THE ROMANIZATION OF BRITAIN THROUGH GARDEN PLANTS

A Thesis

Presented to the Faculty of the Graduate School

of Cornell University

in Partial Fulfillment of the Requirements for the Degree of Master of

Arts in Archaeology

by

Tara Elizabeth Morgan

May 2024

ABSTRACT

While there have been significant strides in the scholarship surrounding Romanization and Roman gardens in the provinces, and the ways in which cultivated garden plants represent cultural ideologies and identity, there is a lack of research focusing on the use of local native plants in gardens alongside Roman imported and introduced plants in the empire. To explore this topic further, this thesis explores both native and non-native plants and their cultivation in the gardens of Roman Britain. This research aims to close this gap in the knowledge of native plants used in the gardens of Roman Britain through analyzing archaeobotanical, landscape, and material evidence to identify the Roman imported (non-native) and local (native) plants used in gardens, and analyze the data within broader contexts of Romanization and a unique Romano-British tradition of cultivating plants in gardens.

BIOGRAPHICAL SKETCH

Tara graduated from the University of Massachusetts-Amherst in 2021 with a BA in Anthropology and a minor in Classical Archaeology (*summa cum laude*). She comes to Cornell to obtain her MA in Archaeology with concentrations in Archaeological Sciences and Mediterranean and Near Eastern Studies. Her research interests include Romanization, Iron Age and Roman Britain, archaeobotany, and gardening practices. Tara worked as an intern assistant for the UMass-Amherst Archaeological Services Curation Center in 2021 and has participated in archaeological surveys and excavations in Greece, Italy, and the northeastern United States.

ACKNOWLEDGEMENTS

I acknowledge the support of the Cornell Institute for Archaeology and Material Studies, whose support and fellowship funding allowed me to pursue my two semesters of coursework at Cornell. I also acknowledge their support through the Hirsch Graduate Research and Travel Grant that made my summer research possible. My thanks also goes out to my committee members, Prof. Sturt Manning and Prof. Kathryn Gleason, for their advice and guidance throughout my pursuit of my MA. I also thank my partner, family, and friends for their continuous support of my academic endeavors.

TABLE OF CONTENTS

INTRODUCTION

Current and past research on plants cultivated in gardens in the Roman empire focuses on the impact of Roman imported plants on other regions in the empire, and how new plant species become a part of the Romanization process in the provinces. As Romanization is a two way process of cultural exchange between the Romans and local regions as new populations become a part of the empire, there should also be a focus on localized plants and the ways in which they represent the Romanization process in the provinces as well. Roman Britain is relatively understudied within garden archaeology, and current research has focused primarily on plants imported from the Roman empire to Britain, taking a center to periphery approach to plants cultivated in Romano-British gardens. This research aims to close this gap in the knowledge of native plants used in the gardens of Roman Britain through analyzing archaeobotanical, material evidence, and landscape evidence to identify the Roman imported (non-native) and local (native) plants used in gardens, and analyze the data within broader contexts of Romanization. The purpose of this thesis is to propose a method of identifying and studying gardens in Roman Britain, and to explore how native plants to Britain are adapted into Roman gardening practices, and thus how factors such as climate and environment played a role in the incorporation of native plant life in addition to or cultivated instead of ones which were brought by the Romans. This research also aims to explore how and why Romanization relates to gardens in Roman Britain, and how the use of local plants through a transitional cultural time period from the end of the Iron Age to the Roman period in Britain reflects Romano-British cultural identity. To examine the ways in which plants in gardens in Roman Britain reflect identity, this research is divided into four sections. Part I: the Romanization Debate and the Role of Plants explores the

background of Romanization studies in the Roman empire and Roman Britain specifically with a focus on gardens, plants, and plants as material culture. Part II: Methods and Evidence will survey archaeobotanical and garden studies literature on Roman Britain to develop a methodology to study garden plants and Romanization, with a focus on finding Roman imported plants or plants native to Britain. This is followed by the analysis of archaeobotanical and pollen data of plants found in Romano-British gardens and their origins, material evidence associated with gardening such as tools and planting pots, and evidence of gardens from the landscape. Part III: A Case Study of Roman Silchester explores urban gardens and Roman gardening on a more localized level, and serves as a comparison to the analysis of garden plants in Part II. Part IV: Conclusion compiles the analysis of this thesis together to conclude that Romanization, as a two way process of acculturation between the Roman empire and the province of Britannia, also relates to the use of plants in gardens in Roman Britain. Native plants to Britain were chosen to be cultivated alongside Roman introduced plants due to their capacity to grow well in the environment, and they were grown due to the interest of the population in cultivating and consuming native plants. The plants native to Britain were incorporated into Roman traditions, creating a Romano-British tradition of cultivating plants and gardens which was unique to the region.

PART I: THE ROMANIZATION DEBATE AND THE ROLE OF PLANTS

The debate on Romanization has led to multiple perspectives on the transformation of cultural identity in the face of Roman occupation, and the emphasis on what is considered to be the strict boundaries that make up Roman and non-Roman culture. Millett's (1990) work still

holds its place as one of the foundational texts for Romanization in Britain, in which Romanization is a process of acculturation and dialectical change and can be understood through evidence of human agency through material culture. The new wave of post-processual theories within archaeology have led to emerging literature using postcolonial theory, such as Webster's (2001) article on creolisation of the provinces, to explore Romanization from a bottom-up approach focusing on local populations and their decisions and agency to use or reject Roman culture, as well as getting rid of using the term "Romanization" as a descriptor. However, as discussed by Versluys (2014, 2-3), colonial and postcolonial frameworks try to fit Roman imperialism into modern definitions surrounding colonization and imperialistic nation states of the 19th and 20th centuries and not framed within antiquity. He proposes that Romanization be studied through the lens of globalization and of the entanglement between people and material culture (Versluys 2014, 14). Both theories posited by Millett (1990) and Versluys (2014) argue that material culture is both an active agent representing connectivity between groups of people and can be used to represent cultural change, or Romanization.

In line with Millett's (1990) perspective that the introduction of Roman material goods and the increased demand for these from the local elite because of developing contact through the Iron Age with the Roman world, the people of Britain had already been introduced to being "Romanized" prior to the Roman occupation starting in 43 CE. Published archaeological research has focused on the ways in which material items such as ceramics, metalworking, and coins made their way into the deposits of Iron Age societies and, after Roman conquest, showcasing the adoption of Roman culture, but plants have not been given as much importance until recently. In the past two decades there has been an increase in publications focusing on gardens and the importance of plants in the Roman world. Jashemski et al.'s (2017) pioneering

work and project *Gardens of the Roman Empire* encourages further study of Roman gardens and plants, with the purpose of compiling the works of many garden scholars to create a compendium of knowledge on gardens spanning across the Roman world. Multiple chapters discuss the Roman provinces in Europe, Africa, and the Middle East and the ways in which their gardens and plants reflect cultural changes and adaptations to the regional populations and environments. The role of plants within Roman imperialist frameworks has been further explored by Marzano's *Plants, Politics, and Empire in Ancient Rome* (2022), with a focus on "the cultural and political dimensions of Roman arboriculture" (Marzano 2022, 1). The entanglement of plants that have been traded throughout the Roman Mediterranean, and the gardens containing them, with different social classes within societal power structures has also been discussed in "Cultivating Empire in Ancient Roman Gardens: Unearthing the Tangled Relationship between Plants and their Gardeners" (Tally-Schumacher 2020). Themes of Romanization are present in the literature on Roman gardens due to the entanglement of plants, gardens, and identity within the Roman world.

A way of analyzing plants and gardens is through interpreting them as forms of material culture, as they are manipulated by human activity and are physical manifestations of cultural ideologies. In this way, plants and gardens in Roman Britain are vessels of cultural identity. The focus on reading material culture as the representation of cultural change in recent literature has been used to analyze Romanization, the entanglement of plants and people starting in the late Iron Age, beginning in roughly 100 BCE, and through the occupation of Britain by the Romans into the 5th century CE through their evidence within the landscape and in the archaeobotanical record. Van der Veen's (2008) article on plant food consumption as material culture in Roman Britain investigates the dispersal and access of different Roman plant foods. Romanization is a

central theme within the article, as the analysis of both Roman occupied regions and those not occupied in Britain identify different consumer groups that exemplify diversity and change within Roman Britain (Van der Veen 2008, 83). In a similar vein of thought but focused on plants and gardens specifically, Lodwick's work (2015; 2017b) analyzing evidence of stone pine and box in Roman Britain focuses on materiality of plants in a way that highlights "the ways in which plants can affect or 'act on' humans" (Lodwick 2017, 137), particularly ornamental plants. These studies emphasize that plants, and therefore their use in gardens, can be viewed as material culture due to their proximity to cultural identity. However, the focus of these studies have been on the effect of the introduction of new plants from the Roman world to Britain and what it means within landscape and cultural contexts rather than the possible significance of the continued cultivation of plants native to the region. The focus of current literature is generally on the perspective of new species of plants and gardening practices the Romans brought to Britain rather than the ways in which local culture, plantlife, and practices in Britain impacted Romano-British practices overall.

Roman Gardens

The garden, or hortus, and its features are discussed at length by many Roman authors, most notably in the agricultural and horticultural manuals by Cato, Varro, Columella, and Palladius. Pliny the Elder's *The Natural History* also showcases the Roman knowledge of plants and gardens in books twelve through twenty-seven (Farrar 2016, 139). Gardens were central to Roman livelihoods through their connections with economic prosperity, religion, and cultural ideologies surrounding the natural world. Some aspects of Roman gardens were fairly uniform across the empire, including common features such as decorative and economic plants, as well as

pathways, statues, mosaics, frescoes, and water features. However, “there are so many variants of plan, position, and function of the garden, so many adaptations to the topography of the city, to urban constraints, to climatic and botanic environments, to water supply, and to local fashion” that the gardens of the Roman empire were incredibly diverse (Morvillez 2017, 30). The style of elite gardens in the northern Roman provinces has revealed similar architectural features as their southern province counterparts, having open porticos and courtyards with pools in more elite homes, indicating “a sign of Romanization and of belonging to the political and social elite” (Morvillez 2017, 31). The introduction of new plant species to conquered provinces is attributed to the process of Romanization as well, with some Mediterranean plant species able to still thrive in the colder climates in northern regions and less fertile soils (Jashemski et al. 2017, 472).

The development of garden and plant studies in the Roman world was pioneered by excavations and projects in the Pompeiian and Campanian regions of Italy, and later in regions that were formerly part of the empire’s provinces. Jashemski’s excavations were the first to utilize a methodology focused on soil as a context and artifact, and use “diverse disciplines to analyze the various plant materials that she found, ranging from tree-root cavities to carbonized remains, soil contours, and pollen” (Malek 2013, 42-43). Her work also drew together literary, historical, and archaeological evidence that, used together to study gardens and their plants, brought to light “aspects of the garden that had never been previously foreseen: the Roman garden as a commercial enterprise, as a place of gathering and worshiping, as a place of pleasure, in short the garden as an indispensable part of the daily life” (Malek 2013, 47). Jashemski also began to study provincial gardens in Northern Africa, identifying evidence through analysis of the soil, root cavities, and the depictions of plants in mosaics.

The exploration of provincial gardens became possible due to the establishment of garden studies within Roman archaeology. Gleason's excavations in the Near East and in Italy have contributed to both Roman garden studies as a whole, and also to a newer methodology surrounding how to study gardens through soil stratigraphy, soil chemistry, artifacts, environmental inclusions, and understanding of the challenges at different sites to identifying garden features (Malek 2013, 52-53). This development in methodology is particularly helpful in the context of the Roman provinces, as their differing environments pose a variety of challenges to exploring their gardens, plants, and features. New technology of the 21st century, including ground penetrating radar, aerial photography, and advancements in pollen studies, alongside interdisciplinary collaboration between archaeologists, scientists, and historians is pivotal to the further study of gardens of the Roman empire.

Romano-British Gardens

One of the earliest examples of academic interest in the gardens and plants of Roman Britain is the work of Clement Reid, who collected and studied excavated waterlogged plant remains from wells and rubbish pits at Roman Silchester between the late 19th and early 20th centuries (Jashemski et al. 2017, 473). In the late 20th century, renewed interest in the archaeology of gardens came with publications by Cunliffe, through his excavation work in the 1960s at Fishbourne Roman Palace (1971) and his review of the goals and publications on Roman garden archaeology (1981); Zeepvat (1991), and Dickson (1994), with their publications discussing the existing evidence and implications of Roman garden archaeology in Britain. Cunliffe's (1981) discussion focuses on the excavated villa gardens at Frocester Court and Fishbourne Palace, and the ways that the garden spaces are identifiable. He concludes that the

direction of future works on the study of gardens in Roman Britain lies in more extensive paleobotanical studies and villa excavations. Cunliffe's methods combined archaeological, soil, and biological sciences to provide a foundation of garden archaeology, as well as a foundation for Roman archaeology in Britain (Malek 2013, 52). Zeepvat (1991) continues the theories brought about by Cunliffe's work on garden archaeology at Roman villas, however he also discusses the specific plants in Roman gardens. Flowers used in gardens would "be domestic versions of wild plants", with shrubs, hedges, and fruits and vegetables being Roman in origin (Zeepvat 1991, 59). Dickson (1994) similarly reviews the plant species that could have been grown in orchards and gardens, however her work focuses not on a Roman villa; but on forts and towns in Roman Britain as a whole, taking a different perspective on plants in gardens outside of the focus on villas.

More recent projects focusing on the archaeology of plants and their use Roman gardens in Britain include Van der Veen's work on plants in Roman Britain (2008), Lodwick's (2017a; 2017b; 2019; 2023) reviews of archaeobotanical evidence from Iron Age and Roman Silchester and surrounding areas, and the data compiled by the Gardens of the Roman Empire Project (2021) on rural villa and suburban gardens. Most of the academic works of garden practices in Roman Britain have been focused on the ways in which Roman citizens and populations in cultural exchange and contact with the Roman empire migrating from the continent brought gardening and which plants they brought to Britain to cultivate, however beyond the mentions of native flowers by Zeepvat (1991), very little is discussed about the use of native plants to Britain in gardens. The perspective on Romanization is focused on Romans bringing their gardening practices to the provinces and their cultivated plant preferences becoming the most popular, but arguably local plants survived in conjunction with Roman imported cultivated plants.

PART II: METHODS AND EVIDENCE

Methodology

To develop a methodology for this thesis of studying and analyzing cultivated garden plants in Roman Britain, this section surveys the methods and approaches used by archaeobotanists and garden archaeologists in studying plants in Britain. The use of archaeobotanical remains in studying gardens is beneficial due to its nature of providing evidence of "group identity, social relations and a sense of community (food sharing), or social distinction (luxury foods), and individual identity" (Van der Veen 2018, 53) and the ways that these aspects change or stay the same over time. Plants can be studied in similar ways to other forms of material culture, as they also are able to be "shaped by and shaping their interactions with people" (Van der Veen 2018, 54). Evidence of plant life in the Roman world tells the story of environmental and climatic history as well as how people affect and are affected by plants adapting to variable conditions. In regard to questions of the types of plants being grown in gardens in Roman Britain, assemblages of both waterlogged or mineralized plant remains, and evidence of pollen help recreate the past environment. As discussed by Dark (2023), macroscopic plant remains are essential to recreating and understanding botanical use at archaeological sites. However, the integrated analysis of pollen samples alongside macroscopic remains yields a larger picture, as certain plant species are significantly more or less likely to be preserved by just one method of preservation in the environmental record (Dark 2023, 279).

Pollen analysis has been used in prior research to study the environment of Roman Britain. Dark's (1999) article on pollen evidence for identifying the environment of Roman

Britain analyzed published radiocarbon dated pollen samples from a vast number of sites from across the country, however it is now becoming increasingly outdated due to being published a quarter of a century ago. A recent addition to this topic includes "Pollen Analytical Perspectives on the End of Roman Britain" (Dark 2022). Dark discusses the current limitations in pollen studies in Roman Britain, including the need to compare pollen datasets and sequences equally amongst sites and to recalibrate pollen radiocarbon dates as new calibration curves emerge (Dark 2022, 4-8). Krebs et al.'s (2022) recent work on Roman arboriculture uses pollen datasets collected from the Neotoma Paleoecology Database, and charts the time frames that chestnut and walnut pollen appear in the environmental record and maps where pollen data has been found in the Roman empire. However, their study only focuses on the introduction of new plant species and their spread through the empire rather than discussion of their roles in places where they were originally grown. The approaches of Dark and Krebs et al. focus on questions of continuity and change of the environment, and the introduction of plant species in the Roman world.

One of the drawbacks of utilizing archaeobotanical and pollen data to study past populations is the limited availability of remains and their preservation, making it imperative that other avenues of evidence, such as materials associated with plants, are considered as well. The most common forms of preservation of plants in Britain are carbonization, waterlogging, and mineralization, with most Roman period cultivated plants identifiable in waterlogged contexts (Van der Veen 2008, 84). However, the number of waterlogged assemblages and the plants identified within them is skewed due to poor preservation at sites outside of southeastern and central Britain (Van der Veen 2008, 86). This leaves the evidence of plants lacking, with their occurrences in the archaeological record likely less than how many were cultivated in Roman Britain. The pollen record similarly does not represent all plants equally, as some emit more

pollen than others or have smaller ranges for their pollen dispersal. Discussed in the *Sourcebook of Garden Archaeology* (2013), pollen grains can travel over large distances and "therefore soil pollen spectra… may contain extraordinarily high proportions of individual species" (Grüger 2013, 362). In the case of gardens, "pollen of cultivated species may be completely missing in garden soil samples because such plants might never bloom in a garden where shrubs are trimmed or vegetables are harvested before flowering" (Grüger 2013, 363). The archaeobotanical data collected for this study come from a variety of sources focusing on plant trade, diet, and the Roman environment, and to remedy the limitations of this type of data in isolation, material and landscape evidence pertaining to gardens will also be used.

Beyond environmental evidence of garden activities, associated material evidence yields more information pertaining to gardens in Roman Britain. The use of gardening tools is described in depth by Jashemski (2017, 437-440) in "Gardening Practices and Techniques," with common gardening tools including iron single bladed digging hoes, toothed hoes with multiple prongs, footrest spades, and pruning knives. "Iron tools corrode badly and lose their size and shape" over time (Jashemski 2017, 436), however wall paintings and accounts of gardening by Pliny the Elder, Cato, and Columella have been helpful to archaeologists in their interpretation of these finds. In Britain, gardening tools such as these are on display at the Museum of London found during excavations of the city (Humphreys 2017) are useful. Other material evidence indicative of gardening is the presence of terracotta planting pots, which have been found at multiple sites across Roman Britain, both at production sites such as Eccles in Kent, and at sites such as Fishbourne Palace and in Silchester (Macaulay-Lewis 2016; Timby 2020). The limitation of using material evidence alone is that it doesn't appear in the archaeological record in the frequency that it would have been utilized, which also remains an issue with all types of

archaeological evidence, highlighting the importance of assembling and synthesizing multiple types of evidence.

The landscape also can show indications of gardening through changes in soil type, texture, and spatial organization indicating that areas were potentially used for horticulture. Inclusions of lime or shells to counter heavy clay soil types, changes in fill type, and changing contours in the soil indicate garden soils (Jashemski 2017, 435-436). Fertilizer used in garden spaces is also identifiable through inorganic inclusions such as potsherds, coins, and other small artifacts. Fertilizer is also identified through soil chemistry caused by the addition of animal dung, household trash, leaf litter, or sod to add more chemicals to the soil to help garden plants grow (Miller and Gleason 1994). The four identifiable garden landscape features explored in the archaeological record are the visible ground surface of the garden, the actively cultivated garden soil and built surfaces, the subsurface used in garden construction, and the earlier cultural levels (bedrock and uncultivated soils) unrelated to the garden itself (Gleason 2013, 218). Planting beds and planting holes are noticeable aspects in the landscape of cultivated plants that yield information about the types of planting and growing strategies. Planting beds "can be detected by locating the edges where cultivated, fertilized soil meets non-cultivated soils of various descriptions" with cultivated garden soil identified by "visual, tactile, and chemical clues" (Gleason 2013, 227-228). Tree planting pits and root cavities are visible in the garden landscape, leaving soil of different colors and textures (Gleason 2013, 232-235). Evidence of gardening through changes in the soil in Britain has been found at villa sites, including Fishbourne Roman Palace, Bancroft Villa, and Gorhambury Villa. The limitations of identifying cultivated garden plants through the landscape alone are that soil changes are sometimes not easily visible, and if they are disturbed during excavation they may be unnoticeable. It is also possible that small

individually placed soil changes are not indicative of a larger garden feature (Gleason 2013, 235). As gardens are intentionally designed built environments, spatial organization is significant to understanding the cultivation of plants. After the organization of the space and placement of soils by cultivators, "the placement of plant materials are typically the last phase of installation in most gardens, though of course ongoing changes and replacements frequently occurred over the growing the season in all types of gardens" (Gleason and Palmer 2013, 293). The subtle identifiable garden features are "bounded, cultivated elements that express intention, function, organization, and meaning. These form the skeleton of the garden: the infrastructure, the delineation of the beds, the fundamental organization, including the location of the major trees and shrubs and original configuration of the surface" (Gleason and Palmer 2013, 296). The combination of spatial and soil aspects of the landscape within this study provide a wider scope of where gardens may have existed, and with the use of archaeobotanical, pollen, and material data gardens in Roman Britain become much clearer.

The Evidence and Discussion of Garden Plants

The archaeobotanical and pollen evidence of potential plants used in gardens is based on published studies on diet, plant trade, and the introduction of new plant species in Britain. The designation as native or non-native plants in relation to their origin in Britain or elsewhere in the empire is based on the same designation being used by Van der Veen (2008) and Van der Veen et al. (2008), as well as the term "native" to describe plant origin being used by other authors discussed in this thesis (see Lodwick 2015 and Dark 2023). The sources chosen to identify cultivated plants discuss a wide variety of plant species within contexts of cultivation, diet, or trade in Roman Britain, however both Brown et al. (2001) and Stevens (2008) are smaller scale

studies utilized to remedy remaining questions on the possible cultivation of grapes (*Vitis vinifera*) and bitter vetch (*Vicia ervilia*) that were not discussed in other sources. Some of the

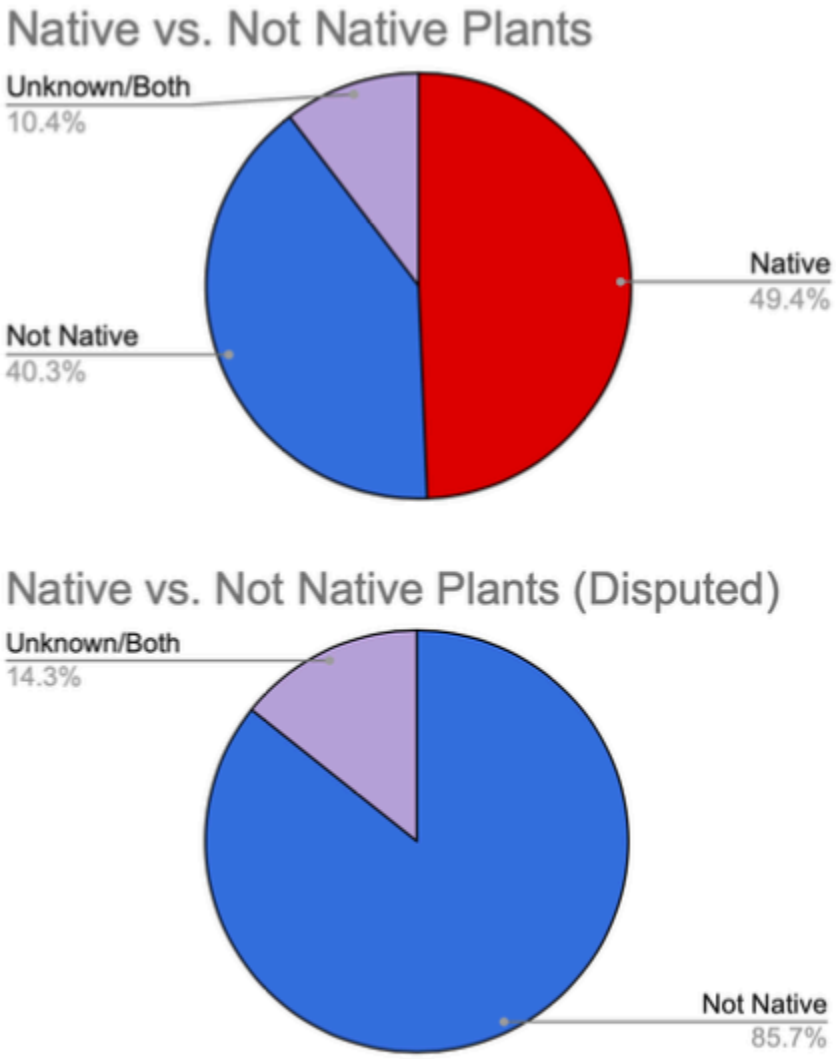

Figure 1: Comparison of distributions of native and not native plants in Romano-British Gardens (Cunliffe 1971; Cunliffe 1981; Zeepvat 1991; Dickson 1994; Brown et al. 2001; Van der Veen 2008; Van der Veen et al. 2008; Stevens 2008; Creighton and Fry 2016; Lodwick 2017a; Lodwick 2017b; Jashemski et al. 2017; Krebs et al. 2022)

selected sources make note of which plant species are native to Britain, however in the case that the species were not defined, the Euro+Med Plantbase was utilized to determine the origin of the species. Many sources discussing evidence of cultivable plants in Roman Britain focus on plants

that contribute to diet, which may skew some of the cultivation data to over-represent garden plants with dietary uses, leaving less emphasis and evidence of non-dietary plants. However, many of the cultivable plants in gardens were used in cuisine, either eaten directly or used as seasoning. Taking this into account, sources focusing on ornamental plants and the trade of plants were used in gathering data as well. The most common forms of preservation for plants from Roman Britain are through waterlogged and mineralized deposits, with evidence from carbonized and pollen samples being less common. Seventy-three plant species have been identified through archaeobotanical and pollen evidence as components of daily life and experience in Roman Britain, either as dietary sources that may have been grown in gardens and/or functioning as decorative garden plants. Four plants potentially were grown in the gardens of Roman Britain, however they do not appear consistently enough in the archaeological record to determine if they were strictly imported plants or if they were cultivated at some level as well (see Figure 1 and the Appendix Tables 1 and 2). Figure 1 shows both the distribution of plant origins for all seventy-three garden plants (top) and the distribution of only the four disputed plant species that may or may not have been cultivated in Romano-British gardens (bottom).

Out of the plant species identified as being cultivated, just over half consist of plants that existed in Britain before Roman contact, hence being native plants rather than not native. The other half consists of plants identified as having native and not native strains being cultivated, as well as non-native plants. While it is not possible to specifically indicate when all plant types were brought to Britain and when they began being cultivated, general trends in archaeobotanical plant remains indicate that certain plants introduced by the Romans that could not grow in gardens as well in the British environment, such as grapes (*Vitis vinifera*) and mulberry (*Morus nigra*) , declined over time (Van der Veen et al. 2008, 21). Other garden plants, including

coriander (*Coriandrum sativum*), dill (*Anethum graveolens*), celery (*Apium graveolens*), summer savory *(Satureja hortensis*), poppy (*Papaver somniferum*), mint (*Mentha sp.*), parsnip (*Pastinaca sativa*), apple/pear (*Malus/Pyrus sp.*), turnip (*Brassica rapa*), and pine nuts (*Pinus pinea*) initially increased in frequency in the archaeological record but markedly declined by the 3rd to 4th centuries CE, which is identified as the late Roman period (Van der Veen et al. 2008, 21).

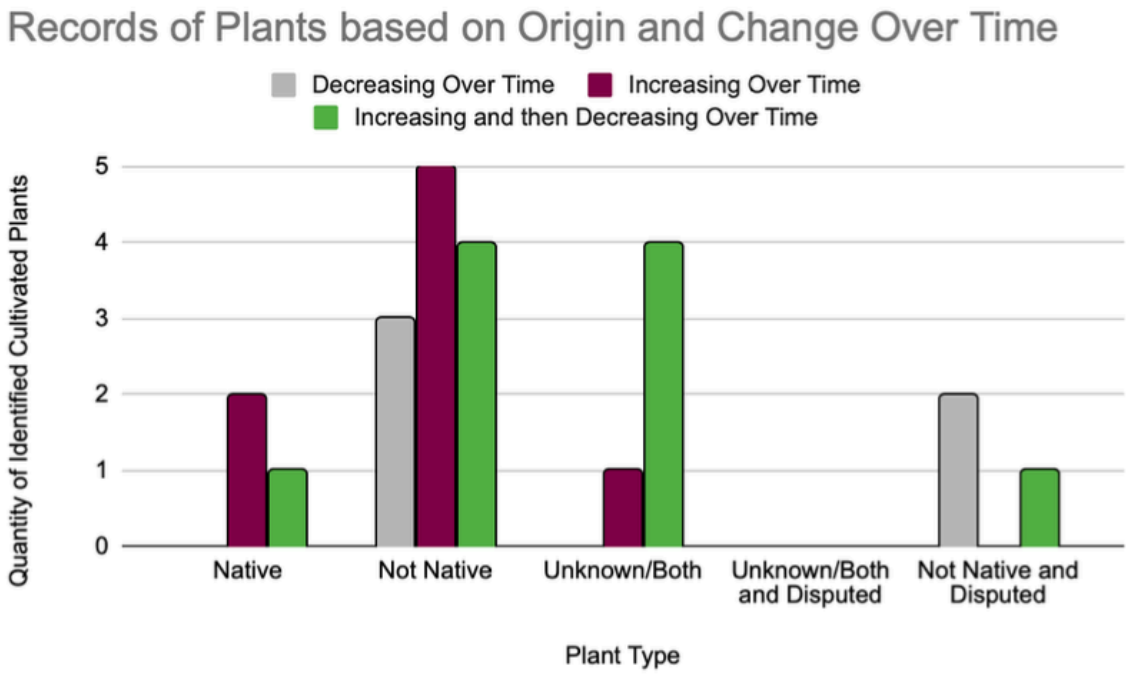

Figure 2: Distribution of cultivated plants based on their origin and change over time of their prevalence in waterlogged and carbonized records (based on evidence collected by Van der Veen et al. 2008, 20)

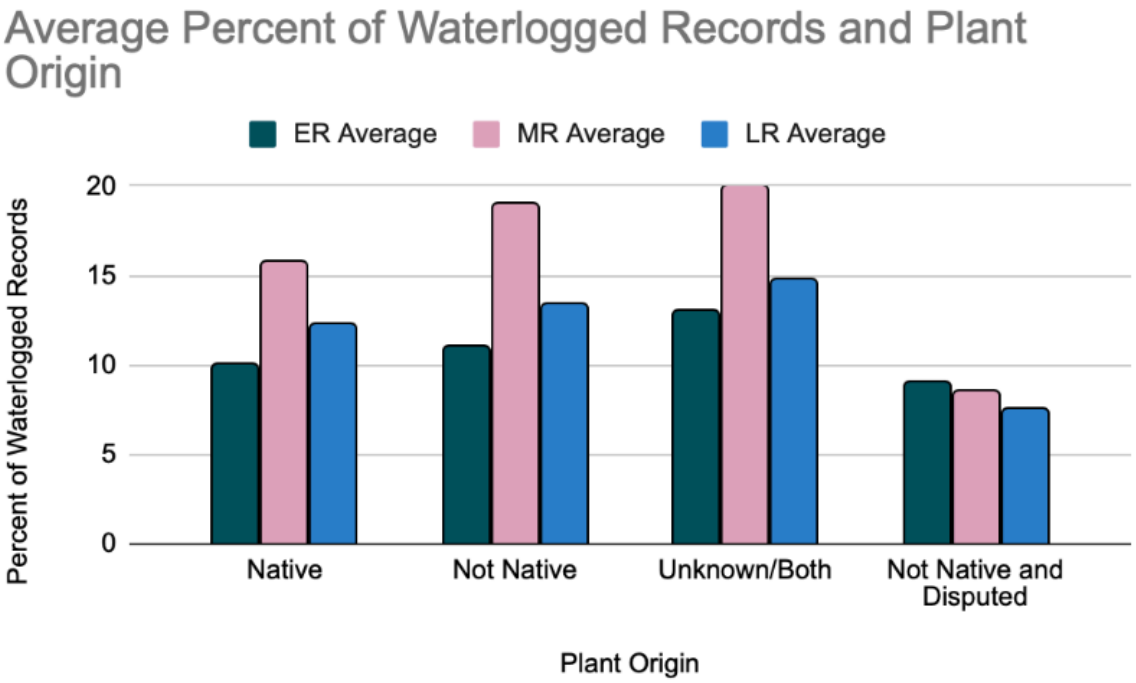

Figure 3: Distribution of the average percentages of waterlogged records for cultivated plants based on origin and time period (ER- Early Roman, MR- Middle Roman, LR- Late Roman), showing overall trend of most plant species increasing in use the MR period, and then decreasing by the LR period (based on evidence in Figure 5 of Van der Veen et al. 2008, 20)

Their decline may be attributed to their lack of suitability to grow in the local environment, with environmentally suitable plants growing in popularity to replace them (see Figure 2 and 3). Native and not native plants appear to have increased in frequency by the Late Roman period (3rd to 4th centuries CE), including "carrot, cherry, plum, black mustard, damson, walnut, box, hemp, beet and cabbage… of these, carrot, cherry and plum reached more than 15% of waterlogged records by the Late Roman period" (Van der Veen et al. 2008, 21). The highest number of waterlogged records for cultivated plants across all plant origin types appears to be in the Middle Roman period (2nd to 3rd centuries CE) and there is a decline in the Late Roman period. The changes in frequency were likely affected by which plants grew the best in the British environment, but also affected by changes in demand for specific types of plants based on

their properties, such as for ornamentation or medicinal purposes, their roles in diet, and their accessibility across the province. Another group of plants that may have also increased over time include hazelnut (*Corylus avellana*), raspberry (*Rubus idaeus*), blackberry *(Rubus fruticosus*), and sloe (*Prunus spinosa*). Hazelnuts have been recorded at roughly a quarter of Iron Age sites, with raspberry/blackberry and sloe found at roughly a tenth of them (Van der Veen 2008, 100). These plants were prevalent in the Iron Age and were likely cultivated at other sites in Roman Britain, including military forts, major and minor towns, ceremonial spaces, and possibly at elite sites such as Fishbourne Roman Palace and are identified in waterlogged, mineralized, and carbonized assemblages (Cunliffe 1981; Van der Veen 2008; Jashemski et al. 2017). Their high number of occurrences across assemblages may be impacted by their wild plant forms appearing in the archaeobotanical record, however their commonality across site types in Roman Britain makes it likely that they were cultivated and may have been cultivated more consistently over time.

The distribution of cultivated plants in Roman Britain varied based on regional access to imported plants and growing conditions. Van der Veen (2008) discusses this in depth, describing different groups of consumers and their access to Roman imported goods. While the Romans imported many new plants that were incorporated into daily lifestyles, native plants to Britain became increasingly added as well. New imported plant foods did not replace native plants, but rather encouraged more native plants to be added to the everyday diet (Van der Veen 2008, 102). It is also possible that imported plants gained a foothold in Britain due to their capability to be grafted with native British plants, allowing for interest in both native and non-native plants as consumables (Van der Veen 2008, 104). Evidence of the most varied access to cultivable plants is in London, where the highest number of new consumable plants is identified. Military sites

across Roman Britain also had access to a diverse number of plants, however archaeobotanical evidence of herbs and vegetables is most prevalent. Rural sites outside of central and southeastern Britain, unsurprisingly, had the least amount of access to new plant foods. The widest variety of plant access, both of native plants to Britain and imported plants, is found in central and particularly southeastern Britain (Van der Veen 2008, 105-106). Utilizing the archaeobotanical data specifically collected in Van der Veen et al. (2008), the evidence of native and non native Roman imported plants predominantly comes from major towns and both intramural and extramural military sites (see Appendix Table 3). It is possible that some plant species were cultivated at higher rates in rural areas, however the lack of waterlogged preservation at those sites in comparison to town and military locations may have skewed the data (Van der Veen et al. 2008, 18).

Outside of waterlogged, mineralized, and carbonized archaeobotanical records, pollen data has also shed light on cultivable plants. Evidence of not native plants including grape (*Vitis vinifera*), chestnut (*Castanea sativa*), walnut (*Juglans regia*), dill (*Anethum graveolens*), and *Brassicas* species plants are found in pollen records from Roman Britain (Brown et al. 2001; Creighton and Fry 2016; Krebs et al. 2022). Many of the species identified in the pollen record were originally imported to Britain, however some *Brassicas* plants such as cabbage (*Brassica oleracea*) potentially could have been native to Britain. Strictly native plants have been difficult to identify in the pollen record due to their presence in the natural landscape as well, such as the case in pollen samples from Vindolanda, in which local herbaceous plants are present in samples across the site (Manning et al. 1997). Gardens have been found at military encampments across Britain, making it likely that the military fort and surrounding settlements at Vindolanda had

gardens that would have incorporated native and not native plants, despite the uncertainty in the pollen records.

Some of the archaeobotanical data for plants that could be used in the gardens of Roman Britain are not distinguishable in the archaeological record to be determined as either strictly imported or possibly grown. These plants include mulberry (*Morus nigra*), stone pine (*Pinus pinea*), anise (*Pimpinella anisum*), and roses (*Rosa sp.*). While these plants appear in the archaeological record in Roman Britain, their cultivation is uncertain. While it is known that these plants were cultivated elsewhere in the Roman world, there are doubts by archaeologists that these were cultivated due to either lack of preservation in the archaeological record or environmental constraints of the land, and that the plants themselves or their byproducts may have been strictly imported, however other archaeologists have not completely ruled out the possibility (Dickson 1994; Van der Veen 2008; Lodwick 2015; Lodwick 2020). Evidence of mulberry has been identified at London, York, and Silchester, however it was found in early Roman contexts in the 1st century CE where it was likely only imported and not cultivated (Lodwick 2020, 510). Another work argues that Roman attempts to preserve the mulberry in its own juice and boiled wine were unsuccessful, leading to cultivation of mulberry due to issues with its preservation for transport (Dickson 1994, 55). However, importation is not ruled out of the equation entirely. Pine nuts face a similar issue in their identification. Lodwick (2015) discusses the archaeobotanical evidence of stone pine in Roman Britain, stating that it is not possible to ascertain whether or not stone pine, either the plants themselves or pine nuts, was imported or cultivated. Despite this, the increasing number of finds and their ability to grow in modern Britain is evidence of their capability to grow and be cultivated in gardens. There is archaeobotanical evidence of roses *(Rosa sp*.) and dog roses (*Rosa canina*) at sites in Britain,

however roses brought from the continent do not have a significant presence in the archaeological record. Zeepvat (1991) states that roses grown in Britain may have been domestication versions of wild native roses, but imported roses are not discussed further. Excavations at Silchester, Farmoor, and Nantwich found waterlogged remains of roses, however their type is not specified as native or not native species (Lambrick and Robinson 1989; Dickson 1994; Lodwick 2017a). Anise may have grown in Roman Britain, however there has only been one major town site in Britain with an assemblage including anise seed, making it uncertain

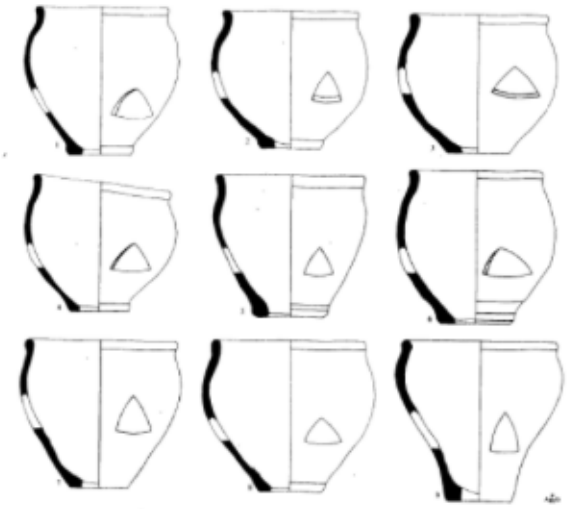

Figure 4: Examples of planting pots from Eccles kiln site in Figure 26.1 at 1:4 scale (Detsicas 1981, 442)

whether or not they were cultivated (Van der Veen 2008).

Earthenware planting pots have been found across the Roman empire, identifiable through "purposely placed side and base holes for drainage and aeration" (Macaulay Lewis 2006, 207). They are known to be connected to gardening practices due to their mentions in Cato's literature and their presence in excavations of commercial, monumental, and domestic garden spaces across the empire (Macaulay Lewis 2006, 210-214). Evidence of material objects associated with gardening, most notably planting pots, is predominantly found in southern

Britain. The dating of the pots range from the 1st century CE to the late Roman period in the 5th to 6th centuries CE. Most of the planting pots found in Britain are from excavated villa sites due to their function as economic and trade centers for surrounding regions, including the trade of plants. Roughly 39 planting pots have been identified from Roman Britain, most of them from a Roman villa and kiln site in Eccles, Kent (see Figure 4) which are identifiable through their triangular shaped side cuttings and single base holes (Macaulay Lewis 2006, 209-210). Two planting pots with the same cut out features and fabric were found during excavations at Watling Street in London, as they were likely traded from the villa and kiln at Eccles to surrounding regions. The pot found at Silchester was identified as a horticultural pot based on a circular hole cut into the side (Timby 2020, 340). The types of plants used in the pots would likely have been saplings of larger plant species, such as trees, which were transported from plant nurseries at a local or regional level to be permanently placed in gardens nearby (Macaulay Lewis 2006, 217). The evidence of local production of planting pots in southern Britain suggests that the region had an economic need for the production of horticultural pots. In addition to evidence presented by Van der Veen (2008) that southern and southeastern Britain had the most varied access to plant species, imported and local, the pots would have had the most use in this region of Britain and could have been used with native or non-native cultivable plants. In addition to pots, gardening tools including a pruning hook, bailing fork, and shears have been found during excavations of the city of Londinium and a pruning knife for fruit trees or viticulture at Bancroft villa (Zeepvat 1991; Humphreys 2017). The finds from Londinium may have been used on a variety of plants to manipulate garden spaces, however the pruning knife at Bancroft is indicative of fruit trees or grape vines being grown in either the ornamental or the kitchen gardens at the villa site.

Landscape evidence from 13 excavated sites of rural villas and suburban areas indicates possible garden spaces. Changes in soil color and composition, evidence of planting pits, and architectural designs leaving open spaces for courtyards and/or horticultural space indicate where garden plants were grown. Plants identified through soil analysis in Roman Britain include apple/pear (*Malus/Pyrus sp.*), asparagus (*Asparagus officinalis*), celery (*Apium graveolens*), mustard (*Sinapis alba* or *Brassica nigra*), coriander (*Coriandrum sativum*), summer savory

Figure 5: Excavations of the formal garden at Fishbourne Palace revealing planting patterns, taken by David Rudkin (Gleason 2021)

(*Satureja hortensis*) and caper spurge (*Euphorbia lathyrus*) at Fishbourne Roman Palace, the suburban gardens at Camulodunum, and the villas at Bancroft, Darenth, and Latimer (Carroll and Gleason 2021). Each of these plants have also been identified through archaeobotanical studies

on Roman Britain, meaning they are most likely to be cultivated plants across the province. Evidence of root cavities and planting holes also are indicative of planting (see Figure 5), however they are not commonly present or identified across excavations in Britain. This may be due to inattention by archaeologists to their placement during excavations or plants with smaller root sizes being grown over by ones with larger roots that could leave an archaeological trace. Flower beds, as evidenced by lawn-like spaces such as at the villas at Chedworth and Latimer, may have included rose types imported from the continent or local dog roses (Carroll 2021). The evidence of planting pits, trellis post holes, root cavities, and soil changes most easily identifies larger plants that left a physical mark on the environment through the remains of planting holes, post holes for trellises, and planting beds. Most of the noticeable traces of these are found at elite villa sites, either because they have been the subject of the most excavation work or because these sites had more elaborate gardens. However, analysis of the soil composition and its clear changes in color also indicate the presence of gardens, and such as at the suburban gardens in Camulodunum, there is evidence of cultivation elsewhere outside of elite sites, although it is limited.

The introduction of Roman plants to Britain began in the late Iron Age, with the importation of plants such as coriander, dill, figs, olives alongside amphorae containing wine, olive oil, and fish oil (Lodwick 2014, 545). While these new plants were introduced they were not grown in Britain at the time, rather having their seeds imported for food consumption (Lodwick 2014, 545). The elite classes within Iron Age communities would have had access to Roman wares first, leading to their increased demand amongst the population as prestige goods (Millett 1990). After the Roman occupation of Britain, the importation of new plant species

allowed for them to become widely available across the province and found in rural, military, and urban communities.

The evidence from archaeobotanical, material, and landscape data on the plants and gardens of Roman Britain indicates that a wide variety of plants, including those imported to Britain and ones existing prior to contact with the Roman world, were cultivated. Out of the plants that have been identified in horticultural contexts, half were local plants and the other portion were imported. The high usage of local plants in the gardens of Roman Britain can be attributed to environmental factors, such as the generally colder climate and the difference in soil types that could not successfully grow certain plants in comparison to the Mediterranean. The adoption of horticultural practices and the use of a variety of plants can also be attributed to the already diversifying agricultural techniques used in the late Iron Age, with different communities using different growing techniques and plants that would grow best in their region of Britain (Millett 1990). Horticulture also widened the availability of a diverse array of plants for people of all social classes, as previously the access to new plants was constricted to the social elite. Archaeobotanical evidence supports that the cultivation and consumption of non- imported plants increases over time, with the consumption of native plants being added to daily lifestyles at the same rate as Roman imported ones (Van der Veen 2008; Van der Veen et al. 2008).

The usage of both native and non-native plants in garden spaces is indicative of the process of Romanization in Britain. While there is regional variation in the distribution of imported plants, with major towns and military sites overall having the most access, the central and southeastern parts of Britain had the most access overall amongst all social classes. The population of Roman Britain adopted Roman culture through their decision to incorporate Roman plants into their living spaces, however the strong interest in local native plants and their

cultivation in Romano-British gardens also indicates the local impact on Roman customs as well. Plants native to Britain assuredly would grow in the environment which makes them easier to grow in home gardens, and some imported species of plants could be adapted to the environment to be grown as well. The cultural change in Britain was not only due to the Roman influence on cultural practices, but also rooted in the ability of the population to grow and tend to specific plant species over ones not suited to the environment. Using the theoretical models of both Millett (1990) and Versluys (2014) on Romanization rooted in the connections between material culture, in this case plants, and human agency, the evidence of both native local plants and not native local plants in gardens indicates the unique and emerging culture of Roman Britain.

PART III: A CASE STUDY OF ROMAN SILCHESTER

History of the Site

The pre-Iron Age oppida site of Silchester in the Early and Middle Iron Age was situated "on the poor heathland soils of the gravel plateaux… of the Loddon valley" (Creighton and Fry 2016, 339). Intensive agriculture during this period is unlikely due to the poorer soil conditions, however the region was still relatively settled during the Middle Iron Age between roughly 400 to 100 BCE with roughly 28 sites located within 15 km of Silchester. By the Late Iron Age and up to the Roman conquest, nearby sites increased to 37. Around 25 to 15 BCE, a settlement was established and the landscape was transformed into hay meadows and pastures for agriculture and livestock (Creighton and Fry 2016, 340-342). The changes in settlement pattern and environment is indicated by "the marked decline in the proportion of arboreal pollen seen in the wells under the Basilica, which indicates a rapid transition towards a more open landscape in

which grass pollen and pasture plant predominated" (Creighton and Fry 2016, 343). By the first century CE, the oppidum was developed through the development of enclosed spaces, planned roads, and earthworks for defense (Creighton and Fry 2016, 354). Material culture from the European continent was introduced to Silchester in the late first century BCE and first century CE, leading to the importation of Roman goods. "Imported tablewares, amphorae, oysters, mussels, domestic fowl… olives and condiments" (Lodwick 2014, 547) are indicative of the introduction of new material culture and foodstuffs for the elite at the end of the Iron Age.

Based on the identified coinage at Silchester, the site was a center of elite power for the Atrebates roughly from the first century BCE until the Roman invasion in 43 CE where it was renamed to Calleva Atrebatum. The development of the Roman town is generally attributed to civil rather than strictly military interests due to the lack of evidence of a dateable military fort, however the artifact assemblages of military metalwork indicate some military presence in the early Roman period at the site. The city was constructed as a traditional Roman grid, with a unique road running east-west that was likely constructed and kept from the late Iron Age site (Creighton and Fry 2016, 363-389). The overall urban planning reflected that of other Roman cities in the region. In a similar fashion to the rest of the Roman world, Romano-British homes in Silchester were constructed with gardens and horticultural space in mind. The landscape of the Roman city appears to indicate the presence of ornamental home gardens but also of shared space between raising livestock and cultivated plants. Geophysical analysis and imaging of Silchester reveals spaces used for ornamental gardens across the city within the confines of domestic spaces and evidence of orchards (Fulford et al. 2006; Creighton and Fry 2016). Elite homes at the site follow a unique and locally influenced L shaped layout, with a large porch and portico being the central focus of the space (Perring 2002, 49). Two houses at Silchester show

evidence of possible raised water tank structures in the garden spaces, identified by their 600 to 900 mm thick walls (Perring 2002, 183). The water tanks would be able to support a variety of garden plants and store water for drier seasons (Jansen 2017, 428). The purpose of this case study is to synthesize archaeobotanical, material, and landscape evidence of plants in gardens at Silchester to explore Romano-British gardens at a more localized level.

The Evidence of Gardens and Plants

The archaeobotanical evidence found at Silchester identifies thirty-one taxa likely being cultivated plants that may have been grown in gardens (Creighton and Fry 2016; Lodwick 2017a;

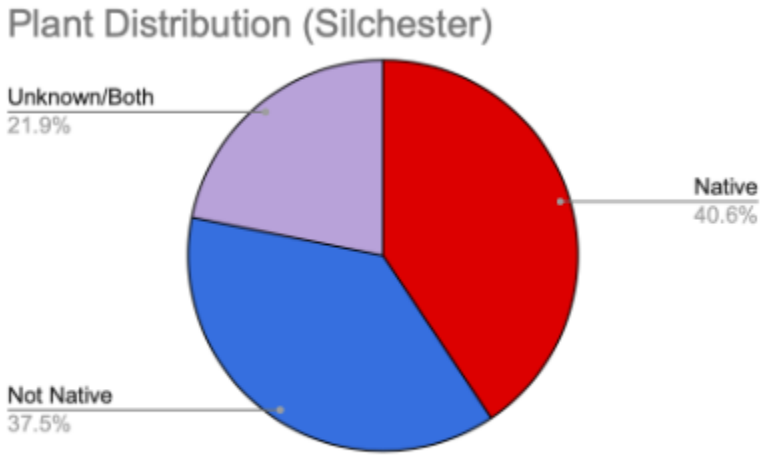

Figure 6: Distribution of Native versus Not Native plants at Roman Silchester

Lodwick 2020) based on their frequency of preservation in the archaeobotanical record and previous published works on Romano-British gardens. The archaeobotanical evidence found at Silchester in the past century was reanalyzed in 2017 by Lisa Lodwick, who reexamined the evidence of plant remains from past excavations to identify them more accurately (Lodwick 2017a). While many taxa overall were found during analysis of the site, specific species were ruled as not cultivable either due to their nature as a weed or grass that would have grown in the

general environment around Silchester or due to their nature as Roman imports not able to be grown in Britain (Lodwick 2017a; Lodwick 2020). The evidence primarily was found in waterlogged deposits, however some mineralized and charred remains were found in assemblages in addition to waterlogging which provides a more established variety of data on plants at the site (Fulford et al. 2006; Lodwick 2017a; Lodwick 2020). Of the plants identified, thirteen of them are local to Britain, twelve introduced and imported by the Romans, and seven were either imported by the Romans and/or a variety of a local strain of the same plant (see Figure 6 and Appendix Table 3). Plants such as coriander (*Coriandrum sativum*) and dill (*Anethum graveolens*) appeared in the archaeological record at Silchester during the late Iron Age as imported foodstuffs, however their cultivation in horticultural contexts likely did not

Figure 7: Map of the Insulae of the Silchester excavations (modern designations). Green circles by author indicate areas that have yielded archaeobotanical evidence for this study (after Creighton and Fry 2016 Fig. 5.2: Index to the Interior, 51)

begin until after the Roman conquest. Silchester had a variety of Roman introduced plants, likely due to its positioning along Roman roads and trade routes, however wild plants from Britain were cultivated as well. Evidence of cultivated plants has been found in excavations across roughly half of the site insulae. Roughly half of the excavated insulae contain archaeobotanical evidence, predominantly of damson (*Prunus domestica (insititia*)), dill (*Anethum graveolens*), apple/pear (*Malus/Pyrus sp.*), sweet cherry (*Prunus avium*), sloe (*Prunus spinosa*), blackberry (*Rubus fruticosus*), and elder (*Sambucus nigra*) (see Figure 7). Of the plants cultivated at Silchester, the cultivation of mulberry (*Morus nigra*) trees is disputed and uncertain. In the early Roman period at Silchester, it is unlikely that mulberry trees were cultivated and only came into Britain as imports (Lodwick 2020, 510). Previously dated publications discuss finds of black mulberry at York and London which were posited to have been cultivated at those sites (Dickson 1994), and there may have been a possibility that mulberry was cultivated in the later occupation periods at Silchester due to the softness of mulberry berries in archaeobotanical assemblages (Lodwick 2020, 510). Mulberry trees may have been grown in the later Roman periods at the site, but their cultivation overall at Silchester is undetermined. The variety of plant remains identified archaeobotanically at Silchester, especially in consideration of plant foods, is similar to that of other major Roman towns of the time period that had access to a broad range of Roman imports and cultivated local native plants.

There is evidence of one planting pot found at Silchester, which was identified as such based on “a short everted rim and a central hole in its base” (Timby 2020, 345). The pot could have been used to transport small fruit or nut bearing trees, such as mulberry (*Morus nigra*), pear or apple (*Pyrus/Malus*), or hazelnut (*Corylus avellana*) which have been identified as being cultivated at Silchester. There may have been other planting pots present at the same location of

Structure 30 during excavations, however many of the ceramics were heavily fragmented making it difficult to distinguish them as planting pots specifically (Timby 2020, 339). Pits from the Late Roman period at Silchester show evidence of dark earth (see Figure 8) that is commonly associated with the fills of tree holes, indicating the possible presence of a small orchard in Buildings 7 and 8 at the site (Fulford et al. 2006, 51).

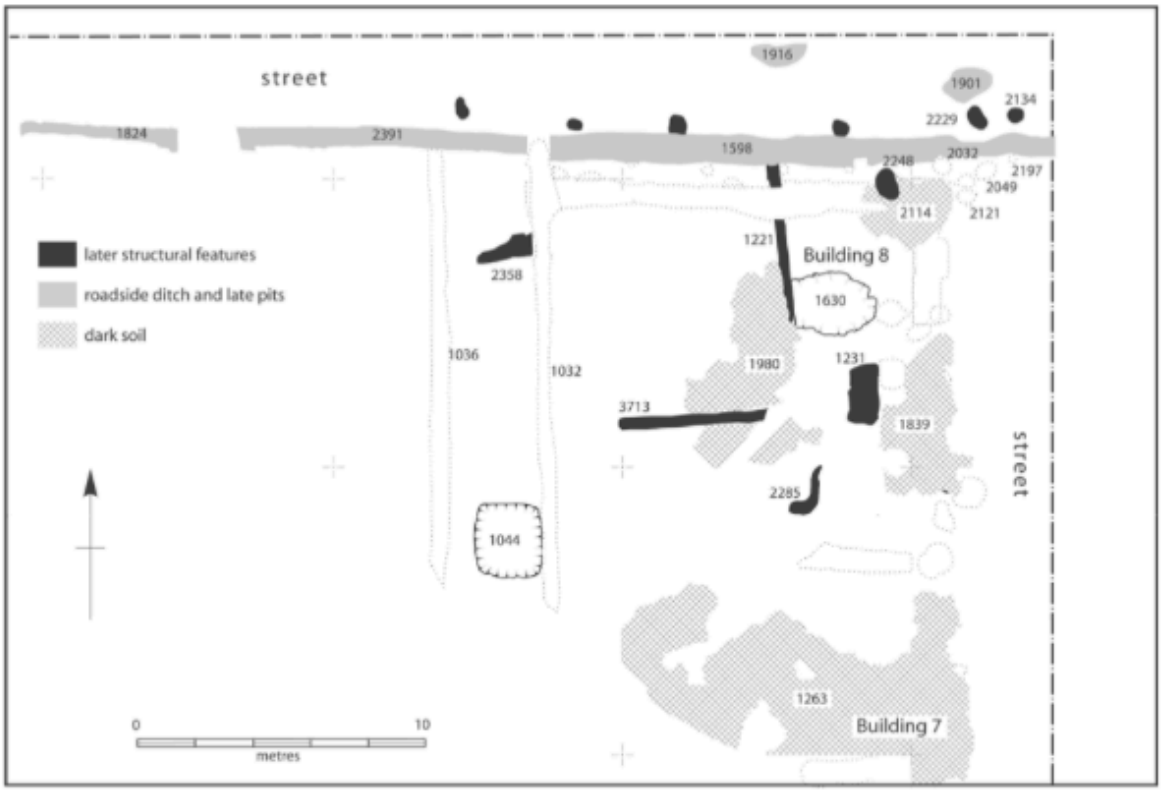

FIG. 51. Building 8: end of fourth- and fifth-century occupation

Figure 8: Excavation map of Buildings 7 and 8 in Insula IX from the late Roman occupation of Silchester that shows dark soil that may be evidence of cultivation (Fulford et al. 2006, 67)

A high concentration of fruit skin, particularly apple (*Malus*), was found mineralized across the site, making it plausible that the orchard spaces may have been used to grow fruit trees with either a local variety of apples or ones imported from the Mediterranean (Robinson et al. 2006, 215). At Building 1 there is evidence to suggest that there was space for an orchard, implied by the high quantity of apple pips and other mineralised fruit remains, and a high amount of sheep

and goat droppings that may have been used as fertilizer for the orchard (Fulford 2006, 256). It is likely that the urban gardens of Silchester were functional as individual spaces only dedicated to cultivating plants, but some spaces were also multifunctional to grow gardens and raise livestock.

Summary

The incorporation of local and imported plants being cultivated in gardens at Silchester is indicative of larger cultural changes in Roman Britain. In comparison between the cultivated

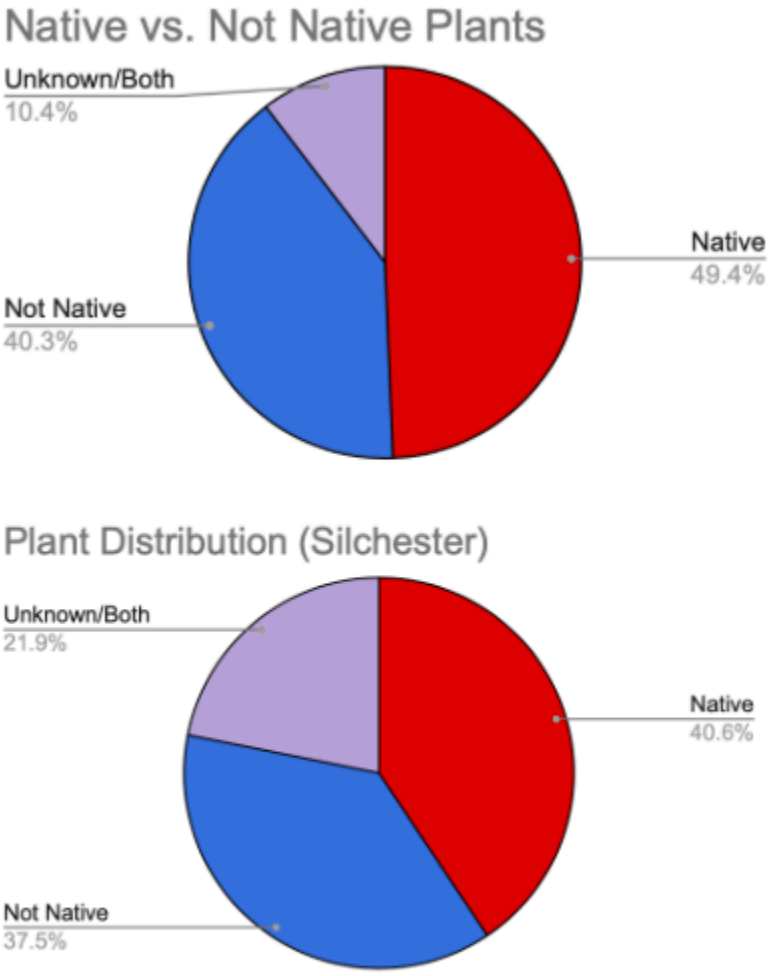

Figure 9: Comparison of the distributions of the origin of cultivated plants at Silchester and from the data overall pictured in Figure 1

plants at Silchester and the data representing Roman Britain overall, both distributions show a high percentage of native plants, and roughly under half are non-native plants (see Figure 9). Silchester however does have a higher percentage of garden plants that have unknown origins or originate in both continental Europe or Britain. The inhabitants of Silchester being introduced to Roman plants during the late Iron Age may have encouraged the integration of Roman culture through gardening after conquest. The inhabitants of Silchester were able to engage with gardens in domestic contexts through households gardens, but also through larger gardening spaces such as orchards and the importation of plants in planting pots. The availability of mineralized and waterlogged remains at Silchester allows for a wider picture of what plants were cultivated, and consumed, at Silchester. For example, the predominance of finds of mineralized and waterlogged apples which may have been an imported type or a local strain, is an indication of its likely widespread cultivation. While Silchester does appear to have some differences in the cultivation of garden plants, either as larger horticultural operations at orchards, small scale gardens at homes, or larger gardens at elite homesteads, the choice to grow local native plants and imported ones is likely similar due to the the phenomena explained by Van der Veen (2008) of an increased interest in local plants as the populations needed both to cultivate plants suited to the environment and wanted to diversify their diet, regardless of social class or economic purposes. Within larger contexts of Romanization, there appears to be a clear impact of local plants becoming a part of the Roman culture and tradition, as well as newly imported plants being popular.

PART IV: CONCLUSION

This thesis has presented a methodology of studying the plants in Romano-British gardens through the analysis of archaeobotanical remains, landscape studies, and material culture associated with gardening, while also presenting a smaller scale case study on Silchester using the same methods. The beginnings of horticulture in Britain were introduced after the Roman conquest, however plants from the Roman world began their introduction at the end of the late Iron Age (Lodwick 2014). In Roman Britain, while gardening and horticulture was a Roman construct, the population was able to retain previous cultural interests and integrate into larger networks of cultural exchange within the empire. The trade of Roman plants likely caused the interest in their widespread use and consumption after the invasion. Based on archaeological evidence there was a strong uptick in the utilization of Roman introduced plants in Britain in the first and second century CE, likely due to the interest of people in Roman Britain wanting access to a wide variety of new plants. However there also is increasing evidence of the use and cultivation of local plants in Britain in the 3rd century CE and through the end of the Roman period in Britain, based on Van der Veen et al.'s (2008) research. The climate and environment of Britain was dissimilar to the warmer and rainier regions of the Mediterranean, making local plants easier to cultivate and continuously grow than ones introduced by the Romans.

The general climate of the Roman empire was favorable during the Roman conquest of Britain, with overall warmer average temperatures until the 2nd century CE. This may have contributed to the initial growth of plants such as grapes in Britain that thrived in the warmer Mediterranean environments in the central part of the empire. Proxy climate evidence from the 3rd century CE indicates a cooler and drier climate in the northwestern parts of the empire, making the likelihood of growing local plants higher over imported plants introduced from warmer regions. The plants that may have increased in the frequency of their use but then

declined by the late Roman period may have thrived in the warmer temperatures and then adapted to the environment of Roman Britain until their frequency eventually decreased in the cooler periods of the 6th century CE and onwards (Van der Veen et al. 2008; McCormick et al. 2012). However, the inevitable choice of which plants to grow fell on the individual commissioning the garden spaces or growing their own. While climate may have been a contributing factor, the overall environment of different parts of Britain, the varying soil, and the amount of effort one could put into cultivating (or paying someone else to cultivate) plants likely had a greater contribution to the decisions involving cultivable plant species.

The decision to incorporate local and newly introduced plants into Roman gardens reflects both the interest of people in Roman Britain in new plants to diversify their lifestyles, while also indicating their place within the Roman world. In positioning plants as material culture in the archaeological record, the use of local and not local plants by people in Roman Britain shows a unique cultural identity within the empire. Both people indigenous to Britain before Roman conquest and people previously Roman who moved to Britain utilized plants based on their ability to thrive in the climate and environment, but also combining cultural practices and interests through plants and gardening. Plants of Roman origin versus local plants may also have been grown at different rates, with the elite classes having more access to imported plants, laborers dedicated to their cultivation, and the importation of particular soil types from other parts of the empire. However, based on the archaeobotanical data from rural, military, and urban sites, most of the population of Britain would have had access to trade networks connecting them to the rest of the empire, making it easy to then grow imported or local plants of their choosing. Major towns, military forts, rural villas, and smaller towns all had access to local and imported plants. While archaeological and archaeobotanical evidence

suggests the southeastern and central parts of Britain were the most connected to the continent, and therefore the rest of the empire, even towns and forts in the northern part of the province still had similar cultivable plant types and trends. Connectivity of the empire through plants appears prevalent.

The proposed methodology in this thesis synthesizes, analyzes, and incorporates archaeobotanical, material, and landscape evidence of plants to provide a clearer image of plants and gardens in Roman Britain. Using this methodology, future research on the subject of gardens in Roman Britain could take a fuller approach to determining the specific plants in Roman gardens, either gardens related to households specifically or more public gardens in orchards or cemeteries. While there are still limitations on the data available relating to the plants in gardens, a more predominant focus by archaeologists to develop research dedicated to Romano-British gardens would help remedy this. The Gardens of the Roman Empire Project has laid the groundwork for garden studies in the Roman world through the publication of *Gardens of the Roman Empire* by Jashemski et al. (2017) and the data uploaded on an online database, making it accessible to all types of researchers. In addition to data becoming easily accessible, the standardization of archaeobotanical data, including plant taxa and datasets themselves, across researchers is pertinent. Reanalysis of old archaeobotanical collections at major Roman archaeological sites may also prove insightful, similar to the work of Lodwick (2017a) reassessing the previous work done at Silchester. A collaborative approach to studying the plants in Romano-British gardens is the path forward, with archaeologists both looking to past misidentified evidence from excavations and looking to the future for new methods of sampling, reading the landscape, and publishing new information.

APPENDIX

Table 1: Plants cultivated in Romano-British gardens and their origins (not native to Britain and imported/introduced by the Romans, native to Britain due to existing before contact with the Roman world, or unknown/both)

Plant Name	**Taxa**	**Native/Not Native**
Alexanders	*Smyrnium olusatrum*	Not Native
Apple	*Malus sp.*	Unknown/Both
Ash	*Fraxinus excelsior*	Native
Asparagus	*Asparagus officinalis*	Native
Bilberry	*Vaccinium myrtillus*	Native
Black mustard	*Brassica nigra*	Not Native
Blackberry	*Rubus fruticosus*	Native
Box	*Buxus sempervirens*	Not Native
Cabbage	*Brassica oleracea*	Unknown/Both
Caper spurge	*Euphorbia lathyris*	Not Native
Carrot	*Daucus carota*	Native
Catmint	*Nepeta cataria*	Unknown/Both
Celery	*Apium graveolens*	Unknown/Both
Celtic bean	*Vicia faba*	Native
Cherry Plum	*Prunus cerasifera*	Not Native
Chestnut	*Castanea sativa*	Not Native
Columbine	*Aquilegia sp.*	Native
Common mallow	*Malva sylvestris*	Native
Coriander	*Coriandrum sativum*	Not Native
Crowberry	*Empetrum nigra*	Native
Damson	*Prunus domestica*	Not Native
Deadly Nightshade	*Atropa belladonna*	Unknown/Both

Dewberry	*Rubus caesius*	Native
Dill	*Anethum graveolens*	Not Native
Dog rose	*Rosa canina*	Native
Elderberry	*Sambucus nigra*	Native
Field Bean	*Vicia faba*	Not Native
Fir	*Abies sp.*	Not Native
Flax	*Linum usitatissimum*	Unknown/Both
Goutweed	*Aegopodium podagraria*	Native
Grape	*Vitis vinifera*	Not Native
Greater Celandine	*Chelidonium majus*	Native
Hawthorn	*Crataegus*	Native
Hazelnut	*Corylus avellana*	Native
Hemlock	*Conium maculatum*	Native
Hemp	*Cannabis sativa*	Not Native
Henbane	*Hyoscyamus niger*	Native
Holly	*Ilex aquifolium*	Native
Hop	*Humulus lupulus*	Native
Horehound	*Marrubium vulgare*	Native
Leaf Beet	*Beta vulgaris*	Native
Leek	*Allium porrum*	Not Native
Lettuce	*Lactuca sativa*	Not Native
Lovage	*Levisticum officinale*	Not Native
Madonna Lily	*Lilium candidum*	Not Native
Marjoram	*Origanum vulgare*	Native
Medlar	*Mespilus germanica*	Not Native
Mint	*Mentha sp.*	Native
Oak	*Quercus sp.*	Native
Pansy	*Viola tricolor var. hortensis*	Unknown/Both
Parsley	*Petroselinum crispum*	Not Native

Parsnip	*Pastinaca sativa*	Native
Pea	*Pisum sativum*	Not Native
Pear	*Pyrus sp.*	Not Native
Plum	*Prunus domestica*	Not Native
Poppy seed	*Papaver somniferum*	Not Native
Portugal Laurel	*P. lusitanica*	Not Native
Rape	*Brassica napus*	Not Native
Raspberry	*Rubus idaeus*	Native
Rowan	*Sorbus aucuparia*	Native
Rue	*Ruta graveolens*	Not Native
Sloe	*Prunus spinosa*	Native
Sour Cherry	*Prunus cerasus*	Not Native
Summer savory	*Satureja hortensis*	Not Native
Sweet Cherry	*Prunus avium*	Unknown/Both
Tree mallow	*Lavatera cf arborea*	Native
Turnip	*Brassica rapa*	Not Native
Vervain	*Verbena officinalis*	Native
Violet	*Viola sp.*	Unknown/Both
Walnut	*Juglans regia*	Not Native
White mustard	*Sinapis alba*	Not Native
Wild strawberry	*Fragaria vesca*	Native
Willow	*Salix sp.*	Native

Table 2: Disputed plants cultivated in Romano-British gardens and their origins

Plant Name	**Taxa**	**Native/Not Native**
Mulberry	*Morus nigra*	Not Native
Stone Pine	*Pinus pinea*	Not Native

Rose	*Rosa sp.*	Unknown/Both
Anise	*Pimpinella anisum*	Not Native

Table 3: Chart of food plants discussed by Van der Veen 2008 et al. and which site types they are found at (Y= Yes they are found at this site type)

			Locations Found	Military Sites	Major Towns	Minor Towns	Rural Sites	Other Site Types	Ceremonial Sites
Cultivation	Plant		Origin						
Cultivated Plants	Coriander	*Coriandrum sativum*	Not Native	Y	Y	Y	Y	Y	
	Poppy seed	*Papaver somniferum*	Not Native	Y	Y	Y	Y	Y	Y
	Apple/Pear	*Malus/Pyrus*	Unknown/Both	Y	Y	Y	Y	Y	Y
	Mint	*Mentha sp.*	Unknown/Both	Y	Y	Y	Y	Y	Y
	Grape	*Vitis vinifera*	Not Native	Y	Y	Y	Y		Y
	Celery	*Apium graveolens*	Unknown/Both	Y	Y	Y	Y	Y	Y
	Carrot	*Daucus carota*	Native	Y	Y	Y	Y		
	Dill	*Anethum graveolens*	Not Native	Y	Y	Y	Y		
	Cherry	*Prunus sp.*	Unknown/Both	Y	Y	Y	Y		
	Damson	*Prunus domestica (insititia)*	Not Native	Y	Y	Y	Y	Y	
	Plum	*Prunus domestica*	Not Native	Y	Y	Y	Y		

	Walnut	*Juglans regia*	Not Native	Y	Y	Y	Y		
	Turnip	*Brassica rapa*	Not Native	Y	Y		Y	Y	
	Black mustard	*Brassica nigra*	Not Native	Y	Y	Y	Y		Y
	Summer savory	*Satureja hortensis*	Not Native	Y	Y		Y		
	Box	*Buxus sempervirens*	Not Native	Y	Y	Y	Y		Y
	Hemp	*Cannabis sativa*	Not Native	Y	Y		Y		
	Parsnip	*Pastinaca sativa*	Native	Y	Y		Y		
	Fennel	*Foeniculum vulgare*	Not Native	Y	Y	Y	Y		
	Leaf Beet	*Beta vulgaris*	Native	Y	Y	Y	Y		
	Cabbage	*Brassica oleracea*	Unknown/Both	Y	Y	Y			
	White mustard	*Sinapis alba*	Not Native		Y		Y		
	Hop	*Humulus lupulus*	Native	Y	Y				
	Marjoram	*Origanum vulgare*	Native		Y		Y		
	Leek	*Allium porrum*	Not Native		Y		Y		
	Asparagus	*Asparagus officinalis*	Native			Y			
	Rape	*Brassica napus*	Not Native	Y			Y		
	Parsley	*Petroselinum crispum*	Not Native	Y	Y				
	Chestnut	*Castanea sativa*	Not Native				Y		
	Lettuce	*Lactuca sativa*	Not Native				Y		

	Lovage	*Levisticum officinale*	Not Native				Y		
	Horehound	*Marrubium vulgare*	Native		Y				
	Rue	*Ruta graveolens*	Not Native		Y				
Possibly Cultivated	Pine Nut	*Pinus pinea*	Not Native	Y	Y	Y	Y		Y
	Mulberry	*Morus nigra*	Not Native		Y				Y
	Anise	*Pimpinella anisum*	Not Native		Y				
Not Cultivated	Fig	*Ficus carica*	Not Native	Y	Y	Y	Y	Y	Y
	Lentil	*Lens culinaris*	Not Native	Y	Y		Y	Y	Y
	Olive	*Olea europaea*	Not Native	Y	Y	Y	Y	Y	
	Gold of pleasure	*Camelina sativa*	Not Native	Y	Y				
	Millet	*Panicum miliaceum*	Not Native	Y	Y				
	Cucumber	*Cucumis sativus*	Not Native		Y				
	Almond	*Amygdalus communis*	Not Native	Y	Y				Y
	Date	*Phoenix dactylifera*	Not Native	Y					Y
	Black cumin	*Nigella sativa*	Not Native	Y	Y				
	Bitter vetch	*Vicia ervilia*	Not Native		Y				
	Black pepper	*Piper nigrum*	Not Native		Y				
	Peach	*Persica vulgaris*	Not Native		Y				
	Pomegranate	Punica granatum	Not Native		Y				

	Sesame	Sesamum indicum	Not Native	Y					

Table 4: Plants cultivated at Roman Silchester and which insulae excavations they were found

Plant	Latin Name	XXIII, XXI, XXV, XXVI	XXII, XXVII	XXX,XXIX, XXXI, XXXII	XXIII	V, VI	XXXIV	XXVII, XXXV	City Walls	Undated/No Insula	IX
Black mustard	*Brassica nigra*						✔	✔			
Blackberry	*Rubus fruticosus*	✔	✔					✔		✔	
Box	*Buxus sempervirens*										
Carrot	*Daucus carota*										
Celery	*Apium graveolens*	✔									✔
Celtic bean	*Vicia faba*									✔	
Cherry	*Prunus avium*					✔					
Coriander	*Coriandrum sativum*	✔									
Damson	*Prunus domestica (insititia)*	✔	✔		✔			✔	✔	✔	✔
Deadly Nightshade	*Atropa belladonna*									✔	
Dill	*Anethum graveolens*	✔		✔	✔	✔				✔	

Elder	*Sambucus nigra*	✔	✔		✔					✔	
Grape	*Vitis vinifera*	✔									
Hawthorn	*Crataegus*	✔									
Hazelnut	*Corylus avellana*	✔						✔			
Hemlock	*Conium maculatum L.*									✔	
Henbane	*Hyoscymus niger*									✔	
Holly	*Ilex aquifolium*										✔
Horehound	*Marrubium vulgare*									✔	
Medlar	*Mespilus germanica*				✔						
Mulberry	*Morus nigra*			✔							
Pea	*Pisum sativum*							✔			
Pear/Apple	*Pyrus/Malus*	✔			✔			✔		✔	
Plum	*Prunus domestica*	✔			✔			✔	✔	✔	
Raspberry	*Rubus idaeus*	✔									
Sloe	*Prunus spinosa*	✔	✔		✔			✔	✔	✔	
Stone pine	*Pinus pinea*									✔	
Sweet Cherry	*Prunus avium*	✔	✔		✔				✔	✔	

Violet	*Viola sp.*									✔	
White Bryony	*Bryonia dioica*									✔	
Wild strawberry	*Fragaria vesca*	✔									

BIBLIOGRAPHY

Brown, A. G., I. Meadows, S. D. Turner, and D. J. Mattingly. 2001. “Roman Vineyards in Britain: Stratigraphic and Palynological Data from Wollaston in the Nene Valley, England.” *Antiquity* 75 (290): 745–57. https://doi.org/10.1017/S0003598X00089250.

Carroll, Maureen, and Kathryn Gleason. 2021. “Britannia.” *Gardens of the Roman Empire*. April 2021. https://roman-gardens.github.io/province/britannia/.

Creighton, John, and Robert Fry. 2016. *Silchester: Changing Visions of a Roman Town: Integrating Geophysics and Archaeology: The Results of the Silchester Mapping Project, 2005-10*. Britannia Monograph Series, no. 28. London: Society for the Promotion of Roman Studies.

Cunliffe, Barry. 1971. *Excavations at Fishbourne*. Society of Antiquaries of London. https://doi.org/10.26530/20.500.12657/37346.

Cunliffe, Barry. 1981. "Roman Gardens in Britain: A Review of the Evidence" in Ancient Roman Gardens, W.F. Jashemski, ed. Dumbarton Oaks: Washington, DC.

Dark, Petra. 1999. “Pollen Evidence for the Environment of Roman Britain.” *Britannia* 30: 247–72. https://doi.org/10.2307/526681.

Dark, Petra. 2022. “Pollen-Analytical Perspectives on the End of Roman Britain.” *Environmental Archaeology*, June, 1–15. https://doi.org/10.1080/14614103.2022.2083926.

Dark, Petra. 2023. “Pollen and Macroscopic Plant Remains as Indicators of Local and Regional Environments.” In *Handbook of Archaeological Sciences*, edited by A. Mark Pollard, Ruth Ann Armitage, and Cheryl A. Makarewicz, 1st ed., 271–88. Wiley. https://doi.org/10.1002/9781119592112.ch14.

Detsicas, A. 1981. “A group of pottery from Eccles, Kent.” In A.C. and A.S. Anderson (Eds.) - *Roman Pottery Research in Britain and north-west Europe. Papers presented to Graham Webster, Oxford*, 1981, p. 441-445 (BAR International Series 123, II).

Dickson, C. 1994. “Macroscopic Fossils of Garden Plants from British Roman and Medieval Deposits.” In *Garden History: Garden Plants, Species, Forms and Varieties from Pompeii*

to 1800. Symposium held at the European Centre for Cultural Heritage, Ravello, June 1991, edited by Moe, D., Dickson, J. H. and Jorgenson, P. M., 47–72. Belgium: Rixensart.

Euro+Med. 2006+ [continuously updated]. Euro+Med PlantBase - the Information Resource for Euro-Mediterranean Plant Diversity. http://www.europlusmed.org.

Farrar, Linda. 2016. "Roman Gardens." In *Gardens and Gardeners of the Ancient World*, 138–84. History, Myth and Archaeology. Oxbow Books. https://doi.org/10.2307/j.ctv13gvgxf.13.

Fulford, Michael. 2006. "Discussion and Synthesis." In *Life and Labour in Late Roman Silchester: Excavations in Insula IX since 1997*, edited by Michael Fulford, Amanda Clarke and Hella Eckardt, Silchester Roman Town the Insula IX Town Life Project: Volume 1, 249-282. London: the Society for the Promotion of Roman Studies.

Fulford, Michael, Amanda Clarke, and Hella Eckardt. 2006. "The Excavation." In *Life and Labour in Late Roman Silchester: Excavations in Insula IX since 1997*, edited by Michael Fulford, Amanda Clarke and Hella Eckardt, Silchester Roman Town the Insula IX Town Life Project: Volume 1, 16-75. London: the Society for the Promotion of Roman Studies.

Gleason, Kathryn L. 2013. "Detecting and Documenting Archaeological Features of a Garden through Excavation." In *Sourcebook of Garden Archaeology*, ed. Amina-Aïcha Malek, 217-256, Peter Lang: Bern.

Gleason, Kathryn L., and Michele A. Palmer. 2013. "Synthesis and Interpretation: the Garden as a Built Environment." In *Sourcebook of Garden Archaeology*, ed. Amina-Aïcha Malek, 277-315, Peter Lang: Bern.

Gleason, Kathryn L., and Michele A. Palmer. 2017. "Constructing the Ancient Roman Garden." In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 1st ed., 369–401. Cambridge University Press. https://doi.org/10.1017/9781139033022.015.

Guttmann, Eba. 2005. "Midden Cultivation in Prehistoric Britain: Arable Crops in Gardens." *World Archaeology* 37 (2): 224–39. https://doi.org/10.1080/00438240500094937.

Humphreys, Owen. 2017. “Roman rubbish reveals lost Londinium.” *Museum of London*. https://www.museumoflondon.org.uk/discover/roman-rubbish-reveals-lost-londinium.

Jansen, Gemma C. M. 2017. “Water and Water Technology in Roman Gardens.” In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 1st ed., 402–31. Cambridge University Press. https://doi.org/10.1017/9781139033022.016.

Jashemski, Wilhelmina F. 2017. “Gardening Practices and Techniques.” In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 1st ed., 432–54. Cambridge University Press. https://doi.org/10.1017/9781139033022.017.

Jashemski, Wilhelmina F., Kathryn L. Gleason, and Michael Herchenbach. 2017. “Plants of the Roman Garden.” In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 1st ed., 455–80. Cambridge University Press. https://doi.org/10.1017/9781139033022.018.

Johnston, Robert. 2005. “A Social Archaeology of Garden Plots in the Bronze Age of Northern and Western Britain.” *World Archaeology* 37 (2): 211–23. https://doi.org/10.1080/00438240500094853.

Krebs, Patrik, Fabiano Ulmke, Willy Tinner, and Marco Conedera. 2022. “The Roman Legacy on European Chestnut and Walnut Arboriculture.” *Environmental Archaeology*, November, 1–22. https://doi.org/10.1080/14614103.2022.2137648.

Lambrick, George, and Mark Robinson. 1982. “Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire.” *Britannia* 13: 437. https://doi.org/10.2307/526527.

Lewis, Elizabeth Macaulay. 2006. “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: Proceedings from 1st Conference on Crop Fields and Gardens Archaeology*, University of Barcelona, Barcelona, Spain, June 1-3rd 2006, ed. J.P. Morel, J. T. Juan and J.C. Matamala (EdiPuglia 2006), 207-20.

Lodwick, Lisa. 2014. “Condiments before Claudius: New Plant Foods at the Late Iron Age Oppidum at Silchester, UK.” *Vegetation History and Archaeobotany* 23 (5): 543–49.

Lodwick, Lisa. 2015. “Identifying Ritual Deposition of Plant Remains: A Case Study of Stone Pine Cones in Roman Britain.” *Theoretical Roman Archaeology Journal* 0 (2014): 54. https://doi.org/10.16995/TRAC2014_54_69.

Lodwick, Lisa A. 2017a. “‘The Debatable Territory Where Geology and Archaeology Meet’: Reassessing the Early Archaeobotanical Work of Clement Reid and Arthur Lyell at Roman Silchester.” *Environmental Archaeology* 22 (1): 56–78. https://doi.org/10.1080/14614103.2015.1116218.

Lodwick, Lisa A. 2017b. “Evergreen Plants in Roman Britain and Beyond: Movement, Meaning and Materiality.” *Britannia* 48: 135–73.

Lodwick, Lisa. 2019a. “Agendas for Archaeobotany in the 21st Century: Data, Dissemination and New Directions.” *Internet Archaeology*, no. 53 (June). https://doi.org/10.11141/ia.53.7.

Lodwick, Lisa. 2019b. “Farming Practice, Ecological Temporality, and Urban Communities at a Late Iron Age *Oppidum*.” *Journal of Social Archaeology* 19 (2): 206–28. https://doi.org/10.1177/1469605319837766.

Lodwick, Lisa A. 2020. “The Charred, Mineralised and Waterlogged Plant Remains.” In *Silchester Insula IX: the Claudio-Neronian Occupation of the Iron Age Oppidum*, edited by Michael Fulford, Amanda Clarke, Emma Durham, and Nicholas Pankhurst, Britannia Monograph Series No. 33, 487-514. London: The Society for the Promotion of Roman Studies.

Lodwick, Lisa. 2023. “Cultivating Villa Economies: Archaeobotanical and Isotopic Evidence for Iron Age to Roman Agricultural Practices on the Chalk Downlands of Southern Britain.” *European Journal of Archaeology*, February, 1–22. https://doi.org/10.1017/eaa.2022.47.

Macaulay-Lewis, Elizabeth. 2017. “The Archaeology of Gardens in the Roman Villa.” In *Gardens of the Roman Empire*, edited by Wilhelmina F. Jashemski, Kathryn L. Gleason, Kim J. Hartswick, and Amina-Aïcha Malek, 1st ed., 87–120. Cambridge University Press. https://doi.org/10.1017/9781139033022.004.

Malek, Amina-Aïcha. 2013. “Wilhelmina F. Jashemski and the Gardens of the Roman Empire.” In *Sourcebook of Garden Archaeology*, ed. Amina-Aïcha Malek, 41-58, Peter Lang: Bern.

Manning, Adrian, Robin Birley, and Richard Tipping. 1997. “Roman Impact on the Environment at Hadrian’s Wall: Precisely Dated Pollen Analysis from Vindolanda, Northern England.” *The Holocene* 7 (2): 175–86. https://doi.org/10.1177/095968369700700205.

Manning, S.W. 2013. “The Roman World and Climate: Context, Relevance of Climate Change, and Some Issues.” In W.V. Harris (ed.), *The Ancient Mediterranean Environment between Sciences and History*, 103-170. Leiden: Brill.

Marzano, Annalisa. 2022. *Plants, Politics and Empire in Ancient Rome*. 1st ed. Cambridge University Press. https://doi.org/10.1017/9781009121958.

McCormick, Michael, Ulf Büntgen, Mark A. Cane, Edward R. Cook, Kyle Harper, Peter Huybers, Thomas Litt, et al. 2012. “Climate Change during and after the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence.” *The Journal of Interdisciplinary History* 43 (2): 169–220. https://doi.org/10.1162/JINH_a_00379.

Miller, Naomi F., and Kathryn L. Gleason. “Fertilizer in the Identification and Analysis of Cultivated Soil.” In *The Archaeology of Garden and Field*, edited by Naomi F. Miller and Kathryn L. Gleason, 25-43. University of Pennsylvania Press: Philadelphia.

Millett, Martin. 1990. “The Nature of Roman Imperialism.” In *The Romanization of Britain*, 1-8. Cambridge: Cambridge University Press.

Moore, Tom. 2007. “The Early to Later Iron Age Transition in the Severn–Cotswolds: Enclosing the Household?” In *The Earlier Iron Age in Britain and the Near Continent*, edited by Colin Haselgrove and Rachel Pope, 259–78. Oxbow Books. https://doi.org/10.2307/j.ctvh1dwqj.19.

Perring, Dominic. 2002. *The Roman House in Britain*. London ; New York: Routledge.

Robinson, Mark, Nancy Fulford, and Klare Tootell. “The Macroscopic Plant Remains.” In *Life and Labour in Late Roman Silchester: Excavations in Insula IX since 1997*, edited by Michael Fulford, Amanda Clarke and Hella Eckardt, Silchester Roman Town the Insula IX Town Life Project: Volume 1, 16-75. London: the Society for the Promotion of Roman Studies.

Straker, Vanessa, Anthony Brown, Ralph Fyfe, and Julie Jones. 2008. “Later Bronze Age and Iron Age Environmental Background.” In *The Archaeology of South West England*. Somerset: Somerset Heritage Service.

Sykes, Naomi. 2009. “Worldviews in Transition: The Impact of Exotic Plants and Animals on Iron Age/Romano-British Landscapes.” *Landscapes* 10 (2): 19–36. https://doi.org/10.1179/lan.2009.10.2.19.

Tally-Schumacher, Kaja Joanna. 2020. *Cultivating Empire in Ancient Roman Gardens: Unearthing the Tangled Relationship Between Plants and their Gardeners*. Ithaca: Cornell University Press.

Timby, Jane. 2020. “The Pottery.” In *Silchester Insula IX: the Claudio-Neronian Occupation of the Iron Age Oppidum*, edited by Michael Fulford, Amanda Clarke, Emma Durham, and Nicholas Pankhurst, Britannia Monograph Series No. 33, 487-514. London: The Society for the Promotion of Roman Studies.

University of Reading. 2023. “Silchester Environs Project.” *University of Reading*. https://research.reading.ac.uk/silchester/projects/silchester-environs-project/.

Van Oyen. 2017. “Material Culture in the Romanization Debate.” In *The Diversity of Classical Archaeology*, edited by Achim Lichentenburger and Rubina Raja, 287- 300. Belgium: Brepols Publishers.

Veen, Marijke van der. 2008. “Food as Embodied Material Culture: Diversity and Change in Plant Food Consumption in Roman Britain.” *Journal of Roman Archaeology* 21: 83–109. https://doi.org/10.1017/S1047759400004396.

Veen, Marijke van der, Alexandra Livarda, and Alistair Hill. 2007. “The Archaeobotany of Roman Britain: Current State and Identification of Research Priorities.” *Britannia* 38: 181–210.

Veen, Marijke van der, Alexandra Livarda, and Alistair Hill. 2008. “New Plant Foods in Roman Britain — Dispersal and Social Access.” *Environmental Archaeology* 13 (1): 11–36. https://doi.org/10.1179/174963108X279193.

Van Der Veen, Marijke. 2018. “Archaeobotany: The Archaeology of Human-Plant Interactions.” In *The Science of Roman History*, edited by Walter Scheidel, 53–94. Princeton: Princeton University Press. https://doi.org/10.23943/9781400889730-007.

Versluys, Miguel John. 2014. “Understanding Objects in Motion. An *Archaeological* Dialogue on Romanization.” *Archaeological Dialogues* 21 (1): 1–20. https://doi.org/10.1017/S1380203814000038.

Webster, Jane. 2001. “Creolizing the Roman Provinces.” *American Journal of Archaeology* 105 (2): 209–25. https://doi.org/10.2307/507271.

Wells, Peter. 2014. “Material Culture and Identity.: The Problem of Identifying Celts, Germans and Romans in Late Iron Age Europe.” In *Fingerprinting the Iron Age: Approaches to Identity in the European Iron Age*, edited by Cătălin Nicolae Popa and Simon Stoddart, 306–22. Integrating South-Eastern Europe into the Debate. Oxbow Books. https://www.jstor.org/stable/j.ctvh1dv7b.30.

Zeepvat, R.J. 1991. “Roman Gardens in Britain.” In *Garden Archaeology*., A. E. Brown, ed. Council for British Archaeology Research Report 78, 56-58, London.