

CULTIVATING EMPIRE IN ANCIENT ROMAN GARDENS:
UNEARTHING THE TANGLED RELATIONSHIP BETWEEN PLANTS AND
THEIR GARDENERS

A Dissertation

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by

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CULTIVATING EMPIRE IN ANCIENT ROMAN GARDENS:
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My dissertation, *Cultivating Empire in Ancient Roman Gardens: Unearthing the Tangled Relationship between Plants and their Gardeners*, is focused on the rapid blossoming of a new cross-Mediterranean plant trade, burgeoning horticultural innovation, and rise of a new gardener class in the first centuries BCE and CE. Centered on questions of plant agency, I develop a new plant-centric approach for the study of ancient Roman gardens by identifying and exploring the entangled relationship between ornamental plants and their enslaved, freed, and free gardeners—a group of non-elites that has largely been ignored. To this end, the project is interdisciplinary, drawing on gardeners' funerary inscriptions, textual descriptions of gardeners and plants, archaeological and archaeobotanical evidence from excavated gardens and garden representations. I also utilize comparative case studies, including interviews with contemporary Italian gardeners and designers, and documentation of pre-industrial free and enslaved garden labor in early modern Italian gardens and American Antebellum plantations. My work is directly informed by my experience as a garden archaeologist working in the Bay of Naples region, where my colleagues and I have developed and implemented some of the newest garden archaeology methodologies, such as plaster sampling for pollen (our team is the first to implement this method in Italy) and Lidar scanning of preserved garden contouring.

BIOGRAPHICAL SKETCH

Kaja Tally-Schumacher received her B.A. from the University of Minnesota in 2007, where she double majored in Political Science and in Classical and Near Eastern Archaeology. She received her M.A., with distinction, from the University of Massachusetts-Amherst in 2012, with a major area in Roman Art and a minor concentration in 19th and 20th century architecture. Kaja completed her Ph.D. under the direction of Drs. Annetta Alexandridis, Kathryn Gleason, and Claudia Lazzaro at Cornell University in the Department of History of Art and Visual Studies. She has excavated at Messene, Greece and in the Bay of Naples in Pompeii and Stabiae, where her work has focused on ancient gardens. Kaja has held appointments as a Junior Fellow at Dumbarton Oaks (Fall 2017) and as an Exchange Scholar at the University of Pennsylvania (Spring 2018, Fall 2018).

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TABLE OF CONTENTS

Introduction: Invisible Gardeners and the Agency of their Plants	1
Chapter 1: Transplanting: Cultivating Plants within a Theoretical Framework	29
Chapter 2: What Exactly are Plants, Really? Perception, Sensation, and Family	60
Chapter 3: Gaius Matius and Fortunatus, Demetrius, and Appa: Unearthing Roman Gardeners	101
Chapter 4: Finding Roman Gardeners in Early Modern, Antebellum, and Contemporary Gardens	153
Chapter 5: A Conversation between Plants and their Gardeners	209
Conclusion: Gardeners Found and New Areas of Inquiry	275
Appendix:	
Figures	292
Tables	331
References	343

LIST OF FIGURES

- Fig. 1. Laurel and myrtle, plants that were at once ornamental and escribes by some as weeds, feature prominently in the Garden painting from Livia's Villa at Prima Porta. 292
- Fig. 2. A garden panel from the House of the Golden Bracelet (oecus 32) Pompeii, features two weed-ornament plants, the dwarfed plane tree and laurel, prominently. 293
- Fig. 3. A detail of a large agricultural and seasonal mosaic depicting *vinitores* in a third century CE mosaic from St-Romain-en-Gal, France (top), and a detail of a cycle of field work illustrating *vinitores* in an early third century CE mosaic from Cherchell in Algeria (bottom). 294
- Fig. 4. Painting (inv. 112286) from the Casa del Centenario (IX.8.6) featuring vineyards on the slopes of Vesuvius. 295
- Fig. 5. Map depicting locations and number of individual gardeners attested by epigraphic evidence. 296
- Fig. 6 Graph of inscriptions featuring *topiarii* from imperial, elite, and other contexts. 297
- Fig. 7. Graph of individual *topiarii* and their apprentices in Imperial, elite, public, and other contexts. 297
- Fig. 8. Graph of legal status of *topiarii* on inscriptions. 298
- Fig. 9. Graph of Tomb commemoration by family members for *topiarii*, and by *topiarii* for their family members. 298
- Fig. 10. Evidence of *putatores* and *vinitores* having pruned vines, the Room of the Garlands also called the right-hand room, House of Livia, Palatine, Rome, 1st century CE, and detail. 299
- Fig. 11. Pruned individual grape leaves attached to bucrania, and young grapevine branches, Ara Pacis Augustae, Rome, 4-9 BCE. 300
- Fig. 12. Graph of the legal status of *topiarii*, *olitores*, *hortulani*, *vinitores*, and *putatores*. 301
- Fig. 13. A comparison of a modern prunus specimens from the North garden 56 at Oplontis and a vase-pruned pomegrante in the Garden Painting from Livia's Villa at Prima Porta. 302
- Fig. 14. A comparison of an unpruned pomegrate plant in the North Garden 56 at Oplontis and a vase-pruned pomegrante in the Garden Painting from Livia's Villa at Prima Porta. 303

Fig. 15. A comparison of sickly roses in the North Garden 56 at Oplontis and a rose in the garden painting at the Villa of Livia at Prima Porta.	304
Fig. 16. Reconstructed planting of laurels in above ground planters in the Large Peristyle garden at Livia's Villa at Prima Porta.	305
Fig. 17. A comparison between the ideal, sought-after gardens (such as depicted in the garden painting from the Livia's Villa at Prima Porta) and the state of the unattended, unpruned, unwatered, and uncared for gardens at Oplontis today, illustrating the reliance on elite gardens on their gardeners.	306
Fig. 18. Plan of the gardens at the villa d'Este, Étienne Dupérac, 1560-1575 and plan of the modern-day villa d'Este gardens.	307
Fig. 19. Centenarian box shrubs at the Villa d'Este.	308
Fig. 20. Twenty-year old box on the Vialone Terrace, Villa d'Este.	309
Fig. 21. View of centenarian cypresses along the central, main path at the Villa d'Este and some of the oldest cypresses at the Villa d'Este.	310
Fig. 22. Jacob Philip Hackert, Die Villa d'Este bei Tivoli, 1792.	311
Fig. 23. Jean-Honoré Fragonard, Cypress Avenue at the Villa d'Este in Tivoli, 1774, Brush in and brown ink, wash, over black-chalk preparatory drawing.	312
Fig. 24. Carl Blechen, Park of the Villa d'Este, 1830.	313
Fig. 25. Young cypresses, in the garden painting from Livia's Villa at Prima Porta, are depicted with characteristics of young plantings: they are narrow, columnar, and finish in a sharp point at the top.	314
Fig. 26. A sacro-idyllic landscape painting featuring an aged tree with a receding canopy and tree burrs, Boscotrecase, MANN 147502.	315
Fig. 27. Garden Room from the Livia's Villa at Prima Porta, West and North walls.	316
Fig. 28. Print of the north wall from the Prima Porta garden room by Sikkard, published in <i>Antike Denkmäler</i> (1891) shortly after the discovery of the painting.	317
Fig. 29. James Madison's round temple located northeast of the main house, designed after the Temple of Vesta in Rome, served as a place for meditation and as an icehouse.	318
Fig. 30. Fruit trees in the garden painting from Livia's Villa at Prima Porta are pruned into a "vase" shape are placed close to the foreground so that their form may be better appreciated.	319

- Fig. 31. Geographical distribution of Roman (100 BCE to 500 CE) archaeobotanical remains of sixty-six plants classified by Alexandra Livarda as exotic Roman plants. 320
- Fig. 32. Display of *ollae* found at Livia's Villa at Prima Porta with branch pulled through the pot for propagation by air layering. 321
- Fig. 33. Geographical distribution of waterlogged peach pits (orange symbols) and *ollae perforatae* (light green squares). 322
- Fig. 34. Geographical distribution of all Roman archaeobotanical remains (sixty-six species) in red symbols, and *ollae perforatae* in light green squares. 323
- Fig. 35. Geographical distribution of inscriptions documenting different types of gardeners in yellow stars layered with data on peach and *ollae perforatae* distribution. 324
- Fig. 36. Geographical distribution of inscriptions documenting different types of gardeners in yellow stars layered with data on sixty-six exotic Roman plants and *ollae perforatae* distribution. 325
- Fig 37. The sites of Jaunay-Clan near Poitiers, Reims, and La Saulsotte, about 100 km southeast of Paris, marked in yellow circles, layered with *ollae perforatae* (green squares), Roman era peach distribution (orange symbols), and epigraphic evidence of gardeners (yellow stars). 326
- Fig 38. The sites of Jaunay-Clan near Poitiers, Reims, and La Saulsotte, about 100 km southeast of Paris, marked in yellow circles, layered with *ollae perforatae* (green squares), sixty-six exotic Roman plants (red symbols), and epigraphic evidence of gardeners (yellow stars). 327
- Fig. 39. Plan of the Porticus of Octavia, featuring twin temples within an enclosed porticus, late 20s BCE. 328
- Fig. 40. Plan of the Fishbourne Palace gardens, with alternating rectangular and concave niches (top), and view of the reconstructed box plantings (bottom). 329
- Fig. 41. Map of main Roman roads, depicting three roads leading out of Lemonum/Limonum (Poitiers). 330

LIST OF TABLES

Table 1. Table of epigraphic evidence of gardeners, grouped by gardener title. Topiary section after Lena Landgren (2004), 189, Table 13. 330

Table 2. Of the sixty-six varieties of plants identified by Livarda as associated with Roman presence, varieties that may have been cultivated locally and thus would have fallen under the purview of *holitores* are marked in green boxes. 342

LIST OF ABBREVIATIONS

Greek and Latin sources are abbreviated according to the Oxford Classical Dictionary, 4th Edition. For sources outside of the OCD purview, I have utilized the following abbreviations:

Cic. Parad.	Cicero. <i>Paradoxa Stoicorum</i> .
Marc. Dig.	Marcellus. <i>Notae ad Marcelli Digesta</i> .
Plut. <i>Mor. de cap. Ex Inim. Util.</i>	Plutarch. <i>Moralia</i> .
Stabo.	Stabo. <i>Geographica</i> .

INTRODUCTION

INVISIBLE GARDENERS AND THE AGENCY OF THEIR PLANTS

“Most Romanists assume slaves to be ‘archaeologically invisible,’ leaving no clear fingerprint (other than shackles, collars and *bullae*) for excavators and finds’ specialists to identify.”¹

Since Jane Webster’s assessment of the state of the study of Roman enslaved people in 2005, many new pioneering approaches have been developed, including her own ground-breaking application of New World comparative models.² But the challenge identified by Webster and more recent scholars of Roman slavery is compounded in the case of Roman gardeners, the majority of whom were enslaved. Unlike slaves whose work was located in interior, built spaces (spaces which are well attested in the archaeological record), gardeners are doubly invisible as the locations where they worked: gardens, have until very recently been considered as archaeologically irretrievable spaces and have thus themselves been invisible. Historically, archaeologists have perceived soil as merely a medium or context in which artifacts are discovered. Even decades after the substantial contributions to the field made by Wilhelmina Jashemski, Kathryn Gleason, and Naomi Miller, the concept that the soil is itself the artifact is still today a revolutionary concept.³ The

¹ Jane Webster, “Archaeologies of slavery and servitude: bringing ‘New World’ perspectives to Roman Britain,” *Journal Roman Archaeology* 18 (2005): 163.

² Sandra R. Joshel and Lauren Hackworth-Petersen, *The Material life of Roman Slaves*, (Cambridge: Cambridge University Press, 2014); Jennifer Trimble, “The Zoninus Collar and the Archaeology of Roman Slavery,” *American Journal of Archaeology* 120.3 (2016):447-472; For new approaches on the study of slavery in Greek Archaeology see Ian Morris, “Remaining Invisible: The Archaeology of the Excluded in Classical Athens,” in *Women and Slaves in the Greco-Roman Culture: Differential Equations*, ed. S. R. Joshel and S. Murnaghan, (London: Routledge, 1998): 193-220.

³ Naomi F. Miler and Kathryn L. Gleason, “Fertilizer in the Identification and Analysis of Cultivated Soil,” in *The Archaeology of Gardens and Fields*, ed. Naomi F. Miler and Kathryn L. Gleason, (Philadelphia: University of Pennsylvania Press, 1994), 25. This challenge is even found at garden

implications of this are vast. How can one study a population perceived to be archaeologically invisible when the very spaces they created are themselves invisible?

This project leverages perceived scholastic challenges and utilizes them to develop a new phytocentric approach for the study of ancient Roman gardeners of the first-centuries BCE and CE. Drawing from ancient authors such as Virgil, Pliny, and Ovid, who categorized plants as distinctly human-like, this project argues that plant agency may be deployed in reconstructing otherwise invisible gardeners. While the geographical focus is limited to Roman Italy and the western provinces, specifically Gaul, this innovative five-chapter study integrates new work on human-object entanglements in the fields of archaeology and art history, pioneering work by human geographers on plant agency, firsthand Roman garden excavation experience, and field interviews with landscape designers, gardeners, and nursery practitioners to reconstruct Roman plant lives and gardening practices.

This project contributes to three lines of inquiry on enslavement, on objects and their craftspeople, and on human-environment interactions. By weaving together traditional types of evidence, like epigraphic inscriptions and literary sources, with innovative methods, such as comparative analyses and interviews of contemporary gardeners, this project contributes to discourse on the material culture of Roman enslavement. The interrogation of ornamental plants through the lens of materiality and entanglement allows us to shift the debate from analyses focused on objects/archaeological remains to their craftspeople, the gardeners. And lastly, in

excavations. This topic came up repeatedly in conversations about excavation practices, recording methods, and project goals during the most recent 2019 field season of the Casa della Regina Carolina Project in Pompeii. The framework and conceptualization were vastly different between archaeologists specifically trained in gardens and those whose primarily training was not in garden contexts.

response to a long tradition wherein Roman gardens have been interpreted as spaces of transgression, violence, and where nature is conquered, this project illustrates through literary sources and plant agency that for the Roman gardener, cultivation was an interdependent undertaking, akin to the raising of family.

Gardens in Archaeology

Pierre Grimal's eloquent 1942 monograph, the first of its kind on Roman gardens, and its subsequent revised editions were widely considered at the time "as one of the most substantial and important French war-time publications in the field of Roman archaeology which have reached this country so far."⁴ Yet despite the high praise from many reviewers, a common critique in the Anglo-speaking academic community was Grimal's "enthusiasm" and the fact that he "has indulged in a certain horticultural over-emphasis and that the role assigned to gardens in Roman life and thought has been somewhat exaggerated."⁵ Despite Grimal's presentation of gardens and nature as central components of Roman life, and even with the praise his work received, Roman archaeologists continued to view gardens as outside their purview. This is exemplified by the fact that Wilhelmina Jashemski's first substantial monograph on excavated Roman gardens, a product of twenty years of field research,

⁴ J. M. C. Toynbee, "Pierre Grimal, *Les Jardins romains, à la fin de la république et aux deux premiers siècles de l'empire. Essai sur le naturalisme romain*," *The Journal of Roman Studies* 36.1 and 2 (1946): 210; see also Karl Lehmann, "*Les Jardins romains, à la fin de la république et aux deux premiers siècles de l'empire. Essai sur le naturalisme romain*," by Pierre Grimal, *American Journal of Archaeology* 54.3 (1950): 284-287.

⁵ Toynbee, 210. In comparison, French reviews of Grimal are much more positive and accepting of the significance of gardens in the Roman world, M. Le Glay, "*Les jardins romains* (2 e éd.), Pierre Grimal," *Revue Archéologique* 1 (1971): 144-145.

was published a full 37 years after *Les Jardins Romains*.⁶ But even Jashemski felt the derision of archaeologists. Recalling her transition to the field of garden studies in the early 1950s, Jashemski noted in her memoirs that when Stanley, her husband, first suggested that her next project turn to gardens, she nearly dismissed the idea as “too fun” to be serious research. She dreaded telling her former dissertation advisor about the changed direction of her research, worrying that he would consider it “frivolous research,” although he did become a supporter of the idea.⁷ And indeed, the perceived unseriousness of garden scholarship is acknowledged by Eugene Dwyer, in his 1981 review of *The Gardens of Pompeii*, when he warned readers that “the title may suggest to some a work of frivolous nature,” adding that “nothing could be further from the truth.”⁸

Unlike Grimal’s narrow focus on the gardens of the elites, Jashemski’s pioneering work encompasses everyday gardens, including those belonging to non-elites. This shift in the magnitude and type of garden studied is itself a significant development. During the course of Jashemski’s long career, she oversaw many foundational developments in the field.⁹ Where Grimal’s work was founded on literary evidence and Roman culture, Jashemski’s research joined Roman history with

⁶ Wilhelmina F. Jashemski, *The Gardens of Pompeii, Herculaneum and the Villas Destroyed by Vesuvius*, (New Rochelle, N.Y.: Caratzas Bros., 1979).

⁷ Wilhelmina F. Jashemski, *Discovering the Gardens of Pompeii: The Memoires of a Garden Archaeologist 1955-1979*, (North Charleston, NC: CreateSpace, 2015), 3.

⁸ Eugene Dwyer, “*The Gardens of Pompeii, Herculaneum and the Villas Destroyed by Vesuvius*,” by Wilhelmina Jashemski, *Archaeology* 34.2 (1981): 71.

⁹ For further reading on the development of the field of garden archaeology in the Roman world and also globally, see the chapters in “Part I: A Short History of Garden Archaeology,” in *Sourcebook for Garden Archaeology*, ed. Amina-Aïcha Malek, (Bern: Peter Lang, 2013): 21-95; David Jacques, “The progress of garden archaeology,” *The Journal of Garden History* 17.1 (1997): 3-10; Kurt F. Anschuetz, Richard H. Wilshusen, and Cherie L. Scheick, “An Archaeology of Landscapes: Perspectives and Directions,” *Journal of Archaeological Research* 9.2 (2002): 157-211.

scientific archaeological methods, thereby investigating gardens in a new way.¹⁰ A significant portion of her work was focused on excavating the Vesuvian region, where there was limited earlier documentation of gardens, thereby creating a massive data set which radically altered our understanding of Roman gardens.¹¹ By the late 1980s and into the 1990s her area of interest had expanded to new regions, including North Africa, where earlier scholars had disputed the possibility of recovering Roman gardens, arguing that peristyles must have been paved in the region.¹² Jashemski's excavations in Tunisia proved that this was a misconception, and that in fact one need not limit the search to the archaeologically rich Vesuvian area. Roman gardens could be found in regions with vastly different environments and preservation levels. This was underscored by Barry Cunliffe's 1960s gardens excavations at the villa in Fishbourne in England, further expanding the regional scope of ancient garden studies.¹³

The next generation of garden archaeologists oversaw an even greater regional expansion of Roman garden studies and a more nuanced synthesis of garden specific analyses conducted by varied specialists. Kathryn Gleason's work on Judean gardens in the 1980s and 1990s and Italic sites from the 1990s to the present is foundational

¹⁰ Wilhelmina F. Jashemski, "The Contribution of Archaeology to the Study of Ancient Roman Gardens," in *Garden History, Issues, Approaches, Methods, Dumbarton Oaks Colloquium on the History of Landscape Architecture 13*, ed. John Dixon, (Washington, DC: Dumbarton Oaks, 1992), 5–30.

¹¹ Wilhelmina F. Jashemski, "Tomb Gardens at Pompeii," *The Classical Journal* 66.2 (1970-1971): 97-115; Wilhelmina F. Jashemski, "The Caupona of Euxinus at Pompeii," *Archaeology* 20.1 (1967): 36-44; Wilhelmina F. Jashemski, "The Flower Industry at Pompeii," *Archaeology* 16.2 (1963): 112-121; Wilhelmina F. Jashemski, "The Garden of Hercules at Pompeii," (II.viii.6): The Discovery of a Commercial Flower Garden," *American Journal of Archaeology* 83.4 (1979): 403-411.

¹² Wilhelmina F. Jashemski, J. E. Foss, R. J. Lewis, M. E. Timpson, and S. Y. Lee, "Roman Gardens in Tunisia: Preliminary Excavations in the House of Bacchus and Ariadne and in the East Temple at Thuburbo Maius," *American Journal of Archaeology* 99.4 (1995): 559-576.

¹³ Barry Cunliffe, *Fishbourne: A Roman Palace and its Garden*, (Baltimore: Johns Hopkins University Press, 1971).

for the shape of the field today. Although Jashemski worked closely with many different kinds of specialists, the field blossomed during this period and grew to include many more specialists.¹⁴ The much larger scope also facilitated the beginning of cross-regional comparative work.¹⁵ Gleason's background in landscape design and classical archaeology meant that she was uniquely qualified to study large, palatial gardens and to lead discourse on ancient design practices and garden construction.¹⁶ But perhaps even more importantly, scholars like Gleason began to construct cross-regional and cross-cultural bridges to garden archaeologists working in other historical periods and global contexts. This resulted in the publication of *The Archaeology of Garden and Field*, edited by Naomi F. Miller and Gleason in 1994, and the *Sourcebook for Garden Archaeology* (2013), edited by Amina-Aïcha Malek.¹⁷ As Malek explains, "the sourcebook seeks to respond to the increasing need among archaeologists for advice on how to excavate gardens," suggesting a new, wider ranging interest among scholars.¹⁸ More importantly, Malek deconstructs the perception of garden archaeology as a disparate or sub-field, arguing that "garden

¹⁴ Kathryn L. Gleason, "To Bound and to Cultivate: an Introduction to the Archaeology of Gardens and Fields," in *The Archaeology of Garden and Field*, eds. Naomi F. Miller and Kathryn L. Gleason, (Philadelphia: University of Pennsylvania Press, 1994), 3-24.

¹⁵ Kathryn L. Gleason, "The Landscape Palaces of Herod the Great," *Near Eastern Archaeology* 77.2 (2014): 76-97; Dafna Langgut, Kathryn L. Gleason, Barbara Burell, "Pollen Analysis as evidence for Herod's Royal Garden at the Promontory Palace, Caesarea," *Israel Journal of Plant Sciences* (2015): 1-11; Rona-Shani Evyasaf, "Gardens at Crossroads: The Influence of Persian and Egyptian Gardens on the Hellenistic Royal Gardens of Judea," *Bollettino Archeologia On Line* (Rome 2008): 27-37.

¹⁶ Kathryn L. Gleason, "Porticus Pompeiana: a new perspective on the first park of ancient Rome," *The Journal of Garden History* 14.1 (1994): 13-27; Kathryn L. Gleason, Michele A. Palmer, Evan Allen, Li Bai, "The Digital *Topiarius*: Toward a Method of Reconstructing the *Viridarium* of the Great Peristyle of the Villa Arianna at Stabiae," *Studi e ricerche del Parco archeologico di Pompei* 42 (2020): 159-173.

¹⁷ Naomi F. Miller and Kathryn L. Gleason, ed., *The Archaeology of Garden and Field*, (Philadelphia: University of Pennsylvania Press, 1994); Amina-Aïcha Malek, ed., *Sourcebook for Garden Archaeology*, (Bern: Peter Lang, 2013).

¹⁸ Amina-Aïcha Malek, "Gardens for Archaeologists," in *Sourcebook for Garden Archaeology*, ed. Amina-Aïcha Malek, (Bern: Peter Lang, 2013): 16.

archaeology is part and parcel of archaeology generally speaking, employing concepts from environmental archaeology not always practiced in the various traditions of archaeology.”¹⁹ The even more recent publication of another seminal monograph on Roman gardens, *The Gardens of the Roman Empire* (2019), edited by Jashemski, Gleason, Malek, and Kim J. Hartswick, illustrates that the establishment and mainstreaming of the study of Roman garden history has been a three generational endeavor.²⁰

In more recent years, the newest generation of garden scholars, like Annalisa Marzano, Elizabeth Macaulay-Lewis, and Caitlín Barrett, have undertaken studies that investigate horticultural relationships across regions and cultures, such as beginning to identify botanical trade routes, mapping and categorizing garden evidence across the empire, and investigating foreign influence on Roman gardens.²¹ There also been significant progress on re-examining existing evidence, such as Samuli Simelius’ investigation of Pompeian peristyle gardens or Bettina Bergmann’s archival work on

¹⁹ Amina-Aïcha Malek, “Conclusion,” in *Sourcebook for Garden Archaeology*, ed. Amina-Aïcha Malek, (Bern: Peter Lang, 2013): 92.

²⁰ Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, Amina-Aïcha Malek, eds., *Gardens of the Roman Empire*, (Cambridge: Cambridge University Press, 2019).

²¹ Elizabeth Macaulay-Lewis, “Planting pots at Petra: a preliminary study of *ollae perforatae* at the Petra Pool Complex and at the ‘Great Temple’,” *Levant* 38 (2006): 159-170; Elizabeth Macaulay-Lewis, “The role of *ollae perforatae* in understanding horticulture, planting, garden design, and plant trade in the Roman World,” in *The Archaeology of Crop Fields and Gardens*, ed. Jean-Paul Morel, Jordi Tresserras Juan, and Juan Carlos Matamala, (Bari: Edipuglia, 2006), 207–219; Elizabeth Macaulay-Lewis, “Imported Exotica: Approaches to the Study of the Ancient Plant Trade,” *Bollettino di Archeologia On Line* (Rome, 2008); 16-26; Elizabeth Macaulay-Lewis, “The Fruits of Victory: Generals, Plants and Power in the Roman World,” in *Beyond the Battlefields: New Perspectives on Warfare and Society in the Graeco-Roman World*, Edward Bragg, Lisa Irene Hau, Elizabeth Macaulay-Lewis, eds. (Newcastle: Cambridge Scholars, 2008), 205-224; Annalisa Marzano, “Roman gardens, military conquests, and elite self-representation,” in *Le jardin dans l'antiquité*, ed. Kathleen Coleman and Pascale Derron, (Vandoeuvres: Fondation Hardt, 2014), 195-244, Caitlín Barrett, *Domesticating Empire: Egyptian Landscapes in Pompeian Gardens*, (Oxford: Oxford University Press, 2019).

early excavations of Pompeian.²² But the great advancements made by previous garden archaeologists have also led to a new avenue of inquiry focused not on garden archaeological theory or methodology but on constructing theories for interpreting Roman gardens.

In comparison to the study of gardens and landscapes of many other pre-modern cultures, the field of Roman garden and landscape studies has access to an incredibly rich data set composed of archaeological sites, botanical remains, visual garden and landscape representations, and a substantial body of literary sources describing horticultural techniques, gardeners, specialized laborers, and other aspects of cultivation. In certain specializations, such as garden archaeology methodology, Romanists are a clear leader and innovator in the field.²³ But despite the growing scholarship on Roman garden studies, theoretical approaches to Roman gardens have largely lagged despite important theory-based work on other topics in the Roman world.²⁴ Although possessing a much more limited data set, ancient Mediterranean landscape and plant-based theorization is currently led by scholars of the Prehistoric and Bronze Age world, especially those working on the Aegean, Cyprus, and on topics related to the domestication of crops.²⁵ For example, Dorian Fuller's application of

²² Samuli Simelius, "Pompeian Peristyle Gardens as a Means of Socioeconomic Representation," PhD Diss., (Helsinki: University of Helsinki Press, 2018); Bettina Bergmann, "*Reconstructions and Visualisations of Roman Gardens*," presented at the *Hortus Inclusus: Expanding Boundaries of Space and Time* Conference, British School in Rome, June 27-28, 2017.

²³ Langgut, et al, "Pollen Analysis as evidence," 1-11; Malek, ed. *Sourcebook for Garden Archaeology*.

²⁴ Astrid van Oyen and Martin Pitts, ed. *Materializing Roman History*, (Oxford: Oxbow Books, 2017).

²⁵ Dorian Q. Fuller, Eleni Asouti, and Michael D. Purugganan, "Cultivation as slow evolutionary entanglement: comparative data on rate and sequence of domestication," *Vegetation History and Archaeobotany* 21.2 (2012): 131-145; Dorian Q. Fuller, Robin G. Allaby and Chris Steves, "Domestication as Innovation: the entanglement of techniques, technology, and chance in the domestication of cereal crops," *World Archaeology* 42.1 (2010): 13-28; Tim Ingold, "Growing plants and raising animals: an anthropological perspective on domestication," in *The Origin and spread of*

entanglement theory to the domestication of Bronze Age crops provides a useful model for considering horticultural trends, such as those found in elite Roman gardens, as a type of botanical entanglement.

Significant contributions to a theoretical framework on plant materiality and agency is also blossoming in cultural geography and cultural environmental studies in the Australian and English academies.²⁶ It is perhaps not coincidental that this type of research has first taken root on isolated island-like landmasses such as Australia—places that possess more sensitive and unique ecosystems that have been more heavily impacted by anthropogenic activity than continental ones.²⁷ Because islands are separated from large land masses by water, naturally occurring animal and plant migration is limited. The introduction of non-native varieties is largely due to anthropogenic activity. In comparison, continental ecosystems are the result of natural migration of species across large regions and are thus more resilient to the importation of non-natives by humans.²⁸ For this very reason the ecological changes initiated by

agriculture and pastoralism in Eurasia, ed. David R. Harris, (Washington D.C.: Smithsonian Institution Press, 1996), 12-24; Ian Hodder, *Studies in Human-Thing Entanglement*, (Stanford, Ca.: Ian Hodder: E-book, 2016).

²⁶ Russell Hitchings and Verity Jones, “Living with plants and the exploration of botanical encounter within human geographic research practice,” *Ethics, Place & Environment* 7.1/2 (2004): 3-18; Hannah Pitt, “On showing and being plants: a guide to methods for more-than-human geography,” *Area* 47.1 (2015): 48-55; Emma Power, “Human-Nature Relations in Suburban Gardens,” *Australian Geographer* 36.1 (2005) 39-53; Jennifer Atchison and Lesley Head, “Eradication bodies in invasive plant management,” *Environment and Planning D: Society and Space* 31 (2013): 951-968; Marijke van der Veen, “The materiality of plants: plant-people entanglements,” *World Archaeology* 46.5 (2014): 799-812; Jeremy Brice, “Attending to grape vines: perpetual practices, plant agencies and multiple temporalities in Australian viticulture,” *Social and Cultural Geography* 15.8 (2014): 942-965.

²⁷ Although from a geographical perspective Australia is conceptualized as a continent not an island, ecologists and environmental scientist view its zoological and botanical systems as that of an island. This is because of its oceanic separation from other continental land masses. This is made evident by the uniqueness of the flora and fauna of Australia, which evolved in near isolation from the other continental masses.

²⁸ Peter M. Vitousek, Henning Andersen, and Lloyd L. Loope, “Introduction: Why focus on islands?” in *Islands: Biological Diversity and Ecosystem Function*, ed. Peter M. Vitousek, Henning Andersen, and Lloyd L. Loope, (New York: Springer, 1995), 2.

the arrival of the Romans are more distinct and considerable in England than they were in the nearby continental provinces. The current work of cultural geographers and cultural environmental studies may at first appear unconnected to the study of Roman gardens as the recent work from about the early 2000s to the present primarily engages with contemporary gardening practices, such as the management of invasive species, human-plant relationships in suburban gardens, or the way in which cultivation encourages farmers and gardeners to learn to be affected by plant needs. This last consideration, the way plants impact gardeners and garden visitors, is an especially fruitful method and serves as a foundation for the investigation of the Villa d'Este gardens in chapter four. But the questions these scholars ask are rooted in the same theoretical foundational texts as have been applied to the study of ancient bronzes, ceramics, wax, chryselephantine, marble, gems, color, and other media.²⁹ In this way Tim Ingold's work on the phenomenology of landscape and Jane Bennett's and Carl Knappett's theorization on the agency of non-human actors serve as a bridge between these disparate disciplines. As comparative fields, contemporary cultural

²⁹ Cultural geographers and cultural environmental studies are rooted in the work of scholars like Ingold, Jane Bennett, and Knappett, much like the work of ancient art historians; Tim Ingold, "Materials against materiality," *Archaeological Dialogues* 14.1 (2007): 1-16; Tim Ingold, *The Perception of the Environment: Essays on livelihood, dwelling, and skill*, (London: Routledge, 2000); Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, (Durham: Duke University Press, 2010); Carl Knappett, "Photographs, Skeuomorphs, and Marionettes: Some Thoughts on Mind, Agency, and Object," *Journal of Material Culture* 7.1 (2002): 97-117; Carl Knappett, "The Affordances of Things: a Post-Gibsonian Perspective on the Relationality of Mind and Matter," in *Rethinking Materiality: the engagement of mind with the material world*, ed. Elizabeth DeMarrais, Colin Renfrew, and Chris Gosden (Cambridge: McDonald Institute of Archaeological research, 2004), 49-50; Carl Knappett, Lambros Malafouris and Peter Tomkins, "Ceramics (as Containers)" in *The Oxford Handbook of Material Culture Studies*, ed. D. Hicks and M. C. Beaudry, (Oxford: Oxford University Press, 2010), 588-612.

geography and cultural environmental studies offer new avenues of inquiry that may be applied or altered for the study of Roman cultivation.³⁰

But while Romanists have lagged behind scholars of other ancient Mediterranean periods on theory-based interpretations of gardens and landscape studies, in the last ten years four scholars, Katharine von Stackelberg, Lisa Lodwick, Marijka van der Veen, and Emma-Jayne Graham, have pioneered theoretical interpretations. Their significant contributions are by no means exhaustive: rather, they serve as an invitation for future scholars to further explore new frameworks. Von Stackelberg's approach is holistic and is founded on the idea of gardens as conceptual spaces.³¹ As such, von Stackelberg investigates gardens through three lenses: via cognitive theory, as Foucauldian heterotopias, and as what Edward Soja termed as Thirdspace, defined as a reality that "is lived and practiced."³²

Lisa Lodwick applies a phenomenological approach and investigates the materiality of non-native evergreen species, like box, stone-pine, and Norway spruce, introduced to England by the Romans.³³ Because islands possess more sensitive and unique ecosystems than the mainland, the importation of non-native plants by the Romans significantly altered local ecology, affecting native animal and insect populations and soil composition.³⁴ In terms of plant specific materiality, Lodwick observes that native plant populations were largely deciduous. Thus, the introduction

³⁰ Lisa A. Lodwick, "Evergreen Plants in Roman Britain and Beyond: Movement, Meaning and Materiality," *Britannia* 48 (2017): 135-173; van der Veen, "The materiality of plants," 799-812; Marijke van der Veen, "Food as embodied material culture – diversity and change in plant food consumption in Roman Britain" *Journal of Roman Archaeology* 21 (2008): 83-110.

³¹ Katharine T. von Stackelberg, *The Roman Garden: Space, sense and society*, (London: Routledge, 2009), 50-54.

³² *Ibid.*, 50-72.

³³ Lodwick, "Evergreen Plants in Roman Britain and Beyond," 135-173.

³⁴ *Ibid.*, 157.

of Roman evergreen varieties greatly altered garden experiences and changed the temporality of these spaces.³⁵ Lodwicks' work is pioneering within the realm of Roman garden and landscape studies, but it merely scratches at the surface of possible discussions about the very matter of plants and their relationality to humans.

Trained in archaeology and archaeobotany and having worked in a variety of departments, including environment archaeology, Marijka van der Veen unites otherwise disparate disciplines in her work on Roman Britain and Roman Egypt. Her study on the Roman introduction of 50 new plant species to Britain is rooted in Ian Hodder's exploration of how humans and plants have become trapped in entangled relationships.³⁶ Like Lodwick, she views plants as active agents in their own right, who have co-evolved to use chemical processes to manipulate insects, animals, and humans to support and thus facilitate their own reproduction.³⁷ Van der Veen's most significant contribution is her suggestion to utilize scholarship on early modern and modern human-plant entanglement as a model for investigating cultivation in antiquity. One such example is the consumption and cultivation of sugar plants, like sultanas and sugar cane, and how these plants contributed to the slave trade and impacted industrial labor across the globe. This use of comparative examples shows how archaeologists might build on the rapidly growing raw palynological, archaeobotanical, and zooarchaeological data to explore the way in which ancient plant cultivation and importation affected human society. Building on van der Veen's work, entanglement serves as the framework for chapters two and five. In chapter two

³⁵ Ibid., 154-158.

³⁶ van der Veen, "The materiality of plants," 806.

³⁷ Ibid., 800-802.

it serves as a lens for interpreting literary descriptions of humans and plants as kin and in mutually dependent relationships of slave and master. In chapter five it provides the foundation for utilizing plants in locating gardeners.

Emma-Jayne Graham's 2018 article on the temporality and "plant agency" of plants at Pompeian tombs exemplifies the most recent developments in the field.³⁸ Her analysis offers the first example of transplanting theories developed by geographers for the study of contemporary gardens into the ancient Roman world. By identifying plants as active agents capable of affecting humans, Graham illustrates the significant role seasonal changes in blooms and scent played in Roman funerary festivals.

Thus, over the last seventy years the field of garden archaeology and garden studies has grown considerably, fostering new investigations and methodologies. The intersectionality of the discipline is also particularly noteworthy. With the exception of a few scholars, the discipline of Roman garden archaeology and garden studies has primarily been pioneered by women scholars—a trend also mirrored in the scholarship on Roman enslavement. Moreover, as conferences and edited volumes on garden and landscape studies illustrate, the discipline is no longer composed solely of garden archaeology specialists.³⁹ Scholars whose main training lies outside of garden studies are now participating in garden and landscape related discussions. Thanks to the contributions of these early pioneers, gardens are no longer archaeologically invisible

³⁸ Emma-Jayne Graham, "'There Buds the Laurel': Nature, Temporality, and the Making of Place in the Cemeteries of Roman Italy," *Theoretical Roman Archaeology Journal* 1.3 (2018): 1-16.

³⁹ "Hortus Inclusus: Expanding Boundaries of Space and Time," Conference held at the *British School in Rome*, June 27-28, 2017. The diversity of garden related scholarship is especially well illustrated in Kathleen Coleman's and Pascale Derron edited volume, *Le jardin dans l'antiquité*, (Vandoeuvres: Fondation Hardt, 2014).

and have become ripe for harvesting new approaches, including searching for their gardeners.

Invisible Gardeners

The invisibility of Roman gardeners in scholarship is in part due to the relative newness of garden studies and the challenges outlined above. But as the great majority of these individuals were enslaved, the causes also intersect with the historiography of scholarship on Roman enslavement. One of the most pervasive causes of invisibility of slaves in Roman discourse identified by Sandra Joshel and Lauren Hackworth-Petersen is the influence of ancient authors and their intentional erasure and appropriation of slave labor.⁴⁰ Roman agricultural authors writing on cultivation embrace Aristotle's view that the slave is a living part of the master's body, thereby possessing no agency or visibility separate from that of his owner.⁴¹ For this reason, Varro, writing in the first century BCE, categorizes human slaves as "speaking sort of tools" (*instrumenti genus vocale*), which are differentiated from "inarticulate" ones (*semivocale*) like animals, and mute (*mutum*) ones such as wagons.⁴² The slave-as-extension-of-the-master conception is even more clear in Cato's writing, where slave agency, presence, and voice are further diminished through the intentional use of the passive voice. As Brendon Reay has observed, the passive voice allows Cato and the aristocratic elites to maintain the traditional ideal of the Roman laboring farmer. Using

⁴⁰ Joshel and Hackworth Petersen, *The Material Life of Roman Slaves*, 163-165.

⁴¹ Brendon Reay, "Agriculture, Writing, and Cato's Aristocratic Self-Fashioning," *Classical Antiquity* 24.2 (2005): 335.

⁴² Reay, "Agriculture, Writing, and Cato's Aristocratic Self-Fashioning," 335; Varro, *Rust.*, 1.17.1; William Fitzgerald, *Slavery and the Roman Literary Imagination*, (Cambridge: Cambridge University Press, 2000), 13-31.

phrases such as “so that the work can be done well” (*ut opus bene effici possit*), “when the olives have been gathered, the olive oil should be made immediately,” (*olea ubi lecta siet, oleum fiat*), and “the presses will be prepared,” (*uasa parata erunt*) erases the enslaved who do the labor, and thereby allows the master of the estate to take on the labor as his own.⁴³ The grammatical invisibility of enslaved cultivation is “symptomatic of a ‘masterly extensibility,’ a conception of slaves not as independent agents, but as prosthetic tools with which the master assiduously and individually ‘cultivated’ his fields.”⁴⁴ Roman authors also made slaves invisible by actively writing them out of the very places they were found. Pliny the Younger’s ekphrasis-like letters, for example, depict villa interiors and gardens entirely devoid of the enslaved, freed, and free servants who made these spaces and their experiences possible.⁴⁵ As Joshel and Hackworth Petersen argue, modern scholarship still replicates the ancient practice of focusing on elite active agency and diminishing slave presence.⁴⁶ Elaine K. Gazda and John R. Clarke’s *Leisure & Luxury in the Age of Nero: the Villas of Oplontis near Pompeii* is the first exhibit of its kind to unite both elite experiences and that of slave servants in both the exhibit and the catalogue. The exhibit and catalogue title is, nevertheless, very traditional in identifying solely the elites.⁴⁷

⁴³ Reay, “Agriculture, Writing, and Cato’s Aristocratic Self-Fashioning,” 344; Cato, *Agr.*, 2.1-6.

⁴⁴ Reay, “Agriculture, Writing, and Cato’s Aristocratic Self-Fashioning,” 335.

⁴⁵ Joshel and Hackworth Petersen, *The Material Life of Roman Slaves*, 164; Plin., *Ep.*, 1.3, 2.17, 5.6, 1.6, 9.

⁴⁶ Joshel and Hackworth Petersen, *The Material Life of Roman Slaves*, 165. The same is true of the recent bout of highly successful villa exhibitions, such as Carol Mattusch’s *Pompeii and the Roman Villa: Art and Culture around the Bay of Naples*, which focused exclusively on the luxury of the elites, without acknowledging the slave and freed labor which made elite villas possible.

⁴⁷ *Leisure & Luxury in the Age of Nero: The Villas of Oplontis near Pompeii*, edited by Elaine K. Gazda and John R. Clarke, (Ann Arbor: Kelsey Museum of Archaeology, 2016).

The observations on Roman slave scholarship also ring true for gardeners. As Katherine von Stackelberg has noted, gardeners are often absent in garden publications aimed at specialized audiences.⁴⁸ Although Wilhelmina Jashemski's numerous books, articles, and reports clearly and attentively present and describe various kinds of Roman garden and related evidence (pollen, planting pots, horticultural tools, carbonized plants, insect remains, soil types, garden representations), i.e. the very things which are evidence of gardeners, the people who performed garden labor are rarely found in discussions and are never found in titles. Her posthumously published chapter in *Gardens of the Roman Empire*, titled "Gardening Practices and Techniques," perfectly exemplifies the ways in which specialist publications remove people from discussions on Roman gardening.⁴⁹ Her grammatical omission of gardeners is not atypical.⁵⁰ Lena Landgren theorizes that this is due to limited nature of the evidence. Although, as she points out, elite gardens would have required a wide array of specialized practitioners at all stages, from designing, to implementation, and maintenance, few textual sources mention garden related workers, only some positions are named, and their roles are not clearly defined.⁵¹ Landgren's assessment may be correct, but there are additional reasons why

⁴⁸ Katharine T. von Stackelberg, Review of *Earthly Paradises: Ancient Gardens in History and Archaeology*, *Bryn Mawr Classical Review*, 2004.03.30.

⁴⁹ Wilhelmina F. Jashemski, "Gardening Practices and Techniques," in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, Amina-Aïcha Malek, (Cambridge: Cambridge University Press, 2018), 432-454.

⁵⁰ Victoria Pagan, "Horticulture and the Shaping of Nature," in *Oxford Handbook Online*, 2016; Lena Landgren, "Plantings," in *The Cultural History of Gardens in Antiquity*, ed. Kathryn L. Gleason, (London: Bloomsbury, 2015), 73-98; Kathryn L. Gleason and Michele A. Palmer, "Constructing the Ancient Roman Garden," in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïch Malek, (Cambridge: Cambridge University Press, 2018): 369-401.

⁵¹ Lena Landgren, *Lauro, myrto et buxo frequentata: A Study of the Roman Garden through its Plants*, (Lund: Lund University, 2004), 178.

scholarly engagement with gardeners is rare. It is significant to note that in this way garden archaeology is not unique; rather, it follows broader archaeological trends in discourse related to non-elite workers.

What is particularly striking is the discrepancy between specialist publications, where gardeners are largely absent, and general audience works, where gardeners are found. More popular scholarship, such as Linda Farrar's 2000 *Ancient Roman Gardens* and her 2016 *Gardens and Gardeners of the Ancient World: History, Myth and Archaeology* and Maureen Carroll's 2003 *Earthly Paradises: Ancient Gardens in History and Archaeology*, not only devote time to Roman gardeners; all three of them include gardeners either in their book or chapter titles.⁵² Yet although these types of publications name gardeners, they omit a vitally significant element of their identity: their slave or freed status. No mention is made of gardeners' legal status nor how that status may have impacted the kinds of horticultural practices they describe. Conversely, gardeners are equally omitted from specialist scholarship on slavery and freedmen. While chapters abound on slaves and freedmen in workshops, in the *domus*, in politics, in agricultural fields, the market place, in families, in critiques of the

⁵² Linda Farrar, *Ancient Roman Gardens*, (Thrupp: Sutton Publishing, 1998), 160-174; Kathryn L. Gleason, Review of *Ancient Roman Gardens*, by Linda Farrar, *American Journal of Archaeology* 105.1 (2001): 136-138; Maureen Carroll, *Earthly Paradises: Ancient Gardens in History and Archaeology*, (Los Angeles: The Paul J. Getty Museum, 2003), 80-96; Katharine T. von Stackelberg, Review of *Earthly Paradises: Ancient Gardens in History and Archaeology*, *Bryn Mawr Classical Review*, 2004.03.30; Linda Farrar, *Gardens and Gardeners of the Ancient World: History, Myth and Archaeology*, (Oxford: WINDgather Press 2016), 138-184; Katharine T. von Stackelberg, Review of *Gardens and Gardeners of the Ancient World: History, Myth and Archaeology*, *Bryn Mawr Classical Review*, 2018.01.44. Despite a non-specialist aim, the discussion of horticultural practices, tools, garden types, planting pots, water fountains, and other garden related topics, serves as a useful introductory text. Yet, the works each span many centuries, covering horticultural practice from across all of Europe and the entire Mediterranean basin, resulting in only a superficial engagement which collapses significant differences in horticultural trends across periods and across regions.⁵² Because of the intended audience, the works also do not pose new questions, but merely provide brief syntheses of scholarship.

“happy” slave narrative, gardeners are absent from all of these as if slave and freed gardeners existed in a world removed from all other slaves and freedmen.⁵³

It is also highly possible that in addition to the critiques made by Joshel and Hackworth Petersen and by Reay, the problem is further compounded by the nature of archaeological writing, which encourages the use of passive voice (pollen was analyzed, pruning tools were found, planting pots were arranged, etc.). In archaeological reports or publications, the passive voice draws the reader’s attention to the evidence discussed instead of the excavator, but equally important, it also draws the reader’s attention away from the agent related to the deposition and who may have used the item. It is easy to then simply develop a habit of speaking about planting pots or horticultural tools in the passive voice, thereby grammatically omitting the people who planted the pots and used, repaired, and stored the tools.

Another challenge in studying ancient gardeners is that the kinds of titles and specializations they possessed do not correspond with contemporary terminology. The lack of direct correlation in titles has led in some cases to ancient gardeners being written out of translations. For example, Pliny in his *Natural History*, describes Tiberius as being supplied by cucumbers all year round by his *olitor*, a kind of gardener who, based on the root of the title, *holeris*, must have specialized in growing vegetables.

⁵³ Sandra R. Joshel, *Slavery in the Roman World*, (Cambridge: Cambridge University Press, 2010); Michele George, *Roman Slavery and Roman Material Culture*, (Toronto: University of Toronto Press, 2013); Peter Hunt, *Ancient Greek and Roman Slavery*, (Hoboken, NJ: Wiley-Blackwell, 2018); Niall McKeown, *The Invention of Ancient Slavery?*, (London: Duckworth, 2007).

*Cartilaginum generis extraque terram est cucumis, mira voluptate Tiberio principi expetitus. nullo quippe non die contigit ei, pensiles eorum hortos promoventibus in solem rotis olitoribus rursusque hibernis diebus intra specularium munimenta revocantibus.*⁵⁴

Yet John Bostock's 1855 translation of Pliny's *Natural History*, one of the most easily accessible translations today as it is entirely online, translates the passage as: "The cucumber belongs to the cartilaginous class of plants, and grows above the ground. It was a wonderful favourite with the Emperor Tiberius, and, indeed, he was never without it; *for he had raised beds made* in frames upon wheels, by means of which the cucumbers were moved and exposed to the full heat of the sun; while, in winter, they were withdrawn, and placed under the protection of frames glazed with mirror-stone."⁵⁵ The translation is remarkably evocative of Cato in two ways. Bostock not only entirely erases the vegetable grower, but he elides the gardener's labor and specialized knowledge to that of the emperor himself, as if it was the latter who labored in the dirt and grew his own cucumbers. It took nearly a century for R. Rackham to make the gardener visible again in his 1950 translation, writing, "the cucumber, a delicacy for which the emperor Tiberius had a remarkable partiality; in fact there was never a day on which he was not supplied with it, as his kitchen-

⁵⁴ Plin., *HN.*, 19.23.

⁵⁵ Plin., *HN.*, trans. John Bostock, (London: Taylor and Francis, 1855), 19.23, italics not original, by author, <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D19%3Achapter%3D23>.

gardeners had cucumber beds mounted on wheels which they moved out into the sun.”⁵⁶

The Gardener and the Villa

Joshel’s and Hackworth Petersen’s chapter in *Leisure & Luxury* on reconstructing slave presence in a villa context is the first work to address slave gardeners, but their analysis is largely focused on other types of slaves so that gardeners receive only brief mention.⁵⁷ This important new contribution serves as an exciting invitation for more discussion. Considering the centrality of gardens in Roman houses and villas, the segregation of cultivation laborers from other villa workers and enslaved people found in slave scholarship seems unwarranted. Since the introduction of peristyle gardens to Roman houses in the second century BCE, gardens were central places for many daily activities, such as dining and strolling.⁵⁸ Their access to light and fresh air afforded activities performed by house owners, villa servants and slaves alike such as cooking and even weaving.⁵⁹ Such diverse activities

⁵⁶ Plin., *HN*, 19.23, trans. R. Rackham, (Cambridge: Harvard University Press, 1950).

⁵⁷ Sandra R. Joshel and Lauren Hackworth Petersen, “Thinking about Roman Slaves at Villa A,” in *Leisure & Luxury in the Age of Nero: The Villas of Oplontis near Pompeii*, ed. Elaine K. Gazda and John R. Clarke, (Ann Arbor: Kelsey Museum of Archaeology, 2016), 148-151. For more on the cultural significance of villas see, Annalisa Marzano, *Roman Villas in Central Italy*, (Leiden: Brill, 2007), Annalisa Marzano and Guy Métraux, ed., *The Roman Villa in the Mediterranean Basin*, (Cambridge: Cambridge University Press, 2018); Andrew Wallace-Hadrill, “The Roman Villa as Cultural Symbol,” in *The Roman Villa Villa Urbana*, Alfred Frazer, ed., (Ephrata, PA: Science Press, 1990), 43-54; Carol C. Mattusch, *Pompeii and the Roman Villa: Art and Culture around the Bay of Naples*, (Washington D.C.: National Gallery of Art, 2008).

⁵⁸ Timothy M. O’Sullivan, *Walking in Roman Culture*, (Cambridge: Cambridge University Press, 2011); Jashemski, *The Gardens of Pompeii*, 89-113.

⁵⁹ Wilhelmina Jashemski notes that she has found loom weights in every single garden she has excavated, Jashemski, *The Gardens of Pompeii*, 102. Loom weights have also been found in the ongoing garden excavations at the Casa della Regina Carolina. Joanne Berry, “Household artefacts: towards a re-interpretation of Roman domestic space,” in *Domestic Space in the Roman World: Pompeii and Beyond*, ed. Ray Laurence and Andrew Wallace-Hadrill, (Portsmouth, RI: Supplementary Series of the Journal of Roman Archaeology, 1997), 183-195.

suggest that gardens were places where many different types of servants and slaves would have crossed paths throughout the day, from those attending resplendent villa diners, to gardeners watering, planting, or pruning plants, to household staff cooking on braziers and portable stoves or those weaving textiles. And just as non-gardening servants could be found in gardens, taking advantage of their fresh air and light, we must imagine gardeners traversing the interior spaces and crossing paths with other laborers, as they moved between different types of gardens within a single property.

Additionally, as analyses of sites such as Villa A at Oplontis illustrate, interior and exterior spaces were in clear dialogue with one another and were interdependent.⁶⁰ The relationship between these spaces suggests that perhaps a similar interdependence may have existed between those charged with maintaining interior and exterior spaces. Moreover, Roman villas are not solid structures with clearly defined boundaries between inside and outside. Instead, they are a collection of permeable boundaries, dotted with tiny, small, medium, and large gardens.⁶¹ The interdependence of these spaces is best understood in how exterior spaces facilitated interior activities. The pockets of gardens lit interior rooms and corridors, thereby illuminating labor and leisurely activities. They also assisted in moving air and in controlling the interior temperature. The permeability of interior and exterior spaces is especially well illustrated in the summer triclinium at the Villa Arianna in Stabiae.⁶² Surrounded by a

⁶⁰ Bettina Bergmann, "Art and Nature in the Villa at Oplontis," *Journal of Roman Archaeology, Supplement* (2002), 87-120.

⁶¹ Bergmann, "Art and Nature in the Villa at Oplontis," 87-120; Ann Kuttner, "Looking outside inside: ancient Roman garden rooms," *Studies in the History of Gardens & Designed Landscapes* 19.1 (1999) 7-35.

⁶² The fluidity between interior and exterior spaces is also well attested in the letters of Pliny the Younger. A vine covered room with large windows on all sides and views of the garden, described in Plin. *Ep.* V.6., appears very similar to the Stabiae triclinium.

garden on three sides, it is at once oriented to the exterior world and to the heart of villa. It sits at the intersection of two prominent, axial views, one which links Vesuvius and the Bay of Naples to the Trapezoidal Peristyle behind the triclinium, and a crossing axis, which looks onto and into abutting villa rooms. All four walls are nearly entirely dissolved, as three of the walls are composed of massive windows and the fourth wall features a nearly wall-width door, each featuring shutters that could construct or dissolve the walls. During a summer meal, when the windows and doors would have been pulled wide open, with garden scents and wind blowing into the dining room, the boundary between interior and exterior would have been entirely erased. Such a fluid permeability between spaces was not unique, and in fact, defined Roman villas. In other words, elite villas, were as much composed of gardens as they were of interior spaces. Thus, the gardener is as central to a villa household as the cook, the dresser, the bath-attendant, or any other domestic worker.

Chapter one outlines the theoretical frameworks that serve as a foundation for the project. Webster and Joshel and Hackworth-Petersen argue that agency theory is one of the culprits in the field of archaeology that have obscured non-elite actors, including slaves. In this chapter I suggest that this perceived challenge or weakness may be leveraged to serve as a new avenue of inquiry. By framing plants as active agents and layering additional theoretical lens of affordance, materiality, and entanglement, it becomes possible to document gardeners vis-à-vis their plants. James J. Gibson's work on affordance of the environment is foundational for the conceptualization of ornamental plants as artifacts that are fashioned and shaped by

gardeners, akin to ceramics, marbles, bronzes, and other objects created by craftsmen. The development of multiple varieties of myrtle with specifically created and sought-after leaf sizes by Roman gardeners is thus akin to the creation process of other artisans. And it is the process component of the labor that allows us to visualize the otherwise invisible gardeners. Investigating plant affordances and materiality also underscores the temporal component of working with plants and the implied relationship between the plant and the gardener. This in turn invites us to view ornamental plants as entangled with gardeners. In other words, by exploring how individual plant species or horticultural treatments relied upon gardener interventions, we may locate and document gardeners and their knowledge.

In chapter two I trace a new direction of research on plant biointelligence, communication, and perception that has illustrated that plants are not the passive living things we have long assumed. This ground-breaking work offers a productive framework for investigating plants as it forces us to deconstruct our own preconceptions before delving into ancient texts about the formation of plants and humans. Both Greek and Latin sources are mined because this allows us to recognize continuing trends and to identify new and specifically Roman perceptions about plants. The authors interrogated illustrate a more fluid conception of life, with plants, especially trees, possessing greater agency than human slaves. The shared lineage of plants and humans is a recurring theme in the texts and one that blossoms in the Roman period and appears to mark a cultural shift in how plants were perceived. This idea is expressed through myths on the transformation of humans into plant or trees birthing the first humans. It is also found in descriptions of plants and humans sharing

lives, being constructed out of the same materials, or possessing similar bodies. The kinship of plants and their gardeners is a kind of entanglement, wherein both the parent and child are reliant upon one another.

Chapter three builds on the pioneering work of Pierre Grimal, Nicholas Purcell, and Lena Landgren, who have explored the etymological and cultural significance of Roman gardener titles, such as *topiarius*, *olitor*, and *hortulanus*. My approach differs in that this chapter unites gardeners who are commonly associated with elite gardens, like the *topiarius* or *hortulanus*, with those who are traditionally only associated with productive cultivation under the umbrella of agriculture, like the *h/olitor*, *putator*, *arborator*, and *vinitor*. This is because elite Roman gardens are inherently interconnected with productive cultivation. They feature many of the same plants, like grape vines and fruit trees, and required many of the same treatments, such as specialized pruning. As a result, the Roman villa garden was populated and created by individuals who would have moved seamlessly across the horticultural and agricultural divide. The structure of the chapter is indebted to Landgren's work on *topiarii* and adds new entries to her list of epigraphic evidence that were not available at the time of publication. The epigraphic database is further expanded for the other kinds of gardeners. Because no text written by a gardener survives from antiquity, these inscriptions, mostly funerary, some from other commemorative contexts, provide invaluable evidence of gardener visibility in the ancient world. They document the agency of enslaved, freed, and free gardeners participating in *collegia*, commissioning commemorative works and tombs for themselves or their family members, as well as preserving evidence of family members constructing tombs for

their gardener family members. They also illustrate the movement of Roman gardeners outside of Italy and into the provinces. The inscriptions are contextualized within literary descriptions of these gardeners and visual representations of their work.

Chapter four joins analyses of comparative sites with interviews I conducted with professional gardeners. One of the most unique aspects of Wilhelmina Jashemski's work was her close relationship with her workmen, which fostered an anthropological approach wherein contemporary Italians identified Roman gardening practices based on their own practical field experience in their own gardens. Her journals and publications commonly note the truly striking parallels between ancient tools, planting patterns, and use of soil features and modern-day ones. Inspired by Jashemski's method this chapter is largely founded on interviews I conducted with modern day gardeners, landscape designers, plant nursery owners, specialists in dwarfing and bonsai, and archaeological site custodians. This chapter is focused on three types of sites: replanted excavated Roman gardens, early modern gardens like those found at the Villa d'Este in Tivoli, and James Madison's formal garden at Montpelier in Virginia. Roman villa gardens that have been replanted based on discovered or assumed planting patterns, like the ones found at Oplontis or Prima Porta, serve as ideal experimental locations for documenting the reliance and entanglement between plants and their gardeners. The plants in these spaces are today largely uncared for, unwatered, and unpruned. The lack of gardeners is keenly felt as although the design and species selected may be ancient, the plants do not recall the forms and health of their counterparts depicted in frescos or described in literature. Thus, these spaces underscore the utility of absence as a form of evidence. Similarly,

the gardens at Villa d'Este and the documents from early modern papal gardens offer a unique comparative opportunity. Early modern gardens were heavily influenced by Roman aesthetics; thus, they feature plant varieties favored by the Romans, planted and treated with tools that were largely unchanged. In comparison to the Roman period, the great wealth of gardener contracts and other garden related documents offer an unparalleled opportunity for comparative analysis and reconstruction of ancient gardener wages, their contracts, responsibilities, liability, and even diet. Because the Villa d'Este gardens preserve many historical plantings, they also serve as an excellent site for considering temporal aspects of villa gardens, which similarly might span many generations. The Plinian hippodrome garden at James Madison's estate in Virginia complements these earlier sites, in that it offers first-hand accounts of free and enslaved gardeners working side by side. Historical letters about the employment of the French landscape designer, Charles Bizet, and American antebellum observations on the field of landscape design also offer thought provoking clues regarding the training and specialization of designers like Roman *topiarii*.

Chapter five explores the relationship between plants and their gardeners as a kind of interdependent dialogue. The first half of the chapter is centered on horticultural evidence from the Italian peninsula. The gardens in the suburban ring around Rome are interrogated as an example of how populations of gardeners may be recovered by mapping different types of cultivated spaces, thereby identifying the kinds of gardeners that would have been required to create and maintain them. A closer examination of the conversation between gardeners and plants is centered on two tree types: planes and poplars. By considering the species-specific affordances of

these trees, it becomes possible to reconstruct why certain plants gained cultural value and how species-specific affordances fueled landscape design. Building on the discussion in Chapter Three on gardener contracts, the value of plants and the esteem of other artisan is leveraged as another means of establishing the perceived status and worth of gardeners and their trade. The second half of the chapter utilizes gardens and plants again as a means of reconstructing gardeners but applies the same methodology to Roman Gaul. I locate provincial gardeners through a set of constructed and layered maps that unite archaeobotanical remains with evidence of cultivation, including *ollae perforatae*, excavated gardens, and epigraphic evidence of gardeners. The result illustrates that the search for Roman gardeners need not be limited to the archaeological rich Italic peninsula or Hellenistic East. Areas perceived to be horticultural backwaters are equally fruitful.

CHAPTER 1

CULTIVATING PLANTS WITHIN A THEORETICAL FRAMEWORK

Varro observes that the farmer must consider four points: “the topography of the land, the nature of the soil, the size of the plot, and the protection of the boundaries,” this last concern being of particular significance to Roman cultivation and a recurrent topic in Varro’s treatise *On Agriculture*.⁶³ In *On Trees*, Columella writes that “Before you establish an orchard, enclose the extent of the land which you wish to have, either with a wall or with a ditch so that there may be no access to it until the seedlings are reaching maturity.”⁶⁴ Cato reiterates the order of labor when preparing for cultivation, advising farmers who wish to grow a nursery that they must “turn this [soil of highest quality] with a trench spade, clear of stones, build a stout enclosure, and plant in rows.”⁶⁵ Roman authors repeatedly state that to begin cultivation of any sort, one must first set the boundaries of the cultivated land, be they natural ones composed of green hedges, rustic ones made of wood, made in the military style of ditches and banks of earth, or more costly ones made of masonry. In fact, the theme of establishing boundaries, partitions, and framing is so pervasive in Roman cultivation, that it is not merely a topic of rustic farmers but is equally central

⁶³ Varro, *Rust.* 1.15.1, trans. W.D Hooper and H. B. Ash, (Cambridge: Harvard University Press, 1934).

⁶⁴ Columella, *De arboribus*, 18.1, trans. Harrison Boyd Ash, (Cambridge: Harvard University Press, 1941).

⁶⁵ Cato, *Agr.* 46.1, trans. W.D Hooper and H. B. Ash, (Cambridge: Harvard University Press, 1934).

to elite Roman villa design, as exemplified by the sophisticated use of boundaries and visual framing of plantings, windows, and doors ways at Villa A at Oplontis.⁶⁶

Because delineating boundaries or frameworks is so central to Roman gardening, this project begins with three interrelated theoretical frameworks applied to the investigation of Roman cultivation in elite gardens: the affordance and the materiality of plants and their gardens and human-plant entanglements. Gibson's theory of affordance and related discussions on the materiality of substances have already proved to be insightful in other areas of Roman studies. This chapter transplants it into Roman gardens where it allows us to consider plants as a worked substance. The affordance of individual plant species and more broadly of places like gardens facilitates interpreting gardening as a kind of dialogue between plants and gardeners. This in turn provides a foundation for investigating the relationship between plants and humans through the framework of entanglement.

The last part of the chapter investigates entanglement in ornamental horticulture. Writing about the relationship between plants and humans, Jack Harlan states that:

“Crops are *artifacts* made and molded by man as much as a flint arrowhead, a stone ax-head, or a clay pot. On the other hand, man has become so utterly dependent on the plants he grows for food that, in a sense, the plants have ‘domesticated’ him. A fully domesticated plant cannot survive without the aid of man, but only a minute fraction of the human population could survive without cultivated plants.”⁶⁷

⁶⁶ Bettina Bergmann, “Playing with boundaries: painted architecture in Roman interiors” in *The Built Surface, Volume I: Architecture and the Visual Arts from Antiquity to the Enlightenment*, ed. Christy Anderson and Karen Koehler (London: Taylor and Frances, 2017, e-book), chapter 2; Bettina Bergmann, “The Concept of the Boundary in the Roman Garden,” *Le jardin dans l'Antiquité*, ed. in Kathleen Coleman (Vandoeuvres: Fondation Hardt pour l'étude de l'antiquité Classique, 2014), 245-289, Bergmann, “Art and Nature in the Villa at Oplontis,” 87–121.

⁶⁷ Jack R. Harlan, *Crops and Man*, (Madison, WI, American Society of Agronomy, Crop Science of America, 1992), 3, italics are my own.

Published in 1975, Harlan's observation anticipates the rise of entanglement theory scholarship and creates a significant foundation for exploring the entanglements between plants and humans. Yet despite Harlan's work, it is only recently that archaeobotanists have begun exploring domestication as an entangled process. Led by the archaeobotanist Dorian Fuller and archaeologist Ian Hodder, much of the scholarship is focused on crop domestication in the Paleolithic, Neolithic and Bronze Age periods. The marked absence of plant entanglement discourse in the later Greek, Roman, and Late Antique periods, gives the impression that human-plant entanglement was 1) only a phenomenon of the distant past and 2) is primarily exemplified by humans altering plant morphology in crop plants, and that thus ornamental plants are not entangled with humans.⁶⁸ Yet the growing presence of human-plant entanglement discourse in early modern scholarship belies that assumption.⁶⁹ Moreover, this is not a phenomenon that is limited to the historical period. Lifting our gaze from the archaeological excavation sites of southern Italy to the surrounding cultivated fields, we are faced with the entanglement between tomatoes, a once foreign New World plant and now Italian national, their migrant cultivators who labor in slave-like conditions, Italian legislation that has fostered

⁶⁸ Huw Barton and Tim Denham, "Vegeculture and Social Life in Island Southeast Asia," in *Why Cultivate? Anthropological and Archaeological Approaches to Foraging-Farming Transitions in Southeast Asia*, ed. Graham Barker and Monica Janowski, (McDonald Institute for Archaeological Research: McDonald Institute Monographs, Cambridge, UK, 2011), 17-25; Fuller, et al, "Domestication as Innovation," 13-28; Fuller, et al, "Cultivation as Slow Evolutionary Entanglement," 131-145; Ian Hodder, *Entangled: An Archaeology of the Relationships Between Humans and Things*, (Malden, MA: Wiley-Blackwell, 2012), 75-80; Dorian Q. Fuller, Chris Stevens, Leilani Lucas, Charlene Murphy, and Ling Qin, "Entanglements and Entrapment on the Pathway towards Domestication," in *Archaeology of Entanglement*, ed. Lindsay Der and Francesca Fernandini, (Walnut Creek, CA: Left Coast Press, 2016), 151-172.

⁶⁹ For an insightful example of sugar cultivation entanglement in the early modern and modern periods, see van der Veen, "The materiality of plants," 807.

inhumane labor practices, and the global market which happily consumes Italian tomatoes at a price made possible by abuse.⁷⁰ The Italian government, the mafia, manufacturing companies, local gangmasters, and consumers are all at fault. But the tomato is also complicit. Its goal is to enlist help from any source, be it wind, animals, insects or humans, to fulfill two desires: expand its regional range and reproduce itself thereby passing on its genetic information. If plants entangled humans in the distant past, in the early modern period, and continue to entangle us today, surely some plants must have entangled Roman gardeners? The answer to this question lies in long-lived plants commonly found in ornamental Roman gardens, like ivy and box.

The Fracture, Affordance, and Materiality of Plants

The theory of affordance as developed by James Gibson in 1977 opens with the following statement, “A description of what the environment *affords* the animal can be given in terms of a list beginning with simple and ending in complex things,” and proceeds to argue that,

“In the last few thousand years, as everybody now realizes, the very face of the earth has been modified by man. This means that the layout of surfaces has been changed, by cutting, clearing, leveling, paving, and building. There are still natural deserts and mountains, swamps and rivers, forests and plains, but they are being encroached upon and reshaped by man-made layouts. Moreover the substances of the environment have been partly converted from the natural materials of the earth into various kinds of artificial materials like bronze, iron, concrete, and bread. Even the medium of the environment—the air for us and the water for fish—is becoming slowly altered despite

⁷⁰ Lorenzo D’Agostino, “‘Ghettos’ and gangmasters: How migrants are exploited in Italy’s tomato fields,” *CNN World*, March 21, 2018, <https://www.cnn.com/2017/12/07/europe/italy-migrant-camp-exploitation/index.html>; Gaia Pianigiani, “Migrants walk off Italy’s tomato fields, and into its immigration debate,” *New York Times Europe* August 8, 2018, <https://www.nytimes.com/2018/08/08/world/europe/migrants-italy-accident-protest.html>; Isabel Hunter and Lorenzo Di Pietro, “The terrible truth about your tin of Italian tomatoes,” *The Guardian*, October 24, 2017, <https://www.theguardian.com/global-development/2017/oct/24/the-terrible-truth-about-your-tin-of-italian-tomatoes>.

the restorative cycles that yielded a steady state for millions of years prior to man. Why has man changed the shapes and substances of his environment? So as to change what it affords him.”⁷¹

Although Gibson’s initial exploration of affordance is set within an environmental framework, focusing on the affordances of earth, water, and air, his pioneering theory has more recently led to new research on ancient materials used in statuary, paintings, and other art forms. Carol Mattusch, Richard Neer, and Jane Bennett have led the discourse on the affordances of metal in antiquity. Focusing on technical properties such as the melting points, reactions with gases, and other metal specific affordances, their analyses explore the connection between those properties and technological and stylistic developments.⁷² Innovations in ceramic production and material affordances of clay have received an equal amount of attention from archaeologists, art historians, and anthropologists.⁷³ In Gibsonian terms, clay is highly malleable and may be shaped into any form so that just as the flat surface of earth is walk-on-able, clay is the ultimate shape-able, press-on-able substance. Other equally malleable and shape-able substances like wax have also been studied through a lens of affordance.⁷⁴ Used widely in antiquity from medicinal remedies to encaustic painting to capturing

⁷¹ James J. Gibson, “The Theory of Affordances,” in *Perceiving, Acting, and Knowing: Toward an ecological Psychology*, ed. Robert Shaw and John Bransford, (Hillsdale, NJ: Lawrence Erlbaum Associates, 1977), 67, 70.

⁷² Carol Mattusch, *Greek Bronze Statuary: From Beginnings Through the Fifth Century BC*, Ithaca: NY: Cornell University, 1988), Richard Neer, *The Emergence of the Classical Style in Greek Sculpture*, (Chicago: University of Chicago Press, 2010), Bennett, *Vibrant Matter*.

⁷³ Noémi S. Müller, “Mechanical and Thermal Properties,” in *The Oxford handbook for Archaeological Ceramic Analysis*, ed. Alice Hunt, (Oxford: Oxford University Press, 2017); Knappett, et al, “Ceramics (as Containers)” 588-612; Joseph Veach Nobel, *The Techniques of Painted Attic Pottery*, (London: Thames and Hudson 1988), Millette Gaifman, “Timelessness, fluidity, and Apollo’s libation,” *RES Anthropology and Aesthetics* 63/64 (2013): 39-52.

⁷⁴ Véronique Dasen, “Wax and Plaster Memories: Children in Elite and non-Elite Strategies,” in *Children, Memory, and Family Identity in Roman Culture*, ed. Véronique Dasen and Thomas Späth, (Oxford: Oxford University Press, 2010): 109-146; Georges Didi-Huberman, “Wax Flesh, Vicious Circles,” in *Encyclopedia Anatomica: A Complete Collection of Anatomical Waxes*, (Cologne: Taschen, 1999): 64-74.

likeness in the form of face masks, wax differs from other materials in that it not only possesses many affordances (it is melt-able, shape-able, press-able, cut-able, etc.), it is also able to mimic other substances and forms. And although we may perceive color as a concept and thus beyond the scope of Gibson's theory of affordance, in antiquity color was understood as possessing matter and form—it was a substance with its own properties and affordances.⁷⁵

Building on these diverse applications of Gibson's theory, I would like to extend it to the study of plants. Gibson himself does not suggest that scholars should focus only on substances such as bronze, wax, ceramics, marble.⁷⁶ Because he situates affordance in environmental terms, it seems a natural development to extend it to the practice of horticulture and plants. In this context, when Gibson states that the “affordance of anything is a specific combination of the properties of its substance and its surfaces taken with reference to an animal,” the animal is understood to be the gardener or garden visitor in the same way that other scholars have identified the animal as the painter, sculptor, or craftsman.⁷⁷ Moreover, the affordance of horticulture and plants may be categorized into three interconnected groups: the affordance of place (such as a regional micro climate or a garden), the affordance of a

⁷⁵ Mark Bradley, *Color and Meaning in Imperial Rome*, (Cambridge: Cambridge University Press, 2009); Jennifer Stager, *The Embodiment of Color in Ancient Mediterranean Art*, PhD Diss., (University of California Berkeley, 2012); Andrea Feeser, Maureen Daly Goggin, and Beth Fowkes Tobin, “Introduction: The Value of Color,” in *The Materiality of Color: the Production, Circulation, and Application of Dyes and Pigments, 1400-1800*, ed. A. Feeser, M. D. Goggin, and B. F. Tobin, (Burlington VT: Ashgate Press, 2012), 1-12; Diana Young, “The Colours of Things” in *Handbook of Material Culture*, ed. C. Y. Tilley, W. Keane, S. Küchler, M. Rowlands and P. Spyer, (London: Sage Publications, 2006), 173-185.

⁷⁶ Knappett, “The Affordances of Things,” 49-50.

⁷⁷ Gibson, “The Theory of Affordances,” 67.

plant's growth habit, and actions performed by a gardener to manipulate a place or plant as an expression of altering affordance.

An overlooked but central component of Gibson's theory is the affordance of place or space. Riverbeds, prairies, mountains, forests, deserts, and swamps—these are all places or spaces with site specific affordances which may be interpreted at the macro or micro level. This idea of place within an environmental framework of affordances cannot be ignored. It is place, or as Harold Jenkins identifies it, context,⁷⁸ which creates certain affordances, such as specific temperature, humidity, and precipitation ranges, soil composition, wind exposure, and other features which directly impact a place in relation to animals and plants. And while places have their own innate affordances, as Gibson notes, man has changed his environment so as to change what it affords him. A master gardener or engineer may design and implement, with the assistance of a large group of laborers, any number of systems, structures, or earth works, such as terracing mountain sides or the construction of aqueducts and other water systems which alter affordances of a place and impact cultivation. Thus, for example, the construction of the Aqua Augusta in the first century BCE in the Vesuvian area galvanized regional cultivation and drastically altered local growing affordances in urban centers and at luxurious villas. In fact, by transplanting Gibson's theory into gardens it becomes clear that the gardener in many ways is a key participant in affordance theory. A gardener is, by definition, someone who is trained in perceiving, altering, and maintaining the affordances of a specific environment, i.e. of a garden.

⁷⁸ Harold S. Jenkins, "Gibson's 'Affordances': Evolution of a Pivotal Concept," *Journal of Scientific Psychology* December (2008): 43.

Affordance in the garden may also be investigated via plants. To begin, plants occupy two categories. On the one hand, plants are what Jennifer Atchison and Lesley Head call living “collectives,”⁷⁹ a term that is borrowed from the concept of collective bodies to comprehend plants as populations. On the other hand, plants also exist as individual species or specimens. Like other substances which have been investigated through Gibson’s theory, plant specific affordances may be altered by gardeners. For example, bronze, copper, and tin as metals share affordances, but also each possess different melting points, different properties, and thus different affordances. Similarly, plants cannot be treated only as a collective, as different species possess species specific affordances. And like the affordances of different metals, these affordances are not static. Some metals may be mixed by humans to create new amalgams with changed affordances. In the same way, plant affordances are not stable or equal in all environments or situations. Certainly, environmental conditions affect plant growth habits and affordances so that just as metals, proximity to other plants may also be influential. Theophrastus, Varro, Cicero, Vergil, Pliny and Palladius observed that plants loved or hated particular species and that their proximity to these specific species impacted their growth. Seen through Gibson’s theory, plant loves and hatred may be understood as relationships which alter affordance. Arthur Stanley Pease has suggested the plant loves and hatreds observed by ancient authors were the result of attempting to grow plants together which required different growing conditions. Thus, in Pease’s view, a moisture loving fern naturally “hates” a dry and sun loving cactus. And while that may well be the case for some of the examples, it is unlikely to be

⁷⁹ Atchison and Head, “Eradicating bodies in invasive plant management,” 952.

coincidental that many of the plants described by ancient authors as having “hatreds,” are plants which today have been found to possess allelopathy, the ability to release biochemicals which inhibit the germination and growth of other plants. Theophrastus, Pliny the Elder, and Cicero, for example, note that grape vines react to the “smells” produced by cabbages by turning their shoots away, a sign of their dislike.⁸⁰ These plant hatreds suggest that the affordance of grape vines was altered negatively by cultivating the cabbages nearby. Moreover, the vine and cabbage are not the only plant relationships noted by ancient writers.⁸¹ Pliny observed that the smells or juices of radish and laurels negatively affected vine cultivation—these were best planted far from one another.⁸² And in fact, numerous modern studies have been conducted on the allelopathic effects of radishes and their applicability as an herbicide for weed management.⁸³ But affordances and yields could also be increased by pairing particular plants which loved one another together. Plutarch recommends planting roses and violets near leeks and onions so that they could share sour soil juices, and many authors recommend planting vines under elm trees.⁸⁴ While some of the negative and positive pairings described by ancient authors may be mere poetic or artistic license, many of these ancient observations are confirmed by biochemical

⁸⁰ Cic. *Nat. D.* II.120; Theophr. *Caus. pl.* II.18, *Hist. pl.* IV.16.6; Plin. *H.N.* 17.240; Arthur Stanley Pease, “The Loves of the Plants,” *Classical Philology* 22.1 (1927): 94.

⁸¹ Pease, “The Loves of the Plants,” 94-98; R. J. Willis, “The Historical Bases of the Concept of Allelopathy,” *Journal of the History of Biology* 18.1 (1985): 74-76; R. J. Willis, *The History of Allelopathy*, (Dordrecht: Springer Netherlands, 2007), 15-39; Plin. *H.N.*, 17.240; Cic. *Nat. d.* 2.120; Varro, *Rust.* 1.16.6; Palladius 1.6.5; Verg. *G.* 2.299.

⁸² Plin. *H.N.* 17.239.

⁸³ Kawa Abdulkarrem Ali, “Allelopathic potential of radish (*Raphanus sativus* L.) on germination and growth of some crops and weeds,” *International Journal of Biosciences* 9.1 (2016): 394-403; Ilhan Uremis, Mehmet Arslan, Ahmet Uludag, and Mustafa Kemal Sangun, “Allelopathic potentials of residues of 6 brassica species on johnsongrass [*Sorghum halepense* (L.) Pers.]” *African Journal of Biotechnology* 8.15 (2009): 3497-3501.

⁸⁴ Plut. *Mor. de cap. Ex Inim. Util.* 10.

interactions between plants, the result of shared microorganisms, and other processes. Although plant affordances may change based on their plant neighbors due to natural processes, such as seed dispersal through wind or animals, there is an intentionality when the action is performed by a gardener. Like the blacksmith mixing an amalgam, the landscape designer crafts affordances based on planting locations and proximity between species.

In some respects, plants as a substance bear resemblance to stone and their quarries. Writing about her ethnographic experiences at the Carrara marble quarries in Italy, Alison Leitch describes marble as a substance that quarry laborers perceive to be “animated and living,” as “an organic material that grows.”⁸⁵ Moreover, like stone whose affordances change as it ages and hardens after quarrying, the properties of individual plant species and their affordances vary according to age, and even vary temporally between seasons. Young, unestablished or recently transplanted plants for example are less resistant to drought as their roots have not developed sufficiently. Many kinds of fruit trees and vines cultivated by the Romans only attained certain affordances, such as bearing fruit, later in life. Pomegranates, for example, only bear fruit after two or three years, quince after three to five years, but both fruit trees do not reach maturity till about ten years old. Many olives varieties, one of the most economically and culturally significant ancient plants, do not produce fruit until they are between five to twelve years old. Furthermore, the life cycle of plants also impacts plant affordances as they age, as many fruit bearing trees begin to produce less fruit after they are fifty years old. Affordances also change between seasons. Many fruit

⁸⁵ Alison Leitch, “The Materiality of Marble: Exploration in the Artistic Life of Stone,” *Thesis Eleven* 103.1 (2012): 67, 70.

trees, for example, only tolerate pruning in early spring. Although many substances change with time, plants are different from the previously discussed media in that unlike other artefacts which possess so-called social or cultural biographies, plants possess biographies and life cycles which are remarkably similar to our own. They are born immature unable to reproduce and only grow into a reproductive state later in life. And as in our own life cycle, their reproduction is limited and wanes as they age.

Plant substance is also similar to stone and the way in which it is shaped. Worked marble and other types of stone are generally understood as subtractive work—one cuts, chisels, and sands the substance away to attain a desired result. Yet Leitch's observations suggest that at least in quarries stone may also be perceived by those working it as an additive substance, a substance that despite extractions and cuts, gains volume and grows with time. This dual subtractive and additive quality is found in plants, which are alive and continue to change shape and grow throughout their lifetime. Although Leitch comments on the veining and living qualities of marble, plants take these concepts beyond the symbolic or evocative into the literal realm.

Plants also sit at an unusual intersection of facture, time, and affordance. If we treat garden plants as artefacts, as items or substances that are worked on by craftsmen, the very nature of that labor and interaction is different from other materials. Unlike the working of stone or fired clay, there may not be a precise moment of completion of facture. Each week and season bring changes and require renewed labor as plants continue to grow. In the case of long-lived plants, like box, this process will span many human generations. But it is not just that plants as a material follow a different temporal pattern in the process of facture. Indeed, they

might be seen as defying facture and defying a sense of stasis. Their perpetual growth means that the work is forever in progress, incomplete, always requiring future labor and future intervention by the gardener. Or to put it in yet different terms, the material's affordance perpetually invites the gardener to return to facture.

Topiary, Affordance, and Materiality

Topiary, the practice of shaping and training plants into various shapes, is especially helpful in examining the way in which the affordances of certain species led horticultural developments. Lena Landgren has thoroughly catalogued and analyzed all literary and epigraphic evidence relating to ancient topiary, noting the nuances of the various terms used by ancient authors to describe *ars topiaria*, and other related effects.⁸⁶ Twenty-one literary sources mention clipped, cut, or shaped plants; among those box (*buxus*), mentioned twelve times, far out numbers any of the other plants. Myrtle (*myrtus*) accounts for only two examples, four relate to groves or coppices of trees (*silva, nemus, lucus, virgulta*), two are described as green or garden spaces without identifications of specific plant species (*viridia, viridarium*), and two are identified as conifers (*picea* and *cupressus*).⁸⁷ As Landgren notes, no ancient author describes the process or techniques involved in *ars topiaria*, making it difficult to reconstruct the development of plant shaping or even the process. However, this challenge may be overcome in multiple ways. The affordance of a species offers one possibility and is explored here. The question is asked again in chapter four, but through a comparative model based on contemporary practice and interviews with

⁸⁶ Landgren, *Lauro, Myrto, et Buxo Frequentata*, 104-115.

⁸⁷ *Ibid.*, Table 6, 111.

gardeners. Two plant varieties, box and ivy, serve as fruitful case studies for interrogating how species-specific affordances and materiality may have shaped or inspired the development of *ars topiaria*.

The Case of Box

The great prevalence of box raises the question, but why box? Not only does it account for nearly 60% of all cases, no other plant comes close to its popularity. Moreover, although Pliny the Younger's works account for the great majority of the cases, five of the seven authors who write about clipped plants cite box specifically.⁸⁸ The great popularity of box for topiary in the modern period gives the impression that box was simply always meant to be grown for shaping. But if Landgren is correct in suggesting that the Romans may have developed the practice themselves, why did they choose box, or the less commonly used, myrtle and cypress? What proprieties do these plants possess that others lack that facilitated the development of training plants into shapes?

First, box, as well as myrtle and cypress, possess two interdependent qualities: small leaves and a tight, dense, growing habit. A loose growing habit with small leaves would result in a sparse plant with much negative space between branches, making trimming into shapes difficult. Large cuts may be possible, but finer cuts would be much more difficult. Inversely, a plant with a dense growing habit but large leaves would be equally challenging. Although the density would ensure less negative space and thus a more concrete shape, larger leaves do not allow fine trimming. Thus,

⁸⁸ Plin. *H.N.* 16.70; Mart. 3.58; Plin. *Ep.* 5.6.16-17, 5.6.35-36; Fro. *Aur.* 1.p.48; Apul. *Apol.* 61.

the growing habit of box, myrtle, and cypress, paired with their dense, small leaves meant that they could be finely trimmed without creating holes or cavities. The smallness of the leaves appears to have been an especially prized quality; myrtle is reported as the only plant to have been bred in antiquity to produce varieties with different leaf sizes.⁸⁹ The value of these interdependent qualities of growing habit and dense, small leaves is also evident in Pliny's description of a native variety of box, "which spreads more than the other and forms a thick hedge (wall), it is evergreen, and will stand clipping."⁹⁰ The last part of Pliny's observation deserves notice, as he personifies box by attributing tolerance to it, suggesting that other varieties may be more difficult and fickle-minded.

Box also affords creating compositions because it is evergreen. Unlike deciduous varieties, it does not drop leaves to expose unsightly inner, bare branches. Their temporal stability created the illusion that evergreen plants were a kind of a permanent, solid, unchanging substance. In turn, this quality resulted in certain evergreen plants possessing constructive functions.⁹¹ Columella and Varro both cite the "ancients" as recommending growing hedges out of impenetrable brush and thorny plants instead of constructing them from stone, claiming that green hedges are longer lived and less expensive.⁹² While Varro and Columella use various terms in referring to hedges as cultivated structures, Pliny the Elder's word choice in describing myrtle, box, and cypress blur the division between cultivation and construction even further.

⁸⁹ Plin. *H.N.* 15.122; Lena Landgren, *Lauro, Myrto, et Buxo Frequentata*, 77.

⁹⁰ Plin. *H.N.* 16.28.71, "*tertium genus nostratis vocant, e silvestri, ut credo, mitigatum satu, diffusius et densitate parietum, virens semper ac tonsile.*"

⁹¹ Landgren, *Lauro, Myrto, et Buxo Frequentata*, 120-127.

⁹² Columella, *Rust.* 11.3.3; Varro, *Rust.* 14.1.

Rather unusually, instead of using terms common for describing hedges, he employs the term “*paries*,” generally used to mean house walls, in reference to walls grown of thick myrtle (*parietem...densitatis*), of thick box (*densitate parietum*), and of clipped, thick cypress (*cupresses... nunc vero tonsilis in densitatem parietum*).⁹³ The difference in word choice between the more agriculturally minded authors and Pliny may be indicative of how one crosses the horticultural divide between a thorny hedge and a topiary depiction of a naval battle or a topiary hippodrome. A *paries*, a domestic wall, evokes very different associations and bears different function than an agricultural hedge meant to keep out animals or thieves. Pliny’s word choices suggest an altered perception of the affordances and properties of these plants, changes which bring them closer to substances like stone, which afford construction, sculpting, and shaping.

The Case of Ivy

The ornamental use of ivy illustrates another example of how a particular species’ affordances and natural properties may have driven horticultural practice. Ivy clad walls and columns are commonly mentioned in the same breath as clipped plants and are attributed by Cicero to the same garden specialist, the *topiarius*, suggesting that these were related horticultural practices. Although it may seem that the grape vine, the most economically and culturally significant vine of the Mediterranean, ought to have been chosen to encircle whole houses, curl up columns, and spread across walls, it lacks a crucial botanical feature: aerial rootlets. Grapes have limited climbing abilities and do best when assisted by gardeners who provide trellises or

⁹³ Landgren, *Lauro, Myrto, et Buxo Frequentata*, 107; Plin. *H.N.* 17.11.62; 16.28.71; 16.149; K. D. White, *Farm Equipment of the Roman World*, (Cambridge: Cambridge University Press, 1975), 24.

other textures around which vines may curl. In comparison, ivy produces aerial rootlets, tiny roots which protrude from its arms, and which allow it to affix itself to trees and smooth vertical surfaces alike. In their native habitat of forests, ivy grows up tree trunks, exposed rock faces, and any other surface without the intervention or guidance of gardeners, a characteristic often noted by ancient authors when describing mythical forests.⁹⁴ In fact, ivy's natural predisposition to clinging was so widely noted that it features in multiple passages in Horace as a metaphor for a lovers' clinging embrace.⁹⁵ Pliny the Elder even complained about how strongly ivy clunk to building walls and the damage it inflicted.⁹⁶

The effect aerial roots have on the shape and form of ivy is particularly noteworthy. Unlike free standing shrubs and trees which grow into shapes based on their own branching habit, ivy does not have a form of its own, instead it replicates whatever it grows upon, whether it be as a carpet across a flat expanse of ground, as tubular casing surrounding a tree trunk or column, or as irregular lumps across exposed rock. The simultaneous act of covering and replicating creates the illusion that the encased object has been transformed or translated into a new green medium. In this way, a wall or column of ivy are as much shaped topiary as topiary which has been grown on a purpose-built frame.

It is highly probable that it was these naturally occurring properties and affordances of ivy that fueled its application onto villa walls and foundations and led gardeners to carefully arrange them along columns. The architectural use of ivy is also

⁹⁴ Cic. *Q. fr.* 3.1.5; Plin. *H.N.* 16.144; 16.152, 14.11; Plin. 5.6.34-35; Verg. *Ecl.* 8.13; Ov. *Met.* 10.99; 4.365; 6.128.

⁹⁵ Hor. *Epod.* 15.5; *Carm.* 1.36.20.

⁹⁶ Plin. *H.N.* 16.34.

attested in the archaeological record as well as in representations. The House of the Wedding of Alexander (VI. Insula occid.42), the House of the Chaste Lovers (IX.12.6-7), the House of the Centenary (IX.8.6) all feature root cavities and planting patterns along walls and columns. Because only a limited number of climbing plants were cultivated in the Roman world, these plantings have been identified as ivy.⁹⁷ At Villa A at Oplontis planting pots were found in peristyle garden 59 angled towards the columns in front of which they were planted, thereby facilitating a climbing plant like ivy taking hold of the nearby columns. Villa A also features examples of representations of columns which have been artfully clothed in ivy, such as the ones in Viridarium 20, where ivy has been highly pruned into oval bunches of leaves with exposed bare stems in between, a treatment which Italian gardeners today refer to as “vase” pruning.⁹⁸ Such an effect could easily be achieved as ivy aerial roots effortlessly attach to plaster, and more significantly ivy tolerates or affords heavy pruning. In favorable conditions, ivy is considered a rapid grower, meaning that the vase pruned ivy represented in the fresco painting would have required regular pruning attention from gardeners to keep new growths in check. Marble columns with carved ivy-like decoration were also found in rooms 29 and 39 at Villa A.⁹⁹ These representations document gardeners being inspired by ivy’s natural climbing habit in forests up tree trunks and translating the practice for a villa context. It appears that the

⁹⁷ Landgren, *Lauro, Myrto, et Buxo Frequentata*, 123-124, Jashemski, *Gardens of Pompeii Vol. I*, 32, 295; Jashemski, *Gardens of Pompeii Vol. II*, 166-167; A. Ciarallo and M. Marriotti Lippi, “The garden of the Casa dei Casti Amanti (Pompeii, Italy),” *Garden History* 21 (1993): 115.

⁹⁸ Kathryn Gleason, “Wilhelmina Jashemski and garden archaeology at Oplontis,” in *Oplontis: Villa A (“Of Poppaea”) at Torre Annunziata*, ed. John R. Clarke and Nayla K. Muntasser, (New York: ACLS Humanities E-Book), 1077, Figure 6.36.

⁹⁹ *Ibid.*, 962

ivy is as much responsible for the development of clothing buildings, statues, and columns, as the gardener who planted and trained it.

People-Plant Entanglements in the Roman Period: Weeds, Battles, and Employment

Today, much as in antiquity, weeds often elicit the same kind of adversarial rhetoric applied to invading armies, wherein farmers and gardeners are pitched in battle against an invasion of attacking, dangerous plants.¹⁰⁰ Writing in the middle of the nineteenth century, Henry David Thoreau describes the cultivation of his field of beans as a battle, waged with hoe in hand, against the Trojan like weed-warriors:

“Consider the intimate and curious acquaintance one makes with various kinds of weeds—it will bear some iteration in the account, for there was no little iteration in the labor—disturbing their delicate organizations so ruthlessly, and making such invidious distinctions with his hoe, levelling whole ranks of one species, and sedulously cultivating another. That's Roman wormwood—that's pigweed—that's sorrel—that's piper—grass—have at him, chop him up, turn his roots upward to the sun, don't let him have a fiber in the shade, if you do he'll turn himself t' other side up and be as green as a leek in two days. *A long war, not with cranes, but with weeds, those Trojans who had sun and rain and dews on their side. Daily the beans saw me come to their rescue armed with a hoe, and thin the ranks of their enemies, filling up the trenches with weedy dead. Many a lusty crest—waving Hector, that towered a whole foot above his crowding comrades, fell before my weapon and rolled in the dust.*”¹⁰¹

The militaristic entanglement between farmers and weeds described by Thoreau is indeed part of a long war. Nearly two millennia before, Virgil describes a farmer fighting the same war, with the same weapons, against the same enemy:

“Ceres first taught mortals to turn the earth with iron, when already the acorns and arbutes failed in the sacred forest and Dodona denied sustenance. Soon trouble / work (*labor*) was added to the growing of corn too, so that harmful mildew ate the stalks and the lazy thistle bristled (*horreret*) in the fields; crops die, a harsh (*aspera*) woodland of burs and caltrops creeps up, and between the shining harvest unlucky / infertile (*infelix*) darnel and barren wild oats dominate. For unless you harry the weeds

¹⁰⁰ Atchison and Head, “Eradicating bodies in invasive plant management,” 951-968.

¹⁰¹ Henry David Thoreau, “The Bean Field,” in *Walden*, (Boston MA: Ticknor and Fields, 1854).

relentlessly with mattocks (*insectabere*), and scare off the birds with noise, and press back the shadows of the dark country with the pruning hook, and call the rain with your prayers, alas in vain will you look at another man's large heap of grain and seek solace for your hunger from a shaken oak tree in the woods. I must tell too of the tough farmers' weapons..."¹⁰²

As Rebecca Armstrong argues, Virgil's description of the beginning of agricultural cultivation is dense with overt as well as more discreet militaristic allusions. The farmer is commanded to harry or assail the weeds with his mattock (*insectabere*); the burs and caltrops form a harsh (*aspera*) woodland, an adjective that Virgil later employs in battle contexts in the *Aeneid*.¹⁰³ The verb with which he describes the bristles (*horreret*) of the thistles is utilized by Ennius in a military context and is used again by Virgil in Book II of the *Georgics* to describe warrior-like men made of earth. There are casualties (the crops) and conquerors (the darnel and wild oats) in the conflict, the farmer is equipped with weapons: mattocks, hoes, and ploughs.¹⁰⁴

Thoreau and Virgil present conquerors and victims in battles or skirmishes, but the war is on-going, without a clear victor, with each aggressor developing new strategies, and in turn forcing the other actor to respond in kind. As a result, weeds are instigators of development. Although we tend to think of chemical weed control as a modern innovation, Allan Smith and Diana Secoy have found that Greek and Roman agricultural treatises present ancient farmers developing and utilizing various means of sophisticated weed management.¹⁰⁵ Amurca, a by-product of oil production composed

¹⁰² Verg. *G.* 1.147-60, trans. Rebecca Armstrong, "The War on Terra: Insurgent Weeds in the *Georgics*," presented at *New Perspectives on Virgil's Georgics*, 3-4 April 2014, University College London, London, 3. Text of presented paper kindly shared by Armstrong with author.

¹⁰³ Armstrong, "The War on Terra," 5.

¹⁰⁴ *Ibid.*, 5; Verg. *Aen.* 9.667, 11.635.

¹⁰⁵ Allan E. Smith and D. M. Secoy, "Early Chemical Control of Weeds in Europe," *Weed Science* 24.6 (1976) 594-597; Allan E. Smith and Diane M. Secoy, "Forerunners of Pesticides in Classical Greece and Rome," *Journal of Agriculture and Food Chemistry* 23.6 (1975), 1050-1055; D. M. Secoy and

of crushed olives, was recommended by Cato and Varro as a chemical weed suppressant for threshing floors, and Virgil mentions burning cereal fields after harvest likely to burn and destroy any weed seeds.¹⁰⁶ When hands proved to be an insufficient tool at eradicating resilient and tough weeds, they fostered the development of specialized tools which augmented human ability. The *lumaria*, for example, appears to have been a specifically designed billhook for *luma*, an unidentified plant, thought by some to have been a wild mint, and notoriously aggressively defying human eradication attempts.¹⁰⁷

Yet concurrently, weeds are romanticized as non-domesticated, wild, and free from human intervention. Micheal Pollan, noting the modern association of weeds with wilderness, writes that, “If garden flowers were slaves to men, then weeds were emblems of freedom and wildness.”¹⁰⁸ But our relationship with weeds is in fact more varied. Weeds are “plants that contest with man for the possession of the soil, opportunistic species that follow human disturbance of the habitat, artefacts or camp followers, pioneers, plants uniquely able to thrive in land subject to the plough.”¹⁰⁹ These various definitions of weeds underscore Edgar Anderson’s observation that, “the history of weeds is the history of man.”¹¹⁰ Weeds are synanthropes, a term derived from Greek, meaning together with (syn) man (anthropos), “wild species that

Allan E. Smith, “Use of Plants in Control of Agricultural and Domestic Pests,” *Economic Botany* 37.1 (1983): 28-57.

¹⁰⁶ Allan E. Smith and Diane M. Secoy suggest that the active ingredients in amurca may have been hydrolysable bitter glycoside, oluropine, and traces of phytocidal glyceride oils. “Early Chemical Control of Weeds,” 595; Cato, *Agr.* 91.1; Varro, *Rust.* 1.51.1; Verg. *G.* 1.84.

¹⁰⁷ Varro, *Ling.* 5.137; K. D. White, *Agricultural Implements of the Roman World*, (London: Cambridge University Press, 1967), 88.

¹⁰⁸ Michael Pollan, “Weeds are Us,” *The New York Times Magazine*, November 5 1989, <https://michaelpollan.com/articles-archive/weeds-are-us/>

¹⁰⁹ van der Veen, “The materiality of plants,” 801.

¹¹⁰ Edgar Anderson, *Plants, man and life*, (London: Andrew Melrose, 1954).

live near people and benefit from a close relation with people and their artificially created habitats.”¹¹¹ Their very existence, identification, and classification is entangled with their relationship to humans. Writing about contemporary weeds, Michael Pollan, remarks that, “They [weeds] don’t grow in forests or prairies—in ‘the wild.’ Weeds thrive in gardens, meadows, lawns, vacant lots, railroad sidings, hard by dumpsters and in the cracks of sidewalks. They grow where we live, in other words, and hardly anywhere else.”¹¹² If we add to Pollan’s list roadsides and their ditches, it becomes abundantly clear that weeds are found in primarily two groups of habitats: places where humans are sedentary (gardens, vacant lots, various types of agricultural areas including hay meadows) and along human transit routes (roads, railroads). By definition, weeds are not desired plants and their companionship is certainly not the result of intentional importation. Rather, despite our best attempts to thwart their movement, weeds continue to follow us of their own accord.

Although archaeologically, weeds remain a less studied group of plants than their cultivated counterparts, the development of FIBS (Functional Interpretation of Botanical Surveys) and a growing interest in ancient weeds as environmental markers has led to more sampling of archaeobotanical evidence for weed presence, allowing us to identify some instances of weeds chasing the movement of people.¹¹³ For example, sampling from southwestern Germany has shown that the Romans were followed by six weed varieties native to the Mediterranean area: the cowherb or prairie carnation (*Vaccaria hispanica*), the corn buttercup (*Ranunculus arvensis*), the looking glass

¹¹¹ van der Veen, “The materiality of plants,” 801.

¹¹² Pollan, “Weeds are Us.”

¹¹³ M. Charles and G. Jones, “FIBS in Archaeobotany: Functional Interpretation of Weed Floras in Relation to Husbandry Practices,” *Journal of Archaeological Science* 24 (1997): 1151-1161.

(*Legousia speculum-veneris*), the yellow bugle or ground pine (*Ajuga chamaepitys*), the red hemp nettle (*Galeopsis ladanum*), and the wild fennel or love in a mint (*Nigella arvensis*).¹¹⁴ Having domesticated humans, and utilized them for their own transport, these plants changed the composition of native soil, altered the local mycorrhizal network, affected the local ecosystem, and impacted local fauna. Once arrived, they continued to live alongside farmers, gardeners, and crops until the eighteenth century, when a combination of poor soil and modern farming techniques led to less soil disturbance and thus loss of habitat. During their nearly 2,000-year long residency in Germany, these once foreign invasives naturalized and become part of the everchanging ecosystem. Underscoring the subjectivity and changeability of identifying certain plants as weeds, these same plants have been transformed from undesirable, unprofitable, disadvantageous plants into *cultural artifacts* deemed worthy of conservation. Reacting to decreasing flora biodiversity, the Bad Windsheim Open Air Museum, a collection of 700 year-old cottages and accompanying furnishings, recreates the “traditional cultural landscape of Franconia” through gardens, orchards, vineyards, meadows, and crop-fields planted and worked with historically traditional plant varieties, many of which are now rare.¹¹⁵ For the museum, “cultural landscape” not only encompasses the things made and used by people, but also the things that grew alongside them, such as arable weeds and wildflowers, which are now intentionally cultivated and conserved at the site.

¹¹⁴ Manfred Rösch, “Evidence for rare crop weeds of the Caucalidion group in Southwestern Germany since the Bronze Age: palaeoecological implications,” *Vegetation History and Archaeobotany* 27 (2018): 75-84.

¹¹⁵ Rösch, “Evidence for rare crop weeds,” 81; Fränkisches Freilandmuseum, Bad Windsheim, Germany, <https://freilandmuseum.de/startseite/sprachen/information-en.html>.

Weeds in Elite Gardens?

Interest in weed-people entanglements within archaeobotany and philology has focused on agricultural cultivation in crop fields, and to a lesser extent in vineyards, and orchards. But I would like to extend the discussion in a new direction, namely elite gardens. The utter silence on weeds within elite villa gardens gives the incorrect impression that somehow elite spaces lacked undesirable plants, that only manicured, desirable, profitable plants grew in the soil in and around elite villa gardens. This could not be further from the truth. Because the history of weeds is a history of humankind, they were everywhere, including elite spaces. And in certain Roman regions, like Campania, where the soil was and is especially fertile, weeds are a natural state. The fecundity of the soil means that any patch of unattended earth is nearly instantly overgrown. For example, the Pompei Valle Circumvesuviana station, decommissioned in 2000, marks a battle site won by weeds. The concrete platform is entirely conquered by dense vegetation.

Yet weeds in gardens offer an important new entryway into thinking about gardens and garden designs not just as human constructs but rather as products of plant agency and plant desires. Because weeds follow us, wage battle with us, are instigators of an arms race in horticultural development, they are a prime candidate for interrogating plants as co-designers. The investigation requires first considering how Roman gardeners perceived and defined weeds from other culturally significant varieties.

As Armstrong explains, there is no noun in Latin that directly translates to

weeds. *Herba* is used by various authors to denote what we might consider weeds, but *herba* is also used to describe many things like “grass, herbs, small plants, the early blade of an emerging crop, and so on.”¹¹⁶ *Herba* only become a weed through its context and relationship to people and cultivation. Some authors differentiate weeds from other plants through adjectives: lazy (*signis*), sterile (*sterilis*), useless, harmful, unproductive, and disadvantageous (*inutilis*). *Herba inutilis* encapsulates the idea of weeds as a human construct most clearly as the adjective relies on us answering the question of harmful to whom? useless to whom? unprofitable for whom? disadvantageous to whom?¹¹⁷ These are plants which are not grouped by any shared botanical characteristics, rather the category of weeds is based on subjective conceptions of profitability.¹¹⁸ Moreover, the lack of a clear term for weed in Latin is suggestive of a more fluid conception of plant categories than provided by our English horticultural terms.

The Latin adjectives which differentiate *herba* as weeds from other types of plants are a crucial foundation of Roman ornamental gardens. It is these same adjectives which Roman authors use to describe ornamental plants, like myrtle, plane trees, and violets. Many scholars have noted the clear dichotomy presented by Roman writers between the productivity and fertility of traditional agriculture versus the sterility of ornamental plants. But the translation of terms has obscured the direct correlation between ornamental plantings and weeds. A closer analysis of vocabulary utilized by Roman authors to describe ornamental plants suggests that ornamental

¹¹⁶ Armstrong, “The War on Terra,” 2.

¹¹⁷ Smith and Secoy, “Forerunners of Pesticides,” 1052.

¹¹⁸ W. Holzner, “Concepts, categories, and characteristics of weeds,” in *Biology and Ecology of Weeds*, ed. W. Holzner and M. Numata, (The Hague, Boston: Kluwer Boston, 1982), 3.

cultivation is entirely entangled with weeds—to the degree that one might argue that ornamental plants are merely weeds by another name.¹¹⁹

The first century CE rhetorician, Quintilian, for example, in an essay on rhetoric and ornament sets up a stark morally infused contrast between productive cultivation on farms and a new horticultural trend of cultivating what he sees as morally inferior and useless ornamental cultivation of violets, lilies, anemones, myrtles and plane trees:

“Am I to regard a farm where I am shown lilies and violets and anemones freely springing up as better cultivated than one where there is a full harvest and vines laden with fruit? Am I to prefer barren (*sterilem*) planes and clipped myrtle to the vine-supporting (*maritam*) elm and the fruitful (*uberes*) olive? Rich men may be allowed these luxuries; but what would they be if they had nothing else?”¹²⁰

The adjective Quintilian uses to describe planes (*sterilem platanum*) identifies them as sterile, unproductive, widowed, in other words, as antithetical to farming. The word choice mirrors that of Virgil, who writing a few decades earlier, identifies the wild oats (*sterilis auenae*) as unproductive, barren, sterile weeds interfering with the cultivation of productive cereals.¹²¹ Quintilian is not alone in likening new, ornamental gardening to the cultivation of weeds. The first century BCE poet, Horace also finds flowering beds of violets and fragrant myrtle groves to be a blatant waste of what were

¹¹⁹ James Lawson, “The Roman Garden,” *Greece & Rome* 19.57 (1950): 97; Nicholas Purcell, “Town in Country and Country in Town,” in *Ancient Roman Villa Gardens*, ed. Elizabeth B. MacDougall and Wilhelmina Jashemski, (Washington D.C., Dumbarton Oaks Research Library and Collection, 1987), 203; Nicholas Purcell, “The Roman *villa* and the landscape of production,” in *Urban Society in Roman Italy*, ed. Tim Cornell and Kathryn Lomas, (New York: St. Martin’s Press, 1995), 176; K. Sara Myers, “Representations of Gardens in Roman Literature,” in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, Amina-Aïcha Malek, (Cambridge, U.K.: Cambridge University Press, 2018), 262.

¹²⁰ Quint. *Inst.* 8.3.8-9, trans. Donald Russell, (Cambridge: Harvard University Press, 2001), “*An ego fundum cultiorem putem, in quo mihi quis ostenderit lilia et violas et anemonas, fontes surgentes, quam ubi plena messis aut graves fructu vites erunt? sterilem platanum tonsasque myrtos quam maritam ulmum et uberes oleas praeoptaverim? habeant illa divites licet, quid essent, si aliud nihil haberent?*”

¹²¹ Quint. *Inst.* 8.3.8.

once, for earlier farmers, fertile (*fertilibus*) fields of olive groves.¹²² In an ode on luxury and excess, Horace laments that celibate, unproductive, and widowed (*caelebs*) plane trees have driven out elms—trees habitually praised for their symbiotic and matrimonial relationship with the grape vines they supported,

“Soon our princely piles will leave only a few acres for the plough; before our gaze fishponds will extend in every direction more widely than the Lucrine Lake; and the celibate (*caelebs*) plane tree will crowd out the elm. Then violets and myrtles will sprinkle scent where olive groves bore fruit for the former owner; then the laurel with its thickened foliage will shut out the sun’s fiery shafts.”¹²³

Although Horace does not use *sterilis* as Quintilian and Virgil, *caelebs* nonetheless evokes the same lack of productivity and fertility, thereby likening plane trees to weeds. Though it must be observed that the term celibate attributes agency and choice to planes, as if they might be persuaded by a gardener to be productive but have until now refused to cooperate. Moreover, in both Quintilian and Horace there is a sense that plane trees are perceived to act a bit like dandelion, a poisonous grass and wheat look-alike which preferred to grow in wheat fields. Planes and dandelion mimic productive species in form (the plane is a tree like elms, dandelion looks remarkably similar to wheat) but they both replace productive specimens with unproductive ones. Even Horace’s description of laurel, a useful plant utilized in celebrations in the making of wreaths, garlands, and crowns, suggests that it too may be weed-like in its blocking of sun light and thus unwillingness to support neighboring light-thirsty productive plants. These ideas are further reiterated by the first century CE poet

¹²² Hor. *Carm.* 2.15.4.

¹²³ Horace, *Carm.* 2.15.1-10, trans. Niall Rudd, (Cambridge: Harvard University Press, 2004), “*Iam pauca aratro iugera regiae moles relinquent, undique latius extenta visentur Lucrino stagna lacu, platanusque caelebs evincet ulmos; tum violaria et myrtus et omnis copia narium spargent olivetis odorem fertilibus domino priori; tum spissa ramis laurea fervidos excludet ictus.*”

Martial, who, describing the country house of Faustinus, likewise presents a contrasting view of productive farms and weed-like ornamental cultivation:

“Our friend Faustinus's Baian farm, Bassus, does not occupy an ungrateful expanse of broad land, laid out with useless (*otiosis*) myrtle groves, sterile (*viduaque*) plane-trees, and clipped box-rows, but rejoices in a real unsophisticated country scene. Here close-pressed heaps of corn are crammed into every corner, and many a cask is redolent with wine of old vintages.”¹²⁴

Martial's and Horace's word choices, *viduaque* and *caelebs*, widowed and celibate, unlike barrenness (*sterilis*) are states of being that hint at the possibility of productivity. A widow may remarry, yet the widowed plane refused to marry the vine. Instead the widowed and celibate trees have made an active choice to abstain from fruitful unions and willfully refuse to fulfill their duty as cultivated plants to be productive. Their refusal is in fact a kind of laziness as they will not do the work of being productive. This is made explicit in Martial's description of the myrtle groves as *otiosis*, literally unemployed, at leisure, idle, a description that places myrtles in the same category as the lazy thistles in Virgil's *Georgics* (*segnisque... carduus*).¹²⁵ And as Armstrong notes, the laziness of plants is indicative of “moral turpitude,” and serves as a “metaphor for sins or defects.”¹²⁶

Yet Quintilian's, Horace's, and Martial's criticism only serve to underscore the adage that “one man's weed is another man's flower.” They may perceive the plants as wasteful, as barren, unproductive, and lazy, but other farm and villa owners clearly

¹²⁴ Martial, *Epigrams*, 3.58, trans. D. R. Shackleton, (Cambridge: Harvard University Press, 1993), “*Baina nostri villa, Basse, Faustini non otiosis ordinate myrtetis viduaque platano tonsilique buxeto ingrata lati spatia detinet campi, sed rure vero barbaroque laetatur. hic farta premitur Angulo Ceres omni et multa fragrat testa senibus autumnis.*” Margot Neger, “*Laubado digne non satis tamen Baias*” in *Campania in the Flavian Poetic Imagination*, edited by Antony Augoustakis and R. Joy Littlewood, (Oxford: Oxford University Press, 2019): 91.

¹²⁵ Verg. *G.* 1.147-160.

¹²⁶ Armstrong, “The War on Terra,” 4.

disagreed or else there would be nothing to criticize. While Quintilian and Horace lump violets and other flowering plants in with weed-like wasteful plants, Pliny the Younger, for example, seems to take great joy in the aroma of violets drifting in from the terrace.¹²⁷ Some of the very plants likened to weeds by these authors, plane trees, laurels, violets, and myrtle also appear prominently as ornamental plants in newly painted garden scenes. Laurel—weed-like in its ability to block sunlight and thus block the growth of other plants—dominates the fore and middle ground of the garden painting at the villa *ad Gallinas* at Prima Porta, as do so-called lazy myrtles, and violets are clearly displayed in front of the white marble fence (Fig. 1).¹²⁸ A pruned plane tree takes center stage in the garden painting from the House of the Golden Bracelet in Pompeii, where it too is flanked by laurel shrubs (Fig. 2). The gardens presented in these fresco paintings are clearly not wild, unkept weed patches—a closer analysis of the plants shows that they have been cared for and pruned. As the discussion in Chapter Five will explain, the planting plans of these gardens feature linear, organized arrangements that are indicative of intentional planting patterns.¹²⁹

Conclusion

Grafting Gibson’s theory of affordance onto ornamental garden plants and more broadly onto gardens themselves, establishes a new means of reconstructing the process of gardening, and thus gardeners themselves. Through this lens plants become

¹²⁷ Plin. *Ep.* 2.17.17

¹²⁸ Giulia Caneva and Lorenza Bohumy, “Botanic analysis of Livia’s villa painted flora (Prima Porta, Roma),” *Journal of Cultural Heritage* 4 (2013): 151.

¹²⁹ Kaja J. Tally-Schumacher and Nils Paul Niemeier, “Through the Picture Plane: Movement and Transformation in the Garden Room at the Villa *ad Gallinas* at Prima Porta,” *Chronika* 6 (2019): 66, figure 6.

cultural artefacts. They are objects which are shaped and worked, akin to metals, stone, and clay. This framework also underscores how the materiality of particular species and their species-specific qualities acted as co-designers or instigators of horticultural innovation, thereby deconstructing the idea that plants are passive materials.

Although plant-human entanglement has generally only been studied within the realm of agricultural developments, it is an especially helpful framework for reconstructing human-plant relationships in ornamental gardens, a concept which will be more thoroughly explored in chapter five. As Roman garden representations lack depictions of gardeners or any kind of garden labor and the textual descriptions are limited and not written by the people performing the labor, investigating ornamental plant needs as entanglement provides a means of unearthing how new species and new horticultural practices domesticated and employed garden laborers. Although individual garden laborers may not be recoverable, their presence, labor, and knowledge are evidenced by the successful cultivation of specific species attested in the literary, visual, and archaeological record. While the domestication of crops is a relationship that is documented through seed size development, crop yield, and distribution, ornamental gardening and human intervention may be documented through different criteria such as gardener-initiated changes to the local environment to afford growth of non-native plants. For example, many of the imported plants which held status as luxury goods, such as citrus, required intensive watering to approximate their native subtropical climate. As a mature citrus tree may consume 30 some gallons of water per day during a dry, southern Italian August, archaeological, visual, and

literary descriptions of Roman cultivation of citrus in Italy are evidence that someone was present to carry water to each of those trees each day. Of all ornamental plants, the newly imported ones likely domesticated and entangled gardeners more than native varieties. Beyond the difficulties of cultivating a plant from a different climate, new research on contemporary application of mycorrhizal fungi suggests that successful growth of a plant is much more reliant on its ability to connect with its symbiotic fungi network than previously thought. Although this research is in its infancy, early results suggest that perhaps foreign plants would have been more reliant on gardeners to meet their nutrient needs as the roots would not have been able to connect with the new and foreign to them fungi network. Various horticultural trends, such the development of *ars topiaria*, may also be studied within the framework of entanglement to reconstruct the process of labor and knowledge required to achieve a particular effect.

To better understand the relationship between the gardeners and the plants in these gardens it is necessary to acknowledge that the roots of ornamental gardens—places associated with *locus amoenus*—lie in weeds, plants with which humans have waged battle, plants which have fostered innovation in the form of weapon-tools and chemical warfare, plants which have actively followed human movement and which frustrated productive, life-dependent cultivation. When seen in this context, it becomes clear that at least some sterile, unproductive, lazy plants have managed to not only follow humans, but to shift the relationship from one of warfare and conflict to one in which the gardener, the helper of plants, becomes the productive, useful employee of useless plants.

CHAPTER 2

WHAT EXACTLY ARE PLANTS, REALLY? PERCEPTION, SENSATION, AND FAMILY

What exactly are plants, really? The question may seem simple, yet as this chapter will demonstrate, the answer is as much contested in antiquity as it is today. Nevertheless, the question is foundational for the purpose of this study. The process of defining what a thing is articulates our cultural biases, illuminates our relationship vis-à-vis the thing, and provides the groundwork for deconstructing perceptions and definitions. To this end this chapter weaves together contemporary botanical research with ancient discourse. The modern scientific scholarship provides a framework for identifying plants as more than inanimate things, which in turn provides a foundation for investigating their entangled relationship with their gardeners. It also offers important insight into why academic discourse has steered clear of concepts which deconstruct the conception of plants as objects, such as their senses, perception, and agency. The chapter then delves into ancient texts which interrogate how plants are defined, the qualities they share with animals and humans, and the many ways in which plants and humans are an interdependent family. Despite being focused on Roman gardens, the analysis joins Greek and Latin texts because the wider chronological scope illustrates the persistence of perceived plant-human entanglements in the ancient world. It also underscores the marked blossoming of these concepts during the focus of this study, the first centuries BCE and CE.

What makes plants, plants?

Trees, shrubs, grasses, mosses, green algae—these are all things that we characterize as plants, but what defines them as such? Open any standard or botanical dictionary and one can easily find a concrete definition, suggesting that the meaning is absolute, established, and does not require revisiting. The Merriam-Webster Dictionary, for example, states that plants are “any of a kingdom (Plantae) of multicellular eukaryotic mostly photosynthetic organisms typically lacking locomotive movement or obvious nervous or sensory organs and possessing cellulose cell walls.”¹³⁰ This definition may be divided into three distinct ideas: their cellular structure, their ability to photosynthesize, and organs/abilities they lack. Plants, like humans, are multicellular eukaryotic organisms, i.e. organisms whose genetic material is organized as DNA within cell nuclei, carried in chromosomes. Equally important, plant cellular structure is also marked by the presence of rigid cellulose cell walls, whereas animal and human cells are bound by membranes. Plants are further subdivided within the eukaryotic group by their ability to photosynthesize, i.e. to produce energy from carbon dioxide and water through the absorption of sunlight. While plants’ ability to photosynthesize may at first appear to be a critical difference between animal/humans and plant life, photosynthesis is not an entirely foreign phenomenon among animals.¹³¹ In fact, some Sea slugs in the Elysia family, as well as

¹³⁰ *Merriam-Webster Dictionary*, s.v. “Plant,” accessed September 26, 2017, <https://www.merriam-webster.com/dictionary/plant>.

¹³¹ While humans do not possess the ability to photosynthesize, i.e. produce energy in the form of complex sugars from sunlight, we do produce vitamin D, a vital nutrient, as a result of exposure to UV radiation in sunlight. From a molecular perspective, the chemical process of synthesizing vitamin D in the dermis is not analogous to photosynthesis. Yet the rarity of vitamin D in foods we consume means

certain salamanders, to name a few examples, have been found to photosynthesize.¹³² Although photosynthetic animals are indeed rare, nevertheless, their presence illuminates the permeability between our modern categorization system. Moreover, while the chemical process of photosynthesis may seem alien and different, the chemical structure of chlorophyll, the main agent in photosynthesis, is in fact remarkably similar to hemoglobin.¹³³ The only difference between the two molecules is their core; chlorophyll is centered around an ion of magnesium, while hemoglobin is centered around an ion of iron. The great molecular similarity has led scholars to describe chlorophyll as “green blood,” with others proclaiming poetically that, “you may lay your hand upon the smooth flank of a beech and say, ‘We be of one blood, brother, thou and I.’”¹³⁴

It is this minor difference of magnesium and iron and their reaction to red, blue, and green light waves that separates plants’ green blood¹³⁵ from the red blood of vertebrates.¹³⁶ And, while the chemical difference is minute and does not impact the overall nearly identical structure of the two molecules, within the western cultural tradition red and green colors are perceived as contrasting, dissimilar, placed at opposite ends of the color wheel. Furthermore, green signifies something inherently

that exposure sunlight does in fact play a role in our nutrient in take—in this manor we might argue that production of vitamin D is at least akin to photosynthesis.

¹³² Mary E. Rumpho, Karen N. Pelletreau, Ahmed Moustafa, and Debashish Bhattacharya, “The making of a photosynthetic animal,” *The Journal of experimental biology* 214 (2011): 303-11.

¹³³ David T. Suzuki, Wayne Grady, and Robert Bateman, *Tree: A Life Story*, (Vancouver: Graystone Books, 2018), 70.

¹³⁴ Suzuki et al, *Tree: A Life Story*, 70.; Donald Culross Peattie, *Flowering Earth*, (New York: Putnam’s Sons, 1939), 29-30.

¹³⁵ This is because magnesium absorbs blue and red light, but reflects green waves, giving plants the appearance of being green.

¹³⁶ This is due to the fact that iron absorbs green and blue light waves, but reflects red light, making blood red.

different from us, even otherworldly or alien. It is the greenness of “little green men” that marks their extraterrestrial, non-human origin.¹³⁷ Thus, it is not surprising that the greenness of plants situates them culturally in the category of other, thing.

Plants are also defined by what they lack: the ability to move themselves, a nervous system, and sensory organs. Unlike the identification of plant cellular structure, these three ideas have deep roots. Aristotle, in defining plants vis-à-vis animals and humans, argued that one of the defining differences is their lack of locomotion and their lack of perception.¹³⁸ Immobility was so deeply rooted to plant identity that Aristotle classified sea anemones, marine animals which remain attached to a single place and do not travel, as “dualizers,” creatures which do not fit within the confines of a single category and instead reside in a space between plant and animal.¹³⁹ The immobility of plants is so foundational to our anglophone conceptualization of what they are, that even the word itself, plant, derives from the Latin verb *plantare*, meaning to fix in place. To plant oneself or something down implies motion that has ceased, becoming static, seated, rooted, at rest.

Certainly, from an anthropocentric point of view, plants lack legs or other recognizable body parts that may be used for locomotion. But if plants produce energy in an analogous if distinctly different manner, who is to say that locomotion looks similar in plants as in animals or humans? To conceptualize plants as immobile, stuck

¹³⁷ See John Clark’s, “Small, Vulnerable ETs: The Green Children of Woolpit,” *Science Fiction Studies* 33.2 (2006): 209-229 for a comprehensive examination of the twelfth-century fable which recounts the strange appearance of two green-skinned children, and its later influence on science fiction and the conception of “little green men.”

¹³⁸ Arist. *De an.* 410b.

¹³⁹ G. E. R. Lloyd, *Science, folklore, and ideology: studies in the life sciences in Ancient Greece*, (Cambridge: Cambridge University Press, 1983), 47.

in place by their roots, is to ignore the various stages of plant life and propagation.¹⁴⁰ A new burgeoning field on plant motion suggests that plants have developed a myriad of movement related behaviors. For example, the most recent genetic analysis of bottle gourds, the famous plant mysteriously found in both Africa and in the Pre-Columbian New World, suggests that they must have floated on their own from Africa across the Atlantic Ocean to the New World, without human intervention.¹⁴¹ Plants also disperse as seeds on the wind as permanent vagrants, migrants, at once rooted and drifting.¹⁴² But plants not only voyage across the seas, and float on the wind, they also literally run across the earth. Many plants, like mint or strawberries, propagate by producing “runners” or stolons, a kind of root-like stem that grows either directly at the surface or just below the surface and connects parent plants with offspring. Their bodies move as well.¹⁴³ The most common plant movement a non-specialist might notice is heliotropism, or sun-tracking, where plants turn their bodies, flowers, or leaves towards the sun as it moves across the sky.¹⁴⁴ Plants also exhibit prey-driven movement, such as the snapping jaws of the Venus Flytrap.¹⁴⁵ They hijack animals to take them places, such as burrs that latch on to fur or socks (zoochory), as seeds in fruit that are digested by fruit eating mammals and dispersed after digestion

¹⁴⁰ Dov Koller, *The Restless Plant*, ed. Elizabeth Van Volkenburgh, (Cambridge: Harvard University Press, 2011), 1-22.

¹⁴¹ Logan Kistler, et al, “Transoceanic drift and the domestication of African bottle gourds in the Americas,” *Proceedings of the National Academy of Sciences of the United States of America* 111.8 (2014): 2937-2941.

¹⁴² Pierrette Hondagneu-Sotelo, *Paradise Transplanted: Migration and the Making of the California Gardens*, (Oakland: University of California Press, 2014), 2.

¹⁴³ Koller, *The Restless Plant*, 114-144.

¹⁴⁴ James Warnell Hart, *Plant Tropism and other Plant Movements*, (New York: Chapman & Hall, 1992): 1-22; Koller, *The Restless Plant*, 114-144. Perhaps the most commonly recognized example of heliotropism is the movement of sunflower heads as they turn their heads to follow the movement of the sun.

¹⁴⁵ Koller, *The Restless Plant*, 145-157.

(frugivory), and as seeds dispersed by digestion in birds (ornithochory).¹⁴⁶ These are all examples only of what we might see. It does not include the other half of the plant below ground, where plants also move. For example, geophytes, plants with underground organs like bulbs or tubers, such as gladiolas, pull themselves deeper into the ground by means of a contractile root.¹⁴⁷ Even more surprising, plants not only move but also are capable of perceiving the direction of motion. A germinating corn seed, for example, features a root cap with special cells containing statoliths (tiny starch grains) which fall to the bottom of the cell. The movement of the statoliths acts akin to bubbles in a carpenter's level, orientating the plant to the rest of the world.¹⁴⁸ These specialized compass-like cells also direct growth and movement above ground, not only in roots. While plants may roam, run, or burrow into the earth, their movement is indeed different from our own. Some plant movement is in fact fast enough to be noticeable, such as the snapping jaws of the Venus Flytrap or hitchhiking burrs. But most plant movement is often too slow to be seen by the human eye and is obscured by the opacity of soil. Most importantly, much of plant locomotion is generational—through seeds, runners, and spores.¹⁴⁹

The Silence of Academic Scholarship on Plants

This brief exploration of how we define plants illustrates that the perceived distinct boundaries between animals, humans, and plants are in fact constructed and quite permeable. It also demonstrates that plants are active beings who employ

¹⁴⁶ Koller, *The Restless Plant*, 145-157.

¹⁴⁷ Ibid., 14-15, 68-90; Norbert Pütz, "Underground plant movement," *Flora* 191 (1996): 275-282.

¹⁴⁸ Koller, *The Restless Plant*, 52-53.

¹⁴⁹ Hart, *Plant Tropism and other Plant Movements*, 1-22.

animals and humans as seed dispersal agents for their own reproductive goals, suggesting that plants are reliant on others. These concepts are rich with potential as new avenues of inquiry not only in the field of archaeology and art history, but more broadly in any discipline where plants are examined. Yet it is not coincidental that scholars have applied object-based theories, such as thing or entanglement theories, to household items and animals, largely ignoring plants. This can be attributed to two primary causes: the legacy of nineteenth and early twentieth century Christianocentric scholarship on ancient trees and the long-lasting effects of botanical pseudo-science publications in the 1970s. Plants and trees received much attention in the nineteenth and early twentieth century in scholarship on ancient religion. But the disenchantment with animist and comparative approaches by the mid-twentieth century resulted in an abandonment of plant-centered scholarship. As Ailsa Hunt notes,

“This sidelining of trees was not, I believe, particularly conscientious: rather gradual disillusionments with early scholarship which first championed Roman sacred trees meant that these trees simply slipped out of fashion. For as the twentieth century progressed, scholars of Roman religion increasingly began to worry about the value of comparativist and animistic approaches to their subject, whilst embarrassment at the Christianocentric and imperialistic nature of early work on Roman religion spread. Sacred trees thus came to be seen as part and parcel of a scholarship on which we should firmly turn our back.”¹⁵⁰

While Hunt’s work is centered on trees within ancient religion, her assessment bears weight beyond the scope of religious studies. The embarrassment over animism and Christianocentric approaches not only motivated scholars to turn their back on plants, it also forced plants into an inanimate category—a category denied life, agency, perception. As a result, ancient literary descriptions that clearly undermine this objectification of plants have been largely ignored. The 1930s through the early 1950s

¹⁵⁰ Ailsa Hunt, *Reviving Roman Religion*, (Cambridge: Cambridge University Press, 2016): 63.

saw a small resurgence in plant interest, but it came in the form of cataloging plants mentioned in texts: Homer mentions fifty species, in Herodotus we find sixty trees and plants, the thirty-five plays by Aeschylus, Sophocles, and Euripides feature only forty-three botanical names, while in Virgil we find nearly three times as many as in Homer.¹⁵¹ These mid-century works fail to ask: how are these plants conceptualized? What is their relationship to the people in the narratives? What purpose do plants serve culturally? The objectification of plants has been so persuasive that even Roman garden scholarship of the last two decades has predominantly treated plants as a passive backdrop for anthropocentric activity. Plants are food for consumption¹⁵², they are luxury items and expressions of power¹⁵³, vehicles of embodied human knowledge¹⁵⁴, and signifiers of distant places and peoples.¹⁵⁵

The second and more unusual cause of categorizing plants as inanimate beings was the rise of botanical pseudoscience publications and movies in the 1970s, epitomized by Peter Tompkins' and Christopher Bird's *The Secret Life of Plants*. More broadly, the 1960s and 1970s are categorized by botanical scientists as a time of pseudoscience, anti-intellectualism, and anti-scientism in which non-peer reviewed works for the general public "created the impression of scholarship and verity" while

¹⁵¹ Edward S. Forster, "Trees and Plants in Homer," *The Classical Review* 50.3 (1936): 97-104; Edward S. Forster, "Trees and Plants in Herodotus," *The Classical Review* 56.2 (1942): 57-63; Edward S. Forster, "Trees and Plants in the Greek Tragic Writers," *Greece & Rome* 21.62 (1952), 57-63.

¹⁵² There is a large body of archaeobotanical publications on plants as food and their trade networks. Some of this scholarship is engaged in chapter five.

¹⁵³ Shelley Hales, *The Roman House and Social Identity*, (Cambridge: Cambridge University Press, 2003), 153-162; Macaulay-Lewis, "Imported Exotica," 16-26.

¹⁵⁴ van der Veen, "Food as embodied material culture," 83-109.

¹⁵⁵ Marzano, "Roman Gardens, Military Conquests, and Elite Self-Representation," 195-244.

offering a New Age mysticism as an alternative to science.¹⁵⁶ *The Secret Life of Plants* presented plants as sentient beings with a sense perception. Such claims were supported by dubious experiments, including ones consisting of a former CIA agent, Cleve Backster, polygraphing plants.¹⁵⁷ These assertions were also paired with chapters on extraterrestrial life and on how plants can read human minds. Although the book was ridiculed by reviewers and scientists alike, *The Secret Life of Plants* became a New York Times Bestseller, and has subsequently been translated into Afrikaans, Chinese, Croatian, Czech, Danish, Dutch, Finnish, French, German, Greek, Hebrew, Italian, Japanese, Korean, Norwegian, Portuguese, Romanian, Slovenian, Spanish, Swedish, and Turkish, with the most recent reprinting in German in 2018. The book was so popular, that five years later a documentary movie featuring a soundtrack by Stevie Wonder, was released under the same title. In the film one finds scenes of so-called science: Russian scientists testing the pain perception and memory of cabbages, Mr. and Mrs. Hashimoto in Japan who by means of new equipment are teaching cacti to speak Japanese, and John Lifton's plants making music using electrical signals.¹⁵⁸ The book and film are so far removed from the world of peer-reviewed scientific research and so deeply entrenched in the paranormal and pseudoscience, that one would not expect them to have any influence on the academic and scientific community at all. And yet, *The Secret Life of Plants* profoundly

¹⁵⁶ Philip H. Abelson, "Pseudoscience," *Science* 184. 4143 (1974): 1233; Arthur W. Galston and Clifford L. Slayman, "The Not-so-secret life of plants: In which the historical and experimental myths about the emotional communication between animal and vegetable are put to rest," *American Scientist* 67.3 (1979): 337; Elsa First, "Review of *The Secret Life of Plants*," *New York Times Book Review*, December 30, 1973.

¹⁵⁷ Peter Tompkins and Christopher Bird, *The Secret Life of Plants: A fascinating account of the physical, emotional, and spiritual relations between plants and man*, (New York: Harper & Row, 1989), 3.

¹⁵⁸ *The Secret Life of Plants*, directed by Waldon Green, (1978, Infinite Enterprises,) film.

impacted research. Conferences were organized and peer-reviewed articles were published by leading scientists attempting to recreate the experiments described in the book.¹⁵⁹ More significantly, scientists “wittingly or unwittingly practiced a form of self-censorship in thought, discussion, and research that inhibited asking relevant questions of possible homologies between neurobiology and phytobiology.”¹⁶⁰ Daniel Chamovitz, a biologist at Tel Aviv University, lamented that, “worse than leading unwary readers astray, *The Secret Life of Plants* led to scientific fallout that stymied important research on plant behavior as scientists became wary of any studies that hinted at the parallels between animal sense and plant sense.”¹⁶¹ Although many decades have since passed, the damage inflicted by pseudoscience on the field of plant biology is still acutely felt today. A controversial but peer-reviewed article in 2006 that attempted to coin the term “plant neurobiology” was whole hardly denounced.¹⁶² In an email to *The New Yorker*’s Michael Pollan, Clifford L. Slayman, one of the original debunkers of *The Secret Life of Plants* in the 1970s, wrote that the response to the 2006 plant neurobiology article was “the last serious confrontation between the scientific community and the nuthouse on these issues.”¹⁶³ Yet despite the negative association created between the paranormal and questions regarding plant perception and senses, since the early 2000s scholars have attempted to regain control over the discourse. In 2005, the Society for Plant Neurobiology was established (later renamed

¹⁵⁹ Galston and Slayman, “The Not-so-secret life of plants,” 337.

¹⁶⁰ Eric D. Brenner, et al, “Plant neurobiology: an integrated view of plant signaling,” *TRENDS in Plant Science* 11.8 (2006): 415.

¹⁶¹ Daniel Chamovitz, *What a plant knows: a field guide to the senses*, (New York: Scientific American/Farrar, Straus and Giroux, 2017): 6.

¹⁶² Amedeo Alpi et al, “Plant neurobiology: no brain, no gain?” *TRENDS in Plant Science* 12.4 (2007): 135.

¹⁶³ Michael Pollan, “The Intelligent Plant: Scientists debate a new way of understanding flora,” *The New Yorker* December 23, 30 (2013). Italics are not original they have been added by this author.

in 2009 to Society of Plant Signaling and Behavior), with a mission focused on the study of “sensory plant biology, signaling, and communicative ecology in plants.”¹⁶⁴ In 2006, the Plant Signaling & Behavior journal was launched, a prime platform for new discourse.¹⁶⁵ Mainstream peer-reviewed journals, such as *The Journal of Experimental Science*, *Plant Physiology*, and *Proceedings of the National Academy of the Sciences* to name just a few examples, now regularly feature publications on biocommunication and plant perception.¹⁶⁶

Some of the newest findings deserve mention here because the discoveries attribute active verbs to plants in ways that echo ancient texts. The new studies recategorizes plants as active agents in the world. Recent research on botanical intelligence and plant perception and sensation has shown that plants perceive and respond to touch in an analogous way to animals and humans. Alan Bown et al have documented plants reacting to the sensation of caterpillar footsteps (i.e. their predators) on their leaves by releasing a defensive substance. This discovery is composed of three significant phases: plants feel the insects on them, they identify them as predators, and finally, they react by releasing a substance that is meant to ward the insects off.¹⁶⁷ In another study, plants have been found to respond to the sensation of being chewed by insect mandibles by releasing a defensive volatile

¹⁶⁴ *The Society of Plant Signaling*, Our Mission, accessed September 29, 2018, <http://www.plantbehavior.org/about-us/>.

¹⁶⁵ Pollan, “The Intelligent Plant.”

¹⁶⁶ John Charles Ryan, “Sacred Ecology of Plants: The Vegetative Soul in the Botanical Poetry of Les Murray,” *Journal for the Study of Religion, Nature and Culture* 10.4 (2016): 460-461; Mark C. Mescher and Consuelo M De Moraes, “Role of plant sensory perception in plant-animal interactions,” *Journal of Experimental Botany* 66.2 (2014): 425-433.

¹⁶⁷ Alan W. Bown, Dawn E. Hall, Kennaway B. Mac Gregor, “Insect footsteps on leaves stimulate the accumulation of 4-aminobutyrate and can be visualized through increased chlorophyll fluorescence and superoxide production,” *Plant Physiology* 129 (2002): 1430-1434.

organic compounds (VOCs), meant to attract predatory arthropods (such as lady bugs, spiders, or other insects that feed on insects and mites) or to repel the attacking insects.¹⁶⁸ Like animal-assisted seed dispersal, this is another example where plants have developed behaviors that allow them to use more mobile beings to fulfill their own needs. Furthermore, there is evidence that neighboring unaffected plants sense the released defensive VOCs, and in turn, change their own phenotype before even being attacked by insects themselves.¹⁶⁹ Equally important, the ability to perceive touch and to react to it is not limited to a few species; we find evidence of touch perception in a wide variety of plant types. Thale cress (*Arabidopsis*) have been shown to sense touch without any special cell type or sensory organ, many climbing plants have special sensory tendrils, and many carnivorous plants possess touch signaling mechanisms.¹⁷⁰

Even more radical, Jennifer Böhm et al's new work suggests that some plants are able to count the number of times they are touched. The widely sensationalized study contends that Venus Flytraps (*Dionaea muscipula*) are able to count to five, an ability that allows them to eat. An insect must trigger the hairs on their carnivorous traps twice within 20-30 seconds of one another for the trap to close. Counting the number of stimuli and the time between each stimulus allows *Dionaea* to differentiate between falling raindrops, leaves, and other non-food material from insects. If the stimuli occur too far apart, they are unlikely to be caused by an insect. Once the hairs have been triggered twice, the trap closes and the next counting stage begins. The

¹⁶⁸ Martin Heil and Juan Carlos Silva Bueno, "Within plant signaling by volatiles leads to induction and priming of an indirect plant defense in nature," *Proceedings of the National Academy of the Sciences* 104.13 (2007): 5467-5472.

¹⁶⁹ Heil and Silva Bueno, "Within plant signaling," 5467-5472.

¹⁷⁰ Jennifer Böhm, et al, "The Venus Flytrap *Dionaea muscipula* Counts Prey-Induced Action Potentials to Induce Sodium Uptake," *Current Biology* 26 (2016): 286.

plant waits for three more stimuli (insect wiggles and kicks as it tries to free itself) before initiating digestive enzyme production and secretion. As the secretion of the enzyme is energy depleting, the second counting stage ensures that energy is not wasted if the trap accidentally closed on non-living material.¹⁷¹ While the study is presented in a serious fashion, the abstract quite confidently compares the counting ability of Venus Flytraps to that of 15-18 month old human infants.¹⁷² No doubt the anthropomorphization of Venus Flytraps was an intentional ploy used to bolster news coverage of the publication, yet the headlines and articles in *The New York Times*, *The Atlantic*, *Science News*, *The Smithsonian*, and the *British Broadcasting Corporation* clearly illustrate that the anthropomorphization was not needed: a counting plant is sensational enough on its own.

To reiterate, plants *feel* when they are touched, plants *identify* who touches them, plants *count*, plants are *aware* of the passage of time, plants *send messages*. These action verbs belie the idea that plants are passive, non-perceptive, non-sensorial beings. And although certain plants' ability to count may have grabbed the attention of the wider non-academic community more than any of the other actions, it is the last ability, sending messages, that has galvanized discourse on plants vis-à-vis animals and humans.¹⁷³ Until very recently sending messages was something only attributed to bacteria, fungi, protists, animals, and humans; plants were the only living organisms

¹⁷¹ Jennifer Böhm, et al, "The Venus Flytrap," 286-295; Ryan, "Sacred Ecology of Plants," 460.

¹⁷² Jennifer Böhm, et al, "The Venus Flytrap," 286-295, from abstract on accompanying title page.

¹⁷³ František Baluška and Velemir Ninkovic, "Preface," in *Plant Communication from an Ecological Perspective*, ed. František Baluška and Velemir Ninkovic, (Berlin: Springer, 2010): vi; Marcel Dicke and Jan Bruin, "Chemical information transfer between plants: back to the future," *Biochemical Systemics and Ecology* 29 (2001): 982-983.

excluded from this group.¹⁷⁴ Certainly, *The Secret Life of Plants*' absurd assertion that plants are the recipients of extraterrestrial communication stifled serious discussion on plant communication.¹⁷⁵ Even amid concurrent research on animal communication, scholars continued to ridicule the idea that plants "talk."¹⁷⁶ The resistance to the concept of plant communication was likely also fueled by an over-anthropomorphization of the phenomenon. Tree-talking may be a catchy name, but it obscures the process of plant communication by likening it to human speech, when in reality it encompasses more than the exchange of information.¹⁷⁷ Best studied in Douglas fir trees, tree-talking is a symbiotic relationship between tree roots and colonies of mycorrhizal fungi in the soil.¹⁷⁸ These colonies can span many hectares, and communication between tree roots and fungi can occur between numerous combinations of different species, although preference is given to offspring.¹⁷⁹ The messages are composed of chemical processes wherein nutrients foraged from the soil by the fungi are given to tree roots in exchange for photosynthesized nutrients derived by trees above ground. Not only do trees use the network to signal deficiencies, i.e. thirst or hunger, to one another, the mycorrhizal network is also used to send water,

¹⁷⁴ H. Jochen Schenk and Eric W. Seabloom, "Evolutionary Ecology of Plant Signals and Toxins: A Conceptual Framework," in *Plant Communication from an Ecological Perspective*, ed. František Baluška and Velemir Ninkovic, (Berlin: Springer, 2010), 6.

¹⁷⁵ Simon V. Fowler and John H. Lawton, "Rapidly Induced Defenses and Talking Trees: The Devil's Advocate Position," *The American Naturalist* 126.2 (1985): 193. Ian T. Baldwin and Jack C Schultz, "Rapid Changes in Tree Leaf Chemistry Induced by Damage: Evidence for Communication Between Plants," *Science* 221.4607 (1983): 277-279; D. F. Rhoades, "Responses of alder and willow to attack by tent caterpillars and webworms: evidence for pheromonal sensitivity of willows," in *Plant resistance to insects*, ed. P. A. Hedin, (Washington D.C.: American Chemical Society, 1983), 55-68.

¹⁷⁶ Schenk and Seabloom, "Evolutionary Ecology of Plant Signals and Toxins," 6.

¹⁷⁷ Communication, such as human speech is defined as an exchange of information, Monika A. Gorzelak et al, "Inter-plant communication through mycorrhizal networks mediates complex adaptive behaviour in plant communities," *AoB Plant: Using Ideas from Behavioural Ecology to Understand Plants* 7 (2015): 1-13.

¹⁷⁸ *Ibid.*, 1-13.

¹⁷⁹ *Ibid.*, 1-13.

nutrients, carbon, and phosphorus from one tree to another. These messages and the nutrients take about three days to travel from the donor tree to the recipient tree, but stress messages or shouts, such as drought-stress (expressions of thirst), can travel much faster at a rate of 6 hours.¹⁸⁰ Thus communication between trees entails not only the exchange of information but is also a process of receiving and giving.

The reexamination of our modern definition of plants and the exploration of some of the most recent research on plant perception and sensation demonstrates that plants are not merely passive beings. The active verbs now attributed to them, feeling, perceiving, sensing the passage of time, counting, communicating offer new avenues of inquiry not only in the field of botany but also in how we investigate ancient plants through the lens of archaeology, history, or art history. The findings invite us to reconsider evidence of ancient plants and their relationships with animals and humans, as co-agents and helpers.

Defining Plants in Antiquity

What exactly were plants in antiquity, really? The question perhaps incorrectly suggests that there is a singular answer that may be found in ancient texts, when in fact the answer varies, depending on the philosopher or poet. Just as modern scholars, botanists, popular writers, and philosophers perceive and define plants in differing and sometimes oppositional ways, ancient texts reflect a similar disagreement regarding the definition of plants vis-à-vis humans and animals and regarding plant perception. Despite varying opinions, one strong trend may be identified: a conception of plants

¹⁸⁰ Gorzelak et al, "Inter-plant communication," 4.

and humans as entangled and reliant upon one another. This relationship takes many forms and the reliance is depicted in both directions, with plants dependent on humans and vice versa. The majority of the following passages come from Roman authors of the first centuries BCE and CE, however earlier Greek texts are included in the discussion as well because they illustrate the long tradition of these concepts. As such, the examples discussed below are grouped by theme rather than chronologically.

The Homology of Human and Plant Bodies

One of the most evocative and powerful descriptions of the reliance and entanglement between plants and humans is found in Plato's *Timaeus*, a fourth century BCE dialogue on the formation of the universe. A significant portion of the text was translated into Latin by Cicero between 45-43 BCE, although the passage investigated here was not among the translated section.¹⁸¹ Despite preceding the historical focus of the study the concept presented by Plato, of plants and humans being constructed from the same substance, sets a significant foundation for later conceptualization of plants and humans as related kin.

Of all of Plato's dialogues, only the *Timaeus* offers a "systemic treatment of plants."¹⁸² Of particular note for us is section 77 a-c which recounts the creation of plants by the lesser gods, and vividly blurs the boundary between human and plant bodies, thereby presenting men and plants as homologous.¹⁸³ Before introducing plants, Plato painstakingly describes the facture and materiality of the various organs

¹⁸¹ David Sedley, "Cicero and the *Timaeus*," in *Aristotle, Plato and the Pythagoreanism in the First Century BC*, ed. Malcolm Schofield, (Cambridge: Cambridge University Press, 2013), 185-205.

¹⁸² J. B. Skempton, "Plants in Plato's *Timaeus*," *The Classical Quarterly* 41.1/2 (1947): 53.

¹⁸³ *Ibid.*, 53.

of men, sculpted from primordial substances. The initial primordial substance, which serves as the “universal seed for all mortality” is marrow, a substance that is made from all things first separated out then mixed back together, and to which the soul is fastened.¹⁸⁴ In the following passage bone is described as the result of sifted earth, kneaded with marrow, and repeatedly baked in fire and bathed in water, making it more brittle and inflexible than it should have been.¹⁸⁵ Juicy and soft flesh was then made by mixing water, fire, earth, an acid, and brine.¹⁸⁶ The sinews, made next, were formed by mixing bone and unfermented flesh, and adding yellow. The exact substance used to make skin is not specified, yet once made, the stuff of skin was used to make hair, but it formed into something that was harder and denser.¹⁸⁷ Likewise, nails were made from a mixed substance of sinew, skin, and bone which were dried and hardened.¹⁸⁸ For Plato the process, the mixing, measuring, blending, kneading, firing, and bathing of different substances to create wholly new materials, is equally as important as the materiality of the finished organ. The lungs, described first, are soft, bloodless, and sponge-like,¹⁸⁹ the liver is dense, smooth, glistening and endowed with sweetness and bitterness,¹⁹⁰ the spleen hollow and bloodless,¹⁹¹ the flesh is juicy and soft.¹⁹²

It is after the completion of hair and nails that the lesser gods turn their attention to plants as reinforcement for men:

¹⁸⁴ Pl. *Ti.* 73b-c.

¹⁸⁵ *Ibid.*, 73e-74b.

¹⁸⁶ *Ibid.*, 74d.

¹⁸⁷ *Ibid.*, 76c.

¹⁸⁸ *Ibid.*, 76d.

¹⁸⁹ *Ibid.*, 70c.

¹⁹⁰ *Ibid.*, 71b.

¹⁹¹ *Ibid.*, 72c.

¹⁹² *Ibid.*, 74d.

“And when all the limbs and parts of the mortal living creature had been naturally joined together, it was so that of necessity its life consisted in fire and air; and because of this it wasted away when dissolved by these elements or left empty thereby; wherefore the Gods contrived succour for the creature. Blending it with other shapes and senses they engendered a substance akin to that of man, so as to form another living creature (ζῷον): such are the cultivated (ἡμερα) trees and plants and seeds which have been trained (παιδευθέντα) by husbandry and are now domesticated (τιθασῶς) amongst us; but formerly the wild kinds only existed, these being older than the cultivated kinds. For everything, in fact, which partakes of life may justly and with perfect truth be termed a living creature. Certainly that creature which we are now describing partakes of the third kind of soul, which is seated, as we affirm, between the midriff and the navel, and which shares not at all in opinion (δόξα) and reasoning (λογισμός) and mind (νοῦς) but in sensation (αἴσθησις), pleasant (ἡδεῖα) and painful (ἀλγεινή) together with desires (ἐπιθυμῖαι).

For inasmuch as it continues wholly passive (πάσχω) and does not turn within itself around itself, repelling motion from without and using its own native motion, it is not endowed by its original constitution with a natural capacity for discerning (λογίζομαι) or reflecting (κατιδεῖν) upon any of its own experiences. Wherefore it lives indeed and is not other than a living creature, but it remains stationary and rooted down owing to its being deprived of the power of self-movement.”¹⁹³

Plato’s shift from human nails and hair to plants is not a shift in subject, the contemporaneous creation and homology suggest that plants are an addition or continuation of the development of men. This is further underscored by Plato’s return to the creation of other new organs, including the circulatory system, directly after the quoted passage on plants. Thus, the organization of the dialogue paints plants as human organs; they are internal components of the human body. The interconnectivity of plants and human bodies is further articulated by the fact that they are sculpted out of the same kinds of substance. In this way, plants and humans “can be seen as consisting of the same fundamental substance only superficially shaped into different forms.”¹⁹⁴ The homology of plants and men is further underscored by their clear

¹⁹³ Pl. *Ti.* 77a-c, *Plato in Twelve Volumes, Vol. 9*, trans. W.R.M. Lamb, (Cambridge, MA, Harvard University Press, 1925).

¹⁹⁴ Bruce Lincoln, *Myth, Cosmos, Society: Indo-European Themes of Creation and Destruction*, (Cambridge: Harvard University Press, 1986), 5.

difference from women and animals, who are created in a separate and subsequent phase as a “degeneration” of men.¹⁹⁵ Thus the phasing of creation implies that plants are more closely related to men, than either women or animals.

Where Plato presents plants as internal organs of the human body created contemporaneously from the same substances, Hesiod, Statius, Juvenal, and Virgil cite trees as birthing the first men, implying, first, that trees and plants were created before men, and second, that they are not only closely related to man, but are in fact the progenitors of mankind. Hesiod in his *Works and Days* states that:

“Zeus the father made a third age of mortals,
This time of bronze, not at all like the silver one.
Fashioned from ash trees, they were dreadful and mighty
And bent on the harsh deeds of war and violence;
They ate no bread and their hearts were strong as adamant.”¹⁹⁶

Athanassaki’s translation of ἐκ into “fashioned from” creates the impression that the bronze race is shaped, whittled, or carved out of ash trees, akin to the fashioning of ash shafts for spears. Indeed, Yates contends that the bronze race’s war-like demeanor is a reflection of the very material from which they are made of. As ash was commonly used to make war spear shafts, the whittled out of ash bronze race is as much a tool of war as the spears they used.¹⁹⁷

The arboreal origin of men gained further popularity with Roman authors of the first centuries BCE and CE and into the early second century CE. Book eight of Virgil’s *Aeneid*, written between 29 and 19 BCE, describes Aeneas’ attempt to gather

¹⁹⁵ Skempt, “Plants in Plato’s *Timaeus*,” 54.

¹⁹⁶ Hes. *Op.* 143-147, trans. Apostolos Athanassakis, (Baltimore: Johns Hopkins University Press, 1983).

¹⁹⁷ Velvet Yates, “The Titanic Origin of Humans: The Melian Nymphs and Zagreus,” *Greek, Roman, and Byzantine Studies* 44 (2004): 183-187.

additional troops for the Trojan War from Latium. While strolling back to the city from the rites, King Evander tells Aeneas that:

“In these woodlands the native Fauns and Nymphs once dwelt, and a race of men sprung from (*natus*) trunk (*truncus*) of trees and hardy oak, who had no rule or art of life, and knew not how to yoke the ox or to lay up stores, or to husband their gains; but tree branches nurtured them and the huntsman’s savage fare. First from heavenly Olympus came Saturn, fleeing from the weapons of Jove and exiled from his lost realm. He gathered together the unruly race, scattered over mountain heights, and gave them laws, and chose that the land be called Latium, since in these borders he found a safe hiding place.”¹⁹⁸

Virgil’s anthropomorphization of trees collapses the human and tree body into one organism. Rather than cast Arcadian men as deriving from ripening fruit, a botanically more apt birthing organ, Virgil’s tree trunk takes on the function of human bodies. There is a playfulness in the Latin and in the English translation, as trunk or *truncus* is utilized in both languages to describe the central core to which limbs are attached on human and tree bodies. Likewise, the tree branches simultaneously fulfill the function of breasts as well as arms which hand over food. Even more interesting, the second part of the passage clearly paints the original inhabitants of Latium, i.e. Rome, as descendants of trees.

Statius’ twelve book epic on the house of Oedipus, the *Thebaid*, written in the second half of the first century CE, evokes Hesiod’s ash tree race as well as Virgil’s Arcadians. In a passage recounting the Arcadian troops that follow Parthenopaeus into battle Statius describes their origin:

“To him the Arcadians an ancient people, older than the moon and stars, give trusty cohorts; they were born (*stirps*), ‘tis said, of the hard trunks of forest trees (*nemus*), when the wondering earth first bore the print of feet; not yet were fields or houses or cities or ordinance of marriage: oaks and laurels suffered rude (*crudus*,

¹⁹⁸ Verg. *Aen.* VIII. 313-323, trans. H. Rushton Fairclough, (Cambridge: Harvard University Press, 2000).

bloody, immature) child-birth (*puerperium*), and the shady mountain-ash peopled (*creo*) the earth, and the young (*viridis*, green, young) babe (*puer*) fell from (*excido*) the pregnant (*feto*) ash-tree's womb. 'Tis said that, struck with terror at the change from light to murky darkness, they followed far the setting Titan, despairing of the day."¹⁹⁹

Whereas according to Hesiod, the gods create people from the ash trees, Statius tells us that three trees, the oaks, laurels, and ash, swell with pregnancy and give birth to men. The presence of three different kinds of parents is suggestive of different humans. And indeed in the following lines, Statius tells us that although the Arcadians are all one race, they each have their own habits or customs, some on high mountains, some in forests, some in the countryside, some in windy places, some on snow-topped peaks.²⁰⁰ On the one hand, the description of the different locations illustrates the various Arcadian settlements as well as their great number, but on the other hand, Statius' description reads as a list of native habitats of plants. Additionally, Statius appears to build on Virgil's anthropomorphization, the tree womb is not merely implied but explicitly identified.

In Juvenal's famous Satire VI, a late first century or early second century CE essay against women and the institution of marriage, we again find the first men emerging from trees. Juvenal opens by describing the habits of some of the earliest people: living in chilly caves, sleeping on a "silvan bed with leaves and straw and the skins of her neighbors the wild beasts," the wife is more unkempt or hairier "than her acorn-belching husband."²⁰¹ Juvenal tells us that this early race of humans lived so long ago that it was before humans had to wall their gardens to protect their cabbages

¹⁹⁹ Stat. *Theb.* IV.275-284, trans. J. H. Mozley, (Cambridge: William Heinemann and Harvard University Press, 1961).

²⁰⁰ *Ibid.*, IV.285-300.

²⁰¹ Juv. 2.VI.1-10, trans. G. G. Ramsey, (Cambridge: Harvard University Press 1961).

and fruits from thieves.²⁰² Describing the furry wife, suckling babes at her breasts, sleeping in caves on leaves, Juvenal paints early humans as beast-like, lacking *cultus*. As to their origin, Juvenal proclaims “For in those long ago days, when the world was young, and the skies were new men (*homines*) born (*rupto robore nati/ nascor; rumpo*, burst) of the river oak (*robur*, a very hard kind of oak), or formed from mud (*compositive luto*, smeared in mud), lived differently from now, and had no parents (*parentes*) of their own.” Unlike Hesiod, Virgil, and Statius, Juvenal only cites river oak as birthing men, ash trees are not mentioned, yet the line clearly evokes a continued literary tradition that distinctly links tree-parents to their human children. A line from Homer’s *Iliad* further establishes humans as plant-children. As Thetis laments over Achilles’ prophesied death, she recalls his youthful childhood and that she nurtured him “like a plant in a rich garden plot,” thereby collapsing the differences between raising and cultivating.²⁰³

There are also a number of related passages that, although they do not present trees as parents of humans, nevertheless illustrate a more fluid relationship between plant, animal, and human bodies. Empedocles, the fifth century BCE Greek philosopher, offers a wealth of information on this subject. As his works are thought to have been especially influential on first century BCE Roman poets, his opinions are pertinent to the study of Roman perceptions.²⁰⁴ On the origin of trees, Empedocles, says that “trees were the first animals to have grown up from the earth, before the sun

²⁰² Ibid., VI.10-20.

²⁰³ Forster, “Trees and Plants in Homer,” 103; Hom. *Il.* xviii.57, trans. Edward S. Forster. Uncannily, Homer’s juxtaposition recalls our earlier discussion of the odd comparison of Venus Flytraps to 15-18 month old children.

²⁰⁴ Joe Farrell, “Looking for Empedocles in Latin Poetry: A Skeptical Approach,” *Dictynna* 11 (2014): 1-14.

was unfolded around it and before night and day separated.”²⁰⁵ The categorization of trees as animals, beings which give birth, perhaps provides a key foundation for establishing trees as the parents of the Arcadians. But Empedocles deconstructs the division between trees and animals even further when speaking about reincarnations and the travels of a soul. While according to Plato, animals and plants both possessed the appetitive soul, the interconnectivity across living beings is more inclusive according to Empedocles. Describing the journey of his own soul, he says, “For I have already become a boy and a girl, and a bush and a bird and a fiery fish from the sea.”²⁰⁶ Furthermore, according to Empedocles, “all souls transfer into all bodies,” including plants, animals, and human forms, because all beings are composed of mixtures of compounds.²⁰⁷ Even more interesting, there does not appear to be a hierarchy or strict direction of soul movement (i.e. from plant, to animal, to human, as one might guess). The soul may move from one form to another, although some forms are considered ideal. Thus, “Among beasts they become mountain-dwelling lions with lairs on the ground, and laurels among fair-tressed trees.”²⁰⁸ Indeed, for this reason Empedocles forbade the chewing of laurel leaves, lest one harmed a reincarnated soul.²⁰⁹

²⁰⁵ Aët. 5.26.1 (Dox. Gr. 438), in *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, trans. Brad Inwood, (Toronto: University of Toronto Press, 2001), 186, as reported by Aëtius.

²⁰⁶ Diog. Laert. 8.77, Empedocles (111/117), in *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, 161.

²⁰⁷ Brad Inwood, *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, 55; Hipp. 1.3 (Dox. Gr. 558), Empedocles (111/117), in *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, 172.

²⁰⁸ Ael. NA. 12.7, Empedocles (135/127), in *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, 151.

²⁰⁹ Jan Bremmer, *The Early Greek Concept of the Soul*, (Princeton: Princeton University Press, 1983), 125.

Even if we take a more conservative approach and discount Empedocles' ideas as too distant from the historical focus of this study, Ovid's *Metamorphoses* demonstrate Roman interest in the fluidity of forms between animals, humans, and plants. Completed around 8 CE, the *Metamorphoses* offer an opposite relationship, wherein humans are the origin of trees, flowers, and animals. Within the fifteen books, twenty-one myths depict boys, girls, as well as human fluids being transformed by means of gods, goddesses, and nymphs into trees and plants.²¹⁰ Especially significant in Ovid is the sense in many of the transformations that the person has merely been translated into a different form, that although they are now a plant, they still retain their human identities. Ovid prophesied the popularity of his own myths in the epilogue, where he claims that "Wherever the might of Rome extends in the conquered lands, I shall be read and recited by the general public (*populus*)."²¹¹ The veracity of this statement is documented in the great number of Ovidian scenes preserved in Pompeian painting and the influence the myths had on viewing gardens.²¹² The *Metamorphoses* invites visitors to view gardens as more than mere collections of plants—they are spaces populated by transformed nymphs and youths.²¹³ For example, of the plants depicted in the Prima Porta Garden Painting, twenty-four are transformed children and nymphs.²¹⁴ As the painting was originally

²¹⁰ Ov. *Met.* 10.1109; 13.646; 10.158; 8.1119; 4.388; 4.415; 10.202; 1.806; 9.561; 2.498; 10.317; 2.498; 9.554; 11.102; 10.754; 3.739; 2.498; 8.1119; 14.797; 4.415; 1.1035, trans. Frank Justus Miller (Cambridge: Harvard University Press, 1916).

²¹¹ *Ibid.*, 15.877-78.

²¹² Peter E. Knox, "Ovidian Myths on Pompeian Walls," in *The Handbook to the Reception of Ovid*, ed. John E. Miller and Carole E. Newlands, (Chichester, West Sussex: John Wiley & Sons, 2014), 36-54.

²¹³ Tally-Schumacher and Niemeier, "Through the Picture Plane," 58-71; Barbara A. Kellum, "The Construction of Landscape in Augustan Rome: The Garden Room at the Villa *Ad Gallinas*," *The Art Bulletin* 76.2 (1994): 211-224.

²¹⁴ Tally-Schumacher and Niemeier, "Through the Picture Plane," 61.

situated in a liminal, subterranean chamber, the space and garden context lent itself to transformation and invited visitors to contemplate the possible danger of their own translation from human to plant form.

A fourth alternative to the progenitor – child relationship between plant and human bodies is presented by a set of texts that describe plants as interdependent on human lives. Writing in the early second century CE, Suetonius tells us that individual laurel shrubs at the Villa *ad Gallinas* at Prima Porta lived and died with their Julio-Claudian emperor. Describing the planting of the famous laurel grove at the Villa, Suetonius tells us:

“that the Caesars gathered their laurels from it when they were going to celebrate triumphs. Moreover it was the habit of those who triumphed to plant other branches at once in that same place, and it was observed that just before the death of each of them the tree which he had planted withered. Now in Nero's last year the whole grove died from the root up, as well as all the hens.”²¹⁵

This passage might be read in two ways. On the one hand, the laurel’s death may suggest that the life or spirit of each of the Claudian emperors was reflected within the form of laurel bushes, and thus when one died so did the other. On the other hand, the vital relationship between the human body and laurel bush may be interpreted as the human “original” sustaining the plant replica or acting as a source of life for the plant. In either case, the continuation of the phenomenon within the Julio-Claudian family point to a generational, familial relationship between the imperial family members and laurels. Replicated or shared lives are also found between plants and entire populations. Pliny describes two myrtles belonging to the patrician and the

²¹⁵ Suetonius, *Galba*, 1.1, translated by J. C. Rolfe, (Cambridge: Harvard University Press, 1914).

plebeian classes, respectively.²¹⁶ We are told that the health of each myrtle was directly reflective of the health of the class it represented. Pliny does not mean that one class tended to their shrub more attentively, but rather that the myrtle shared its identity, strength, and life with a human population.

While I certainly do not suggest that these passages ought to be taken as signs of a belief system regarding the origin of men, they should be considered in establishing how Romans perceived their relationship to plants. The earlier Greek texts demonstrate that the familial relationship between plants and trees predates the Roman period, so these are not necessarily new ideas. However, in the first centuries BCE and CE these concepts blossom in Latin literature, across many different genres, suggesting a particularly Roman interest in exploring the entanglement between plants and people.

The Human Body as Garden – The Human as Plant

It is not merely that plants and humans are intimately connected as family members. The garden serves as a lens for understanding the world, conceptualizing the human body, and envisioning families. For example, in Plato's *Timaeus*, we find the human body presented as an irrigated garden. Describing the highest kind of soul that has been attached to free men, Plato defines humans as heavenly plants, in contrast to plants of the earth.²¹⁷ Continuing with the botanical simile, Plato describes human skin at the moment of creation as λέμματα, meaning that which is peeled off, a rind, or a

²¹⁶ Plin., *HN*, 15.26.

²¹⁷ Pl. *Ti.* 90a, trans. A. E. Taylor, *Plato: Timaeus and Critias*, (London: Methuen & Co, Ltd, 1929).

husk.²¹⁸ This odd word choice immediately brings to mind fruit and vegetable rinds and their different kinds of textures, hairs, pores.²¹⁹ Unbeknownst to Plato, this description must have been even more evocative for later readers when fruits with distinctive and human-like rinds were imported from the East. Fuzzy-skinned peaches, originally from western China, arrived in Greece in the third century BCE and in Italy in the first century CE.²²⁰ Pore-riddled citrus fruits like citron, which had been cultivated in Persia and the Levant in the fifth and fourth centuries BCE arrived in the western Mediterranean by the third or second century BCE, and lemons which are attested in Rome by the first century BCE/CE.²²¹ The intended allusion to fruit or vegetable rind is made more clear in the following clause when Plato tells us that what we once called λέμμα we now refer to as δέρμα, skin.²²² The playful juxtaposition of the two terms and the temporality, at generation we had rind, but now we have skin, evokes the impression that perhaps human bodies were once fruit or vegetable-like, and have matured or grown into being human.

Plato further continues the plant-garden simile by describing the inner foundation of the body, the bony skeleton, as being made of sifted, kneaded earth.²²³ Plato also identifies the brain as ἄρουρα meaning tillable, arable land, ploughland, saying that is shaped into a round form and is planted with σπέρμα, the divine

²¹⁸ Ibid., 76a.

²¹⁹ Andrew Dalby, *Food in the Ancient World from A to Z*, (London: Routledge, 2003), 56; John Bradshaw, *Plant Breeding: Past, Present, and Future*, (Cham: Springer International Publishing, 2016), 377.

²²⁰ Laura Sadori, et al, “The introduction and diffusion of peach in Italy,” in *Plants and Culture: Seeds of the Cultural Heritage of Europe*, ed. Jean-Paul Morel, (Bari: EdiPuglia, 2009), 45-61.

²²¹ Dafna Langgut, “The Citrus Route Revealed: from Southeast Asia into the Mediterranean,” *HortScience* 58 (2017): 814-822.

²²² Pl. *Ti.* 76a.

²²³ Pl. *Ti.* 73e.

seeds.²²⁴ Plato perhaps most compellingly evokes the idea of a garden in his description of the function of the skull and vertebrae, which act like a “λιθοειδής περίβολος,” a protective stony-like fence around the σπέρμα, the seed of the brain and spinal cord.²²⁵

Plato repeatedly equates the flow of blood in veins to irrigation in a garden, most evocatively in 77c, “So when our lords had planted (φυτεύσαντες) all these kinds to be substance for us their subjects, they cut channels through our body, like the runnels in a garden (τέμνοντες οἶον ἐν κήποις ὀχετούς) that it might as it were, be watered by a stream (διοχετεύομαι, to be watered by canals) let in upon it.”²²⁶ Moreover, he uses nine different irrigation related terms to describe the circulation of blood: νᾶμα (river, stream, anything flowing), ὀχετός (a means for carrying water, a waterpipe, a stream), διοχετεύω (to be watered by canals), ὑδραγωγία (a conveyance of water), ῥεῖν (flow, run, gush, stream), ῥεῦμα (that which flows, river, stream), αὐλών (a hollow or glen, canal, aqueduct, trench), κρήνη (a well, spring, fountain), ὑδρεύω (to carry water, to irrigate).²²⁷ The word choices are worthy of attention: they not only evoke man-made water channels, such as are used in farming and in gardens, but they also evoke natural land features, thereby equating the body to a real three-

²²⁴ Ibid., 73c.

²²⁵ Ibid., 74a.

²²⁶ Ibid., 77c; 77e; 79c, 81a, trans. A. E. Taylor, (London: Methuen & Co, Ltd, 1929).

²²⁷ *Liddell-Scott-Jones Greek Lexicon*, s.v. “διοχετεύομαι,” accessed September 30, 2017; *Pl. Ti. 77c*; *Liddell-Scott-Jones Greek Lexicon*, s.v. “ὀχετός,” accessed September 30, 2017; *Pl. Ti. 77c*; *Liddell-Scott-Jones Greek Lexicon*, s.v. “ὑδραγωγία,” accessed September 30, 2017; *Pl. Ti. 77d*; *Liddell-Scott-Jones Greek Lexicon*, s.v., “ῥέω,” accessed September 30, 2017; *Pl. Ti. 79a*; *Liddell-Scott-Jones Greek Lexicon*, s.v., “αὐλών,” accessed September 30, 2017; *Pl. Ti. 79a*; *Liddell-Scott-Jones Greek Lexicon*, s.v., “ῥεῦμα” accessed September 30, 2017; *Pl. Ti. 79a*; *Liddell-Scott-Jones Greek Lexicon*, s.v., “κρήνη,” accessed September 30, 2017; *Pl. Ti. 79a*; *Liddell-Scott-Jones Greek Lexicon*, s.v., “ὑδρεύω,” accessed September 30, 2017; *Pl. Ti. 81a*; Francis MacDonald Cornford, *Plato’s Cosmology: The Timaeus of Plato*, (Indianapolis: Bobbs-Merrill, 1975), 330-331.

dimensional landscape with a topography and drainage systems. Situated at the tail end of the creation of plants, the placement of these descriptions of human circulation/irrigation is as important as their content. As stated earlier, Plato first describes the creation of different human anatomical parts, followed by the creation of plants as a substance for the human body, and then returns to the human body in a description of the circulatory and respiratory systems, where these drainage terms are used. The fluidity with which Plato moves from human bodies to plants and back to human bodies is indicative of the permeable boundary between these beings, and between categories of thing and being. Furthermore, rather than anthropomorphizing plants and gardens, he inverts this relationship so that instead the human body is seen through a phyto- and geocentric lens.²²⁸ In addition, one wonders if perhaps the irrigation section is placed after parts of the human body and plants have been created because, like freshly transplanted plants, they both require watering to establish themselves. This concept is further expressed by Aristotle who likewise assimilates the human body to real gardens, again comparing the circulatory system to channels cut in gardens (κήπος), with the main garden aqueduct compared to human and animal arteries.²²⁹

“The system of blood-vessels in the body may be compared to those water-courses (ὕδραγωγία) which are constructed in gardens (ἐν τε τοῖς κήποις): they start from one source (ἀρχή), or spring (πηγή), and branch off into numerous channels (εἰς πολλοὺς ὀχετούς), and then still into more, and so on progressively, so as to carry a supply to every part of the garden. And again when a house is being built, supplies of stone are

²²⁸ Analyzing the concept of landscape as body in the modern period, Douglas Porteous states that, “Landscape as body is clearly an anthropomorphism. As yet we have no technical term for body as landscape, although geomorphism suggests itself. Moreover, the ensuing discussion of metaphor should not blind us to the fact that, to very small children and pets, adult bodies are actual landscapes,” “Bodyscape: The Body landscape Metaphor” *The Canadian Geographer* 30.1 (1986): 7.

²²⁹ Arist., *Part. an.* III.668a, trans. A. L. Peck, (Cambridge: Harvard University Press, 1937).

placed all alongside the lines of the foundations. These things are done because a) water is the material out of which plants in the garden grow, and b) stones are the material out of which foundations are built. In the same way, Nature has provided for the irrigation (ὠγέτευκε) of the whole body with blood, because blood is the material out of which it is all made: just as leaves of vines and fig-trees and similar plants, when they wither, leave behind nothing but veins. The explanation of this is that the blood (or its counterpart) is, potentially, the body (that is, flesh—or its counterpart). Thus, just as in the irrigation system the biggest channels persist whereas the smallest ones quickly get obliterated by the mud, though when the mud abates they reappear; so in the body the largest blood-vessels persist, while the smallest ones become flesh in actuality, though potentially they are blood-vessels as much as ever before. Accordingly, we find that, as long as the flesh is in a sound condition, wherever it is cut, blood will flow; and although no blood-vessels are visible, they must be there (because we cannot have blood without blood-vessels)—just as the irrigating channels are there right enough, but are not visible until they are cleared of mud.”²³⁰

The parallel that Aristotle paints between veins and cut garden water channels, blood and water, further helps to deconstruct the boundaries between plants and humans.

In a reversal from Plato’s and Aristotle’s phytocentrism where the human body is understood through the lens of a garden, we also find comparable examples of the anthropomorphization of plant bodies. While Aristotle differed from Plato regarding the awareness of plants and their relationship to humans, even he attributes human qualities to plants, referring to roots as the mouths and heads of plants and envisions plants as upside down animals.²³¹

These early texts are significant for establishing Roman perceptions about plants because we find echoes of Plato’s and Aristotle’s fluid conception of life in authors of the Roman period. Thus, in the first century BCE work, *On Plants*, Nicolaus Damascenus²³², follows the tradition established by Plato and Aristotle by

²³⁰ Arist. *Part. an.* III.668a, trans. A. L. Peck, (Cambridge: Harvard University Press, 1937).

²³¹ Ibid., IV. X. 686b; Agnes Arber, *The Natural Philosophy of Plant Form*, (Cambridge: Cambridge University Press, 1950), 12.

²³² *On Plants* is generally attributed to Nicolaus Damascenus, but the work is also commonly published under the name Pseudo-Aristotle.

describing trees as possessing human anatomy, “Some call this pith the womb in trees, others the entrails, other the heart. This and the veins and flesh of the whole tree are composed of four elements.”²³³ Perhaps most evocative, are the descriptions of tree anatomy in Pliny the Elder’s *Natural History*. In Book Sixteen on trees, Pliny unequivocally portrays trees as possessing animal or human anatomy, “There is also a juice in the body of trees, which must be looked upon as their blood...And in general the bodies of trees, as of other living things, have in them skin, blood, flesh, veins, bones and marrow. The bark serves for a skin;” (*umor et corpori arborum est, qui sanguis earum intellegi debet, non idem omnibus ... atque in totum corpori arborum, ut reliquorum animalium, cutis, sanguis, caro, nervi, venae, ossa, medullae. pro cute cortex.*)²³⁴ This description inversely mirrors Plato’s irrigation of human bodies. Where Plato perceived the human body in plant or garden terms, Pliny inverts the idea, so that sap is transmuted into blood. Additionally, where Plato saw human skin as a rind or peel, here again the idea is reversed, and it is rough, hard, woody bark that is skin. Pliny continues to deconstruct the boundaries between plants, animals, and humans in his description of the structure of the tree, viewing it in distinctly fleshy terms, “Beneath this fat lies the flesh of the tree, and then under that, its bones, or, in other words, the choicest part of the wood (*subest huic caro, carni ossa, id est materiae optimum*).”²³⁵ This phrase, when paired with Plato’s description of the making of human bones out of kneaded, baked, and bathed earth suggests that perhaps this is more than mirrored rhetoric. The way in which the materials join to form a

²³³ Pseudo-Aristotle, *On Plants*, I.IV.30-34, trans. by W. S. Hett, (Cambridge: Harvard University Press, 1936).

²³⁴ Plin. *HN*. 16.181, trans. H. Rackam, (Cambridge: Harvard University Press, 1938).

²³⁵ *Ibid.*, 16.182.

whole, and the fluid movement along a spectrum of beings underscore a circular homology. These are not mere rhetorical conventions, but expressions of related beings shaped into different forms.

Planty Subjects, Human Rulers

According to many authors plants and especially trees appear to have had a familial relationship with humans, whether as their progenitors, as kin, or as the result of human-to-plant translations in form. But the entanglement and dependence on one another is also cast by some of the same authors within the framework of plant-subject-slave/human-ruler. For example, according to Plato, those who are granted an appetitive soul, such as laborers or plants are meant to be ruled.²³⁶ In contrast, the rational soul corresponds to the ruling class and the spirited to the guardians or soldiers.²³⁷ The rational soul/ruling class should be aided by the spirited soul/guardians and must rule the largest part of the soul, the appetitive, “so that it doesn’t become so big and strong that it no longer does its own work but attempts to enslave and rule over the classes it isn’t fitted to rule, thereby overturning everyone’s whole life.”²³⁸ There is also a connection between Plato’s laborers and plants, who possess no deliberative abilities, and Aristotle’s identification of individuals who must be ruled: slaves (who possess “no deliberative faculty at all”), women (who possess deliberative faculty “but it is without authority”) and children (who also possess

²³⁶ Pl. *Ti.* 77b; Gavin Hardy and Laurence Totelin, *Ancient Botany*, (London: Routledge, 2016), 65-66.

²³⁷ Pl. *Resp.* 4. 430b-433d, trans. G. M. A Grube and revised by C. D. Reeve, (Indianapolis: Hackett Publishing Company, 1992); George Klosko, *The Development of Plato’s Political Theory*, (Oxford: Oxford University Press, 2006), 71.

²³⁸ Pl. *Resp.* 4. 442 a-b, trans. G. M. A Grube and revised by C. D. Reeve, (Indianapolis: Hackett Publishing Company, 1992).

deliberative faculty, “but it is immature”).²³⁹ Thus while in *Timaeus*, Plato claims that the lower gods created plants “as reinforcement for [men],” according to his reasoning on the types of souls in the *Republic*, plants were made to be ruled, and to never be allowed to do that which they do not possess the ability to do, i.e. to rule others.

The concept of plants as obeying human rulership is echoed in Roman writers. Virgil presents King Evander, descendant of the tree-birther Arcadians, as commanding trees. When he proclaims, “wreath your chair with leaves, and stretch forth the cup in your hand” the trees promptly respond, “he had no sooner spoken than the variegated poplar veiled his hair with shades dear to Heracles, hanging down with a festoon of leaves.”²⁴⁰ Pliny the Elder, writing in the conquest of Judea, takes the idea of plants as natural born subjects even further when he describes the importation of balsam trees to Rome: “it is a remarkable fact that since the time of Pompey the Great that we have *led* (*duximus*) even trees in triumph. This tree [balsam] is now a slave (*servit*); it pays tribute (*tributum*) together with its race (*cum sua gente*)...Now it is the public treasury that grows it, and never before was it more plentiful.”²⁴¹ These few words are dense with significance. Pliny’s word choice, *ducere*, meaning to lead, is unusual in that it is only used to describe the movement of animals and prisoners, beings with legs capable of locomotion. The application of this verb to trees suggests that they somehow willingly process or move themselves.²⁴² Moreover, Pliny’s use of

²³⁹ Arist. *Pol.* 1260a 9-14, trans. C. D. C. Reeve, (Indianapolis: Hackett Publishing Company, 1998); Matthew Hall, *Plants as Persons: A Philosophical Botany*, (Albany: State University of New York Press, 2011), 20.

²⁴⁰ Verg. *Aen.* 8.276-278, trans. H. Rushton Fairclough, (Cambridge: Harvard University Press, 2000).

²⁴¹ Plin. *HN.* 12.111-113.

²⁴² Ida Östenberg, *Staging the World: Spoils, Captives, and Representation in the Roman Triumphal Procession*, (Oxford: Oxford University Press, 2009), 188. See also Laurence Totelin’s “Botanizing Rulers and Their Herbal Subjects: Plants and Political Power in Greek and Roman Literature,” *Phoenix*

ducere encompasses the movement of many trees, not only the balsams recently brought to Rome, but even earlier trees, including ebony trees paraded by Pompey the Great during the triumph of 61 BCE, nearly one year earlier.²⁴³ Pliny's verb choice also ensures that the reader identifies the trees with the other ambulatory and animate procession participants such as captured human slaves who were also displayed in the triumph; rather than associating the trees with inanimate booty such as treasures and art objects. The notion that trees move themselves as living beings suggests that the landscape of which they are signifiers is itself processed and is capable of movement. When Pliny describes the procession of balsam trees, the trees *carry* the association of King Herod's groves where they previously grew and stand in place of the conquered land. Consequently, the planting of such a tree in one's garden is, in fact, a transplanting of that conquered land. A garden, then, becomes not a mere collection of plants, but a collection of lands and their peoples. Pliny also tells us that the balsam trees, as slaves tasked with paying a tribute, are now Roman political subjects, and equally important, it is this new political affiliation that has fostered a greater level of fecundity. In this manner, the fecundity of balsam trees under the Romans legitimizes Roman conquest, Roman horticulture, and firmly roots balsam trees as Roman subjects.

The juxtaposition of framing plants as either kin or as slaves may appear representative of very different, if not oppositional kinds of relationships. But the passages explored in this chapter suggest that these connections are reflective of

66 (2012): 122-144, where Totelin traces the ways in which rulers "rooted" themselves to conquered landscape through plants.

²⁴³ Östenberg, *Staging the World*, 185.

ecological habitats and connections to place. Thus, native plants are more likely to be identified as kin, either as progenitors or as children. In this manner, the farmer cultivates a family in the home and in the walled garden. In comparison, imported new varieties of plants are collapsed into the same group as foreign human slaves. The distinction between human and plant slaves is further eroded by the fact that both are ruled by Roman horticulture—one is the recipient (i.e. the plant) the other performs it (the slave).

No Brain, No Gain? The Question of Plant Perception, Intelligence, Desires, and Appetites

Thus far we have primarily looked at passages that relate to the homology of human and plant bodies. While the texts themselves are rooted in different traditions and historical contexts, they present a clear picture of the fluid movement across the spectrum of life between plants, animals, and humans—a spectrum that is inherently more mobile and pliable than contemporary conceptions. But these earlier selections have not shed light on whether plants possess or lack perception and sensation. Perhaps not surprisingly, the ancient texts provide evidence of a battle as equally heated as the one we saw among modern scholars.

In Plato's *Timaeus* plants possess the appetitive soul which “has only the sense of pleasure and pain with attendant appetites, but no part in reasoned conviction or understanding.”²⁴⁴ Thus, by nature of possessing the appetitive soul, plants feel hunger and thirst, and when their nourishment is lacking, must feel pain as a result of it.

²⁴⁴ Pl. *Ti.* 77b.

Moreover, Plato’s conceptualization of plants as animate beings is further underscored by his categorization of plants as ζῷα, a term used to commonly describe living creatures like animals, humans, and mythological beasts, but generally not applied to plants.²⁴⁵ Relatedly, Empedocles proclaims that “trees were the first *animals* (ζῷα) to grow up from the earth,” again suggesting a level of animism that surpasses our conceptualization of plants as merely living things.²⁴⁶ Furthermore, in the first century BCE Nicolaus Damascenus reports that Empedocles thought that plants are the result of a joining of two classes of beings: namely, plants and animals, again situating plants as more than living things.²⁴⁷ Nicolaus Damascenus also reports that the sixth-century Greek philosopher, Anaxagoras, likewise “says that plants are animals (ζῷα).”²⁴⁸ Moreover, Empedocles and Anaxagoras both “maintain that plants are moved by desire, and they assert emphatically that they [plants] can feel and experience both pain and pleasure,” a stance that Nicolaus Damascenus himself deeply disagrees with, stating that, “One might argue that since the plant is a living thing, we are at once entitled to call it a living creature. But this is not so.”²⁴⁹ Furthermore, plant desire is not merely a nutritive want based on soil composition, water, and sunlight. Ancient authors repeatedly describe the desires and even hatred of plants towards one another. Theophrastus, for example, cites vines as hating cabbages and sweet bay, but Pease argues that it is the Roman authors, Varro, Cicero, Virgil, Pliny, and Palladius

²⁴⁵ Ibid., 77b; see the translators note about the word choice in note 2, trans. A. E. Taylor, (London: Methuen & Co, Ltd, 1929), 81.

²⁴⁶ Aët. 5.26.4 (Dox. GR. 438), in *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, 186.

²⁴⁷ Pseudo-Aristotle, *On Plants*, I.I.815a.20-22, trans. W. S. Hett, (Cambridge: Harvard University Press, 1936).

²⁴⁸ Ibid., I.I. 815a 19-20.

²⁴⁹ Ibid., I.I. 815a17-18, 816a 1-2.

who continue the literary tradition of plant hatreds.²⁵⁰ Pliny on the other hand also describes plant desires as both a nutritive need related to the environment or temperature that certain plants want, and as friendships, such as that between figs and rue.²⁵¹

Mirroring the modern dispute even more closely, Nicolaus Damascenus cites Anaxagoras, Democritus (the fifth-century Greek philosopher), and Empedocles as attributing intelligence, and also the ability to acquire knowledge to plants.²⁵² Thus when Nicolaus Damascenus forcefully responds to their claim,

“Now in plants we find *no sensation, nor any organ which can feel, nor anything in the least like it*, nor any differentiated form, nor anything issuing it from it, nor any local movement, not any method of approach to sense apprehension, not any sign by which we could judge that plants have sensation, corresponding to the signs by which we know that they are nourished and grow,”²⁵³

we find an uncanny parallel to Amedeo Alpi et al’s 2007 denunciation of plant neurobiology,

“The past three years we have witnessed the birth and propagation of a provocative idea in the plant sciences. *Its proponents have suggested that higher plants have nerves synapses, the equivalent of a brain localized somewhere in the roots, and an intelligence...* We begin by stating that *there is no evidence for structures such as neurons, synapses or a brain in plants.*”²⁵⁴

Conclusion: So What Were Plants in Antiquity, Really?

Are we any closer to a definitive answer? Yes and no. The investigated passages span many centuries and derive from diverse literary traditions, two aspects

²⁵⁰ Pease, “The Loves of the Plants,” 94; Theophr. *Hist. pl.* 4.16.6.

²⁵¹ Pease, “The Loves of the Plants,” 95, 97; Plin. *HN.* 16.137-38, 19.156.

²⁵² Pseudo-Aristotle, *On Plants*, I.I. 815b.16-18.

²⁵³ *Ibid.*, I.I.815b.16-18.

²⁵⁴ Alpi, et al., “Plant Neurobiology: no brain, no gain?” 135-136.

that cannot be dismissed as bearing no significance on the views that are presented.²⁵⁵ Yet despite the heterogeneous quality of the evidence a number of patterns may be identified, even if they may not be definitive enough to shape into a concise answer. Many of the characteristics that serve to define plants today are not applicable in the ancient period. Certainly, the differences between plant and animal cellular and molecular structures are not found in ancient texts. Yet when David Suzuki described chlorophyll as green blood, and Donald Peattie evocatively called out, “We be of one blood, brother, thou and I,” we hear an echo of the pregnant ash bearing human children, an echo of beings that were formerly humans but are now shaped into different planty forms.²⁵⁶ The cited passages ascribe to plants a progenerative ability that surpasses their own reproduction. Plants, and particularly trees, do not serve as a passive backdrop for early human development, they are the impetus, the beginning, the roots of human creation. Laurence Totelin, in a foundational article formulating a new direction of inquiry within the field of ancient garden studies, writes that “the tree, like a slave, occupies an intermediate position on a scale of humanity that stretches from “object” to “person.”²⁵⁷ It is this liminality that facilitates identifying plants as kin in some contexts and in others as slaves.

Totelin’s argument is particularly insightful, vis-à-vis the connection to ancient slaves. It is easy to disregard plants as nothing more than living things, thereby denying their status as sentient, intelligent, beings capable of pain, pleasure, hunger,

²⁵⁵ The group of authors and texts investigated here are by no means exhaustive on the subject. For more discussion on the significance of trees as family symbols in Latin literature see Emily Gower, “Trees and Family Trees in the Aeneid,” *Classical Antiquity* 30.1 (2011): 87-118 and Ward Briggs, *Narrative and Simile from the Georgics in the Aeneid*, Volumes 58-61, (Leiden: E. J. Brill, 1980), 38-41, 87.

²⁵⁶ Suzuki, et al, *Tree: A Life Story*, 70; Peattie, *Flowering Earth*, 29-30.

²⁵⁷ Totelin, “Botanizing Rulers and their Herbal Subjects,” 123.

and thirst, when the comparison is binary: i.e. free-human versus plant. But humans themselves were spread across the spectrum of life between “object” and “thing,” with slaves in Roman texts described as animate tools, as mere prosthetics of their masters. As Totelin points out, “Pliny and many other ancient sources present a world where some humans are commoditized slaves, and where trees are sometimes individualized.” It is exactly this intersection of identities, tool-like slaves and person-like trees that serves as a call for phytocentric discourse.

But by far the most significant notion found in Greek and especially Roman authors is the conceptualization of cultivation as entanglement or dependency between plants and humans. Within the Roman literary world, the Arcadians do not exist without their arboreal progenitors, flowers and trees like myrtle do not exist without prior nymphs, girls, and boys. In other words, plants are as much the origin of humans as humans are the source of cultivated plants. The mutual reliance between plants and humans is particularly true of cultivated varieties, which rely on gardeners to prune, transplant, prop and water them. Without the interventions of gardeners, vines produce too many branches and leaves, leaving vines too exhausted to produce a generous bounty. But the goal of any plant is to reproduce, a function of fruit production. Thus, to be more fecund, plants must succumb to a gardener’s care, who will prune excessive branches and leaves so that energy may be expended on fruit and reproduction. But the dependency is also based on the idea that plants are living animals with desires, needs, and sensations like hunger and thirst. Without these sentient qualities, plants become lifeless and needless, and gardeners useless. This entanglement between plants and gardeners serves as the framework for this study,

and in particular for chapter five where plants and cultivation related evidence is used to reconstruct gardener presence around the city of Rome and in Gaul. As such, biological plant desires, such as nutrition, water, environmental preferences and their natural growth habits facilitate reconstructing gardener interventions and thus their skills. The reliance on gardeners is more keenly felt in transplanted specimens who rely on gardeners to create native-like environmental conditions in their new habitat. Thus, investigating non-native varieties in Italy and Roman plants exported to the provinces enables discussion more easily than investigation of native varieties which are already adapted to local conditions and are thus more independent. The result is that we come back to the Roman conceptualization of cultivation as family-making. As chapter five will illustrate, in the Roman garden, the gardener is cast as father, plants as children, and the science of horticulture as the foster-mother.²⁵⁸

²⁵⁸ Cic. *Fin.* V.40.

CHAPTER 3

GAIUS MATIUS AND FORTUNANTUS, DEMETRIUS AND APPA: UNEARTHING ROMAN GARDENERS

Until recently, only two garden-related individuals have featured with any frequency in publications: Studius, the inventor of roman landscape painting, and more rarely but still significantly, Gaius Matius, the inventor of shaped plants. By and large, roman garden scholarship has until now, primarily been focused on the gardens themselves and horticultural treatments, resulting in discussions on the things that make gardens: plants, fountains, dining areas, planting pots, archaeobotanical remains, etc. With the exception of two more recent publications, the people who created and cared for the garden have mostly been ignored.²⁵⁹ When gardeners make their way into scholarship, they are relegated by scholars to the footnotes, where individuals are collapsed into database acronyms and series of numbers.²⁶⁰ This absence of their names and of their voices obscures the many facets of their identities and limits areas of inquiry. Moreover, this trend is especially striking when we compare the practice to discussions of other craftsmen and artists in antiquity. In contrast, ancient art historical scholarship is dominated by painters and sculptors, such as Euphronius, Exekias, Apelles, Polycleitus.²⁶¹ It is not just men who are recorded, women painters, such as

²⁵⁹ Landgren, *Lauro, myrto et buxo frequentata*; Gleason and Palmer, "Constructing the Ancient Roman Garden," 369-401.

²⁶⁰ von Stackelberg, *The Roman Garden*, 17, footnote 14 and 15. Lena Landgren's work is highly unusual in providing an index which records and translates all of the inscriptions.

²⁶¹ Roger Ling, *Roman Painting*, (Cambridge: Cambridge University Press, 2006), 212-220; J. Linderski, "The paintress Calypso and other Painters in Pliny," *Zeitschrift für Papyrologie und Epigraphik*, Bd. 145 (2003): 83-96; Jeffrey Hurwit, *Artists and Signatures in Ancient Greece*, (New

Trimarete, Irene, and Anaxandra are granted their name in art historical discourse, despite the fact that their works no longer survive.²⁶² In cases where the names are unknown, scholars identify the *hand* of ancient artists so that at least a part of them is revived and remembered. Names are also granted to those who are unknown, such as the unnamed painters and workshops at Pompeii and surrounding towns. But even though some gardeners, such as the *topiarius*, performed an *ars*, like painters and sculptors, scholars have been reluctant to name gardeners. This chapter seeks to build on the work of recent philologists and to contextualize the evidence of gardeners in the Roman world.

The goals of this chapter are two-fold. First, before considering gardeners themselves, Roman perceptions of cultivation labor are explored as a means of contextualizing cultivators within society and within material culture. The second half concentrates on six different kinds of Roman gardeners: the *topiarius*, *olitor*, *hortulanus*, *putator*, *vinitor*, and *arborator*. These six particular gardeners have been chosen because although their duties may have included productive cultivation, their specializations are also documented in ornamental villa gardens.

Perceptions and Representations of Cultivation

Roman agricultural writers, such as Cato, Varro, and Columella, as well as writers of other genres, paint farmers and the act of cultivation as embodiments of

York: Cambridge University Press, 2015); Lawrence Richardson Jr., *A catalogue of identifiable figure painters of ancient Pompeii, Herculaneum, and Stabiae*, (Baltimore: Johns Hopkins University Press, 2000); Roger Ling, "Studios and the Beginnings of Roman Landscape Painting," *The Journal of Roman Studies* 67 (1977): 1-16; Wilhelmina Lepik-Kopaczyńska, *Apelles: der berühmteste Maler der Antike*, (Berlin: Akademie-Verlag, 1962).

²⁶² Clemente Marconi, *The Oxford Handbook of Greek and Roman Art and Architecture*, (New York: Oxford University Press, 2015), 125.

Roman virtue. Cato the Elder praises farmers as the strongest men who make the best soldiers—an opinion that is reiterated later by Pliny the Elder.²⁶³ Columella presents cultivation as the ideal occupation of free men.²⁶⁴ Even Cicero weighs in, stating that “rustic life...is the teacher of frugality, diligence, and righteousness.”²⁶⁵ Yet, as David Hollander observes, despite the high praise farmers receive and the moral model they serve, scenes of farming (i.e. scenes of what ought to have been read as model behavior or virtues), are almost non-existent in Late Republican and Early Imperial homes, villas, and public buildings.²⁶⁶ Hollander cites a now lost fresco, known only from a drawing, from the House of Triptolemus at Pompeii (VII.7.5) as a rare example of where wheat cultivation plays a central role in the composition.²⁶⁷ Drawn by N. La Volpe in 1871, the scene depicts Triptolemus, the semi-divine prince who learned the art of agriculture from Demeter and over saw grain sowing and milling, receiving handfuls of wheat stocks from Persephone. To be clear: the scene features only divine and semi-divine figures, no mortals are featured, laboring or otherwise. The painting also does not illustrate wheat cultivation or harvesting, only the fully-grown product is represented. Hollander is correct in noting that unlike other paintings, which feature bushels or stocks of wheat as decorative elements, this painting *infers* the process of

²⁶³ Cato, *Agr. Pr.* 4; Plin., *HN*, 18.26.

²⁶⁴ Columella, *Rust.* 1.pr.10.

²⁶⁵ Cic., *Rosc. Am.* 75.

²⁶⁶ Nicholas Purcell, “The Roman Garden as Domestic Building,” in *Roman Domestic Buildings*, ed. Ian M. Barton, (Exeter: University of Exeter Press, 1996), 121-151; Bettina Bergmann, “Exploring the Grove: Pastoral Space on Roman Walls,” *Studies in the History of Art 36: Symposium Papers XX: The Pastoral Landscape* (1992): 20-46.

²⁶⁷ David Hollander, *Farmers and Agriculture in the Roman Economy*, (Milton: Routledge, 2018), 12; Wilhelmina F. Jashemski, Frederick G. Meyer, and Massimo Ricciardi, “Plants: Evidence from Wall Paintings, Mosaics, Sculptures, Plant Remains, Graffiti, Inscriptions, and Ancient Authors,” in *The Natural History of Pompeii*, ed. Wilhelmina F. Jashemski and Frederick G. Meyer, (Cambridge: Cambridge University Press, 2002), 166-7.

cultivation, harvesting, and the labor of human bodies required to accomplish the task through Triptolemus' presence. But we cannot ignore the artist's omission of the sweaty, dirty, difficult work of plowing, sowing, and reaping. The absence of representations of people gardening or working crop fields, vineyards, and orchards is in stark contrast to later Roman art where cultivating individuals figure prominently in mosaics and to early modern representations of ornamental gardens, where gardeners raking and pushing wheelbarrows are depicted in among strolling elites.²⁶⁸

Within the extensive body of surviving garden and landscape representations from the first centuries BCE and CE there is only one possible depictions of gardeners. A nineteenth century sketch of a now lost fresco scene from the *ala* in the House of the Emperor Joseph II (VIII.ii.39) in Pompeii portrays a statue of Priapus with two figures in long attire with weeding implements working within a small garden surrounded by a wicker fence. The sketch, drawn by D. Discanno, is rarely cited and the possible gender of the gardeners is often omitted in descriptions, although in *Pompei: Pitture e Mosaici* the figures are described as two women.²⁶⁹ The result is that perhaps it is possible to identify one extremely rare example women represented at work in gardens in the first century CE. However, the nature and quality of the evidence negates a firm identification.

In comparison to the art of the first century BCE and CE, the third century CE viticulture and arboriculture mosaics from St-Romain-en-Gal in France and from

²⁶⁸ David R. Coffin, *Gardens and Gardening in Papal Rome*, (Princeton: Princeton University Press, 1991), 224-226.

²⁶⁹ Giovanni Pugliese Carratelli, ed., *Pompei: Pitture e Mosaici, Volume VIII*, (Roma: Istituto della enciclopedia italiana 1998), 322-323; Jashemski, *The Gardens of Pompeii Vol. II*, 400-401; Gleason and Palmer, "Constructing the Ancient Roman Garden," 379, 381; Pierre Grimal, *Les jardins romains*, (Paris: Fayard, 1984, 3rd edition), 269, no. 1.

Cherchell in Algeria celebrate gardener labor (Fig. 3). Gardener bodies, actions, and specialized horticultural knowledge are central to these compositions. But it must be noted that these later representations differ significantly from early modern prints, like those found in the Falda collection from about 1670.²⁷⁰ The Roman scenes only depict gardeners within cultivation areas—elites are not found strolling in the background or looking on from villa terraces as in the early modern prints. The dramatic change in visual representation between the historical focus of this study and later Roman art must be indicative of a cultural shift on perceptions of gardens and their gardeners.

Moreover, although the products of cultivation, i.e. food, occur with regular frequency in Late Republican and Early Imperial Roman still lives or *xenia* scenes (of figs, pomegranates, grapes, quince, dates, asparagus, poultry, bread, fish, crustaceans, hares, etc.),²⁷¹ such scenes present food as removed from the habitat in which it grew and from the kind of care and labor required to produce it.²⁷² The one exception to this are scenes of viticulture, such as the wall painting (inv. 112286) from the Casa del Centenario (IX.8.6) which features vineyards on the slopes of Vesuvius (Fig. 4), the painting from room 29 of the Villa San Marco (inv. 62532) which features

²⁷⁰ The prints of the Villa Borghese from the Falda collection, illustrated in David Coffin's chapter on gardeners, depict gardeners and garden visitors together, *Gardens and Gardening in Papal Rome*, 224-226.

²⁷¹ Some examples include: the painting of Pirithous and the Centaurs MANN 9044 from the House of Gavius Rufus (VII.2.16), the wall painting from the House of the Cryptoporticus at Pompeii, I.6.2-4 from oecus 22; the living hare hung on the wall, MANN 9847 from VI. Insula Occidentalis. 41, room 17; basket of fig from Villa A at Oplontis from triclinium 14; the veiled basket with fruit and a torch from Villa A at Oplontis from oecus 23; the glass cup with fruit from Villa A at Oplontis from oecus 23; the scene of asparagus, pedium, and cheese, MANN 9909 from the Temple of Isis (VIII.7.28); as well as mosaics such as the cat, ducks, fish, and birds mosaic, MANN 9992 from the House of the Faun (VI.12.2-5); the mosaic with fish and birds, MANN 109371 from the House of the Grand Duke of Tuscany (IX.2.27).

²⁷² Stefano De Caro, "Catalogue," in *Still Lives from Pompeii*, ed. Stefano De Caro, (Napoli: Electa, 1999), 35-62; Norman Bryson, *Looking at the Overlooked: Four Essays on Still Life Painting*, (London: Reaktion, 2001), 16-59.

construction work in the foreground but extensive trellises for vines in the middle ground, or depictions of wine production such as the cupid scenes from the House of the Vettii (VI.15.1). Yet even within the genre of viticulture, it is not necessarily the labor that is depicted, but rather unpopulated vineyards, as in the case of the paintings from Casa del Centenario and the Villa San Marco. At first glance the frieze from the House of the Vettii depicting grape harvesting may appear to defy Roman elite conceptions about appropriate motifs for domestic decoration. But, as John R. Clarke observes, the House of the Vettii cupids, and other examples of the cupid-at-work motif “consisted of pretty, whimsical translations of the sweaty realities of work into the never-land of myth.”²⁷³ The process of translating real workmen and women into semi-divine creatures not only obscures the presence of real laborers, it also serves to separate the Roman home and villa from the production process. This is in clear contrast to paintings from Pompeian shops and business and from Roman freedmen funerary representations where non-divine labor is not uncommon.²⁷⁴ The visual segregation between consumable products in domestic wall paintings and mosaics and the process of production is at odds with other contemporary media, such as coins, which feature plowing scenes and agricultural tools such as sickles, ladders, and crooks.²⁷⁵ And while second and third century North African mosaics depict scenes of arable farming, such motifs are absent from Late Republican and Early Imperial Italic walls and floors. The contrast found here between the literary praise and visual

²⁷³ John R. Clarke, *Art in the Life of Ordinary Romans: Visual Representation and Non-Elite Viewers in Italy 100 BC - AD 315*, (Berkeley: University of California Press, 2003), 105; Valeria Sampaolo, “Le Pitture” in *Le collezioni del Museo Nazionale di Napoli*, (Roma: De Luca, 1986), 154, nos. 224-29; Karl Schefold, *Die Wände Pompejis* (Berlin: De Gruyter, 1957) 41, 50, 100, 140-1, 147-48, 161, 193-94, 207, 234, 248-50, 272, 284, 290.

²⁷⁴ Clarke, *Art in the Life of Ordinary Romans*, 96-98, 105-129.

²⁷⁵ Hollander, *Farmers and Agriculture in the Roman Economy*, 13, 19, footnote 90.

absence of real cultivators in domestic and villa settings is instructive for beginning to conceptualize how gardeners may have been viewed in these contexts.

Digging Deeper: Gardeners in Ancient Texts and Inscriptions

Roman gardens must have required a variety of practitioners with different kinds of skills, from those involved in the designing process, to those who participated in the construction and implementation phase, as well as gardeners who saw to the garden's daily and seasonal needs.²⁷⁶ One of the greatest challenges in studying these invisible ancient Roman gardeners is the lack of surviving treatises written by actual gardeners. Although multiple surviving agricultural treatises address not just the practices used on farms but also write about horticultural practices that apply to elite gardens, these works were not authored by professional practitioners. Instead we must rely on sources written by elites who describe gardeners in passing, without explanations of the kinds of tasks, knowledge, and training these professionals possessed. In this respect, gardeners fall into what Robert Knapp has termed “invisible Romans,” the largest subset of the population comprised of non-elites, such as slaves, freedmen, laboring men and women, craftsmen, and prostitutes.²⁷⁷ Yet, as Jennifer Trimble has articulated, slaves and freedmen inhabited an unusual realm between the

²⁷⁶ Landgren, *Lauro, myrto et buxo frequentata*, 178.

²⁷⁷ Robert C. Knapp, *Invisible Romans*, (Cambridge: Harvard University Press, 2011).

visible and invisible—an assessment that is especially true of gardeners, as we will see in the following sections.²⁷⁸

Although we do not possess texts written by gardeners themselves, there is much we may unearth from the surviving sources. One of perhaps the most striking differences between Roman cultivation and our own modern conceptions of plant culture and the people who perform these tasks is evident in the titles and roles assigned to different kinds of workers. As Linda Farrar and Lena Landgren have observed, no Latin term corresponds to the title “gardener,” instead we find authors referring to various kinds of specialized cultivators. Further complicating the matter is the issue of whether ancient or modern names are meant to be interpreted as titles or as activities. Gardener, for example, is used today simultaneously to describe a person who pursues a hobby of gardening as an amateur, but it is also a professional title. There is also the question of the flexibility of these roles and whether they apply to different kinds of cultivation. The role of the modern gardener is again helpful as it is flexible enough to include domestic vegetable or ornamental gardening but is equally used to describe ornamental cultivation at large, elite estates and parks. In contrast, the titles or roles named by Roman authors for various kinds of gardeners presents mixed results. Some named positions, such as the *topiarius* and *olitor* appear to have been used as a professional title, while others, such as the *arborator* or *putator* are perhaps best understood to describe specialized activities, although even these roles seem to exist somewhere between a professional title and special activity. Of the various

²⁷⁸ Trimble, “The Zoninus Collar and the archaeology of Roman Slavery,” 447-472; Jennifer Trimble, “Seeing Roman Slaves: Conditions of Visibility,” lecture, Townsend Lecture, Cornell University, Ithaca, NY, September 9, 2016.

cultivation-related roles attested in agricultural treatises, this chapter focuses on seven examples which serve as a model for the larger group of named and unnamed cultivators. The seven chosen roles include six garden laborers, namely, the *topiarius*, *olitor/holitor*, *hortulanus*, *putator*, *vinitor*, *arborator*, and a sixth, the *aquarius*, which illustrates the care we need to take in connecting certain roles or titles with garden work. Building on Lena Landgren's successful employment of literary sources in conjunction with epigraphic evidence for *topiarii*, this chapter considers the evidence presented in agricultural treatises alongside epigraphic sources (Fig. 5), including gardeners' funerary epitaphs.

Topiarius: The Designer, Plant Propagator, and Plant Shaper

Of all the various garden professionals, the *topiarius* has received by far the most scholarly attention, even though there are only eight mentions of the title from the first century BCE to the fifth century CE.²⁷⁹ The most thorough account of the origin of the title *topiarius* as well as adjectival and related terms such as *opus topiarium*, *herba topiaria*, *frutex topiarius*, and *topiaria* (as an art) is found in Landgren's work, who builds on Pierre Grimal's earlier assessment.²⁸⁰ Unlike the other gardener titles, which according to Grimal, are all of purely Latin origin, *topiarius* is a hybrid, composed of a Greek root (*topos*, meaning place) paired with a

²⁷⁹ Cic. *QFr.* 3.1.5; Cic. *Parad.* 36; Plin. *HN.*, 15.122; Plin. *Ep.* 3.19.3; Alf. *Dig.* 32.60.3; Ulp. *Dig.* 33.7.8, 33.7.12; Marc. *Dig.* 33.7.17; Grimal, *Les jardins romains*, 90-100; Carroll, *Earthly Paradises*, 85-86; Farrar, *Ancient Roman Gardens*, 161-162; Farrar, *Gardens and Gardeners of the Ancient World*, 168-169; von Stackelberg, *The Roman Garden*, 16-17; Marzano, "Roman gardens, military conquests, and elite self-representation," 228-229; Gleason and Palmer, "Constructing the Ancient Roman Garden," 369-401; Kathryn L. Gleason, "The lost dimension: pruned plants in Roman gardens," *Vegetation History and Archaeobotany* 28 (2019): 311-325.

²⁸⁰ Grimal, *Les jardins romains*, 90-100; Landgren, *Lauro, myrto et buxo frequentata*, 178-190; Purcell, "The Roman Garden as Domestic Building," 135-136.

Latin suffix, *-arius*.²⁸¹ Despite the Greek root of the title, there is some disagreement on whether this is evidence of an earlier Greek tradition of gardening or of Greek *topiarii*, or whether the title and practice are a purely Roman invention.²⁸² Like some of the other gardener titles, the term *topiarius* appears for the first time in the first-century BCE. In two instances Cicero either praises his brother Quintus' *topiarius* for clothing the villa walls, columns, and statues in ivy, or describes *topiarii* and *atrienses* (house stewards) as belonging to a higher class of domestic workers, even though they are slaves.²⁸³ Cicero also describes Quintus' *topiarius* as working closely with his architect, Philothimus. Such a union of professionals is well attested archaeologically at Villa A at Oplontis, where Bettina Bergmann has identified a reciprocal relationship between the locations of plantings, the villa structure, its views, and colonnades. Kathryn L. Gleason's and Michele A. Palmer's reconstruction of the design process of Roman gardens support this idea.²⁸⁴ In addition to participating in the design process of villas, the *topiarius* is also accredited by Cicero and by Pliny the Elder with the development of new plant varieties, such as new myrtles with differently sized leaves, likely developed to produce different textures within gardens.²⁸⁵ According to the literary sources, evergreen plants were especially preferred by *topiarii*, particularly box, ivy, cypress, laurel, and acanthus, but they also worked with deciduous plants,

²⁸¹ Grimal, *Les jardins romains*, 91; von Stackelberg translates *topos* as shape rather than place, *The Roman Garden*, 16-17.

²⁸² Lena Landgren suggests that *ars topiaria*, the art of place making and shaping of plants is a Roman invention, a supposition that is supported by Kathrine von Stackelberg who states there is no evidence of *topiarii* in the Greek world, while Kathryn L. Gleason and Michele A. Palmer suggest that a Greek based title may be related to the garden culture of the Hellenistic world.

²⁸³ Cic. *QFr.* 3.1.5; Cic. *Parad.* 36; Landgren, *Lauro, myrto et buxo frequentata*, 179-180.

²⁸⁴ Cic. *QFr.* 3.1.6; Landgren, *Lauro, myrto et buxo frequentata*, 180-181; Bergmann, "Art and Nature in the Villa at Oplontis," 87-120; Gleason and Palmer, "Constructing the Ancient Roman Garden," 369-401.

²⁸⁵ Plin. *HN.*, 15.122; Landgren, *Lauro, myrto et buxo frequentata*, 181-182.

like plane trees.²⁸⁶ Both the Younger and Elder Pliny also associated the *topiarius* with the shaping of plants into thousands of different forms, such as cypress being “made to provide representations of ornamental gardening, arraying hunting scenes, or fleets of ships and imitations of real objects” and box “cut in the shape of animals (*bestiarum effigies*),” and “a variety of figures and names.”²⁸⁷ Such complexity in forms is suggestive of a great technical development since Quintus’ ivy clothed walls and columns. Pliny does not give any clues as to the size of *topiaria* works nor does he clearly articulate whether these are either two dimensional compositions, akin to French broderie, or three-dimensional sculptures, or perhaps there are examples of both. While two dimensional patterns may be accomplished more quickly, three dimensional shapes may have required a life time or even multiple generations of *topiarii*, especially when the works were formed from slower growing plants.²⁸⁸ Of the evergreen species particularly utilized by *topiarii* (box, ivy, cypress, laurel, and acanthus), box and cypress are especially slow growing. Under ideal conditions, once box is established, it grows about fifteen centimeters a year. If conditions are less than ideal, for example, if the area is too shady or the soil is poor, they grow more slowly, making large compositions a decade-long, multi-generational process. This could be further complicated and lengthened if a *topiarius* sowed box seeds in a nursery instead of air layering with specialized Roman planters (to which we will turn in greater depth in chapter four).²⁸⁹ With seeds, the gardener would have to wait about five years

²⁸⁶ Cic. *QFr.* 3.1.5; Plin. *HN.*, 15.122, 15.130, 16.70, 16.140, 22.76; Landgren, “Plantings,” 79-80.

²⁸⁷ Plin., *HN.*, 16.140; Plin. *Ep.* V,6.

²⁸⁸ Plin. *HN.*, 16.60.

²⁸⁹ Interview with Aurelio Valentini, a trained landscape designer and the Villa d’Este Manager and Consultant for Green Management, June 2018.

before he had cultivated a small thirty to forty-centimeter tall shrub, while with air layering, the same effect could be achieved in two years²⁹⁰. Once a small shrub had grown, many more years would be required to train the plant into a particular shape. For example, a box shaped into a simple form like a pyramid, a form favored by the Romans, is about a twenty-year process.²⁹¹ In comparison, acanthus and laurel are fast, even aggressive growers, with laurel growing up to sixty-five centimeters a year.

A significant and commonly overlooked passage from Pliny the Younger's letter to Domitius Apollinaris also describes shaped plants but is especially important in setting *topiarii* apart from other artists. In a section picturing the grounds of his villa estate, Pliny writes,

“In one place you have a little meadow; in another the box is interposed in groups, and cut into a thousand different forms; sometimes into letters, expressing the name of the master, or again that of the artificer [*topiarius*]... Beyond these are interspersed clumps of the smooth and twining acanthus; then come a variety of figures and names cut in box.”²⁹²

Certainly, the great variety of shapes (*mille*) described by Pliny again points to a rapid technical and artistic development since the *topiarius* is first introduced by Cicero, but it is the name writing that deserves further consideration. Writing the name of the *dominus* in plants is perhaps less noteworthy for this discussion, though an incredible motif in itself, but the planting of the artificer's name is simply unprecedented. Within a discourse on the invisibility of the slaves and freedmen who made the elite world, such an expression of landscape-scale visibility refutes the categorization of gardeners

²⁹⁰ Interview with Aurelio Valentini, June 2018.

²⁹¹ Interview with Alessandra Vinciguerra, Bass Superintendent of Gardens, American Academy in Rome, June 7, 2018.

²⁹² Plin. *Ep.* V.6. 35, *Alibi pratulum, alibi ipsa buxus intervenit in formas mille descripta, litteras interdum, quae modo nomen domini dicunt modo artificis: alternis metulae surgunt, alternis inserta sunt poma, et in opere urbanissimo subita velut illati ruris imitatio. Medium spatium brevioribus utrimque platanis adornatur.*

as passive, invisible tools of the *dominus*. Yes, the demarcation of the landscape with the artificer's name is done at the pleasure of and for the social gain of the *dominus*. But that does not diminish the power of the visibility granted to the gardener. Moreover, unlike the signature of a painter, which accompanies a work, here it is the signature, the name itself, which is the artwork. Such a composition is inherently different from naval battles, geometric forms, and other works created by *topiarii*. In fact, we might say that this is the closest surviving example of a gardener's self-representation. Moreover, the writing, and more importantly, the reading of a name was a powerful tool in memory construction in the Roman world. Dedicatory and especially funereal inscriptions, many of which call out to passersby, asking to be read, illustrate the great social power attributed to the read, inscribed name.²⁹³ Even the medium chosen by the artificer, the box, a plant which may grow for many centuries, evokes the intended longevity of stone in dedicatory and funeral inscriptions.

Fortunatus, Ti. Claudius Tauriscus, Dorio, Thyranus, Cerdo, Fleix, Sasa, Salvivius Philotianus, Antigonus paternus, Romanus, Alexander, Florus, Lucrio, G. Proculeius Apollonius, Protus, L. Sallavius Antiochus, L. Varius Dionysius, Carpus, Charito, Lucrius, Anthus Tantalus, Demetrius, Appa and Amaranthus

Twenty-nine inscriptions from various contexts featuring *topiarii* (Tab. 1) allow us to make further observations. As other scholars have observed, epigraphic evidence suggests that *topiarii* performed a service especially sought after by the

²⁹³ Maureen Carroll, "'Vox tua nempe mea est' Dialogues with the dead in Roman funerary commemoration," *Accordia Research Papers* 11 (2007/8): 37-80.

Imperial family and other elites.²⁹⁴ Nine inscriptions come from imperial contexts and three from elite columbaria (Fig. 6).²⁹⁵ In total, these document eighteen *topiarii* within the Imperial family and three associated with the Statilii and the Volusii.²⁹⁶ (Fig. 7). The inscriptions also shed some light on the legal status of *topiarii*, with nearly a third represented by slaves, less than a quarter by freedmen, and nearly half of unknown status, either due to the fragmentary nature of the inscription or lack of clarity in the wording and naming (Fig. 8). A closer analysis of the inscriptions suggests there is evidence of social and economic differences between *topiarii*. For example, although the epitaphs are done in modest stone, suggestive of some economic limitation in *topiarii*'s funerary habits or means of their family, there is a definite range in quality and craftsmanship.²⁹⁷

Felix and Lucrio

Two examples, CIL VI 9944 and CIL VI 9946, illustrate diverse economic investment in funerary commendation—reflective of either the *topiarii*'s or their master's inclination. CIL VI 9944 from Rome, dated to the period of Tiberius to Nero, and from the *monumentum Statiliorum* simply reads, "Felix, *topiarius*." Despite the

²⁹⁴ Grimal, *Les jardins romains*, 90-100; Landgren, *Lauro, myrto et buxo frequentata*, 185-186; von Stackelberg, *The Roman Garden*, 16-17; Gleason and Palmer, "Constructing the Ancient Roman Garden," 375-377.

²⁹⁵ Imperial: CIL VI 4360, 4361, 4423, 5353, 8738, CIL X 696, 1744, 6638, CIL XIV 3648; elite: CIL VI 6369, 6370, 7300.

²⁹⁶ Karl-Ludwig Elvers, Jörg Fündling, Tomasz Giaro, Werner Eck, "Volusius," in *Brill's New Pauly online*, (Leiden: Brill, 2007), 2007; Jörg Fündling, Tassilo Schmitt, Vivian Nutton, Werner Eck, Alain Touwaide, et al., "Statilius," in *Brill's New Pauly online*.

²⁹⁷ Antonio Sartori, "Fortunatus il 'topiario'," in *L'archeologia in verde: quattordici conversazioni a Milano sulla percezione della natura nel mondo antico*, ed. Gemma Sena Chiesa and Federica Giacobello, (Sesto Fiorentino: All'insegna del Giglio, 2016), 73.

brevity of the text, the craftsmanship, relative to other epitaphs for *topiarii*, is of higher quality. The *tabula ansata* features one of the most precise treatments of stone, with crisply delineated elevations between the *tabula ansata* and the rusticated ground, and equally sized triangles between the *tabula* and its handles. The letters are also finely articulated, equally spaced from one another, and are level from left to right. In comparison, CIL VI 9946 from Rome, dated to the reign of Augustus-Nero and commemorating, “Lucrio, slave *topiarius* of Coceius,” is of much poorer quality. The stone is roughly finished, the three lines of text are not aligned with one another as in Felix’s text, and the lettering is not uniformly level. These qualities all suggest a lesser investment in epigraphic commemoration. What is frustratingly unclear from the surviving evidence, is whether such differences may be interpreted as differences in economic status or simply individual purchasing choices. Many factors went into the planning of a Roman funeral, and it is well established that funds were not equally spent. Some chose to spend more on commemorative games held in their honor, others on the plot size of their tomb, still others in the craftsmanship of the tomb. Thus the differences in the quality of the inscriptions cannot be understood as definitive proof of different status.

Fortunatus and Amaranthus

Of the twenty-nine inscriptions, twenty-four are funerary epitaphs, and of these only two feature decoration. Seemly reflective of their profession, both depict vegetative motifs. The commonly cited epitaph from Comum of the *topiarius*,

Fortunatus, commissioned by his wife, Valeria, and his apprentice, Tertius, features a clearly articulated inscription set into a vertical rectangular ground, topped by a framed half-circle featuring an urn with two scrolling vine branches.²⁹⁸ Like the acanthus vine on the Ara Pacis, here too the vine appears to be a grafted fantastical composite. A thicker vine encased in a leaf sheath protrudes directly from the urn. A second segment comes out of the leaf-sheath. Either this is the unsheathed vine stem of the same plant or a grafted addition of another species. This second segment ends in distinct mark that is thicker than the vine, possibly a pruning mark, which then splits into two scrolling branches, each culminating in a single leaf. The representation is more abstracted than naturalistic, making plant identification challenging if not impossible, but taking into account the general shape of the leaves as well as the kinds of plants *topiarii* are attested as working with, it is possible that the vine is *Hedera helix*, the English ivy.²⁹⁹ Although the motif is well attested in domestic, public, and funerary contexts across Italy in the first half of the first century CE, its placement on the tomb of a gardener likely may be read as more than merely reflecting contemporary taste.³⁰⁰ Moreover, even if many viewers would not have understood the significance of the visual cues evocative of grafting, that does not negate Fortunatus, his wife, and his apprentice from having a personalized interpretation of the motif based on the gardeners' professional training. The funerary epitaph also features two

²⁹⁸ CIL V 5316, dated to after 50 CE, (To the spirits of the dead, for Fortunatus, *topiarius*. His wife, Valeria, and Tertius, his apprentice, made this), entry 1 in table 1; Sartori, "Fortunatus il 'topiario'," 73.

²⁹⁹ While young ivy leaves have distinct, sharp points, adult leaves develop a more rounded shape, akin to what is depicted.

³⁰⁰ Curling acanthus and mixed species vine scrolls became especially popular in the Augustan era and remained popular in the Julio-Claudian period. Examples may be found on public buildings, like the Ara Pacis in Rome, the Eumachia Building in Pompeii, and the *tepidarium* of the Forum Baths at Pompeii, in domestic spaces, like the atrium of the Casa della Regina Carolina at Pompeii, and in funerary contexts, such as in the frieze of tomb 19ES at the Porta Nocera necropolis at Pompeii.

holes, one in each of the top corners, which, if they are indeed ancient, would have held hooks for hanging garlands and festoons at festivals.

The other example, belonging to Amaranthus, a fifty-year old *topiarius* who served as public slave, was found in Brindisi.³⁰¹ A small, four petal, abstracted flower sits above the inscription, framed by two palmette acroteria. The craftsmanship is poorer, and the general quality of the motifs is more rudimentary, but the epitaph in itself is exceptionally important, as it is the only example of a *topiarius* serving as a public slave.³⁰² While literary sources and some epitaphs attest to *topiarii* being associated with private, elite estates, this inscription provides evidence that *topiarii* also practiced their trade in the public realm, perhaps at temple gardens or other public green spaces. As there are only two examples which preserve any decoration it is difficult to use such a small sample to make any larger observations about the funerary habits and preferences of *topiarii* and their families, although it is certainly tempting to draw a connection between the vegetal motifs and their profession. The ample evidence of freedmen and slaves expressing pride in their profession through scenes of their labor or their tools on funerary monuments further supports the idea that these vegetal motifs may be directly related to Fortunatus' and Amaranthus' professions.³⁰³

³⁰¹ IRBrindisi00041, dated to 20 BCE to 30 CE, entry 29 in Table 1.

³⁰² As Landgren's Table 13 of epitaphs for *topiarii* illustrates, 13 of the 41 individuals are identified as slaves, but the Brindisi example is unique in identifying a *topiarius* as a public slave.

³⁰³ On the representation of tools of the trade see Gerhard Zimmer, *Römische Berufsdarstellungen*, (Berlin: Gebr. Mann, 1982), 180-182; on the representation of professions, see Lauren Hackworth Petersen, *The Freedman in Roman Art and Art History*, New York: Cambridge University Press, 2006); George, *Roman Slavery and Roman Material Culture*, 19-30.

Tertius and three unnamed apprentices

Two inscriptions provide evidence of *topiarii*'s education.³⁰⁴ The epitaph of Fortunatus lists an apprentice (*discens*) as contributing to the burial, while an inscription from Langres documents three unnamed gardeners and their unnamed apprentices as being responsible for the maintenance of a tomb garden.³⁰⁵ These two examples are quite unusual, in that they are the only inscriptions to attest apprenticeship in Roman agriculture or horticulture.³⁰⁶ Unfortunately, no evidence survives detailing how long such an apprenticeship might take or what the nature of the instruction was. Based on comparative modern gardener training, likely most of the lessons were composed of practicums in the field as well managing daily tasks, such as tool repair. As Landgren astutely observed, the inscriptions are not contemporaneous with the very first literary examples of *topiarii*. Dating to after 50 CE (Fortunatus) and the beginning of the second century CE (Langres), they reflect the time needed for the craft to develop before passing on knowledge to younger generations.³⁰⁷

³⁰⁴ Landgren, *Lauro, myrto et buxo frequentata*, 188-190.

³⁰⁵ CIL V 5316, entry 1 in Table 1, CIL XIII 5708, entry 26 in Table 1.

³⁰⁶ Jesper Carlsen, "Recruitment and Training of Roman Estate Managers: Managers in a Comparative Perspective," in *By the Sweat of your Brow: Roman slavery in its socio-economic setting*, ed. Ulrike Roth, (London: Institute of Classical Studies, 2010), 84; Landgren, *Lauro, myrto et buxo frequentata*, 188.

³⁰⁷ Landgren, *Lauro, myrto et buxo frequentata*, 188.

Thyrannus, Anthus, Demetrius, and Appa

The epitaphs also illuminate *topiarii*'s relationships with other laborers. A third of the documented *topiarii* come from domestic and professional *collegia*.³⁰⁸ CIL VI 4423 from the *monumentum Marcellae* in Rome, illustrates how *topiarii*'s lives intersected with other villa laborers.³⁰⁹ The inscription features a *tabula ansata* shared by Thyrannus, a *topiarius*, and Epaphra, the *argentarius* (a money changer). Although they share the epitaph, the inscriptions were clearly completed by different workmen at likely different moments in time, suggesting shared investment in the *tabula* but divergent investment in the inscription. Is the epitaph merely the result of shared status within the household of Marcella Minor, or perhaps a sign of kinship? These are questions that unfortunately we cannot answer. Nine more *topiarii* are attested in the *collegium* of the *Domus Augusta* in Antium, along with nineteen other professions.³¹⁰ The inscription is fragmentary, with the breaks unfortunately falling directly over areas that list *topiarii*, thereby obscuring most of their names. It is not even possible to state with any certainty what the legal status of these *topiarii* was. However, their great number is suggestive of a large and luxurious estate with horticultural designs that likely spanned generations—it must have been a place of horticultural innovation in *ars topiaria*. Unfortunately, the seaside villa is not well excavated, and the great level of damage caused by coastal erosion likely means that the gardens are

³⁰⁸ According to Landgren's analysis, 10 of the 29 inscriptions are from *collegia*, Landgren, *Lauro, myrto et buxo frequentata*, 189, Table 13.

³⁰⁹ *Ibid.*, 185-186.

³¹⁰ CIL X 6638, entry 25 in Table 1.

unrecoverable, making it impossible to connect these nine individuals with the spaces they created.³¹¹

There is also evidence that *topiarii* belonged to professional *collegia*.³¹² Inscription AE 1903.52 is said to have been found in a professional *collegium* in Tusculum.³¹³ Dated to 8 CE by the two consuls it names, Marcus Furius Camillus and Sextus Nonius Quinctilianus, it records *magistri*, who presided over *collegia*, a *glutinator* named Parhedrus (someone who either worked with books or a carpentry gluer), and two *topiarii*, Demetrius and Appa.³¹⁴ The inscription is fragmentary, with further details lost, but as Landgren observes, one wonders whether the *collegium* was composed of solely these two professions, or whether others were involved as well.³¹⁵ Nonetheless, it presents a significant clue in reconstructing the social and professional networks of *topiarii*.³¹⁶ Recent scholarship of professional *collegia* has articulated how such institutions created “a space for construction of prestige among the craftsmen and tradesmen, facilitating the lower classes’ participation in civic life, socializing upward mobility, facilitating ‘Romanization’, fragmenting social hierarchy, and facilitating business.”³¹⁷ It has been proposed that such professional organizations may have fostered greater networks of clients and may have served to reduce transactional costs, thereby granting *topiarii* greater access to more clients and contracts at a lower cost to themselves through shared resources such as information. And although admission

³¹¹ Marzano, *Roman Villas in Central Italy*, 269.

³¹² Landgren, *Lauro, myrto et buxo frequentata*, 185-186.

³¹³ *Ibid.*, 186.

³¹⁴ AE 1903.52, dated to 8 CE, entry 28 in Table 1.

³¹⁵ Landgren, *Lauro, myrto et buxo frequentata*, 186.

³¹⁶ *Ibid.*, 186; inscription 1903.52 also number 28 in Landgren’s Table 13.

³¹⁷ Jinyu Liu, “Group Membership, Trust Networks, and Social Capital: A critical Analysis,” in *Work, Labour, and Professions in the Roman world*, ed. Koenraad Verboven and Christian Laes, (Leiden: Brill, 2016), 203.

fees for *collegia* appear to have had a wide range, they are generally understood as not having been cheap, so that *topiarii*'s participation in such institutions is further evidence of their higher social status.³¹⁸ Such membership also allows us to reconstruct *topiarii* as participating in socially and civically significant roles outside of their professional duties in gardens. As members of a *collegium*, they would have attended funerals, meetings and fulfilled administrative roles within their respective *collegia*, they would have also attended banquets and had access to financial support from the *collegia* in the form of loans.³¹⁹

Salvius Philotianus, Antigonus Paternus, Cerdo, Dorio, Fortunatus, Alexander Hispo, Carpus, Charito, and Lucius

Many of the inscriptions also provide evidence of *topiarii*'s agency, power, and self-representation that counters their passive depiction in ancient and modern scholarship. For example, inscription CIL VI 8738 describes two *atrienses* (house stewards), Titurus Galerianus and Alexander Amyntianus, along with two *topiarii*, Salvius Philotianus and Antigonus Paternus as “giving with their own money a floor in the *ossuarium* and 81 *denarii* cash, in the consulship of Cossus Cornelius and Lucius Piso.”³²⁰ The two *topiarii* appear not only as gardeners but as active participants of benefaction who have access to social and financial capital.³²¹ The elevated rank of some *topiarii* is also evidenced in another fragmentary inscription

³¹⁸ Ibid., 209.

³¹⁹ Ibid., 209.

³²⁰ CIL VI 8738, entry 9 in Table 1.

³²¹ Dated to 1 BCE to 1 CE.

from Rome which is addressed, “To the chief *topiarius*.” The title implies a hierarchy of multiple practitioners, likely based on training and experience.³²²

Additionally, while social etiquette put pressure on freedmen to praise their well deserving patrons in their epitaphs (*bene merenti patrono* is a common expression of loyalty),³²³ only one such example is preserved out of the twenty-four surviving epitaphs. In comparison, eight examples, three commissioned for *topiarii* and five by *topiarii*, frame them vis-à-vis their family (Fig. 9). Two examples, CIL V 5316 and CIL VI 7300, are commissioned by wives for their husbands (Valeria for Fortunatus, and Volusia Aucta for her well deserving Cerdo). A single example, CIL VI 9082, records a brother commissioning a burial for his brother Romanus. One example, CIL VI 4361, documents a husband *topiarius*, Dorio, commissioning the burial of his wife, Quartilla Antonia. But four examples present *topiarii* as sharing burials with their family (Alexander Hispo with his wife Patulcia Apta; Carpus with his wife Philhumene and his daughter Tertia; Charito and his relatives; and Lucrius and his relatives).³²⁴ The self-representation of the slave *topiarii* with their families is especially noteworthy. Sandra Joshel has noted that “for all slaves, family relations existed as a privilege granted by the master,” a privilege that appears to have been more commonly granted to slaves working in administrative roles, but rarely granted to slaves in domestic service or transportation.³²⁵ The intentional naming of family

³²² CIL VI 9947, entry 15 in Table 1.

³²³ Zeba A. Crook, *Reconceptualizing conversion: patronage, loyalty, and conversion in the religions of the ancient Mediterranean*, (New York: Brill, 2004): 232.

³²⁴ CIL V 5316 (entry 1 in Table 1), CIL VI 4361 (entry 3 in Table 1), CIL VI 7300 (entry 8 in Table 1), CIL VI 9082 (entry 10 in Table 1), CIL VI 9943 (entry 11 in Table 1), CIL VI 33745 (entry 21 in Table 1), CIL X 696 (entry 22 in Table 1), CIL X 1744 (entry 23 in Table 1).

³²⁵ Sandra R. Joshel, *Work Identity and Legal Status at Rome: A Study of the Occupational Inscriptions*, (Norman: University of Oklahoma Press, 1992), 88.

members and relations on slave *topiarii* epitaphs are thus at once evidence of their identities and responsibilities beyond the confines of their profession and serve as reminders of the power of their owners who allowed such relations—even if they are unnamed in the epitaphs.

Olitor/Holitor: The Market or Vegetable Gardener

Used by the late second and early first century BCE playwright, Plautus, and later with frequency in the first century BCE and into the first century CE by numerous authors, including Cicero, Horace, Columella, Varro, and Pliny the Elder, the term *olitor* or *holitor* designated another kind of specialized gardener.³²⁶ The root of the name, *holeris*, meaning vegetable, and the contextual usage by the authors suggests that this person was responsible for both the cultivation and the selling of vegetables—a role which does not translate into contemporary titles. As Landgren notes, the passages which cite *olitores* are limited, thus it is difficult to fully reconstruct who *olitores* were. However, a few observations may be made based on the scant evidence.³²⁷ Pliny the Elder’s passage on *cucumis* cultivation, mentioned earlier, is especially insightful for framing *olitores* relative to other garden workers.³²⁸ While Grimal explicitly identifies a categorical difference between what he deems

³²⁶ Plin. *HN.*, 19.64; Columella, *Rust.*, 10.148-149, 11.3.24; Cic. *Fam.* 16.18.2; Hor. *Epist.* 1.18.36; Varro, *Ling.*, 6.20; Plaut., *Trin.* 2.4.7, 10.229, 11.1.2.

³²⁷ Landgren, *Lauro, myrto et buxo frequentata*, 178.

³²⁸ There is much debate about the translation of *cucumis*, with some scholars identifying it as cucumber while others argue that it is in fact a melon. Harry S. Paris, Marie-Christine Duanay, Jules Janick, “Occidental Diffusion of *Cucumis sativus* 500-1300 CE: two routes to Europe,” *Annals of Botany* 109 (2012): 117-126; Jules Janick, Harry S. Paris, and David C. Parrish, “The Cucurbits of Mediterranean Antiquity: the Identification of Taxa from Ancient Images and Descriptions,” *Annals of Botany* 100 (2007): 1441-1457; Plin. *HN.*, 19.64.

specialized industrial labor of *olitores* and the design-based work of *topiarii*, Pliny's account suggests this view may be too inflexible.³²⁹ Rural, industrial *olitores* likely could be found in the countryside performing work that was distinctly unlike that of the Imperial *topiarii*. But the presence of a highly trained *olitor* within the imperial household of Tiberius suggests that the *olitores* performed services in a wide range of social and economic contexts. Furthermore, to cultivate and force *cucumis* to grow out of season so that the Emperor may enjoy them year-round (even if this is an exaggeration) is a practice that is more in line with Roman *ars*, the intersection of art and craft, than the kind of unskilled industrial cultivation performed by rural common laborers. This assessment is further strengthened by Pliny's observation about *cucumis* cultivation a few lines later, when he states that they may be forced to grow into any shape and that very long ones may be grown by placing the flowers into *fistulae*.³³⁰ Although Pliny does not explicitly state that *olitores* were responsible for especially long *cucumes*, no other gardeners are mentioned in the intervening lines, suggesting that perhaps the same agent is responsible for the treatment. The creation of shaped or sculpted *cucumis* is especially interesting as it collides the craft of the *olitor* with that of the plant-shaping *topiarius*. Moreover, the kind of highly technical and artful knowledge evoked in this brief passage is not indicative of industrial labor, but rather of a kind of knowledge that required investment in time, such as an apprenticeship. This further joins *olitores* to *topiarii*, who were also *artifices* and trained apprentices. This is especially significant, as most modern literature implies that such qualities are reserved for the *topiarius*, with *olitores* grouped with more simple market gardeners.

³²⁹ Grimal, *Les jardins romains*, 91.

³³⁰ Plin., *HN.*, 19.64-66.

Additionally, the work of *olitores* appears to have been connected to Venus and cultivation related holidays. In a brief passage, in which he describes various holidays, including the *Vinalia*, a wine fest celebrated on the nineteenth of August, Varro states that the holiday was centered on the dedication of a temple of Venus, that gardens were set aside for the goddess, and that this holiday was celebrated by *olitores*.³³¹ While we find little evidence of *olitores*, or rather of their labor, in Roman visual culture (fruit being much more common than vegetables in representations), the presence of *olitores* may be reconstructed in Rome and Pompeii. They constituted one of the few specialized crafts which warranted its own market, namely, the Forum Holitorium or the Vegetable Market, located in the commercial quarter on the left bank of the Tiber, between the Theater of Marcellus, the slope of the Capitoline Hill, and the Portus Tiberinus.³³² Rodolfo Lanciani describes the market as “remarkable.”³³³ Excavations have found evidence of travertine paving and peperino walls across an area that spanned 125 by 40 or 50 meters.³³⁴ Three Republican temples, to Janus, Spes, and Juno Sospita were also located inside the area. Although there is no evidence naming individual *olitores* at the market, we may at least envision them within the space, selling produce that would have traveled to Rome either by land or by water.³³⁵ A badly damaged inscription dated to 375-376 CE, attests to the continued presence of *olitores* in Rome.³³⁶ It records the praefect, Tarracius Bassus,

³³¹ Varro, *Ling.*, 6 20.

³³² Varro, *Ling.*, 5.146.

³³³ Rodolfo Amedeo Lanciani, *The Ruins and Excavations of Ancient Rome: A Companion Book for Students and Travelers*, (Boston, New York, Mifflin and Company, 1897), 458.

³³⁴ *Ibid.*, 458.

³³⁵ Filippo Coarelli, James J. Clauss, and Daniel P. Harmon, *Rome and Environs: An Archaeological Guide*, (Berkeley: University of California Press, 2014), 436-446.

³³⁶ CIL VI 41326, entry 35 in Table 1.

criticizing stall owners, including the *olitor*, Mercurius, for “claiming handouts, seats at games, and bread.”³³⁷ As the edict was found at via della Polveriera 50, some distance from the market, we may only speculate whether Mercurius sold his produce at the Forum Holitorium or at another location in Rome.³³⁸ It has also been proposed that a building attached to the west side of the forum at Pompeii might have been a vegetable market where *olitores* from the surrounding Campanian farms would sell their produce, but the space has also been interpreted as a granary, a function unconnected to *olitores*.³³⁹

L. Horatius Lucius, P. Sergius Anteros, P. Cominius Artema, and Mercurius

Five funerary inscriptions (CIL VI, 2, 9457-9459; CIL XIII, 04332; NSA-1938-74,48) provide further evidence of the social visibility of gardeners in antiquity through their participation in Roman visual funerary culture (Tab. 1).³⁴⁰ Although the five inscriptions are brief and formulaic, they do allow us to consider the gardeners themselves, not merely the horticultural techniques they practiced. Three of the five inscriptions are from Rome, one is from Ostia, and the fifth, and unfortunately most fragmentary one, was found in Divodurum (modern Metz) in France. The example from Metz is so fragmentary as to preserve only two words *holitores* [//] *tria*, yet a

³³⁷ Chister Bruun and Jonathan Edmondson, *The Oxford Handbook of Epigraphy*, (Oxford: Oxford University Press, 2015), 377.

³³⁸ CIL VI 41326, entry 35 in Table 1; Sarah Bond, *Trade and Taboo: Disreputable Professions in the Roman Mediterranean*, (Ann Arbor: University of Michigan Press, 2016), 213.

³³⁹ Thomas Dyer, *Pompeii: its history, buildings, and antiquities*, (London: Bell & Daldy, 1867), 110; Paul Zanker, *Pompeii: Public and Private Life*, Trans. Deborah Lucas Schneider, (Cambridge: Harvard University Press, 1998), 125.

³⁴⁰ CIL VI 9458 is also listed as CIL I 1057, entry 31 in Table 1.

number of observations may be made about the significance of three gardeners holding Roman horticultural titles in the provinces.³⁴¹ The discovery of a large group of grave stele in the 1970s during the construction of a mall illustrate that Divodurum had a dynamic multi-cultural population, with continued Celtic names alongside Roman ones, as well as more eastern, Greek names.³⁴² The names of the *holitores* are not preserved, but we might speculate whether such a diversity in overlapping identities and cultural influences may have also presented itself in horticultural practices.

Despite the inscriptions forming a very small sample size, they record various aspects of the social identities of the *olitores* they record. Two of the Roman examples illustrate familial connections. In the first, the freedman *olitor*, Publius Sergius Anteros, is commemorated with his freed wife, Titia Tertia.³⁴³ The second example commemorates two freeborn sons, Lucius Horatius, the *olitor*, and his brother Sextus Horatius, as well as proclaiming their membership in the Voturia tribe.³⁴⁴ The inscriptions also illustrate different legal identities, representing slave, freed, and freeborn *olitores*. CIL VI, 2, 9457 and CIL VI 41326 (the edict) from Rome each only lists a single name, Ariarathes, and in the second example, Mercurius, without any further clarification as to their holders' status suggesting perhaps they were slaves.

³⁴¹ CIL XIII, 4332, entry 33 in Table 1; Pascal Flotté, *Metz*, (Paris: Académie des inscriptions et belles-lettres, 2005), 162, A24; Ségolène Demougin, “Des collèges en Gaul Belgique,” in *Collegia: Le phénomène associatif dans l'Occident romain*, ed. Monique Dondin-Payre and Nicolas Tran, (Bordeaux: Ausonius Éditions, 2012), 157.

³⁴² CIL XIII, 4332, entry 33 in Table 1.

³⁴³ CIL VI, 2, 9459, entry 32 in Table 1. Melanie Jonasch, “Les pierres du bon buveur: Eine regionale Konvention unter den Grabstelen des römerzeitlichen Gallien,” PhD Diss., (Freie Universität Berlin, 2011), 126-127.

³⁴⁴ CIL VI, 2, 9458, entry 31 in Table 1.

CIL VI, 2, 9459 from Rome and NSA-1938-74, 38 from Ostia clearly identify *olitores* as freedmen, while CIL VI, 2 9458 from Rome names a freeborn *olitor*.

Two examples, CIL VI 9458, belonging to Lucius Horatius, and NSA-1938-74, 48 to the freedman P. Cominius Artema (dated to period of Claudius-Nero),³⁴⁵ record tomb plot sizes, tantalizingly leading us to ask whether *olitores* had a penchant for tombs which could accommodate productive gardens? Productive tomb gardens are well attested in the Roman world, as they served an economic function that helped maintain the memory of the deceased.³⁴⁶ As the produce from these gardens could be sold at market, the funds generated by the tomb served to pay for upkeep.³⁴⁷ P. Cominius Artema's tomb is described as measuring sixteen by twenty-five and a half feet, while the dimensions of Lucius Horatius' tomb is only partially preserved as twenty feet, the other measurement being lost due to a break. Covering an area of about 28 square meters, P. Cominius Artema's garden tomb is modest and ranks among the smallest garden tombs documented by John Bodel.³⁴⁸ Although the measurement of a funerary plot within a funerary inscription is a common and formulaic feature, one cannot help but wonder how much of such a small plot would be devoted to burials itself versus what could be left for possible cultivation. Certainly,

³⁴⁵ On NSA-1938-74, 48, entry 34 in Table 1: Michael Heinzlmann, "Grab VL F7," in *Die Nekropolen von Ostia: Untersuchungen zu den Graberstrassen vor der Porta Romana und an der Via Laurentina*, (München: Verlag Dr. Friedrich Pfeil, 2000), 278-280; CIL VI 9458 entry 31 in Table 1.

³⁴⁶ John Bodel, "Roman Tomb Gardens," in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, (Cambridge: Cambridge University Press, 2018): 199-242.

³⁴⁷ Nadine Brundrett, "Roman Tomb Gardens: The Construction of Sacred Commemorative Landscapes," *The Brock Review* 11.2 (2011): 51-69; Virginia L. Campbell, "Stopping to smell the roses: Garden tombs in Roman Italy," *Arctos* 42 (2008): 31-43; Jashemski, "Tomb Gardens at Pompeii," 97-115.

³⁴⁸ Bodel, "Roman Tomb Gardens," see Table 8.1 with the dimensions of garden tombs from across the empire, 224-225; many garden tombs are small covering an area less than 100 square meters, but many more examples are much larger, covering over 1,000 square meters.

one or two fruit bearing trees or other fruit or vegetable producing plants might fit in such a plot, leaving ample space for cremated burials. As the sample size of inscriptions for *olitores* is so small, it is not possible to ascertain whether these are reflective of the legal status of all *olitores*. Nevertheless, amid a growing roman garden bibliography that writes out the very people who made gardens, it is significant to note these few individuals.

Hortulanus/Ortolanus: The Gardener of the Hortus

The closest term parallel to our modern conception of a gardener may have been the *hortulanus*, a title derived from *hortus*, meaning garden, park, or estate lands. As Landgren notes, the title of *hortulanus* appears to have encompassed a wide range of garden related duties, but unlike *olitor*, *hortulanus* is attested later, for the first time in the second century CE in Apuleius and then in Macrobius' fifth century CE *Saturnalia*.³⁴⁹ Little can be gleaned from Apuleius as the *hortulanus* appears only in passing without great description, but two items are of note. First, he describes the *hortulanus* as possessing his own *hortus*, and second, also as purchasing an ass for fifty sesterces, both qualities suggestive of economic self-sufficiency. Although Macrobius is not a strong source for reconstructing Late Republican and Early Imperial practices, a passage from book seven is noteworthy, if only to think about the development of the profession. In a section on the appropriateness of certain jokes amid those of the same class, he writes, "if one poor man mocks another for his

³⁴⁹ Landgren, *Lauro, myrto et buxo frequentata*, 178.

poverty, or one lowborn man another: when Amphias of Tarsus, a former gardener, became a great man and passed some comments about a friend's being "of poor stock," he quickly added, "But I too am born from the same seed," and caused equal pleasure on all sides."³⁵⁰ In this passage Macrobius describes a gardener who had become a "great man," implying that he had not always been one. It is unclear how Macrobius defines a "great man" but the text suggests social mobility.

Trebanius Filterius and Pascasius

Although the term *hortulanus* is only used by north African authors, it is found in funerary inscriptions in Rome and in Arles, suggesting that the professional title was not limited to only certain provinces (Tab. 1). The Roman example, found in the Church of Sant' Agnese on the via Nomentana, underscores the longevity of the title as it dates to 486 CE. The inscription is fragmentary, only a Christian name, Pascasius, and the man's role, *Ortolanus*, are preserved.³⁵¹ The example from Gaul is unfortunately undated, but much more evocative, proclaiming "*Trebanius Filterius hortulanus/ hortos vivus amavit et obiit*," (Trebanius Filterius, *hortulanus*, in life he loved gardens/estates and died).³⁵² Although blooming flowers in reference to the

³⁵⁰ Macrobi., *Sat.*, 7. 20; "nam Tarseus Amphias cum ex hortulano potens esset et in amicum quasi degenerem non nulla dixisset, mox subiecit: 'sed et nos de isdem seminibus sumus,' et omnes pariter laetos fecit."

³⁵¹ CIL VI 9473, entry 37 in Table 1; Danilo Mazzoleni, "La prima comunità cristiana di Roma nel periodo tardoantico alla luce delle testimonianze epigrafiche," in *Frühchristliche Grabinschriften im Westen des Römischen Reiches*, ed. Lukas Clemens, Hiltrud Merten, and Christoph Schäfer, (Trier: Kliomedea, 2015), 165.

³⁵² CIL XIII, 0113, entry 36 in Table 1 ; J. J. Estrangin, *Description de la ville d'Arles: antique et moderne de ses Champs-Elysées et de son musée lapidaire avec une introduction historique*, (Aix: Aubin, 1845), 431. Unfortunately, this inscription is now lost.

ephemeral nature of life are not uncommon in Roman epitaphs, this example is unusual. Unlike so many inscriptions which identify the deceased's work as a primary source of identity, much like the *olitor* inscriptions discussed earlier, here the *hortulanus* is not only identified as a gardener but also shown to express his love for the very places he worked with. The simple and short phrase is suggestive of a close relationship between the gardener and his charges, the gardens and their plants.

A last example deserves consideration although it is excluded from the corpus due to its uncertain reconstruction. Informed by the epitaph of Pascasius, Jacques Heurgon suggests that CIL I 687, a fragmentary inscription from Capua, listing a series of names in the poorly preserved text reading “*Heisce magistratis(?) horto...*” be reconstructed as *horto[lanorum]*, meaning as a *collegium* of gardeners.³⁵³ The inscription lists six individuals, Quintus Sattius, Quintus Minatius, Lucius Apimius, Caius Fabius, Publius Ofellius, and Marcus Fulmonius as commemorating a court victory and dedicating a monument to Hercules with their own funds. Considering the very late emergence of *hortulanus* in literary evidence, reconstructing an inscription dated to 130-51 BCE greatly expands the historical range of gardener's whose titles derive from *hortus*. Heurgon does not appear to find the early dating unusual or prohibitive of such a reconstruction. In fact, he suggests that a professional gardener-specific *collegium* in Capua, an area known for its roses and whose economy was

³⁵³ CIL I 687, dated 130-51 BCE; Jacques Heurgon, “Les *magistri* des collèges et le relèvement de Capoue de 111 – 71 avant J.C.” *Mélanges d’archéologie et d’histoire* 56 (1939), 14, footnote 1; Q(uintus) Sa[attius(?)] | Q(uintus) Min[atius(?)] | L(ucius) Opimi[us] | C(aius) Fabiu[s] | P(ublius) Ofelliu[s] | M(arcus) Fulmon[is] | heisce magistratis horto[lanorum(?)] | iudicioque vicere eidemqu[e] | sucrundam porticusque reg[ias(?)] | eidemque de sua pecunia Herculei [.

greatly rooted in vegetable production, would be ideally suited to support a professional organization of gardeners.

Putator, the Vine and Tree Pruner, and Vinitor, the Vinedresser

The following gardeners are more difficult to reconstruct as there is much overlap between the *putator* (pruner of vines and trees), the *arborator* (the gardener of trees), and the *vinitor* (the vinedresser). As roman pruning knives, much like modern ones, are used interchangeably for both viticulture and arboriculture, these three gardeners in principle even used some of the very same tools. In some instances, such as in Columella's Book IV section XXIV, he used the terms *putator* and *vinitor* interchangeably to describe the very same workers, suggesting a fluidity to the titles.³⁵⁴ As a result, the *putator* and the *vinitor*, must be treated together despite the existence of two different terms to describe their activities. In an effort to illuminate and define his role, the *arborator* is treated separately in the following section.

The *putator* only figures in works of first century BCE and CE authors, referring to a kind of specialized gardener responsible for pruning.³⁵⁵ Yet the exact role of the *putator* differs between the authors. While Columella and Martial refer strictly to the pruning of vines, Pliny the Elder employs the term for the person who prunes trees as well as trees used in the cultivation of vines. The *putator* in Varro and

³⁵⁴ Columella, *Rust.*, 4.24.

³⁵⁵ Varro, *Ling.*, 6,63; Plin. *HN.*, 18.114; Columella. *Rust.*, 10.228, 11.2,33, 4.24.11, 4.24.22; Mart., 358.9; Verg., *G.*, 2.28; Landgren, *Lauro, myrto et buxo frequentata*, 178.

Virgil is responsible only for trees, with no mention of vines, although Virgil does also suggest that perhaps the *putator* is responsible for grafting.

In comparison, the *vinitor*, whose title derives from *vinum*, meaning wine, is solely associated with grapevine cultivation. Like the *putator*, the term *vinitor* is also only found in works from the first century BCE and CE, but in a more limited number of authors. Columella refers to highly skilled *vinitores* exhaustively in his chapter on grape vine cultivation.³⁵⁶ In explaining the kind of body or mind that is best suited to different kinds of agricultural work, Columella argues that the *vinitor* must be broad shouldered and brawny to be able to dig vines deeply, but that the work requires a quick mind that can learn easily. This last quality—a sharp learner—is the reason why *vinitores*' work must be supervised, and why they must be kept in fetters while working, for it is usually only the “unruly” slaves who are quick-witted.³⁵⁷ A number of tasks require that the *vinitor* be an especially well skilled craftsman. First, different varieties of vines require pruning at different times, but vines in winter, without their leaves, all look alike. Only a well-trained *vinitor* will arrange a plot in such a manner that individual varieties are well organized so that each variety receives the pruning they require at the allotted time.³⁵⁸ Skill, care, and gentleness are also needed in pruning, which if done incorrectly wounds and scars vines, but if performed well, will greatly increase yield in the following year.³⁵⁹ Columella's lengthy discussion makes clear that the work of the *vinitor* spans all seasons. Between winter

³⁵⁶ Columella, *Rust.*, 1.9.4, 3.11.7, 4.27.2-3, 4.24.1, 4.24.7, 4.24.21, 4.25.2, 11.2.38, 11.1.12.

³⁵⁷ Columella, *Rust.*, 1.9.4.

³⁵⁸ Columella, *Rust.*, 3.11.7.

³⁵⁹ *Ibid.*, 4.27.1.

and spring, vines are pruned.³⁶⁰ In spring, once they produce new shoots and are dense with leaves, a *vinitor* must gently and skillfully cut foliage, a process which is less painful to the vine than pruning of branches and results in less shaded fruit.³⁶¹ As fruit begin to form in summer and into autumn, the *vinitor* must examine each plant and cut off any fruit that may have grown in excess.³⁶² And in the course of walking up and down the rows of vines, the *vinitor* is also charged with maintaining the stake poles and frame.³⁶³ Cicero mentions the *vinitor* within a larger discussion on the role all gardeners play in plant lives as foster-mothers, a view that is further explored in chapter four.³⁶⁴ Virgil's Eclogue X also mention a *vinitor* once, in the role of a lover and his beloved, ripened grapes.³⁶⁵ Nothing may be gleaned about the craft of *vinitores* from Virgil, but his employment of the term in a genre outside of agricultural treatises is evidence of a broader infiltration of horticultural terms.

Writers such as Cato, Varro, Columella and Pliny the Elder give the impression that the tasks of the *putator* or *vinitor* may be, at least in part, learned from their treatises, but the accounts of modern Mediterranean vintners contradict such a conception. Instead, modern practitioners who wield tools nearly identical to those held by ancient Romans, articulate the centrality of tactile, field learning and the role of the family as a vehicle of knowledge distribution. The modern Spanish vintner, Josep Bruna Masana, who, two thousand years later, works in the same environmental

³⁶⁰ Ibid., 3.11.7.

³⁶¹ Ibid., 4.27.3.

³⁶² Ibid., 4.27.5.

³⁶³ Ibid., 11.2.38.

³⁶⁴ Cic. *Fin.*, 5.40.

³⁶⁵ Verg. *Ecl.*, 10.36.

conditions as ancient *putatores* and *vinitores*, describes the process of learning to prune as a child as something that,

“My grandfather taught me. He showed me when I was 6 or 7. I’d go into the vineyard and ask him, ‘what should I do today?’ I remember one day he told me ‘come here, I’ll show you how to prune...’ It is *a technique that is learned by doing. You have to put a lot of hours in. Not everyone knows how to do it. Pruning is undoubtedly one of the most important tasks in the vineyard. It is very difficult to mechanize, and if done improperly, it can have a direct impact on yields and grape quality.*”³⁶⁶

Despite horticultural, botanical, and cultural developments in the intervening centuries, Masana’s categorization of the importance of pruning, its direct effect on the productivity, and the need for skillfulness developed through much practice reads almost word for word as Columella’s *On Agriculture*.

Vallorus, and Secundus

Two funerary inscriptions from southern Gaul attest to the commemoration of pruners. CIL XII 4003 from Nîmes dated to the end of the first or second century CE, was dedicated by Quartina to her excellent brother, Vallorus.³⁶⁷ The stele does not record a title in the epitaph, but it features a prominently carved pruning hook (a *falx vinitoria*) directly below the inscription, identifying Vallorus as pruner. A second stele from Nîmes, unpublished and dated to the second century CE, is recorded as also depicting a pruning knife and commemorating Secundus, son of Aurelius.³⁶⁸ Because the region was already known for its viticulture in antiquity, the stelae are interpreted

³⁶⁶ Josep Bruna Masana, “Pruning: Traditional versus Italian System,” last updated February 1, 2017, <https://www.jeanleon.com/en/pruning-traditional-vs-italian-system>.

³⁶⁷ CIL XII 4003, entry 38 in Table 1; Jean-Luc Fiches and Alain Veyrac, *Carte archéologique de la Gaule: Nîmes 30/1*, (Paris: Académie des Inscriptions et Belles-Lettres, 1996), entry 422; Bijan Omrani, *Caesar’s Footprints: A Cultural Excursion to Ancient France*, (New York: Pegasus Books, 2017), 239.

³⁶⁸ Entry 39 in Table 1; Fiches and Veyrac, *Carte archéologique de la Gaule*, entry 624.

as commemorating a *vinitor* of grapevines, although based on their shared tools, it is possible they depict any of the three professions to wield pruning knives: *vinitores*, *putatores*, or *arboratores*.³⁶⁹ In addition to documenting pruners, inscriptions also attest to the dissemination of pruning culture in the form of *vinitor* and *putator* as a cognomen, a nickname which initially referred to a trait or activity and later became a hereditary name. For example, the first century CE funerary epitaph of Titus Vossaticius Vinitor from Aradunum (Calvisson) in southern France is interpreted as evidence of widespread local viticulture.³⁷⁰ Because cognomina were personal, we might speculate whether T. Vossaticius Vinitor was a descendant of vine-dressers or perhaps was one himself. Likewise, an inscription from Caesarea (modern Cherchell) in Algeria, dated to the first to third century CE, illustrates how pruning cognomina became hereditary. The epitaph commemorates Caius Aemilius Putator, a forty-five year-old dignified husband of Bassia Bassina, and their sweetest son, Caius Aemilius Bassinus Putator, who died at the age of twenty five years, seven months, and three days. Despite the viticultural cognomen which evokes slave labor in vineyards, Caius Aemilius Bassinus, according to Philippe Leveau, must have belonged to the municipal upper class.³⁷¹ Additionally, two trends beyond the chronological and regional scope of this project must also be noted. First, despite the lack of figural

³⁶⁹ Related broadly to funerary representations of cultivation tools is the case of miniature bronze agricultural implements, such as rakes, pruning shears, scythes, hoes, and plows that were found in third and fourth century CE tombs in Köln-Rodenkirchen, near Cologne, Heinz Günter Horn and Tilmann Bechert, *Die Römer in Nordrhein-Westfalen*, (Stuttgart: K. Theiss, 1987), 160-161.

³⁷⁰ ILGN 0540: T(itus) Vossaticius | Vinitor sibi et | Dubiae Senilis f(iliae) | uxori vi(vus) f(ecit); Michel Provost, *Carte archéologique de la Gaule: le Gard 30/2*, (Paris: Académie des Inscriptions et Belles-Lettres, 1999), 293; *Revue épigraphique*, Vol. 3, (Vienne: E. J. Savigné Imprimeur, 1894), 289-290, number 1023.

³⁷¹ CIL 8, 9438. Philippe Leveau, *Caesarea Maurétanie: une ville romaine et ses campagnes*, (Rome: École française de Rome, 1984), 113, 120.

representations in the grave stele of the gardeners in this corpus, depictions of pruners on funerary stele are attested in Gaul beginning in the third century CE.³⁷² Second, while the regional focus is on Italy and the West, many pruners (identified by depictions of their tools) are commemorated in the eastern Mediterranean.³⁷³

At first glance, the *putator* or *vinitor* may not directly relate to villa gardeners. Their labor is often almost exclusively associated with agricultural and utilitarian purposes, but grapes and grapevines also played an ornamental role in gardens by shading summer *triclinia* and walkways and featured prominently in visual representations in the *domus* and in villas. Moreover, we cannot view vineyards themselves as fulfilling only productive roles. They could also function as spaces of *otium*, of leisure. In a letter to Gallus about his Laurentian villa, Pliny the Younger describes one of his vineyards as being located inside a *gestatio*, a garden space closely associated with villas meant for leisurely strolling, and possessing soil soft enough for strolling bare-foot.³⁷⁴ Thus, we must imagine *vinitores* and *putatores* employed not only for the productive cultivation of grapes for wine, but also caring for vine filled gardens that were designed as leisure spaces for the elites.

Inside villas and homes, we find the work of *vinitores* and *putatores* depicted in the cupid grape harvest paintings, such as in room 25 in the House of M. Lucretius

³⁷² Émilie Gauthier et Martine Joly, “Vignoble et Viticulture dans le Centre-Est de la Gaule au Ier siècle ap. J.-C.,” in *Actualité de la recherche en histoire et archéologie agraires: actes du colloque Ager V, 19-20 Septembre 2000*, ed. Anne Vignot and François Favory, (Besançon: Presses universitaires franc-comtoises, 2003): 191-208.

³⁷³ M. Waelkens, “Phrygian votive and tombstones as sources of the social and economic life in Roman antiquity,” *Ancient Society* 8 (1977): 277-315; Grave stele, 239-240, Phrygia, Krannert Art Museum, IL, <https://kam.illinois.edu/collection/grave-stele>, accessed March 3, 2020.

³⁷⁴ Plin. *Ep.* II. 17.

(IX.3.5) at Pompeii and in the Cupid Room from the House of the Vettii (VI.15.1)³⁷⁵

In the House of M. Lucretius, three fresco fragments from the exedra feature intensively pruned and defoliated vines bearing large bunches of grapes hanging heavily. Influenced by the ornate daintiness of Third Style painting, the vine is pruned into a linear form, nearly all side branching has been removed. The leaves have been so heavily removed that in many spaces the bare vine is visible. No leaves cast shade on ripe grape bunches, just as Columella instructs. The Fourth Style paintings from the House of the Vettii capture a traditional method of grape cultivation, with lush, leafy grape vines hanging, married to heavily pruned trees. Despite the perceived frivolity and joviality of the cupids gathering the harvest, the length of the grapevine is indicative of a well-managed and mature specimen. It spans the entire painting with the trunk and root bulb out of the picture plane. Importantly, we only see the *vinitores* and *putatores* through a semi-divine lens, with their bodies translated into those of cupids.

The waste products of *vinitores* and *putatores* pruning a second time, once leaves are on vines, and later cutting of individual leaves off the vine, are found in the many grapevine garlands which decorate Roman villas and public structures, such as the mixed fruit and branches garland hung between columns in the Room of the Garlands in the House of Livia on the Palatine or the relief garlands on the interior of the Ara Pacis. In both examples, garlands are woven from a mixed allotment of short, pruned branches, some bearing leaves, some also fruit. In the House of Livia, individual grape leaves may be spotted throughout the garland, a reuse of cut leaves to

³⁷⁵ Jashemski, *The Gardens of Pompeii Vol.I*, 224, Figure 327.

expose grape bunches to more sunlight (Fig. 10). To the left of a column, a slender, young branch hangs down from the garland, one which we might imagine the *vinitor* pruned early in the season so that the vine was not overly burdened with supporting too many branches, leaves, and fruit. In the garlands festooning the interior of the Ara Pacis a similar conjunction of individual leaves and young branches is used (Fig. 11). On either side of the bucrania, single, large leaves (ones which would cast a large shadow if left on a vine) serve to obscure the attachment of the garland to the bucrania. In the same location, just above the garlands and under the ribbons, young, pruned grape branches extend out from the garland. Represented garlands of this type often collapse time, depicting fruits and flowers of different seasons simultaneously. But despite their somewhat fantastical nature, they memorialize the real garlands which decorated homes, villas, and public structures for various holidays. In the spring, when much pruning is required in orchards and vineyards, a garland weaver would have had access to an overabundance of materials.

Vinitores and *Putatores* are also evidenced in the fifteen pruning knives discovered in the House of Menander, as well as in the carbonized pruned grape vine found at the villa *rustica* at Oplontis.³⁷⁶ The pruning knives, or “bill hooks” are virtually identical to ones used to prune vines and branches today. The blades are distinctly shaped, featuring a long straight neck topped with a ninety-degree curve, and ending in a point. The curved shape of the blade reinforces Columella’s and modern practitioner’s guidance: to cut towards oneself. The carbonized vine branch found at the villa *rustica* at Oplontis likewise supports the idea that Columella’s

³⁷⁶ Jashemski, “Gardening Practices and Techniques,” 440.

recommendations were employed.³⁷⁷ The branch clearly preserves an oblique cut, a type which according to Columella would keep rainwater out of the wound.

Additionally, although the titles first appear in the first century BCE, we may loosely reconstruct the origin of the specialized role of the *vinitor* and *putator* in relation to vines in the third century BCE. Recent analysis of water-logged grape vine pips (seeds) from Etrusco-Roman sites in the Chianti region of Italy show distinct viticultural change around 200 BCE marked by an increase in pips.³⁷⁸ Molecular and biometric analysis suggests that the increase in pips is not the result of the introduction of a new variety, but corresponds to changes in viticulture management. Etruscan style tree-grape cultivation, employed in the region, did not make use of pruning. However, the change in pips coincides with greater Etrusco-Roman contact, an event which is attributed with increasing Etruscan grape yield by introducing Greek and Phoenician pruning via the Romans. The introduction of pruning around 200 BCE also corresponds to increased wine production on Roman farms as evidenced by wine making tools, the adoption of Dressel 1 and Lamboglia 2 type amphorae containing Roman Italic wine replacing imported kinds—characteristics which are all suggestive of a quick and distinct increase in viticulture knowledge and production on the Italic peninsula, and which are likely connected to the development of the *vinitor* and *putator*.³⁷⁹

³⁷⁷ Ibid., 440.

³⁷⁸ Riccardo Aversano, et al, “Dating the beginning of the Roman viticultural model in the Western Mediterranean: The case study of Chianti (Central Italy),” *PLOS ONE* November 15 (2017): 10-11.

³⁷⁹ Aversano, et al., “Dating the beginning of the Roman viticultural model,” 11.

Arborator: The Gardener Trained in Arboriculture

The *arborator*, mentioned by Columella and Pliny the Elder, appears to have perhaps shared some duties with the *putator*.³⁸⁰ The name of the position would suggest that the duties involved trees, but the examples in literature are not clear about what the role entailed.³⁸¹ In fact, Pliny the Elder refers to an *arborator* within the same passage that gives directions to the *putator*. The latter is pruning trees, while the *arborator* is instructed not to cut foliage (*frondem*), so that it is not at all clear how the duties of both may differ. Columella provides even less assistance, as his *arborator* is part of a longer list of specialized workers related to cultivation and farm life, without any reference to the types of duties they may perform. However, in a passage on agricultural knowledge and specialization which describes both the *arborator* and the *vinitor* he writes,

“Who, therefore, you say, will teach the future bailiff, if there is no professor of the art? I, too, am aware that it is very difficult to attain a knowledge of all precepts of agriculture from, as it were, a single authority; nevertheless, though you will find scarcely anyone acquitted with the whole art, yet you will find very many masters of parts of it, with whose help you can form the perfect bailiff. For a good ploughman can be found and an excellent digger or mower, and likewise an *arborator* and *vinitor*, and also a farrier and a good shepherd, no one of whom would refuse to impart to one desirous of learning them the principles of his art.”³⁸²

According to this passage, the art of cultivation is necessarily divided among many specialized masters (*magistros*). As his *arborator* falls into this category this would suggest that Columella perceived him to possess a high level of knowledge and training, which in turn suggests that the role fell within the upper echelons of

³⁸⁰ Columella, *Rust.*, 11.1.12; Plin. *NH.*, 18.330.

³⁸¹ Landgren, *Lauro, myrto et buxo frequentata*, 178.

³⁸² Columella, *Rust.*, 11.1.12.

cultivation hierarchy and was not equated with a general field hand. *Arboratores* are not documented in the funerary inscriptions, but, as mentioned earlier, because they shared tools with those employed in viticulture, it is possible that some of the burials attributed to vine-dressers in fact commemorate *arboratores*. As their exact role in gardens and farms is not clear, it is difficult to find evidence of their presence in gardens and in garden representations. If we interpret the position as centered on trees, then there is no reason to assume that their duties were limited to the productive orchards of villa estates. Agricultural treatises and paintings attest to the pruning of fruit trees to foster greater productivity, a role that may have been accomplished by *arboratores*. Their presence may also be found in maritime villa paintings, which commonly depict tall deciduous and coniferous trees shading villas and their porticoes.³⁸³ Although these paintings are miniatures and the brush strokes tend to be loose and almost expressionistic, the umbrella pines, which if left untended, produce many dead branches underneath their green canopy, are all depicted as pruned.³⁸⁴

Aquarius: The Garden Waterer?

³⁸³ Bettina Bergmann, "Painted Perspectives of a Villa Visit: Landscape as Status and Metaphor," in *Roman Art in the Private Sphere: New Perspectives on the Architecture and Décor of the Domus, Villa, and Insula*, ed. Elaine K. Gazda, (Ann Arbor: University of Michigan Press, 1991): 49-70.

³⁸⁴ Such as the maritime villa painting from the House of Menander from the atrium (I.10.4); the villa painting from Pompeii (MANN inv. 9406), or the painting from the House of the Citharist (I.4.5) (Mann inv. 9610). Visual evidence of pruning in paintings is species specific, so that no one visual clue may be applied to all plants. In some paintings, as Kathryn Gleason has illustrated, artists have depicted the scar marks where branches were cut (such as on the plane tree from the House of the Gilded Cupids). Most often it is necessary to be familiar with the natural growing habit of a particular species to be able to identify whether any gardener intervention, such as pruning occurred. For example, not all plants produce "dead-wood" in the manner of umbrella pines or palms. Left unattended, these trees develop skirts of dead branches below green canopies. But in garden paintings and contemporary gardens, these dead branch skirts are removed. Even if prune scar marks are not depicted by painters, the lack of dead lower branches is a sign of pruning.

Linda Farrar also identifies an *aquarius*, or garden waterer, as another central garden role, but this title appears to be incorrectly attributed to the garden.³⁸⁵ Ovid, while writing in exile, laments that he longs to return and perform simple tasks, such as quenching the thirst of the garden, but he does not use the title *aquarius*.³⁸⁶ Juvenal mentions an *aquarius* or water-carrier being fetched by the maenads of Priapus, but there is nothing in the text to further elucidate whether he refers to a person who waters the garden, or perhaps to someone who delivers water for general usage in a home. Elsewhere, Cicero cites an *aquarius* in relation to the management of the aqueduct, not as someone connected to garden labor. While aqueducts certainly played a foundational role in the development and maintenance of Roman gardens, it is a stretch to connect an urban aqueduct laborer with garden labor. But the absence of a specialized title for a garden waterer is in itself illuminating. It suggests that this was not perceived to be a specialized enough activity to warrant a title. When compared with the specialization, knowledge, and training that the *olitor*, *hortulanus*, *putator*, *vinitor*, and *arborator* possessed, watering must have been an activity that non-specialized workers could perform.

Conclusion: What's in a Name?

Having lifted the gardeners up from the footnotes into the heart of text, it must be said that some types of analyses must be qualified because the sample size is relatively small and of the fifty-three individuals documented in the inscriptions,

³⁸⁵ Farrar, *Ancient Roman Gardens*, 161.

³⁸⁶ Ov., *Pont.*, I.8.60.

twenty-eight are of unclear legal status (Fig. 12).³⁸⁷ The remaining group is divided into fourteen slaves, seven freedmen, two freeborn, and two *incertus*. Although *arboratores* are not documented in the inscriptions and are thus excluded from this group, Columella's text suggests they were primarily enslaved. Focusing on the examples with identifiable legal status, the data presents an image of garden cultivation relying heavily on slave labor, with few freed individuals, and even fewer freeborn practitioners. But even more importantly, the legal status of the documented individuals allows us to complicate Grimal's horticultural hierarchy and better understand the gardeners relative to one another.

If we consider the type of plants and work gardeners performed, separate from their legal status, we might easily support Grimal's assessment of *topiarii* out-ranking other gardeners. Of the group, they alone appear to have worked primarily with non-productive plants which served solely to beautify and clothe the villa, providing no economic value. To afford such wasteful cultivation required great wealth. Moreover, the great number of *topiarii* associated with Imperial contexts further supports the idea that they practiced an art sustained by only the most elite members of society. In comparison, the *olitor*, *putator*, *vinitor*, and *arborator* all worked with productive plants, be it vegetables, fruit trees, or grapevines, which might fulfill an ornamental role in gardens, but were the primary financial investments of villa cultivation. Based on modern division of landscape work, one might assume that greater horticultural expertise might correspond with greater level of freedom, so that the *topiarii*, the

³⁸⁷Of those twenty-three, the text is either fragmentary, or the status is unclear based on the name provided. Accounting for possible instances of inscriptions with single names not automatically belonging to enslaved individuals, they are thus categorized as unclear.

designers, ought to be more heavily represented by freedmen and freeborn. Instead the evidence for a social or horticultural hierarchy is conflicting. While the letters of Cicero and Pliny the Younger suggest that the *topiarius* was considered by his owners and by his own estimation to possess greater prestige than many other villa workers, this group of gardeners is nonetheless largely composed of enslaved individuals. If we compare the distribution of legal status among the gardeners, Grimal's perceived hierarchy becomes less sustainable. In comparison, *olitores*, who Grimal categorized as mere industrial laborers, are mainly commemorated as freedmen, a legal classification which allowed them to participate in legally recognized marriages and to bear free children who could hold office—rights denied to the slave *topiarii*. Yet there is evidence of hierarchies within the slave gardeners. As permission to have a family was used as a reward and to incentivize good behavior in male slaves, it is noteworthy that of the eight examples of *topiarii* commemorated by or with their family members, six are of slave *topiarii* from imperial contexts. This clear connection between imperial gardens and permitted slave families supports the idea of imperial gardeners possessing greater social status than their non-imperial slave colleagues. There are also significant absences in the data set. While recent agricultural research has theorized the presence of women cultivators, no women are recorded in this corpus, although it is quite likely that slave women in villas performed some duties in the garden.³⁸⁸

The epigraphic evidence also allows us to contextualize the gardeners within broader contemporary trends of the period among other craftspeople. The late

³⁸⁸ Ulrike Roth, "The female slave in Roman agriculture: changing the default," Phd Diss., (Nottingham: Nottingham University, 2003).

Republican and Early Imperial period witnessed the rise of a new Roman slave and freed craftsmen class, an economically dynamic group, performing specialized crafts. Their conceptualization of virtue as entangled with their work and honor is evidenced on their tombs, which proudly depict scenes of labor and the tools of their trade.³⁸⁹ The gardener epitaphs follow this trend by clearly framing their commemoration *via-vis* their profession, either through the inclusion of titles or representations of the tools of their trade. For example, the stele of Vallorus, the pruner, devotes nearly a third of the pictorial space to the representation of the pruning hook, making his profession identifiable to even illiterate passersby. This is equally evident in some of the shorter epitaphs which only record the name and title of the gardener, omitting age, patron, owner, or family.³⁹⁰ But, in questioning pride and honor as primary motivators for occupational titles in epitaphs, Joshel reminds us to remember who named the positions—i.e. the slave owning elites, not the professionals who carried the titles.³⁹¹ As such, commemorating one’s professional title, is at least in part, symptomatic of expressing one’s utility to and position within the community of the *familia*.³⁹²

Likewise, the specialization and education of gardeners provides another complicated facet of their identity which contradictorily illustrates their agency as well

³⁸⁹ Catharina Lis and Hugo Soly, “Work, Identity, and Self-Representation in the Roman Empire and the West-European Middle Ages: Different Interplays between the Social and the Cultural,” in *Work, Labour, and Professions in the Roman World*, ed. Koenraad Verboven and Christian Laes, (Leiden: Brill, 2016), 262-263.

³⁹⁰ It must be remembered that countless gardeners are likely lots to us, as they may have been commemorated only by name (as is common in columbaria), without their professional titles. Gardeners whose epitaphs were painted on plaster, a medium with poorer preservation than stone inscriptions, are also lots to us.

³⁹¹ Joshel, *Work Identity and Legal Status at Rome*, 88-89.

³⁹² *Ibid.*, 89.

as simultaneously framing them as tools of their owners and patrons. The high degree of technical knowledge required within the *ars* of gardening created a complex community of various levels of expertise, from master gardeners, like our “principle *topiarius*” to young, inexperienced apprentices. In many ways, “the *ars* enabled the *artifex* [gardener] to show his dexterity, ingenuity, and, more generally, to demonstrate his skills...the *ars* constituted a proper ground for displaying expertise (*expertitia*) and excellence.”³⁹³ It thus provided a socially acceptable means of making oneself visible and thereby elevating one’s status in society. Within such a framework, the principle *topiarius* or the *artificer* who wrote his name in box plants possess agency by expressing ingenuity. However, as Nicolas Tran articulates, the very education which granted gardeners prestige, social, and economic power, was also a means for slave owners and patrons to “make” skilled workers.³⁹⁴ Thus, “the education a slave, [such as a *topiarius* apprentice], received was seen as an investment that increased his value.”³⁹⁵ And although certainly education was a financial burden that slave owners or patrons had to bear, it was a lucrative investment as it fostered “future exploitation of these new skilled workers.”³⁹⁶ As a result, the garden was a place to not only cultivate plants, but also new gardeners.

But education also enabled masters and patrons to further secure their ownership of their gardeners. In the earlier cited passage from Columella on the necessary subdivision of agricultural knowledge, Columella ends by saying, “no one

³⁹³ Nicolas Tran “*Ars and Doctrina: the Socioeconomic Identity of Roman Skilled Workers (First Century BC-Third Century AD)*,” in *Work, Labour, and Professions in the Roman World*, ed. Koenraad Verboven and Christian Laes, (Leiden: Brill, 2016), 252.

³⁹⁴ Tran “*Ars and Doctrina*,” 252.

³⁹⁵ *Ibid.*, 258.

³⁹⁶ *Ibid.*, 258.

of whom [the specialized agricultural workers] would refuse to impart to one desirous of learning them the principles of his art.”³⁹⁷ Considering that Columella writes primarily about slaves, there are significant power dynamics at play here. The inferred actors are his own slaves, who possess the knowledge, and the “desirous learner” who cannot be refused, i.e., Columella, the owner. The statements appear to imply that even the slaves’ skills and knowledge are not their own. These too, belong to their master.

Roman elite villas were built on highly specialized labor and individualized titles. Susan Treggiari, in her analysis of the *Monumentum Liviae* and Livia’s household identifies forty-six unique job titles while Marcella was allocated twelve.³⁹⁸ As Treggiari notes, the list of forty-six titles in Livia’s household is in fact incomplete as many members do not list their titles, and many of the elite staff, such as *topiarii*, may have funded their own burial.³⁹⁹ But it is not so much the number of titles that is significant, as the number of overlapping titles. For example, for those who worked with clothes, dressed their owner, and folded clothes, Treggiari lists five separate titles.⁴⁰⁰ The same kind of specialization in titles is found outside the villa, in the gardens and fields. Columella, in his *On Agriculture*, lists forty-four titles of rural slaves, a number that does not even include workers who lack a clear title but are

³⁹⁷ Columella, *Rust.*, 11.1.12.

³⁹⁸ See Table A in Susan Treggiari which lists number of job titles for imperial men, imperial women, and the Statilii family. Treggiari notes that Livia must have had *topiarii* like Marcella, and other staff who are not named in the *Monumentum*, Susan Treggiari, “Jobs in the Household of Livia,” *Papers of the British School at Rome* 43 (1975), 57. As Treggiari notes, there are unknown variables in these lists, such as time (the lists do not provide a snap shot of a moment but rather reflect accumulated individuals within a tomb), the funerary evidence is also excludes lower level villa workers who are not recorded in the tomb but were necessary for villa life.

³⁹⁹ *Ibid.*, 57.

⁴⁰⁰ *Ibid.*, 57.52-53.

described as possessing clearly defined roles, such as women who spin wool.⁴⁰¹ Such a long list of specialized roles is warranted, because, as Columella explains,

“The tasks of slaves should not be mixed up, so that all of them do the same thing. This is not advantageous to the farmer, either because none believes that his work is his own, or because when he exerts himself, he performs a service that is not his but common to all, and so he evades his work. ... For this reason, plowmen must be distinguished from vine workers, and vine workers from plowmen, and both from common laborers.”⁴⁰²

Thus, the hyper-specialization of cultivation labor via numerous titles is a means of entangling gardeners to their labor. In this way, titles at once elevate gardeners by granting them a kind of visibility, but they also curtail gardener freedom. The strict assignment of duties is clearly meant to limit slave and worker free movement. If the *topiarius* seeks to escape the watchful master by resting in a secluded, shady *ambulatio*, the title binds him to his plants and holds him responsible for the uncompleted labor. In this manner, the proliferation of gardener titles serves to further exploit enslaved gardeners.

But the terms used to identify different gardeners also prove evidence of how Romans conceptualized horticultural practice, knowledge, and specialization. Of the six roles explored here, four derive from the cultivation of productive plants that financially supported the villa, divided into three specializations: arboriculture (*arborator* and *putator*), viticulture (*putator* and *vinitor*), and vegetable cultivation (*olitor*). But the topiary-like shaped cucumbers, vine shaded triclinia rooms, and artfully pruned fruit trees in peristyles illustrate that productive cultivation was not an activity that occurred solely in the fields. These same plants which served as an

⁴⁰¹ Joshel, *Slavery in the Roman World*, 166-170; K. R. Bradley, *Slavery and Society at Rome*, (Cambridge: Cambridge University Press, 1994), 60.

⁴⁰² Columella, *Rust.*, 1.9.5-6.

economic investment could be manipulated and cultivated into art-like objects, thereby obscuring a division between productive and ornamental cultivation. Only the *topiarius* is affiliated with non-productive, ornamental plants, such as plane trees, cypress, ivy, and box, and even some of these, such as box, could be harvested for their wood. Although one needs to be wary of employing an absence of evidence as indication of horticultural perceptions, it is noteworthy that while garland making and the flower industry were major commercial horticultural sectors, there is no evidence of gardeners, based on their title, specialized in flowering plants. Despite the popularity of roses, irises, chrysanthemums, violets, and many other culturally significant flowering plants, they seem to have been excluded from the duties of the known gardener types. The *topiarius*, tasked with more ornamental plants, was mainly in charge of varieties with unexceptional, small blossoms (cypress, box, ivy and plane trees are not known for their blossoms). Only a few cases record the *topiarius* cultivating plants known for their flowers, such as myrtle and acanthus. Establishing whether these different names were professional titles or merely descriptions of roles is more challenging based on the evidence available. The self-identification of *topiarii*, *olitores*, *hortulani*, and *vinitores* on epitaphs would suggest that these types of names were perceived as something akin to professional titles. This is supported by the fact that the inscriptions follow formulaic constructions used by other professionals. The *putator* and *arborator*, about whom so little is known, are more difficult to define. Unlike Columella's diggers, the specialized training required of both of these gardeners implies the names were meant to infer something more than merely a role, but there is insufficient evidence to make any conclusive statements.

Lastly, the various titles allow one final horticultural observation. In thinking about the power in naming, it is useful to consider who named these positions. At first glance, it would appear that the elite, who created the need for this type of labor, named it. Yet upon closer examination, the elite garden owners are mere intermediaries. In actuality, it is the plants who name, enslave, and employ the gardeners. The *arborator's* identity is rooted in his relationship vis-à-vis trees; the *vinitor's* is entwined amid the vines he tends; the *olitor's* grew out of the vegetable he cultivated. The *putator* is named for the plant need he meets in pruning branches to foster greater bounty—a goal that is shared by both plants and their gardeners; the *topiarius* for the places he makes, and the *hortulanus* for the needs of the hortus. Viewed through this perspective, as employees of plants, Roman gardeners sit at the intersection of art (exemplified in their training, excellence, and *ars*) and nature.

CHAPTER 4

FINDING ROMAN GARDENERS IN EARLY MODERN, ANTEBELLUM, AND CONTEMPORARY GARDENS

The nature of ancient garden work has been reconstructed through primarily three methods. One group, exemplified by scholars like Pierre Grimal, Nicholas Purcell, and Lena Landgren, have done so by examining the philological evidence of gardens.⁴⁰³ Wilhelmina Jashemski led another branch of garden research which interwove earlier literature-based analysis with archaeological evidence from excavated gardens.⁴⁰⁴ More recently, scholars like Kathryn Gleason and Michele Palmer, have utilized their experience and training in landscape design to reconstruct the design and installation process of ancient gardens.⁴⁰⁵ Influenced by this most recent employment of comparative fields for the study of ancient Roman gardens, this chapter seeks to flesh out aspects of Roman gardener's social standing, education, and their relationship with plants via diachronic case studies. I begin by exploring the reliance of plants on their gardeners by observing the effect of neglect in the reconstructed gardens at Oplontis and at Prima Porta. I then turn to historical elite gardens as comparative models. The early modern garden at the Villa Este and the formal garden at James Madison's estate at Montpelier in Virginia were chosen for their close relationship to ancient gardening practices. Both sites are strongly

⁴⁰³ Grimal, *Les jardins romains*, 90-100; Landgren, *Lauro, Myrto, et Buxo Frequentata*, 178-190; Purcell "The *horti* of Rome and the landscape of property," 289-305; Purcell, "The Roman Garden as Domestic Building," 121-151; Purcell, "Dialectical Gardening," *Journal of Roman Archaeology* 14 (2001): 546-556.

⁴⁰⁴ Jashemski, *The Gardens of Pompeii Vol. II*, Jashemski, *The Gardens of Pompeii Vol I*.

⁴⁰⁵ Gleason and Palmer, "Constructing the Ancient Roman Garden," 369-401.

influenced by Roman descriptions of gardens, including design features and planting choices. Because garden tools remained largely unchanged until the Industrial period, these gardens were also created by many of the same methods as utilized by Roman gardeners. Influenced by Jashemski's collaborative method with her workmen-gardeners, the analysis of the historical gardens is joined by an anthropological approach founded on interviews with modern-day gardeners, landscape designers, and plant nursery owners.

The early modern comparative analysis of the Villa Este and papal gardens investigates early modern gardener contracts and estimations by modern-day gardeners based on plant needs to reconstruct the number of gardeners needed to maintain a Roman-styled formal garden, gardener social standing, and wages of free laborers. Based on a methodology cultural geographers use to study plant-human relationships and plant agency, strolling in historic gardens is utilized to facilitate plants directing conversation. The results are observations on plant morphology and age, focused specifically on two species: cypresses and box plantings. In turn, this provides a foundation for interrogating gardens through a chronological lens and investigating how plant age may serve as a new avenue of discourse.

The following case study at Montpellier further investigates the nature of gardener labor, their education, and the number of individuals required to design, install, and maintain a Roman styled garden. Unlike at the early modern Villa Este where the laborers were wage earning free individuals, Montpellier offers a glimpse into the dynamics of free designers and enslaved gardeners and laborers, providing a model for reconstructing agency of enslaved gardeners in antiquity.

The Absent Gardener

Gardens are the result of conversations between plants and their gardeners. By listening to a plant's light requirements, exposure preferences, the kind of soils it favors, its water needs, and whether it is compatible with surrounding plant species, gardeners decide where to plant a particular specimen and how it should be cared for. In this way, gardeners are a kind of listener and translator of plant needs, serving as an intermediary between the plant world and the horticultural desires of the elite patrons. The reliance of plants on their gardeners is best realized when the dialogue is interrupted, i.e., when gardeners are absent and plant growth is unaided and uninterrupted. This is especially well-evidenced in two cases from historical periods beyond the Roman-era, but which share climatological and cultural characteristics, namely, the replanted gardens at Villa A at Oplontis and at Livia's Villa at Prima Porta. Because both villa gardens have been planted, post excavation, using species favored by Romans in designs inspired by the ancient world, they offer an opportunity for experimental archaeology. The sites also reconstruct phenomenological conditions of real Roman gardens, such as scent, sight lines, including aspects that archaeology and other disciplines may not recover from the historical record. Moreover, the current level of gardener labor in these reconstructed gardens allows us to understand the reality of their ancient predecessors.

The Vesuvian area is well praised, in antiquity as today, for its rich volcanic soil, perfect level of humidity afforded by the surrounding mountains trapping moisture, and long growing season. Yet, an analysis of excavated Roman gardens,

which are in their current state largely left unattended and un-watered, illustrates the very great reliance ancient elite gardens, plants, and villa owners must have had on their gardening staff. The gardens at Villa A at Oplontis serve as an especially helpful example because they have been replanted, first by Wilhelmina Jashemski based on her excavations in the 1980s, and then in 2008 by Annamaria Ciarallo, based on her interpretation of ancient garden paintings and her experience excavating the garden at the House of the Golden Bracelet at Pompeii.⁴⁰⁶ Ciarallo even reconstructed hip-high reed fences, commonly depicted in garden paintings, which were installed between the planting beds and the walkways.⁴⁰⁷ The current gardens at Oplontis feature some of the most iconic Roman plants: many specimens of pomegranates as well as peaches and other members of the *Prunus* family are planted; roses are found in the garden too. Today a team of gardeners visits the garden once every three months to do minor maintenance and cut grass. The gardens are not watered by gardeners or by custodians.⁴⁰⁸ The reed fences installed by Ciarallo, which were still visible two years after the replanting, are now absent. Lacking a gardener to repair it, the fence likely deteriorated, and was removed. The fruit trees have received some care in the form of annual, springtime shaping. A single *prunus* specimen in the North Garden 56 features a silhouette that vaguely recalls the vase pruning employed on the fruit trees in the Prima Porta garden painting, but its canopy is much fuller than those depicted in paintings (Fig. 13). The pomegranates, hardy and fast growers, are (have turned into) lumpy, formless shrubs and in no way recall the extensive pruning depicted on the

⁴⁰⁶ Gleason, "Wilhelmina Jashemski and Garden Archaeology at Oplontis," 1088.

⁴⁰⁷ The reconstructed height (hip-height) is much taller than fences found in representations, where they are generally knee-high.

⁴⁰⁸ Interview with Villa A custodians, June 2018.

Prima Porta painting (Fig. 14). The inattention is also visible in the roses, which unlike their ideal painted counterparts, are sickly with yellowing and spotted leaves (Fig. 15). The grass, in an unseasonably cool June, was dry, tall and weedy. One can only imagine how poorly the garden must have fared by August, when the annual heat waves and drought set in. In other words, despite presenting ideal horticultural conditions, the local Vesuvian environment is far from sufficient in maintaining the kinds of gardens documented in paintings and described by ancient authors. Simply designing and installing a garden does not yield results which correspond with the kind of gardens documented in texts and paintings. Regular maintenance in the form of fertilization, watering, pruning, replacing ill or aesthetically displeasing specimens, and cutting lawns is necessary. Although only a portion of the villa and its gardens is excavated, it is clear that a single gardener would be insufficient, if only due to the great distances and time required to water such a large estate; a team would have been necessary.

The gardens at Livia's villa at Prima Porta, just north of Rome, offer similar evidence. They have been partially excavated and were replanted in conjunction with Augustus' bimillenary.⁴⁰⁹ Based on the discovery of over one hundred *ollae perforatae* (planting pots) at and near the villa and the myth of the laurel grove immortalized by Suetonius, the large terraced garden was replanted with large, above

⁴⁰⁹ Peter Liljenstolpe and Allan Klynne, "The Imperial Gardens of the Villa of Livia at Prima Porta: A Preliminary Report on the 1997 Campaign," *Opuscula Romana* 22-23 (1997-1998): 127-147; Allan Klynne and Peter Liljenstolpe, "Investigating the Gardens of the Villa of Livia," *Journal of Roman Archaeology* 13 (2000): 220-233; Allan Klynne and Liljenstolpe, "I Giardini," in *Ad Gallinas Albas Villa di Livia*, ed. Gaetano Messineo, (Roma: L'Erma di Bretschneider, 2001): 201-208; Allan Klynne, "The Laurel Grove of the Caesars: Looking in and Looking out," in *Roman villas around the Urbs. Interaction with landscape and environment Proceedings of a conference held at the Swedish Institute in Rome, September 17-18, 2004*, ed. Barbara Santillo Frizell and Allan Klynne, (Rome: The Swedish Institute in Rome, 2005), 1-9.

ground, ceramic planters, each filled with one laurel shrub, all arranged in a grid (Fig. 16).⁴¹⁰ The *ollae* in the Large Peristyle were all discovered disturbed due to modern plowing, so that the original placement of these plantings was not preserved.⁴¹¹ As a result, the grid like placement of planters is based on ancient descriptions praising orderly rows of plantings. Because Suetonius describes a grove of laurels, symbolically representing the Julio-Claudians, as growing somewhere at the villa, the large peristyle has been identified as the most probable location for such a dynastically significant garden.⁴¹² The large size of the planters and their above ground placement is particularly bizarre and unsupported by archaeological evidence. No *ollae* have been discovered as large as these planters, nor is there any evidence of their use about ground. The smaller terrace garden, where two different types of *ollae* were found in situ, was also replanted. However, the Rotary Club charged with the replanting task chose plants that were not utilized by the Romans and did not take into the account the ancient garden plan.⁴¹³ The small terrace garden has since then devolved into a weedy, unkept patch. As the villa at Prima Porta receives few visitors, certainly less than Oplontis, the need for expending Ministry funds on gardening maintenance is not keenly felt.

⁴¹⁰ Liljenstolpe and Klynne, "The Imperial Gardens of the Villa of Livia at Prima Porta," 130-134; Klynne and Liljenstolpe, "Investigating the gardens of the Villa of Livia," 220-233; Suet., *Galb.*, 1.1.

⁴¹¹ Klynne and Liljenstolpe, "Investigating the gardens of the Villa of Livia," 226.

⁴¹² Jane Clark Reeder, *The Villa of Livia Ad Gallinas Albas: A Study in the Augustan Villa and Garden*, (Providence: Brown University Press, 2001): 84-85.

⁴¹³ Ezequiel M. Pinto-Guillaume, "Jardins anciens et reconstructions modernes: réflexions autour d'une réhabilitation et reconstruction d'un jardin romain de la période julio-claudienne dans une villa impériale au Nord de Rome," in *International Council on Monuments and Sites, 16th General Assembly and International Scientific Symposium*. (Quebec City International Council on Monuments and Sites, 2008): 7-9.

While the sites considered are ancient, it is important to note that the local climate has not remained unchanged. The period between 200 BCE to 400 CE is commonly referred to as the Roman Climate Optimum, an especially warm and climatologically stable period that was conducive to cultivation, and thus empire building. Today, southern Italy, and more broadly, the Mediterranean basin face escalating changes due to climate change in the form of lengthening drought periods and extreme weather events.⁴¹⁴ Yet despite these significant and powerful differences, for the purposes of our discussion, the changes are relatively small and the result of unattended gardens is largely the same. What these uncared-for ancient gardens illustrate is that the plants and soil were heavily reliant on gardeners who listened to and met their needs on a daily, weekly, monthly, and seasonal bases. Thus, while the gardeners may be invisible to us in the Roman period, in their contemporary absence, they become visible.

Even if we allow for the fact that the most elite Romans possessed multiple villas, and that thus estates were uninhabited for long periods of time, the neglect attested by the modern plants is far greater than what we could envision in the ancient gardens based on representations and descriptions. That is not to say that all ancient gardens must have been kept in pristine shape at all times. Certainly, neglect was possible for varied reasons, such as new ownership of a property by an owner uninterested in gardens, different priorities for villa investment, or reduced economic means of a family who could no longer employ enough gardeners. There is no way to account for the impact of different owner attitudes and differing financial investment

⁴¹⁴ Marie-Lise Sabrié, Elisabeth Gibert-Brunet, Thomas Mourier, eds, *The Mediterranean Region under Climate Change: A Scientific Update*, (Marseille: IRD Éditions, 2016).

into individual gardens. But it is possible to use the representations of villas, surrounded by trimmed green walks and planting beds filled with flowering plants and fruit trees, as a litmus test for the kind of garden many elite Romans aspired to have (Fig. 17). A comparison of the Prima Porta garden painting with the state of the North garden 56 from Villa A is most telling. Villa A is one of the most luxurious villas ever excavated, attributed to an extremely wealthy owner. It is exactly the kind of property where no expenses would have been spared to create and maintain the kind of pristine garden depicted at Prima Porta. Yet as figures 13-15 illustrate, without constant gardener care, the visual and aesthetic distances between these two gardens is great. The unattended, unpruned, unwatered, and uncared for gardens at Oplontis and at Prima Porta clearly illuminate the shadows of many gardeners.

Early Modern, Antebellum, and Contemporary Gardeners Giving Voice to their Ancient Predecessors

While the replanted gardens at Oplontis and at Prima Porta illuminate the reliance of garden plants on their gardeners by illustrating the effects of gardener neglect, the comparative analyses from the early modern period and the American Antebellum allow us to ask further questions. The management of early modern gardens, such as those at Villa Este in Tivoli, offers a unique opportunity to explore plants favored by the Romans, cultivated in ways inspired by Roman practice, in similar climatological conditions, by means of a contemporary gardener translator. Despite important horticultural innovations and changes between the ancient, early

modern, and contemporary period, practitioners employed in historic gardens today offer an instructive prism through which we may view ancient gardeners and their plants. This is in part due to many shared variables despite cultural and chronological distance. For example, the Italian environment, despite more recent climatological changes, presents the same limitations to gardeners of all periods, resulting in similar effects on cultivated plants. The remarkable consistency of tools utilized by gardeners further elides diachronic divisions.⁴¹⁵ Moreover, the field of Roman garden archaeology is built on direct discourse with Italian practitioners. Wilhelmina Jashemski herself understood and benefited from discussions with her workmen, who assisted in excavating gardens, and aided in identifying garden features based on their own horticultural experiences in their own plots at home. In explaining the inspiration for her *A Pompeian Herbal: Ancient and Modern Plant Medicine*, Jashemski writes that,

In my work I so often have been impressed with the continuity of life in the shadow of Vesuvius. Frequently, when my workmen identified a new soil contour or other agricultural detail discovered in our excavations, I would ask them how they could be so certain. They would invariably reply, ‘Because we have always done it this way.’ When we uncovered a perfectly preserved hoe in our excavations, the happy worker who found it told me that he had a *zappa* at home that was an exact replica of the ancient one. The next morning, he was at work early with the handle from his *zappa*, which fit the ancient hoe perfectly, ready to pose for a photo. Not far from the hoe we found another ancient tool, an exact duplicate of the *martellina* that our workmen were using to clear weeds from the garden.”⁴¹⁶

The parallels Jashemski found were so great, that in reflecting on the find of the *martellina* (a pick) she exclaimed that had she not been present for the excavation herself to see the tool emerge from underneath a layer of undisturbed lapilli and thus,

⁴¹⁵ Landgren, *Lauro, Myrto, et Buxo Frequentata*, 108; Jashemski, “Gardening Practices and Techniques,” 441-445.

⁴¹⁶ Jashemski, *A Pompeian Herbal*, 1-2.

categorically from an ancient undisturbed context, she would have been sure that the tool had been dropped and forgotten by a workman in recent years.⁴¹⁷ Furthermore, these similarities in practice were not limited to tools. Upon discovering an unusual ancient contour in the ground beneath vines, one of her workmen, Antonio, took Jashemski to a modern vegetable garden to explain that such formations were the result of cultivating *fagiolini* (string beans) in late summer. When she happened to find an oddly narrow ancient ladder, another workman proclaimed, “Oh, my aunt has one just like it. I’ve often used it. It’s for picking cherries.”⁴¹⁸ Coincidentally, the challenges to the field allowed Jashemski to conduct a more anthropological study of ancient gardens. The relative newness of the discipline, the perception that it was “too fun to be research,” combined with her status as a woman archaeologist in a field heavily dominated by men, allowed her to pursue avenues of study which were otherwise considered unprofessional and unacademic, and were thus closed to male archaeologists.

Jashemski’s collaborative methodology was especially well-suited to identifying the types of horticultural practices found in small Pompeian gardens. The ancient gardens fulfilled many of the same roles played by current plots. But listening to gardeners of an historical elite estate, one inspired by ancient practice, is an excellent source for reconstructing ancient villa gardens which featured practices and plants that differed from the smaller, less elite Pompeian examples. Moreover, the small body of evidence on early modern gardeners, paired with the lack of early

⁴¹⁷ Henry Mitchell, “Digging for Buried Gardens,” *The Washington Post*, April 4, 1977.

⁴¹⁸ Because cherry trees are pruned to be dense and tall, only a slender ladder may be threaded between branches to assist in harvesting fruit. Henry Mitchell, “Digging for Buried Gardens.”

modern garden excavations in Italy means that we cannot ask questions of fifteenth and sixteenth century gardeners any more than we can of their ancient predecessors. Although we cannot communicate directly with ancient and early modern gardeners, we may ask contemporary practitioners to facilitate a dialogue with historic gardeners and their charges, the plants.

Based on interviews I conducted with Aurelio Valentini and Elisabetta Ciniglio, the Villa Este Technical Assistant and Secretary, a number of observations may be made regarding ancient cultivation. The conversations recalled Jashemski's experiences with her own workmen-gardeners. When, strolling through the garden with Valentini discussing photographs of ancient garden tools from the Boscoreale Antiquarium, we happened upon a gardener, he too became interested in the ancient tools. Upon seeing them, he exclaimed that those could not possibly be ancient, because they resembled the ones he used so closely.⁴¹⁹ There were also areas of departure. But even differing horticultural practices resulted in contemporary gardeners quickly interpreting ancient practices as methods of answering plant needs. When the designer and gardener learned of the Roman practice of planting terracotta planting pots (*ollae perforatae*) into the ground, they were surprised as this is not done today. But they quickly praised the ancient gardeners for they interpreted it as a method of meeting plant water needs with limited access to water. This is because when a plant is directly in the ground without a planter there is no way to prohibit surrounding root systems of other plants from drinking up the moisture. But if one waters a plant that is confined to a pot, the planter inhibits the consumption of other

⁴¹⁹ Interview with Aurelio Valentini, June 2018.

plants. And unlike an above ground planter which is heated by sunlight and exposed to wind, a planter protected by surrounding earth is kept cooler and is unaffected by wind induced evaporation. All of these qualities result in gardeners being able to water less often and in smaller quantities.

The Villa Este in Tivoli

The Villa Este in Tivoli, located a short stroll from Hadrian's Villa, was constructed by Ippolito II d'Este, the Cardinal of Ferrara, under the direction of the antiquarian architect and garden designer, Pirro Ligorio, in the mid-sixteenth century.⁴²⁰ Set into a hill overlooking the valley, the renovation of the pre-existing monastery and the construction of the gardens included massive earth moving projects for the creation of terracing, installation of water systems, and large elaborate fountains. Ligorio, who had led excavations at Hadrian's Villa, and the nearby estates of Quintilius Varro, Augustus, and Gaius Cassius, included statuary from Hadrian's Villa in the garden at Villa Este.⁴²¹ The property fell into neglect in the eighteenth century, and has been owned and managed by the Italian State since World War I. The gardens one experiences today are not precisely preserved versions of the sixteenth century designs as many additions and changes occurred in the intervening centuries

⁴²⁰ David R. Coffin, "Self-Image of the Roman Villa During the Renaissance," *Architectura* 28.2 (1998): 191-192.

⁴²¹ Philip Jacks, "Pirro Ligorio and the design of the Fontana del Diluvio at the Villa d'Este," *Studies in the History of Gardens & Designed Landscapes* 39:4 (2019): 273; David R. Coffin, *Magnificent Buildings, Splendid Gardens*, Venessa Bezemer Sellers, ed., (Princeton: Princeton University Press, 2008), 152-255; Claudia Lazzaro, "Politicizing a National Garden Tradition: the Italianness of the Italian Garden," in *Donatello among the Blackshirts: History and Modernity in the Visual Culture of Fascist Italy*, ed. Claudia Lazzaro and Roger J. Crum, (Ithaca: Cornell University Press, 2004), 159.

(Fig. 18). Although many centenarian plantings may be found, the garden also abounds with new specimens reflecting twentieth and twenty-first century horticultural trends, and modern interpretations of historic practices, such as the planting of planting of box hedges in the 1920-40s.⁴²²

Today the gardens are managed by external landscape companies on contract.⁴²³ The result is that a team of gardeners is not present each day, and that instead of performing activities which may be preventative, most actions in the garden are responsive, meaning damage or other undesired effects have already occurred. Only two gardeners are on site more regularly, performing small garden tasks, including repair work of tools and garden features, but they are not trained in topiary. Larger tasks, like hedge pruning, has required six gardeners. The low number of gardeners is a result of the Ministry contract with external landscape crews, but the caretakers of the villa note that the plants *need* at least one fulltime gardener whose sole duty would be to weed the entire garden and take care of potted plants which need periodic root and branch pruning, in addition to gardeners performing other duties such as periodic hedge, tree, and rose pruning. Based on plant needs and pre-industrial tools, Aurelio Valentini, a trained landscape designer and the Villa Este Manager and Consultant for Green Management, estimates that about ten to twelve gardeners would have been needed to maintain the garden in pristine condition when it was young.⁴²⁴

⁴²² Claudia Lazzaro, *The Italian Renaissance Garden: From the Conventions of Planting, Design, and Ornament to the Grand Gardens of Sixteenth-Century Central Italy*, (New Haven: Yale University Press, 1990): 20-45; Interview with Aurelio Valentini, a trained landscape designer and the Villa d'Este Manager and Consultant for Green Management, and Elisabetta Ciniglio, the Villa d'Este Technical Assistant and Secretary, June 2018.

⁴²³ Interview with Aurelio Valentini and Elisabetta Ciniglio, June 2018.

⁴²⁴ Another area of inquiry which deserves further exploration but is not the focus of this study is the effect climate change is having on historical early modern gardens. Aurelio Valentini noted that the rise

Because specialized garden workers, such as those trained in topiary, cannot be found in Italy⁴²⁵, and due to financial limitations, the few box specimens dating to about the seventeenth century, have gone wild. They are unshaped, older branches have not been pruned to force new growth, resulting in sparse branches with few leaves.

The gardens at the Villa Este serve as an especially fruitful comparative model for many reasons. Their proximity to Rome and Hadrian's villa facilitated incorporating ancient motifs and spolia in the villa and garden. Additionally, the size of the garden, measuring about three and a half hectares, sits within the spectrum of ancient villa gardens which vary from smaller ones, measuring about one hectare (such as the Villa Arianna or the Villa San Marco gardens), to massive estates encompassing eighty hectares, like Hadrian's villa at Tivoli. The scale of the gardens may be used to better understand the amount of garden labor required per hectare of ancient gardens. For example, if ten to twelve gardeners were needed to create and maintain the three and half hectares of gardens at the Villa Este, this would suggest that the one-hectare gardens of the Villa Arianna and the Villa San Marco each required about three gardeners. In comparison, if Hadrian's Tivoli villa had been solely composed of formal gardens, its eighty hectares would have required a whooping army of 240 gardeners. In reality, such a large estate would have included many different kinds of green spaces, such as woods, vineyards, and orchards, and thus the ratio of gardeners to hectares of formal gardens is less insightful for such a

of climate change induced heat waves has led to box turning brown and that the gardeners have had to respond by implementing a very different fertilization system; Interview with Aurelio Valentini and Elisabetta Ciniglio, June 2018. Unusual frosts are also causing problems and are difficult to manage as many people are needed to prepare and shelter sensitive plants. In an age of climate change, plants are even more reliant on their gardeners.

⁴²⁵ Valentini notes that today garden work is done by untrained laborers, not specialized professionals. This is a common trend in the gardening outside of Italy as well.

large and diverse estate. Furthermore, because garden tool designs remain largely unchanged until the industrial era, many of the same tools were used to create both the Villa Este and ancient Roman villa gardens, thereby further allowing us to model ancient gardener labor on their early modern descendants.⁴²⁶ The many similarities in the labor market in pre-Industrial agrarian societies also allows us to use early modern evidence to reconstruct the relationship between Roman gardeners and their employers and masters. Although early modern gardens are not associated with enslaved labor, there is evidence of pressed laborers⁴²⁷ whose work may inform us about that of enslaved Roman gardeners.⁴²⁸ The many surviving early modern documents which preserve gardener contracts of labor, their wages, and description of horticultural responsibilities allow us to reconstruct the situation during the Roman period for which such evidence is much more scarce. Pre-Roman contracts of gardener labor, such as those articulated in the Code of Hammurabi or in the Ptolemaic correspondences between Apollonios, the chief finance minister of Ptolemy II Philadelphus, and his estate manager, Xenon, suggest that gardeners were often paid in part by the profit made from the harvest they cultivated or in portions of land they had worked for a requisite number of years.⁴²⁹ The Ptolemaic correspondences provide a clear view of how different tasks, such as watering, water channel maintenance, cultivation and transport of seeds were allocated to specific individuals, all bearing

⁴²⁶ Gardening tools do not change until the Industrial era, Landgren, *Lauro, Myrto, et Buxo Frequentata*, 108; Interview with Aurelio Valentini and Elisabetta Ciniglio, June 2018.

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⁴²⁸ Suzanne B. Butters, "Pressed Labor and Pratolino: Social Imagery and Social Reality at the Medici Garden," in *Villas and Gardens in Early Modern Italy and France*, edited by Mirka Beneš and Diane Harris (Cambridge: Cambridge University Press, 2001): 61-87.

⁴²⁹ Maureen Carroll-Spillecke, *Kepos: der antike griechische Garten*, (München: Deutscher Kunstverlag, 1989), 54-60; J. C. Margueron, "Die Gärten im Vorderen Orient," in *Der Garten von der Antike bis zum Mittelalter*, (Mainz am Rhein: P. von Zabern, 1992), 45-80.

Greek names—a trend that has been interpreted as suggesting that gardeners were commonly not local. The correspondences also preserve evidence of gardener salaries and even document negotiation of payment between gardener and employer, as in the case of Menon, who complained at being paid too little for his work.⁴³⁰ Although beyond the chronological and regional scope of the project, a Late Roman draft of a contract, dated to 271 CE, between the garden owner Talames, daughter of Imuthes, and Peftumont, the prospective gardener, sheds light on what earlier first century BCE and CE gardener contracts may have entailed.⁴³¹ The text, written by a scribe, is preserved in four columns on an amphora, discovered in a temple wall, likely drafted after an initial verbal arrangement had been made but before a formal copy was written on papyrus. The text features Peftumont interrupting Talames with qualifications which likely had not occurred to him during their earlier verbal arrangement.⁴³² As the sole surviving Roman era contract of gardener labor, it provides an incredible abundance of information. It preserves evidence for the agency of women garden owners and their business negotiations. In the agreement, Talames explains, “If, (however), it be agreed to by me to give you wheat, I will give it without substitution...If (however), it be agreed to by me to give you gold-(pieces), I will give them to you in gold...If refined bronze-(piece) are what you want, I will give

⁴³⁰ Xenon Archive, University of Michigan Papyrus Collection, <https://www.lib.umich.edu/snapshots/Zenon%20Archive/zenon.html>, inv. 3109, 3199, 3222; Maureen Carroll, *Earthy Paradises: Ancient Gardens in History and Archaeology*, (Long Angeles: the Paul J. Getty Museum, 2003), 80.

⁴³¹ Richard A. Parker, “A Late Demotic Gardening Agreement: Medinet Habu Ostrakon 4038,” *Journal of Egyptian Archaeology* 26 (1941): 84-113.

⁴³² When Talames states that she will search his dung for evidence of eating her garden, he interrupts, saying, “if a friend of mine gives me a bunch (of grapes), I am to eat it,” Parker, 86.

them.”⁴³³ Richard Parker attributes Talames’ expert articulation of wages and differing kinds of payment methods to well-informed advice she must have received beforehand.⁴³⁴ But such a supposition denies the possibility that Talames was herself well-acquainted with contractual language and is instead perhaps more indicative of Parker’s own 1940’s worldview about women and business. Her fluid use of contractual terminology, description of payment in wheat, gold, or refined bronze, and quick responses to Peftumont’s qualifications suggest experience and confidence in hiring workers and managing agreements of labor.⁴³⁵ Moreover, the governance of a garden by a woman is in line with earlier Roman evidence from the first centuries BCE and CE. Pliny the Elder attributes the management of the *hortus*, the kitchen-garden, to the *matrona* and it is the *vilica*, the wife of the *vilicus*, who is charged by Columella with storing and managing the produce of the estate.⁴³⁶ Imperial women were especially closely associated with gardens. Augustus’ wife, Livia, donated a grapevine which grew to cover the entrance of the Porticus of Livia, a *topiarius* is recorded in the columbaria of Marcella Minor, Augustus’ niece, and Agrippina and Messalina are closely associated with *Horti*.⁴³⁷ Furthermore, considering the domestic responsibilities attributed to women and the close relationship between gardens and interior spaces, Talames’ management of the garden is thus not unusual. Second, the

⁴³³ Parker, “A Late Demotic Gardening Agreement,” 87, column B lines 6-37, column C lines 1-20.

⁴³⁴ *Ibid.*, 112.

⁴³⁵ *Ibid.*, 87, column B lines 6-37, column C lines 1-20.

⁴³⁶ Plin. *H.N.* 19.57.; Col. 12.1-3; von Stackelberg, *The Roman Garden*, 71. As already mentioned, Jashemski has found loom weights in every garden she has ever excavated, providing proof of women’s presence in these spaces. A number of hairpins and jewelry have also been found in the villa garden at Frocester Court in Britain, thought to be evidence of women enjoying the plants and blossoms, H. S. Gracie and E. G. Proce, “Frocester Court Roman Villa: Second Report 1968-77: the Courtyard,” *Transactions of the Bristol and Gloucestershire Archaeological Society* 97 (1979): 13.

⁴³⁷ von Stackelberg, *The Roman Garden*, 71; Plin. *H.N.* 14.11.

contract provides hints of a gardener's diet. In lines 28-36 in column A she explains, "And I am to ask you for your dung three times daily; and I am to probe it with a stalk of flax. The new reed/seed which I shall find in it, I am to take for it one obol to the new reed/seed among them."⁴³⁸ In other words, according to the agreement, Peftumont is ordered to present his excrement three times a day so that Talames may poke it with a stalk of flax in search of proof if he has eaten produce from the garden. Should such evidence be found, he will be charged a penalty of one obol for each item. The specificity of the arrangement and conditions for finding evidence of her garden in his excrement suggests it would not be uncommon for a gardener to consume produce he was meant to cultivate. The inspection also indicates that she does not expect Peftumont to consume the kinds of produce she cultivates as part of his regular diet, and that thus its presence could only be attributed to his pilfering of her harvest. Her assumption about his diet appears to be correct with the exception of grapes, which Peftumont informs her he might receive from a friend, thereby explaining the presence of grape pips in his dung. The inclusion of the inspection in the agreement and Peftumont's lack of surprise suggests that this was not an unusual request. It also sheds light onto how owners may have surveilled their workers or slaves in ways that are more particular to garden work than interior villa labor. As is common of Roman contracts more broadly, Talames addresses the issue of liability by requiring Peftumont to wear a hat to protect him from the sun, work shoes to protect his feet from stones, to carry a spear for protection from hyenas, and a sword against

⁴³⁸ Parker, "A Late Demotic Gardening Agreement," 88-89, column C lines 26-36.

wolves.⁴³⁹ As the agreement is a draft and parts of it are damaged, the duration of labor is not mentioned nor is the actual wage amount recorded. However, it is precisely here where the early modern evidence is especially helpful.

The growing data on Roman wages and market prices has shown that the ancient economy was not “substantially different from more recent agrarian economies,” and that in fact Roman wage distribution bears striking similarity to pre-Industrial European cultures.⁴⁴⁰ This cross-chronological similarity between wages across historical periods allows us to utilize early modern pay to better contextualize free Roman gardeners within the economy. According to sixteenth-century accounts and contracts, head gardeners at papal estates were paid on average five scudi a month, plus food and housing, a wage that was equal to that of head cooks.⁴⁴¹ Based on Fernand Braudel’s categorization of sixteenth-century Mediterranean wages, an annual salary of sixty scudi placed gardeners well above those earning subsistence wages (less than twenty scudi) and above those who earned a small income (twenty to forty scudi), so that gardeners fell into the bracket of those earning a “reasonable” income (forty to one hundred and fifty scudi).⁴⁴² In comparison, lower level garden workers, such as water carriers, were paid only two scudi per month, a wage that was equivalent to that of undercooks and pastry chefs.⁴⁴³ To further contextualize the value villa patrons allocated for garden maintenance, it helps to compare the pay rate to that

⁴³⁹ Parker, “A Late Demotic Gardening Agreement,” 88-89, column C lines 26-36.

⁴⁴⁰ Peter Temin, “The Labor Market of the Early Roman Empire,” *The Journal of Interdisciplinary History* 34.4 (Spring 2004), 514, 517.

⁴⁴¹ Coffin, *Gardens and Gardening in Papal Rome*, 221.

⁴⁴² Richard E. Spear, “Scrambling for Scudi: Notes on Painter’s Earnings in Early Baroque Rome,” *The Art Bulletin* 85.2 (2003): 312.

⁴⁴³ Coffin, *Gardens and Gardening in Papal Rome*, 221.

of painters which was significantly higher.⁴⁴⁴ Although most of the documented ancient *topiarii*, whose work most closely paralleled that of early modern villa head gardeners, were slaves or freedmen, the wage value attributed to head gardeners and its relativity to other workers, like head cooks, may be insightful for reconstructing the relative economic investment and perceived value of different kinds of professional enslaved Roman villa workers. And in fact, the higher pay scale found in the early modern records appears to support Cicero's observation that enslaved *topiarii* thought of themselves as better than the other villa slaves.⁴⁴⁵ Early modern account books also illustrate that gardener wages were lower at country villas, like at Tivoli, and higher in Rome, a trend that was likely paralleled in the ancient world.⁴⁴⁶ There are also echoes of Talames' and Peftumont's agreement in the early modern contracts. An account from the papal gardens on the Quirinal Hill records the gardener, Silvio Sigismondi, as receiving an allowance of twenty-five scudi for summer clothing, illustrating the patron's obligation to protect the gardener from the elements.⁴⁴⁷ A contract from the Villa Este in Tivoli also illustrates the precision in allocating garden labor, as was articulated in the Ptolemaic correspondences between Apollonios and Xenon. The agreement, dated to 1629, describes eighteen stipulations and directions of labor, including the species of ornamental plants that will be planted, prohibited activities (cutting of any plants or wood without permission), and whether gardeners are allowed to take anything from the garden (gardeners may take small cut branches, but the

⁴⁴⁴ Estimated by Richard Spear to average about 1,000 scudi annually for well known, successful painters, Richard E. Spear, "Scrambling for Scudi: Notes on Painter's Earnings in Early Baroque Rome," 313-314.

⁴⁴⁵ Cic. *Parad.* 36; Landgren, *Lauro, myrto, et buxus frequentata*, 180.

⁴⁴⁶ Coffin, *Gardens and Gardening in Papal Rome*, 220.

⁴⁴⁷ *Ibid.*, 220; Giovanni Spadolini, *Il Palazzo del Quirinale: Testi di Franco Borsi*, (Rome: Editalia, 1974), 241-242.

patron keeps larger branches). Like Peftumont, who is tasked with keeping himself and the garden safe, Domenico Severini, the Este gardener, is required to control access to the garden and maintain its safety by only allowing permitted garden laborers in—he may not let anyone else into the garden.⁴⁴⁸ The papal estates also confirm a trend found in the Hellenistic correspondences: that elite estates employ non-local gardeners. It has been noted that all of the Fayum gardeners described by Apollonius and Xenon were Greek specialists.⁴⁴⁹ Similarly, sixteenth-century accounts illustrate that elite patrons primarily hired non-local gardeners who had been recommended from other regions (such as from Florence or Benevento) or even from more distance places, like France.⁴⁵⁰ And finally, early modern records enable us to better understand how many professional gardeners an elite villa required. Papal documents show that by the sixteenth-century villa gardens were generally managed by one supervisor gardener assisted by three assistant gardeners, as well as a body of seasonal workers who were not employed via formal contract.⁴⁵¹ This allowed for a flexible allocation of labor, maximizing value while meeting changing plant needs. These records are particularly helpful in contextualizing the Roman imperial funerary record of *topiarii*, where multiple gardeners and apprentices are documented as working for individual families.

And lastly, the Villa Este gardens are a fruitful comparative site because of the insights its modern-day gardeners provide on the care of plants favored by the

⁴⁴⁸ Coffin, *Gardens and Gardening in Papal Rome*, 221.

⁴⁴⁹ The Greek names of the gardeners has been identified by scholars as signifying that they are foreigners, however this need not have been the case. Locals could have possessed Greek names. Carroll, *Earthy Paradises*, 83.

⁴⁵⁰ Coffin, *Gardens and Gardening in Papal Rome*, 217-218.

⁴⁵¹ *Ibid.*, 221.

Romans. Within a methodological framework centered on human and non-human interactions, gardeners are an especially critical sources of information because their profession is founded on understanding and interpreting the agency of plants.⁴⁵² In this way the contemporary management of an early modern garden such as at the Villa Este is particularly helpful because current gardeners are able to speak—or to translate—plant needs in a way that is often absent in early modern and ancient historical sources.

Two species of plants cultivated at the Villa Este, box and cypress, are the focus of this study. Along the main axis leading from the villa to the entrance at the bottom of the hills, one finds multiple specimens of box trees, many date from the more recent fascist-era renovations of the 1920s-1940s however, a few specimens are identified by gardeners as dating to roughly the 17th century (Fig. 19).⁴⁵³ As the gardens were neglected for many periods and today it is difficult to find gardeners who have been trained in topiary, the box are wild, bearing a silhouette that is distinctly different from their twenty-year old descendants growing in the hedges of the Vialone Terrace (Fig. 20). The lack of gardener intervention has resulted in large, unpruned trees which shade the box causing in insufficient sunlight for abundant leaf growth. Because the box themselves also have not been pruned, the branching is sparse as cuts were not made to persuade denser growth. To maintain a dense habit over many centuries, pruning and adequate sunlight are required, as well as fertilizing.

⁴⁵² Pitt, “On showing and being shown plants,” 52.

⁴⁵³ Interview with Aurelio Valentini, June 2018.

Shaped box is first described by Pliny the Younger in the 90s CE as being “cut in the shape of animals (*bestiarum effigies*),” and “a variety of figures and names.”⁴⁵⁴ If three-dimensional and vertical, the effects Pliny describes could not have been achieved quickly and must have been the result of many decades and possibly many generations of gardeners. As already discussed in chapter three, box is a very slow grower (about fifteen centimeters a year), and cultivating compositions is a long process which requires not only gardener labor but patience and investment in time. Despite the incredible preservation afforded by the pyroclastic flow from the eruption of Vesuvius and the few surviving tree trunks, no shaped topiary have been found in the Bay or anywhere else in the empire. Evidence of frames or supports for trained plants have been discovered and accompanying plants cavities, but no above ground plants were preserved akin to the thick tree trunks at Boscoreale. Only small clippings, as one would expect from periodic shaping, have been attested in the archaeological record.⁴⁵⁵ Thus, since archaeological evidence is lacking, the Villa Este specimens provide a helpful model for reconstructing Roman practices. Of the plants most favored by Romans for shaping (cypress, box, laurel), contemporary practice at Villa Este suggests that box requires the greatest time investment as it is the slowest growing and requires more fertilization than shaped cypress.⁴⁵⁶ In comparison, cypress and laurel are much faster growers and afford larger and taller compositions more easily—observations which support Pliny’s description of cypress being trimmed into

⁴⁵⁴ Plin. *Ep.* 5.6.

⁴⁵⁵ J. Meurers-Balke and M. Herchenbach, “Römische Gartenkunst am Niederrhein,” in *Archäologie im Rheinland*, ed. J. Kunow and M. Trier, (Darmstadt: Theiss, 2014), fig 4; Lodwick, “Evergreen Plants in Roman Britain and Beyond,” 139-144.

⁴⁵⁶ Interview with Aurelio Valentini, June 2018.

more complex compositions such as hunting scenes and fleets of ships.⁴⁵⁷ Moreover, unlike productive fruit tree pruning, which generally occurs once per year, shaped box compositions require constant clipping throughout the year as well as repositioning and reattaching of the frame at least once per year.⁴⁵⁸ Part of their need for gardeners is borne out in their sensitivity to sunlight. If the shrubs are left to grow as they please, areas which become shaded by new growth will begin to lose leaves and will become sparse, thereby damaging the composition. A gardener is needed to design and maintain a form which maximizes exposure to sunlight across the entire plant.⁴⁵⁹ This level of constant work, year after year, is significantly different from other culturally significant plants, such as planes, which are reliant on gardeners in their youth, but become more independent as they mature. In contrast, a shaped box is reliant on its gardeners for the entirety of its many-century long life. Thus, the employment of a *topiarius* to create multi-formed shapes, hippodromes, and other types of structures from box is not merely an investment in plants, design, and implementation labor, but a commitment to long term financial costs and long term gardeners who may transmit their knowledge to apprentices.

In contrast, the cypresses at the Villa Este invite a different kind of analysis where the plants are asked to lead thought processes and influence interpretations of ancient gardens. In constructing an approach for understanding plants as non-human actors, Russell Hitchings and Verity Jones observe that “talking about gardens is difficult,” but that it is possible to create an “opportunity to allow plants more power

⁴⁵⁷ Plin. *H.N.* 16.140.

⁴⁵⁸ Interview with Alessandra Vinciguerra, the Bass Superintendent of Gardens at the American Academy in Rome, and Aurelio Valentini, June 2018.

⁴⁵⁹ Interview with Alessandra Vinciguerra and Aurelio Valentini, June 2018.

to visibly contest or prompt what was said about them,” through walking in a garden.⁴⁶⁰ This is because, as Hayden Lorimer, the human geographer, notes, through conducting field research by strolling in a place we are able to perceive “seemingly (un)remarkable actions, emotions, and feelings.”⁴⁶¹ The need to experience and walk through a garden to be able to understand it is further underscored by Roman conceptualizations of the inherent connection between thinking and strolling.⁴⁶² Edwin Fay has proposed that “*sentire*” (feeling, perceiving, thinking, supposing, imagining) and “*sententia*” (thought and opinions) are etymologically rooted in Indo-European terms referring to *physical movement along a path*.⁴⁶³ Furthermore, William Short has illustrated that Romans perceived and expressed cognitive process as movement relative to a locus, which simultaneously means idea as well as location. Thus, acquiring new knowledge is expressed as moving toward or into an idea, relinquishing one as moving away or out of an idea, and agreeing or possessing knowledge as standing in or remaining still.⁴⁶⁴ To give attention to an idea, *animadvertere*, is literally “to turn [or *steer*] a thing [the mind] toward a place.” The lexical connection between cognition and physical movement is explicit in ancient descriptions of thinking, talking, and walking. Writing to Fuscus about a single day at his villa, Pliny the Younger describes walking on average four to five times a day, as well as chariot riding or horseback riding—here, he directly connects putting his own body into

⁴⁶⁰ Hitchings and Jones, “Living with plants,” 9.

⁴⁶¹ H. Lorimer, “The geographical fieldclass as active archive,” *Cultural Geographies* 10 (2003): 296.

⁴⁶² On Roman gardens as cognitive spaces, see F. M. A. Jones, “Roman Gardens, Imagination, and Cognitive Structure,” *Mnemosyne* 67 (2014): 781-812.

⁴⁶³ William M. Short, “Thinking Places, Placing Thoughts: Spatial Metaphors of Mental Activity in Roman Culture,” *I Quaderni del Ramo d’Oro Online* 1 (2008): 109-110; E. W. Fay, “Pada Endings and Pada Suffixes,” in *Transactions and Proceedings of the American Philological Association* 44 (1913): 107-127.

⁴⁶⁴ Short, “Thinking Places, Placing Thoughts,” 109-110.

motion with meditation and dictation.⁴⁶⁵ To be able to think and compose, i.e. for the mind to *pursue* a thought, the body must similarly be in motion. Likewise, Cicero writing to his friend Atticus, claims he can only verbalize his worries and thoughts through walking together—a letter is an insufficient means of communication.⁴⁶⁶ In this manner, walking together, step in step, unites bodies, minds, and thoughts. Thus, for Romans, to think was to move, and the ideal place for this activity was the garden.⁴⁶⁷

In joining a Roman conception of thinking-walking and a field methodology utilized by cultural and human geographers to allow plants to prompt conversation, the 17th century cypresses elicit observations about plant age (Fig. 21). More specifically, the age and changed morphology of the cypresses brings to mind representations of plant age in two types of Roman paintings, villascape scenes and garden paintings, and how the plantings may be used to identify gardeners developing of a new kind of garden design. The unusual height and wide stature of the cypresses at Villa Este have been documented in representations and in descriptions. Jacob Philip Hackert, in a painting from 1792 depicting the villa seen from the valley below, presents a scene evocative of Roman maritime villas (Fig.22 a and b). Mature cypresses, identified by their wider girth stand within the garden enclosure along with umbrella pines, which, based on their wider canopies have also reached maturity. In a drawing dated to 1774, Jean-Honoré Fragonard portrays the cypresses as towering over garden strollers (Fig.

⁴⁶⁵ Plin., *Ep.* 4.36.

⁴⁶⁶ Cic., *Att.*, I.18.1.

⁴⁶⁷ Kaja J. Tally-Schumacher, “Strolling Charioteers: Finding the Circus in Roman Gardens,” presented at the Institute of Fine Arts Frick Symposium, New York, April 27th, 2018.

23. By 1830, in Carl Blechen's painting, the trees are even more aged and loom over garden visitors (Fig. 24). By 1894 Winslow Jones described them as among the largest in Europe, second only to the cypress found at Somma, Italy.⁴⁶⁸ Even if we take into account artistic license and overly dramatized scale, a key characteristic depicted in these images and found on the cypresses today deserves mention: their wide, irregular silhouette. When young, as depicted in the Prima Porta Garden Painting (Fig. 25), cypresses are narrow, columnar, their silhouette is smooth with no side branching, and they are topped with a single distinct point. But as these trees reach maturity, their silhouette changes. Side branching results in a more amorphous silhouette and the top of the tree becomes more rounded. When the trees reach a truly aged state, like some specimens at the Villa Este, they begin to lose their canopy, leaving a silvery, sinuous form of exposed trunk (Fig. 21). The aging of these trees is a reminder that plants, like humans, are altered by age and that these visual characteristics may be employed to date gardens.

A joint analysis of real and represented trees is necessary for dating a depicted Roman garden for two reasons. The materiality of plants is unlike that of color, metal, or stone. Where other substances might corrode, fade, or degenerate with age, plants, in sculptural terms are additive, they grow and increase. Additionally, most arboricultural statistics on height and growth habits are based on averages within the first ten years of a plant's life, but growth varies at different stages, tends to slow with age as trees develop wider canopies, and is greatly impacted by local conditions and the health of a particular specimen. Thus, we must use a combined metric based on

⁴⁶⁸ Winslow Jones, "The Cypress of Somma," *Notes and Queries: A medium of Intercommunication for Literary Men and General Readers* 8.6 (1894): 509-511.

real and depicted specimens from similar environmental conditions. These qualities serve as a guide for identifying and dating the plantings depicted in Roman “villascapes,” a genre that develops in the early first century CE.⁴⁶⁹ The scenes are characterized by their diminutive size, their painted illusionistic frames mimicking *pinakes*, and focus on villas and porticoes along coasts and inland. Commonly located in triclinia, exedra, and porticoes, they “are found on all parts of the wall: at eye level, on a dado below, resting on a cornice above, sometimes even overhead on a ceiling.”⁴⁷⁰ Pliny the Elder attributes the development of such paintings to Studius, describing the genre as composed of scenes of,

“villas, and porticoes and landscape gardens, groves, woods, hills, fish-ponds, canals, rivers, rivers, coasts, and whatever anybody could desire, together with various sketches of people going for a stroll or sailing in a boat or on land going to villas riding on asses or in carriages, and also people fishing and fowling or hunting or even gathering the vintage. His works include splendid villas approached by roads carrying women on their shoulders for a bargain, and a number of humorous drawings of assort besides, extremely wittily designed. He also introduced using pictures of seaside cities to decorate uncovered terraces, giving a most pleasing effect and at a very small expense.”⁴⁷¹

Although the paintings are not portraits of specific places, they correspond closely with contemporary descriptions, such as those in Statius’ *Silvae*, and with excavated villas and their gardens.⁴⁷² For example, a colonnaded villa façade framed by tall trees from Pompeii, today in the Naples Archaeological Museum bears a close resemblance

⁴⁶⁹ Bettina Bergmann, “Frescoes in Roman Gardens,” in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, (Cambridge: Cambridge University Press, 2018): 282.

⁴⁷⁰ Bergmann, “Frescoes in Roman Gardens,” 282.

⁴⁷¹ Plin. *H.N.*, 30.116-117.

⁴⁷² Bergmann, “Painted Perspectives of a Villa Visit: Landscape as Status and Metaphor,” 49; for a discussion on the dating of the genre and the relationship between the descriptions given in Pliny and Vitruvius see Ling, “Studius and the Beginnings of Landscape Painting,” 1-16.

to the façade of Villa A at Oplontis.⁴⁷³ But while scholars have focused on the architectural structures or the role of fencing and boundaries⁴⁷⁴, the plantings in these paintings have received very little attention.⁴⁷⁵ Yet the villa scenes depict a recurring distinctive garden type with two main characteristics: 1) it is primarily composed of cypresses and umbrella pines and 2) the plantings follow the contours of buildings, like a green glove or second skin. The veracity of these scenes is further supported by excavated gardens, such as garden 59 at Villa A at Oplontis, where plantings follow the contours of the peristyle akin to the painted evergreens along exterior walls, suggesting that these paintings may inform our understanding of real villa gardens. This is strengthened by the fact that Roman viewers perceived the painted and real villa views in dialogue with one another. Their placement in porticoes and triclinia in villas which themselves overlooked the places like the Bay of Naples created a play between the real “villascape” of the Bay and that within the picture plane.

To return to the aged Villa Este cypresses, they provide an excellent gauge for contextualizing and dating the formal gardens which frame these villa scenes. Tall trees, primarily conifers, are a recurring motif in the villascapes. They are generally depicted directly behind a colonnaded portico, an effect that is recreated today by the trees which have grown in the excavated gardens at Villa A at Oplontis. What is remarkable in these paintings is the consistency in clearly portraying characteristics of mature trees. The age of the trees is not solely a result of scale (i.e. tall equals old), as

⁴⁷³ MANN 9406; Elaine K. Gazda, “Villas on the Bay of Naples: The Ancient Setting of Oplontis,” in *Oplontis: Villa A (“of Poppaea”) at Torre Annunciata, Italy*, ed. John R. Clarke and Nayla K. Muntasser, (New York: American Council of Learned Societies, 2014), 76-81.

⁴⁷⁴ Bergmann, “Painted Perspectives of a Villa Visit: Landscape as Status and Metaphor,” 49-70.

⁴⁷⁵ von Stackelberg, *The Roman Garden*, 44.

it must be noted that scale is manipulated by the painters for visual clarity. For example, figures, who tend to occupy the foreground, are often scaled larger so that the activity they perform is more clearly legible. Despite relative freedom in scaling, the painters consistently represent trees with characteristics they only develop once they become mature. Three paintings serve as especially clear examples of this trend: painting 2518 from the Stabiae Antiquarium, a maritime villa painting from the atrium of the House of Menander at Pompeii, and a villascape painting from the Temple of Isis at Pompeii.⁴⁷⁶ Painting 2518 portrays a three-sided, two-story, colonnaded structure atop a platform, overlooking water. A row of tall conifers is visible behind the building, planted along two of its three sides. The plantings feature lower, less defined plants and two varieties of trees which are clearly articulated by the painter: cypresses and umbrella pines. The villascape from the House of Menander features many of the same elements. A single-story colonnaded structure sits atop a tall platform, framing a densely planted area of cypresses and umbrella pines. The painting from the Temple of Isis depicts a three-sided colonnaded portico on the left, framed by distinctly painted cypresses along two exterior sides. The painter took special care in articulating the texture of the cypress needles and branching; these plants are not mere background motifs. There is evidence of painters thinking about the materiality and form relative to the age of the plants. The umbrella pine in the House of Menander is of medium height and is topped with a rounded canopy—a characteristic of the trees in mid-age before they develop flatter and wider canopies in maturity. The cypresses in all three paintings, but especially in painting 2518 and from

⁴⁷⁶ MANN 8519.

the House of Menander, are depicted with widening silhouettes and with a loosening of the more compact and smooth form of its youth, characteristics of mid-growth development.

If we interpret the scaling of the buildings and trees as roughly comparable and relative to one another (I do not mean that the painters employed a mathematical, precise scale), it is possible to approximate the tree age by creating a scale based on average Roman story height, which is estimated as three and a half meters.⁴⁷⁷ The scale is then paired with the modern average growth of the species. Cypresses grow on average between thirty and sixty centimeters a year when young but slow as they age, reaching an average maximum height of thirty-five to forty meters.⁴⁷⁸ Umbrella pines generally grow especially fast in their first five years, commonly reaching a height of three to four and half meters, and then slow to an annual growth rate of thirty to sixty centimeters a year.⁴⁷⁹ The age results yield remarkable similarity across the villascape genre. Taking into account the range created by minimum and maximum annual growth rates, the cypress trees in the paintings are depicted as between 27-58 years old and the umbrella pines (found in paintings from Stabiae and the House of Menander) 23 to 35 years old. The two trees create a period of overlap in age between 27-35 years. Neither variety has reached maximum height, although qualities of mid-age growth are present. Attention to tree age in fresco paintings from the period suggests

⁴⁷⁷ Glenn R. Storey, "The 'Skyscrapers' of the Roman World" *Latomus* 62.1 (2003): 5.

⁴⁷⁸ G. Caudullo and D. de Rigo, "Cupressus Sempervirens in Europe: distribution, habitat, usage and threats, in *European Atlas of Forest Tree Species*, ed. J. San-Miguel-Ayanz, D. de Rigo, G. Caudullo, T. Houston Durrant, A. Mauri, (European Commission, 2016), 88-89 https://ies-ows.jrc.ec.europa.eu/efdac/download/Atlas/pdf/Cupressus_sempervirens.pdf.

⁴⁷⁹ R. Abad Viñas, G. Caudullo, S. Oliveira, D. de Rigo, "Pinus Pinea in Europe: distribution, habitat, usage and threats," in *European Atlas of Forest Tree Species*, ed. J. San-Miguel-Ayanz, D. de Rigo, G. Caudullo, T. Houston Durrant, A. Mauri, (European Commission, 2016), 130-131 https://forest.jrc.ec.europa.eu/media/atlas/Pinus_pinea.pdf.

that the depiction bears some veracity and cannot be dismissed as a mere motif.

Numerous representations of aged, burl covered trees with receding and aging canopies in sacro-idyllic landscape paintings (Fig. 26) paired with portrayals of very young plants, like the cypresses in the Prima Porta painting and in the House of the Golden Bracelet, point to a well-developed iconography of plants at various ages.⁴⁸⁰

Furthermore, if we additionally consider two other variables, the age of the structures the trees frame and the period in which these scenes are painted, we may more precisely date these new evergreen gardens. Painted in the early first century CE, the scenes portray building types which become popular in Italy from the second century BCE and into the first century CE. The three-sided porticus raised on a platform supported by barrel vaulting found in many paintings is influenced by late second-century BCE sanctuaries, like the Temple of Fortuna Praeneste and the Temple of Jupiter Anxur at Terracina. Beginning in the second half of the first century BCE and into the first century CE this form was adopted in villa design, as evidenced by the large three-sided peristyle gardens atop tall platforms found at Livia's Villa at Prima Porta and at the Villa Arianna in Stabiae in the Bay of Naples, and many other sites.⁴⁸¹ Thus if we join the following three variables: the date of the paintings (early first century CE), the period in which three sided structures on platforms become popular (first century BCE in villa design), and the depicted age of the trees (27-35 years old), it is possible to date the garden type depicted in the paintings as developing in the

⁴⁸⁰ Bergmann, "Exploring the Grove: Pastoral Space on Roman Walls," 20-46.

⁴⁸¹ Ian Sutherland, "The Architectural Framework of the Great Peristyle Garden at the Villa Arianna," *Quaderni di Studi Pompeiani VII: Excavation and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* (2016): 49-50; Clark Reeder, *The Villa of Livia Ad Gallinas Albas*, 11.

second half of the first century BCE. The aesthetic depicted so clearly in these paintings is of a planting style in which tree placement replicates the contours of the building, creating the effect of a green skin along the exterior walls or inner courtyard walls. This type of planting pattern is attested in contemporaneous excavated gardens, although there is more evidence of plantings which parallel interior dimensions of peristyles rather than those which follow exterior contours. *Ollae perforatae* and plantings pits have been found running along the contours of peristyles at numerous sites, such as in the Temple of Venus in Pompeii⁴⁸², at Villa A at Oplontis in peristyle 59 and in many Pompeian gardens.⁴⁸³

Although the reflexive relationship between plantings and buildings is an already well-established characteristic of Roman gardens, the villascapes allow us to contextualize some of the earliest garden designs within the development of a gardener class. Of the multiple titles used for different kinds of gardeners, the great majority (*topiarius*, *olitor/holitor*, *putator*, and *vinitor*) are first attested in the first century BCE. These evergreen gardens are thus the creation of some of the earliest titled gardeners. Their inspiration likely derived from estate property lines, where cypresses were commonly planted as green fences demarking boundaries between neighboring estates.⁴⁸⁴ In this way the cypresses along liminal boundaries such as exterior building walls further underscored the barrier between interior villa spaces and exterior gardens. Moreover, they are also a very early example of gardeners

⁴⁸² The plantings at the temple are dated by Carroll to post 80 BCE, Maureen Carroll, "Exploring the sanctuary of Venus and its sacred grove: politics, cult and identity in Roman Pompeii," *Papers of the British School in Rome* 78 (2010): 347-351.

⁴⁸³ Jashemski, "Gardening Practices and Techniques," 441-445.

⁴⁸⁴ Varo, *Rust.* 1.15.

listening to plant desires and growth habits and developing garden types based on plant characteristics. Varro in his *On agriculture* notes that unlike other culturally significant and popular trees, cypresses do not spread their roots very far,⁴⁸⁵ thereby making them ideal trees for planting near buildings and foundations as their roots systems are less likely to damage the building.

The formal qualities of age found in the cypresses at Villa Este also prompt observations about another type of garden, depicted in paintings across the empire and more recently, excavated at the Villa Arianna in Stabiae. As a painted genre type, the botanical garden scenes developed in the 30s-20s BCE in the villas of the most elite Romans, like the Auditorium of Maecenas, the Villa Farnesina, and the villa at Prima Porta.⁴⁸⁶ Their botanical naturalism is attributed to the contemporary development of illustrated scientific manuals.⁴⁸⁷ While in the early elite contexts the *tromp l'oeil* paintings encompassed whole rooms creating the effect of indoor gardens, by the first century CE the genre type had percolated down the social ladder and could be found in even modest houses on single walls indoor or on walls behind real gardens.⁴⁸⁸ The genre as a whole and individual examples have received much scholarly attention, but the paintings have primarily been interpreted as paintings, without any claim to depict

⁴⁸⁵ Varro, *Rust.* 1.37.4; Varro observes that in comparison, planes have very far reaching root systems, an observation which appears to explain how plane growth habits led to a different kind of planting tradition. For example, the young plane which shaded the Lyceum in Athens is said to have had roots which spanned thirty-three cubits (about fifteen meters), a characteristic which made them unsuitable for planting along foundations. The naturally wide root system of unroot-pruned planes elucidates why they are more commonly found in peristyles further from walls, such as in double rows in the center of the Porticus of Pompey or the *Viridarium* at the Villa San Marco, where they grew some meters from the colonnaded peristyle and pool.

⁴⁸⁶ Kuttner, "Looking outside inside: ancient Roman garden rooms," 7-35; Kellum, "The Construction of Landscape in Augustan Rome," 211-224;

⁴⁸⁷ Kuttner, "Looking outside inside: ancient Roman garden rooms," 29.

⁴⁸⁸ *Ibid.*, 9.

the actual reality of the gardens.⁴⁸⁹ This is in part because until recently the painted gardens were thought to be unconnected to real ones.⁴⁹⁰ However, the discovery of the preserved garden bed contours and root cavities at the Villa Arianna in Stabiae illustrate that these garden scenes do in fact reflect real landscape design trends.⁴⁹¹ Two painted gardens, one from an elite villa and one from a Pompeian house, are explored here through the lens of time. The garden painting at Prima Porta encompassed all four walls of an underground chamber (Fig. 27). The foreground features a wicker fence, an *ambulatio*, followed by trees in niches. The planted area is separated from the viewer by a second fence of marble, behind which we find a mixture of ornamental and productive plantings.⁴⁹² The painting from the House of the Golden Bracelet was found on three walls of an oecus overlooking a garden. A fountain and two herms with *pinakes* are placed at the picture plane, a dwarfed plane, pruned plants and birds fill the space. (Fig. 2)

If we reintroduce the concept of time into these spaces, it becomes possible to identify key characteristics to this type of design that previously have gone unnoticed. Identification of signs of plant age was accomplished by consulting with a diverse group of garden practitioners, ranging from landscape designers at historic Italian gardens, nursery owners and plant propagators in the Bay of Naples, and dwarfing and

⁴⁸⁹ Clark Reeder, *The Villa of Livia Ad Gallinas Albas*, 35-44; Mabel Gabriel, *Livia's Garden Room at Prima Porta*, (New York: New York University Press, 1955); Ling, "Stidius and the beginning of Roman landscape painting," 1-16; Frederick Jones, *The Boundaries of Art and Social Space in Rome: the Cages Bird and Other Art Forms*, (London: Bloomsbury Academic, 2016): 55-74; Jashemski, *The Gardens of Pompeii Vol. II*, 313-404; Jashemski, *The Gardens of Pompeii Vol. I*, 55-88.

⁴⁹⁰ Kuttner, "Looking outside inside: ancient Roman garden rooms," 8.

⁴⁹¹ Kathryn Gleason, "Documentation of the Garden Beds," *Quaderni di Studi Pompeiani VII: Excavations and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* (2016): 67-90; Tally-Schumacher and Niemeier, "Through the Picture Plane," 58-71.

⁴⁹² Caneva and Bohuny, "Botanic analysis of Livia's villa painted flora (Prima Porta, Roma)," 149-155.

bonsai special.⁴⁹³ First, the plants are not all of the same age. In the Prima Porta painting the pine in the niche in the north wall is estimated to be about 10 years old while the cypresses and palms surrounding it are about 20 years old (Fig. 28).⁴⁹⁴ The plants in the foreground, such as the roses, laurel, poppies, chrysanthemums, and box, are far younger. In comparison, the plane tree in the painting of House of the Golden Bracelet (Fig. 2) is estimated to be about 5-6 years if it is planted in the ground, but as old as 15 if it is root bound in a pot, while the plantings in the foreground are again much younger.⁴⁹⁵ It is unlikely that a garden would be planted entirely from seed, resulting in plants which would be of equal age. Instead gardeners most often create designs with plantings from nurseries where individual specimens are chosen for their overall health, their fullness, color, texture, and size.⁴⁹⁶ The varying age and size of the specimens is evidence of a designer's plan and envisioned visual effect prior to planting. There is an intentionality in the placement of younger and lower plantings in the foreground, and taller ones further back in the garden bed. As a result, this type of garden is perhaps more accurately described as an installation. An orchard, vineyard, or crop fields are cultivated until they reach a desired productive age, but this type of garden is already a completed work when first installed.

⁴⁹³ Interviews with Aurelio Valentini, June 2018; Renata Puzoń, Szkoła krzewów i drzew ozdobnych Renata i Józef Puzoń, Ustroń, Poland, July 18, 2018; Alessandra Vinciguerra, the Bass Superintendent of Gardens at the American Academy in Rome, June 2018; Felicia Pianta e Fiori, Via Casone 80045 Pompei, NA, Italia.

⁴⁹⁴ Interview with Renata Puzoń, July 18, 2018.

⁴⁹⁵ Ibid.

⁴⁹⁶ Three Roman plant nurseries have been found, two at Pompeii and one in Egypt in Abu Hummus, Mohamed Kenawi, Elizabeth Macaulay-Lewis, and Judith S. McKenzie, "A commercial nursery near Abu Hummus (Egypt) and re-use of amphoras for the trade in plants," *Journal of Roman Archaeology* 25 (2012): 214-215.

Although there is some variance in plant age, none of the plantings could be categorized as mature or old, the paintings depict young gardens. Even the trees, which tend to be the oldest specimens, are still in their youth relative to their long lifespans. It would follow that, as the Prima Porta paintings is dated to the 30-20s BCE, the garden it depicts would have been planted shortly before based on the youngest specimens in the foreground. If we assume that the paintings document real garden types, that would suggest that the development of this new design cannot date much earlier than the last quarter of the first century BCE. Often described as overgrown, these gardens are in fact the result of orderly planting patterns.⁴⁹⁷ When the Prima Porta garden is translated into a landscaper's aerial plan, the placement of individual specimens is not irregular. The shrubs, bushes, and smaller flowering perennials are arranged along linear patterns. It is unlikely that painters would have possessed the kind of botanical training to create these compositions themselves from scratch. In other words, it is doubtful that the paintings are the inspiration of a new garden type, rather than they reflect it. Interestingly, while the genre is characterized by young gardens, the real ones, such as that excavated at the Villa Arianna, would have aged and changed. Decades after the Prima Porta painting, when the inspirational garden would have aged into a very different aesthetic, we continue to find painted scenes of young gardens, suggesting a cultural preference for the youthful and orderly motif.

⁴⁹⁷ Gleason, "The Lost Dimension," 311-325; Tally-Schumacher and Niemeier, "Through the Picture Plane," 58-71; Mantha Zarmakoupi, "Designing the landscapes of the Villa of Livia at Prima Porta," in *Essays in Classical Archaeology for Eleni Hatzivassiliou 1977-2007*, ed. D. Kurtz et al., (Oxford: Studies in Classical Archaeology, The Beazley Archive Series, 2008), 269-276; Kuttner, "Looking outside inside: ancient Roman garden rooms," 7-35; Bergmann, "Frescoes in Roman Gardens," 286-288.

The dense planting of these kinds of garden beds cannot be maintained indefinitely. When planted densely, plants grow slower as they compete with one another for sunlight, water, and nutrients. Thus, the density is an intentional device utilized by gardeners to maintain the composition. But even with the application of extensive pruning throughout the year, it is not possible to keep the garden in this state permanently. Many of the plants depicted in the foreground of the Prima Porta and Golden Bracelet gardens are naturally tall, they only appear in the foreground because they are young and pruned back.⁴⁹⁸ This reinforces the idea of this garden type as an installation. Gardener opinions on the duration of this design vary, with some estimating a maximum range of 5-10 years while retaining the same aesthetic principles, while others estimate that it be possible to keep a similar composition for a little longer, especially if individual specimens were replaced with younger and small plantings periodically.⁴⁹⁹ Despite differing opinions, garden practitioners agree that this is not a multi- generational design like box, cypress, or laurel topiary or a grove of trees.

The density of the planting has been called unkempt and wild by many art historians,⁵⁰⁰ but if viewed from the perspective of a patron and gardener who are keen to make labor as efficient and least time consuming as possible, the density becomes an intentional horticultural device. As already mentioned, this method of planting stunts growth so that a composition is retained longer. It also hinders weed growth as no sunlight reaches germinating weed seeds, thus diminishing the time spent weeding

⁴⁹⁸ Gleason, "The Lost Dimension: pruned plants in Roman gardens," 311-325.

⁴⁹⁹ In antiquity as today, it was possible to even transplant large, mature specimens as well.

⁵⁰⁰ Kuttner, "Looking outside inside: ancient Roman garden rooms," 28; Bergmann, "Frescoes in Roman Gardens," 286-288.

and making gardeners available to perform other tasks. And while plants closely planted together compete with one another for water, in an arid climate density is also a means of creating a moist microclimate and retaining water.⁵⁰¹ A single, isolated plant in a hot, dry Mediterranean garden loses water quickly through evapotranspiration. But when plants are grouped together, this process creates a microclimate and thus keeps the moisture within a closed system.⁵⁰² The long-term effect is a reduction in water needs, which again impacts gardener time as it decreases plant reliance on manual watering by gardeners.

In short, the Villa Este centenarian cypresses and boxes remind us about an all too easily forgotten quality of Roman gardens: namely, time. In garden and landscape representations, the painter or mosaicist renders time static and plants immortal and unchanging. Even in Augustan depictions, like the Ara Pacis garlands or the Prima Porta garden painting, where time is collapsed so that blossoms and fruits of many different seasons are depicted together, time is frozen in pigment and stone. But strolling in historic gardens and listening to plants of differing ages allows us to re-envision ancient gardens and their representations as the culminations of processes and investment in time. Viewing plants through the lens of time also makes it possible to recover how certain horticultural practices, such as dense planting, impacted the time gardeners spent performing their duties.

Unlike preserved ancient works in many different kinds of media, ancient living plants are lost to us. Carbonized seeds, root cavities or casts thereof do not

⁵⁰¹ Martin J. Canny, "Transporting water in plants," *American Scientist* 86.2 (1998): 152-159.

⁵⁰² B. J. Legg and I. F. Long, "Microclimate Factors Affecting Evaporation and Transpiration," in *Physical Aspects of soil water and salts in ecosystems*, ed. A. Hadas, (Berlin: Springer-Verlag, 1973): 275-285.

preserve the silhouette, texture, and fragrance of the plants. Yet garden strolls allow us to experience the very qualities which are lost: plants' materiality and their changing traits as they mature. In this way less discernable qualities, such as plant age, becomes an apparent source of information which may be used to reconstruct the development of garden styles and popularity of particular species. At the same time, the age of plants also serves to illuminate the presence of gardeners. The unattended boxes at Villa Este, a plant that appears to have been synonymous with elite Roman villa gardens, clearly articulate plant dependence on generations of gardeners across their many-century long lives. Similarly, using characteristics plants develop in particular stages of growth provides evidence of when gardeners designed and planted specific garden types.

James Madison's Estate at Montpelier

For the second example, we travel to the Antebellum American South, specifically to the plantation gardens of James Madison at Montpelier, Virginia. Despite the temporal, geographical, and cultural distance between these two cultures, comparative studies on slavery between the 'New World' and the ancient Mediterranean have had a profound effect on our understanding of unfree labor in the ancient world. However, as Jane Webster has articulated, this fruitful comparative approach has primarily been utilized by classicists, while classical archaeologists have "traditionally resisted comparative methodologies" to the degree that it is "almost impossible to find archaeologists drawing on 'New World' (c. 1500-1800) slavery

studies to inform the investigation of slavery in the Roman world.”⁵⁰³ This in part due to the privileging of ancient classical textual, especially epigraphic, evidence within the discipline, at the expense of non-epigraphic sources.⁵⁰⁴ Organizational divisions within the academe, between departments, and between philologists and archaeologists are also to blame.⁵⁰⁵ Another limiting factor is the concern that such models reduce conclusions about enslaved people to “laws-of-human-behavior.”⁵⁰⁶ But comparative study “can set up provocative and instructive analogies that are valuable in pointing to new sources of evidence or lines of interpretation,” and may be employed by avoiding overly generalized deductions.⁵⁰⁷ For example, when Webster suggests interpreting ancient graffiti, such as single letter markings in the shape of an “X” as evidence of illiterate slave presence, this does not create a law of behavior that states that all slaves were graffiti writers. It merely identifies a new way of exploring existing evidence that was previously not associated with a particular group of people. Within this framework, the ornamental gardens at Montpelier offer a compelling model for reconstructing tensions between free designers, owners of enslaved individuals, and enslaved gardeners.⁵⁰⁸

⁵⁰³ Jane Webster, “Less beloved: Roman archaeology, slavery and the failure to compare,” *Archaeological Dialogues* 15.2 (2008): 103-104.

⁵⁰⁴ *Ibid.*, 104; Nicola Terrenato, “The innocents and the skeptics. *Antiquity and Classical Archaeology*,” *Antiquity* 76 (2002): 1109.

⁵⁰⁵ Martin Hall, “Ambiguity and Contradiction in the archaeology of slavery,” *Archaeological Dialogues* 15.2 (2008): 128-129.

⁵⁰⁶ *Ibid.*, 128-129; Jane Webster, “Slavery, archaeology and the politics of analogy,” *Archaeological Dialogues* 15.2 (2008): 139.

⁵⁰⁷ Hall, “Ambiguity and Contradiction in the archaeology of slavery,” 129.

⁵⁰⁸ As Webster notes, Antebellum scholarship on enslaved labor is a productive comparative model for the ancient world. While there is a large body of scholarship on plantations augmented by more recent archaeological excavations, including at George Washington’s estate at Mount Vernon, James Madison’s estate was chosen as a comparative site because of its Plinian hippodrome garden. For more on American enslaved labor and plantations, see Mark Leone, James M. Harmon, and Jessica L. Neuwirth, “Perspective and Surveillance in Eighteenth-Century Maryland Gardens, Including William

Of particular note to this study is the hippodrome shaped garden, which occupies about one and a half hectares; it was commissioned by James and Dolley Madison in the 1810s and designed by the French landscape designer, Charles Bizet. A number of factors make Montpelier an especially fruitful case study and bind it closely to Roman garden practices and elite villa gardens. Since 1986 wide-spanning archaeological excavations have been conducted across the estate, providing information on cultivation and on the enslaved population, including those who performed agricultural and horticultural tasks.⁵⁰⁹ This is an invaluable dataset as in comparison no systematic archaeological exploration has been undertaken in Italian early modern gardens, thereby limiting the nature of the evidence. The garden has been documented using non-invasive methods, such as lidar scanning for historical garden and path contours, and a few test pits have been sunk as well.⁵¹⁰ Because many of the estate buildings, such as those relating to cultivation, were raised or decayed after Dolley Madison sold the property in 1844, the site is rich in deposits from the period.⁵¹¹ Although it is not possible to associate any of the finds strictly with

Paca's Garden on Wye Island," *Historical Archaeology* 39.4 (2005): 131-150; Mark Leone, Jennifer Babiarz and Cheryl LaRoche, "The Archaeology of Black Americans in Recent Times," *Annual Reviews of Anthropology* 13.15 (2005): 575-599; Mark Leone, Elizabeth Pruitt, Benjamin A. Skolnik, Stefan Woehlke, and Tracy H. Jenkins, "The Archaeology of Early African American Communities in Talbot County, Eastern Shore, Maryland, U.S.A. and Their Relationship to Slavery," *Historical Archaeology* 52.4 (2018): 753-772; Mark Leone, *The Archaeology of Liberty in an American Capital: Excavations in Annapolis*, (Berkeley: University of California Press, 2005); Mary V. Thompson, *'The unavoidable subject of regret' George Washington, Slavery, and the enslaved community at Mount Vernon*, (Charlottesville: University of Virginia Press, 2019); Thomas E. Beaman Jr., "The Archaeology of Morley Jeffers Williams and the Restoration of Historic Landscapes at Stratford Hall, Mount Vernon, and Tryon Palace," *The North Carolina Historical Review* 79.3 (2002): 347-372.

⁵⁰⁹ Matthew Reeves, *A brief history of the Montpelier landscape*, (Montpelier: Montpelier Archaeology Department, 2016), 1-26.

⁵¹⁰ *Archaeology Sites at James Madison's Montpelier*, (Montpelier: The Montpelier Foundation), 38-39.

⁵¹¹ Reeves, *A brief history of the Montpelier landscape*, 1; Matthew Reeves, "A Community of Households: Early 19th Century Enslaved Landscapes at James Madison's Montpelier," *African Diaspora Archaeology Newsletter* 13.4 (2010): 1-26.

gardeners versus other individuals, the excavations of areas inhabited by enslaved people have allowed scholars to shift discourse from one focused on passive suffering to instead exploring the agency and resiliency of enslaved individuals through their material record.⁵¹² Additionally, because this garden was constructed and maintained by enslaved gardeners, it serves as a model for reconstructing aspects of Roman enslaved gardeners, and thus allows us to build on the evidence gained from early modern gardens. The elite stature of the garden, described as “perhaps one of the finest in the South,” and of the gardener, Bizet, who designed the White House gardens and private estates for three Presidents, provides evidence of horticultural practice that is on par with the most elite Roman villas and their gardeners, such as the many *topiarii* found at Imperial villas or the kind of cultivation we may envision in the luxurious villas along the Bay of Naples.⁵¹³ Montpelier also offers a garden so strongly inspired by Roman designs and horticultural preferences, that it serves as an excellent comparative model in reconstructing Roman practices. Writing to Domitius Apollinaris, Pliny the Younger described the surrounding landscape around his villa at Tusculum as, “an immense amphitheater, such as only nature could create. Before you lies a broad, extended plain bounded by a range of mountains, whose summits are covered with tall and ancient woods, which are stocked with all kinds of game,” a description which is equally accurate at Montpelier.⁵¹⁴ Located southeast of the mansion, the garden was constructed in a natural depression surrounded by hills, and

⁵¹² James Madison’s Montpelier, *The Mere Distinctions of Colour Exhibition*, June 4, 2017-on going.

⁵¹³ A.F., “Monticello and Montpelier: The Homes of Thomas Jefferson and James Madison,” *New York Post*, 29 July 1881; C. Allan Brown, *Montpelier Cultural Landscape Study: Visualizing the Plantation of James and Dolley Madison*, (Montpellier: The Montpellier Foundation, 2012), 134.

⁵¹⁴ Plin., *Ep.* 5.6.

in Madison's time, by wild woods. The hippodrome shape is likely the result of two factors: Bizet's neo-classical training in France and Madison's own classical interests.⁵¹⁵ While all eighteenth-century Virginian youths read the letters of Pliny the Younger as part of their education and were thus well acquainted with Pliny's hippodrome at Tusculum, Madison was considered to be one of the most knowledgeable classicists in the country.⁵¹⁶ Moreover, his interest in Roman farm management and Roman measuring systems is made evident in the dimensions of the garden, with the main axis measuring 625 feet, the length of a Roman stadium.⁵¹⁷ And while hippodrome-shaped kitchen gardens were popularized during this period in America by French-émigré landscape designers, the Madison's garden was unusual for the time in its Roman mixture of productive and ornamental plantings.⁵¹⁸ The terraced garden beds featured a combination of fruit trees, vegetables, and ornamentals, comprised of "figs, grapes, Newton Pippin apples, peaches, cherries, plums... snowdrops, primroses, China pinks and Damask roses; and... parsley, London leek, long prickly cucumbers, Dutch parsnips," and pink oleander, as well as Black walnuts and Cedars of Lebanon, which were imported to frame the entrance of the garden.⁵¹⁹ Even the long cucumbers evoke Tiberius' preferred vegetable and his talented *olitores*. Additionally, a mulberry tree appears to follow Pliny the Elder's observation that, "when you see the mulberry budding, after that you need not fear damage from the

⁵¹⁵ Brown, *Montpelier Cultural Landscape Study*, 128.

⁵¹⁶ *Ibid.*, 130.

⁵¹⁷ *Ibid.*, 138-139. Brown speculates that another possible source of inspiration may have come from Robert Castell's *Villas of the Ancients Illustrated* (1728) which Madison may have seen while visiting his close friend, Jefferson, 130.

⁵¹⁸ *Ibid.*, 131-132; Anonymous, "Montpelier," *Family Magazine*, 4 (1836), 123-124.

⁵¹⁹ *Archaeology Sites at James Madison's Montpelier*, 38; Linda Holden Hoyt, *Presidents' Gardens*, (Oxford: Shire Publication, 2013), 19.

cold.”⁵²⁰ Placed at the entrance of the garden, Madison’s mulberry served as a natural call to work for gardeners in spring time. Moreover, not only did the form and plantings evoke Roman tastes, the space was used by the Madisons in keeping with the *otium* and *negotium* balance found in elite senatorial or imperial Roman villas. The presidential couple was known to use the hippodrome for strolling with guests after dinner, further aligning the garden with ancient *ambulationes*.⁵²¹ The Madison’s love of the classical was so encompassing, that the estate even featured a round temple, evoking the Temple of Vesta from Rome, which served as an ice-house (Fig. 29).⁵²²

Montpelier offers insight into two labor dynamics: the role of the foreign landscape designer and the enslaved gardeners. The case study reinforces the pattern already illustrated in the papal gardens, namely that landscape designers and supervising gardeners were not found locally but were hired from other regions or abroad. At Montpelier, Bizet was only one of many foreign gardeners. He was followed by a Scotsman and later by an Irishman, and at one point Madison considered replacing Bizet with an unnamed foreign gardener recommended by Madison’s brother-in-law.⁵²³ It is only in the early twentieth-century that an American landscape designer was brought to the estate, and but even he was an outsider from

⁵²⁰ Plin. *H.N.* 26.41; 28.67.

⁵²¹ *Archaeology Sites at James Madison’s Montpelier*, 38. Unrelatedly but interestingly, under a later, early-twentieth century owner, Oglesby Paul, the garden’s Plinian aesthetics were even more strongly articulated due to the great publicization of the House of the Vettii excavations at the turn of the century, Brown, *Montpelier Cultural Landscape Study*, 142.

⁵²² Brown, *Montpelier Cultural Landscape Study*, 14, 50; The round temple is described as evoking the Temple of Vesta, although it is not exact replica. The monopteros temple style had become common in English landscape design and in Europe was commonly associated with Venus, but as Brown explains, contemporary early American prints illustrate that for the young republic it was associated with liberty. Tour guides today note that the main house blocks view of the slave quarters, so that when one retired to the temple to ponder American liberty, the slave reality was conveniently obscured.

⁵²³ *Ibid.*, 126-127.

Philadelphia, not a native Virginian.⁵²⁴ But what is especially striking about both pre-industrial case studies in Italy and in the US, is the reliance on non-local and foreign supervising gardeners/landscape designers, while the laborers themselves were local. In part at least, this must be a result of demand and the nature of the work. During the early 1800s Bizet was employed by multiple patrons at various estates, spending a few weeks at one and then moving on to supervise other projects. The concept of a single, traveling, landscape designer supervising multiple properties aligns with Cicero's description of his brother's *topiarius* overseeing garden works at multiple family estates.⁵²⁵ This suggests that even in areas of great villa density, like the Bay of Naples or the hills surrounding Rome, a small number of professional supervising gardeners or landscape designers could meet the needs of many villa gardens. As a result, we might expect supervising gardeners, whether free or enslaved, to be relatively rare, an observation that appears to be supported by the literary and epigraphic evidence. In comparison, the duties performed by estate laborers, like earth moving for terrace construction or daily, manual watering, require less skill and are much more labor intensive and require more workers who remain on site. Moreover, a stationary labor force facilitates the free movement of the supervising gardener, as instructions may be left with those who remain on site.

Montpelier also offers further evidence regarding the hierarchy of gardeners and distribution of responsibilities. Evoking the established number of one supervising and two assistant gardeners found in papal gardens, when Madison requested James Monroe to send Bizet, he wrote that, "I wish to employ him [Bizet] & 2 or 3 hands

⁵²⁴ Brown, *Montpelier Cultural Landscape Study*, 140.

⁵²⁵ Cic., *Q. fr.* 3.1.6.

under him in preparing a piece of ground for a garden, and to have it executed in a certain degree at least before I return to Washington about the beginning of October.”⁵²⁶ It is noteworthy that although Madison possessed about a hundred enslaved workers on site, including ones who would be assigned to assist Bizet, two or three assistant gardeners were also required to supervise and delegate tasks. The continued employment ratio of one supervisor to two to three assistant gardeners implies that this was a highly efficient and successful arrangement. It also hints at the dynamism of the workflow, suggesting that the nature of an elite garden’s construction required concurrent tasks, each demanding supervision by a professional. Although there is no record of an assistant gardener title in the Roman period, this type of arrangement may very well have been met by a *topiarius* and his apprentices. Regardless of titles, the papal and Madison gardens illustrate that Roman design aesthetics and plants favored by the Romans required more than one specialized gardener directing unskilled laborers—additional knowledgeable gardeners were needed.

The unparalleled level of preserved documents regarding the garden also muddle the distinction between free versus enslaved gardeners and brings to light how villa owners utilized education as a means of making their ‘animate tools’, i.e. their enslaved workers, more useful. Two sets of letters, between Madison and Monroe, who had previously employed Bizet, and between Madison and Hay complicate our understanding of Bizet as a free worker and blur the division between free and freed labor. Madison’s letters to Monroe requesting permission for Bizet to come work for

⁵²⁶ James Madison to James Monroe, 16 July 1810; Brown, *Montpelier Cultural Landscape Study*, 121.

him have been interpreted as suggesting that Monroe possessed some sort of ownership over Bizet akin to an indentured servant although Bizet was a free man.⁵²⁷ A later letter from George Hay, a neighboring friend of Madison's, further illustrates Bizet's limited freedom in his employment. In the letter, Hay apologizes to Madison for trying to hire out the gardener. He explains that he had thought that Bizet had completed his commission for the Madisons, and assures Madison that "I shall not receive him until he brings me a certificate, that you have no further claims upon him."⁵²⁸ It appears that Bizet would not have been free to leave Madison's employment for a new patron without permission. In fact, labor studies show that freeborn "workers were not free to change jobs at will until the end of the nineteenth century."⁵²⁹ These two letters remind us to be wary about how we reconstruct free gardener movement in antiquity. The use of terms such as free, freed, and enslaved in Roman scholarship suggests clearly articulated categories with prescribed relationships between patron and worker, when in practice these identifies were likely more fluidly interconnected and were subject to a patron's whim. These exchanges articulate how one's movement and freedom might be curtailed through means other than legal status, such as class dynamics and the perceived status of one's profession.

Relatedly, preserved accounts of Bizet working with enslaved individuals at the estate provide historical examples of how education was used to make enslaved gardeners more useful. In chapter three, the technical knowledge gardeners possessed

⁵²⁷ Brown, *Montpelier Cultural Landscape Study*, 121; James Madison to James Monroe, 16 July 1810.

⁵²⁸ Andrea Wulf, *Founding Gardeners: the revolutionary generation, nature, and the shaping of the American nation*, (New York: Alfred A. Knopf, 2011), chapter 8, footnote 49; George Hay to James Madison, 28 September 1813.

⁵²⁹ Temin, "The Labor Market of the Early Roman Empire," 517.

was situated within two perspectives. On the one hand, *ars* allowed Roman gardeners to express ingenuity in a way that was deemed socially acceptable to their status. Thus, professional success fostered free and freed gardeners' economic development and might be used by enslaved gardeners as a way of earning their manumission. On the other hand, "the education a slave, [such as a gardener], received was seen as an investment that increased his value," and facilitated "future exploitation of these new skilled workers."⁵³⁰ This concept is well-established for the ancient period in the abstract; Montpelier illustrates how education was used in practice to further possess and exploit one's enslaved workers. It appears that Madison planned to have Bizet instruct some of the enslaved workers in horticulture, so that in their retirement the Madisons would no longer need to keep Bizet on their pay, instead relying on their enslaved laborers.⁵³¹ Mary Cutts, Dolley's niece, wrote that "every rare plant and fruit was sent to him [Madison] by his admiring friends who knew his taste, and they were carefully studied and reared *by the gardener and his black aids,*" and that Bizet and his wife, "were great favorites with the negroes, some of whom they taught to speak French."⁵³² Although it is commonly understood that the heavier, manual labor of garden construction, such as tree felling, earth moving, and terrace construction was conducted by Madison's enslaved workers, these descriptions illustrate that some enslaved individuals were trained in a more technical knowledge regarding plant care. Thus, through their ability to maintain costly and rare plantings, they themselves became more valuable to their owner. The intersection between economic investment,

⁵³⁰ Tran "Ars and Doctrina," 258.

⁵³¹ Brown, *Montpelier Cultural Landscape Study*, 127.

⁵³² Elizabeth Dowling Taylor, *A Slave in the White House: Paul Jennings and the Madisons*, (New York: Palgrave Macmillen, 2012): 124.

gardener education, and enslaved labor is even more clearly articulated in the Madisons' management of the garden after the financial Panic of 1819 and the ensuing drop in crop prices. In a letter to her niece, Dolley explains that "We dismissed our gardener... and called in three black men, who understood the business—and we hope to have from them as many good things as usual."⁵³³

A last area that deserves further consideration regards the training of gardeners. The funerary inscriptions addressed in chapter three illustrate that at least some Roman gardeners, like *topiarii*, trained as apprentices. This sets them apart from farm laborers or other unskilled workers as apprenticeship was only utilized for more technical professions which practiced *ars*. Scholars such as Bergmann, Landgren, Gleason, and Palmer have theorized on the nature of *topiarii* training as it pertained to other villa labor, such as that performed by architects and engineers.⁵³⁴ Archaeological evidence from elite villas suggests that architects and landscape designers must have developed their designs in conjunction with one another.⁵³⁵ But as already articulated, because so many variables are shared between Roman villa gardens and elite pre-Industrial ones (especially ones which intentionally evoke Roman tastes and practices), from tools, to plant varieties and their particular needs, and even environmental and climatological conditions in the case of Mediterranean examples, it is worthwhile to consider whether pre-Industrial training of landscape designers may shed further light on the development and education of *topiarii*. The fruitfulness of this pursuit is further bolstered by the already mentioned parallels in the pre-Industrial

⁵³³ Letter from Dolley Madison to Mary Cutts; Dowling Taylor, *A slave in the White House*, 124.

⁵³⁴ Bergmann, "Art and Nature in the Villa at Oplontis 87-120; Landgren, *Lauro, myrto et buxo frequentata*, 178-190; Gleason and Palmer, "Constructing the Ancient Roman Garden," 369-401.

⁵³⁵ *Ibid.*

and ancient agricultural economies and wages. Writing in 1825, when landscape-gardeners were rare in America, George Watterston, Madison's Librarian of Congress, stated that landscape designers "must have knowledge of painting, surveying, mechanics, hydraulics, agriculture, botany, and architecture."⁵³⁶ Many of these specializations are thought to have been equally necessary for *topiarii*. The precision with which villa peristyle gardens are graded to manage and direct surplus rainfall reveals highly technical knowledge in surveying and water management, and the watering systems employed at Hadrian's Villa in Tivoli illustrates great familiarity with hydraulics.⁵³⁷ The development of new plant varieties (such as multiple breeds of myrtles with differently sized leaves) and new horticultural practices (such as dwarfing) also illustrates that *topiarii* training must have been centered on botany and understanding plant needs. Such innovations could not be accomplished without a thorough knowledge of species-specific affordances. Additionally, the interdependence between plantings and the surrounding architectural framework of peristyles demonstrates that gardeners thought keenly about how the two disciplines might interact with one another. Of special interest is Watterston's claim that a designer needed to also be a master of painting. This is a skill that scholars have not considered as part of Roman gardener training, yet upon consideration, was likely foundational in their education. It is unlikely that a landscape designer possessed technical knowledge of pigments or other physical aspects of painting, but visual

⁵³⁶ Brown, *Montpelier Cultural Landscape Study*, 123; *National Intelligencer*, 23 June 1825.

⁵³⁷ Jashemski, et al, "Preliminary Excavations in the Gardens of Hadrian's Villa: The Canopus Area and the Piazza d'Oro," 579-597; Michele A. Palmer, "Terrace construction, water supply, and drainage," *Quaderni di Studi Pompeiani VII: Excavation and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* 7 (2016): 60-66.

concepts which painters study and utilize such as sight lines, composition, texture, color, framing, perspective, and optical illusion are as foundational for the peristyle designer as the fresco painter. The kind of long, narrow planting beds framed by wide walkways favored by Romans in their villas and in public gardens have been found to artfully play with optical illusion and sight lines.⁵³⁸ The distant vanishing point created by the lines of the beds and walkways as well as oblique views across beds at fellow strollers demonstrate a designer's advanced training in visual arts.⁵³⁹ The more densely planted beds, such as those excavated at the Villa Arianna or depicted in the Prima Porta garden painting equally bespeak of familiarity with principles of color, texture, and line. For example, the pruning of these plants enhances linear features which might otherwise be obscured by leaves.

Conclusion

In conclusion examining evidence of gardeners from three different historical periods has provided new avenues towards reconstructing the nature of the profession of gardeners in antiquity. The reconstructed gardens at Oplontis and Prima Porta illustrate just how keenly reliant elite gardens were on their gardeners. Despite the ideal regional environmental conditions for cultivations, the unwatered, unpruned, and unkempt gardens bear little similarity to the ideal versions depicted in fresco paintings.

⁵³⁸ Kathryn L. Gleason, Kaja J. Tally-Schumacher, Samuli Simelius and David Torrey de Frescheville, "Performing the Incessus: Gendered Encounters in Roman Garden *Ambulationes*," in *IEMA Volume VI: Engendering Landscape & Landscape Gender* (Albany: SUNY Press, Forthcoming).

⁵³⁹ *Ibid.*

The absence of gardeners in these spaces today allows us to appreciate the painted scenes as more than botanical *tromp l'oeil*—these are also expressions of great labor.

In comparison, the early modern and antebellum case studies illuminate aspects of gardener social status, agency in labor negotiations, labor arrangements, and education. Little data survives on the perceived status of ancient gardeners, and less if we examine the different kinds of gardeners individually. Yet the relatively high social status (based on wages) of papal head gardeners appears to reflect Roman perceptions. The continuities in pre-industrial, agrarian economies suggest that these are not mere coincidences. Moreover, the papal examples suggest that we might envision a mirrored hierarchy of laborers between the interior and exterior villa spaces with head gardener to head chef, water carrier to pastry chef, etc. Viewing ancient and early modern gardener contracts together also brings to light the agency of gardeners like the Egyptian Peftumont, who themselves negotiate the conditions of their employment and the means of payment.

Because so many qualities are shared between the ancient, early modern, and antebellum examples, the management of the historical gardens is also insightful in reconstructing the nature of the labor and distribution of tasks. The continuity of a head gardeners assisted by two to three supporting gardeners across periods and regions points of an inherent efficiency in this arrangement related to the specific tasks of the profession. This number of professionals seems to be especially significant for the installation of a garden which includes more dynamic tasks, like earth moving, plumbing, wall construction, and paving where multiple supervisors are necessary to manage a large workforce of laborers. But this also appears to be an ideal arrangement

once the garden is established. Moreover, the estimated number of about 12 gardeners required by the plants at Villa Este, a ratio of three gardeners per every hectare of formal gardens, creates a useful guide for estimating the number of individuals required to create and maintain elite peristyle gardens. The historical gardens also provide evidence on the flexibility of garden work—an aspect that diverges from labor inside villas. While three to four gardeners are needed to oversee an estate, there are times when additional workers must be brought in to perform seasonal, more labor-intensive tasks, like pruning of hedges and trees.

Diachronic study also illuminates evidence present in the ancient period which might otherwise be overlooked. For example, it is noteworthy that Peftumont's additional responsibility of keeping the garden safe is recorded as a duty allocated to papal gardeners. At first glance one might not connect cultivation to property security, yet it appears that this may have been a common component of gardener duties. Comparative analysis also illustrates the various ways garden owners surveilled and controlled gardener activities, from examining their feces for evidence of pilfering their master's produce, to contractual descriptions of which plant items might be taken by the gardener for himself and which items were forbidden.

Perhaps most significant, the comparative case studies illustrate a strong trend of mobile, international designers and local laborers. Both the early modern and the antebellum examples demonstrate that gardener designers were 1) most commonly sought from far off distances, including from abroad, and 2) could direct multiple properties simultaneously. In comparison, manual laborers who installed gardens and performed menial tasks, such as watering, were local and permanent. The Ptolemaic

correspondences recording Greek gardeners in the Fayum underscore the reliance on foreign gardeners in antiquity, but the more modern evidence is particularly helpful for reconstructing the role of the *topiarius*.

Despite the reluctance of classical archaeologists to utilize comparative models, the historical records of the Villa Este, papal, and Montpelier illustrate the benefit of a new approach to the study of ancient gardens. Equally significant, the joining of this method with an anthropological one founded on interviews with contemporary practitioners allows us to recover a gardener's view of gardens and to appreciate qualities often overlooked by non-practitioners, such as the representation and significance of time.

CHAPTER 5

A CONVERSATION BETWEEN PLANTS AND THEIR GARDENERS

Finding Gardeners in their Gardens and Through their Plants

Thus far we have located gardeners in the epigraphic and literary record and have utilized a diachronic lens to reconstruct aspects of gardener's profession and life which are more obscure in the ancient period. After examining Early Modern and Antebellum comparative examples, this chapter returns to the ancient world and investigates two archaeological forms of evidence: gardens and their plants as a means of identifying gardeners and their activities. Although gardens and their plants have already received much attention, the goal here is to examine these two sources with a targeted perspective aimed specifically at the relationship between plants and the people who took care of them. The first half of the chapter is centered on horticultural evidence from the Italian peninsula. The suburban ring around the city of Rome is investigated as an example of how the mapping of different kinds of green areas may be employed to reconstruct diverse populations of gardeners. Then, two tree species, plane and poplar, are considered through a human-plant entanglement lens. Ancient authors like Cicero describe cultivation of domesticated plants in familial terms, with plants cast in the role of children, gardener as father, and horticulture as a foster-mother.⁵⁴⁰ Seen in this light, domesticated plants are entirely reliant on their parents to assist them to reach maturity and bear fruit. This dependency means that any assistance a plant might receive, such as pruning, watering, propping, is a means of

⁵⁴⁰ Cic. *Fin.* V.40. trans. H. Rackham, (Cambridge: Harvard University Press, 1914).

identifying gardener intervention in the plant's natural growth habit. Relatedly, within the phyto-family, parent gardeners are tasked with knowing what is best suited to their charges, so that ecological contexts and planting choices are another way of identifying a conversation between plants and gardeners. Next, plants are used to establish the social value of gardeners. In chapter four ancient and early modern contracts inform the economic cost of gardener labor, but another way of reconstructing the social worth of free and enslaved gardeners is through the value attributed to plants and how other artisans viewed the profession. The second half of the chapter uses the same sources, gardens and plants, but travels to the western provinces, specifically to Roman Gaul to explore how these same types of sources may be mined to map and identify gardeners in areas that have received much less attention. This is accomplished by layering multiple data sets: archaeobotanical remains, epigraphic evidence of different kinds of gardeners, garden implements such as *ollae perforatae*, and excavated gardens.

Finding Gardeners by their Gardens: The Case of the Horti and the Roman Suburbs

Gardens are rich avenues of inquiry. As already noted, they have been explored through many perspectives, as places of identity construction, as collections of art and plants, as spaces of imperialism and of religious significance, to name but a few. But the unspoken and rather obvious observation is that gardens also serve as evidence of gardener presence and of particular horticultural practices they performed. Seen through this perspective, a database like Volume II of *Gardens of the Roman*

Empire is not merely a mapping of Roman gardens, but a document which maps the distribution and density of gardeners. Even if it is not possible to identify the plants cultivated in all of these areas, the mapping of gardener locations in itself offers a significant new insight into their profession.

Take for example Roman *horti*, a botanical development of the late second and early first century BCE. Derived from *hortus*, a market garden, *horti* is a term utilized by Romans exclusively in the plural to describe a kind of space that was distinctly different from a *hortus*. The *horti* were situated around the city of Rome, amid a dynamic landscape interspersed with decaying villas, new estates, garden plots, plant nurseries, tombs, and roads.⁵⁴¹ As M. C. Capanna's plan illustrates, the city was surrounded by a so-called "green belt," with darker green areas depicting possible locations of Republican and Augustan *horti*, light green areas signifying Imperial era *horti*, and the remaining spaces being occupied by fields (in yellow-green) and funerary areas (in purple) which also would entail some planted spaces.⁵⁴² To date, the great majority of the scholarship on the *horti* has narrowly defined this garden-type as large, luxurious estates of the elite, when in reality "*horti* was a type of estate name that was certainly utilized for a variety of different sizes of lots, developed in many different ways, and connected in particular with the property market on the edge of a rapidly growing metropolis."⁵⁴³ Moreover, as Nicholas Purcell argues, *horti* were not

⁵⁴¹ Purcell, "The *horti* of Rome and the landscape of property," 203.

⁵⁴² Matthew J. Mandich, "Ancient City, Universal Growth? Exploring Urban Expansion and Economic Development on Rome's Eastern Periphery," *Frontiers in Digital Humanities* 6:18 (2019): 9, figure 9.

⁵⁴³ Purcell, "Dialectical Gardening," *Journal of Roman Archaeology* 14 (2001): 548; for further discussion on *horti* see: Maddalena Cima and Eugenio la Rocca (eds), *Horti Romani: Atii del convegno internazionale, Roma 4-5 Maggio 1995*, (Roma: L'Erma di Bretschneider, 1998); Maddalena Cima and Eugenio La Rocca (eds.), *Le tranquille dimore degli dei: la residenza imperial degli horti Lamiani* (Venice: Cataloghi Marsilio, 1986); Christine Häuber, *Horti Romani: die Horti Maecenatis und die*

only leisure gardens, but encompassed productive cultivation, such as orchards, vineyards, flowers for garlands and festivals, and plants for dye such as madder.⁵⁴⁴

Relatedly, the high density of flowers and fruit producing plants meant that *horti* were also places of apiculture, where bees served to pollinate productive and ornamental gardens.⁵⁴⁵

Although the exact planting designs of individual *horti* and other suburban gardens is unknown, a number of observations may be made about gardeners in the “green belt.” First, the suburban ring around cities such as Rome must have been one of the densest areas of gardener presence and practice. Although public park-like spaces existed in the city and the homes of the elites had gardens, Pliny the Elder’s and Martial’s descriptions of window box gardens in the city articulate the scarcity of available open land within the urban center.⁵⁴⁶ But beyond the city walls, the density of structures diminished, facilitating ownership of open areas for cultivation. For this very reason, practices which require larger plots of land, such as orchards, vineyards, or even commercial enterprises, like nurseries, were commonly found in the suburban

Horti Lamiani auf dem Esquilin (Köln, 1991); Christine Häuber, “Zur Topographie der Horti Maecenatis und der Horti Lamiani auf dem Esquilin in Rom,” *Kölner Jahrbuch für Vor- und Frühgeschichte* 23 (1990): 11-107; Elizabeth B. MacDougall and Wilhelmina F. Jashemski (eds), *Ancient Roman Gardens*, (Washington D. C.: Dumbarton Oaks Trustees for Harvard, 1981); Elizabeth B. MacDougall, *Ancient Roman Villa Gardens*, (Washington D. C.: Dumbarton Oaks Trustees for Harvard, 1987); Kim J. Hartswick, *The Gardens of Sallust: A Changing Landscape*, (Austin: University of Austin Press, 2004); Giulia Moretti Cursi, “Roman *horti*: A Topographical view in the Imperial era,” in *Public-Private: An Exhibition of the Q-Kolleg at the Winckelmann-Institut-Humboldt Universität zu Berlin in cooperation with the Dipartimento di Scienza dell’Antichità of the Sapienza-Università di Roma*, ed. Jessica Bartz, (Berlin: Humboldt Universität zu Berlin, 2019): 124-140; Purcell, “The *horti* of Rome and the landscape of property,” 289-305; Purcell, “The Roman Garden as Domestic Building,” 121-151; von Stackelberg, *The Roman Garden*; Elizabeth Macaulay, “The *Horti*-culture of Rome: a new inquiry into the *Horti Sallustiani*,” *Journal of Roman Archaeology* 19 (2006): 517-520.

⁵⁴⁴ Purcell, “Dialectical Gardening,” 548.

⁵⁴⁵ *Ibid.*, 548.

⁵⁴⁶ Plin. *H.N.* 19.19, Mart. 11.18; J. Linderski, “‘*Imago Hortorum*’ Pliny the Elder and the Gardens of the Urban Poor,” *Classical Philology* 96.3 (2001): 305-308.

ring. Their proximity to the city and thus to markets where produce might easily be sold, made the suburban area an even more lucrative space for cultivation.⁵⁴⁷ As cultivated spaces do not survive without gardeners—they return to a wild state, with industrious weeds overpowering cultivated varieties—the high density of *horti* and other types of cultivated gardens in the suburb are evidence of gardener presence. Thus, while gardeners were certainly found in the city itself, employed at temples and private domestic gardens, the much larger expanses of cultivated areas in the suburbs suggest that this intermediate zone, between the city and country, was a locus of gardeners.

The suburban “green belt” was also an area of gardener diversity. The great variety of different types of *horti* with disparate kinds of horticultural practices likely resulted in a diversification of specialized *horti* gardeners. In other words, each *horti* likely possessed a unique team of gardeners based on its particular plants, horticultural practices, terrain, and water access. As the great majority of the gardeners recorded in the epigraphic record are enslaved, their movement between estates likely differed from the early modern and Antebellum free gardeners. It is possible that some of the same individuals might be employed at multiple locations owned by the same family. Additionally, the range of cultivation that occurred in *horti*, from ornamental to productive, suggest that a number of the titled gardeners may have been found here. The vineyards would have required a *vinitor*, trees presumably required an *arborator* or possibly a *putator*, and vegetables an *olitor*. Beyond the *horti*, the ring around the city was prime real estate for nurseries and other commercial gardens which would

⁵⁴⁷ Purcell, “Town in country and country in town,” in *The Ancient Roman Villa-garden*, ed E. MacDougall, (Washington D.C.: Dumbarton Oaks 1988): 185-203.

have supplied flowers for festivals.⁵⁴⁸ The gardeners and laborers in these areas would have performed more limited horticultural duties strictly related to plant propagation. But the suburban landscape also would have been populated by individuals whose primary identity was not centered on gardening, but who performed gardening duties periodically and thus became temporary gardeners. For example, as this zone was also marked by tombs, we need to also include the freedman or freewoman charged with the upkeep of a patron's tomb garden or descendants performing similar duties at their ancestor's burial.⁵⁴⁹ Other temporary gardeners included owners of a *hortus*, who cultivated produce for their own consumption but whose main profession was based in the city.

Finding Gardeners Through their Plants

“Plants also have development and progress to maturity that is not unlike that of animals; hence we speak of a vine as living and dying, or of a tree as young or old, in the prime of life or decrepit; consequently it is appropriate to suppose that with them as with animals certain things are suited and certain other things foreign to their nature; and that their growth and nurture (*alendarum*) is tended by a foster-mother (*cultricem*), the science and art of husbandry, which trims and prunes, straightens, raises and props, enabling them to advance to the goals that nature prescribes, till vines themselves could they speak, would acknowledge this to be their proper mode of treatment and of tendance. In reality, of course, the power that tends the vine, to take that particular instance, is something outside of it; for the vine does not possess force enough in itself to be able to attain in its highest possible development without the aid of cultivation. But suppose the vine receive the gift of sensation, bestowing on it some degree of appetite and power of movement; then what do you think it will do? Will it not endeavor to provide for itself the benefits which it previously obtained by the aid of the vine-dresser?”⁵⁵⁰

⁵⁴⁸ Purcell, “The *horti* of Rome and the landscape of property,” 302.

⁵⁴⁹ Bodel, “Roman Tomb Gardens,” 199-242.

⁵⁵⁰ Cic. *Fin.* V.40. trans. H. Rackham, (Cambridge: Harvard University Press, 1914).

Cicero's ruminations on the relationship between cultivated plants and their foster-mother evokes Plato's discussion of the bodily connection between plants and humans investigated in chapter two. Yet Cicero clearly frames the relationship in a new perspective: one of nurtured, reared child and human parent-gardener. That Cicero perceived cultivated plants and gardeners as entangled with one another is made clear by his observation that plants do not possess enough force to perform the necessary actions themselves—these must come from outside themselves. Moreover, Cicero's wording creates the impression of a nuclear family, with the plant as child, the gardener as father, and the horticultural science employed by the gardener as the foster-mother. Such an approach to understanding the bond between plants and their gardeners offers another method of identifying gardeners and their practice. If cultivated plants, such as those found in elite gardens, are entirely reliant on gardeners to nurture them, to trim and prune, straighten, raise and prop, then examples of gardener intervention in a plant's growth habit or particular plantings arrangements may be used to identify gardener presence and actions. In this way, plants or representations of them can serve as documents for gardeners' activities. This type of analysis is explored through two different trees planted widely by the Romans, plane trees and poplars. Although much attention has been devoted to the cultural or religious significance of particular plant species as a reason to explain their popularity, a phytocentric methodology facilitates understanding Roman horticultural practices through a lens based on environmental conditions, plant needs, and Roman gardener's ability to listen and interpret plant desires.

The Case of Planes and Poplars

Scholars have spilt much ink on the cultural significance of plane trees in antiquity, arguing that it was the symbolic and cultural associations which drove its popularity. While the historic, royal, and philosophical connections certainly played a role in the importation of planes by Romans and their subsequent popularity in private and public gardens, there is another element that has been overlooked by classicists, art historians, and archaeologists alike: plane tree tolerance and adaptability to inhospitable urban conditions.⁵⁵¹ If instead of focusing on human-centered significance we consider what botanical and ecological qualities made planes unique and different from other culturally significant trees, it becomes possible to reconstruct a kind of dialogue between plants and their gardeners, akin to the one described by Cicero. It is necessary to briefly examine the cultural associations of plane trees—this is an important step as it allows us to identify *where* we find plane trees. Then, I investigate how urban contexts differ from rural ones and why plane trees may have been an especially ideal cultivar in these specific and challenging growing conditions. And next, I investigate how horticultural achievements like the dwarfing of planes is an example of co-agency between plane resiliency and their gardener’s care and ability to meet and manipulate plane desires.

As cultural signifiers, plane trees marked mythological events. According to Cretan tradition, a rare evergreen plane tree, *platanus kerrii*, marked the location of

⁵⁵¹ Alireza Pourkhabbaz, et al, “Influence of Environmental Pollution on Leaf Properties of Urban Plane Trees, *Platanus Orientalis*, L.,” *Bulletin of Environmental Contamination and Toxicology* 85 (2010): 251-255.

the rape of Europa by Zeus.⁵⁵² The plane tree was so significant to the narrative that the town of Gortyn in Crete claimed that the rape occurred under their very own plane tree, minting coins with the characteristic plane branches and multi-fingered leaves framing Europa.⁵⁵³ An especially tall plane tree on Mount Aulocrene also marked the location of the punishment of Marsyas, who having challenged Apollo to a musical contest and lost, was hung from the plane tree, flayed, his skin hung from the branches, much like the bark of the tree that regularly peels off.⁵⁵⁴

Plane trees also fostered intellectual pursuit. Hippocrates is described as teaching medicine beneath an ancient plane tree near the agora in Kos, where a 500-year-old descendant still marks the location today.⁵⁵⁵ In Plato's *Phaedrus*, a very tall plane tree outside of Athens elicited the philosophical dialogue.⁵⁵⁶ Plane trees are also described as prominent features of Plato's Academy and the Lyceum in Athens.⁵⁵⁷ The intellectual association between the trees and the Athenian institutions was so entwined, that later Roman authors describe using plane trees to replicate their own Athenian academies.⁵⁵⁸

Plane trees also figure significantly in military campaigns. The Trojan War began with a sacrifice under a plane tree at Aulis, foretelling that the Achaeans would fight at Troy nine years and would gain victory in their tenth.⁵⁵⁹ Agamemnon himself is described planting multiple plane trees at Delphi and at Caphyae in Arcadia in the

⁵⁵² Theophr. *Hist. pl.* 1.9.5.

⁵⁵³ Simon Price and Peter Thonemann, *The Birth of Classical Europe: A History from Troy to Augustine*, (New York: Allen Lane, 2010), 1.

⁵⁵⁴ Plin., *H.N.* 16.89.

⁵⁵⁵ Martyn Rix and Michael F. Fay, "Platanus Orientalis," *Botanical Magazine* 34.1 (2017): 33.

⁵⁵⁶ Pl. *Phdr.* 230.

⁵⁵⁷ Plin. *H.N.* 12.9; Theophr. *Hist. pl.* I.7.1.

⁵⁵⁸ Cic. *De or.* 1.28-29.

⁵⁵⁹ Hom., *Il.* ii 299-332.

first year of the war.⁵⁶⁰ Similarly, Xerxes' campaign against Greece is bookmarked by three Lydian plane trees. Two mark the beginning of the campaign: a golden plane from Pythios and the plane which Xerxes famously decorated in golden ornaments; while Xerxes' return from Greece is marked by the miraculous transformation of a plane into an olive.⁵⁶¹ And while plane trees bound Xerxes failed conquest, it is these very trees that Kimon, the Athenian fifth-century statesman, donated to the city of Athens after it had been devastated by the Persians; in Dorothy Burr Thompson's plan of Athens they are depicted lining the Panathenaic Way.⁵⁶² When Plutarch described the shortage of timber in the 86 BCE siege of Athens, he stated that Sulla "laid hands upon the sacred groves, and ravaged the Academy, which was the most wooded of the city's suburbs, as well as the Lyceum," for the purpose of making siege engines.⁵⁶³ The passage evokes not only the felling of philosophers' plants but also of the ideas they cultivated. Moreover, associating conquest with plane trees is not unique to the eastern Mediterranean and continued in the Roman period. The first public park in Rome, the Porticus Pompeiana, a triumphal monument commemorating Pompey's victories in the East, was planted with double rows of plane trees.⁵⁶⁴ Ann Kuttner suggests that planes may have been paraded in Pompey's triumphal procession, and Annalisa Marzano proposes that if planes were indeed paraded, then likely it was the very ones

⁵⁶⁰ Plin. *H.N.* 16.88.

⁵⁶¹ Her., 7. 27, 7.31; Plin., *H.N.*, 17.38; Matthew Dillon, *Omens and Oracles: Divination in Ancient Greece*, (Chicago: Oriental Institute, 2010), 195.

⁵⁶² Dorothy Burr Thompson, *The Garden Lore of Ancient Athens*, (Princeton N.J.: The American School of Classical Studies at Athens, 1982), 8, figure 9.

⁵⁶³ Plut., *Vit.*, Sull., XII.3.

⁵⁶⁴ Gleason, "Porticus Pompeiana: a new perspective on the first public park of ancient Rome," 13-27.

that were later planted at the Porticus.⁵⁶⁵

Beyond associations of conquest, in the Roman world plane trees signaled excessive luxury. Pliny the Elder laments that plane trees were imported from foreign lands not for their timber, nor for their fruit or any other productive reason, but solely for the shade they provide.⁵⁶⁶ Pliny's attention to plane trees' foreign origin bears particular note as this idea persists today amid Italian conservationists, who argue that the decreasing number of *platanus orientalis* do not warrant protection as they are still, 2,000 years later an invasive, non-Italic tree.⁵⁶⁷ Horace, in an ode on excess, likewise takes a moralizing view on the foreign "widowed plane trees."⁵⁶⁸ The widowed epithet is a reference to the deep shadow cast by their canopies, which unlike native trees with sparser canopies, disallowed traditional understory cultivation. But not only do plane trees waste precious, fertile land for the production of a sensation—cool shade—ancient authors also present plane trees as consumers of luxury themselves. Describing the practice of watering planes with wine, Pliny complains, "Thus have we taught the very trees, even, to be wine-bibbers!"⁵⁶⁹

There is a striking theme that binds the great majority of these passages: with the exception of Xerxes' three Lydian plane trees, these are all urban or suburban trees. While we know that planes were also planted in rural villas and were found in the countryside, the fact that some of the most significant historical events occur under

⁵⁶⁵ Ann Kuttner "Culture and History at Pompey's Museum," *Transaction of the American Philological Association* 129 (1999): 345; Marzano, "Roman gardens, military conquests, and elite self-representation," 212.

⁵⁶⁶ Plin., *H.N.* 12.3.

⁵⁶⁷ L. Rosati, et al, "Under the shadow of a big Plane tree: Why *Platanus orientalis* should be considered an archaeophyte in Italy," *Plant Biosystems* (2015): 1-12.

⁵⁶⁸ Hor., *Carm.*, 2.15.

⁵⁶⁹ Plin., *H.N.*, 12.4. trans. H. Rackham, (Cambridge: Harvard University Press, 1945).

urban plane trees should not be ignored. Thus, we turn to second part of our analysis: how are urban conditions different from rural cultivation, and what made plane trees so popular with urban gardeners.

In their natural habitat in Eurasia, planes are riverine trees adapted to drastic changes in environmental conditions, from long droughts to floods.⁵⁷⁰ Thus, these trees were ideally suited to being planted in the Porticus of Pompey, which was situated in a historic flood plain. This is an especially significant characteristic for surviving challenging and harmful urban conditions where soils are compacted from construction, thereby preventing water absorption and constraining root development, and where access to water is further limited by large portions of impermeable paving, structures, and roofs.⁵⁷¹ Because street paving, roofed structures, and paved courtyards prevent rainwater from entering the ground system, urban plants must rely more heavily on manual watering than their rural counterparts. For example, at Pompeii Wilhelmina Jashemski estimates that only 17% of the city was open space where rainwater might penetrate the surface and enter the water table, the remaining 83% was impervious.⁵⁷² This problem is further exacerbated by the use of gutters to funnel excess rainwater from the paved areas out of the city, away from green areas with thirsty plants. Despite these challenges, plane trees, unlike many other tree species,

⁵⁷⁰ Sytze Bottema, "The Holocene history of walnut, sweetchestnut, manna-ash, and plane tree in the Eastern Mediterranean," *Pallas* 52 (2002): 36.

⁵⁷¹ Nina Bassuk, "Dealing with soil compaction," *Ecological Landscape Alliance* January 18, 2014. <https://www.ecolandscaping.org/01/soil/dealing-with-soil-compaction/> ; "Platanus," *Horticulture Week* November 28 (2014): 20.

⁵⁷² Jashemski, *The Gardens of Pompeii Vol. II, 2*.

have a high tolerance for soil compaction, limited water access, and even tolerate infertile soil and confined conditions, such as rock cut pits in bedrock.⁵⁷³

These challenges were likely exacerbated by heat island effect. Because roofs, walls, and paved surfaces absorb solar radiation in the form of heat at a much higher rate than green areas, they increase the ambient air temperature, leading urban spaces to be a couple of degrees warmer than rural areas. This is further exacerbated by heat producing industries, such as bakeries and metalworking. In the Mediterranean, heat island effect intensifies already hot and dry conditions, increasing evaporation rates leading urban plants to require more water than their rural counterparts.⁵⁷⁴ Although little data is available on the solar reflectant properties on the types of materials utilized in ancient urban construction, we can establish with some certainty that ancient cities would have possessed a microclimate, which in turn would impact cultivation. It is telling that the worse heat islands today are planted with *Platanus orientalis*, a result of their riverine resiliency and adaptability.⁵⁷⁵

But if infertile, compacted soil, limited water, and higher temperatures were not significant enough challenges for urban plants, pollution presented another major challenge for plants and their gardeners. Although urban pollution is commonly

⁵⁷³ Although no evidence of plane trees in pits have been found in bedrock in the Roman period, plants pits in bedrock are a common Roman practice where the top soil is shallow and the bedrock is near the surface, such as the rows of planting pits found surrounding the Temple of Hephaestus in Athens. Peter J. Trowbridge and Nina L. Bassuk, *Trees in the Urban Landscape: Site Assessment, Design, and Installation*, (Hoboken, N.J.: John Wiley, 2004), 91-93; "Platanus," *Horticulture Week* November 28 (2014): 20.

⁵⁷⁴ In modern cities, the heat island effect can be quite stark, Athens for example has been recorded as 10 degrees Celsius warmer than the surrounding rural areas in summer. A. Synnefa, et al, "On the use of cool materials as a heat island mitigation strategy," *Journal of Applied Meteorology and Climatology* 47 (2008): 2846; Chrissa Georgakis and Mattheos Santamouris, "Determination of the Surface and Canopy Urban Heat Island in Athens Central Zone Using Advanced Monitoring," *Climate* 5. 97 (2017), 12.

⁵⁷⁵ "Platanus Orientalis L.," Royal Botanical Gardens Kew Science, accessed June 6, 2020 <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:685873-1>.

thought to be a modern and post-industrial problem, there is a growing body of environmental evidence on ancient urban pollution.⁵⁷⁶ Ancient authors, like Horace and Tacitus describe the air of Rome as heavy with pollutants, sooty from smoke, and difficult to breathe—descriptions which are supported by osteological and histological analyses.⁵⁷⁷ At Herculaneum, for example, osteological analyses have shown evidence of pleurisy, an inflammation of the lining of the lungs, caused by inhaling particulates from domestic fires and lamps (and not a result of the eruption), while the Grottarossa mummy’s lungs have been found to exhibit extreme anthracosis, an asymptomatic disease caused by the accumulation of carbon, smoke, and coal particulates in the lungs, suggesting urban individuals in the Roman period were regularly exposed to poor air quality.⁵⁷⁸ High rates of lead and copper deposition found in ice core samples from Greenland further support the textual and osteological evidence of Roman air pollution.⁵⁷⁹ Despite the boom of thing and entanglement theories, scholars are still so centered on anthropogenic questions that we overlook questions of how urban pollution may have affected non-human urban residents, such as plants. But silviculturalists Wayne Clatterbuck and Christopher Oswalt argue that “the ‘lungs’ of our urban areas, [the] trees growing in and around our cities, must also contend with air pollution. Just as air pollution impacts humans, air pollution affects trees in a variety of ways.”⁵⁸⁰ The effect of pollution on plants and trees is great enough that it

⁵⁷⁶ Robert Sallares, “Environmental History,” in *A Companion to Ancient History*, ed. Andrew Erskine, (Wiley-Blackwell Hoboken: John Wiley & Sons, Incorporated, 2009), 164-174.

⁵⁷⁷ Hor., *Carm.*, 3.29.11-12; Tac., *Hist.*, 2.94.

⁵⁷⁸ L. Capasso, “Indoor pollution and respiratory diseases in Ancient Rome,” *Lancet* 356 (2000): 1774.

⁵⁷⁹ Joseph R. McConnell, “Lead pollution recorded in Greenland ice indicates European emissions tracked plagues, wars, and Imperial expansion during antiquity,” *PNAS* 115.22 (2018): 5726-5731.

⁵⁸⁰ Wayne Clatterbuck and Christopher Oswalt, “Impacts of air pollution on urban forests,” *University of Tennessee Extension*, <https://extension.tennessee.edu/publications/Documents/SP657.pdf>.

does not merely stunt their growth but makes the cultivation of certain types of plants impossible. Fruit trees, for example, which in many ways exemplify Augustan ideals in their fecundity, are particularly sensitive to pollution, to the degree that many cities today dissuade residents from planting them in especially polluted areas. In contrast, plane trees possess two qualities that allow them to withstand pollution: their leaves have a high tolerance for particulate accumulation, and their naturally flaking bark allows them to shed pollutants from their trunks.⁵⁸¹

In addition to their adaptability to challenging urban conditions, their remarkably fast growth (three meters in the first year) as well as their longevity, two qualities in trees which tend to be mutually exclusive, make them ideal urban monuments. This duality allows gardeners and owners to achieve a mature aesthetic with shade producing canopies quickly but also ensures that any planted garden with planes will outlast the owner, and their subsequent descendants, unlike many fast-growing trees which tend to have short lifespans. Thus, it is no wonder that Kimon, after the sacking of Athens in the Persian War, funded the replanting of plane trees instead of other culturally significant, but much slower growing trees, such as olives or oaks.⁵⁸² Planes were the only tree that maximized the optics and political gain of his donation, while simultaneously ensuring his legacy. This same reason likely fueled Pompey's planting of the porticus with planes, instead of the many other exotic trees he imported from the east.⁵⁸³ Their fast growth allowed him to achieve a mature and

⁵⁸¹ Pourkhabbaz, et al, "Influence of Environmental Pollution," 251-255.

⁵⁸² Plut. *Vit. Cim.* 13.

⁵⁸³ Kuttner "Culture and History at Pompey's Museum," 345.

complete aesthetic, giving the impression that the structure, and thus Pompey's power, were well established and deeply rooted in Rome.

The above discussion illustrates that anthropocentric approaches to the study of plane trees in the Roman world obscure parallel botanical and environmental affordances which in turn shaped the cultural and symbolic significance of the trees. The intersection of challenging conditions which are particular to urban contexts, the prevalence and popularity of plane trees in urban gardens, and their unique adaptive qualities bring to mind Cicero's observation about what suits and does not suit certain plants—i.e. to consider the ecological context in which a plant is placed.⁵⁸⁴ Thus, the planting of planes in cities and their suitability to this particular context is not solely the result of their cultural significance nor merely an environmental coincidence. Other culturally significant trees do not possess two key qualities: high tolerance to urban challenges and unusually fast growth rate. Gardeners, designers, and those who commissioned gardens planted planes because they understood that they were, as Cicero observed, "suited" to it, while for other trees, an urban context would have been a foreign and thus inhospitable environment. What this illustrates is that gardeners were keenly aware of site-specific environmental conditions and how they impacted cultivation. To phrase in ancient terms, the *genus* of the place impacted planting decisions.

Planes are not the only example of this practice. The Black poplars planted around the funerary pyre in the Campus Martius serve as another case.⁵⁸⁵

Anthropogenic reasons alone would suggest that perhaps poplars were chosen for their

⁵⁸⁴ Cic. *Fin.* V.40.

⁵⁸⁵ Strabo, 5.3.236.

funerary associations, or perhaps because, as stated by Cato and Varro, they served to mark boundaries and thus underscore the border between the world of the living and that of deceased.⁵⁸⁶ But if we examine the context: a fluvial flood plain and consider the preferred habitat of black poplars another reason becomes clear. Poplars, a moisture loving tree in the willow family, naturally grow along riverbeds and are adapted to fluvial flooding and marshy ground.⁵⁸⁷ Although not as quick as planes, they do rank as fast growing trees, thus they are also an excellent choice for achieving a completed landscape aesthetic within a minimum amount of time.⁵⁸⁸

Despite their resiliency, adaptability and independence, however, plane trees like all urban trees are reliant on gardeners. Contemporary practices of local government investment in urban tree management and allocation of resources provide a helpful guide in articulating plane's dependence on gardeners. In American cities where budgets for urban trees have stagnated or been drastically cut, such as Philadelphia, where the budget for tree maintenance has not increased since the 1970s, the result has been massive tree die offs. The lack of investment in the Philadelphia Fairmount Park over many decades has culminated in the city losing the equivalent of 1,000 football fields of trees over just the last decade.⁵⁸⁹ Analysis of contemporary tree management illustrates that without care in the form of funds, resources such as water, and gardeners, even the most resilient urban trees perish. Young trees, whose roots are

⁵⁸⁶ Cato, *Agr.* 6.3; Varro. *Rust.* 1.24.1.

⁵⁸⁷ Gregory S. Aldrete, *Floods of the Tiber in Ancient Rome, Ancient Society and History*, (Baltimore: Johns Hopkins University Press, 2006).

⁵⁸⁸ Donald I. Dickmann, "An overview of the genus *Populus*," in *Poplar Culture in North America*, ed. Donald I. Dickmann et al, (Ottawa: NRC Research Press, 2001): 1-41.

⁵⁸⁹ Catalina Jaramillo, "Philly neighborhoods need more trees, A new city initiative takes on the problem," *WHYY* December 10, 2019, <https://whyy.org/articles/philly-neighborhoods-need-more-trees-a-new-city-initiative-takes-on-the-problem/>.

not yet established, are all the more reliant on gardeners for water and fertilization. If we apply these principles to the Porticus of Pompey, the first public park in Rome, it becomes possible to reconstruct aspects of gardener presence in this space.

If we consider Ann Kuttner's and Annalisa Marzano's suggestions, that Pompey imported plane trees from the East and paraded them in Rome, and that these same trees were then planted in the porticus, it is highly likely that these particular trees would have had an even greater need for gardeners.⁵⁹⁰ Transportation and transplantation of plants often causes "plant stress," a term used to describe physiological damage to plants due to poor conditions, such as incorrect temperatures, improper water availability, and insufficient light access.⁵⁹¹ This is a phenomenon that impacts young and mature specimens alike. The symptoms of plant stress vary according to plant types, but yellowing leaves (indicative of chemical changes), dropping of leaves (thereby limiting the plants ability to photosynthesize and recover), as well as death are common. These are not modern concepts. Writing about the challenges of transportation and transplantation, Pliny the Elder lamented that,

"We have shown that not all plants grow in all places, and that when they are transferred, they do not always live. This is due in some cases to pride (*fastidium*), in others to obstinacy (*contumacia*), more often to the weakness of the species that are transplanted, in some cases to the unfavorable climate, in others to the incompatibility of the soil. The balm tree despises (*fastidit*) the very idea of growing elsewhere; and a fruit tree born in Assyria will never bear elsewhere; and similarly the palm tree will not grow everywhere, or even if it does grow, it will not bear, and when it has made a promise and a show of bearing fruit, it does as if it had given birth against its will (*invita*)... What is most surprising is that although the trees can sometimes be persuaded (*exorari*) to live and to migrate, and on occasions will be granted by the soil

⁵⁹⁰ Kuttner, "Culture and History at Pompey's Museum," 345; Marzano, "Roman Gardens, Military Conquests, and Elite Self-Representation," 212.

⁵⁹¹ Kareem A. Mosa, Ahmed Ismail, Mohamed Helmy, "Introduction to Plant Stress," in *Plant Stress Tolerance*, ed. Kareem A. Mosa, (Cham: Springer International Publishing, 2017), 1-19.

the request to feed foreigners (*alienas*) and nourish immigrants (*advenas*), the climate is never bent.”⁵⁹²

The qualities Pliny attributes to transplanted trees are the very same ones used to describe slaves. Thus, for Pliny, “plants are like vanquished foreigners who refuse to be taken away from their native country in servitude.”⁵⁹³ It even appears that trees are attributed the ability to think and reason, as his description gives the impression that a persuasive gardener is needed to bend the will of an imported plant so that it may be persuaded to grow in foreign soil.

The early date of the porticus construction suggests that it may well predate the boom of Roman-era plant nurseries, thus the trees were likely collected as mature specimens from various sites. Although this may sound difficult, the ability to transplant mature trees was already a well-established skill in antiquity. Whether by boat or land, the trip would have been stressful. In the ship’s hold the plants would have been starved for light, had limited access to fresh water, and depending on the season of travel, experienced hot temperatures; on land they may have been exposed to a wide range of environmental conditions, and likely periods of limited water access.⁵⁹⁴ After such a long and arduous journey, Pompey’s plane trees would have been more sensitive and at greater risk than their non-traveling counterparts and would have required more care from experienced gardeners to nurse them back to health. In fact, more intensive gardener care would have likely spanned one or two years as the roots system developed—not an insignificant amount of time and requiring financial

⁵⁹² Plin. *H.N.* 16.134-136 trans. H. Rackham, (Cambridge: Harvard University Press, 1945); Hardy and Totelin, *Ancient Botany*, 172.

⁵⁹³ Hardy and Totelin, *Ancient Botany*, 172.

⁵⁹⁴ On the re-use of amphoras in nurseries and for transporting plants see Kenawi, Macaulay-Lewis, and McKenzie, “A commercial nursery near Abu Hummus (Egypt),” 195-225.

commitment. Even more mature specimens react negatively to transplanting stress, and as a result their growth is stunted for a number of years as the roots adjust to their new habitat. To counteract this, deep and regular watering would have been required to encourage new root growth thereby allowing the trees to become more self-sufficient. Whereas shallower watering stunts root growth, making plants more permanently reliant on gardeners, deep watering encourages root development that reaches downward and thus is able to reach water that is deeper or farther away. As these plane trees would have been costly, luxurious imports, it is highly unlikely that after the economic investment devoted to their importation, an equal investment would not have been made in gardeners to oversee their transplantation and naturalization in Rome. Perhaps gardeners even traveled with the plants from the East. As Pompey had King Mithridates' newly developed, illustrated, botanical treatises translated into Latin and brought to Rome in 55 BCE as triumphal spoils, at the very least their horticultural knowledge traveled to Rome.⁵⁹⁵ In sum, not only were gardeners who were familiar with planes necessary for their successful transplantation and naturalization, they would also have been necessary even once the trees were established, performing duties such as limb pruning, raking of leaves, fertilizing, managing pests, replacing ill or dead specimens, and managing root growth and possible displacement of paving by roots. But it must be remembered that gardener need is a spectrum, ranging from minimal to labor-intensive, and no cultivated plants are entirely labor-free. Although the transported trees would have been more reliant on gardeners upon their arrival, in the long-term plane resiliency allowed them to become

⁵⁹⁵ Kuttner, "Looking outside inside: ancient Roman garden rooms," 29; C. Singer, "The Herbal in Antiquity," *Journal of Hellenic Studies* 47 (1927): 1-52; Plin. *H.N.* 25.4-8.

more independent than many other tree varieties. This meant that although the initial expenditure on transplantation and naturalization may have been high, once the trees were established the cost of up-keep decreased. As a result, in comparison to other less adaptable and slower growing trees, planes were an ideal tree for urban contexts.

If the dialogue of plants and gardeners entails trimming and pruning, straightening, raising and propping, it is perhaps loudest and clearest in shaped plants like dwarfed planes, *chamaeplatanus*, as these actions are exaggerated and performed to a greater degree than on fruit trees and vines. The tone of the conversation is also changed as it is conducted between an ornamental and non-productive plant. Pliny the Elder explains that dwarfed planes are created by means of “planting and pruning,”⁵⁹⁶ without further clarification. This brief description suggests that two methods are used as planting is differentiated from pruning. It has been theorized that dwarfing was accomplished by pruning the limbs as well as roots.⁵⁹⁷ Renata Puzoń, a nursery manager and bonsai and dwarf specialist, suggests that keeping planes pot-bound would further allow gardeners to control growth and thus keep a specimen dwarfed. While a plane planted in the ground will grow on average about two and half to three meter per year a pot bound one only grows about .65 meters a year.⁵⁹⁸ This may be what Pliny meant “by planting.”⁵⁹⁹ Because planes are such aggressive and fast growers, dwarfed planes must have required a high degree of gardener attention—

⁵⁹⁶ Plin. *H.N.* 12.6

⁵⁹⁷ Landgren, “Plantings,” 73-98.

⁵⁹⁸ Interview with Renata Puzoń, Szkołka krzewów i drzew ozdobnych Renata i Józef Puzoń, Ustroń, Poland, July 18, 2018.

⁵⁹⁹ *Ibid.*

much more than unshaped planes.⁶⁰⁰ These challenging and labor-intensive works were found in elite gardens and in idealized ones eternalized in frescoes. As Pliny the Younger's villa descriptions omit many aspects of villa life and relatively few plant varieties are mentioned, his account of dwarf planes surrounding his Tuscan hippodrome garden suggest that these were valued enough to warrant boasting.⁶⁰¹ A fresco painting from the House of the Golden Bracelet at Pompeii (Fig. 2) likewise suggests that these trees possessed visual value and cultural capital. Although the garden scene is dense with plants, the dwarfed plane holds the most powerful place within the composition; in the middle, framed on the sides by dense plantings and from below by the fountain. Each branch of the tree is arranged in such a manner to facilitate clarity and to allow the viewer to investigate each depicted prune scar, a result of the dwarfing process. The composition is as much centered on the plane as it is on the past action of pruning.⁶⁰²

But where did the impetus to try this new technique derive from? Based on the dating of frescoes which depict *chamaeplatani* and the mentions of them in both Plinies, the form likely developed in the second half of first century BCE.⁶⁰³ Artful and sophisticated pruning, such as that performed by the foster-mother gardener mentioned by Cicero, was already a well-established horticultural tradition in productive cultivation. Cato, Varro, and Columella write extensively on various types of pruning utilized in the cultivation of vines and fruit trees. Additionally, pruning also

⁶⁰⁰ Interview with Renata Puzoń, Szkołka krzewów i drzew ozdobnych Renata i Józef Puzoń, Ustroń, Poland, July 18, 2018.

⁶⁰¹ Plin. *Ep.* 5.6.4-40.

⁶⁰² Gleason, "The Lost Dimension," 311-325.

⁶⁰³ Plin. *H.N.* 12.6; 12.13; Plin. *Ep.* 5.6.35.

played a central role for grafting, a practice which facilitated the replication of sought-after qualities in particular varieties of fruit trees. In fact, the art of altering trees through pruning and grafting had become so well rooted in Roman horticulture by the late first century BCE that it spilled out from the confines of orchards, vineyards, and agricultural treatises and into elegies, such as in Virgil's Book 2 of the *Georgics*.⁶⁰⁴ Moreover, despite the negative opinion in modern scholarship, Dunstan Lowe has shown that the practice of refining what nature created through pruning and grafting was viewed positively by first century BCE and CE Roman gardeners and writers.⁶⁰⁵ Thus, the most likely inspiration for the creation of dwarfed planes must have been two fold. The centrality of pruning and grafting employed in productive cultivation of vines and fruit trees must have inspired gardeners to transplant this method onto ornamental plants. There is some irony in grafting a method whose purpose is to increase productivity onto a tree described by Roman authors as barren, widowed, and unproductive, particularly as this treatment diminished the tree's sought-after qualities: its fast growth rate and large, shade-producing canopy. Indeed, Pliny the Elder noted as much, describing dwarfed planes as horticultural "miscarriages" (*abortus*), a term which places these ornamental trees at odds with productive cultivation in which plants birth fruits.⁶⁰⁶ Especially striking is what this passage suggests about Roman conceptions regarding ornamental gardening, namely that they were deeply rooted in productive cultivation. The dwarfed plane could not exist without prior specialization in limb and root pruning of fruit trees. But, an equally

⁶⁰⁴ Verg. *G.* 2.

⁶⁰⁵ Dunstan Lowe, "The Symbolic Value of Grafting in Ancient Rome," *Transactions of the American Philological Association* 140.2 (2010): 461-488.

⁶⁰⁶ Plin. *H.N.* 12.13.

significant catalyst must have been plant resiliency which allowed it to tolerate, and we might even say, invite, intense limb and root pruning and pot-bound planting. Although extreme dwarfing, such as bonsai, may be accomplished on many tree species, it is important to note that the plants chosen for dwarfing in the Roman world were known to be aggressive growers with high tolerances for difficult conditions.⁶⁰⁷ As a result, the *chamaeplatanus* is the product of a dialogue between two co-agents: the natural affordances of the species and the gardener, who like a foster-mother, prunes and trims.

The Case of Plants and Gardener Value

Plants also inform our reconstruction of the value of gardener labor. The comparison between the Demotic gardener contract between Talames and Pefumont and the early modern and antebellum gardener labor agreements offers insight into the wages of gardeners, the number of supervising gardeners versus manual labors, and their relative status to other estate workers. Some of those observations are transferrable or hint at parallels that may also apply to enslaved gardeners, but others, such as wages or a hired gardener's ability to negotiate the conditions of one's labor are less applicable. Reconstruction is more challenging when the legal status of the gardener is unknown or was known to be enslaved. But we may extrapolate the value of gardener labor, both enslaved and free, from their plants. The categorization of plants as luxury goods and the rampant replication and translation of gardener labor by

⁶⁰⁷ Colin Lewis, *Bonsai Survival Manual: Tree-by-Tree guide to buying, maintaining, and problem solving*, (Pownal, VT: Storey, 1996), see Table 1 in Gleason "The Lost Dimension," 320.

other craftsmen into new media, such as painting and sculpture, suggest that the craft of gardening possessed great cultural significance.

The value of gardeners may be gleaned from the economic and cultural worth attributed to their chargers, the plants. This is perhaps best attested in two anecdotes, recorded by Valerius Maximus and Pliny the Elder, about the value of trees in L. Licinius Crassus' Palatine house. In Pliny's version, Domitius criticizes Crassus for living in a home he estimates cost ten million sesterces.⁶⁰⁸ When Crassus asks him to reevaluate the house if he removed six of his lotus trees, Domitius responds that he would not pay a single denarius for it, suggesting that value of the house was entirely rooted in its lotus trees—not the building itself, its art, furnishings, location, or marble columns.⁶⁰⁹ According to Valerius Maximus' account of events, Domitius criticized Crassus' opulent display of Hymettian marble columns and estimated that the house was worth six million sesterces. In this version, when Crassus asked Domitius to reevaluate the house if he removed ten trees, Domitius dropped his price by half, as if the ten trees alone were worth three million sesterces. The high value of the trees becomes even more clear when Crassus informs Domitius that the marble columns, of which he was so critical, cost a mere 100,000 sesterces, a fraction of the value attributed to the trees.⁶¹⁰ Even though these two anecdotes are commonly cited,⁶¹¹ their ability to illuminate aspects of gardener labor have been overlooked. Yet the great monetary cost attributed to the trees offers insight into those charged with caring

⁶⁰⁸ Plin. *NH.* 17.1.3-4.

⁶⁰⁹ Plin. *NH.* 17.1.3-4; Marzano, "Roman Gardens, Military Conquests, and Elite Self-Representation," 201-202.

⁶¹⁰ Val. *Max.* 9.1.4; Marzano, "Roman Gardens, Military Conquests, and Elite Self-Representation," 201-202.

⁶¹¹ Marzano, "Roman Gardens, Military Conquests, and Elite Self-Representation," 201-202.

for such immensely valuable items. Although the figures presented in both versions of the anecdote are no doubt exaggerated and should not be taken literally, the point is clear: plants, and trees specifically, were considered to rank among the luxury items. As Marzano articulates, part of the value must have stemmed from the time required to produce mature, fruit and shade-producing trees. That investment in time is also an investment in gardeners who cared for the trees and created ideal conditions so that the trees reached maturity. No amount of wealth could make young, small trees grow unnaturally quickly. Thus the price of three or ten thousand sesterces covers three factors: the tree itself, the time it took to cultivate it, and the care the tree received from gardeners. The third component, the gardeners, is in fact a cost that may be further subdivided in the financial investment undertaken by the master to train an enslaved gardener, the food, clothing, and housing that were provided for enslaved gardeners, the wage of hired gardeners, and other costs. Moreover, the high price attributed to trees suggests that such valuable luxury items would not be left in the care of inattentive, untrained, manual workers—only someone in a more elevated position could be entrusted with such a task. This appears to be supported by Cicero’s observation that some gardeners, like *topiarii*, considered themselves to rank higher than other villa slaves.⁶¹²

We find gardener value expressed by artisans working in other media. In the late Republic and Early Imperial era, plants and landscapes were elevated to such a degree that an entire landscape, in the form of a golden pyramidal *paradeisos*, was

⁶¹² Cic. *Parad.* 36.

paraded in Pompey's triumphal possession as spoils.⁶¹³ Over the course of two centuries the entire city of Rome was overrun with botanical imagery and motifs across a myriad of surfaces. Paul Zanker and Barbara Kellum have both written extensively on the rise of botanical motifs in the Augustan period and their role as a vehicle expressing Augustan political agenda and bountiful fertility accomplished through Pax Romana.⁶¹⁴ The Altar of Peace has fostered countless discussions on the significance of grafting of the vine scrolls on the exterior walls, the cultural meaning of the various botanical species depicted on the upper and lower panels, and the significance of the creatures hidden within the plants.⁶¹⁵ Suetonius famously attributed to Augustus transforming the city from one of brick to one of marble; yet an equally accurate assessment would be that during the Augustan period, the built environment was transformed into physical and representational gardens.⁶¹⁶ The result was so great and expansive, across public and private spheres, that within a lifetime, botanical motifs were grafted onto marble reliefs, fresco paintings, metal and ceramic dinnerware, ivory, coins, furniture, and many other media and objects.⁶¹⁷ To put this another way, the products cultivated by gardeners became so sought after and such a fashionable commodity, that their craft was translated and replicated by painters,

⁶¹³ Plin. *N.H.* 37.6.14; Macaulay-Lewis, "The Fruits of Victory," 208.

⁶¹⁴ Paul Zanker, *The Power of Images in the Age of Augustus*, (Ann Arbor: University of Michigan Press, 1998); Kellum, "The Construction of Landscape in Augustan Rome," 211-224; Barbara A. Kellum, "What we see and what we don't see. Narrative Structure and the Ara Pacis," *Art History* 17.1 (1994): 26-45.

⁶¹⁵ Orietta Rossini, *Ara Pacis*, (Milano: Electa, 2006); Giuseppe Moretti, *L'Ara pacis Augustae*, (Roma: Istituto poligrafico e zecca dello Stato, Libreria dello Stato, 2007); David Castriota, *The Ara Pacis Augustae and the imagery of abundance in later Greek and Roman imperial art*, (Princeton, N.J. : Princeton University Press, 1995); Diane Atnally Conlin, *The Artists of the Ara Pacis Augustae and the process of Hellenization in Roman relief sculpture*, (Chapel Hill: University of North Carolina Press, 1997).

⁶¹⁶ Suet. *Aug.* 29.

⁶¹⁷ Zanker, *The Power of Images in the Age of Augustus*.

sculptors, mosaicists, metal workers, and other artisans—thereby transforming these craftsmen into quasi-gardeners themselves. In fact, it is possible to identify gardeners as the driving force of new genres, such as Second Style *trompe-l'oeil* garden paintings. As already explored in chapter four, these types of representations have more recently been connected to excavated planting beds, such as those at the Villa Arianna in Stabiae.⁶¹⁸ Although the paintings of gardens vary in quality and in their level of naturalism, some examples, like the ones found in the House of the Golden Bracelet at Pompeii or at the villa at Prima Porta, exhibit an acute botanical accuracy. In these representations it is clear that the painters studied horticultural practices and botany closely so that they might be able to replicate the works created by gardeners. Moreover, Gleason's analysis of garden wall paintings illustrates that painters not only paid close attention to highly specialized horticultural practices, but that gardener interventions, such as pruning, were the central feature of the compositions.⁶¹⁹ For example, the garden painting from the House of the Golden Bracelet, described earlier in chapter four, is focused compositionally on the pruned dwarfed tree (Fig. 2). A similar effect is found in the Prima Porta garden painting where fruit trees are placed close to the picture plane so that the so-called "vase" pruning technique and pruning scars are more legible (Fig. 30).⁶²⁰ Likewise, trees with significant deadwood removal, such as the palms, are placed so that their pruned silhouette is more clearly visible.

The precision with which painters depicted these interventions dismisses the

⁶¹⁸ The plantings pattern in planting beds 1 and 2 at the Villa Arianna in Stabiae offer an especially clear example of para Tally-Schumacher and Niemeier, "Through the Picture Plane," 58-71.

⁶¹⁹ Gleason, "The Lost Dimension," 311-325.

⁶²⁰ Vase pruning is a method still utilized in orchards today. It involves thinning branches in the middle of the canopy to facilitate air circulations (and thus decrease the possibility fungal diseases) and increase sunlight exposure onto fruit. The ends of branches are pruned into oblong tufts, called vases, to further facilitate air movement and sunlight exposure.

possibility that these are mere artistic conventions. In both paintings the painters intentionally focus on gardener labor (i.e. the alteration of natural growth habits). Although their bodies are absent, the gardeners' presence is distinctly articulated in their interventions as rendered by the painters. In this light, the garden paintings found at Prima Porta or at the House of the Golden Bracelet are a painter's celebration and praise of horticultural innovation and the craft of gardeners.

The Case of Traveling Plants and Gardeners

Despite Aristotle's categorization of plants as immobile, in antiquity as today, plants, gardeners, and horticultural knowledge traveled widely. The geographical expansion of the Roman world beginning in the second century BCE and into the Imperial period fostered the importation of many new plant species, meant for gardens or also for food, transforming Rome into a kind of botanical microcosm.⁶²¹ In response to the growing plant trade and the introduction of new species, Pliny the Elder observed that,

“Wondrous indeed is it, that a Scythian plant should be brought from the shores of the Palus Mæotis, and the *euphorbia* from Mount Atlas and the regions beyond the Pillars of Hercules, localities where the operations of Nature have reached their utmost limit! That in another direction, the plant *britannica* should be conveyed to us from isles of the Ocean situated beyond the confines of the earth! That the *æthiopsis* should reach us from a climate scorched by the luminaries of heaven! And then, in addition to all this, that there should be a perpetual interchange going on between all parts of the earth, of productions so instrumental to the welfare of mankind! Results, all of them, ensured to us by the peace that reigns under the majestic sway of the Roman power, a peace which brings in presence of each other, not individuals only, belonging to lands and nations far separate, but mountains even, and heights towering above the clouds, their plants and their various productions! That this great bounteousness of the gods may know no end, is my prayer, a bounteousness

⁶²¹ Hardy and Totelin, *Ancient Botany*, 156-178.

which seems to have granted the Roman sway as a second luminary for the benefit of mankind.”⁶²² Pliny’s description of plant importation and exportation encompasses far reaching distances across the known world, from the Sea of Azow (the shores of Mæotis), an outlet on the northeast end of the Black Sea, to the straits of Gibraltar (the Pillars of Hercules). It is especially noteworthy that Pliny describes plant movement as “perpetual interchange,” articulating that plants were not only imported to Roman Italy but exchanged across the empire. In this way the cherry tree, originally from Pontus and imported to Italy by Lucullus was said to have “crossed the ocean and got as far as Britain.”⁶²³ The movement and origin of plants is commonly found in their Latin naming. Quince for example, was named *cydonea* after Cydonia in Crete from where it must have been imported, the damson plum, *damascena*, was named after Damascus in Syria, to cite but two examples.⁶²⁴ Although not all plants were willing travelers and many refused to acclimate to new, Roman conditions, Pliny and Columella both note that many varieties, when transplanted into Italic soil, flourish more than in their native lands. Columella even praised Italian earth for it “had learned to carry the fruits of almost the entire world, as its inhabitants zealously applied themselves to the task.”⁶²⁵ Many of the plants brought to Rome at the time by military generals and other elites have become so deeply naturalized as to be perceived as entirely Italic today, like cherries or peaches.⁶²⁶ Others, like the plane tree, are still

⁶²² Plin. *H.N.* 27.2-3. Trans. W. H. S. Jones and A. C. Andrews, (Cambridge: Harvard University Press, 1956).

⁶²³ Plin. *H.N.* 15.102.

⁶²⁴ Plin. *H.N.* 15.37, 15.43; Hardy and Totelin, *Ancient Botany*, 156-178.

⁶²⁵ Columella, *Rust.* 3.8.5.

⁶²⁶ Marzano, “Roman Gardens, Military Conquests, and Elite Self-Representation,” 204-224.

haunted two-thousand years later by Pliny's criticism, and are not perceived to be native plants, deserving of conservation.⁶²⁷

Our ability to map plant movement has been greatly expanded by the rapidly growing archaeobotanical datasets from across the empire.⁶²⁸ These publications for the most part focus on the trade of plants as food and thus on consumption of local and imported exotic⁶²⁹ plants.⁶³⁰ Because the data primarily is composed of seeds, pips, and pits discovered in wells or latrines, archaeobotanists interpret deposition as evidence of trade and consumption, and tend to only speculate on whether they are evidence of local cultivation. But even if the data is read only as evidence of ancient food ways, not of horticultural networks, it nevertheless informs the reconstruction of a related type of landscape, dubbed the "flavourscape."⁶³¹ Moreover, despite apparent differences between plants as food versus plants as horticultural ornament, the study of botanical food networks is a significant avenue of inquiry for reconstructing cultivation and gardener presence, particularly when archaeobotanical data is collated with other archaeological evidence, such as gardening implements and references to

⁶²⁷ Rosati, et al, "Under the shadow of a big plane tree," 1-10.

⁶²⁸ For a synopsis of recent work on the movement of plants see, Wilhelmina F. Jashemski, Kathryn L. Gleason, and Michael Herchenbach, "Plants of the Roman Garden," in *Gardens of the Roman Empire*, ed. Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartwick, and Amina-Aïch Malek, (Cambridge: Cambridge University Press, 2018): 472-479.

⁶²⁹ The term 'exotic' is borrowed from archaeobotanical discourse where it is used to denote luxury items. These are commonly non-native and require great cost to transport. In this study exotics is also used to signify plants which may have occurred rarely in the native environment prior to Roman arrival, but increase greatly during Roman occupation, suggesting a close association with Roman consumption and culture.

⁶³⁰ Macaulay-Lewis, "Imported Exotica," 16-26; van der Veen, "Food as embodied material culture," 83-109; Alexandra Livarda and Hector A. Orengo, "Reconstructing the Roman London flavourscape: new insights into the exotic food plant trade using network spatial analysis," *Journal of Archaeological Science* 55 (2015): 244-252; René Cappers, "Trade and Subsistence at the Roman Port of Berenike, Red Sea Coast, Egypt," in *The Exploitation of Plant Resources in Ancient Africa*, ed. Marijke Van der Veen, (New York: Plenum Publishers, 1999), 185-197; Marijke Van der Veen and Jacob Morales, "The Roman and Islamic spice trade: new archaeological evidence," *Journal of Ethnopharmacology* 167 (2015): 54-63.

⁶³¹ Livarda and Orengo, "Reconstructing the Roman London flavourscape," 244-252.

local gardeners.⁶³² The untapped potential of plant remains data is evident if we consider the western provinces as a case study, encompassing modern-day France, the Low Countries, western Germany, and Britain, but focusing more closely in this discussion on Gallic sites in France.⁶³³

Examining the archaeobotanical remains on their own reveals significant environmental and cultural changes initiated by Roman expansion into the region. From the earliest stages of Roman occupation in modern France and the Low Countries, numerous plants, previously not part of local cuisine nor part of local horticultural tradition, were imported by the Romans, such as garlic (*Allium sativum*), peach (*Persica vulgaris*), cherry and sour cheery (*Prunus avium* and *Prunus cerasus*), plums (*Prunus domestica* and *Prunus insititia*), the cultivated apple and pear (*Malus*

⁶³² van der Veen, “Food as embodied material culture,” 83.

⁶³³ Macaulay Lewis notes that, “the full potential of the rapidly growing databases of archaeobotanical data (carbonized plants, pollen, phytoliths, and seeds) has barely been tapped,” in “Imported Exotica: Approaches to the Study of the Ancient Plant Trade,” 22. Although the discussion in this chapter focuses on a single region, there is a large amount of plant remains data from the whole empire. Of all the regions, the excellent preservation conditions in Egypt offer an unusually exciting dataset, documenting the movement of plants as food from distance regions, such as India, and across the entire Roman Empire. For examples, see: Cappers, “Trade and Subsistence at the Roman Port of Berenike,” 185-197; van der Veen and Morales, “The Roman and Islamic spice trade,” 54-63; Livarda and Orengo, “Reconstructing the Roman London flavourscape,” 244-252; Isabel and Pierre Séjalon, “Archaeological wells in southern France: Late Neolithic to Roman plant remains from Mas de Vignoles IX (Gard) and their implications for the study of settlement, economy and environment,” *Environmental Archaeology* 19.2 (2014): 23-38; Corrie Bakels and Stephanie Jacomet, “Access to luxury foods in Central Europe during the Roman period: the archaeobotanical evidence,” *World Archaeology* 34.3 (2003): 542-557; Sara Essert, Ida Koncani-Uhač, Marco Uhač, and Reneta Šoštarić, “Plant remains and amphorae from the Roman harbor under Flacius Street in Pula (Istria, Croatia),” *Archaeological and Anthropological Sciences* 10 (2018): 955-971; Renata Šoštarić and Hansjörg Küster, “Roman plant remains from Veli Brijun (island of Brioni), Croatia,” *Vegetation History and Archaeobotany* 10 (2001): 227-233; Emilia Allevato, Antonio Saracino, Silvio Fici and Gaetano Di Pasquale, “The contribution of archaeological plant remains in tracing the cultural history of Mediterranean trees: the example of the Roman harbor of Neapolis,” *The Holocene* 26.4 (2016): 603-613; Filipe Costa Vaz, Maria Martín-Seijo, Sérgio Carneiro, and João Pedro Tereso, “Waterlogged plant remains from the Roman healing spa of Aquae Flaviae (Chaves, Portugal): Utilizatrian objects, timber, fruits and seeds,” *Quarterly International* 404 (2016): 86-103; Leonor Peña-Chocarro and Lydia Zapata, “Trade and new plant foods in the western Atlantic Coast: The Roman port of Irun (Basque Country),” in *Mar exterior: el occidente atlántico en época romana: congreso internacional, Pisa, Santa Croce in Fossabanda, 6-9 de noviembre de 2003*, ed. M.M. Urteaga Artigas, M.J. Noain Maura, (Roma: Escuela Española de Historia y Arqueología, CSIC, 2005): 169-177.

sp. and *Pyrus* sp.), grape (*Vitis vinifera*), cucumber (*Cucumis sativus*) and walnut (*Juglans regia*), as well as many herbs, including dill (*Anethum graveolens*), celery (*Apium graveolens*), coriander (*Coriandrum sativum*), fennel (*Foeniculum vulgare*), marjoram (*Origanum vulgare*), and summer savory (*Satureja hortensis*).⁶³⁴ The movement of these plants may be divided into two categories: those which could not be grown locally because of climatological limitations (such as black pepper, rice, and chickpeas) and thus were imported solely for consumption not cultivation. A second group is composed of varieties which could only be cultivated locally if they received greater gardener care than in their native Mediterranean habitat as the northern climatological conditions were not ideal and just barely allowed cultivation. This second group included plants such as apricot, peaches, bottle-gourd, cucumber, and melon.⁶³⁵ The disappearance or great reduction in frequency of many of these plants during the Early Medieval (500CE-1000CE) period articulates just how deeply reliant these plants were on Roman gardeners and Roman trade networks.⁶³⁶ In particular, the post-Roman landscape is marked by a steep decrease in peach, melon, and bottle-gourd (plants which could be cultivated) and the disappearance of sesame, cumin, and dates (plants which must have been imported and could not be cultivated locally).⁶³⁷ Similar results are found in Britain, where archaeobotanical remains illustrate the naturalization of many Roman varieties, such as plums, cherries, damsons, and apples

⁶³⁴ Bakels and Jacomet, "Access to luxury foods in Central Europe during the Roman period," 543; Peña-Chocarro and Zapata, "Trade and new Plant Foods in the Western Atlantic Coast," 167-175; Anne de Hingh, "Bottle gourd seeds at Gallo-Roman 'Le Bois Harlé' (Oise, France)" *Analecta Praehistorica Leidensia* 26 (1993): 93-97.

⁶³⁵ Alexandra Livarda, "Spicing up life in northwestern Europe: exotic food plant imports in the Roman and medieval world," *Vegetation History and Archaeobotany* 20 (2011): 144.

⁶³⁶ *Ibid.*, 143, 147.

⁶³⁷ *Ibid.*, 146.

or pears and the successful adoption of orchard cultivation, which in itself is indicative of the adoption of practices perfected by the Romans, such as grafting.⁶³⁸ There is also evidence, in the form of plant remains and pruning knives, of viticulture in Roman England, though these seem to have been less successful.⁶³⁹

In addition to the movement of edible plants such as fruit, vegetables, and herbs, archaeobotanical remains also preserve the introduction of ornamental plants. The importation of evergreen ornamentals to Roman Britain, like box and pine, vastly transformed the deciduous native gardens, altering perceptions of temporality and seasonality as new exotics remained green and unchanging.⁶⁴⁰ In some cases, plant remains are absent, but reserved garden contours shed light on possible plantings based on comparative evidence. For example, the niched hedge at Fishbourne, which does not preserve plant remains, is thought to have been composed of newly imported box due its form and placement in the garden.⁶⁴¹ Based on observations in chapter three on plants naming and dictating the type of gardener employed, it is possible to attribute the shaped hedge to the presence of a *topiarius*. Indeed, as the villa is the product of techniques little known in Britain at the time, it has been speculated that the

⁶³⁸ Gill Campbell, "Market Forces: A Discussion of Crop Husbandry, Horticulture and Trade in Plant Resources in Southern England," in *Agriculture and Industry in South-Eastern Roman Britain*, ed. David Bird (Oxford: Oxbow Books, 2017): 134-155.

⁶³⁹ *Ibid.*, 134-155; Hector A. Orengo and Alexandra Livarda, "The seeds of commerce: A network analysis-based approach to the Romano-British transport system," *Journal of Archaeological Science* 66 (2016): 21-35; G. H. Willcox, "Exotic Plants from Roman Waterlogged Sites in London," *Journal of Archaeological Science* 4 (1977): 269-282; Carrie Cowan and Peter Hinton, "The Roman garden in London," in *Londinium and Beyond: Essays on Roman London and its hinterlands for Harvey Sheldon*, ed. J. Clark, J. Cotton, J. Hall, R. Sherris, and H. Swain, (York: Council for British Archaeology, 2008): 75-81; Lodwick, "Evergreen Plants in Roman Britain and Beyond," 135-173.

⁶⁴⁰ Lodwick, "Evergreen Plants in Roman Britain and Beyond," 135-173.

⁶⁴¹ Lodwick, "Evergreen Plants in Roman Britain and Beyond," 138, 143, 156.

garden must have been designed and created by an immigrant gardener.⁶⁴² Even stronger evidence of the presence of *topiarii* comes from the villa at Wiesweiler in the Rhineland, where clipped box branches were found, identified by excavators as the result of box shaping.⁶⁴³ Additionally, excavations in 2006-2008 and 2012-2013 at Chaves in Portugal have provided the first evidence of cypress cultivation on the Iberian Peninsula. A galbulus (a fleshy berry-like cone) discovered near the monumental healing spa complex of *Aquae Flaviae*, is according to the excavators, evidence of ornamental cypress planting around the complex.⁶⁴⁴ Although the cypress may have been allowed to grow tall without shaping (as we find it depicted in maritime villa paintings), it was, like box, a favorite of Roman gardeners for shaping, and thus perhaps may have required local *topiarii*.

In addition to consumed plants or ones utilized in ornamental gardens, archaeobotanical remains of weeds provide further evidence of Roman ecological changes to the provincial landscape. Remains gathered at seven wells near Nîmes demonstrate a drastic decrease in native weed populations during the Roman era, a sign of radical land management changes.⁶⁴⁵ The same samples also illustrate a marked increase in fruit presence, particularly grape (*Vitis vinifera*) and fig (*Ficus carica*).⁶⁴⁶ The scale of botanical changes articulated by the samples are indicative of a

⁶⁴² Barry Cunliffe, "Roman Gardens in Britain: A Review of the Evidence," in *Ancient Roman Gardens*, ed. Elizabeth Blair MacDougall, (Washington D.C.: Dumbarton Oaks Trustees for Harvard University, 1981): 102.

⁶⁴³ J. Meurers-Balke and M. Herchenbach, "Römische Gartenkunst am Niederrhein," in *Archäologie im Rheinland*, edited by J. Kunow and M. Trier, (Darmstadt: Theiss, 2014), fig 4; Lodwick, "Evergreen Plants in Roman Britain and Beyond," 158.

⁶⁴⁴ Costa Vaz, et al, "Waterlogged plant remains from the Roman healing spa of Aquae Flaviae (Chaves, Portugal)," 102.

⁶⁴⁵ Figueiral and Séjalon, "Archaeological wells in southern France," 32-34.

⁶⁴⁶ *Ibid.*, 34.

massive expenditure of agricultural and horticultural labor, which in turn is suggestive of a large population of manual laborers and gardeners. Relatedly, while native weeds are shown to decrease, archaeobotanical samples from Roman Britain preserve evidence of the introduction of new Mediterranean, Roman weeds, such as the corn-cockle (*agrostemma githago*) and deadly night-shade (*atropa belladonna*).⁶⁴⁷

The evidence for imported edible plants offers limited interpretations if it is considered on its own. As archaeobotanists note, the deposition of seeds in contexts such as wells, latrines, or carbonized fertilizer is evidence of consumption and does not prove nor disprove the possibility of local cultivation. For example, the high number of peach pits may be a result of consumed preserved peaches in wine or vinegar, which, unlike fresh fruit, could travel great distances. Thus, general climatological conditions are utilized to establish whether a particular variety could be cultivated locally, and it is assumed that if it was possible, at some point after initial importation, cultivation would have begun. The time between initial importation for consumption to local cultivation remains obscure. But such assumptions are hypothetical and thus offer limited value in reconstructing horticultural history and gardener presence in the provinces. However, I propose that if we begin to layer the data, by mapping the locations of particular archaeobotanical remains and further plotting locations of gardening implements, such as planting pots, excavated orchards or nurseries, and funerary epitaphs of gardeners it becomes possible to firmly shift the conversation from one of speculation to one supported by archaeological evidence.

⁶⁴⁷ Lisa A. Lodwick, “Weeds in the Field, Weeds in the City: Posthuman Approaches to Plants in the Roman World,” in *Beyond the Romans: Posthuman Perspectives in Roman Archaeology*, ed. Irene Selsvold and Lewis Webb, (Oxford: Oxbow Books, 2020): 79-91. Corn-cockle and deadly- nightshade were both rare in Pre-Roman Britain, but after the first century CE becomes common at Roman sites.

The maps discussed in the following sections were created with the assistance of Tomasz Kalinowski, a trained landscape architect in Sieroniowice, Poland.⁶⁴⁸ The map layers bring together data from multiple different studies conducted by archaeobotanists and garden scholars as well as layers created by the author. The goal of uniting disparate data sets was to create a bridge between rich archaeobotanical remains data and cultivation related evidence, because it is in the density of plant related data that we most clearly find evidence of Roman gardeners. Although the rivers and mountain ranges (depicted in gray on the map Fig. 31) may at first glance diminish the legibility of the map, this map was intentionally chosen because it illustrates how regional landscape formations, like the Meuse, Moselle, Seine, and Vienne Rivers influences the distribution of cultivation related materials and gardeners.

While the maps offer new insights, the narrative they present must be qualified. We cannot assume that in areas where cultivation occurred, all plant remains are the result of local or regional cultivation. Indeed, even in horticultural centers, some food materials likely arrived through trade. However, the presence of Roman style cultivation in the form of *ollae* offers clear evidence that at least some of the sixty-six varieties were indeed cultivated locally. The map is also a result of site-specific practices employed by the excavators. Thus, some sites offer records of *ollae* but no archaeobotanical remains, because samples were not taken, have not been published, or preservation conditions were poor. Because *ollae* in of themselves are a kind botanical artifact, they act as evidence of plant presence even if preservation

⁶⁴⁸ Tomasz Kalinowski, *Studio Ogrodów Kalinowski*, ul. Strelecka 9, 47-143 Sieroniowice, Poland.

conditions or sampling do not result in archaeobotanical remains. In other words, a lack of archaeobotanical remains at sites with *ollae* does not mean that plants associated with Romans were not present at that site.

The layering of these maps also creates the impression of an absence of evidence in the Rhine region, where there is a density of peach and roman plant deposition in military, urban, and rural contexts but no evidence of *ollae* or gardeners in epigraphic evidence. As Livarda notes, geographical and social biases cannot be avoided in the data.⁶⁴⁹ One reason for this stark difference between French and German evidence may be due to the nature of who performs local excavations, where the results are published or held, and the relative accessibility or inaccessibility of archaeological reports in “gray literature.”⁶⁵⁰

Despite these qualifications, the maps offer a significant new avenue of inquiry in considering the role of Roman gardeners in the provinces. Perhaps the clearest lesson presented in the maps is that we cannot search for gardeners through a single category of archeological remains. To do so results in a false narrative of absences and uneven distribution. To locate gardeners, the search must be diverse, encompassing archaeobotanical remains, excavated gardens, garden implements, and epigraphic evidence.

⁶⁴⁹ Livarda, “Spicing up life in northwestern Europe,” 148-150.

⁶⁵⁰ *Ibid.*, 148-150.

Mapping Archaeobotanical Remains

The following discussion is focused on two layered, compound maps of the western provinces composed of four layers of data. Figure 36 illustrates locations of Roman era (100 BCE-500 CE) deposition of archaeobotanical remains composed of sixty-six plant varieties.⁶⁵¹ The data and units are derived from Alexandra Livarda, who divides contexts into four different types of units: military (red triangles), towns (red squares), rural (red circles), and ceremonial (red crosses). As Livarda notes, her units are quite broad and encompass many different kinds of social activities and subcontexts, but the division of remains into these four categories “is more detailed than has previously been applied in archaeobotanical studies.”⁶⁵² Some of the plants, like dill, coriander, and celery are attested in the region in the pre-Roman period, however their density greatly increased during Roman occupation, suggesting a definitive change in cultivation and consumption that coincided with Roman presence.⁶⁵³ Other varieties were native, such as cherries, apples, and plums, but only existed as wild varieties. During Roman occupation, the introduction of Roman grafting facilitated hybridized species between Roman domesticated varieties and

⁶⁵¹ Alexandra Livarda, “Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods,” PhD Diss., (University of Leicester, 2008), 194, figure 4.2a, see also Table 4.7 on 313 for a list of the sixty-six varieties.

⁶⁵² Livarda, “Introduction and Dispersal of Exotic Food Plants,” 34, Ceremonial context include burials, shrines, and temples of any size. Rural finds include those from “individual agrarian units, such as farmsteads... and villages encompassing a cluster of houses.” The category of town encompasses *coloniae*, *municipia*, *statio*, and *mansio*. Military sites include forts of all sizes as well as *canabae* and *vici*. As Livarda notes, there are challenges in attempting to fit sites into these four categories as some contexts may overlap (such as a shrine in a town or at a fort) or may result from too little information to clearly identify the context.

⁶⁵³ *Ibid.*, 102.

native ones.⁶⁵⁴ A last group, such as peaches and melons, is composed of plants that were not native in wild or other forms and which were imported from their preferred Mediterranean habitats.⁶⁵⁵ In comparison, figure 33 focuses more narrowly on the geographical distribution of a single plant variety: peaches.⁶⁵⁶ This plant species was chosen because of its non-native status to the area, thereby distinctly signifying importation and/or cultivation as a result of Roman influence. Originally from China, peach's native warm habitat also meant that more northern cultivation of these plants in the provinces attests greater labor and presence of gardeners to ensure their survival.⁶⁵⁷ In the following discussion, these two related maps are utilized so that more general as well as species-specific observations may be made about gardener-plant relationships in the western provinces.

The single greatest actor in the plant trade appears to have been the military, who seems to have had an especially great appetite for peaches.⁶⁵⁸ As Livarda observes, the

“local demand by the army for exotic food plants may equally have triggered knowledge of various exotics and attempts at their cultivation, as well as greater involvement in the import of new goods. The presence of peach, for instance, in some rural nucleated sites not far from the southern part of the Rhine limes included in this study may suggest successful early attempts at cultivation. It is perhaps significant that military land was often leased to civilians to cultivate and provide for the army.”⁶⁵⁹

⁶⁵⁴ Ibid., 103.

⁶⁵⁵ Livarda, “Introduction and Dispersal of Exotic Food Plants,” 118.

⁶⁵⁶ This plan is reproduced from Livarda, “Spicing up life in northwestern Europe,” 148, Fig 4, see pages 148-150 on Livarda's discussion of possible social and geographical biases that may be present in the map.

⁶⁵⁷ Peaches are originally from western China but were cultivated in the Mediterranean in Greece since the third century BCE and were already well known in the Roman world by the first century CE. Laura Sadori, et al, “The introduction and diffusion of peach in ancient Italy,” 45-61.

⁶⁵⁸ Livarda, “Spicing up life in northwestern Europe,” 156-157; Bakels and Jacomet, “Access to luxury foods in Central Europe during the Roman period,” 545; Livarda and Orengo, “Reconstructing the Roman flavourscape,” 244.

⁶⁵⁹ Livarda, “Spicing up life in northwestern Europe,” 156; R. W. Davies, “The Roman Military Diet,” *Britannia* 2 (1971): 123.

Accordingly, the military was not only responsible for importing exotic plants but also the driving force behind a growing distribution of gardeners who cultivated Mediterranean plants. The second major driver in plant and horticultural exchange were large urban centers, where elites gained access to luxury goods. There were also significant non-human co-agents in moving plants and gardeners. The evidence from northwestern and central Europe, the Iberian Peninsula, and Britain all underscore the centrality water ways played in establishing trade and travel networks.⁶⁶⁰ As much as human actors were responsible for expanding Roman horticulture, the channels, rivers, and natural harbors were the environmental co-agents in that process.

Mapping Ollae Perforatae

If we add a second layer to the maps, depicting locations, in light green squares, where *ollae perforatae*, perforated ceramic pots used as planters, have been found, it becomes possible to connect the archaeobotanical remains to cultivation of imported Mediterranean varieties (Fig 65, 66).⁶⁶¹ According to ancient authors, *ollae* were used by gardeners for the cultivation, propagation, and transportation of vines, trees, and shrubs.⁶⁶² First described by Cato in the mid-second century BCE, excavated *ollae* are primarily dated to a limited range between the late first century

⁶⁶⁰ Livarda, “Spicing up life in northwestern Europe,” 157; Costa Vaz, et al, “Waterlogged plant remains from the Roman healing spa of Aquae Flaviae (Chaves, Portugal),” 100; Orenco and Livarda, “The seeds of commerce,” 26.

⁶⁶¹ This layer is based on Yvan Barat and Dominique Morize, “Les pots d’horticulture dans le monde antique et les jardins de la villa Gallo-Romaine de Richebourg (Yvelines),” *Actes du congrès de Fribourg 13-16 mai 1999 : productions de céramiques dans les différentes régions de Suisse*, (Marseille: S. F.E.C.A.G., 1999), 229, figure 14.

⁶⁶² Theophr. *Hist. Pl.* 4.4.3; 6.7.3 ; Cato, *Agr.* 52, 133; Plin. *H.N.* 12.7.15-16, 17.11.64, 17.21.97-98, 25.102.160; Palladius, 3.10, 3.25, 4.10, 6.6, 10.14.

BCE to the mid second century CE.⁶⁶³ Despite regional variation in form and fabric, the “defining feature of purpose made *ollae perforatae* is a single base hole (usually 1+ cm in diameter),” although they also commonly possess three or four holes along the sides as well.⁶⁶⁴ To date no single, empire-wide typology exists for *ollae*, although it is possible to observe that production was always local (based on fabric) and that forms varied locally, with some gardens featuring multiple different types.⁶⁶⁵ Their role in propagation is especially noteworthy within the context of establishing early Roman cultivation in the provinces. Ancient authors describe their use in air-layering, a kind of propagation which allowed gardeners to create a new plant that was genetically the same as the parent, unlike propagation from seed which results in genetic divergence between parent and child plant (Fig. 32).⁶⁶⁶ To accomplish this an *olla* with soil was threaded onto a branch and left in place for multiple years, so that roots would grow out of the branch and into the pot. Once roots had been established, the branch would no longer be reliant on the parent body for sustenance, and could be cut off and transplanted, relying from there on out on its own new root system. Unlike modern transplanted saplings which are planted without containers, the new plants were set into the ground with the *ollae* still in place, sometimes broken by gardeners to assist root development. Although these types of pots are associated with commercial

⁶⁶³ Macaulay Lewis, “The Role of *ollae perforatae* in understanding horticulture, planting techniques, garden design, and plant trade in the Roman World,” 207.

⁶⁶⁴ Macaulay Lewis, “The Role of *ollae perforatae* in understanding horticulture, planting techniques, garden design, and plant trade in the Roman World,” 207.

⁶⁶⁵ *Ibid.*, 210.

⁶⁶⁶ Today air layering is accomplished by utilizing many different kinds of containers such as purpose-made planters, reused plastic planters, wrapping saran wrap around sphagnum moss or other potting medium around a branch, and even cutting and repurposing pop bottles, the amphora of the modern world.

nurseries, they were also utilized in private and public gardens.⁶⁶⁷ Indeed, the locations of *ollae* depicted here represent a diverse range of horticultural contexts, from small domestic gardens to luxury villas and commercial enterprises. These types of pots were utilized for the cultivation of a wide variety of plants, but they are crucial for the creation of an orchard of fruit bearing trees, such as peach, because of genetic variance between seeds and parent plants, which might result in less productive specimens.

Mapping archaeobotanical remains with evidence of cultivation offers significant insights into local practice. If we view the peach pit deposits (Fig.33) alongside excavated *ollae* it becomes possible to identify three areas of especially rich archaeological remains where evidence supports the hypothesis that imported Roman plants were locally cultivated.⁶⁶⁸ The first nucleus is in the department of Meuse in northcentral France along the Meuse River. *Ollae* were found in three separate sites along with a rural deposition of peach, which coincides with Livarda's supposition that rural contexts, by their more remote nature may indeed be evidence of cultivation rather than importation as there is less reason for plant movement in these areas.⁶⁶⁹ A second group is centered around modern Arles and Nîmes, near the Rhône River delta, along the southern coast of France where *ollae* were found at multiple sites. As in the department of Meuse, *ollae* are found within proximity of rural peach pits. A third group is centered around Paris with localized nuclei in the departments of Val-d'Oise, Oise, Yvelines, and Eure-et-Loir. The area between Chartres, Richebourg, Paris, Le

⁶⁶⁷ Macaulay Lewis, "The role of *ollae perforatae* in understanding horticulture, planting techniques, garden design, and plant trade in the Roman World," 210-215; Jashemski, *The Gardens of Pompeii*, Vol. I, 233-242, 408-410.

⁶⁶⁸ The second layer is based on a map produced by Barat and Morize, "Les pots d'horticulture dans le monde antique et les jardins de la villa Gallo-Romaine de Richebourg (Yvelines)," 229, figure 14.

⁶⁶⁹ Livarda, "Spicing up life in northwestern Europe," 157.

Thillay, Vendeuil-Caply, and Bennecourt is especially dense with depositions of peach pits from rural and military contexts as well as *ollae*, suggesting a higher degree of Roman tastes and horticultural practices. The map depicting all sixty-six plant varieties (Fig. 34) offers an additional two centers of archaeological collation between gardening implements and archaeobotanical remains in central France. One nucleus is found in the department of Rhône, where *ollae* have been found at four sites, and another in the department of Puy-de-Dôm, in Clermont-Ferrand.⁶⁷⁰ The presence of *ollae* is predominantly interpreted as evidence of cultivation of varieties favored by the Romans. The role of waterways as co-agents is again highlighted in these two maps, as the Meuse, the Rhône, the Seine and its tributaries, as well as the southern Mediterranean coast facilitated the transportation of food, plants, and other resources necessary for cultivation which could not be procured locally.

Mapping Gardener Epigraphic Evidence

If we add a further layer composed of epigraphic inscriptions featuring gardeners, three regions are illuminated as area of especially rich evidence of Roman horticultural practice (Fig. 35, 36). The first area is centered around Nîmes and Arles, where four gardeners are recorded in funerary inscriptions. Two gardeners, Vallonus, the brother of Quartina, and Secundus, the son of Aurelius, are commemorated with

⁶⁷⁰ See Barat and Morize, *Les pots d'horticulture dans le monde antique et les jardins de la villa Gallo-Romaine de Richebourg (Yvelines)*,” 229-231 for a detailed list of the sites and addresses.

depictions of pruning knives in Nîmes.⁶⁷¹ Although their epitaphs do not record their titles, representations of the pruning hooks have been generally interpreted as signifying that both were *vinitores*. However, because pruning knives possessed a dual usage in viticulture and in arboriculture, our identification of these gardeners should remain more flexible, encompassing both work with vines as well as trees. A third gardener, Trebanus Filetrius, in a now lost inscription, is identified as a *hortulanus* in Arles. Moreover, the prevalence of local horticultural work is made further evident by the adoption of viticultural titles as cognomina, as in the case of Titus Vossaticus Vinitor in Aradunum (Calvisson), whose cognomen suggests a familial connection to vine cultivation.⁶⁷² In addition to documenting different types of gardeners, the region is also rich in archaeobotanical remains, *ollae*, many excavated gardens, including a vast number of vineyards and/or orchards, all suggesting that this region was a horticultural center with a large gardener population.⁶⁷³

Another nucleus is found framed by the Meuse River, which drains into the North Sea and the Moselle River, a Rhine tributary. The rivers run parallel to one another but navigation on both rivers would have converged in the Rhine-Meuse-Scheldt delta. In this narrow fluvial band, peach pits and other plant remains have been found at a rural site and *ollae* at multiple locations. A fragmentary inscription in

⁶⁷¹ CIL XII 4003; and an unpublished stele in Fiches and Veyrac, *Carte archéologique de la Gaule: Nîmes 30/1*, entry 624.

⁶⁷² ILGN 0540.

⁶⁷³ H. Pomarède, et al, "Territoires languedociens de la Protohistoire au Moyen âge. Nouvelles données sur les campagnes de Nîmes, Lodève et Béziers," *Archéopages* 34 (2012): 10-21; Sébastien Barberan, "Le jardin de la domus B des Villégiales," in *Le quartier antique des Bénédictins à Nîmes, découvertes anciennes, fouilles récentes (1966-1992)*, ed. P. Garmy and M. Monteil, (Paris: Editions de la Maison des sciences de l'homme, 2000): 173-181; Sébastien Barberan, "Un aménagement horticole antique dans la cour d'un établissement péri-urbain à Nîmes (Gard)," *Bulletin de l'Ecole Antique de Nîmes* 24 (1998): 67-72.

Metz preserves the phrase “ho[li]tores [///] tria,” which has been interpreted as signifying the presence of three *holitores*.⁶⁷⁴ Although the names of the gardeners are not preserved, based on regional inscriptions which document a mixture of Roman, Celtic, and Greek names, they likely belonged to a dynamic multi-cultural community, as mentioned in chapter three.⁶⁷⁵ We might expect that such interwoven and complex identities impacted the adoption of Roman horticultural practices as well as consumption of Roman plants, resulting in local variations and practices. Moreover, although these three are the only *holitores* attested in the epigraphic record in Gaul, they are part of a larger community. Every rural center must have been populated with *holitores* who cultivated produce for local consumption. The commercial activity of Gallic *holitores* is attested by a massive vegetable and condiment garden, spanning more than 12 hectares.⁶⁷⁶ Discovered in Longueil-Sainte-Marie in the department of Oise and excavated in the early 1990s, the garden has yielded rich plant remains including varieties such as cucumbers, peas, coriander, turnips, beets, celery, marjoram, and many more.⁶⁷⁷ The layering of the maps also allows us to connect these productive gardeners with archaeobotanical remains of Roman exotic varieties which

⁶⁷⁴ CIL XIII 4332.

⁶⁷⁵ Alex Mullen, *Southern Gaul and the Mediterranean: Multilingualism and Multiple Identities in the Iron Age to Roman Periods*, (Cambridge: Cambridge University Press, 2013); D. Ellis Evans, *Gaulish Personal Names: A Study of Some Continental Celtic Formations*, (Oxford: Clarendon P., 1967).

⁶⁷⁶ Corrie C. Bakels, *The Western European Loess Belt: Agrarian History 5300BC-AD 1000*, (Dordrecht: Springer, 2009), 174-175; Philippe Marinval, Denis Maréchal and David Labadie, “Arbres fruitiers et cultures jardinées gallo-romains à Longueil-Sainte-Marie (Oise),” *Gallia* 59 (2002): 253-271.

⁶⁷⁷ Bakels, *The Western European Loess Belt*, 174-175; Marinval, Maréchal and Labadie, “Arbres fruitiers et cultures jardinées gallo-romains à Longueil-Sainte-Marie (Oise),” 253-271.

could be cultivated locally, such as garlic, cabbage, cucumber, melon, bottle gourd, onion, leek, lettuce, and many herbs like dill coriander, and celery (Table 2).⁶⁷⁸

Another nucleus is found along the banks of the Marne River, a tributary of the Seine, in Langres (Andematunum), where a fragmentary inscription, dated to the early second century CE, mentions three *topiarii* and their apprentices. Located at nearly the head of the Marne, the epigraphic evidence coincides with archaeobotanical remains, although thus far regional excavations have not resulted in *ollae* or their discovery has not been noted. Despite the more limited nature of the horticultural evidence around Langres, the fact that multiple *topiarii*, the most elite of all gardeners, and their apprentices are attested here points to a widely developed horticultural center. Ornamental cultivation, of the variety practiced by *topiarii*, could only be supported by owners who possessed productive enough estates to be able to “waste” precious arable land on non-productive ventures. As a result, while no *vinitores*, *arboratores*, or *olitores* are attested in the epigraphic record, the area must have been heavily populated by a diversity of gardeners, spanning both productive and ornamental cultivation.

Mapping Provincial Gardeners in their Gardens

A final layer of the maps consists of three sites, La Saulsotte, about 100 km southeast of Paris, Jaunay-Clan near Poitiers, and a ring of properties around Reims, which have been highlighted in yellow circles as they offer distinct, location specific perspective on provincial gardeners (Fig. 37, 38).

⁶⁷⁸ Livarda, “Introduction and Dispersal of Exotic Food Plants,” 313, Table 4.7.

La Saulsotte

This site has been chosen because of how it illuminates absences of gardeners in this map. Located in the department of Aude in north-central France, south-east of Paris, La Saulsotte features orthogonally arranged rectangular depressions near the foundations of a structure.⁶⁷⁹ Initially interpreted as the remains of a Gallo-Roman building, the site was later thought to be a Medieval barn.⁶⁸⁰ But as Alain Koehler observes, the trouble is that archaeologists most often find what they are looking for, and thus scholars whose work does not intersect with landscape interpret depressions as evidence of a structure, and overlook the possibility of planting pits. Yet an examination of the site illustrates that in fact this is another Gallo-Roman orchard. This site is a reminder that while the map may be populated with a dense amount of data points, there are multiple biases and challenges which still obscure our ability to identify as many places of cultivation and locations of gardeners, and that much work still remains.⁶⁸¹ To find evidence of gardeners we must not only rely on new analyses and excavations, but must also reexamine existing records for misidentified features and counters. Rather than interpreting this site as signifying solely the absence of gardeners due to misidentification of evidence, La Saulsotte illustrates the potential population of gardeners in the region within grasp of our identification.

⁶⁷⁹ Alain Koehler, "Vergers antiques dans les campagnes péri-urbaines: le cas de Reims," 43-44; *Bilan scientifique régional 1996, DRAC de Champagne-Ardenne*, SRA, Châlons-en Champagne, 47, figure 12.

⁶⁸⁰ Koehler, "Vergers antiques dans les campagnes péri-urbaines: le cas de Reims," 43-44; *Bilan scientifique régional 1996, DRAC de Champagne-Ardenne*, SRA, Châlons-en Champagne, 47, figure 12.

⁶⁸¹ This is also true to garden implements. Barat and Morize note the misidentification of *ollae* at the sanctuary of Vendeuil-Caply in Oise, where the planters were miscategorized as perforated pots for *faisselles*, 216.

Jaunay-Clan

The village of Jaunay-Clan is located 16 km north from Poitiers (Limonum in antiquity) in an area that had been occupied by the Gallic tribe of the Pictones. The site offers unparalleled evidence of elite gardening and cultivation of a quality we might associate with a *topiarius*. It is also an unusual example of the intersection of productive and ornamental gardening. The 2010 excavations revealed fifteen long narrow ditches with regularly spaced rectangular and circular planting pits, three of those ditches featured purpose-made *ollae perforatae*.⁶⁸² Another area of cultivation was discovered with planting pits arranged on a grid as in an orchard, and a pattern inscribed in the ground which evokes the shape of twin temples or fana, referred to by the excavators as a plant sanctuary. Although the entire site has not been exposed, the estimated reconstructed dimensions cover nearly seven hectares, with a minimum length of 390 meters and width of 172.3 m, and over 250 tree pits.⁶⁸³ The ceramic materials found at the site firmly date it to the second quarter of the first century CE, specifically to 30-50 CE.⁶⁸⁴ Unfortunately, archaeobotanical preservation is poor at the site and no plant remains were discovered during the course of the excavation.⁶⁸⁵

Many of the features found at this estate, like planting pits and *ollae*, are also found

⁶⁸² Twenty-five *ollae* were discovered in three rows, two of the most southern ones and in the most norther one. A single *ollae* was created by puncturing holes in an already fired pot. The remaining twenty-four were purpose made, by a potter who augmented a local cookware type by adding five perforations, one on the bottom and four lateral ones. The number of perforations is unusual, as four are more common at other provincial sites in France and in the Vesuvian area. It is not possible to say whether this distinctive feature is merely a local peculiar or if it reflected a particular horticultural practice which required more holes for drainage and ventilation. Gaëlle Lavoix, Frédéric Gerber, and David Guitton, “De l’utile et de l’agréable: un jardin romain chez les Pictons: La viaube 1 à Jaunay-Clan (Vienne),” *Gallia- Archéologie des Gaules* 73.2 (2016): 84-87.

⁶⁸³ *Ibid.*, 84.

⁶⁸⁴ *Ibid.*, 84.

⁶⁸⁵ Lavoix, Gerber, and Guitton, “De l’utile et de l’agréable,” 97.

elsewhere in the provinces; however two distinct features make this site unique and point to the employment of a *topiarius*: the geometric precision of the plan and the so-called plant sanctuary (the twin *fana*). Moreover, if the site is considered as a whole, no comparative examples are found in the surrounding provinces, the closest parallels are found in Italy.

Lavoix, Gerber, and Guitton's analysis illustrates that multiple organizational rules were utilized in the designing of the site's layout, far beyond what was necessary for maximizing productivity.⁶⁸⁶ The estate is divided into two equal halves, marked in the plan by the line composed of dashes and dots. At first glance the distances between the linear ditches in the southern half of the garden appear irregular as four different distances are used, measuring from 5.65m (19 Roman feet) to 7.5m (25 Roman feet).⁶⁸⁷ But if this southern half is further divided in half, it becomes clear that a mirror or book-matched pattern was utilized. As one moves out from the center line in either direction, the same path widths are repeated. Thus, two rows from the center line in either direction results in paths 5.65m wide, three rows out in either direction results in paths which are both 7.5m wide, and so forth. Despite varying widths, the distances between ditches are surveyed and installed with a remarkable level of precision. The employment of different widths between paths is likely the result of accommodating the cultivation of plants with differently sized canopies. Pliny the Elder, for example, recommended that apple trees be spaced 9 feet apart, but that pears

⁶⁸⁶ Lavoix, Gerber, and Guitton, "De l'utile et de l'agréable," 97.

⁶⁸⁷ As Lavoix, Gerber, and Guitton observe, the measurement of a Roman foot is not a standard across the empire or even regionally, but an average of 29.6cm is used to translate the measurements from metric to Roman feet.

require more space, and almonds and figs ever greater distance still.⁶⁸⁸ Columella suggested even greater distances, 30-40 feet for fruit trees and 24 feet for olive trees.⁶⁸⁹ As the excavators note, the reconstruction of cultivation in these southern ditches should encompass mixed practice, not monoculture, with some rows designated for larger canopied trees and other for smaller varieties. The presence of *ollae* in limited areas in the ditches may signify either later additions of saplings which replaced dead specimens, or it may suggest that each ditch included mixed cultivation, i.e. certain kinds of plants were in *ollae* and other varieties were planted directly into the ground. No identifiable pattern has been identified for the mixed distances between the three norther ditches.

A number of sites with related features are not considered by the excavators. At first glance there are formal similarities between the plan of the long, planted ditches and the plant nursery excavated in the 1960s near Abu Hummus in Egypt.⁶⁹⁰ At both sites, long narrow planting areas with pots span a large property. However, a major difference between the locations are the types of planters utilized. At Jaunay-Clan *ollae* have been found in some pits, but many pits feature no planters suggesting plants were set into the ground directly. The *ollae* were discovered broken, either by the power of roots as they expanded, or quite likely (and recommended by ancient authors) by the gardener, who manually broke the pot to facilitate root growth before planting the specimen. The breaking of the pot is a significant clue as it illustrates that

⁶⁸⁸ Plin. *H.N.* 26.17.

⁶⁸⁹ Columella, *Rust.* 5.9.

⁶⁹⁰ Kenawi, Macaulay-Lewis, and McKenzie, "A commercial nursery near Abu Hummum (Egypt) and re-use of amphoras for the trade in plants," *Journal of Roman Archaeology* 25.1 (2012): 195-225.

the plants were set into their final growing location.⁶⁹¹ A broken pot cannot be easily transported. In contrast, the long rows at Abu Hummus are composed of tightly arranged reused amphora bodies and necks, a type of container that was especially well suited to the transportation of plants. Although plant propagation no doubt occurred at Jaunay-Clan, it seems unlikely from the small number of planters discovered relative to planter-free pits that the main function was that of a plant nursery. Instead, the plantings were immobile and permanent.

Two other close parallels, not considered by the excavators, are found in the Bay of Naples at the Villa A at Oplontis and the Villa Arianna at Stabiae. Most published plans of Villa A depict only the row of planting cavities discovered east of the pool in area 98, however Gleason's plan and photographs taken by Stanley Jashemski in 1984 during excavations illustrate that the tree cavities and herms mark the ends of long linear features separated by wide spaces, akin to the design at Jaunay-Clan.⁶⁹² As only a short section of this feature has been exposed because of the modern city above, no further plantings in line with trees were discovered. However, evidence from the Villa Arianna suggests that the trees and herms mark the ends of long planting beds, parallel to those found at Jaunay-Clan and at Oplontis. The Great Peristyle at the Villa Arianna in Stabiae offers the clearest and closest comparative example as the full length of the peristyle has been exposed. Three narrow planting beds, 83-84m long, framed by packed-earth walks were discovered during excavations conducted in 2007.⁶⁹³ The paths are narrower than those at Jaunay-Clan, with the

⁶⁹¹ Lavoix, Gerber, and Guitton, "De l'utile et de l'agréable," 97.

⁶⁹² Gleason, "Wilhelmina Jashemski and Garden Archaeology at Oplontis," 968, figures 6.13 and 6.14.

⁶⁹³ Gleason, "Documentation of the Garden Beds," 67-90.

middle path measuring 3.6m (about 12 Roman feet), and the flanking ones measuring 2.6m (just under 9 Roman feet). Large cavities of tree roots were discovered at the west end of the planting beds. With fifteen beds and an excavated length of 390m, the Jaunay-Clan estate dwarfs the Great Peristyle's three 84m long planting beds. Yet despite the discrepancy in scale, there are clear formal design connections between these two sites, including the cultivation of mixed varieties. The three planting beds at the Villa Arianna are composed of distinctly dissimilar root cavities signifying that these areas were not a uniform hedge but were composed of many different species of plants.

The northern half of the estate, composed of the orchard and so-called plant sanctuary, was designed utilizing a 15 Roman foot square module. Although the same module was utilized for both orchards, the orientation is slightly different, with the western one angled at 86 degrees and the eastern one angled at 88 degrees. The orientation of the modular plan allows for maximum productivity, as it facilitates greater sun exposure and prevents trees from shading one another. The last component of the estate, the so-called plant sanctuary and the path leading to it, were also constructed based on the 15 Roman foot square module, but its orientation does not align with the linear ditches nor with the orchards. Instead this space is rotated so that the axes created by opposite corners (NW and SE, and SW and NE) point almost exactly to sunrise and sunset during the winter and summer solstice.⁶⁹⁴ The interior dimensions and shapes of both structures are a result of modular planning and employment of inscribed circles, recalling the metrological design process identified

⁶⁹⁴ Lavoix, Gerber, and Guitton, "De l'utile et de l'agréable," 102-103.

by Gleason in the Porticus of Pompey.⁶⁹⁵ The lack of votive or funerary evidence suggests that this was not formal sacred space as understood by the Romans.⁶⁹⁶ However, its placement in an orchard, hidden from view, alludes to other grouping of trees such as sacred groves, and indicates a slippage in function and allusions. Certainly the play between obscured sightlines due to orchard canopies and the linear path leading up to the sanctuary created a performative experience. The shape of the plant sanctuary evokes both Roman and local precedence. It recalls a long Mediterranean tradition of twin sanctuaries, such as the fifth century BCE twin temples of Fortuna and Mater Matuta in the Sant’Omobono Area in Rome. The Porticus of Octavia in Rome, a structure more contemporary to this estate, also notably featured twin temples enclosed by a rectangular perimeter (Fig. 39). But the forms found at Jaunay-Clan lack characteristic Roman elements such as a colonnaded porch. No pits were found mimicking the placement of columns. Instead the shape appears to follow the Gallo-Roman tradition of fana, with an internal *cella* surrounded by an *ambulatio*. Similar structures have been excavated across Gaul and Britain, such as the mid-first century BCE twin sanctuaries at Sources de l’Yonne in Burgundy.⁶⁹⁷ Excavations of the inscribed shapes have resulted in no evidence of built structures in stone or timber, leading the excavators to identify the ditches as planting areas. Some deeper disturbances were discovered, attributed to more developed root systems. But while the plan bears a clear relationship to local structures, no similar plant structure

⁶⁹⁵ Gleason, “*Porticus Pompeiana*: a new perspective on the first public park of ancient Rome,” 18.

⁶⁹⁶ Lavoix, Gerber, and Guitton, “De l’utile et de l’agréable,” 99-100.

⁶⁹⁷ Tom Moore and R. Hoppadietz, “La sanctuaire des Sources de l’Yonne,” In *Rapport intermédiaire 2018 du programme quadriennal de recherche 2017-2020 sur le Mont-Beuvray*, ed. Vincent Guichard, (Bibracte: Centre archéologique européen, 2019), 291-317; K. W. Muckelroy, “Enclosed Ambulatories in Romano-Celtic Temples in Britain,” *Britannia* 7 (1976): 173-191; Anthony King and Grahame Soffe, “A Romano-Celtic Temple at Ratham Mill, Funtington, West Sussex,” *Britannia* 14 (1983): 264-266.

has been discovered in Gaul or the surrounding provinces. Two provincial archaeological examples are distantly related. The alternating rectangular and concave niched hedge at Fishbourne palace takes a form commonly associated with monumental façades and translates the constructed wall motif into a cultivated one (Fig. 40).⁶⁹⁸ But the key difference here is the translation of a single wall, not an entire structure as we find at Jaunay-Clan. The Sunken Garden at Herod's Palace in Jericho provides another related example of a plant construction. The large peristyle garden featured a theater which instead of hosting human spectators was planted with plants in *ollae*. But in this case, the structure is a multimedia construction composed of traditional materials, such as concrete and stone as well as plants, whereas at Jaunay-Clay the entire work was cultivated. The closest parallel to Jaunay-Clay is found in Pliny the Younger's letters, where he describes an *ambulatio* laid out in the form of a circus which encircles a spina of box shaped in many different forms.⁶⁹⁹ The impression is that this garden circus is a cultivated structure, not one constructed from concrete and stone. A hippodrome, mentioned a few lines later, is covered by planes, ivy, and laurel, but it is unclear from Pliny's description whether this structure is constructed and surrounded by plants or whether the plants are the materials from which the form is created.⁷⁰⁰ Based on Pliny's choice of plants, and the types of plants favored by Romans for shaping and hedges, it seems likely that the plant sanctuary was grown out of evergreen varieties, which would lend an effect of permanence and

⁶⁹⁸ The Sunken Garden at Herod the Great's Palace at Jericho features a monumental façade with alternating rectangular and concave niches. The alternating niche design is also a common feature in Roman theaters.

⁶⁹⁹ Plin. *Ep.* 5.6; Lavoix, Gerber, and Guitton, "De l'utile et de l'agréable," 101.

⁷⁰⁰ Plin. *Ep.* 5.6.

substance akin to traditional building materials, unlike deciduous species. The excavators do not make any observations about reconstructing the height of the hedge walls of the twin sanctuaries, but this single quality would have greatly impacted one's experience. Shorter plantings, up to about knee height, would have given the impression of a small maze and would have allowed visitors to view the plan of the cultivated buildings from above. Taller plantings, on the other hand, would have further elided the cultivated walls with masonry ones by creating an impervious partition and a clear delineation between interior and exterior space. These various comparative examples illustrate that the conception of a building cultivated out of plants was associated only with the upper most elites of the ancient world—a significant observation for reconstructing the social status of the owner and the designer of Jaunay-Clan.

The excavators reconstruct the design process as composed of three groups: the architect or *topiarius*, a figure who is thought to have been invited from afar based on the elite and Italian comparative models, the surveyor who implemented the plan on the ground, and the manual laborers who moved earth, dug ditches, and planted plants.⁷⁰¹ The fact that the closest parallels to the garden are found only in the most elite circles point to a Graeco-Roman training of the designer.⁷⁰² Moreover, the early modern and antebellum comparative examples discussed in chapter four illustrate that designers and head gardeners of elite gardens were commonly invited from distant places, while laborers were local. At the same time, the Gallo-Roman form of the twin sanctuaries demonstrates a rare archaeological example of hybridization between

⁷⁰¹ Lavoix, Gerber, and Guitton, "De l'utile et de l'agréable," 92-93.

⁷⁰² *Ibid.*, 101.

Roman imperial landscape practice and local aesthetics. Perhaps an imported *topiarius* was assisted by a local architect who could have advised on Gallo-Roman *fana* forms?

This garden greatly expands our understanding of *topiarii* outside of Italy. As already described earlier in this chapter, only a single early second century CE fragmentary inscription from Andematunum (Langres, France) attests to the presence of *topiarii* outside of Italy. The brevity of the preserved phrase, “three *topiarii* and their apprentices,” not only provides evidence of multiple local elite garden designers but also illustrates that by the early second century the training of the profession was not limited to cultural centers in Italy.⁷⁰³ This in itself points to a local and regional provincial demand for their practice. But the early date of the Jaunay-Clan garden, about two to three generations before the Andematunum inscription, attests to a much earlier presence of these professionals in the provinces than previously thought. Moreover, by mapping the epigraphic evidence of gardeners alongside excavated gardens attributed to *topiarii* our reconstruction of gardener geographical distribution is improved. The map illustrates that gardeners are not limited to any one region, they span great expanses. For example, the *topiarii* at Jaunay-Clan are nearly 450km west of those at Andematunum. As Cato advised, the Jaunay-Clan is situated ideally near a major town (Poitiers/Limonum), on a major fluvial route (the nearby Clain is a tributary of the Vienne, which itself is a tributary of the Loire, which feeds into the Atlantic), and near the intersection of multiple ancient roads, thereby facilitating the movement and selling of produce (Fig. 41).⁷⁰⁴

⁷⁰³ CIL XIII 5708.

⁷⁰⁴ Lavoix, Gerber, and Guitton, “De l’utile et de l’agréable,” 81; Cato, *Agr.* 1.3.

Reims

The next case study is centered around Reims (Durocortorum in antiquity), one of the largest cities in Gaul and the capital of the Remi, one of the tribes allied with Caesar's troops.⁷⁰⁵ In the suburban ring around the city eight cultivated areas with orthogonally arranged planting pits have been recently discovered and excavated.⁷⁰⁶ These areas are identified as orchards, although the lack of archaeobotanical analyses does not make it possible to firmly rule out the cultivation of non-fruit trees. The sites are located at various distances from the city, with the rue Clovis site located just beyond the ancient oppidum walls and the farthest, "en Droit le Cloucher," 10.5 km from the ancient city center. The orchards occupy an area ranging from 1600m² to 6000m² (.16 to .6 hectares), suggesting that the properties vary from plots meant for private consumption to ones which were large enough to support a commercial venture.⁷⁰⁷ The grids of the planting pits are oriented at an angle to the cardinal points, allowing sunlight to reach each tree for greater productivity. The spacing of the pits varies from site to site, from 3.5m (about 12 Roman feet) to 4.60m (about 15 Roman feet), perhaps signifying the cultivation of different varieties of plants based on ancient

⁷⁰⁵ Robert Neiss François Berthelot, Jean-Marc Doyen, Philippe Rollet, "Reims/Durocortorum, cité des Rèmes: Les principales étapes de la formation urbaine," *Gallia* 72.1 (2015): 161–176.

⁷⁰⁶ Koehler, "Vergers antiques dans les campagnes péri-urbaines: le cas de Reims," 37-46 ; Nicolas Peyne and Sylvain Foisset, "L'exploitation rurale antique des Perches à Ormes (Marne): un exemple d'arboriculture dans la région de Reims," *Bulletin de la société archéologique Champenoise* 2 (2011), 69-82.

⁷⁰⁷ Nathalie Achard-Corompt, Alexandre Audebert, Marion Dessaint, Raphael Durost and Vincent Le Quellec, "Les modes d'occupation de sol chez le Rèmes," in *Gallia Rustica Volume I: Les campagnes du nord-est de la Gaule de la fin de l'âge du fer à l'antiquité tardive*, ed. Michel Reddé, (Pessac Ausonius, 2018): 521.

recommendations for distances between particular varieties.⁷⁰⁸ The relatively narrow distance between plantings suggests the cultivation of trees with smaller spanning canopies like apples or pears or perhaps the cultivation of saplings in a nursery.⁷⁰⁹ The plantations of “en Droit le Cloucher” and at rue Clovis feature a remarkable level of precision in the orthogonal arrangement, while at Les Petits Didris and La Pelle à Four the arrangement is more loose and less precise, indicative of varying degrees of professionalization in surveying, digging, and planting.⁷¹⁰ Of the eight sites, pollen samples are only available from rue Clovis, where hazelnut, alder, and grasses have been identified.⁷¹¹ The Reims sites predominately date to the first half of the first century CE, but three are especially early examples. La Pelle à Four, the earliest of the eight, is dated to between the last decades of the first century BCE to the first half of the first century CE. The site at rue Clovis, is dated to 10-40 CE, and the *terminus post quem* of the planting pits at Perches à Ormes is 15-35 CE.⁷¹²

The early dating of these orchards is remarkable and signals a very early development of local, Roman styled cultivation. Similar orthogonal planting pits have been found at other sites in France, such as those at the villa at Richebourg in Yvelines, but of those only a single pot is dated to the Claudian period (41-54 CE), the

⁷⁰⁸ Koehler, “Vergers antiques dans les campagnes péri-urbaines: le cas de Reims,” 38. The clay soils of Champagne are poor and would have required fertilizing in the planting pits, Sébastien Lepetz and Véronique Zech-Matterne, “Agro-pastoral systems during the late Iron Age and roman period in Northern Gaul,” in *Gallia Rustica Volume II: Les campagnes du nord-est de la Gaule de la fin de l’âge du fer à l’antiquité tardive*, edited by Michel Reddé, (Pessac Ausonius, 2018): 327-400.

⁷⁰⁹ Koehler, “Vergers antiques dans les campagnes péri-urbaines: le cas de Reims,” 38-39.

⁷¹⁰ *Ibid.*, 42.

⁷¹¹ *Ibid.*, 41-42.

⁷¹² Koehler, “Vergers antiques dans les campagnes péri-urbaines: le cas de Reims,” 37-46; Peyne and Foisset, “L’exploitation rurale antique des Perches à Ormes (Marne),” 69-82.

remainder of the garden and pits are undatable.⁷¹³ The early date of the installation of these orchards suggests that local Roman styled horticulture was an integral part of the region's initial development. Archaeobotanical remains, such as those gathered by Livarda, primarily speak to the movement, trade, and consumption of goods. But these orchards illustrate that the Roman development of Durocortorum included an early adoption of Roman styled cultivation practices.

The unusual density of orchards around a single urban center allows for a deeper analysis and exploration of regional trends across sites. Although the sites vary in their proximity to the ancient city, with some functioning within a quasi-urban context and others in more rural areas, their establishment is nearly contemporaneous within a relatively short time frame, from the end of the first century BCE to the middle of the first century CE. Equally interesting, there is evidence from multiple locations of contemporaneous abandonment of planting pits in the second century CE, suggesting a second regional change in practice.⁷¹⁴ Moreover, like at Jaunay-Clan, the placement of the properties along major roads would have facilitated access and movement of produce both into the city and out across Gaul. But in comparison to Jaunay-Clan, which was connected by only three major roads, Durocortorum was one of the best-connected cities in Gaul. In fact, the phrase “all roads lead to Rome” could be transplanted to Gaul, where all roads lead to Durocortorum (Fig. 41). Because as Cato articulates, the proximity of cultivation to roads and rivers is essential for a

⁷¹³ Barat and Morize, “Les pots d’horticulture dans le monde antique et les jardins de la villa Gallo-Romaine de Richebourg (Yvelines),” 229-230; For a more in-depth analysis of rural activity in the vicinity of Reims in the Roman period see Achard-Corompt, et al, “Les modes d’occupation de sol chez le Rèmes,” 495-553.

⁷¹⁴ Payne and Foisset, “L’exploitation rurale antique des Perches à Ormes (Marne),” 78.

successful and profitable property, Durocortorum appears to have been ideally situated. It is generally assumed that the ring of land around an urban center is especially well suited to cultivation which results in produce which either do not travel great distances well, and/or for those which are not profitable after the cost of transportation.⁷¹⁵ But the large number of major routes which transected Durocortorum suggests that this would have been an ideal location for the production of goods for the city itself as well as for export.

Most importantly, these spaces speak to the presence of gardeners. The diachronic case studies illustrate that head gardeners were generally imported from far off places, and that relatively few individuals might take on the responsibility of designing and managing the labor of constructing multiple properties belonging to different patrons within a region. But, as these are not formal gardens but productive orchards, it is possible that such gardens could have been designed and surveyed by a surveyor, without out the need of a head gardener. The range in the precision of the alignment of pits points to multiple individuals with varying levels of surveying experience. Whether the individuals were locals or traveled from other parts of the empire, the orchards illustrate one clear fact: the designer-surveyor(s) were trained in Roman agricultural practices. The orchards show a familiarity with Roman planting pit shape, they are uniformly rectangular as in other parts of the empire. They also illustrate a knowledgeability about Roman guidelines for plant spacing and orientation to maximize productivity. Post installation, the orchards are also evidence of a local population of *arboratores* and other untitled gardeners skilled in orchard related

⁷¹⁵ Payne and Foisset, "L'exploitation rurale antique des Perches à Ormes (Marne)," 81; Koehler, "Vergers antiques dans les campagnes péri-urbaines: le cas de Reims," 38.

cultivation such as grafting. The remarkable density of the estates has led excavators to wonder whether Durocortorum may have been a center of specialized arboriculture, suggesting both a large gardener class and a regional specialization in practice.⁷¹⁶ Moreover, these kinds of orchards are the result of hybridized arboriculture, with gardeners employing Roman grafting and orchard cultivation methodology on local, wild fruit trees. It is currently thought that local Celtic populations did not cultivate fruit orchards prior to Roman presence, although some management of wild varieties likely occurred.⁷¹⁷ This is supported by evidence of cherry, which was native as a wild tree and is rarely found in prehistoric contexts, but becomes common and domesticated in the Roman era.⁷¹⁸ These very orchards may have been places of innovation and matrimony between local wild trees and imported Roman scions.⁷¹⁹ The importation of great numbers of scion to create new orchards and vineyards is already well attested before the Roman period in the Ptolemaic era in the third century BCE. The correspondence of Apollonius and Xenon, mentioned in chapter three, describe the importation of young pear trees (200 specimens), 300 pine trees, 470 olive suckers, 500 pomegranate shoots, 10,000 vine shots, 1,500 vine suckers, and another order for “12,400 vine shots, transported in bundles of 50 vines (a donkey could carry 8 bundles, a mule 10-16 bundles).”⁷²⁰ If Pre-Industrial examples also inform our reconstruction of the origin of the manual laborers, the *arboratores*, they were likely local. The varying sizes of the orchards, from smaller private ones to

⁷¹⁶ Payne and Foisset, “L’exploitation rurale antique des Perches à Ormes (Marne),” 81; Koehler, “Vergers antiques dans les campagnes péri-urbaines: le cas de Reims,” 44.

⁷¹⁷ Livarda, “Introduction and Dispersal of Exotic Food Plants,” 103-104.

⁷¹⁸ *Ibid.*, 103-104.

⁷¹⁹ Lowe, “The Symbolic Value of Grafting in Ancient Rome,” 461-488.

⁷²⁰ Kenawi, Macaulay-Lewis, and McKenzie, “A commercial nursery near Abu Hummus (Egypt),” 195-197, footnotes 6-22.

larger ones, also provide evidence of local gardeners participating in both private and commercial horticulture.

Conclusion

Chapter three concluded with the argument that plants name and employ their gardeners; a concept which was used in this chapter to locate gardeners by plant varieties and by the types of gardens they managed. This method has resulted in identifying the suburban ring around urban area, like Rome, to be one of the densest and most diverse populations of cultivators. To map the locations of gardens is inherently a process of mapping individuals who created and maintained these spaces. The approach has also illustrated how individual plants maybe be mined towards a similar goal. Because as Cicero observes, plants need their human parents, *vina* require *vinitores*, *arbores* need *arborators*, and *holitorii* want *olitores*, plants evidence cannot be disentangled from their human cultivators. As a result, if we look past the depersonalized archaeobotanical results, past the pits, pollen, pips, and seeds we find the otherwise invisible bodies responsible for their cultivation. The spread of grape vines across the provinces are the result of *vinitores* and *putatores*. Even if these Italic titles were not used as commonly outside of Italy or if regional ones existed in their place, preserved grape pips and vineyards are evidence of individuals who performed the necessary tasks to assist vines reach their ideal form and bear fruit. Likewise, the great wealth of archaeobotanical remains of vegetables, herbs, and condiments along with excavated productive gardens, like the one at Longueil-Sainte-Marie, attest to the presence of *olitores* specializing in the cultivation of vegetables and herbs.

Additionally, the entanglement or dialogue between domesticated plant-children their foster-mother and gardener is most clearly preserved in cases where horticultural interventions are preserved, like the dwarfed plane tree in frescoes or the clipping of box found at villas.

The Gallic study here illustrates that our search for gardeners does not need to be limited to the archaeologically rich areas of the Bay of Naples and Rome. Certainly, all questions have not been answered in the areas preserved by Vesuvius. Scholarship on ancient gardens in the Bay area continues to evolve as new techniques and newly developed garden specific methodology is utilized. Reexaminations of historical documents from the Bay and Rome will also continue to present new answers. But the analysis of the evidence in Gaul demonstrates that equally rich areas of garden evidence are found in other parts of the empire. For example, few urban centers in the empire offer the density of excavated orchards as Reims, facilitating investigation into regional specialized arboriculture. The provinces also offer insight into hybridized landscape trends, as exemplified by the Gallo-Roman *fana* shape of the plant sanctuary at Jaunay-Clan.

The mapping and layering of Gallic evidence also underscores the significance of Cato's recommendation of property placement.⁷²¹ The base map utilized for layering data was intentionally chosen because of its representation of rivers and mountain ranges in favor of more legible maps with less visual and geographical static. The density of horticultural data along water ways and at intersections of roads suggests that it may be possible to map the most likely locations of diverse

⁷²¹ Cato, *Agr.* 1.3.

populations of gardeners. Areas where both water ways and multiple roads converge would have possessed access to a network of exchange that would have facilitated the importation and exportation of plants and produce. Thus, at ideal transportation crossroads we would expect to find *olitores*, *vinitores*, *putatores*, *arboratores*, and other unnamed gardeners cultivating produce for themselves, as well as for local, regional, and empire-wide consumption. Moreover, areas of especially strong interconnectedness would have had the transportation potential to support large and more successful commercial cultivation, which in turn would create the kind of revenue which could support the employment of *topiarii* to oversee ornamental and non-productive cultivation. Although it is beyond the scope of this project, it would likely be fruitful to add additional layers to the map composed of main roads across the region as well as smaller local roads.

CONCLUSION

GARDENERS FOUND AND NEW AREAS OF INQUIRY

Illuminated Gardeners

This project began with the observation that gardeners have been doubly invisible and that agency theory has served to obscure enslaved individuals in favor of the archaeological evidence of elites. Thus, in villa scholarship, “even when the service and production areas are excavated, and the tools of production like wine and oil presses are reconstructed, these places tend to become work sites without workers or, as in the case of presses, discussion is taken up with how the mechanism functioned without the bondspeople who operated them.”⁷²² But by building on the foundations constructed by earlier generations of garden archaeologists, archaeobotanists, and scholars of Roman enslavement, this project has illustrated numerous ways of unearthing gardeners and reconstructing their knowledge, specializations, and relationships with plants. The corpus of inscriptions recording gardeners and passages, like Pliny the Younger’s description of his gardener writing his own name in box, deconstructs the idea that gardeners were invisible in antiquity. These individuals, like Salvius Philotianus and Antigonus Paternus, *topiarii* who gave their own money for a floor in the *ossuarium*, participated in memory construction by immortalizing their names through deeds. The countless funerary inscriptions that record the names and professional titles of gardeners illustrate that gardeners

⁷²² Joshel and Hackworth Petersen, *The Material Life of Roman Slaves*, 165.

participated in visual culture beyond the spaces of their labor. They have also been made visible in the layered maps of Gaul in Chapter Five.

The project was focused on gardeners and their plants. However, in the course of examining diverse types of evidence, it became clear that the role of a gardener was not limited merely to the care of plants. Rather, it was a position that was charged with surveying the garden and was also in turn surveyed. The comparative analyses conducted in chapter four illustrated that gardeners, like Peftumont, were also charged with maintaining the security of the garden, protecting oneself and the garden from wild animals and intruders, akin to the contractual obligations outlined in early modern contracts. But the agreement between Peftumont and his prospective employer, Talames, also demonstrated that gardeners were themselves surveilled. In Villa A at Oplontis, Joshel and Hackworth Petersen map possible areas of surveillance where villa owners and guests might view servants and enslaved laborers, and where their presence was hidden and free.⁷²³ But the Demotic contract takes the notion of surveillance to another level. Handing over one's own stool multiple times a day so that the garden owner may search for evidence of their produce is a much more intimate form of surveillance and is indicative of a more complex relationship between garden owner and garden laborer. As explained in chapter three, this arrangement suggests that Talames did not expect Peftumont to consume foods similar to what she cultivated as part of his daily diet. But the addition of this clause to the agreement also

⁷²³ Joshel and Hackworth Petersen, *The Material Life of Roman Slaves*.

suggest that gardeners did in fact augment their diets by pilfering produce from their owners' or employers' gardens and fields.

But perhaps even more significantly, there have been multiple advances on the subject of gardener life beyond their profession and labor. Peftumont's contract makes it possible to reconstruct aspects of a hired gardener's diet. The analysis in chapter three of epitaphs and epigraphic evidence provides a rich view into the social world of gardeners and expressions of their visibility and agency. The inscriptions record professional gardener titles, but of the corpus, twelve (eight belonging to *topiarii*, two to *olitores*, and two to *vinitores*) illustrate familial bonds through inscriptions that either identify the gardener as tomb commissioner for himself and his family or as family members constructing tombs for gardeners.⁷²⁴ In these inscriptions we find gardeners self-fashioning an identity and being remembered by family members in ways beyond their profession. They are husbands, fathers, and brothers. Gardeners have also been found participating in other types of social networks. A third of the recorded *topiarii* inscriptions come from domestic or professional *collegia*.⁷²⁵ The gardeners' participation in these institutions facilitated greater social networking by assisting in contract negotiations and connecting with potential clients. Within these organizations we also find more evidence of the visibility of gardeners since membership in *collegia* is associated with both civic and social activities, like attending funerals, banquets, and holding administrative positions.

⁷²⁴ *Topiarii*: CIL V 5316; CILVI 4361; CIL VI 7300; CILVI 9082; CIL VI 9943; CILVI 33745; CIL X 696; CIL X 1744; *olitores*: CIL VI 9458; CIL VI 9459; *vinitores*: CIL XII 4003 and the unpublished steel number 39 in Table 1.

⁷²⁵ According to Landgren's analysis, 10 of the 29 inscriptions are from *collegia*, Landgren, *Lauro, myrto et buxo frequentata*, 189, Table 13.

The act of mapping has also greatly contributed to our understanding of ancient gardeners. Literary descriptions and archaeological excavations support the notion that the area just outside an ancient city was an ideal location for market gardens, orchards, commercial flower gardens, and other types of cultivation—a phenomenon that was observed around the city of Rome and around Durocortorum in Gaul. These areas were not as densely built up, and thus afforded cultivation more readily than the more densely constructed cities and towns themselves. And their proximity to the city, and thus to markets and potential buyers, made them economically lucrative. As a result, the ring of land around cities would have possessed the greatest density and variety of different types of gardeners, ranging from ones tasked with managing ornamental gardens in suburban villas, to those managing orchards or nurseries.

The map of epigraphic evidence also illustrates regional differences in commemoration. By far the greatest presence of gardeners (41 individuals) is found in and around the city of Rome, with few individuals recorded in other parts of the Italian peninsula and in Gaul. The regional difference in the number of gardener inscriptions between the city of Rome and the other areas must, to a degree, simply reflect the vagaries and chance of preservation. But it also hints at regional differences in how gardeners participated within the social and visual world. For example, despite the unparalleled preservation of the Vesuvian region, remarkably few Campanian examples survive. The region was renowned already in antiquity for its many growing seasons and rich soil. The countless excavated urban, suburban, and rural villas in the region speak to a great number of horticultural and agricultural cultivators in the

region. But although they were present in great numbers, Campanian gardeners are not as visible in the epigraphic record as their Roman counterparts. Similarly, as Jashemski's excavations in Tunisia illustrated, North African houses and villas also possessed gardens, and thus gardeners, yet no surviving North African inscriptions name gardeners. The closest we come to finding them is through garden related cognomina. Equally interesting, the only location outside of Italy where one finds gardeners in the epigraphic record, and more significantly commemorated in funerary inscriptions, is in Gaul and no other province. This project focused exclusively on Latin inscriptions, but to better understand gardener visibility across the empire, the field would benefit from an analysis of inscriptions in Greek.

Interrogating evidence of gardeners alongside plants has also contributed to our understanding of Roman perceptions of nature and the relationship between plants and humans. There is a large segment of scholarship on Roman gardens and garden representations that argues for an oppositional relationship between Romans and the natural world—that nature and the wilderness are places of danger, transgression, and possible violence.⁷²⁶ As Katharine von Stackelburgh explains, “The garden could be experienced as a positive statement of man’s power *over nature*, or represent a *subversion of natural order*. Its liminality made it a space of tolerance and transgression.”⁷²⁷ This is clearly true in certain contexts and has been utilized to interpret violent mythological paintings and hunting scenes commonly found surrounding gardens. But this aggressive and oppositional stance really only speaks to

⁷²⁶ Hales, *The Roman House and Social Identity*, 153-162; Katharine T. von Stackelberg, “Performative Space and Garden Transgressions in Tacitus’ Death of Messalina,” *American Journal of Philology* 130.4 (2009) 595–624.

⁷²⁷ von Stackelberg, *The Roman Garden*, 141, italics added by author.

a relationship between the garden owner or visitor and the garden.⁷²⁸ It does not necessarily also apply to the person who cultivated the space. The literary passages investigated in chapter two demonstrated that in the ancient world, and especially in the Roman period, humans and plants (particularly native varieties) possessed familial bonds, with trees birthing humans, children transforming into plants, and shared anatomies.⁷²⁹ None of these qualities reflect a sense of power over nature or of subverting it. Of all the texts, Cicero's *De Finibus* articulates this concept most clearly, by describing cultivation as a familial activity, with plants as children raised by the art of horticulture who acts as a foster-mother, and by the gardener-father.⁷³⁰ Cicero himself explains that if the vine could speak, it would say that gardeners helped it achieve the goals set by nature herself. In many respects, the concept expressed by Cicero evokes the early modern idea of *terza natura*, or "third nature," a term coined in the sixteenth century by Jacopo Bonfiadio and Bartolomeo Taegio, used to describe works created by means of human *ars* working in conjunction with nature's affordances.⁷³¹ Foundational to Roman cultivation and early modern "third nature" alike is the idea that the gardener does not conquer or dominate nature. Instead, the act of gardening is cooperative and productive. In addition to literary sources, this was also made clear throughout the project by the plants themselves. The investigation of the affordances of ivy and box demonstrated that the natural growing habits of these

⁷²⁸ Although this is certainly not the only way an owner or garden visitor might frame a garden, many other associations and relations were also possible.

⁷²⁹ It is only in the cases of exotic, imported varieties that one finds a sense of resistance or opposition to cultivation, with foreign plants described as willful slaves.

⁷³⁰ Cic. *Fin.* V.40.

⁷³¹ Claudia Lazzaro, *The Italian Renaissance Garden*, 8-19; Thomas E. Beck, "Gardens as a 'third nature': the ancient roots of a renaissance idea," *Studies in the History of Gardens & Designed Landscapes* 22.4 (2002): 327-334.

plants likely facilitated and inspired horticultural treatments. Similarly, the planting of flood-adapted riverine trees like plane and poplar in the flood plains of the Tiber exemplified gardeners weaving together the affordances of place and plants alike. Cultural and historical associations were certainly at play, but equally significant were the tree's natural abilities and suitability to challenging environments. Likewise, the natural features of a place, its wind and sunlight exposure, or the *genius loci*, feature regularly in Pliny the Younger's letters as contributing actors in villa construction and orientation.⁷³² Designing in conjunction with local ecological, climatological, and geographical strengths and challenges was an inherently Roman undertaking. But this is especially clear in the decisions gardeners made about species selection and their placement.

The interviews I conducted with designers and gardeners paired with comparative studies also revealed an exciting new avenue for reconstructing aspects of gardener practice. Of course the number of gardeners⁷³³ is based on a garden kept in its ideal state, and as the account at Montpelier illustrates, the financial stability of a villa owner might fluctuate, leading to periods of neglect when gardeners need to be let go or employed in other more economically beneficial tasks.⁷³⁴ But if we employ this ratio of gardeners per hectare as a flexible figure, it becomes possible to identify a much larger population of gardeners across the empire. The comparative evidence suggesting that head gardeners or designers were generally not local also underscores

⁷³² Genius Loci: An International Symposium on the Oplontis Project, held at Montana State University, September 30, 2016.

⁷³³ According to the Villa d'Este gardeners, a formal garden kept in a climate like that of Italy, would have required about three gardeners per every hectare.

⁷³⁴ John Dixon Hunt, *The Afterlife of Gardens*, (Philadelphia, PA: University of Pennsylvania Press, 2004).

the theme of movement and migration in gardens. That Roman gardens of the first centuries BCE and CE were products of imperial expansion and the importation of new plant varieties is a well-established concept. But in thinking about horticultural trade networks, we also need to consider the migration of gardeners and the knowledge they carried.

What's Next?

In the course of this project, a number of new avenues of inquiry have been revealed. The investigation of a few select species, namely, box, ivy, plane, poplar, and cypress, has illustrated that species-specific affordances and plant needs are a rich new field. Considering plant needs facilitates the reconstruction of the process of gardening, from watering to fertilizing, to pruning and transplanting, thereby illuminating the craftsmen and laborers who performed these necessary tasks. But the affordances of plants are also a powerful tool for studying ancient climatological and environmental conditions and serve as a reminder that densely constructed places, like cities, nevertheless, possessed place specific qualities that impacted cultivation. A systemic overview of plant needs of all the species thus far discovered across the empire would greatly expand our understanding of ancient cultivation and the resources it required. It would also contribute to discussions on ancient environment and climatological conditions.

Throughout this project it has also become clear that there is great potential in further comparative work. There is still much to be done regarding gardeners and the Roman army, especially in the Provinces. In terms of further mining of comparative

cases where ancient evidence is lacking, the eighteenth-century French model of landscape design may be an especially productive source. Unlike eighteenth-century English landscape training, which was founded on apprenticeships on large country estates, “the education of French landscape designers was often through the military-engineering tradition.”⁷³⁵ Although we cannot assume that ancient division of labor and training would be directly paralleled in a modern context, an investigation of the French system would likely be insightful for framing possible relationships between gardeners and the army, overlapping duties and skills between surveyors and gardeners, and other related positions.

The interviews conducted with landscape designers, gardeners, nursery owners, and practitioners of bonsai and dwarfing were invaluable for this project, especially for reconstructing the *topiarius*. While the discussion included duties assigned to other gardeners, like *arboratores*, *putatores*, and *vinitores*, an even greater degree of embodied knowledge may be recovered by focusing more closely on modern productive practices and interviewing practitioners outside of Italy. Wilhemina Jashemski’s interviews with her gardening workmen illustrate that this is a productive methodology, but this approach is by no means exhausted. For example, the practice of cultivating grape vines on trees, a tradition Roman authors liken to marriage, was practiced widely across the Mediterranean into the twentieth century and much of this knowledge is still recoverable today. Some vineyards, like Guado al Melo in Tuscany, even have museums with large collections of documents, tools, and

⁷³⁵ Brown, *Montpelier Cultural Landscape Study*, 123; Antoine Picon, *French architects and engineers in the Age of Enlightenment*, trans. Martin Thom (Cambridge: Cambridge University Press, 1992), 217-239.

photographs recording different kinds of grape-tree cultivation.⁷³⁶ This is especially significant because it illustrates that the ancient practice of marrying vines to trees may not have been practiced in the same way in all regions. Examining how these different pruned tree forms respond to local ecological conditions and challenges may allow us to reconstruct where particular forms may have been especially advantageous in antiquity. It is noteworthy that of the interviews I conducted, the local ecology impacted the answers I received. Thus, more northerly practitioners who work in climates more similar to those of central and northern Gaul or Germania, described slower growth and plants requiring greater gardener care than southern Italian gardeners. There were also different concerns regarding water and plant thirst between northern and southern gardeners. Conversations with non-Italian gardeners, such as ones working in historic French elite gardens, orchards, and vineyards, would contribute new data on cultivation vis-à-vis the *genius loci*.

The layered maps of Gaul created in Chapter Five also offer further potential areas of exploration. Gardening tools, like pruning knives, were not included for the sake of map legibility. Layering even more data on the same scale would have resulted in great overlap of data points and reduced clarity. But building up additional layers consisting of different types of gardening tools (especially ones that bridge both agricultural and horticultural practice) creates a fuller and more populated landscape. This may be accomplished if the scale of the map is reduced and the area is

⁷³⁶ Guado al Melo, *Wine and the Etruscans*, <http://www.guadoalmelo.it/en/wine-and-the-etruscan-ii-the-married-vine-three-thousand-and-more-years-of-viticulture-and-art/>, accessed August 10, 2020. Their collection features twentieth century photographs of vastly different methods of tree pruning just within Italy. There are examples of 20m tall poplars from Averso in the Bay of Naples which carried grapes and required tall ladders, maples trained into low espalier like structures in Chianti where the trees are grown to mimic the shape of a constructed trellis, and many other shapes trees were shaped into.

subdivided, so that regions are examined individually. There are also many parts of the map, like Britain or the Rhine area, that are rich in data but are not investigated here.

As Chapter Three illustrated, there are no recorded representations of gardeners in the regional and chronological scope of this study. Only two stele, belonging to Fortunatus and Amaranthus, feature visual decoration and thus provide evidence of gardeners participating in visual culture. The absence of scenes of gardeners at work or any depictions of gardeners themselves is more keenly felt when we expand the chronological scope into the second and third centuries CE, where depictions of gardeners in mosaics and stele proliferate across the empire. This development in the visual record is suggestive of an ontological and cultural change. Not only do gardeners become desired objects of viewing in elite domestic settings (such as in the mosaics they populated) but, equally important, gardeners themselves begin to depict their own bodies and tools as part of a new commemorative funerary tradition. These cultural changes deserve investigation and mapping, akin to that conducted for the first centuries BCE and CE of Gaul in Chapter Five.

Implications Beyond the Roman World

The first centuries BCE and CE are a unique period in garden history. Within this short span of time the Roman botanical world was transformed. Biodiversity blossomed due to the importation of non-native species and the creation of new varieties of plants. These great changes are marked by the development of multiple different kinds of gardener titles, indicative of specializations and division of labor as the horticultural world expanded. The botanical innovation of this period is an

especially important and timely topic considering the state of modern-day biodiversity. Botanist and agriculturalists have “estimated that 97% of vegetable varieties, 87% of pear varieties and 86% of apple varieties have become extinct since the beginning of the twentieth century.”⁷³⁷ But despite the great chronological distance between the ancient world and our own, proponents of a new field of study, sustainable archaeology, have argued that the investigation of ancient resource management and agricultural and horticultural techniques may serve as guides for constructing solutions for present day crises. As Chelsea Fisher argues, “if transformed into meaningful action, these contributions have the potential to advance modern agricultural sustainability and environmental justice initiatives.”⁷³⁸

As Chapters One and Two illustrated, thinking about plant agency simultaneously forces us to deconstruct our own preconceptions about plant passivity and invites us to question what the relationship between plants and humans looked like in antiquity. Relatedly, in Chapter Five other non-human co-actors or co-designers were identified. The locations of gardeners and gardens in Gaul were linked to natural transport ways, such as rivers and coastal bays. The movement of gardeners and establishment of gardens was also clearly hindered by mountain ranges. The role of non-human agents in landscape and urban design in antiquity and other historical periods offers another invaluable new avenue of inquiry. As suggested in Chapter Five, the affordance of movement in a landscape may be used to identify areas especially well-suited to cultivation because of the intersection between commerce,

⁷³⁷ Krishna Dronamraju, *Emerging consequences of biotechnology: biodiversity loss and IPR issues*, (Hackensack, NJ: World Scientific, 2008), 174.

⁷³⁸ Chelsea Fisher, “Archaeology for Sustainable Agriculture,” *Journal of Archaeological Research* 28 (2020): 393.

movement, and production. But thinking about ancient non-human actors like plants, landscape, and the environment is equally productive and beneficial for modern-day design. The growing frequency of destructive natural events around the globe has spurred the creation of “resilient design,” a term defined by the American Society of Landscape Architects as, “Working with nature -- instead of in opposition to it -- helps communities become more resilient and come back stronger after disruptive natural events. Long-term resilience is about continuously bouncing back and regenerating. It's about learning how to cope with the ever-changing ‘new normal.’”⁷³⁹ Because the field of archaeology is rooted in studying long spanning cultural and environmental changes, it is a discipline that is especially well poised to build on and contribute to this new approach.⁷⁴⁰ As Charles L. Redman argues, the “use of ‘resilience theory’ as a conceptual framework will assist archaeologists in interpreting the past in ways that are interesting and potentially relevant to contemporary issues.”⁷⁴¹ Most pertinent to this project and the study of non-human agents is the recent call by many designers to not merely build *with* nature, but to directly *learn from it*.⁷⁴² In practice, this means that to design, for example, drainage areas in parks that may withstand flooding, landscape designers must learn from natural features of bodies of water and wetlands

⁷³⁹ American Society of Landscape Architecture, Resilient Design, <https://www.asla.org/resilientdesign.aspx>, accessed August 15, 2020.

⁷⁴⁰ Malek, “Gardens for Archaeologists,” 15.

⁷⁴¹ Charles L. Redman, “Resilience Theory in Archaeology,” *American Anthropologist* 107.1 (2005): 70-77. For an example of resilience archaeology scholarship see Katherine M. Jarriel, “Climate disaster and the resilience of local maritime networks: two examples from the Aegean Bronze Age,” *Quaternary International*, forthcoming.

⁷⁴² This concept was articulated at the annual Dumbarton Oaks Garden and Landscape Studies/Mellon Initiative in Urban Landscape Studies symposium, “How Designers Think,” Washington D. C., November 3, 2017. For especially demonstrative examples of this practice see the projects designed by Sasaki (<https://www.sasaki.com/projects/?page=2>) and Local Office Landscape & Urban Design (<http://www.localofficelandscape.com/>).

and mimic forms created by nature. This shift suggests that the landscape and ecological systems are themselves sources of embodied knowledge.

Robin Kimmerer, an environmental biologist and a citizen of the Potawatomi Nation, articulates the far-reaching repercussions of denying plant agency in scholarship and in our conceptualization of the world. Describing a day in her General Ecology course, she writes:

“One otherwise unremarkable morning I gave the students in my General Ecology class a survey. Among other things, they were asked to rate their understanding of the negative interactions between humans and the environment. Nearly every one of the two hundred students said confidently that humans and nature are a bad mix. These were third-year students who had selected a career in environmental protection, so the response was, in a way, not very surprising. They were well schooled in the mechanics of climate change, toxins in the land and water, and the crisis of habitat loss. Later in the survey, they were asked to rate their knowledge of positive interaction between people and land. The median response was ‘none.’

“I was stunned. How is it possible that in twenty years of education they cannot think of any beneficial relationships between people and the environment? Perhaps the negative examples they see every day – brownfield, factory farms, suburban sprawl – truncated their ability to see some good between humans and the earth. As the land becomes impoverished, so too does the scope of their vision. When we talked about this after class, I realized that they could not even imagine what beneficial relations between their species and others might look like. How can we begin to move toward ecological and cultural sustainability if we cannot even imagine what the path feels like? If we can’t imagine the generosity of the geese? These students were not raised on the story of Skywoman.

“On one side of the world were people whose relationship with the living world was shaped by Skywoman, who created a garden for the well-being of all. On the other side was another woman with a garden and a tree. But for tasting its fruit, she was banished from the garden and the gates clanged shut behind her. That mother of men was made to wander in the wilderness and earn her bread by the sweat of the brow, not by filling her mouth with the sweet juicy fruits that bend the branches low. In order to eat she was instructed to subdue the wilderness into which she was sent.”⁷⁴³

Kimmerer’s *Braiding Sweetgrass* is an unusual publication in that it weaves together western scientific perceptions about ecology with native knowledge. It articulates even broader ranging consequences and lessons of listening to non-human agents. This

⁷⁴³ Robin Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*, (Minneapolis: Milkweed Editions, 2013), 6-7.

methodology also creates a bridge for incorporating non-western ways of knowing the natural world and its relationship with people, thereby including new voices. There is also a striking resonance between the stories she tells and some of the Roman myths on the origin of plants and people as interdependent on another. Writing about western views on the spectrum of life, Kimmerer states that:

“In the Western tradition there is a recognized hierarchy of beings, with, of course, the human being on top – the pinnacle of evolution, the darling of Creation – and the plants at the bottom. But in Native ways of knowing, human people are often referred to as the ‘the younger brothers of Creation.’ We say that humans have the least experience with how to live and thus most to learn – we must look to our teachers among the other species for guidance. Their wisdom is apparent in the way that they live. They teach us by example. They’ve been on the earth far longer than we have been, and have had time to figure things out. They live both above and below ground, joining Skyworld to the earth. Plants know how to make food and medicine from light and water, and they can give it away.”⁷⁴⁴

The idea that plants were created first and that there is a kinship between humans and plants is shared in Roman mythology. As investigated in Chapter Two, Roman authors of the first centuries BCE and CE repeatedly articulate a tradition in which trees birthed the first men and familial relationship between plants and humans.⁷⁴⁵ The exploration of the affordances and adaptability of plane trees in Chapter Five also illustrates that Roman gardeners listened to plant ecological needs and strengthens and used those qualities as foundational horticultural principles. In this way, dwarfed plane trees are a result of learning from and listening to plane growing habits and affordances. As a result, the overlapping concepts of sustainability, resilience, and non-human agents offer a new method of interrogating the past, present possible

⁷⁴⁴ Kimmerer, *Braiding Sweetgrass*, 9-10.

⁷⁴⁵ Verg. *Aen.* VIII. 313-323; Stat. *Theb.* IV.275-284; Juv. 2.VI.1-10.

solutions for present day problems, and invite non-western ways of knowing the world to enter academic discourse.

APPENDIX

FIGURES

Chapter 1

Fig. 1. Laurel and myrtle, plants that were at once ornamental and escribes by some as weeds, feature prominently in the Garden painting from Livia's Villa at Prima Porta. (Source: Kaja Tally-Schumacher and Nils Paul Niemeier, "Through the Picture Plane: Movement and Transformation in the Garden Room at the Villa ad Gallinas at Prima Porta," *Chronica* 6 (2016): 59, figure 1.)



Fig. 2. A garden panel from the House of the Golden Bracelet (oecus 32) Pompeii, features two weed-ornament plants, the dwarfed plane tree and laurel, prominently. (Source: Wikimedia Commons, accessed June 10, 2020).



Chapter 3

Fig. 3. A detail of a large agricultural and seasonal mosaic depicting *vinitores* in a third century CE mosaic from St-Romain-en-Gal, France (top), and a detail of a cycle of field work illustrating *vinitores* in an early third century CE mosaic from Cherchell in Algeria (bottom). (Source: Wikimedia Commons, accessed August 5, 2020).

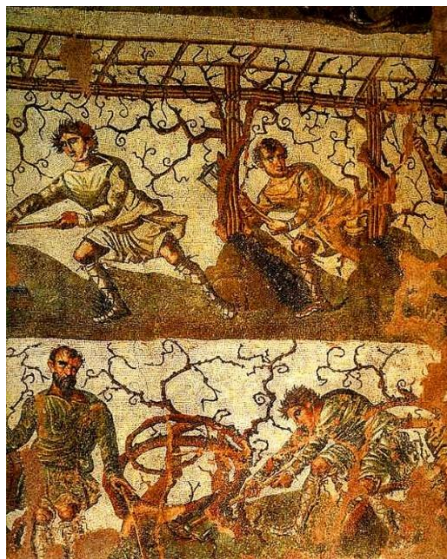


Fig. 4. Painting (inv. 112286) from the Casa del Centenario (IX.8.6) featuring vineyards on the slopes of Vesuvius. (Source: Wikimedia Commons, accessed February 8, 2020).



Fig. 5. Map depicting locations and number of individual gardeners attested by epigraphic evidence, layered onto Wikimedia Common map. (Underlying map source: Wikimedia Commons, accessed August 10, 2020; mapping by author).

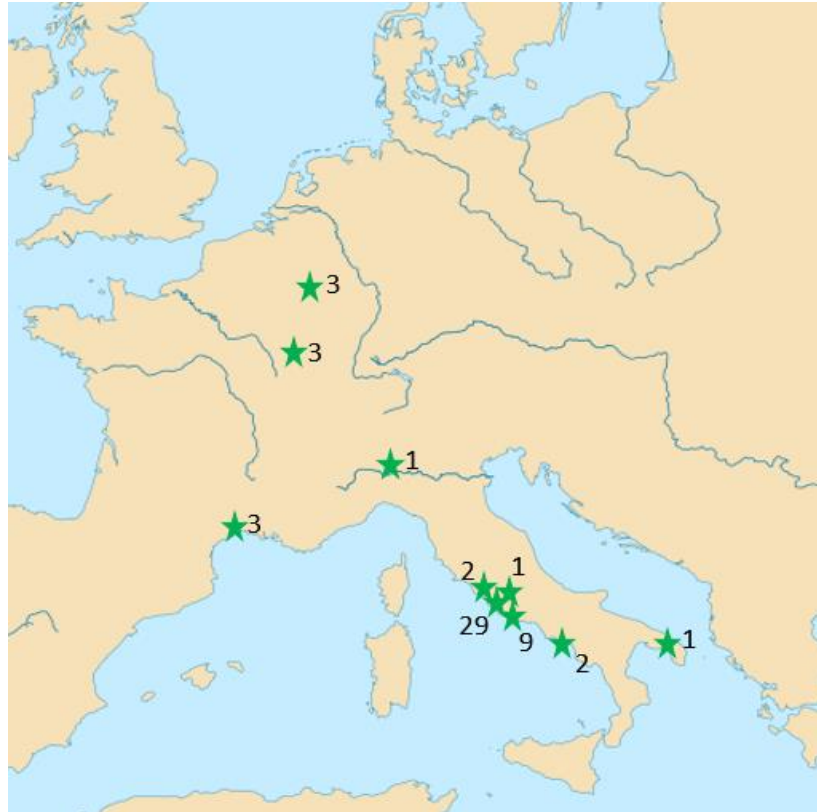


Fig. 6 Graph of inscriptions featuring *topiarii* from imperial, elite, and other contexts.

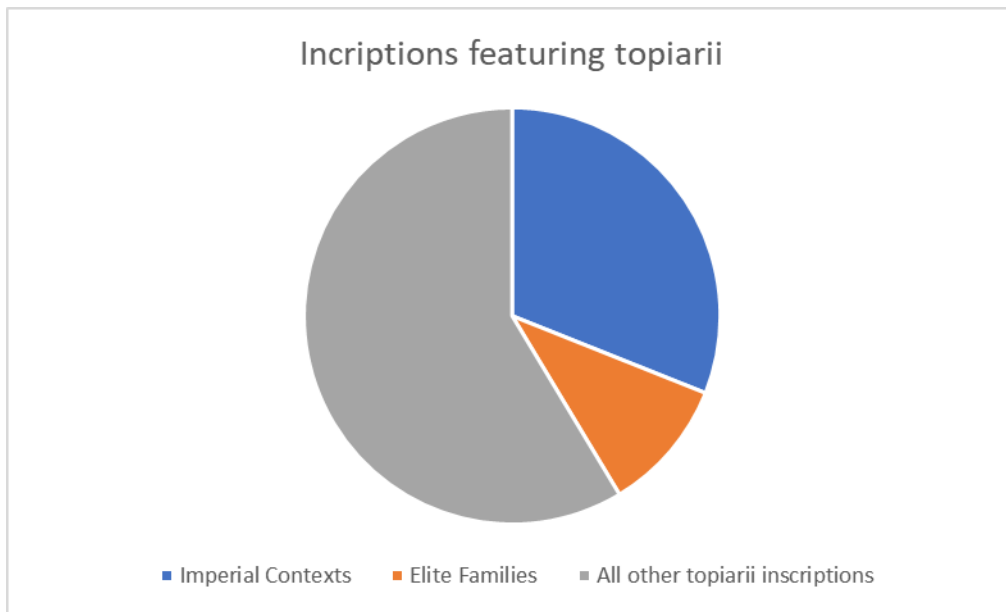


Fig. 7. Graph of individual *topiarii* and their apprentices in Imperial, elite, public, and other contexts.

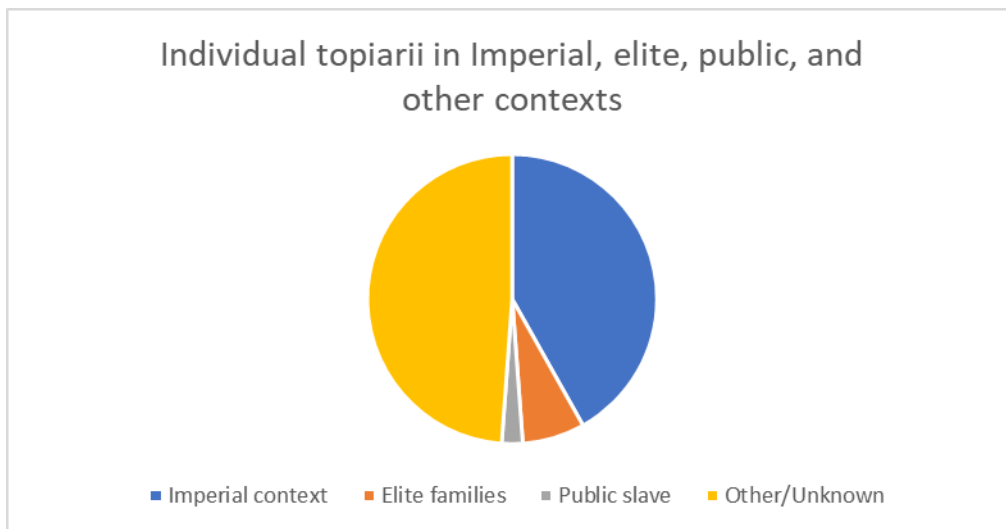


Fig. 8. Graph of legal status of *topiarii* on inscriptions. The term *incertus* is applied only for individuals with *duo* or *tria nomina* but with unclear legal status. The category of Unclear/Fragmentary refers to individuals on fragmentary inscriptions (where for example only part of a name or simply a letter survives) and individuals with single names but from contexts where it is not possible to definitively identify them as slaves.

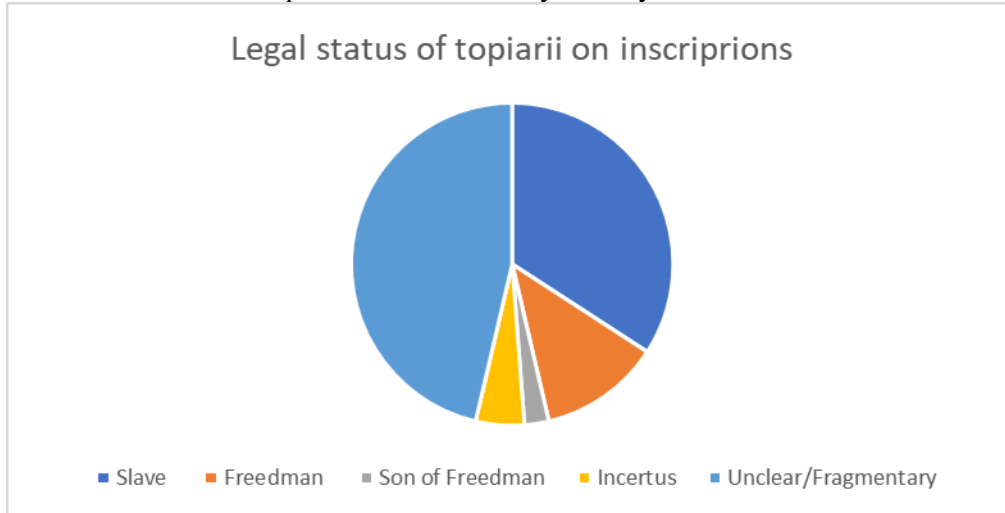


Fig. 9. Graph of tomb commemoration by family members for *topiarii*, and by *topiarii* for their family members.

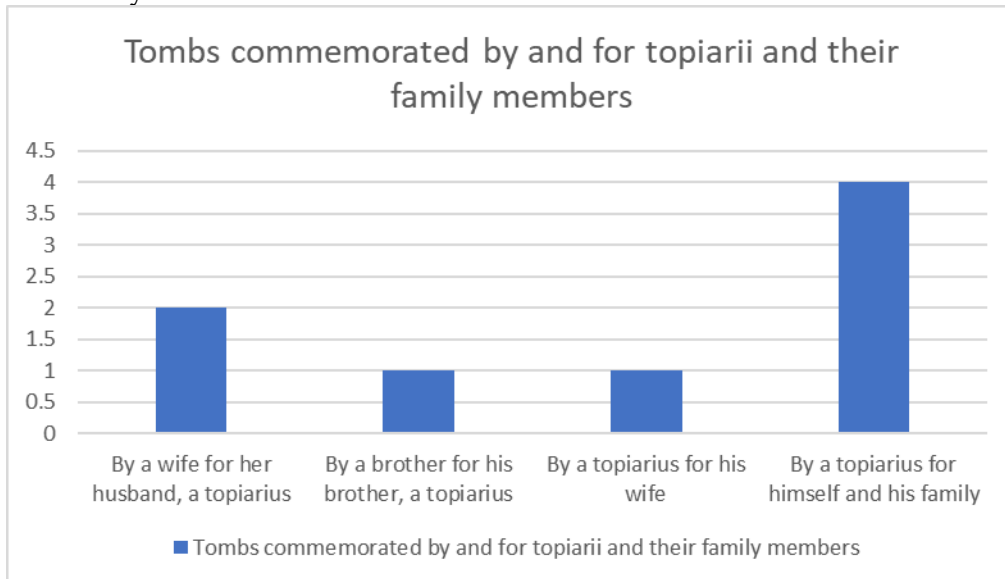


Fig. 10. Evidence of *putatores* and *vinitores* having pruned vines, the Room of the Garlands also called the right-hand room, House of Livia, Palatine, Rome, 1st century CE, and detail. (Source: Wikimedia Commons, accessed February 28, 2020).



Fig. 11. Pruned individual grape leaves attached to bucrania, and young grapevine branches, Ara Pacis Augustae, Rome, 4-9 BCE. (Source: Wikimedia Commons, accessed February 15, 2020).

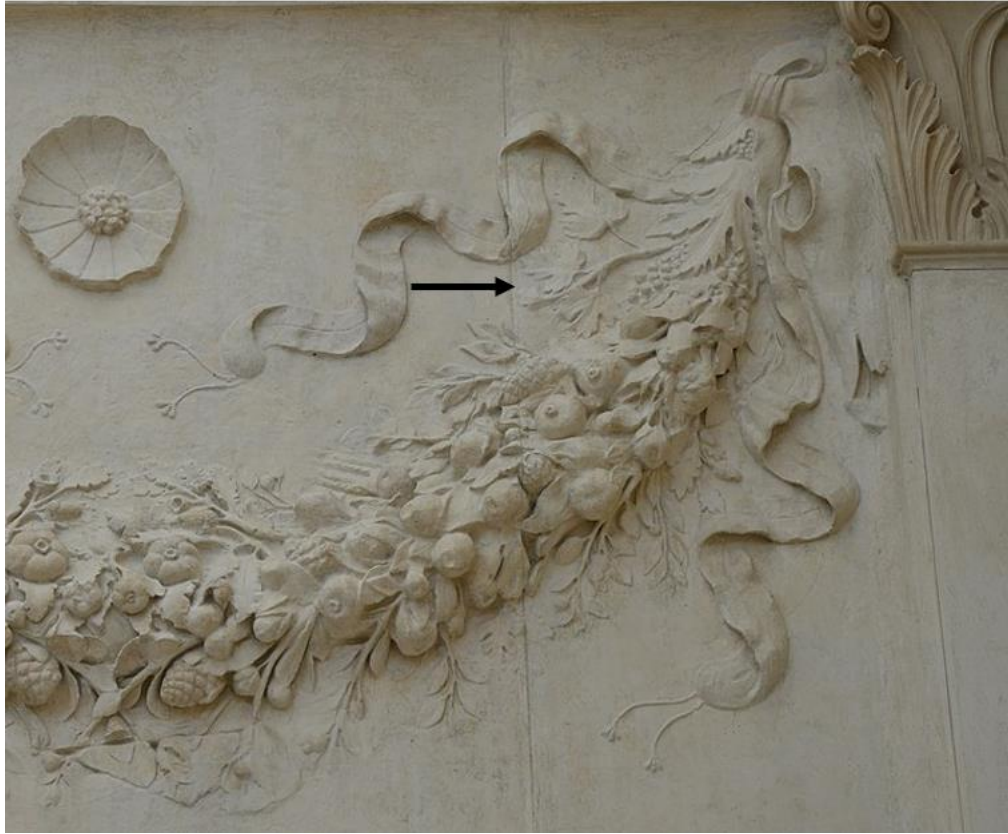
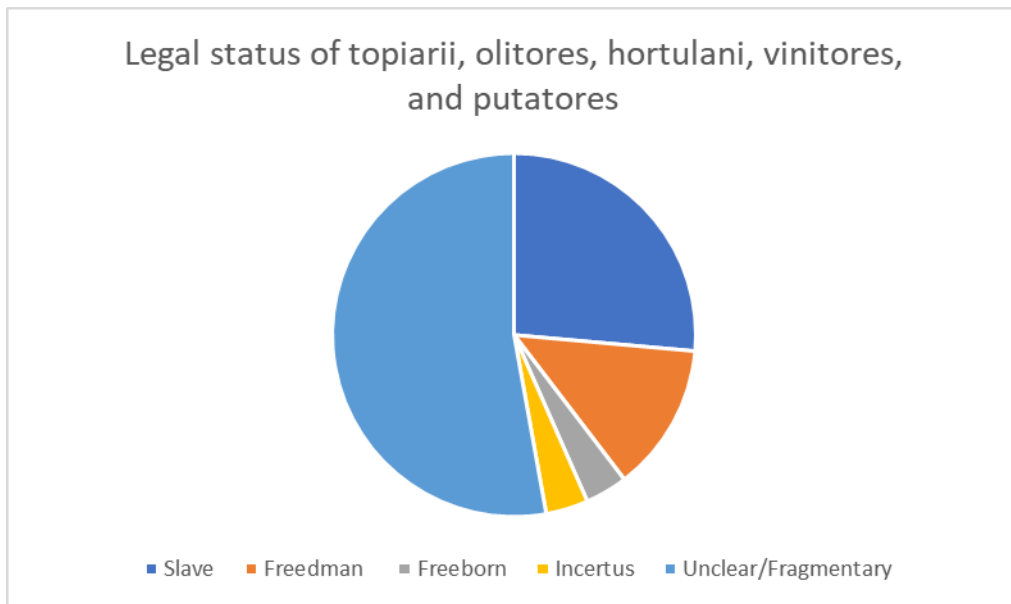


Fig. 12. Graph of the legal status of *topiarii*, *olitores*, *hortulani*, *vinitores*, and *putatores*.



Chapter 4

Fig. 13. A comparison of a modern prunus specimens from the North garden 56 at Oplontis (left) and a vase-pruned pomegrante in the Garden Painting from Livia's Villa at Prima Porta (right). (Source: photographed by author (left); Wikimedia Commons, accessed June 15, 2020 (right)).



Fig. 14. A comparison of an unpruned pomegrate plant in the North Garden 56 at Oplontis (left) and a vase-pruned pomegrante in the Garden Painting from Livia's Villa at Prima Porta (right). (Source: photographed by author (left); Wikimedia Commons, accessed June 15, 2020 (right)).



Fig. 15 A comparison of sickly roses in the North Garden 56 at Oplontis (top) and a rose in the garden painting at the Villa of Livia at Prima Porta (bottom). (Source: Photographed by author (top); Wikimedia Commons, accessed June 15, 2020 (bottom)).



Fig. 16. Reconstructed planting of laurels in above ground planters in the Large Peristyle garden at Livia's Villa at Prima Porta. (Source: photographed by author.)



Fig. 17. A comparison between the ideal, sought-after gardens (such as depicted in the garden painting from the Livia's Villa at Prime Porta, top) and the state of the unattended, unpruned, unwatered, and uncared for gardens at Oplontis today (bottom), illustrating the reliance on elite gardens on their gardeners. (Source: Wikimedia Commons, accessed June 15, 2020 (top); photographed by author (bottom)).



Fig. 19. Centenarian box shrubs at the Villa d'Este. (Source: Photographed by author.)



Fig. 20. Twenty-year old box on the Vialone Terrace, Villa d'Este. (Source: photographed by author.)



Fig. 21. View of centurian cypresses along the central, main path at the Villa d'Este (left) and some of the oldest cypresses at the Villa d'Este (right). (Source: photographed by author).



Fig. 22. Jacob Philip Hackert, Die Villa d'Este bei Tivoli, 1792, and detail. (Source: Commons Wikimedia, accessed March 15, 2020).



Fig. 23. Jean-Honoré Fragonard, Cypress Avenue at the Villa d'Este in Tivoli, 1774, Brush in and brown ink, wash, over black-chalk preparatory drawing. (Sources: Commons Wikimedia, accessed March 4, 2020).



Fig. 24. Carl Blechen, Park of the Villa d'Este, 1830. (Source: Commons Wikimedia, accessed March 15, 2020).



Fig. 25. Young cypresses, in the garden painting from Livia's Villa at Prima Porta, are depicted with characteristics of young plantings: they are narrow, columnar, and finish in a sharp point at the top. (Source: Wikimedia Commons, accessed June 15, 2020).



Fig. 26. A sacro-idyllic landscape painting featuring an aged tree with a receding canopy and tree burrs, Boscotrecase, MANN 147502. (Source: Wikimedia Commons, Accessed March 20, 2020).



Fig. 27. Garden Room from the Livia's Villa at Prima Porta, West and North walls. (Source: Wikimedia Commons, accessed June 10, 2020).



Fig. 28. Print of the north wall from the Prima Porta garden room by Sikkard, published in *Antike Denkmäler* (1891) shortly after the discovery of the painting. (Source: Kaja Tally-Schumacher and Nils Paul Niemeier, “Through the Picture Plane: Movement and Transformation in the Garden Room at the Villa ad Gallinas at Prima Porta,” *Chronica* 6 (2016): 59, figure 1).



Fig. 29. James Madison's round temple located northeast of the main house, designed after the Temple of Vesta in Rome, served as a place for meditation and as an icehouse. (Source: Wikimedia Commons, accessed August 6, 2020).



Chapter 5

Fig. 30. Fruit trees pruned into a “vase” shape are placed close to the foreground so that their form may be better appreciated. (Source: Wikimedia Commons, accessed June 15, 2020).



Fig. 31. Geographical distribution of Roman (100 BCE to 500 CE) archaeobotanical remains of sixty-six plants classified by Alexandra Livarda as exotic Roman plants. (Source: Data points from Alexandra Livarda, Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods, (PhD Diss., University of Leicester, 2008), 194, figure 4.2a); applied onto map of the region utilized by Yvan Barat and Dominique Morize, “les pots l’horticulture dans le monde antique et les jardins de la *villa* gallo-romaine de Richebourg (Yvelines),” SFECAG, Actes du Congrès de Fribourg (1999): 229, figure 14; image created by Tomasz Kalinowski).

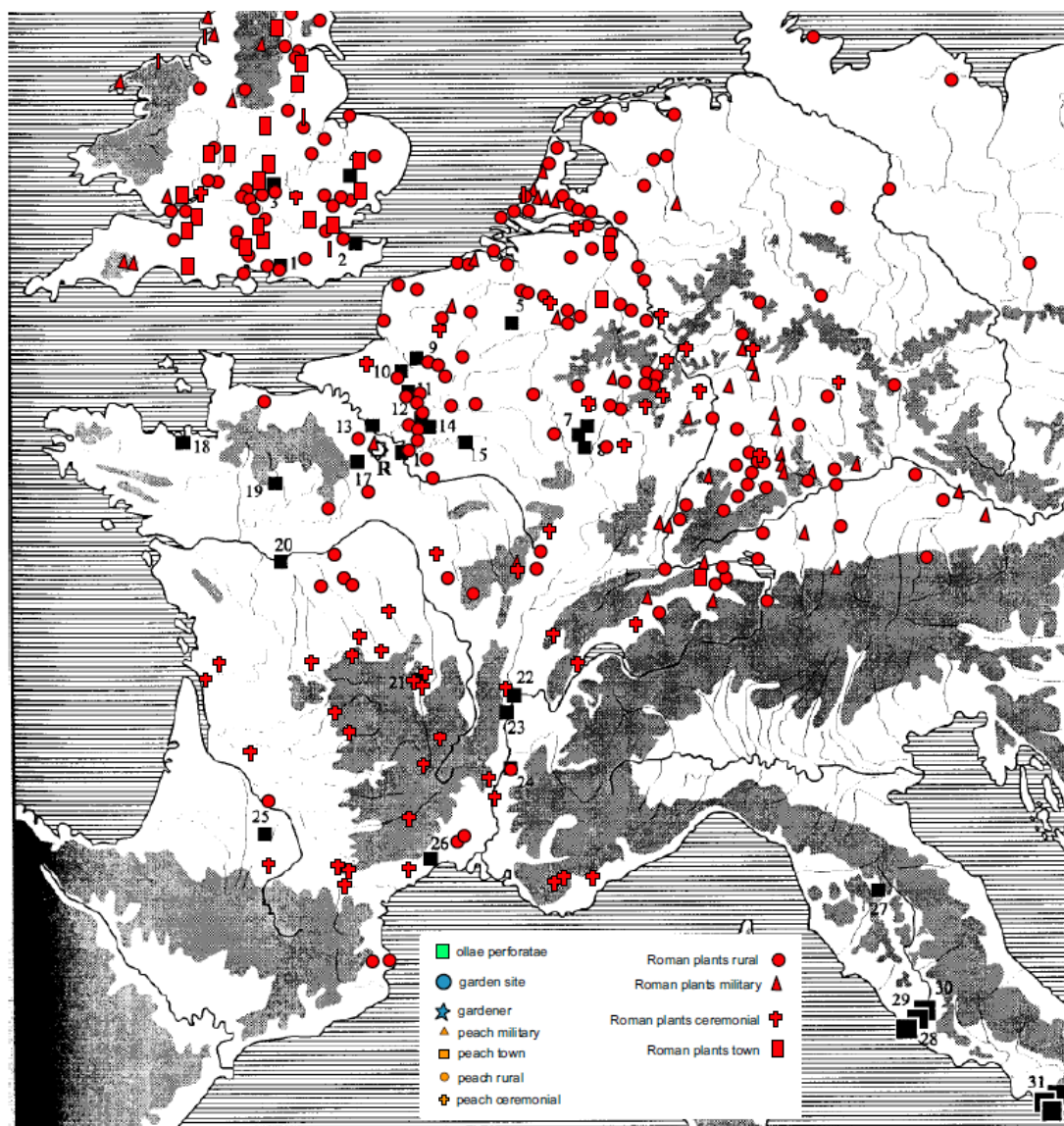


Fig. 32. Display of *ollae* found at Livia's Villa at Prima Porta with branch pulled through the pot for propagation by air layering. (Source: Antiquarium at Livia's Villa ad Gallinas at Prima Porta, photographed by author).



Fig. 33. Geographical distribution of waterlogged peach pits (orange symbols) and *ollae perforatae* (light green squares). (Source: Data compiled from Alexandra Livarda, “Spicing up life in northwestern Europe: exotic food plant imports in the Roman and medieval world,” *Vegetation History and Archaeobotany* 20 (2011): 148, figure 4 overlaid onto Yvan Barat and Dominique Morize, “les pots l’horticulture dans le monde antique et les jardins de la villa gallo-romaine de Richebourg (Yvelines),” SFECAG, Actes du Congrès de Fribourg (1999): 229, figure 14, image by Tomasz Kalinowski).

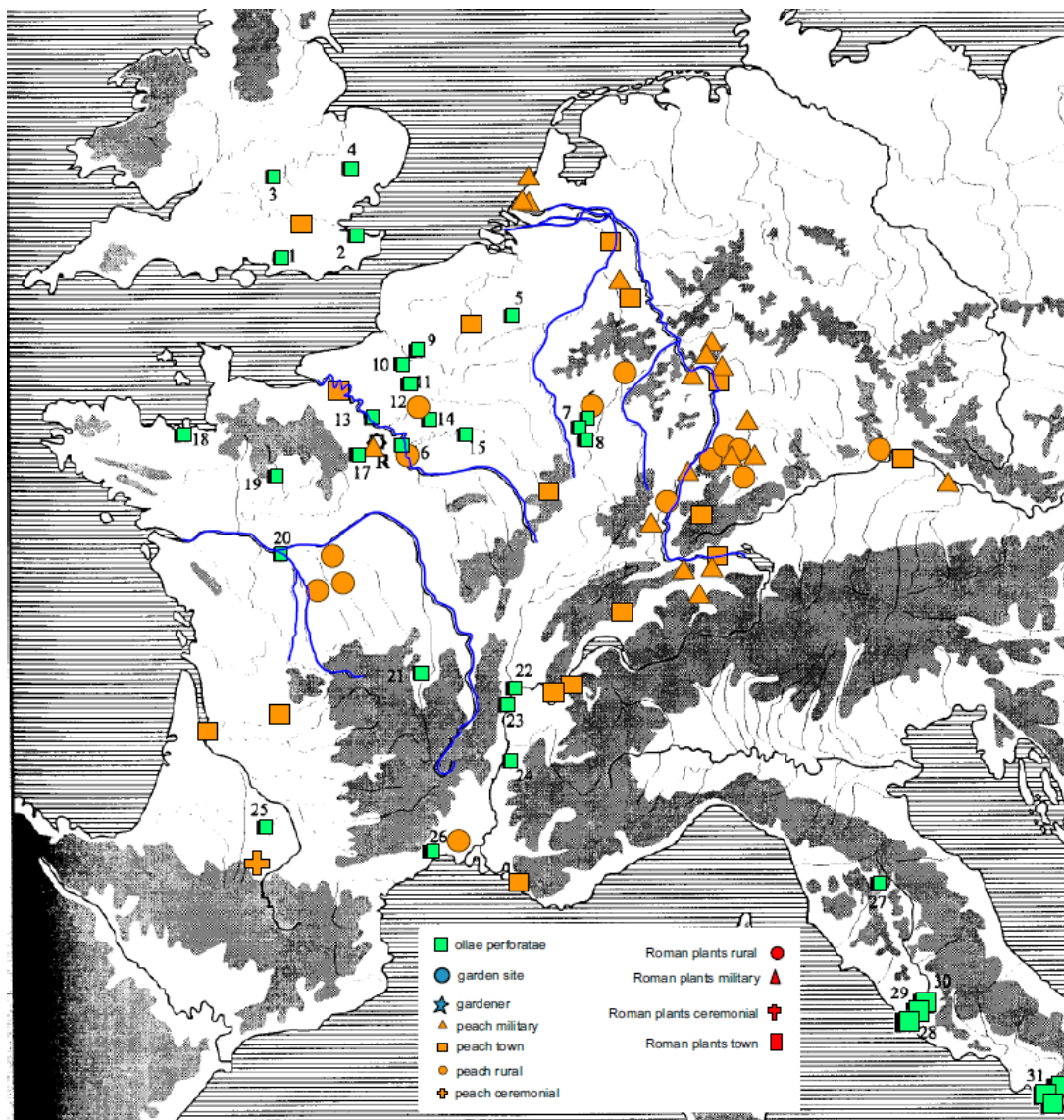


Fig. 34. Geographical distribution of all Roman archaeobotanical remains (sixty-six species) in red symbols, and *ollae perforatae* in light green squares. (Source: Data compiled from Alexandra Livarda, "Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods," (PhD Diss., University of Leicester, 2008), 194, figure 4.2a, overlaid onto Yvan Barat and Dominique Morize, "les pots l'horticulture dans le monde antique et les jardins de la villa gallo-romaine de Richebourg (Yvelines)," SFECAG, Actes du Congrès de Fribourg (1999): 229, figure 14, image created by Tomasz Kalinowski).

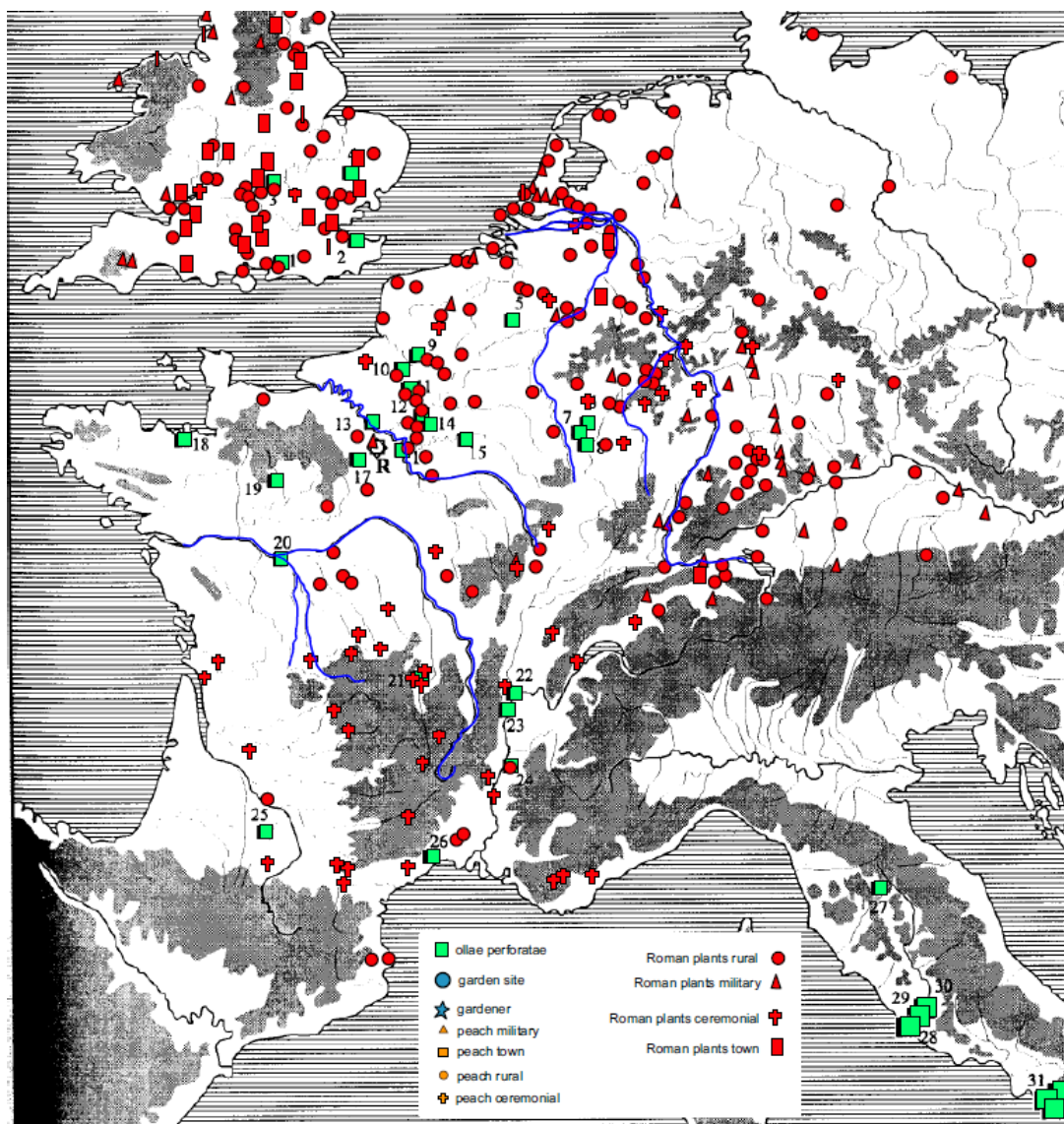


Fig. 35. Geographical distribution of inscriptions documenting different types of gardeners in yellow stars (CIL XIII 5708 of *topiarii* in Langres; CIL XIII 4332 of three *holitores* in Metz; CIL XIII 0113 in Arles of a *hortulanus*; CIL XII 4003 of a *vinitor/arborator* and another unpublished stele of a *vinitor/arborator*; ILGN 0540 in Calvisson illustrating a *vinitor* based cognomen) layered with data on peach and *ollae perforatae* distribution. (Source: Data compiled from Alexandra Livarda, “Spicing up life in northwestern Europe: exotic food plant imports in the Roman and medieval world,” *Vegetation History and Archaeobotany* 20 (2011): 148, figure 4, overlaid onto Yvan Barat and Dominique Morize, “les pots l’horticulture dans le monde antique et les jardins de la *villa* gallo-romaine de Richebourg (Yvelines),” SFEACAG, Actes du Congrès de Fribourg (1999): 229, figure 14, with additions by author, image by Tomasz Kalinowski).

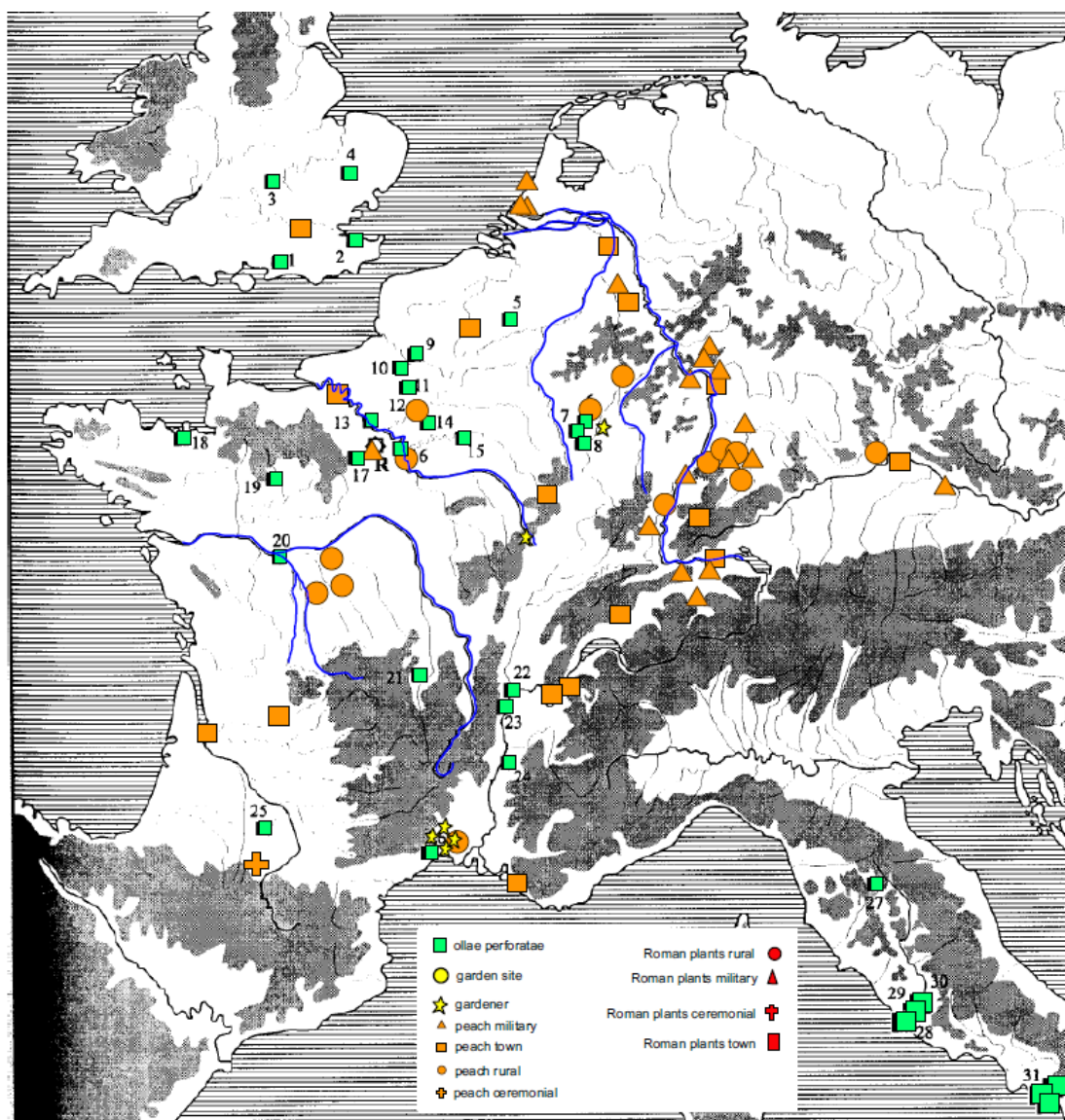


Fig. 36. Geographical distribution of inscriptions documenting different types of gardeners in yellow stars (CIL XIII 5708 of *topiarii* in Langres; CIL XIII 4332 of three *holitores* in Metz; CIL XIII 0113 in Arles of a *hortulanus*; CIL XII 4003 of a *vinitor/arborator* and another unpublished stele of a *vinitor/arborator*; ILGN 0540 in Calvisson illustrating a *vinitor* based cognomen) layered with data on sixty-six exotic Roman plants and *ollae perforatae* distribution. (Source: Data compiled Alexandra Livarda, "Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods," (PhD Diss., University of Leicester, 2008), 194, figure 4.2a, overlaid onto Yvan Barat and Dominique Morize, "les pots l'horticulture dans le monde antique et les jardins de la *villa* gallo-romaine de Richebourg (Yvelines)," SFEACAG, Actes du Congrès de Fribourg (1999): 229, figure 14, with additions by author, image by Tomasz Kalinowski).

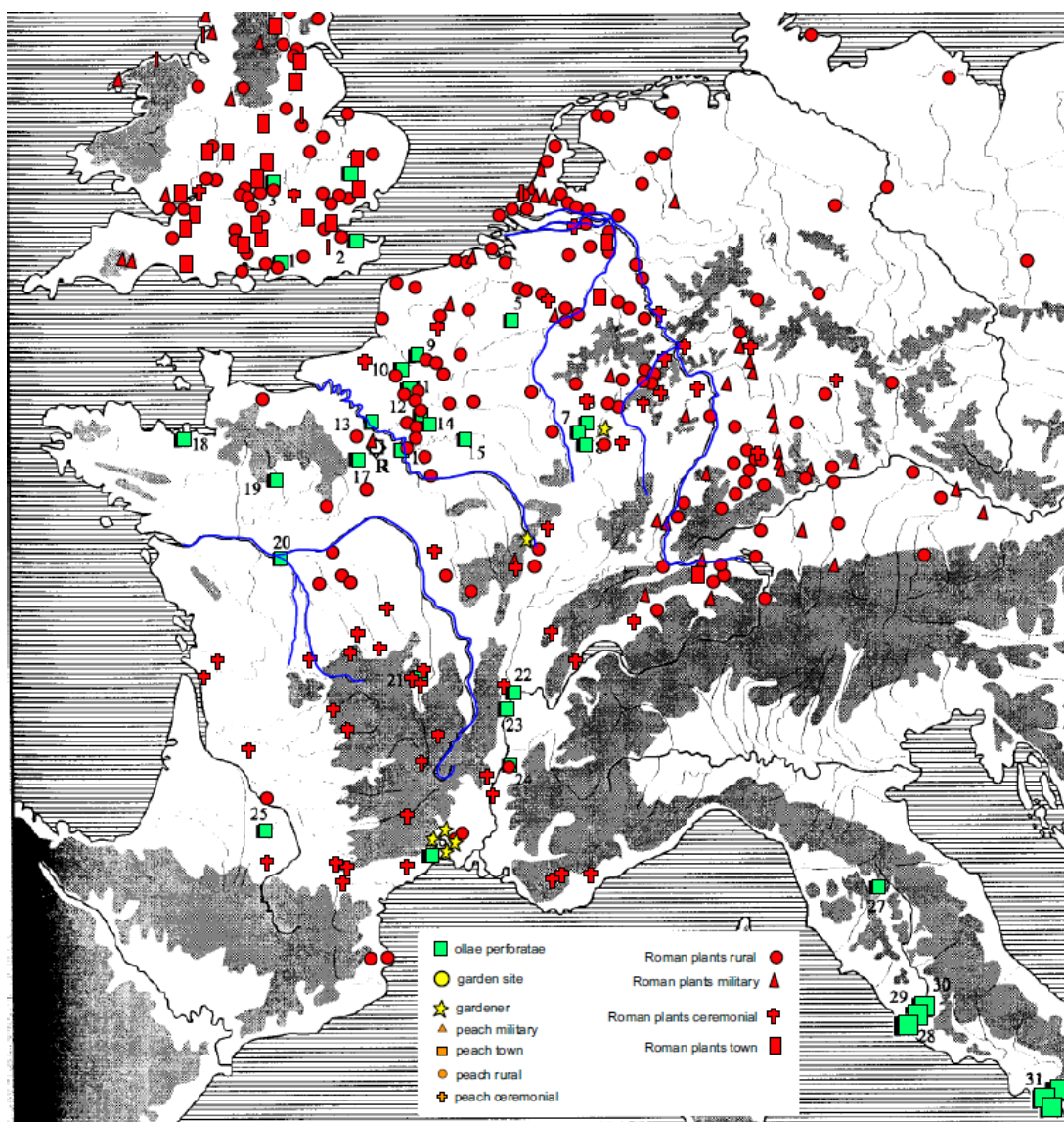


Fig 37. The sites of Jaunay-Clan near Poitiers, Reims, and La Saulsotte, about 100 km southeast of Paris, marked in yellow circles, layered with *ollae perforatae* (green squares), Roman era peach distribution (orange symbols), and epigraphic evidence of gardeners (yellow stars). (Source: Data compiled from Alexandra Livarda, "Spicing up life in northwestern Europe: exotic food plant imports in the Roman and medieval world," *Vegetation History and Archaeobotany* 20 (2011): 148, figure 4, overlaid onto Yvan Barat and Dominique Morize, "les pots l'horticulture dans le monde antique et les jardins de la villa gallo-romaine de Richebourg (Yvelines)," SFECAG, Actes du Congrès de Fribourg (1999): 229, figure 14, with additions by author, image by Tomasz Kalinowski).

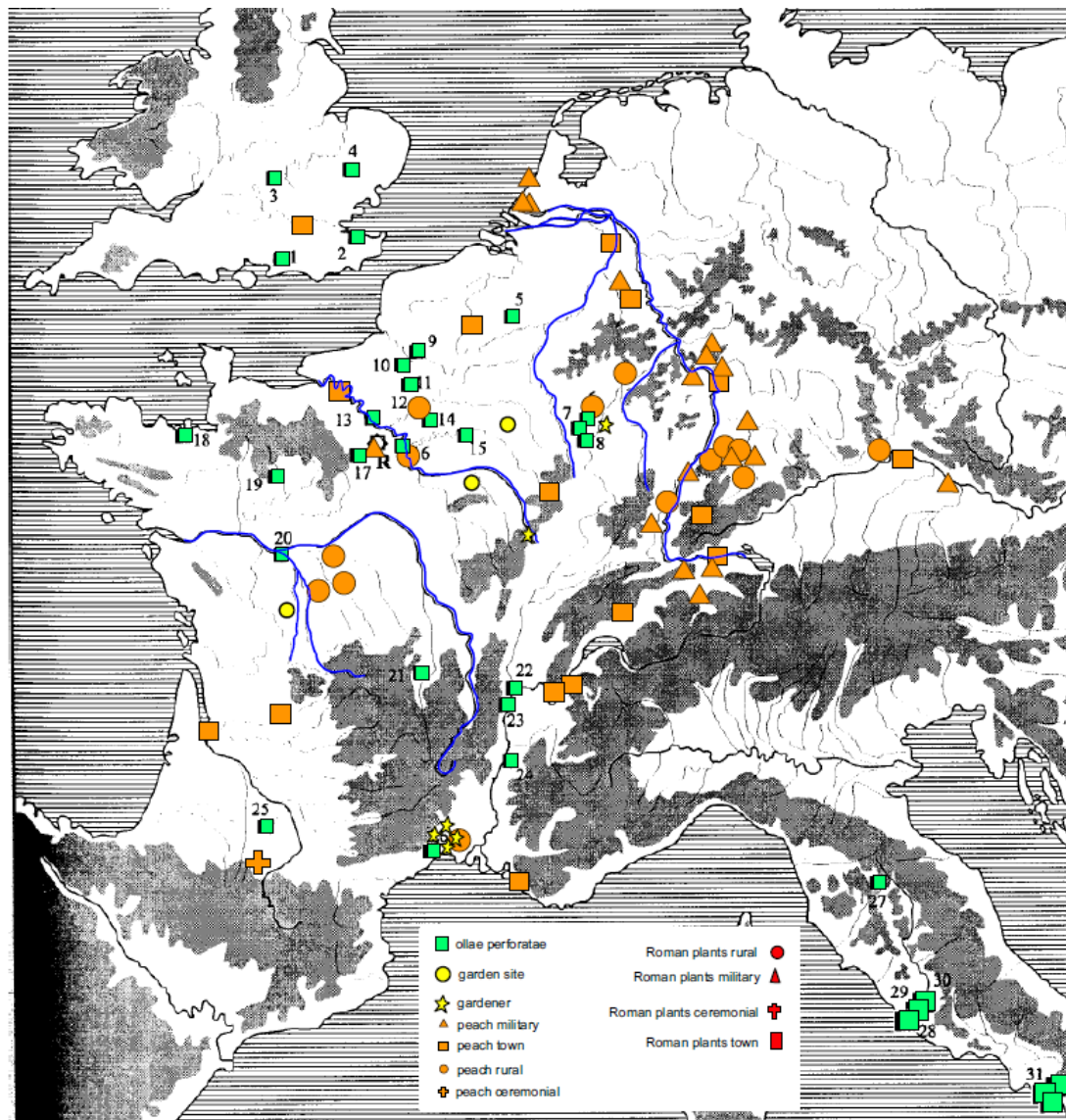


Fig 38. The sites of Jaunay-Clan near Poitiers, Reims, and La Saulsotte, about 100 km southeast of Paris, marked in yellow circles, layered with *ollae perforatae* (green squares), sixty-six exotic Roman plants (red symbols), and epigraphic evidence of gardeners (yellow stars). (Source: Data compiled Alexandra Livarda, "Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods," (PhD Diss., University of Leicester, 2008), 194, figure 4.2a, overlaid onto Yvan Barat and Dominique Morize, "les pots l'horticulture dans le monde antique et les jardins de la villa gallo-romaine de Richebourg (Yvelines)," SFEACAG, Actes du Congrès de Fribourg (1999): 229, figure 14, with additions by author, image by Tomasz Kalinowski).

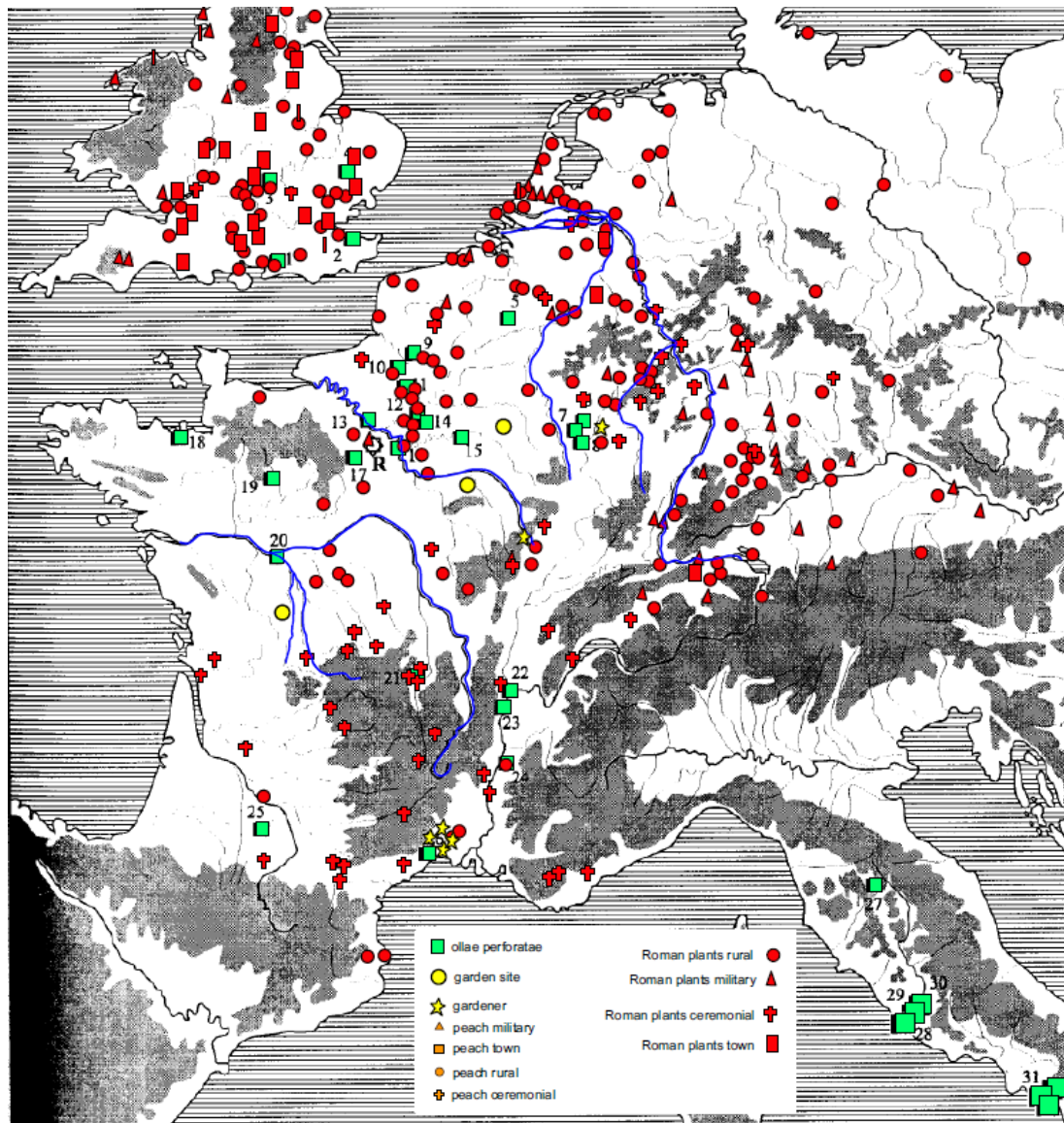


Fig. 39. Plan of the Porticus of Octavia, featuring twin temples within an enclosed porticus, late 20s BCE. (Source: Wikimedia Commons, accessed June 5, 2020).

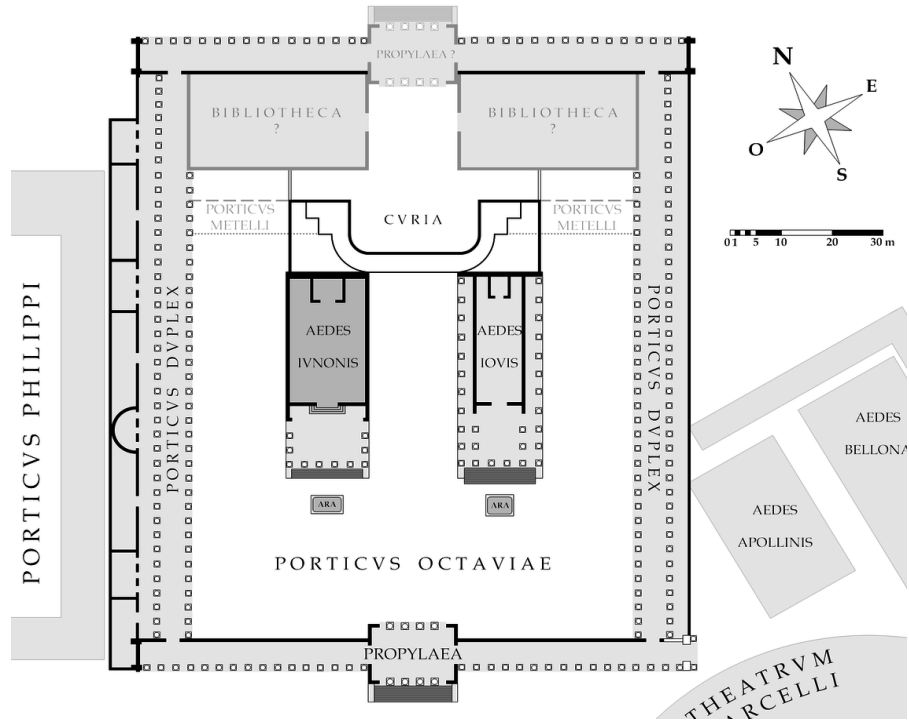


Fig. 40. Plan of the Fishbourne Palace gardens, with alternating rectangular and concave niches (top), and view of the reconstructed box plantings (bottom). (Source: Wikimedia Commons, accessed June 20, 2020).

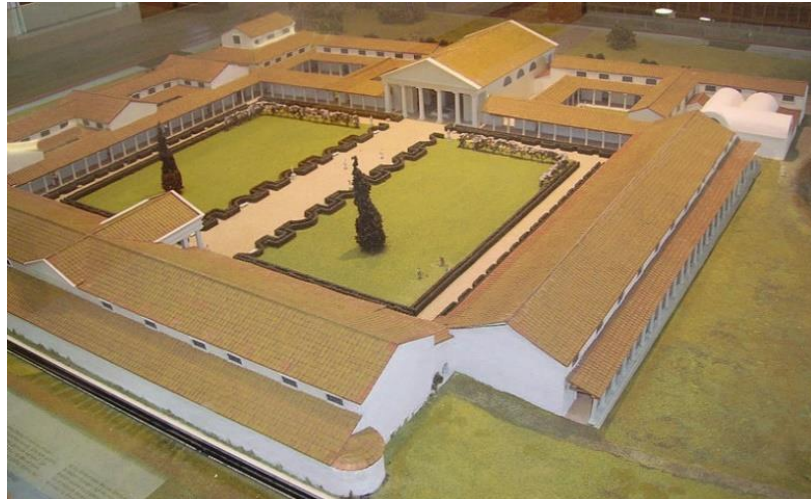
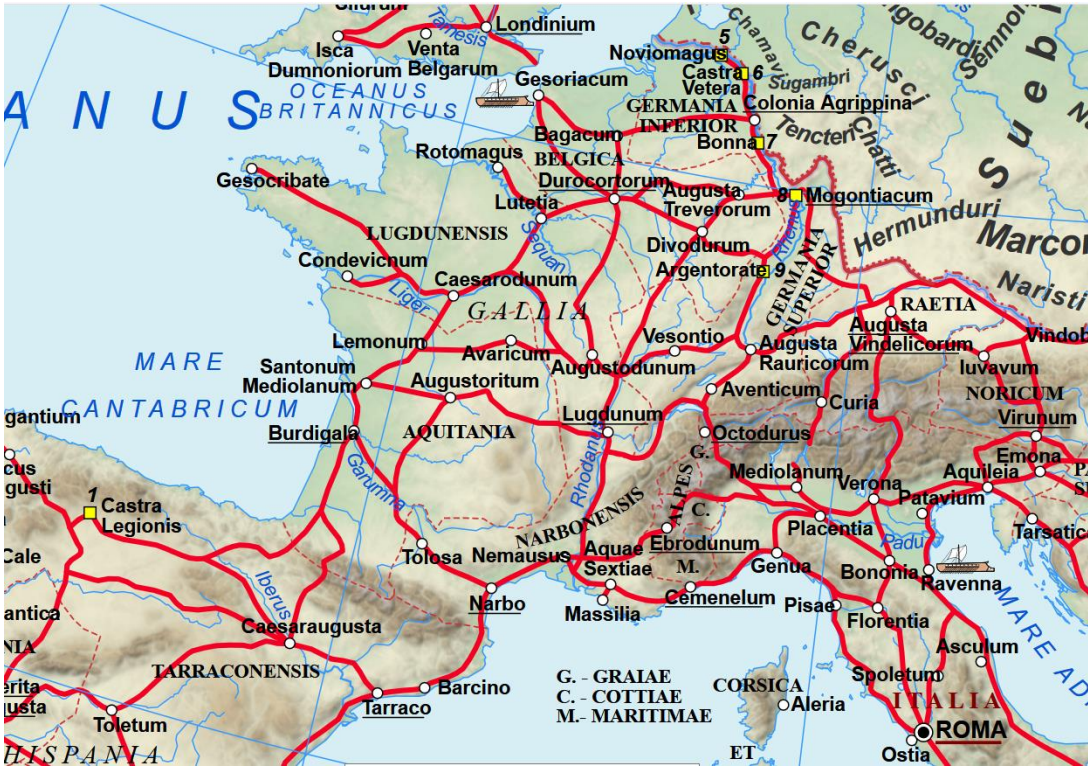


Fig. 41. Map of main Roman roads, depicting three roads leading out of Lemonum/Limonum (Poitiers). (Source: Wikimedia Commons, accessed June 25, 2020).



TABLES

Table 1. Table of epigraphic evidence of gardeners, grouped by gardener title. Topiary section after Lena Landgren (2004), 189, Table 13.

Inscription	Text	Provenance	Date	Name of Topiarius	Social Standing	Representation
1. CIL V 5316	D(is) M(anibus) Fortunati topiari Valeria uxor et Tertius discens	Comum	After 50 CE	Fortunatus	slave	See Sartori 2016 for photograph
2. CIL VI 4360	Ti(berius) Claudius Tauriscus topiarius vix(it) an(nis) LXV	Roma, <i>monumentum lib. drusi</i>	Tiberius-Nero	Ti. Claudius Tauriscus	freedman	See the Epigraphic Database Roma for photograph
3. CIL VI 4361	Quartillae Antoniae Drusi l(ibertae) Dorio topiar(ius) matri meritae dat	Roma, <i>monumentum lib. drusi</i>	Tiberius-Nero	Dorio	son of a freedwoman	

4. CIL VI 4423	Ephra Marcellae argentarius Thyrannus topiarius Marcellae	Roma, <i>monumentum</i> <i>Marcellae</i>	Tiberius- Nero	Thyrannus	slave	See the Epigraphic Database Roma for photograph
5. CIL VI 5353	ab Cerdone topia(rio)	Roma, ex familia Augusta	Augustus	Cerdo	slave	
6. CIL VI 6369	Felix topiarius	Roma, <i>monumentum</i> <i>Statiliorum</i>	Tiberius- Nero	Felix	slave	See the Epigraphic Database Roma for photograph
7. CIL VI 6370	Sasa ex hortis topiarius	Roma, <i>monumentum</i> <i>Statiliorum</i>	Tiberius- Nero	Sasa	slave	See the Epigraphic Database Roma for photograph

8. CIL VI 7300	Cerdoni L(uci) Volusi Saturnini topiar(io) Volusia Aucta contubernali b(ene) m(erenti)	Roma, <i>monumentum Volusiorum</i>	Tiberius-Nero	Cerdo	husband slave, wife free	
9. CIL VI 8738/ ILS 7866	Titurus atr(iensis) Galer(ianus) Salvius top(iarius) Philot(ianus) Antigonus top(iarius) patern(us) Alexander atr(iensis) Amynt(ianus) decurion(es) pavementum in ossar(io) et numeratos XXXCI d(e) s(ua) p(ecunia) d(ederunt) Cosso Cornelio L(ucio) Pisone co(n)s(ulibus)	Roma, ex familia Augusta	1 BCE	Salvivi Philotianus, Antigonus paternus	slave or freedman, incertus	See the Epigraphic Database Roma for photograph
10. CIL VI 9082	D(is) M(anibus) Romano Domitiae (Do)mitiani ser(vo) topiari(o) [---]us fratri suo	Roma	2nd half of 1st c. CE	Romanus	slave	
11. CIL VI 9943	Alexandri topiar(i) Hi sponis Patulciae Aptae uxoris	Roma	1st half of the 2nd c. CE	Alexander	slave or free?	
12. CIL VI 9944	olla Felicis topiari	Roma	Augustus-Nero	Felix	slave	

13. CIL VI 9945	Florus top(iarius) vix(it) annos XL	Roma	Augustus- Nero	Florus	slave	See the Epigraphic Database Roma for photograph
14. CIL VI 9946	Lucrio Cocei topiarius	Roma	Augustus- Nero	Lucrio	slave	See the Epigraphic Database Roma for photograph
15. CIL VI 9947	princip(i) topiari(o) M[---]	Roma	?	M[---]	?	
16. CIL VI 9948, I 1369, ILLRP 820	C(aius) Proculeius G(ai) l(ibertus) Apolonis topiaris	Roma	2 1 BCE	G. Proculeius Apollonius	freedman	
17. CIL VI 9949	Proti topiari(i) cineres ex Hermeo	Roma	1st c. CE	Protus	slave or freedmen	
18. CIL VI 11603	d[...] C An[...] icissim[...] topi [...]	Roma	?	illegible	?	

19. CIL VI 33457	L(ucius) Salluvius L(uci) l(ibertus) Anteros L(ucius) Salluvius L(uci) l(ibertus) Phileros L(ucius) salluvius L(uci) l(ibertus) Antiochus to(piarus) Salluvia L(uci) l(iberta) Athenais	Roma	Augustus-Nero	L. Salluvius Antiochus	freedman	
20. CIL VI 33478, AE 1899.157	L(ucio) Vario L(uci) l(iberto) Dionysio topia(rio) bene merenti patrono	Roma	1st c. CE	L. Varius Dionysius	freedman	
21. CIL VI 33745, ILS 1626	[Car]pus Caesaeris [topi]arius ex [hor]tis Peducaianis sibi [et co]ntubernali suae Philhumene et Tertiae filiae	Roma	1st . CE	Carpus	husband slave, wife probably slave	
22. CIL X 696	Charito Ti(beri) Claudi Caesaris Augusti topiarius sibi et suis	Surrentum, imperial villa	Augustus, Tiberius, Claudius	Charito	slave	
23. CIL X 1744	Lucrio Aug(usti) topiario ex hortis sibi et suis	Puteoli, villa of Hadrian	2nd c. CE	Lucius	freedman	
24. CIL X 6637, CIL VI 8639	a, 11 topiar[ius]	unknown	47-69 CE	1, no name	?	See the Epigraphic Database Roma for photograph

25. CIL X 6638, CIL VI 8638	A 1 topia[rius], 3 topiarius, 4 topiarius; B 9 Anthus top(iarius); c14 [...]ucratus top(iarius), 16 [...]thus top(iarius)	Antium	31-51 CE	Anthus Tantalus + 7 illegible or not mentioned	?	See the Epigraphic Database Roma for photograph
26. CIL XIII 5708, ILS 8379	a trib(us) topiaris et discentibus eorum	Andematunum (Langres), Gaul	early 2nd c CE	3, no names plus discentes	?	
27. CIL XIV 3648	[Dis] M(anibus) [---] Caes(aris) n(ostris) ve[r]nae [---]p topiario [vixit an]n(os) LX Mariti [mus(?) fecit(?)]	Tibur, Hadrian's villa	2nd c CE	illegible	slave	
28. AE 1903.52	[M]ag(istri) Parhedrus glutin(ator) Demetrius topiar(ius) Appa topiar(ius) [M. Fur]io Camillo Sex(to) Nonio co[(n)s(ulibus)] mag(istri) [3]polit[---]	Tusculum	8 CE	Demetrius, Appa	?	

<p>29. IRBrindisi 00041</p>	<p>Amaran thus serv(us) p(ublicus) topiar(ius) v(ixit)a(nnos) L h(ic) s(itus)</p>	<p>Brindisi</p>	<p>20BCE- 30CE</p>	<p>Amaranthus</p>	<p>public slave</p>	<p>See the Epigraphic Database Roma for photograph</p>
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Table 1. Table of epigraphic evidence of gardeners, grouped by gardener title.

Inscription	Text	Provenance	Date	Name of Oltor	Social Standing	Representation
30. CIL VI 9457	Dis Manibus Ariarathes Holitoris	Roma	?	Ariarathes	slave?	
31. CIL VI 9458	L(ucius) Horatius L(uci) F(ilius) vot(uria) Holitor Sex(tus) Horatius L(uci) F(ilius) vot(uria) sen(ior) in(fronte) in agr(o) p(edes) XX	Roma	?	L. Horatius Lucius	freeborn	
32. CIL VI 9459	P(ubius) Sergius P(ubli) l(ibertus) Anteros holitor Titia L(uci) l(iberta) Tertia uxor	Roma	1 CE-50 CE	P. Sergius Anteros	freedman, wife freedwoman	See the Epigraphic Database Roma for photograph
33. CIL XIII 4332] ho[li]tores[///] tria	Divodurum (Metz), Belgica		no name	necropolis 1st -4th c CE	

34. NSA-1938-74, 48	Cominia P(ubli) l(iberta) Epigenia monument(um) fec(it) d(e) s(ua) p(ecunia) sibi et patrono suo P(ublio) Cominio P(ubli) l(iberto) Artemae (h)olitor(i) et Metheni l(ibertae) in fr(onte) p(edes) XVI in agr(o) p(edes) XXV s(emis)	Ostia	Claudius-Nero	P.Cominio Artemae	freedman	See the Epigraphik Databank Clauss/Slaby for a photograph
35. CIL VI 41326	Mercurius olitor	Roma	375-376 CE	Mercurio	slave?	See the Epigraphic Database Heidelberg for Photograph

Table 1. Table of epigraphic evidence of gardeners, grouped by gardener title.

Inscription	Text	Provenance	Date	Name of Hortulanus	Social Standing	Representation
36. CIL XIII 0113	trebanius filterius hortul(anus) hortos vividus amavit et obiit	Arles, Gaul	?	Trebanius Filterius	?	lost
37. CIL VI 9473	[---] Pascasius Ortolanu[s] [---] (VI)I id(us) iulias co(nsu)l(atu) Deci v(iri) c(larissimi) co(n)s[ulis- --?]	Roma	486 CE	Pascasius	?, Christian	See the Epigraphic Database Bari for a photograph

Table 1. Table of epigraphic evidence of gardeners, grouped by gardener title.

Inscription	Text	Provenance	Date	Name of Vinitor	Social Standing	Representation
38. CIL XII 4003	D(is) M(anibus) Valloni Quartina fratri opt(imo)	Nîmes, Gaul	end of 1st -2nd c CE	Vallorus	slave?	See Omrani 2017 for a photograph
39. none	unpublished stele, exact text unknown, Secundus, son of Aurelius (Fiches, 1996, entry 624)	Nîmes, Gaul	2nd c CE	Secundus	free?	

Table 2. Of the sixty-six varieties of plants identified by Livarda as associated with Roman presence, varieties that may have been cultivated locally and thus would have fallen under the purview of *holitores* are marked in green boxes. Source: Alexandra Livarda, “Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods,” (PhD Diss., University of Leicester, 2008), 313, Table 4.7, with edits by author.

<i>Roman</i>	Rare (1-10 records)	Low frequency (11-100 records)	Common (>100 records)
Condiments	<div style="border: 1px solid green; display: inline-block; padding: 2px;">caper</div> cumin <div style="border: 1px solid green; display: inline-block; padding: 2px;">lovage</div> black cumin <div style="border: 1px solid green; display: inline-block; padding: 2px;">basil</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">marjoram</div> aniseed black pepper <div style="border: 1px solid green; display: inline-block; padding: 2px;">rosemary</div> rue <div style="border: 1px solid green; display: inline-block; padding: 2px;">sage</div> alexanders <div style="border: 1px solid green; display: inline-block; padding: 2px;">thyme</div> fenugreek <div style="border: 1px solid green; display: inline-block; padding: 2px;">balm</div>	caraway <div style="border: 1px solid green; display: inline-block; padding: 2px;">parsley</div> white mustard oregano fennel <div style="border: 1px solid green; display: inline-block; padding: 2px;">horehound</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">summer savory</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">black mustard</div>	<div style="border: 1px solid green; display: inline-block; padding: 2px;">dill</div> coriander <div style="border: 1px solid green; display: inline-block; padding: 2px;">celery</div>
Fruits	apricot quince wild plum pomegranate medlar	<div style="border: 1px solid green; display: inline-block; padding: 2px;">date</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">melon</div> mulberry olive sour cherry peach plum pear	fig sweet cherry damson grape apple
Vegetables	<div style="border: 1px solid green; display: inline-block; padding: 2px;">onion</div> leek <div style="border: 1px solid green; display: inline-block; padding: 2px;">rape</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">lettuce</div>	<div style="border: 1px solid green; display: inline-block; padding: 2px;">garlic</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">cabbage</div> turnip incl. wild turnip cucumber <div style="border: 1px solid green; display: inline-block; padding: 2px;">bottle-gourd</div>	
Legumes	chickpea <div style="border: 1px solid green; display: inline-block; padding: 2px;">grass pea</div> <div style="border: 1px solid green; display: inline-block; padding: 2px;">lupine</div>		<div style="border: 1px solid green; display: inline-block; padding: 2px;">lentil</div>
Cereals	rice		
Nuts	pistachio	almond pine nut	walnut
Oil producing	sesame	hemp	opium poppy

REFERENCES

- “*Hortus Inclusus: Expanding Boundaries of Space and Time.*” Conference. The *British School in Rome*, June 27-28, 2017.
- “How Designers Think.” Annual Dumbarton Oaks Garden and Landscape Studies/Mellon Initiative in Urban Landscape Studies Symposium. Washington D.C., November 3, 2017.
- “Monticello and Montpelier: The Homes of Thomas Jefferson and James Madison.” *New York Post*, 29 July 1881.
- “Montpelier.” *Family Magazine* 4 (1836): 123-124.
- “Part I: A Short History of Garden Archaeology,” In *Sourcebook for Garden Archaeology*, edited by Amina-Aïcha Malek, 21-95. Bern: Peter Lang, 2013.
- “*Planatus Orientalis L.*” Royal Botanical Gardens Kew Science. Accessed June 6, 2020. <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:685873-1>.
- “Platanus.” *Horticulture Week* November 28 (2014): 20.
- Abelson, Philip H. “Pseudoscience.” *Science* 184. 4143 (1974): 1233.
- Achard-Corompt, Nathalie, Alexandre Audebert, Marion Dessaint, Raphael Durost and Vincent Le Quellec. “Les modes d’occupation de sol chez le Rèmes,” in *Gallia Rustica Volume I: Les campagnes du nord-est de la Gaule de la fin de l’âge du fer à l’antiquité tardive*, edited by Michel Reddé, 495-553. Pessac Ausonius, 2018.
- Aldrete, Gregory S. *Floods of the Tiber in ancient Rome, Ancient society and history*. Baltimore: Johns Hopkins University Press, 2006.
- Ali, Kawa Abdulkarrem. “Allelopathic potential of radish (*Raphanus sativus L.*) on germination and growth of some crops and weeds.” *International Journal of Biosciences* 9.1 (2016): 394-403.
- Allevato, Emilia, Antonio Saracino, Silvio Fici and Gaetano Di Pasquale. “The contribution of archaeological plant remains in tracing the cultural history of Mediterranean trees: the example of the Roman harbor of Neapolis.” *The Holocene* 26.4 (2016): 603-613.
- Alpi, Amedeo, et al. “Plant neurobiology: no brain, no gain?” *TRENDS in Plant Science* 12.4 (2007): 135-136.

- American Society of Landscape Architecture. Resilient Design. Accessed August 15, 2020. <https://www.asla.org/resilientdesign.aspx>.
- Amina-Aïcha Malek, ed. *Sourcebook for Garden Archaeology*. Bern: Peter Lang, 2013.
- Anderson, Edgar. *Plants, man and life*. London: Andrew Melrose, 1954.
- Anschuetz, Kurt F., Richard H. Wilshusen, and Cherie L. Scheick. "An Archaeology of Landscapes: Perspectives and Directions." *Journal of Archaeological Research* 9.2 (2002): 157-211.
- Arber, Agnes. *The Natural Philosophy of Plant Form*. Cambridge: Cambridge University Press, 1950.
- Archaeology Sites at James Madison's Montpelier*. Montpelier: The Montpelier Foundation.
- Armstrong, Rebecca. Conference Paper. "The War on Terra: Insurgent Weeds in the Georgics." *New Perspectives on Virgil's Georgics*, International Conference, University College London, April 3-4, 2014.
- Atchison, Jennifer and Lesley Head. "Eradicating bodies in invasive plant management." *Environment and Planning D: Society and Space* 31 (2013): 951-968.
- Aversano, Riccardo, et al. "Dating the beginning of the Roman viticultural model in the Western Mediterranean: The case study of Chianti (Central Italy)." *PLOS ONE* November 15 (2017): 10-11.
- Bakels, Corrie and Stephanie Jacomet. "Access to luxury foods in Central Europe during the Roman period: the archaeobotanical evidence." *World Archaeology* 34.3 (2003): 542-557.
- Bakels, Corrie C. *The Western European Loess Belt: Agrarian History 5300BC-AD 1000*. Dordrecht: Springer, 2009.
- Baldwin, Ian T. and Jack C Schultz. "Rapid Changes in Tree Leaf Chemistry Induced by Damage: Evidence for Communication Between Plants." *Science* 221.4607 (1983): 277-279.
- Baluška, František and Velemir Ninkovic. "Preface." In *Plant Communication from an Ecological Perspective*, edited by František Baluška and Velemir Ninkovic, v-vi. Berlin: Springer, 2010.

- Barat, Yvan and Dominique Morize. "Les pots d'horticulture dans le monde antique et les jardins de la villa Gallo-Romaine de Richebourg (Yvelines)." In *Actes du congrès de Fribourg 13-16 mai 1999 : productions de céramiques dans les différentes régions de Suisse*, 213-236. Marseille: S.F.E.C.A.G., 1999.
- Barberan, Sébastien. "Le jardin de la domus B des Villégiales." In *Le quartier antique des Bénédictins à Nîmes, découvertes anciennes, fouilles récentes (1966-1992)*, edited by P. Garmy and M. Monteil, 173-181. Paris: Editions de la Maison des sciences de l'homme, 2000.
- Barberan, Sébastien. "Un aménagement horticole antique dans la cour d'un établissement péri-urbain à Nîmes (Gard)." *Bulletin de l'Ecole Antique de Nîmes* 24 (1998): 67-72.
- Barrett, Caitlín. *Domesticating Empire: Egyptian Landscapes in Pompeian Gardens*. Oxford: Oxford University Press, 2019.
- Barton, Huw and Tim Denham. "Vegeticulture and Social Life in Island Southeast Asia." In *Why Cultivate? Anthropological and Archaeological Approaches to Foraging-Farming Transitions in Southeast Asia*, edited by Graham Barker and Monica Janowski, 17-25. McDonald Institute for Archaeological Research: McDonald Institute Monographs, Cambridge, UK, 2011.
- Bassuk, Nina. "Dealing with soil compaction." *Ecological Landscape Alliance*. Accessed January 18, 2014. <https://www.ecolandscaping.org/01/soil/dealing-with-soil-compaction/>.
- Beaman, Thomas E., Jr. "The Archaeology of Morley Jeffers Williams and the Restoration of Historic Landscapes at Stratford Hall, Mount Vernon, and Tryon Palace." *The North Carolina Historical Review* 79.3 (2002): 347-372.
- Beck, Thomas E. "Gardens as a 'third nature': the ancient roots of a renaissance idea." *Studies in the History of Gardens & Designed Landscapes* 22.4 (2002): 327-334.
- Bennett, Jane. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press, 2010.
- Bergmann, Bettina. "Art and Nature in the Villa at Oplontis." In *Pompeian Brothels, Pompeii's Ancient History, Mirrors and Mysteries, Art and Nature at Oplontis & the Herculaneum "Basilica"*, edited by T. A. McGinn, 87-120. Portsmouth, RI: *JRA* Supplement 47, 2008.

- Bergmann, Bettina. "Exploring the Grove: Pastoral Space on Roman Walls." *Studies in the History of Art 36: Symposium Papers XX: The Pastoral Landscape* (1992): 20-46.
- Bergmann, Bettina. "Frescoes in Roman Gardens." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 278-316. Cambridge: Cambridge University Press, 2018.
- Bergmann, Bettina. "Painted Perspectives of a Villa Visit: Landscape as Status and Metaphor." In *Roman Art in the Private Sphere: New Perspectives on the Architecture and Décor of the Domus, Villa, and Insula*, edited by Elaine K. Gazda, 49-70. Ann Arbor: University of Michigan Press, 1991.
- Bergmann, Bettina. "Playing with boundaries: painted architecture in Roman interiors." In *The Built Surface, Volume I: Architecture and the Visual Arts from Antiquity to the Enlightenment*, edited Christy Anderson and Karen Koehler. London: Taylor and Frances, 2017.
- Bergmann, Bettina. "The Concept of the Boundary in the Roman Garden." *Le jardin dans l'Antiquité*, edited by Kathleen Coleman, 245-289. Vandoeuvres: Fondation Hardt pour l'étude de l'antiquité Classique, 2014.
- Bergmann, Bettina. Conference Paper. "*Reconstructions and Visualisations of Roman Gardens*." Presented at the *Hortus Inclusus: Expanding Boundaries of Space and Time*. British School in Rome, June 27-28, 2017.
- Berry, Joanne. "Household artefacts: towards a re-interpretation of Roman domestic space." In *Domestic Space in the Roman World: Pompeii and Beyond*, edited by Ray Laurence and Andrew Wallace-Hadrill, 183-195. Portsmouth, RI: Supplementary Series of the Journal of Roman Archaeology, 1997.
- Bodel, John. "Roman Tomb Gardens." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 199-242. Cambridge: Cambridge University Press, 2018.
- Böhm, Jennifer, et al. "The Venus Flytrap *Dionaea muscipula* Counts Prey-Induced Action Potentials to Induce Sodium Uptake." *Current Biology* 26 (2016): 286-295.
- Bond, Sarah. *Trade and Taboo: Disreputable Professions in the Roman Mediterranean*. Ann Arbor: University of Michigan Press, 2016.
- Bottema, Sytze. "The Holocene history of walnut, sweetchestnut, manna-ash, and plane tree in the Eastern Mediterranean." *Pallas* 52 (2002): 35-59.

- Bown, Alan W., Dawn E. Hall, Kennaway B. Mac Gregor. "Insect footsteps on leaves stimulate the accumulation of 4-aminobutyrate and can be visualized through increased chlorophyll fluorescence and superoxide production." *Plant Physiology* 129 (2002): 1430-1434.
- Bradley, K. R. *Slavery and Society at Rome*. Cambridge: Cambridge University Press, 1994.
- Bradley, Mark. *Color and Meaning in Imperial Rome*. Cambridge: Cambridge University Press, 2009.
- Bradshaw, John. *Plant Breeding: Past, Present, and Future*. Cham: Springer International Publishing, 2016.
- Bremmer, Jan. *The Early Greek Concept of the Soul*. Princeton: Princeton University Press, 1983.
- Brenner, Eric D. et al. "Plant neurobiology: an integrated view of plant signaling." *TRENDS in Plant Science* 11.8 (2006): 413-419.
- Brice, Jeremy. "Attending to grape vines: perpetual practices, planty agencies and multiple temporalities in Australian viticulture." *Social and Cultural Geography* 15.8 (2014): 942-965.
- Briggs, Ward. Volumes 58-61 of *Narrative and Simile from the Georgics in the Aeneid*. Leiden: E. J. Brill, 1980.
- Brown, C. Allan. *Montpellier Cultural Landscape Study: Visualizing the Plantation of James and Dolley Madison*. Montpellier: The Montpellier Foundation, 2012.
- Brundrett, Nadine. "Roman Tomb Gardens: The Construction of Sacred Commemorative Landscapes." *The Brock Review* 11.2 (2011): 51-69.
- Bruun, Chister and Jonathan Edmondson. *The Oxford Handbook of Epigraphy*. Oxford: Oxford University Press, 2015.
- Bryson, Norman. *Looking at the Overlooked: Four Essays on Still Life Painting*. London: Reaktion, 2001.
- Butters, Suzanne B. "Pressed Labor and Pratolino: Social Imagery and Social Reality at the Medici Garden." In *Villas and Gardens in Early Modern Italy and France*, edited by Mirka Beneš and Diane Harris, 61-87. Cambridge: Cambridge University Press, 2001.

- Campbell, Gill. "Market Forces: A Discussion of Crop Husbandry, Horticulture and Trade in Plant Resources in Southern England." In *Agriculture and Industry in South-Eastern Roman Britain*, edited by David Bird, 134-155. Oxford: Oxbow Books, 2017.
- Campbell, Virginia L. "Stopping to Smell the Roses: Garden Tombs in Roman Italy." *Arctos* 42 (2008): 31-43.
- Caneva, Giulia and Lorenza Bohumy. "Botanic analysis of Livia's villa painted flora (Prima Porta, Roma)." *Journal of Cultural Heritage* 4 (2013): 149-155.
- Canny, Martin J. "Transporting water in plants." *American Scientist* 86.2 (1998): 152-159.
- Capasso, L. "Indoor pollution and respiratory diseases in Ancient Rome." *Lancet* 356 (2000): 1774.
- Cappers, René. "Trade and Subsistence at the Roman Port of Berenike, Red Sea Coast, Egypt." In *The Exploitation of Plant Resources in Ancient Africa*, edited by Marijke Van der Veen, 185-197. New York: Plenum Publishers, 1999.
- Carlsen, Jesper. "Recruitment and Training of Roman Estate Managers: Managers in a Comparative Perspective." In *By the Sweat of your Brow: Roman slavery in its socio-economic setting*, edited by Ulrike Roth, 75-90. London: Institute of Classical Studies, 2010.
- Carratelli, Giovanni Pugliese, ed. *Pompei: Pitture e Mosaici, Volume VIII*. Roma: Istituto della enciclopedia italiana 1998.
- Carroll, Maureen. "'Vox tua nempe mea est' Dialogues with the dead in Roman funerary commemoration." *Accordia Research Papers* 11 (2007/8): 37-80.
- Carroll, Maureen. "Exploring the sanctuary of Venus and its sacred grove: politics, cult and identity in Roman Pompeii." *Papers of the British School in Rome* 78 (2010): 347-351.
- Carroll, Maureen. *Earthly Paradises: Ancient Gardens in History and Archaeology*. Los Angeles: The Paul J. Getty Museum, 2003.
- Carroll-Spillecke, Maureen. *Kepos: der antike griechische Garten*. München: Deutscher Kunstverlag, 1989.
- Castriota, David. *The Ara Pacis Augustae and the imagery of abundance in later Greek and Roman imperial art*. Princeton, N.J.: Princeton University Press, 1995.

- Caudullo, G., and D. de Rigo. "Cupressus Sempervirens in Europe: distribution, habitat, usage and threats, in *European Atlas of Forest Tree Species*." edited by J. San-Miguel-Ayanz, D. de Rigo, G. Caudullo, T. Houston Durrant, A. Mauri, 88-89. European Commission, 2016, https://ies-ows.jrc.ec.europa.eu/efdac/download/Atlas/pdf/Cupressus_sempervirens.pdf.
- Chamovitz, Daniel. *What a plant knows: a field guide to the senses*. New York: Scientific American/ Farrar, Straus and Giroux, 2017.
- Charles, M., G. Jones. "FIBS in Archaeobotany: Functional Interpretation of Weed Floras in Relation to Husbandry Practices." *Journal of Archaeological Science* 24 (1997): 1151-1161.
- Ciarallo, A. and M. Marriotti Lippi. "The garden of the Casa dei Casti Amanti (Pompeii, Italy)." *Garden History* 21 (1993): 110-116.
- Cima, Maddalena and Eugenio La Rocca, eds. *Le tranquille dimore degli dei: la residenza imperial degli horti Lamiani*. Venice: Cataloghi Marsilio, 1986.
- Cima, Maddalena and Eugenio la Rocca, eds. *Horti Romani: Atii del convegno internazionale, Roma 4-5 Maggio 1995*. Roma: L'Erma di Bretschneider, 1998.
- Clark, John. "Small, Vulnerable ETs: The Green Children of Woolpit." *Science Fiction Studies* 33.2 (2006): 209-229.
- Clarke, John R. *Art in the Life of Ordinary Romans: Visual Representation and Non-Elite Viewers in Italy 100 BC - AD 315*. Berkeley: University of California Press, 2003.
- Clatterbuck, Wayne and Christopher Oswalt. "Impacts of air pollution on urban forests." *University of Tennessee Extension*.
- Coarelli, Filippo, James J. Clauss, and Daniel P. Harmon. *Rome and Environs: An Archaeological Guide*. Berkeley: University of California Press, 2014.
- Coffin, David R. "Self-Image of the Roman Villa During the Renaissance." *Architectura* 28.2 (1998): 181-203.
- Coffin, David R. *Gardens and Gardening in Papal Rome*. Princeton: Princeton University Press, 1991.
- Coffin, David R. *Magnificent Buildings, Splendid Gardens*, edited by Venessa Bezemer Sellers. Princeton: Princeton University Press, 2008.

- Coleman, Kathleen and Pascale Derron, eds. *Le jardin dans l'antiquité*. Vandoeuvres: Fondation Hardt, 2014.
- Conlin, Diane Atnally. *The Artists of the Ara Pacis Augustae and the process of Hellenization in Roman relief sculpture*. Chapel Hill: University of North Carolina Press, 1997.
- Cornford, Francis MacDonald. *Plato's Cosmology: The Timaeus of Plato*. Indianapolis: Bobbs-Merrill, 1975.
- Cowan, Carrie and Peter Hinton. "The Roman garden in London," in *Londinium and Beyond: Essays on Roman London and its hinterlands for Harvey Sheldon*, edited by J. Clark, J. Cotton, J. Hall, R. Sherris, and H. Swain, 75-81. York: Council for British Archaeology, 2008.
- Crook, Zeba A. *Reconceptualizing conversion: patronage, loyalty, and conversion in the religions of the ancient Mediterranean*. New York: Brill, 2004.
- Cunliffe, Barry. "Roman Gardens in Britain: A Review of the Evidence." In *Ancient Roman Gardens*, edited by Elizabeth Blair MacDougall, 97-108. Washington D.C.: Dumbarton Oaks Trustees for Harvard University, 1981.
- Cunliffe, Barry. *Fishbourne: A Roman Palace and its Garden*. Baltimore: Johns Hopkins University Press, 1971.
- Cursi, Giulia Moretti. "Roman horti: A Topographical view in the Imperial era." In *Public-Private: An Exhibition of the Q-Kolleg at the Winckelmann-Institut-Humboldt Universität zu Berlin in cooperation with the Dipartimento di Scienza dell'Antichità of the Sapienza-Università di Roma*, edited by Jessica Bartz, 124-140. Berlin: Humboldt Universität zu Berlin, 2019.
- D'Agostino, Lorenzo. "'Ghettos' and gangmasters: How migrants are exploited in Italy's tomato fields." *CNN World*, March 21, 2018.
<https://www.cnn.com/2017/12/07/europe/italy-migrant-camp-exploitation/index.html>.
- Dalby, Andrew. *Food in the Ancient World from A to Z*. London: Routledge, 2003.
- Dasen, Véronique. "Wax and Plaster Memories: Children in Elite and non-Elite Strategies." In *Children, Memory, and Family Identity in Roman Culture*, edited by Véronique Dasen and Thomas Späth, 109-146. Oxford: Oxford University Press, 2010.
- Davies, R. W. "The Roman Military Diet." *Britannia* 2 (1971): 122-142.

- De Caro, Stefano. "Catalogue" In *Still Lives from Pompeii*, edited by Stefano De Caro, 35-62. Napoli: Electa, 1999.
- de Hingh, Anne. "Bottle gourd seeds at Gallo-Roman 'Le Bois Harlé' (Oise, France)." *Analecta Praehistorica Leidensia* 26 (1993): 93-97.
- Demougin, Ségolène. "Des collèges en Gaul Belgique." In *Collegia: Le phénomène associatif dans l'Occident romain*, edited by Monique Dondin-Payre and Nicolas Trans, 155-164. Bordeaux: Ausonius Éditions, 2012.
- Dicke, Marcel and Jan Bruin. "Chemical information transfer between plants: back to the future." *Biochemical Systemics and Ecology* 29 (2001): 982-983.
- Dickmann, Donald I. "An overview of the genus *Populus*." In *Poplar Culture in North America*, edited by Donald I. Dickmann et al, 1-41. Ottawa: NRC Research Press, 2001.
- Didi-Huberman, Georges. "Wax Flesh, Vicious Circles." In *Encyclopedia Anatomica: A Complete Collection of Anatomical Waxes*, edited by Monika von Düring, Marta Poggesi, 64-74. Cologne: Taschen, 1999.
- Dillon, Matthew. *Omens and Oracles: Divination in Ancient Greece*. Chicago: Oriental Institute, 2010.
- Dronamraju, Krishna. *Emerging consequences of biotechnology: biodiversity loss and IPR issues*. Hackensack, NJ: World Scientific, 2008.
- Dwyer, Eugene. "Review of *The Gardens of Pompeii, Herculaneum and the Villas Destroyed by Vesuvius*," by Wilhelmina Jashemski. *Archaeology* 34.2 (1981): 70-71.
- Dyer, Thomas, *Pompeii: its history, buildings, and antiquities*, (London: Bell & Daldy, 1867.
- Elizabeth B. MacDougall and Wilhelmina F. Jashemski, eds. *Ancient Roman Gardens*. Washington: Dumbarton Oaks Trustees for Harvard, 1981.
- Elizabeth B. MacDougall, ed. *Ancient Roman Villa Gardens*. Washington: Dumbarton Oaks Trustees for Harvard, 1987.
- Elvers, Karl-Ludwig, Jörg Fündling, Tomasz Giaro, Werner Eck. "Volusius." In *Brill's New Pauly Online*. Leiden: Brill, 2007.

- Essert, Sara, Ida Koncani-Uhač, Marco Uhač, and Reneta Šoštarić. "Plant remains and amphorae from the Roman harbor under Flacius Street in Pula (Istria, Croatia)." *Archaeological and Anthropological Sciences* 10 (2018): 955-971.
- Estrangin, J. J. *Description de la ville d'Arles: antique et moderne de ses Champs-Elysées et de son musée lapidaire avec une introduction historique*. Aix: Aubin, 1845.
- Evans, D. Ellis. *Gaulish personal names: a study of some Continental Celtic formations*. Oxford: Clarendon P., 1967.
- Evyasaf, Rona-Shani. "Gardens at Crossroads: The Influence of Persian and Egyptian Gardens on the Hellenistic Royal Gardens of Judea." *Bollettino Archeologia On Line* (Rome 2008): 27-37.
- Farrar, Linda. *Ancient Roman Gardens*. Thrupp: Sutton Publishing, 1998.
- Farrar, Linda. *Gardens and Gardeners of the Ancient World: History, Myth and Archaeology*. Oxford: WINDgather Press 2016.
- Farrell, Joe. "Looking for Empedocles in Latin Poetry: A Skeptical Approach." *Dictynna* 11 (2014): 1-14.
- Fay, E. W. "Pada Endings and Pada Suffixes." in *Transactions and Proceedings of the American Philological Association* 44 (1913): 107-127.
- Feeser, Andrea, Maureen Daly Goggin, and Beth Fowkes Tobin. "Introduction: The Value of Color." In *The Materiality of Color: the Production, Circulation, and Application of Dyes and Pigments, 1400-1800*, edited by A. Feeser, M. D. Goggin, and B. F. Tobin, 1-12. Burlington VT: Ashgate Press, 2012.
- Fiches, Jean-Luc, and Alain Veyrac. *Carte archéologique de la Gaule: Nîmes 30/1*. Paris: Académie des Inscriptions et Belles-Lettres, 1996.
- First, Elsa. "Review of The Secret Life of Plants." *New York Times Book Review*, December 30, 1973.
- Fisher, Chelsea. "Archaeology for Sustainable Agriculture." *Journal of Archaeological Research* 28 (2020): 393-441.
- Fitzgerald, William. *Slavery and the Roman Literary Imagination*. Cambridge: Cambridge University Press, 2000.
- Flotté, Pascal. *Metz*. Paris: Académie des inscriptions et belles-lettres, 2005.

- Forster, Edward S. "Trees and Plants in Herodotus." *The Classical Review* 56.2 (1942): 57-63.
- Forster, Edward S. "Trees and Plants in Homer." *The Classical Review* 50.3 (1936): 97-104.
- Forster, Edward S. "Trees and Plants in the Greek Tragic Writers." *Greece & Rome* 21.62 (1952), 57-63.
- Fowler, Simon V. and John H. Lawton. "Rapidly Induced Defenses and Talking Trees: The Devil's Advocate Position." *The American Naturalist* 126.2 (1985): 181-195.
- Fuller, Dorian Q., Chris Stevens, Leilani Lucas, Charlene Murphy, and Ling Qin. "Entanglements and Entrapment on the Pathway towards Domestication." In *Archaeology of Entanglement*, edited Lindsay Der and Francesca Fernandini, 151-172. Walnut Creek, CA: Left Coast Press, 2016.
- Fuller, Dorian Q., Eleni Asouti, and Michael D. Purugganan. "Cultivation as Slow Evolutionary Entanglement: Comparative Data on Rate and Sequence of Domestication." *Vegetation History and Archaeobotany* 21.2 (2012): 131-145.
- Fuller, Dorian Q., Robin G. Allaby, and Chris Stevens. "Domestication as Innovation: The Entanglement of Techniques, Technology and Chance in the Domestication of Cereal Crops." *World Archaeology* 42.1 (2010): 13-28.
- Fündling, Jörg, Tassilo Schmitt, Vivian Nutton, Werner Eck, Alain Touwaide, et al. "Statilius." In *Brill's New Pauly Online*. Leiden: Brill, 2007.
- Gabriel, Mabel. *Livia's Garden Room at Prima Porta*. New York: New York University Press, 1955.
- Gaifman, Milette. "Timelessness, fluidity, and Apollo's libation." *RES Anthropology and Aesthetics* 63/64 (2013): 39-52.
- Galston, Arthur W. and Clifford L. Slayman. "The Not-so-secret life of plants: In which the historical and experimental myths about the emotional communication between animal and vegetable are put to rest." *American Scientist* 67.3 (1979): 337-344.
- Gauthier, Émilie et Martine Joly. "Vignoble et Viticulture dans le Centre-Est de la Gaule au Ier siècle ap. J.-C." In *Actualité de la recherche en histoire et archéologie agraires: actes du colloque Ager V, 19-20 Septembre 2000*, edited by Anne Vignot and François Favory, 191-208. Besançon: Presses universitaires franc-comtoises, 2003.

- Gazda, Elaine K. "Villas on the Bay of Naples: The Ancient Setting of Oplontis." In *Oplontis: Villa A ("of Poppaea") at Torre Annunciata, Italy*, edited by John R. Clarke and Nayla K. Muntasser, 76-81. New York: American Council of Learned Societies, 2014.
- Gazda, Elaine K. and John R. Clarke, eds. *Leisure & Luxury in the Age of Nero: The Villas of Oplontis near Pompeii*. Ann Arbor: Kelsey Museum of Archaeology, 2016.
- Genius Loci: An International Symposium on the Oplontis Project. Conference. Held at Montana State University, September 30, 2016.
- Georgakis, Chrissa and Mattheos Santamouris. "Determination of the Surface and Canopy Urban Heat Island in Athens Central Zone Using Advanced Monitoring." *Climate* 5. 97 (2017): 1-12.
- George, Michele. *Roman Slavery and Roman Material Culture*. Toronto: University of Toronto Press, 2013.
- Gibson, James J. "The Theory of Affordances." In *Perceiving, Acting, and Knowing: Toward an ecological Psychology*, edited by Robert Shaw and John Bransford, 67-82. Hillsdale, NJ: Lawrence Erlbaum Associates, 1977.
- Gleason, Kathryn L. "Documentation of the Garden Beds." *Quaderni di Studi Pompeiani VII: Excavations and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* (2016): 67-90.
- Gleason, Kathryn L. "Porticus Pompeiana: a new perspective on the first park of ancient Rome." *The Journal of Garden History* 14.1 (1994): 13-27.
- Gleason, Kathryn L. "Review of *Ancient Roman Gardens*," by Linda Farra. *American Journal of Archaeology* 105.1 (2001): 136-138.
- Gleason, Kathryn L. "The Landscape Palaces of Herod the Great" *Near Eastern Archaeology* 77.2 (2014): 76-97.
- Gleason, Kathryn L. "The Lost Dimension: pruned plants in Roman gardens." *Vegetation History and Archaeobotany* 28 (2019): 311-325.
- Gleason, Kathryn L. "To Bound and to Cultivate: An Introduction to the Archaeology of Gardens and Fields." In *The Archaeology of Garden and Field*. Edited by Naomi F. Miller and Kathryn L. Gleason, 3-24. Philadelphia: University of Pennsylvania Press, 1994.

- Gleason, Kathryn L. "Wilhelmina Jashemski and garden archaeology at Oplontis." In *Oplontis: Villa A ("Of Poppaea") at Torre Annunziata*, edited by John R. Clarke and Nayla K. Muntasser, 929-1095. New York: ACLS Humanities E-Book.
- Gleason, Kathryn L. and Michele A. Palmer. "Constructing the Ancient Roman Garden." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartwick, and Amina-Aïch Malek, 369-401. Cambridge: Cambridge University Press, 2018.
- Gleason, Kathryn L., Kaja J. Tally-Schumacher, Samuli Simelius and David Torrey de Frescheville. "Performing the Incessus: Gendered Encounters in Roman Garden *Ambulationes*." In *IEMA Volume VI: Engendering Landscape & Landscape Gender*. Albany: SUNY Press, Forthcoming.
- Gleason, Kathryn L., Michele A. Palmer, Evan Allen, Li Bai. "The Digital *Topiarius*: Toward a Method of Reconstructing the *Viridarium* of the Great Peristyle of the Villa Arianna at Stabiae." *Studi e ricerche del Parco archeologico di Pompei* 42 (2020): 159-173.
- Gorzalak, Monika A., et al. "Inter-plant communication through mycorrhizal networks mediates complex adaptive behaviour in plant communities." *AoB Plants* 7 (2015): 1-13.
- Gower, Emily. "Trees and Family Trees in the Aeneid." *Classical Antiquity* 30.1 (2011): 87-118.
- Gracie, H. S. and E. G. Proce. "Frocester Court Roman Villa: Second Report 1968-77: The Courtyard." *Transactions of the Bristol and Gloucestershire Archaeological Society* 97 (1979): 9-73.
- Graham, Emma-Jayne. "'There Buds the Laurel': Nature, Temporality, and the Making of Place in the Cemeteries of Roman Italy." *Theoretical Roman Archaeology Journal* 1.3 (2018): 1-16.
- Green, Waldon, dir. *The Secret Life of Plants*. 1978. Infinite Enterprises. DVD.
- Grimal, Pierre. *Les jardins romains*. Paris: Fayard, 1984, 3rd edition.
- Guado al Melo. *Wine and the Etruscans*. Accessed August 10, 2020. <http://www.guadoalmelo.it/en/wine-and-the-etruscan-ii-the-married-vine-three-thousand-and-more-years-of-viticulture-and-art/>.
- Hackworth Petersen, Lauren. *The Freedman in Roman Art and Art History*. New York: Cambridge University Press, 2006.

- Hales, Shelley. *The Roman House and Social Identity*. Cambridge: Cambridge University Press, 2003.
- Hall, Martin. “Ambiguity and Contradiction in the archaeology of slavery.” *Archaeological Dialogues* 15.2 (2008): 128-130.
- Hall, Matthew. *Plants as Persons: A Philosophical Botany*. Albany: State University of New York Press, 2011.
- Hardy, Gavin and Laurence Totelin. *Ancient Botany*. Abingdon, Oxon: Routledge, 2016.
- Harlan, Jack R. *Crops and Man*. Madison, WI, American Society of Agronomy, Crop Science of America, 1992.
- Hart, James Warnell. *Plant Tropism and other Plant Movements*. New York: Chapman & Hall, 1992.
- Hartswick, Kim J. *The Gardens of Sallust: A Changing Landscape*. Austin: University of Austin Press, 2004.
- Häuber, Christine. “Zur Topographie der Horti Maecenatis und der Horti Lamiani auf dem Esquilin in Rom.” *Kölner Jahrbuch für Vor- und Frühgeschichte* 23 (1990): 11-107.
- Häuber, Christine. *Horti Romani: die Horti Maecenatis und die Horti Lamiani auf dem Esquilin*. PhD Diss. Universität zu Köln, 1991.
- Heil, Martin and Juan Carlos Silva Bueno. “Within plant signaling by volatiles leads to induction and priming of an indirect plant defense in nature.” *Proceedings of the National Academy of the Sciences* 104.13 (2007): 5467-5472.
- Heinzelmann, Michael. *Die Nekropolen von Ostia: Untersuchungen zu den Gräberstrassen vor der Porta Romana und an der Via Laurentina*. München: Verlag Dr. Friedrich Pfeil, 2000.
- Heurgon, Jacques. “Les *magistri* des collèges et le relèvement de Capoue de 111 – 71 avant J.C.” *Mélanges d’archéologie et d’histoire* 56 (1939): 5-27.
- Hitchings, Russell and Verity Jones. “Living with plants and the exploration of botanical encounter within human geographic research practice.” *Ethics, Place & Environment* 7.1/2 (2004): 3-18.
- Hodder, Ian. *Entangled: An Archaeology of the Relationships Between Humans and Things*. Malden, MA: Wiley-Blackwell, 2012.

- Hodder, Ian. *Studies in Human-Thing Entanglement*. Stanford, Ca.: Ian Hodder: E-book, 2016.
- Hollander, David. *Farmers and Agriculture in the Roman Economy*. Milton: Routledge, 2018.
- Holzner, W. "Concepts, categories, and characteristics of weeds." In *Biology and Ecology of Weeds*, edited by W. Holzner and M. Numata, 3-20. The Hague, Boston: Kluwer Boston, 1982.
- Hondagneu-Sotelo, Pierrette. *Paradise Transplanted: Migration and the Making of the California Gardens*. Oakland: University of California Press, 2014.
- Horn, Heinz Günter, and Tilmann Bechert. *Die Römer in Nordrhein-Westfalen*. Stuttgart: K. Theiss, 1987.
- Hoyt, Linda Holden. *Presidents' Gardens*. Oxford: Shire Publication, 2013.
- Hunt, Ailsa. *Reviving Roman Religion*. Cambridge: Cambridge University Press, 2016.
- Hunt, John Dixon. *The Afterlife of Gardens*. Philadelphia, PA: University of Pennsylvania Press, 2004.
- Hunt, Peter. *Ancient Greek and Roman Slavery*. Hoboken, NJ: Wiley-Blackwell, 2018.
- Hunter, Isabel and Lorenzo Di Pietro. "The terrible truth about your tin of Italian tomatoes." *The Guardian*. October 24, 2017.
<https://www.theguardian.com/global-development/2017/oct/24/the-terrible-truth-about-your-tin-of-italian-tomatoes>.
- Hurwit, Jeffrey. *Artists and Signatures in Ancient Greece*. New York: Cambridge University Press, 2015.
- Ingold, Tim. "Growing plants and raising animals: an anthropological perspective on domestication." In *The Origin and spread of agriculture and pastoralism in Eurasia*, edited by David R. Harris, 12-24. Washington: Smithsonian Institution Press, 1996.
- Ingold, Tim. "Materials against materiality." *Archaeological Dialogues* 14.1 (2207): 1-16.
- Ingold, Tim. *The Perception of the Environment: Essays on livelihood, dwelling, and skill*. London: Routledge, 2000.

- Interview with Alessandra Vinciguerra, Bass Superintendent of Gardens, American Academy in Rome, June 7, 2018.
- Interview with Aurelio Valentini, a trained landscape designer and the Villa d'Este Manager and Consultant for Green Management, and Elisabetta Ciniglio, the Villa d'Este Technical Assistant and Secretary, June 2018.
- Interview with custodians at Villa A at Oplontis, June 2018.
- Interview with Felicia Piante e Fioro, Via Casone 80045 Pompei, NA, Italia.
- Interview with Renata Puzoń, Szkołka krzewów i drzew ozdobnych Renata i Józef Puzoń, Ustroń, Poland, July 18, 2018.
- Inwood, Brad, ed. *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*. Toronto: Toronto University Press, 2001.
- Jacks, Philip. "Pirro Ligorio and the design of the Fontana del Diluvio at the Villa d'Este." *Studies in the History of Gardens & Designed Landscapes* 39:4 (2019): 271-304.
- Jacques, David. "The progress of garden archaeology." *The Journal of Garden History* 17.1 (1997): 3-10.
- James Madison's Montpelier. Exhibit. *The Mere Distinctions of Colour Exhibition*, June 4, 2017-ongoing.
- Janick, Jules, Harry S. Paris, and David C. Parrish. "The Cucurbits of Mediterranean Antiquity: the Identification of Taxa from Ancient Images and Descriptions." *Annals of Botany* 100 (2007): 1441-1457.
- Jaramillo, Catalina. "Philly neighborhoods need more trees, A new city initiative takes on the problem." *WHYY*, December 10, 2019. <https://whyy.org/articles/philly-neighborhoods-need-more-trees-a-new-city-initiative-takes-on-the-problem/>.
- Jarriel, Katherine M. "Climate disaster and the resilience of local maritime networks: two examples from the Aegean Bronze Age." *Quaternary International*, forthcoming.
- Jashemski, Wilhelmina F. "'The Garden of Hercules at Pompeii,' (II.viii.6): The Discovery of a Commercial Flower Garden." *American Journal of Archaeology* 83.4 (1979): 403-411.
- Jashemski, Wilhelmina F. "Gardening Practices and Techniques." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim

- J. Hartswick, Amina-Aïcha Malek, 432-454. Cambridge: Cambridge University Press, 2018.
- Jashemski, Wilhelmina F. "The Caupona of Euxinus at Pompeii." *Archaeology* 20.1 (1967): 36-44.
- Jashemski, Wilhelmina F. "The Contribution of Archaeology to the Study of Ancient Roman Gardens." In *Garden History, Issues, Approaches, Methods, Dumbarton Oaks Colloquium on the History of Landscape Architecture 13*, edited by John Dixon, 5-30. Washington: Dumbarton Oaks, 1992.
- Jashemski, Wilhelmina F. "The Flower Industry at Pompeii." *Archaeology* 16.2 (1963): 112-121.
- Jashemski, Wilhelmina F. "Tomb Gardens at Pompeii." *The Classical Journal* 66.2 (1970/1): 97-115.
- Jashemski, Wilhelmina F. *A Pompeian Herbal: Ancient and Modern Plant Medicine*. Austin: University of Texas Press, 1999.
- Jashemski, Wilhelmina F. *Discovering the Gardens of Pompeii: The Memoires of a Garden Archaeologist 1955-1979*. North Charleston: CreateSpace, 2015.
- Jashemski, Wilhelmina F. *The Gardens of Pompeii, Herculaneum and the Villas Destroyed by Vesuvius*. New Rochelle: Caratzas, 1979
- Jashemski, Wilhelmina F. *The Gardens of Pompeii, Herculaneum, and the villas destroyed by Vesuvius, Volume II*. New Rochelle: Caratzas, 1993.
- Jashemski, Wilhelmina F., Eugenia Salza Prina Ricotti, and John Foss. "Preliminary Excavations in the Gardens of Hadrian's Villa: The Canopus Area and the Piazza d'Oro." *American Journal of Archaeology* 96.4 (1992): 579-597.
- Jashemski, Wilhelmina F., Frederick G. Meyer, and Massimo Ricciardi. "Plants: Evidence from Wall Paintings, Mosaics, Sculptures, Plant Remains, Graffiti, Inscriptions, and Ancient Authors." In *The Natural History of Pompeii*, edited by Wilhelmina F. Jashemski and Frederick G. Meyer, 327-350. Cambridge: Cambridge University Press, 2002.
- Jashemski, Wilhelmina F., J. E. Foss, R. J. Lewis, M. E. Timpson, and S. Y. Lee. "Roman Gardens in Tunisia: Preliminary Excavations in the House of Bacchus and Ariadne and in the East Temple at Thuburbo Maius." *American Journal of Archaeology* 99.4 (1995): 559-576.

- Jashemski, Wilhelmina F., Kathryn L. Gleason, and Michael Herchenbach. "Plants of the Roman Garden." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartwick, and Amina-Aïch Malek, 455-480. Cambridge: Cambridge University Press, 2018.
- Jashemski, Wilhelmina F., Kathryn L. Gleason, Kim J. Hartwick, Amina-Aïcha Malek, eds. *Gardens of the Roman Empire*. Cambridge: Cambridge University Press, 2019.
- Jenkins, Harold S. "Gibson's 'Affordances': Evolution of a Pivotal Concept." *Journal of Scientific Psychology* December (2008): 34-45.
- Jonasch, Melanie. "Les pierres du bon buveur: Eine regionale Konvention unter den Grabstelen des römerzeitlichen Gallien." PhD Diss., Freie Universität Berlin, 2011.
- Jones, F. M. A. "Roman Gardens, Imagination, and Cognitive Structure." *Mnemosyne* 67 (2014): 781-812.
- Jones, Frederick. *The Boundaries of Art and Social Space in Rome: the Cages Bird and Other Art Forms*. London: Bloomsbury Academic, 2016): 55-74.
- Jones, Winslow. "The Cypress of Somma." *Notes and Queries: A medium of Intercommunication for Literary Men and General Readers* 8.6 (1894): 509-511.
- Joshel, Sandra R. and Lauren Hackworth Petersen. "Thinking about Roman Slaves at Villa A." In *Leisure & Luxury in the Age of Nero: The Villas of Oplontis near Pompeii*, edited by Elaine K. Gazda and John R. Clarke, 148-159. Ann Arbor: Kelsey Museum of Archaeology, 2016.
- Joshel, Sandra R. and Lauren Hackworth Petersen. *The Material Life of Roman Slaves*. New York, NY: Cambridge University Press, 2014.
- Joshel, Sandra. *Slavery in the Roman World*. Cambridge: Cambridge University Press, 2010.
- Joshel, Sandra. *Work Identity and Legal Status at Rome: A Study of the Occupational Inscriptions*. Norman: University of Oklahoma Press, 1992.
- Kalinowski, Tomasz. Interview. *Studio Ogródów Kalinowski*, ul. Strolecka 9, 47-143 Sieroniowice, Poland. June-July 2017.
- Kellum, Barbara A. "The Construction of Landscape in Augustan Rome: The Garden Room at the Villa *Ad Gallinas*." *The Art Bulletin* 76.2 (1994): 211-224.

- Kellum, Barbara A. "What we see and what we don't see. Narrative Structure and the Ara Pacis." *Art History* 17.1 (1994): 26-45.
- Kenawi, Mohamed, Elizabeth Macaulay-Lewis, and Judith S. McKenzie. "A commercial nursery near Aby Hummum (Egypt) and re-use of amphoras for the trade in plants." *Journal of Roman Archaeology* 25.1 (2012): 195-225.
- Kimmerer, Robin. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Minneapolis: Milkweed Editions, 2013.
- King, Anthony and Grahame Soffe. "A Romano-Celtic Temple at Ratham Mill, Funtington, West Sussex." *Britannia* 14 (1983): 264-266.
- Kistler, Logan, et al. "Transoceanic drift and the domestication of African bottle gourds in the Americas." *Proceedings of the National Academy of Sciences of the United States of America* 111.8 (2014): 2937-2941.
- Klosko, George. *The Development of Plato's Political Theory*. Oxford: Oxford University Press, 2006.
- Klynne, Allan and Peter Liljenstolpe. "I Giardini." In *Ad Gallinas Albas Villa di Livia*, edited by Gaetano Messineo, 201-208. Roma: L'Erma di Bretschneider, 2001.
- Klynne, Allan and Peter Liljenstolpe. "Investigating the Gardens of the Villa of Livia." *Journal of Roman Archaeology* 13 (2000): 220-233.
- Klynne, Allan. "The Laurel Grove of the Caesars: Looking in and Looking out." In *Roman villas around the Urbs. Interaction with landscape and environment Proceedings of a conference held at the Swedish Institute in Rome, September 17-18, 2004*, edited by Barbara Santillo Frizell and Allan Klynne, 1-9. Rome: The Swedish Institute in Rome, 2005.
- Knapp, Robert C. *Invisible Romans*. Cambridge: Harvard University Press, 2011.
- Knappett, Carl, Lambros Malafouris and Peter Tomkins, "Ceramics (as Containers)." In *The Oxford Handbook of Material Culture Studies*, edited by D. Hicks and M. C. Beaudry, 588-612. Oxford: Oxford University Press, 2010.
- Knappett, Carl. "Photographs, Skeuomorphs, and Marionettes: Some Thoughts on Mind, Agency, and Object." *Journal of Material Culture* 7.1 (2002): 97-117.
- Knappett, Carl. "The Affordances of Things: a Post-Gibsonian Perspective on the Relationality of Mind and Matter." In *Rethinking Materiality: the engagement of mind with the material world*, edited by Elizabeth DeMarrais, Colin

- Renfrew, and Chris Gosden, 43-51. Cambridge: McDonald Institute of Archaeological research, 2004.
- Knox, Peter E. "Ovidian Myths on Pompeian Walls." In *The Handbook to the Reception of Ovid*, ed. John E. Miller and Carole E. Newlands, 36-54. Chichester, West Sussex: John Wiley & Sons, 2014.
- Koehler, Alain. "Vergers antiques dans les campagnes péri-urbaines: le cas de Reims." *Revue archéologique de Picardie* 1-2 (2003): 37-46.
- Koller, Dov. *The Restless Plant*, edited by Elizabeth Van Volkenburgh. Cambridge: Harvard University Press, 2011.
- Kuttner, Ann. "Culture and History at Pompey's Museum." *Transaction of the American Philological Association* 129 (1999): 343-373.
- Kuttner, Ann. "Looking outside inside: ancient Roman garden rooms." *Studies in the History of Gardens & Designed Landscapes* 19.1 (1999): 7-35.
- Lanciani, Rodolfo Amedeo. *The Ruins and Excavations of Ancient Rome: A Companion Book for Students and Travelers*. Boston, New York, Mifflin and Company, 1897.
- Landgren, Lena. "Plantings." In *The Cultural History of Gardens in Antiquity*, edited Kathryn L. Gleason, 73-98. London: Bloomsbury, 2015.
- Landgren, Lena. *Lauro, myrto et buxo frequentata: A Study of the Roman Garden through its Plants*. Lund: Lund University, 2004.
- Langgut, Dafna, Kathryn Gleason, and Barbara Burrell. "Pollen Analysis as evidence for Herod's Royal Garden at the Promontory Palace, Caesarea." *Israel Journal of Plant Sciences* (2015): 1-11.
- Langgut, Dafna. "The Citrus Route Revealed: from Southeast Asia into the Mediterranean." *HortScience* 58 (2017): 814-822.
- Lavoix, Gaëlle, Frédéric Gerber, and David Guitton. "De l'utile et de l'agréable: un jardin romain chez les Pictons: La viaube 1 à Jaunay-Clan (Vienne)." *Gallia* 73.2 (2016): 81-106.
- Lawson, James. "The Roman Garden." *Greece & Rome* 19.57 (1950): 97-105.
- Lazzaro, Claudia. "Politicizing a National Garden Tradition: the Italianness of the Italian Garden." In *Donatello among the Blackshirts: History and Modernity in*

- the Visual Culture of Fascist Italy*, edited by Claudia Lazzaro and Roger J. Crum, 157-169. Ithaca: Cornell University Press, 2004.
- Lazzaro, Claudia. *The Italian Renaissance Garden: From the Conventions of Planting, Design, and Ornament to the Grand Gardens of Sixteenth-Century Central Italy*. New Haven: Yale University Press, 1990.
- Le Glay, M. “*Les jardins romains* (2 e éd.), Pierre Grimal.” by Pierre Grimal. *Revue Archéologique* 1 (1971): 144-145.
- Legg, B. J. and I. F. Long. “Microclimate Factors Affecting Evaporation and Transpiration.” In *Physical Aspects of soil water and salts in ecosystems*, edited by A. Hadas, 275-285. Berlin: Springer-Verlag, 1973.
- Lehmann, Karl. “Review of *Les Jardins romains, à la fin de la république et aux deux premiers siècles de l'empire. Essai sur le naturalisme romain*,” by Pierre Grimal. *American Journal of Archaeology* 54.3 (1950): 284-287.
- Leitch, Alison. “The Materiality of Marble: Exploration in the Artistic Life of Stone.” *Thesis Eleven* 103.1 (2012): 65-77.
- Leone, Mark, Elizabeth Pruitt, Benjamin A. Skolnik, Stefan Woehlke, and Tracy H. Jenkins. “The Archaeology of Early African American Communities in Talbot County, Eastern Shore, Maryland, U.S.A. and Their Relationship to Slavery.” *Historical Archaeology* 52.4 (2018): 753–772.
- Leone, Mark, James M. Harmon, and Jessica L. Neuwirth. “Perspective and Surveillance in Eighteenth-Century Maryland Gardens, Including William Paca’s Garden on Wye Island.” *Historical Archaeology* 39.4 (2005): 131-150.
- Leone, Mark, Jennifer Babiarz and Cheryl LaRoche. “The Archaeology of Black Americans in Recent Times.” *Annual Reviews of Anthropology* 13.15 (2005): 575-599.
- Leone, Mark. *The Archaeology of Liberty in an American Capital: Excavations in Annapolis*. Berkeley: University of California Press, 2005.
- Lepetz, Sébastien and Véronique Zech-Matterne. “Agro-pastoral systems during the late Iron Age and roman period in Northern Gaul.” in *Gallia Rustica Volume II: Les campagnes du nord-est de la Gaule de la fin de l’âge du fer à l’antiquité tardive*, edited by Michel Reddé, 327-400. Pessac Ausonius, 2018.
- Lepik-Kopaczyńska, Wilhelmina. *Apelles: der berühmteste Maler der Antike*. Berlin: Akademie-Verlag, 1962.

- Leveau, Philippe. *Caesarea Maurétanie: une ville romaine et ses campagnes*. Rome: École française de Rome, 1984.
- Lewis, Colin. *Bonsai Survival Manual: Tree-by-Tree guide to buying, maintaining, and problem solving*. Pownal, VT: Storey, 1996.
- Liljenstolpe, Peter and Allan Klynne. "The Imperial Gardens of the Villa of Livia at Prima Porta: A Preliminary Report on the 1997 Campaign." *Opuscula Romana* 22-23 (1997-1998): 127-147.
- Lincoln, Bruce. *Myth, Cosmos, Society: Indo-European Themes of Creation and Destruction*. Cambridge: Harvard University Press, 1986.
- Linderski, J. "'Imago Hortorum' Pliny the Elder and the Gardens of the Urban Poor." *Classical Philology* 96.3 (2001): 305-308.
- Linderski, J. "The paintress Calypso and other Painters in Pliny." *Zeitschrift für Papyrologie und Epigraphik, Bd. 145* (2003): 83-96.
- Ling, Roger. "Studios and the Beginnings of Landscape Painting." *The Journal of Roman Studies* 67 (1977): 1-16.
- Ling, Roger. *Roman Painting*. Cambridge: Cambridge University Press, 2006.
- Lis, Catharina and Hugo Soly. "Work, Identity, and Self-Representation in the Roman Empire and the West-European Middle Ages: Different Interplays between the Social and the Cultural." In *Work, Labour, and Professions in the Roman World*, ed. Koenraad Verboven and Christian Laes, 262-289. Leiden: Brill, 2016.
- Liu, Jinyu. "Group Membership, Trust Networks, and Social Capital: A critical Analysis." In *Work, Labour, and Professions in the Roman world*, edited by Koenraad Verboven and Christian Laes, 203-226. Leiden: Brill, 2016.
- Livarda, Alexandra and Hector A. Orengo. "Reconstructing the Roman London flavourscape: new insights into the exotic food plant trade using network spatial analysis." *Journal of Archaeological Science* 55 (2015): 244-252.
- Livarda, Alexandra. "Introduction and Dispersal of Exotic Food Plants into Europe During the Roman and Medieval Periods." PhD Diss. University of Leicester, 2008.
- Livarda, Alexandra. "Spicing up life in northwestern Europe: exotic food plant imports in the Roman and medieval world." *Vegetation History and Archaeobotany* 20 (2011): 143-164.

- Lloyd, G. E. R. *Science, folklore, and ideology: studies in the life sciences in Ancient Greece*. Cambridge: Cambridge University Press, 1983.
- Lodwick, Lisa A. "Evergreen Plants in Roman Britain and Beyond: Movement, Meaning and Materiality." *Britannia* 48 (2017): 135-173.
- Lodwick, Lisa A. "Weeds in the Field, Weeds in the City: Posthuman Approaches to Plants in the Roman World." In *Beyond the Romans: Posthuman Perspectives in Roman Archaeology*, ed. Irene Selsvold and Lewis Webb, 79-91. Oxford: Oxbow Books, 2020.
- Lorimer, H. "The geographical fieldclass as active archive." *Cultural Geographies* 10 (2003): 278-308.
- Lowe, Dustan. "The Symbolic Value of Grafting in Ancient Rome." *Transactions of the American Philological Association* 140.2 (2010): 461-488.
- Macaulay, Elizabeth. "The *Horti*-culture of Rome: a new inquiry into the *Horti Sallustiani*." *Journal of Roman Archaeology* 19 (2006): 517-520.
- Macaulay-Lewis, Elizabeth. "Imported Exotica: Approaches to the Study of the Ancient Plant Trade." *Bollettino di Archeologia On Line* (Rome, 2008): 16-26.
- Macaulay-Lewis, Elizabeth. "Planting pots at Petra: a preliminary study of *ollae perforatae* at the Petra Pool Complex and at the 'Great Temple'." *Levant* 38 (2006): 159-170.
- Macaulay-Lewis, Elizabeth. "The Fruits of Victory: Generals, Plants and Power in the Roman World." In *Beyond the Battlefields: New Perspectives on Warfare and Society in the Graeco-Roman World*, edited by Edward Bragg, Lisa Irene Hau, Elizabeth Macaulay-Lewis, 205-224. Newcastle: Cambridge Scholars, 2008.
- Macaulay-Lewis, Elizabeth. "The role of *ollae perforatae* in understanding horticulture, planting techniques, garden design, and plant trade in the Roman World." In *The Archaeology of Crop Fields and Gardens: 1st International Conference in Crop Fields and Garden Archaeology, University of Barcelona, Barcelona, Spain, June 1-3, 2006*, edited by Jean-Paul Morel, Jordi Tresserras Juan and Juan Carlos Matamala, 1-13. Bari: Edipuglia, 2006.
- Malek, Amina-Aïcha. "Conclusion." In *Sourcebook for Garden Archaeology*, edited by Amina-Aïcha Malek, 93-96. Bern: Peter Lang, 2013.
- Malek, Amina-Aïcha. "Gardens for Archaeologists." In *Sourcebook for Garden Archaeology*, edited by Amina-Aïcha Malek, 13-20. Bern: Peter Lang, 2013.

- Mandich, Matthew J. "Ancient City, Universal Growth? Exploring Urban Expansion and Economic Development on Rome's Eastern Periphery." *Frontiers in Digital Humanities* 6:18 (2019): 1-17.
- Marconi, Clemente. *The Oxford Handbook of Greek and Roman Art and Architecture*. New York: Oxford University Press, 2015.
- Margueron, J. C. "Die Gärten im Vorderen Orient." In *Der Garten von der Antike bis zum Mittelalter*, edited by M. Carrol-Spillecke, 45-80. Mainz am Rhein: P. von Zabern, 1992.
- Marinval, Philippe, Denis Maréchal and David Labadie. "Arbres fruitiers et cultures jardinées gallo-romains à Longueil-Sainte-Marie (Oise)." *Gallia* 59 (2002): 253-271.
- Marzano, Annalisa and Guy Métraux, eds., *The Roman Villa in the Mediterranean Basin*. Cambridge: Cambridge University Press, 2018.
- Marzano, Annalisa. "Roman gardens, military conquests, and elite self-representation." In *Le jardin dans l'antiquité*, edited by Kathleen Coleman and Pascale Derron, 195-244. Vandoeuvres: Fondation Hardt, 2014.
- Marzano, Annalisa. *Roman Villas in Central Italy: A Social and Economic History*. Leiden: Brill, 2007.
- Masana, Josep Bruna. "Pruning: Traditional versus Italian System." Last updated February 1, 2017. <https://www.jeanleon.com/en/pruning-traditional-vs-italian-system>.
- Mattusch, Carol C. *Greek Bronze Statuary: From Beginnings Through the Fifth Century BC*. Ithaca: NY: Cornell University, 1988.
- Mattusch, Carol C. *Pompeii and the Roman Villa: Art and Culture around the Bay of Naples*, Washington D.C.: National Gallery of Art, 2008.
- Mazzoleni, Danilo. "La prima comunità cristiana di Roma nel periodo tardoantico alla luce delle testimonianze epigrafiche." In *Frühchristliche Grabinschriften im Westen des Römischen Reiches*, edited by Lukas Clemens, Hiltrud Merten, and Christoph Schäfer, 161-170. Trier: Kliomedia, 2015.
- McConnell, Joseph R. "Lead pollution recorded in Greenland ice indicates European emissions tracked plagues, wars, and Imperial expansion during antiquity." *PNAS* 115.22 (2018): 5726-5731.
- McKeown, Niall. *The Invention of Ancient Slavery?* London: Duckworth, 2007.

- Mescher, Mark C. and Consuelo M De Moraes. "Role of plant sensory perception in plant-animal interactions." *Journal of Experimental Botany* 66.2 (2014): 425-433.
- Meurers-Balke, J. and M. Herchenbach. "Römische Gartenkunst am Niederrhein." In *Archäologie im Rheinland*, edited by J. Kunow and M. Trier, 151-154. Darmstadt: Theiss, 2015.
- Miller, Naomi F. and Kathryn L. Gleason, eds. *The Archaeology of Garden and Field*. Philadelphia: University of Pennsylvania Press, 1994.
- Miller, Naomi F. and Kathryn L. Gleason. "Fertilizer in the Identification and Analysis of Cultivated Soil." In *The Archaeology of Gardens and Fields*, ed. Naomi F. Miler and Kathryn L. Gleason, 25-43. Philadelphia: University of Pennsylvania Press, 1994.
- Mitchell, Henry. "Digging for Buried Gardens." *The Washington Post*, April 4, 1977.
- Moore, Tom and R. Hoppadietz, "La sanctuaire des Sources de l'Yonne." In *Rapport intermédiaire 2018 du programme quadriennal de recherche 2017-2020 sur le Mont-Beuvray*, edited by Vincent Guichard, 291-317. Bibracte: Centre archéologique européen, 2019.
- Moretti, Giuseppe. *L'Ara pacis Augustae*. Roma: Istituto poligrafico e zecco dello Stato, Libreria dello Stato, 2007.
- Morris, Ian. "Remaining Invisible: The Archaeology of the Excluded in Classical Athens." In *Women and Slaves in the Greco-Roman Culture: Differential Equations*, edited by S. R. Joshel and S. Murnaghan, 193-220. London: Routledge, 1998.
- Mosa, Kareem A., Ahmed Ismail, Mohamed Helmy. "Introduction to Plant Stress." In *Plant Stress Tolerance*, edited by Kareem A. Mosa, 1-19. Cham: Springer International Publishing, 2017.
- Muckelroy, K. W. "Enclosed Ambulatories in Romano-Celtic Temples in Britain." *Britannia* 7 (1976): 173-191.
- Mullen, Alex. *Southern Gaul and the Mediterranean: Multilingualism and Multiple Identities in the Iron Age to Roman Periods*. Cambridge: Cambridge University Press, 2013.
- Müller, Noémi S. "Mechanical and Thermal Properties." In *The Oxford handbook for Archaeological Ceramic Analysis*, edited by Alice Hunt. Oxford: Oxford University Press, 2017.

Myers, K. Sara. "Representations of Gardens in Roman Literature." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, Amina-Aïcha Malek, 258-277. Cambridge, U.K.: Cambridge University Press, 2018.

National Intelligencer, 23 June 1825.

Neer, Richard. *The Emergence of the Classical Style in Greek Sculpture*. Chicago: University of Chicago Press, 2010.

Neger, Margot. "*Laubado digne non satis tamen Baias*: Martial's Epigrammatic Campania." In *Campania in the Flavian Poetic Imagination*, edited by Antony Augoustakis and R. Joy Littlewood, 83-98. Oxford: Oxford University Press, 2019.

Neiss, Robert, François Berthelot, Jean-Marc Doyen, Philippe Rollet. "Reims/Durocortorum, cité des Rèmes: Les principales étapes de la formation urbaine," *Gallia* 72.1 (2015): 161–176.

Nobel, Joseph Veach. *The Techniques of Painted Attic Pottery*. London: Thames and Hudson 1988.

O'Sullivan, Timothy M. *Walking in Roman Culture*. Cambridge: Cambridge University Press, 2011.

Omrani, Bijan. *Caesar's footprints: A Cultural Excursion to Ancient France*. New York: Pegasus Books, 2017.

Orengo, Hector A., and Alexandra Livarda. "The seeds of commerce: A network analysis-based approach to the Romano-British transport system." *Journal of Archaeological Science* 66 (2016): 21-35.

Östenberg, Ida. *Staging the World: Spoils, Captives, and Representation in the Roman Triumphal Procession*. Oxford: Oxford University Press, 2009.

Pagan, Victoria. "Horticulture and the Shaping of Nature." In *Oxford Handbook Online*, 2016.

Palmer, Michele A. "Terrace construction, water supply, and drainage." *Quaderni di Studi Pompeiani VII: Excavation and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* 7 (2016): 60-66.

Paris, Harry S., Marie-Christine Duanay, Jules Janick. "Occidental Diffusion of *Cucumis sativus* 500-1300 CE: two routes to Europe." *Annals of Botany* 109 (2012): 117-126.

- Parker, Richard A. "A Late Demotic Gardening Agreement: Medinet Habu Ostrakon 4038." *Journal of Egyptian Archaeology* 26 (1941): 84-113.
- Pease, Arthur Stanley. "The Loves of the Plants." *Classical Philology* 22.1 (1927): 94-98.
- Peattie, Donald Culross. *Flowering Earth*. New York: Putnam's Sons, 1939.
- Peña-Chocarro, Leonor, Lydia Zapata. "Trade and new plant foods in the western Atlantic Coast: The Roman port of Irun (Basque Country)." In *Mar exterior: el occidente atlántico en época romana: congreso internacional, Pisa, Santa Croce in Fossabanda, 6-9 de noviembre de 2003*, ed. M.M. Urteaga Artigas, M.J. Noain Maura, 169-175. Roma: Escuela Española de Historia y Arqueología, CSIC, 2005.
- Peyne, Nicolas and Sylvain Foisset. "L'exploitation rurale antique des Perches à Ormes (Marne): un exemple d'arboriculture dans la région de Reims." *Bulletin de la société archéologique Champenoise* 2 (2011), 69-82.
- Pianigiani, Gaia. "Migrants walk off Italy's tomato fields, and into its immigration debate." *New York Times Europe*. August 8, 2018.
<https://www.nytimes.com/2018/08/08/world/europe/migrants-italy-accident-protest.html>.
- Picon, Antoine. *French architects and engineers in the Age of Enlightenment*, translated by Martin Thom. Cambridge: Cambridge University Press, 1992.
- Pinto-Guillaume, Ezequiel M. "Jardins anciens et reconstructions modernes: réflexions autour d'une réhabilitation et reconstruction d'un jardin romain de la période julio-claudienne dans une villa impériale au Nord de Rome." In *International Council on Monuments and Sites, 16th General Assembly and International Scientific Symposium*, 1-10. Quebec City International Council on Monuments and Sites, 2008.
- Pitt, Hannah. "On showing and being plants: a guide to methods for more-than-human geography." *Area* 47.1 (2015): 48-55.
- Pollan, Michael. "The Intelligent Plant: Scientists debate a new way of understanding flora." *The New Yorker* December 23, 2013.
- Pollan, Michael. "Weeds are Us." *The New York Times Magazine*, November 5 1989,
<https://michaelpollan.com/articles-archive/weeds-are-us/>

- Pomarède, H., et al. "Territoires languedociens de la Protohistoire au Moyen âge. Nouvelles données sur les campagnes de Nîmes, Lodève et Béziers." *Archéopages* 34 (2012): 10-21.
- Porteous, Douglas. "Bodyscape: The Body landscape Metaphor." *The Canadian Geographer* 30.1 (1986): 1-12.
- Pourkhabbaz, Alireza, et al. "Influence of Environmental Pollution on Leaf Properties of Urban Plane Trees, *Platanus Orientalis*, L.." *Bulletin of Environmental Contamination and Toxicology* 85 (2010): 251-255.
- Power, Emma. "Human-Nature Relations in Suburban Gardens." *Australian Geographer* 36.1 (2005) 39-53.
- Price, Simon and Peter Thonemann. *The Birth of Classical Europe: A History from Troy to Augustine*. New York: Allen Lane, 2010.
- Provost, Michel. *Carte archéologique de la Gaule: le Gard 30/2*. Paris: Académie des Inscriptions et Belles-Lettres, 1999.
- Purcell, Nicholas. "Dialectical Gardening." *Journal of Roman Archaeology* 14 (2001): 546-556.
- Purcell, Nicholas. "The *horti* of Rome and the landscape of property." In *Res bene gestae: recherche di storia urbana su Roma antica in onore di Eva Margareta Steinby*, edited by Anna Leone, Domenico Palombi, and Susan Walker, 289-305. Roma: Edizioni Quasar, 2007.
- Purcell, Nicholas. "The Roman Garden as Domestic Building." In *Roman Domestic Buildings*, ed. Ian M. Barton, 121-151. Exeter: University of Exeter Press, 1996.
- Purcell, Nicholas. "The Roman *villa* and the landscape of production." In *Urban Society in Roman Italy*, edited by Tim Cornell and Kathryn Lomas, 157-184. New York: St. Martin's Press, 1995.
- Purcell, Nicholas. "Town in Country and Country in Town." In *Ancient Roman Villa Gardens*, edited by Elizabeth B. MacDougall and Wilhelmina Jashemski, 187-203. Washington D.C., Dumbarton Oaks Research Library and Collection, 1987.
- Pütz, Norbert. "Underground plant movement." *Flora* 191 (1996): 275-282.
- Reay, Brendon. "Agriculture, Writing, and Cato's Aristocratic Self-Fashioning." *Classical Antiquity* 24.2 (2005): 331-361.

- Redman, Charles L. "Resilience Theory in Archaeology." *American Anthropologist* 107.1 (2005): 70-77.
- Reeder, Jane Clark. *The Villa of Livia Ad Gallinas Albas: A Study in the Augustan Villa and Garden*. Providence: Brown University Press, 2001.
- Reeves, Matthew. "A Community of Households: Early 19th Century Enslaved Landscapes at James Madison's Montpelier." *African Diaspora Archaeology Newsletter* 13.4 (2010): 1-26.
- Reeves, Matthew. *A brief history of the Montpelier landscape*. Montpelier: Montpelier Archaeology Department, 2016.
- Revue épigraphique*, Vol. 3. Vienne: E. J. Savigné Imprimeur, 1894.
- Rhoades, D. F. "Responses of alder and willow to attack by tent caterpillars and webworms: evidence for pheromonal sensitivity of willows." In *Plant resistance to insects*, edited by P. A. Hedin, 55-68. Washington D.C.: American Chemical Society, 1983.
- Richardson Jr. Lawrence. *A catalogue of identifiable figure painters of ancient Pompeii, Herculaneum, and Stabiae*. Baltimore: Johns Hopkins University Press, 2000.
- Rix, Martyn and Michael F. Fay. "Platanus Orientalis." *Botanical Magazine* 34.1 (2017): 29-40.
- Rosati, L., A. Masi, M. Giardini, and M. Marignani. "Under the shadow of a big plane tree: Why *Platanus orientalis* should be considered an archaeophyte in Italy." *Plant Biosystems* (2015): 1-12.
- Rösch, Manfred. "Evidence for rare crop weeds of the Caucalidion group in Southwestern Germany since the Bronze Age: palaeoecological implications." *Vegetation History and Archaeobotany* 27 (2018): 75-84.
- Rossini, Orietta. *Ara Pacis*. Milano: Electa, 2006.
- Roth, Ulrike. "The female slave in Roman agriculture: changing the default." PhD Dissertation. Nottingham: Nottingham University, 2003.
- Rumpho, Mary E., Karen N. Pelletreau, Ahmed Moustafa, and Debashish Bhattacharya. "The making of a photosynthetic animal." *The Journal of experimental biology* 214 (2011): 303-11.

- Ryan, John Charles. "Sacred Ecology of Plants: The Vegetative Soul in the Botanical Poetry of Les Murray." *Journal for the Study of Religion, Nature and Culture* 10.4 (2016): 459-484.
- Sabrié, Marie-Lise, Elisabeth Gibert-Brunet, and Thomas Mourier, eds. *The Mediterranean Region under Climate Change: A Scientific Update*. Marseille: IRD Éditions, 2016.
- Sadori, Laura, et al. "The introduction and diffusion of peach in ancient Italy." In *Plants and Culture: seeds of the cultural heritage of Europe*, edited by Jean-Paul Morel and Anna Maria Mercuri, 45-61. Bari: Edipuglia, 2009.
- Sallares, Robert. "Environmental History." In *A Companion to Ancient History*, edited by Andrew Erskine, 164-174. Wiley-Blackwell Hoboken: John Wiley & Sons, Incorporated, 2009.
- Sampaolo, Valeria. "Le Pitture." In *Le collezioni del Museo Nazionale di Napoli*. Roma: De Luca, 1986.
- Sartori, Antonio. "Fortunatus il 'topiario'." In *L'archeologia in verde: quattordici conversazioni a Milano sulla percezione della natura nel mondo antico*, edited by Gemma Sena Chiesa and Federica Giacobello, 73-78. Sesto Fiorentino: All'insegna del Giglio, 2016.
- Schefold, Karl. *Die Wände Pompejis*. Berlin: De Gruyter, 1957.
- Schenk, H. Jochen, and Eric W. Seabloom. "Evolutionary Ecology of Plant Signals and Toxins: A Conceptual Framework." In *Plant Communication from an Ecological Perspective*, edited by František Baluška and Velemir Ninkovic, 1-19. Berlin: Springer, 2010.
- Secoy, D. M. and Allan E. Smith. "Use of Plants in Control of Agricultural and Domestic Pests." *Economic Botany* 37.1 (1983): 28-57.
- Sedley, David. "Cicero and the Timaeus." In *Aristotle, Plato and the Pythagoreanism in the First Century BC*, edited by Malcolm Schofield, 185-205. Cambridge: Cambridge University Press, 2013.
- Séjalon, Isabel and Pierre. "Archaeological wells in southern France: Late Neolithic to Roman plant remains from Mas de Vignoles IX (Gard) and their implications for the study of settlement, economy and environment." *Environmental Archaeology* 19.2 (2014): 23-38.

- Short, William M. "Thinking Places, Placing Thoughts: Spatial Metaphors of Mental Activity in Roman Culture." *I Quaderni del Ramo d'Oro Online* 1 (2008): 106-129.
- Simelius, Samuli. "Pompeian Peristyle Gardens as a Means of Socioeconomic Representation." PhD Diss., Helsinki: University of Helsinki Press, 2018.
- Singer, C. "The Herbal in Antiquity." *Journal of Hellenic Studies* 47 (1927): 1-52.
- Skempt, J. B. "Plants in Plato's Timaeus." *The Classical Quarterly* 41.1/2 (1947): 53-60.
- Smith, Allan E. and D. M. Secoy. "Early Chemical Control of Weeds in Europe." *Weed Science* 24.6 (1976): 594-597.
- Smith, Allan E. and Diane M. Secoy. "Forerunners of Pesticides in Classical Greece and Rome." *Journal of Agriculture and Food Chemistry* 23.6 (1975): 1050-1055.
- Šoštarić, Renata and Hansjörg Küster. "Roman plant remains from Veli Brijun (island of Brioni), Croatia." *Vegetation History and Archaeobotany* 10 (2001): 227-233.
- Spadolini, Giovanni. *Il Palazzo del Quirinale: Testi di Franco Borsi*. Rome: Editalia, 1974.
- Spear, Richard E. "Scrambling for Scudi: Notes on Painter's Earnings in Early Baroque Rome." *The Art Bulletin* 85.2 (2003): 310-320.
- Stager, Jennifer. *The Embodiment of Color in Ancient Mediterranean Art*. PhD Diss. University of California Berkeley, 2012.
- Storey, Glenn R. "The 'Skyscrapers' of the Roman World." *Latomus* 62.1 (2003): 3-26.
- Sutherland, Ian. "The Architectural Framework of the Great Peristyle Garden at the Villa Arianna." *Quaderni di Studi Pompeiani VII: Excavation and Study of the Garden of the Great Peristyle of the Villa Arianna, Stabiae, 2007-2012* (2016): 49-50;
- Suzuki, David T., Wayne Grady, and Robert Bateman. *Tree: A Life Story*. Vancouver: Graystone Books, 2018.
- Synnefa, A. et al. "On the use of cool materials as a heat island mitigation strategy." *Journal of Applied Meteorology and Climatology* 47 (2008): 2846-2856.

- Tally-Schumacher, Kaja J. and Nils Niemeier. "Through the Picture Plane: Movement and Transformation in the Garden Room at the Villa *ad Gallinas* at Prima Porta." *Chronika* April (2016): 58-71.
- Tally-Schumacher, Kaja J. Conference Paper. "Strolling Charioteers: Finding the Circus in Roman Gardens." Presented at the Institute of Fine Arts Frick Symposium, New York, April 27th, 2018.
- Taylor, Elizabeth Dowling. *A slave in the White House: Paul Jennings and the Madisons*. New York: Palgrave Macmillan, 2012.
- Temin, Peter. "The Labor Market of the Early Roman Empire." *The Journal of Interdisciplinary History* 34.4 (Spring 2004), 513-538.
- Terrenato, Nicola. "The innocents and the skeptics. Antiquity and Classical Archaeolog." *Antiquity* 76 (2002): 1104-1111.
- The Society of Plant Signaling*. Our Mission. Accessed September 29, 2018. <http://www.plantbehavior.org/about-us/>.
- Thompson, Dorothy Burr. *The Garden Lore of Ancient Athens*. Princeton N.J.: The American School of Classical Studies at Athens, 1982.
- Thompson, Mary V. "*The unavoidable subject of regret*" *George Washington, Slavery, and the enslaved community at Mount Vernon*. Charlottesville: University of Virginia Press, 2019.
- Thoreau, Henry David. "The Bean Field." In *Walden*. Boston MA: Ticknor and Fields, 1854.
- Tompkins, Peter and Christopher Bird. *The Secret Life of Plants: A fascinating account of the physical, emotional, and spiritual relations between plants and man*. New York: Harper & Row, 1989.
- Totelin, Laurence. "Botanizing Rulers and their Herbal Subjects: Plants and Political Power in Greek and Roman Literature." *Phoenix* 66 ½ (2012): 122-144.
- Toynbee, J. M. C. "Review of Pierre Grimal, *Les Jardins romains, à la fin de la république et aux deux premiers siècles de l'empire. Essai sur le naturalisme romain*," *The Journal of Roman Studies* 36.1 and 2 (1946): 210-213.
- Tran, Nicolas. "*Ars and Doctrina: the Socioeconomic Identity of Roman Skilled Workers (First Century BC-Third Century AD)*." In *Work, Labour, and Professions in the Roman World*, edited by Koenraad Verboven and Christian Laes, 246-261. Leiden: Brill, 2016.

- Treggiari, Susan. "Jobs in the Household of Livia." *Papers of the British School at Rome* 43 (1975): 48-77.
- Trimble, Jennifer. "The Zoninus Collar and the Archaeology of Roman Slavery." *American Journal of Archaeology* 120.3 (2016):447-472.
- Trimble, Jennifer. Conference Paper. "Seeing Roman Slaves: Conditions of Visibility." Lecture, Townsend Lecture, Cornell University, Ithaca, NY, September 9, 2016.
- Trowbridge, Peter J. and Nina L. Bassuk. *Trees in the Urban Landscape: Site Assessment, Design, and Installation*. Hoboken, N.J.: John Wiley, 2004.
- Uremis, Ilhan, Mehmet Arslan, Ahmet Uludag, and Mustafa Kemal Sangun. "Allelopathic potentials of residues of 6 brassica species on johnsongrass [*Sorghum halepense* (L.) Pers.]." *African Journal of Biotechnology* 8.15 (2009): 3497-3501.
- van der Veen, Marijke and Jacob Morales. "The Roman and Islamic spice trade: new archaeological evidence." *Journal of Ethnopharmacology* 167 (2015): 54-63.
- van der Veen, Marijke. "Food as embodied material culture: diversity and change in plant food consumption in Roman Britain." *Journal of Roman Archaeology* 21 (2008): 83-109.
- van der Veen, Marijke. "The materiality of plants: plant-people entanglements." *World Archaeology* 46.5 (2014), 799-812.
- van Oyen, Astrid and Martin Pitts, ed. *Materializing Roman History*. Oxford: Oxbow Books, 2017.
- Vaz, Filipe Costa, Mariía Martín-Seijo, Sérgio Carneiro, and João Pedro Tereso. "Waterlogged plant remains from the Roman healing spa of Aquae Flaviae (Chaves, Portugal): Utilizatrian objects, timber, fruits and seeds." *Quarterly International* 404 (2016): 86-103;
- Viñas, R. Abad, G. Caudullo, S. Oliveira, D. de Rigo. "Pinus Pinea in Europe: distribution, habitat, usage and threats." In *European Atlas of Forest Tree Species*, edited by J. San-Miguel-Ayanz, D. de Rigo, G. Caudullo, T. Houston Durrant, A. Mauri, 130-131. European Commission, 2016.
- Vitousek, Peter M., Henning Andersen, and Lloyd L. Loope. "Introduction: Why focus on islands?" In *Islands: Biological Diversity and Ecosystem Function*, edited by Peter M. Vitousek, Henning Andersen, and Lloyd L. Loope, 1-4. New York: Springer, 1995.

- von Stackelberg, Katharine T. "Performative Space and Garden Transgressions in Tacitus' Death of Messalina." *American Journal of Philology* 130.4 (2009) 595–624.
- von Stackelberg, Katharine T. "Review of *Earthly Paradises: Ancient Gardens in History and Archaeology*." By Maureen Carroll. *Bryn Mawr Classical Review* 2004.03.30.
- von Stackelberg, Katharine T. "Review of *Gardens and Gardeners of the Ancient World: History, Myth and Archaeology*." By Linda Farrar. *Bryn Mawr Classical Review*, 2018.01.44.
- von Stackelberg, Katharine T. *The Roman Garden: Space, sense and society*. London: Routledge, 2009.
- Waelkens, M. "Phrygian votive and tombstones as sources of the social and economic life in Roman antiquity." *Ancient Society* 8 (1977): 277-315.
- Wallace-Hadrill, Andrew. "The Roman Villa as Cultural Symbol." In *The Roman Villa Villa Urbana*, edited by Alfred Frazer, 43-54. Ephrata, PA: Science Press, 1990.
- Webster, Jane. "Archaeologies of slavery and servitude: bringing 'New World' perspectives to Roman Britain." *Journal Roman Archaeology* 18 (2005): 161-178.
- Webster, Jane. "Less beloved: Roman archaeology, slavery and the failure to compare." *Archaeological Dialogues* 15.2 (2008): 103-123.
- Webster, Jane. "Slavery, archaeology and the politics of analogy." *Archaeological Dialogues* 15.2 (2008): 139-149.
- White, K. D. *Agricultural Implements of the Roman World*. London: Cambridge University Press, 1967.
- White, K. D. *Farm Equipment of the Roman World*. Cambridge: Cambridge University Press, 1975.
- Willcox, G. H. "Exotic Plants from Roman Waterlogged Sites in London." *Journal of Archaeological Science* 4 (1977): 269-282.
- Willis, R. J. "The Historical Bases of the Concept of Allelopathy." *Journal of the History of Biology* 18.1 (1985): 74-76.
- Willis, R. J. *The History of Allelopathy*. Dordrecht: Springer Netherlands, 2007.

Wulf, Andrea. *Founding Gardeners: the revolutionary generation, nature, and the shaping of the American nation*. New York: Alfred A. Knopf, 2011.

Yates, Velvet. "The Titanic Origin of Humans: The Melian Nymphs and Zagreus." *Greek, Roman, and Byzantine Studies* 44 (2004): 183-187.

Young, Diana. "The Colours of Things." In *Handbook of Material Culture*, edited by C. Y. Tilley, W. Keane, S. Küchler, M. Rowlands and P. Spyer, 173-185. London: Sage Publications, 2006.

Zanker, Paul. *Pompeii: Public and Private Life*, translated by Deborah Lucas Schneider. Cambridge: Harvard University Press, 1998.

Zanker, Paul. *The Power of Images in the Age of Augustus*. Ann Arbor: University of Michigan Press, 1998.

Zarmakoupi, Mantha. "Designing the landscapes of the Villa of Livia at Prima Porta." In *Essays in Classical Archaeology for Eleni Hatzivassiliou 1977-2007*, edited by D. Kurtz et al., 269-276. Oxford: Studies in Classical Archaeology, The Beazley Archive Series, 2008.

Zimmer, Gerhard. *Römische Berufsdarstellungen*. Berlin: Gebr. Mann, 1982.

ANCIENT SOURCES IN TRANSLATION

Aelianus. In *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, edited by Brad Inwood, 151. Toronto: Toronto University Press, 2001.

Aëtius. In *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, trans. Brad Inwood, 186. Toronto: University of Toronto Press, 2001.

Aristotle. *Generation of Animals*. Translated by A. L. Peck. Cambridge: Harvard University Press, 1937.

Aristotle. *Politics*. Translated by C. D. C. Reeve. Indianapolis: Hackett Publishing Company, 1998.

Cato and Varro. *On Agriculture*. Translated by W.D Hooper and H. B. Ash. Cambridge: Harvard University Press, 1934.

Diogenes Laertius. In *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, trans. Brad Inwood, 161. Toronto: University of Toronto Press, 2001.

Cicero. *On Ends*. Translated by H. Rackham. Cambridge: Harvard University Press, 1914.

Columella. *On Agriculture*. Translated by Harrison Boyd Ash. Cambridge: Harvard University Press, 1941.

Hesiod. *Theogony, Works, Days, Shield*. Translated by Apostolos Athanassakis. Baltimore: Johns Hopkins University Press, 1983.

Hippolytus. In *The Poem of Empedocles: A text and translation with an Introduction by Brad Inwood*, trans. Brad Inwood, 172. Toronto: University of Toronto Press, 2001.

Horace. *Odes and Epodes*. Translated by Niall Rudd. Cambridge: Harvard University Press, 2004.

Juvenal and Persius. Translated by G. G. Ramsey. Cambridge: Harvard University Press 1961.

Martial. *Epigrams*. Translated by D. R. Shackleton. Cambridge: Harvard University Press, 1993.

- Ovid. *Metamorphoses*. Translated by Frank Justus Miller. Cambridge: Harvard University Press, 1916.
- Plato. *Republic*. Translated by G. M. A Grube and revised by C. D. Reeve. Indianapolis: Hackett Publishing Company, 1992.
- Plato. *Plato in Twelve Volumes*. Translated by W.R.M. Lamb. Cambridge, MA, Harvard University Press, 1925.
- Plato. *Plato: Timaeus and Critias*, Translated by A. E. Taylor. London: Methuen & Co, Ltd, 1929.
- Pliny the Elder. *Natural History*. Translated by H. Rackham. Cambridge: Harvard University Press, 1945.
- Pliny the Elder. *Natural History*. Translated by W. H. S. Jones and A. C. Andrews. Cambridge: Harvard University Press, 1956.
- Pliny the Elder. *Natural History*. Translated by H. Rackam. Cambridge: Harvard University Press, 1938.
- Pliny the Elder. *Natural History*. Translated by John Bostock. London: Taylor and Francis, 1855.
- Pliny the Elder, *Natural History*. Translated by R. Rackham. Cambridge: Harvard University Press, 1950.
- Pseudo-Aristotle. *On Plants*, Translated by W. S. Hett. Cambridge: Harvard University Press, 1936.
- Quintilian. *The Orator's Education*. Translated by Donald Russell. Cambridge: Harvard University Press, 2001.
- Statius. *Thebaid and Achilleid*. Translated by J. H. Mozley. Cambridge: William Heinemann and Harvard University Press, 1961.
- Suetonius. *Lives of the Caesars*. Translated by J. C. Rolfe. Cambridge: Harvard University Press, 1914.
- Virgil. *Aeneid*. Translated by H. Rushton Fairclough. Cambridge: Harvard University Press, 2000.

ANCIENT SOURCES

Alfenus. *Digesta*.

Aristotle. *De anima*.

Cato. *De agricultura*.

Cicero. *De oratore*.

Cicero. *Epistulae ad familiars*.

Cicero. *De natura deorum*.

Cicero. *Paradoxa Stoicorum*.

Cicero. *Epistulae ad Quintum fratrem*.

Cicero. *Epistulae ad Atticum*.

Cicero. *Pro Sexto Roscio Amerino*.

Columella. *De re rustica*.

Homer. *Iliad*.

Horace. *Carmina*.

Horace. *Epistulae*.

Horace. *Epodi*.

Macrobius. *Saturnalia*.

Marcellus. *Notae ad Marcelli Digesta* 31.

Martial.

Ovid. *Epistulae ex Ponto*.

Palladius.

Plato. *Phaedrus*.

Plautus. *Trinummus*.

Pliny the Elder. *Naturalis historia*.

Pliny the Younger. *Epistulae*.

Plutarch. *Moralia*.

Plutarch. *Vitae Parallelae*.

Strabo. *Geographica*.

Suetonius. *Divus Augustus*.

Tacitus. *Historiae*.

Theophrastus. *De causis plantarum*.

Theophrastus. *Historia plantarum*.

Ulpianus. *Digesta*.

Valerius Maximus.

Varro. *De lingua Latina*.

Virgil. *Eclogues*.

