).

[155] Reese 2002, 276-277.



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among other things the prosperity of the household (Fig. 21). However, both shrines likely were, at the same time, sites of ongoing rituals. Other gardens at Pompeii and elsewhere have furnished archaeological evidence of sacrificial practices, in which people burned small food offerings and buried them in votive pits.[156] We have not yet located any votive deposits in this garden, but it is likely that sacrifices and offerings took place here as well. A small terracotta altar, still located in the garden today (though no longer in its original position), likely derives from the 19th-century excavations and would have been used in such offering practices. The burning of sacrifices would not only have provided rich visual, auditory, and olfactory stimuli, but would also have engaged people's bodies and emotions in the highly charged act of communication with divine powers. The subject of ritual performance and religious experience in the VIII 3.14 garden, and the relationship between the two shrines, will be the subject of future studies.[157]

*Fig. 20. Sketch depicting the perspective of an ancient viewer standing in the center of the garden, gazing toward the southeast corner of the planted space (e.g., toward the corner with Room 6) and observing gardeners at work. The vegetation in the drawing has been reconstructed on the basis of palynological evidence from the site (see LANGGUT ET AL., in preparation). (Drawing: Yaniv Korman)*

[156] At Pompeii, see ROBINSON 2002; EMMERSON *ET AL.* 2024, 5–6. Outside Pompeii, excavators at a very similar garden shrine at the "House of Diana" at Cosa found sacrificial pits in front of the altar (FENTRESS *ET AL.* 2003, 43; on parallels between that shrine and the Casa della Regina Carolina shrine, see FENTRESS *ET AL.* 2003, 44, 51-52).

[157] For some initial observations and interpretations, see BARRETT, forthcoming.



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When put together, all of these different lines of evidence demonstrate that people visiting this garden would have been inundated with stimuli. They would have viewed the colorful plantings and the eye-catching architecture of the central shrine, immersed themselves in a soothing and relaxing soundscape, smelled and tasted flowers and fruits, savored prepared meals, engaged physically and kinetically in activities such as strolling and ritual performance, and enjoyed the cool shade of the trees and enclosure walls (Figs. 17, 19, 20). This sensory bounty, whose production required vast resources both financial and human, would have been central to the building owners' strategies of competitive display.

Labor and non-elite experience

At the same time, our findings are helping us to reconceptualize Roman gardens not only as spaces of elite socializing, but also labor and non-elite experience. The people active in this garden included not just the owners of the house and their guests, but also laborers for whom this was a working space. Textual sources indicate that gardeners, including both highly skilled garden designers and unskilled laborers, were typically enslaved.[158] The garden itself thus constitutes material evidence for the work and experiences of individuals whose first-person perspectives are not well represented in textual sources.

*Fig. 20. Sketch depicting the perspective of an ancient viewer standing in the center of the garden, gazing toward the southeast corner of the planted space (e.g., toward the corner with Room 6) and observing gardeners at work. The vegetation in the drawing has been reconstructed on the basis of palynological evidence from the site (see LANGGUT ET AL., in preparation). (Drawing: Yaniv Korman)*

[158] On Roman gardeners, see LANDGREN 2013, 80–81; TALLY-SCHUMACHER 2020.



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Much of that labor required extensive skill and embodied knowledge. In particular, the use of planting pots, at least one of which contained root cavities suggestive of air layering and possibly also dwarfing, testifies to specialized expertise. Pots of this type could sometimes be used to miniaturize trees in order to produce a bonsai-like effect.[159] The installation and upkeep of such plantings required ongoing expert maintenance. Our evidence for the use of soil enrichment strategies also testifies to the specialist knowledge and labor that went into creating this garden space. So the social value of the displays would have come not only from the sensory appeal of the plantings themselves, but also from their ability to demonstrate the owner's control of multiple resources that included the labor and skill of the human beings who actually constructed and maintained this garden. Horticultural skills deployed in the gardens of urban houses and luxury villas were an integral part of the elite display addressed to both peers and subordinates.[160]

The household as multi-species assemblage

Finally, we argue that gardens provide an opportunity to enrich discussions of material agency by focusing our attention not only on human-thing interactions, but also on agents that were nonhuman but living.[161] In a space like this garden, which was both a human creation and a living environment, plants and animals played central roles in domestic life. Sometimes these beings might facilitate people's social strategies (in creating luxurious displays), and other times they might thwart them (in irritating guests with insect bites, rodent activity, or the prick of thorns). The biological properties of plants and soils shaped the labor, and as a result also the bodies, of the people who worked here. And in fact, in a dwelling like this – where more than half of the surface area consists of garden space – we can really see the house as *constituted* by plants, no less than by bricks and concrete.

Faunal remains from the garden of VIII 3.14 provide important evidence for interactions between animals and humans. In addition to the large amount of household and consumption waste noted above, zooarchaeologist Katie Tardio has been able to identify within our pre-79 CE contexts a number of species that likely inhabited domestic or garden spaces. These include the remains of domestic dogs and cats, along with a host of wild species that would have brought Pompeian gardens to life and helped to shape people's sensory experience of these spaces (whether positively or negatively). Rodents, including wood mice (*Apodemus sylvaticus*), black rats (*Rattus rattus*), and voles (*Pitmymys savii*) roamed the area, along with a weasel (*Mustela nivalis*), wall lizards (*Podarcis* sp.), tortoises (*Testudo hermanni*), snakes (*Colubridae*), and frogs (*Anura*). Also present are the remains of a variety of birds, such as rock doves (*Columba livia*), sparrows (*Passer domesticus*), turtle doves (*Steptopelia turtur*), Eurasian coots (*Fulica atra*), and a Lapwing (*Vanellus* sp.), a new faunal discovery for Pompeii.[162]

The multi-species perspective that we propose to take on Roman households is also inspired by the practices of the ancient gardeners themselves. In order to do their work, they needed to possess both technical and practical expertise in a vast range of materials both living and nonliving: plants, trees, animals, insects, soils with varying compositions and properties, and an equally varied assemblage of artifacts (e.g., ceramic planting pots like those described above, among many other tools of metal, clay, stone, wood, wicker, and other materials both organic and inorganic).[163] The forms of knowledge that these ancient individuals brought to the garden of VIII 3.14 would have continuously interwoven the categories of organic and inorganic, natural and human-made, even animate and

[159] BARRETT *ET AL.* 2020, 20–21. On the creation of a dwarfed plane tree in the reign of Augustus (Pliny, *NH* 12.13), see now also FOX 2023, 125, 131.

[160] MARZANO 2022, 130-160.

[161] For a critique of the frequent omission of nonhuman living beings from discussions of material agency, see INGOLD 2012. On plants as agents, see VAN DER VEEN 2014; KAWA 2016; ARDREN and MILLER 2020. On animal agency, see the recent discussion of various scholarly approaches in PEARSON 2016.

[162] WATSON 2002, 357–400.

[163] On gardening tools, see FARRAR 1998: 160-174; JASHEMSKI 2018, 436–438. For construction tools, see ADAM 1994.



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inanimate. As a result, their experiences challenge us to broaden the way we think of ancient households: not just as human social groups, or even collections of humans plus things, but as multi-species assemblages in which plants, animals, and microorganisms could take center stage in shaping daily life.

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**Caitie Barrett**
Cornell University
ceb329@cornell.edu

**Kathryn Gleason**
Cornell University
klg16@cornell.edu

**Lee Graña**
Università di Bologna
leeagrana@gmail.com

**Annalisa Marzano**
Università di Bologna
annalisa.marzano2@unibo.it
**Kaja Tally-Schumacher**
Harvard University
kaja_tallyschumacher@gsd.harvard.edu

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