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Imported Exotica: Approaches to the Study of the Ancient Plant Trade

Introduction

“But who would not be justifiably surprised to hear that a tree has been procured from another clime merely for the sake of shade? This tree is the plane”¹.

In this passage from the *Natural History*, Pliny lambastes the plane tree (*Platanus orientalis* L.); he calls it a luxurious, eastern plant, which produced no fruit, but only shade. It was the botanical embodiment of the decline in Roman values brought about through contact with the Hellenistic and eastern world. To the modern ears this diatribe might seem out of place. What had this poor *platanus* done to deserve such criticism? In Pliny’s day, its benevolent branches cast cool shade over the streets and public gardens of Rome. But in Pliny’s eyes, it was what the tree had not done – yielding no fruit or useful wood – that made it such an unworthy plant². Furthermore, it was an interloper, a foreign species. That said, not all foreign plants were vilified; balsam and other incense producing plants were actively sought by the Romans³. This passage highlights that a plant is rarely just a plant. Not only do plants have economic value, but they are also the vegetal incarnation of a society’s cultural, political and social values⁴. Plants, their cultivation, use, significance, and migration not only tell us a great deal about antiquity, but about each civilization of this era.

Traditionally, the study of garden plants has been quite limited in scope⁵. Scholars have tended to view plants as ephemeral bits of the past that could only be studied through ancient literary and visual sources. The advent of modern scientific, archaeological techniques, as well as the development of garden archaeology and archaeobotany, has enabled us to identify the actual plants found in ancient gardens, particularly those in full summer foliage buried by Mount Vesuvius that August day of AD 79. The result has been the publication of short catalogs, often in the form of herbals, especially about the plants in Pompeii⁶.

¹ Plin., *NH* XII.iii.vi, “Sed quis non iure miretur arborem umbrae gratia tantum ex alieno petitam orbe? Platanus haec est”. For a less negative view of the plane, see Seneca, *Ep.*, XII.II when he bemoans the treatment of the plane trees on his estate.

² Not all authors criticise the plane tree for its lack of productive foliage and seeds. The plane tree was closely associated with philosophy throughout antiquity. Many philosophers from the Hellenistic era were thought to have lectured under the shade of plane trees. In the Roman period, the plane was in demand for the gardens of private villas where elite men walked for leisure, discussing philosophy. See MACAULAY-LEWIS 2008b, 47–77.

³ See *infra*, 11.

⁴ A similar observation has been made about Roman food; food consumption is reflective of larger cultural choices and identity. See VAN DER VEEN 2003a; 2008; BAKELS, JACOMET 2003.

⁵ The archaeological study of Roman food, its consumption, and production has flourished in recent years, demonstrating a well development trade network of foodstuffs within and beyond the boundaries of the Roman Empire. The work of van der Veen in Roman Britain, Egypt and is particularly noteworthy; for her work and further bibliography, see VAN DER VEEN 2003a; 2003b; 2007; 2008.

⁶ JASHEMSKI *ET AL.* 2006, 80–180; MANNICHE 2006²; RYLEY 1998; CIARALLO 2004.

These herbals are essential building blocks in the study of ancient plants. Yet, they often do little beyond listing the plants with photographs or drawings and short descriptions, like a modern-day floral field guide. Another area where scholars have shown considerable interest is in the symbolism and iconography of plants⁷; these studies, however, tend to focus on representations and need to be linked to archaeological evidence. With new gardens excavated each year, it is an ideal time to pose new questions about the origins and the place of plants in the Roman garden and its design.

This paper proposes a new method for looking at the trade for plant collecting and display⁸. I divide my discussion into two parts. First, I examine the evidence for ancient plants and whether this information is sufficient to address questions we want to ask in archaeologically excavated gardens. Second, I develop an approach, drawing upon the known classes of evidence, for the study of the ancient plant trade and apply this to ancient Rome and the issues of plant display. I conclude that the evidence is insufficient as yet to model plant trade; currently, the nature of the evidence presents certain limitations. However, this brief paper suggests that a trans-disciplinary approach, employing new scientific techniques and utilizing the nascent field of garden archaeology and other underused sources of evidence, to the study of ancient plants can eventually lead to a model of the trade of ancient plants⁹.

Part I: the Nature of the Evidence

There is a surprisingly wide range of evidence for ancient plants and their trade. There are three major categories: 1) literary and historical; 2) art historical; and 3) archaeological and archaeobotanical. Although scattered, literary references to the ancient plant trade, the origin of plants, where the best plants are found, and why they were traded are abundant. Table 1 offers a partial list of the authors who specifically wrote on plants¹⁰. (Table 1).

Author	Work(s)	Date
Theophrastus	<i>Enquiry into Plants</i> <i>On the Causes of Plants</i>	early 3rd C BC
Cato the Elder	<i>De Agri Cultura</i>	3rd / 2nd C BC
Varro	<i>De Re Rustica</i>	1st C BC
Pliny the Elder	<i>Historia Naturalis</i>	1st C AD
Columella	<i>De Re Rustica</i>	1st C AD
-----	<i>Periplus Maris Erythraei</i> (sailing manual, mentioning ports for incense trade)	AD 40 - 70

⁷ SAURON'S 2000 study is the most comprehensive. Also see CASTRIOTA 1996, on the *Ara Pacis*; BAUMANN 2000, on Greek coins; MACAULAY-LEWIS 2008a, on plants and the Flavian dynasty.

⁸ Previous studies have demonstrated that plants moved across tremendous geographic areas in antiquity. Pompeii's diverse *flora*, which included species from as far as a way as China, testifies to this. See JASHEMSKI ET AL. 2002, 137; 152; and CIARALLO 2000, 6. See *supra*, nn. 4-5.

⁹ This paper does not aim to consider plants as food, but rather focuses on plants for gardens and horticulture.

¹⁰ Numerous authors, like Horace and Virgil, were interested in pastoral or agricultural ideals. However, they do not discuss plants, their significance and their movements in detail and so are not directly relevant to this study.

Author	Work(s)	Date
-----	The Alexandrian Tariff (Issued under Marcus Aurelius, it lists 54 plant items that were taxed at Alexandria on route to Rome)	AD 176-180
Galen	various writings	2nd C AD
Apicius	<i>De re conquinaria</i>	4th C AD
Palladius	<i>Opus Agriculturae</i>	mid 5th C AD

Table 1. The major ancient sources discussing ancient plants in some capacity.

These authors also provide insight into the ancient perception, use and significance of plants. Pliny the Elder, in particular, is the first to note his sources on the subject systematically. Many other literary sources provide the names of plants in association with myth, legend, historical events, or poetry that offer critical insights into the cultural use of plants, if not much scientific information. Of particular interest to the trade of ancient plants, are the *Periplus Maris Erythraei* and the Alexandrian Tariff. They enumerate the plants that entered the Roman Empire via Egypt (in particular Myos Hormos and Berenike) from India, Africa and Arabia and in the case of the Alexandria Tariff, twenty different plant products were listed as being subject to duty¹¹. With the exception of clover (yellow) (*Melilotus officinalis* L.) Pallas and nard (-spike) (*Cymbopogon schoenanthus* L.) Spreng¹², which were present as whole plants, the other forty-three foreign plants listed were trade in the form of roots, wood, bark, secretations (for example, resin), leaf, and flower¹³, suggesting that plants were imported into Egypt in various forms.

There is also considerable epigraphic and documentary evidence that has yet to be fully exploited. Jashemski, for example, has used graffiti successfully in her study of Pompeian plants¹⁴. The cargo lists of ships, papyri and ostraka from Egypt and other parts of the Roman Empire, as well as administrative records, have been underutilized thus far¹⁵. These have tremendous potential to yield information about plants, their spread throughout the ancient world, and the economics of the ancient plant trade.

The sources have well-documented limitations; the translation of ancient plant names both between ancient languages and into a modern tongue remains a key issue. In addition, the ancient sources frequently name but do not describe plants¹⁶, making it difficult to identify these plants. This is further complicated by the fact that, until the 18th c. and Linnaeus' taxonomic classification, there was no systematic naming of plants¹⁷.

¹¹ CAPPERS 2006, 3.

¹² or Spikenerd (*Nardostachys grandiflora* DC)

¹³ CAPPERS 2006, 4–5; Table 1.1.

¹⁴ *CIL* IV 5380; She identified leeks (*allium porrum* L.) and onions or cepa (*allium cepa* L.) on a bill in the atrium of a hotel at IX.vii.XXIV-XXV (JASHEMSKI ET AL. 2002, 87), Leeks originate in the Mediterranean or Near East; possibly dating from the second millennium BC in Egypt and Mesopotamia. They were an imported species at some point. This suggests movement of plants within the Mediterranean world – and possibly from the areas farther a field.

¹⁵ Peacock *et al.*, for example, does not discuss cargo lists in their study of the ancient incense trade; it may be that there are no surviving records.

¹⁶ JASHEMSKI ET AL. 2002, 83.

¹⁷ The ancient citron, the so-called Median Apple, is a good example. The translation of “citron” brings a lemon or some type of orange to the modern mind; however, there is nothing in Pliny the Elder (*NH*, XII.vii.XV) that suggests a tie to what we think of as citrus fruits today. The citron, Median or Assyrian Apple is referred as “Malus Assyria, quam alii Medicam, vocant” by Pliny in this passage. The exact nature of this plant remains unclear.



Fig. 1 – The garden room at the villa at Prima Porta (JASHEMSKI 1992, n. 454, 381; courtesy of the estate of Wilhelmina Jashemski).

Scholars have turned to art historical remains, the second category of evidence, for both scientific knowledge and for the cultural significance of plants. The work has been most intensively conducted at Pompeii, where the depiction of plants in wall paintings, sculpture and mosaics has been studied since the 1850s¹⁸. However, significant evidence is also preserved in Rome and at sites around the Empire. The presence of art in garden paintings, for example, considered together with literary evidence, provides our current knowledge of the iconography of plants in gardens. Numismatic study also provides evidence of the political value and cultural meaning of plants, such as date palms and laurels, to those emperors or cities that selected them for the reverses of their coins¹⁹. Apart from the highly specific information that we derive from coins, arguably scholars may have been too simplistic with more complex forms of art as evidence for ancient plants²⁰. We need to develop a discipline around ancient plant study that, like epigraphy, numismatics, and art, allows us to work within known limitations of the evidence and a knowledge of ancient practices. Wall paintings, sculpture²¹ and mosaics, are inherently problematic, because they portray fictions grounded in ancient realities. The challenge for our discipline is to describe the parameters of our interpretation of the underlying reality, whose boundaries we have not as yet explored.

The garden room at Prima Porta is a depiction of a very particular kind of garden, filled with the most culturally significant plants of Republican Italy, and of Augustus' reign (fig. 1). Shown blooming simultaneously are plants that *actually* flowered at different seasons, in a kind of abundance not seen in the countryside itself²². It uses the medium of paint to compress time in a way that would not have been possible in life, despite the best efforts of horticulturists. Its plants and birds depicted with almost scientific accuracy, the Prima Porta painting, as far as we know, introduces this type of garden painting to Rome as a kind of do-

¹⁸ JASHEMSKI *ET AL.* 2002, 80–1.

¹⁹ MACAULAY-LEWIS 2008a, 205–55; KELLUM 1994; See BAUMANN 2002, for a study of plants on Greek coins.

²⁰ The study of Pompeii's plants is a good example of this. Scholars have often assumed that the plants shown were imported and grown in Pompeii (CIARALLO 2000, 7–9). While this is possible, it is noteworthy that much of the fauna – for example, crocodiles, tigers, lions - that were shown in Pompeian wall paintings most certainly did not have a physical presence in Pompeii. Day has highlighted some of the problems with studying art historical remains in Minoan Crete, see DAY 2006, 189–97.

²¹ For treatments of plants and their meanings in sculpture, see CASTRIOTA 1995. His work focuses on the symbolism and significance of plants in Augustan ideology on the lower register of the *Ara Pacis*. Also see KELLUM 1994, for a study of the symbolism of plants in Augustan Rome.

²² These plants are shown flowering for ideological purposes. For a discussion of the ideological implication of plants and gardens under Augustus and at Prima Porta, See GABRIEL 1995; KELLUM 1994; and REEDER 2001.

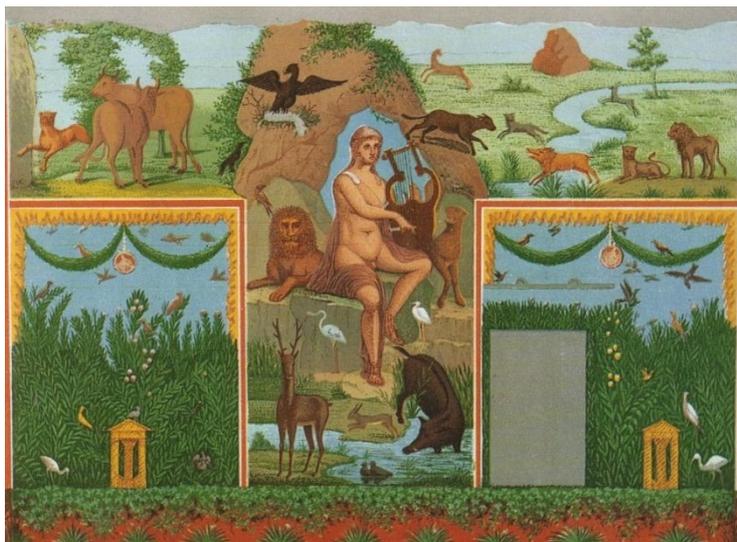


Fig. 2 – A nineteenth century watercolor of a wall painting depicting a *paradeisos* / garden scene with Orpheus from The House of Orpheus (VI.XIV.20), Pompeii (JASHEMSKI 1992, n. 399, 344; courtesy of the estate of Wilhelmina Jashemski).

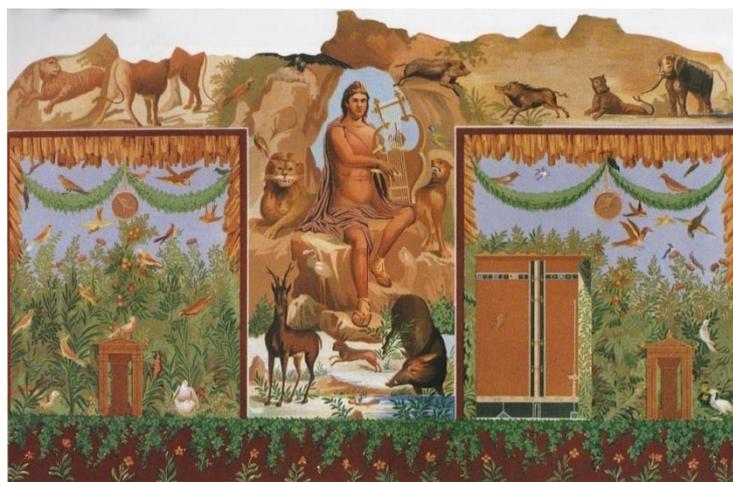


Fig. 3 – Another nineteenth century watercolor of a wall painting depicting a *paradeisos* / garden scene with Orpheus from The House of Orpheus (VI.xiv.20), Pompeii. Note the differences from figure 2 (JASHEMSKI 1992, n. 400, 345; courtesy of the estate of Wilhelmina Jashemski).

cument of garden display. This accuracy of elements is seen in other forms of Augustan art, such as the Ara Pacis, but is this garden “real” in any sense? Most other types of landscape paintings give mere impressions of plant forms and types, such as villa scenes and sacral idyllic paintings.

That said, garden paintings at Pompeii seem to reflect a range of garden realities or fantasies from the totally impossible, such as the mythic landscape of Orpheus playing his lyre to the animals in the House of Orpheus (VI.xiv.20) at Pompeii (figs. 2-3), to the more plausible of the House of the Wedding of Alexander (VI.Insula occid.42), also at Pompeii (fig. 4), where plants known to the region flourished²³. There does not appear to be a decline from the realistic to the impressionist at Pompeii; rather garden painting because of its flexible nature allowed the owner of each house or villa the ability to create a garden of his desire – a reality or fiction. These art historical sources are vital for understanding plants; however, because they are generally artistic representations – not botanical drawings – they must be used in conjunction with the other types of evidence to further our knowledge of ancient plants.

Finally, archaeological and archaeobotanical remains may have the most to offer scholars studying ancient plants because they provide evidence of the three dimensional environment in which the plants lived in an ecological setting, as well as in a cultural garden setting. In recent years, the archaeobotanical study of ancient food has flourished,

demonstrating strong trade links with India via the Red Sea and Egypt and the wide transportation of food stuffs within the Roman Empire and beyond²⁴. The trade of plants for food, incense, and other purposes demonstrates that plants moved throughout the empire and indicates that plants destined for display or other horticultural purposes probably occurred as well; however, because this has not been the focus of archaeobotanical studies thus far, a review of current archaeobotanical studies should provide additional insights into our understanding of Roman garden plants. Likewise, Garden Archaeology, a nascent area of study, is conti-

²³ Of course, there were often landscapes that lay between these two extremes. The so-called *paradeisos* landscapes may be “realistic” in the sense that they existed, but certainly they could never be present in the small lightwells and gardens of Pompeian houses. For example, see JASHEMSKI 1992, figs. 388; 391–5.

²⁴ See *supra*, nn. 4-5; CAPPERS 2006.



Fig. 4 – A garden painting from the House of the Wedding of Alexander (VI.Insula Occid. 42), Pompeii (n. 406, 348; courtesy of the estate of Wilhelmina Jashemski).

nually providing new evidence that enhances our picture of ancient gardens²⁵. New studies of artifacts, from planting pots to iron tools, is casting new light on horticultural practices. Environmental evidence, or “ecofacts,” illuminate the condition of the plant in its environment. This information is difficult to gain in other ways.

Ollae perforatae are of particular importance to trade, display, and garden design. Purpose-made planting pots were used as planters in Roman gardens, as were amphoras in a secondary reuse. Evidence for the plants housed in these pots, in the correct conditions – either in very dry climates – or in the volcanically sealed Vesuvian region, have survived. The remains exist either in the form of carbonized plant remains or as cavities that can be filled in to reveal the structure of the roots and the type of plant that was housed within. Even where the plant remains are not preserved, the pot’s size gives some indication of the type of plant, and the location of the plant gives evidence for its place in the garden display. These planting pots may also provide information about the transportation and distribution of plants in the Roman world; according to the ancient sources²⁶, not only were these pots used as vessels to transport plants from nurseries to sites, but they were also used to transport plants throughout the empire. Thus, not only should the organic remains within the pots be useful in studying the movement of plants, but also the actual clay that composed these vessels may provide further insight into the ancient plant trade, across trade routes to local nurseries and markets²⁷. Shipwrecks are another potential wealth of information for *ollae perforatae* and the ancient plant trade. Study of their remains may prove that planting pots or other vessels for plants

²⁵ GLEASON, LEONE 2011.

²⁶ MACAULAY-LEWIS 2006b, 207–9; Plin. *NH*, XII.vii.XVI, mentions the attempted and failed transportation of the Median Apple (*malus Assyria*).

²⁷ If the fabric of the vessels can be identified as having been imported, then this suggests that contents of the pots – at one point - were probably also imported.

were among the cargo. Furthermore, if *ollae perforatae* or other related material can be identified within the remains of several shipwrecks, it may be possible to identify more of the trade routes along which ancient plants moved.

In the area buried by Mount Vesuvius, root cavities are preserved. These form when the plant, buried in volcanic ash, decays and is filled with pumice or ash. The cavities are then filled with concrete, plaster, or from more modern materials like silicon or plastic²⁸. These “casts” allow botanists to study the root structure and propose the species of plant present, if not allow a specific identification. In normal preservation conditions, only the pit in which the plant was originally placed is detectable, if a different soil was used to fill the pit after planting. Even this can be used as a general guide to the size and placement of the plant.

Archaeobotanical remains such as carbonized plants, seeds, phytoliths, pollen, and potentially, DNA analysis provide the most specific evidence for the study of ancient plants, display, and trade²⁹. The full potential for this research for garden plants has barely been tapped; the study of foodways, referred to above, has already produced interesting results and demonstrated empire-wide trade and trade with India and Arabia³⁰. Carbonized plants and seeds can be studied in order to identify what plants were actually present in a garden, although in most cases these are the plants in the fertilizer rather than garden. The finds of garden plants burned *in situ* at Pompeii³¹, at the *Templum Pacis* in Rome; and as desiccated remains at sites such as Berenike in Egypt³²; and in a variety of forms in Roman Britain³³ offer dramatic insights into plant and garden culture. Mineralization, waterlogging and charring can also preserve ancient plants³⁴. Pollen and plant phytoliths can also be specific indicators under the right conditions. There are two types of pollen usually present: wind or insect borne. Plants pollinated by windborne pollen are more highly represented, and the plants could be anywhere in the greater region, not specifically the garden; insect pollinated plants need to produce less pollen and are not as likely to be represented in a pollen sample. Phytoliths, formed in the joints of plants where the local water is mineral rich, can survive for hundreds of years after the plant decays. These hypothetically represent a plant *in situ*. However, most Roman gardens were fertilized with kitchen debris, chaff, dung and other sources of plant phytolith. In the case of both pollen and phytoliths, finding garden plant remains can be like finding the needle in the haystack³⁵.

Faunal remains provide unexpected evidence of plants displayed in a garden and their state of maintenance. Many creatures are highly specific to their habitat. Molluscs, for example, are a promising, but nascent area of study. Each species is specific to a local habitat: open/sunny, wooded and shady, or low growing meadow. Certain molluscs appear only where specific trees were planted. Thus, they may indicate the types of plants present in a garden and could hint as to whether certain plants were imported. A survey of snails in the garden terrace at Prima Porta is but one of the early applications of this type of study³⁶.

This overview of the evidence suggests that the study of ancient plants and their trade is an interdisciplinary exercise, requiring the skills of historians, art historians, archaeologists, botanists, and other scientists to produce the most fruitful insights. Furthermore, this review suggests the need for a holistic, interdisciplinary approach to study the ancient plant trade, as well as the Roman attitude to plants, their desire to possess and display plants, their hybridization and horticultural manipulation of plants and how they went about doing this. Thus, we need a holistic approach that uses all of these types of evidence together.

²⁸ For an application of studying root cavities outside of the Vesuvian region, see GLEASON 1987-8, 21–39.

²⁹ See MILLER, GLEASON, 1994; *supra*, nn. 4-5.

³⁰ On the food trade of the Eastern Desert in Egypt, see CAPPERS 2006; On Egypt and Britain and food in the Roman world more generally, see VAN DER VEEN 2003a; 2003b; 2007; 2008; On food imports in Roman central Europe, see BAKELS, JACOMET 2003. On the incense trade, see PEACOCK, WILLIAMS 2007.

³¹ JASHEMSKI *ET AL.* 2002, 82.

³² CAPPERS, 2006, 49–138.

³³ VAN DER VEEN 2008, 83–109; esp. 102–104.

³⁴ CAPPERS 2006, 51.

³⁵ For the survival of pollen, waterlogged conditions are better than fertile soils, and drier conditions are better for the survival of pollen. Furthermore, pollen decomposes very quickly in “biologically active soils” (DIMBLEBY, GRÜGER 2002, 190).

³⁶ PINTO-GUILLAUME 2002, 37–58, is one of the few studies of this kind.

So in sum, does this approach work? Such a coordinated approach is producing superb evidence for gardens, and I believe it can be applied to the Roman plant trade.

Part II: The Roman Plant Trade

As noted above, *ollae perforatae* shed a particularly valuable light on the acquisition and use of plants as political symbols in the Roman world³⁷. Study of the fabric of these pots thus far has demonstrated that these vessels were not used as interregional trade vessels, but were produced locally and used on a local or regional basis. For example, in the UK, pots, which were produced at a kiln in Eccles, Kent, and used at a local villa, have also been found in Southwark in London. While the distance between Eccles and London is only 47 kilometers, which is not considerable in modern times, this distance when seen in an ancient light hints a certain level of regional trade for plants from London's hinterland into its centre. This example suggests that garden plants were probably grown on farms or even in nurseries that produced plants for urban gardens among other agricultural products on a local and regional level³⁸. However, local production of pots does not preclude the possibility that the plants were imported from outside the region. First, plants may have been traded in vessels that are "archaeologically invisible"³⁹; baskets for transporting plants are mentioned along side *ollae perforatae* in the ancient sources⁴⁰. Second, consider plant nurseries today. A comprehensive study of these pots together with evidence of ancient nurseries and horticultural practices should yield further insights into the trade of plants as saplings or cuttings⁴¹.

Political symbolism may have also played a role in the selection of plants traded. One interesting example is balsam (*Commiphora gileadensis* L. or *C. opobalsamum* L.). While its resin, like that of frankincense and myrrh⁴², was highly coveted throughout the ancient world, the plant could not be traded as such and the balsam, while grown successfully in Roman Italy, according to Pliny the Elder, never had its original potency⁴³. Like other incense plants from the Levant and Arabia⁴⁴, balsam only grows under specific, controlled conditions to produce the very high quality of resin sold and traded throughout the Roman world⁴⁵. Also grown in the same region were a wide variety of date palms, highly valued in trade, and eventually symbolizing on coinage the conquered Jews after the suppression of the Jewish Revolt⁴⁶. These brief examples highlight how plants were transported and traded in different forms – probably as saplings, whole plants, cuttings, and certainly as seeds and processed by-products⁴⁷. By looking at all the types of evidence, we see that it cumulatively suggests longer distance trade than the *ollae perforatae* evidence alone does.

³⁷ MACAULAY 2007, 191–5; 783–91; MACAULAY-LEWIS 2006a, 159–70; MACAULAY-LEWIS 2006b, 207–20.

³⁸ Cf. to horticultural production in Rome's hinterland, see WILSON 2008, 731–68.

³⁹ DE SENA 2005, 1, on the concept of "archaeologically invisible" vessels for oil and wine production in the hinterland of Rome.

⁴⁰ Cato, *De Agricultura*, LII.

⁴¹ For example, figs were propagated by cutting (CAPPERS 2006, 87). Reportedly, they were also easy to transport.

⁴² The balsam tree belongs to the *Burseraceae* family of incense trees; two of the genera in this family produce frankincense and myrrh respectively (CAPPERS 2006, 81).

⁴³ Plin. *HN* XII.CXI.

⁴⁴ SINGER 2007, 4–28. Queen Hatshepsut of Egypt unsuccessfully tried to transplant "living incense trees" from Punt, possibly northern Somalia, to Egypt to guarantee a permanent supply of resin for religious purposes. However, this attempt failed because Egypt did not have the specific conditions required to cultivate frankincense or myrrh trees. See SINGER 2007, 4–6. Pliny also reports that many countries unsuccessfully tried to transport the citron in *ollae perforatae*; he does report that the kings of Sardis had transplanted Frankincense successfully, *NH*, XII.vii.XV–XVI. However, it seems highly likely that the Frankincense tree would not have survived at Sardis for long, as Sardis lacks the proper climate for Frankincense. This suggests that Pliny is misinformed here.

⁴⁵ Cf. CAPPERS 2006, 80–82.

⁴⁶ Planting pots were also found in Judaea, showing the wide-spread nature of these vessels in the Roman world and its neighbours, See GLEASON 1987/8, 21–39.

⁴⁷ In Berenike and Shenshef in Egypt, see CAPPERS 2006, 49–138; on the methods of food storage and transport, see 144–151. From the archaeobotanic evidence at Berenike, it is clear that food, prepared or otherwise, was transported in many forms, from dried fruit to feeds to pickling.

From the many classes of evidence, it is possible to sketch an outline and possibly a reasonable picture of the ancient plant trade and its complex, multifaceted nature when using an interdisciplinary approach. This evidence, although limited at present, has huge potential for future studies to break down the complex phenomenon, of local, regional and interregional trade within the Empire. The study engages with other emerging research on the local, regional and empire-wide patterns of trade in the Roman world. The increasingly well-documented evidence for a widespread spice and food trade in the Roman world suggests that trade for exotic garden plants probably did occur and that this trade can be identified in the archaeological record. Likewise, new assessments of eastern trade networks, as well as documentation of amphorae types and movement, generally, throughout the world known to the Romans is helping to set the context for this study of plants. The papers in the recent volume, *Food for the Gods*, drew upon archaeological, geological, and literary evidence to study the ancient incense trade⁴⁸. These various studies demonstrated that long distance trade between pre-Roman and Roman Egypt, Arabia and India was established in the late first century BC and continued to thrive until the end of the Roman Empire. Petra, famed for its tombs, also seems to have been another point where traces of the plant trade and the exchange of ideas about gardens is evident⁴⁹. Likewise, in her final study of Pompeian plants in her *Natural History of Pompeii*, Jashemski used ancient source material, graffiti, art historical evidence and archaeobotanic remains to catalogue all the plants that she could identify. Her study, which identified numerous foreign species at Pompeii⁵⁰, demonstrates that imported plants, vegetative *exotica*, were not the exception as Pliny the Elder and other ancient authors might like us to think. From the plane (*Platanus orientalis* L.) to an apple (*Malus* sp.), the Roman world was awash with imported plants – luxurious or not.

Conclusions

In sum, these disparate studies mark the beginning of the study of ancient plants and their trade. We have hints of a complex, multi-layered system whereby different plants were traded throughout the Roman world and beyond as garden plants, incense, medicinal remedies, and symbols of social status. The Romans were not victims of some vast foreign plot to overrun the empire with non-native flora, rather they actively sought and imported plants, such as balsam even if they did not flourish. Pompey the Great and later Vespasian and Titus displayed foreign plants as part of their triumphs, further suggesting that plants were highly in demand for many different purposes in the Roman world⁵¹. To try to understand this Roman desire for foreign plants and the complex trade it spawned is best understood through an interdisciplinary approach, as suggested in this paper.

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⁴⁸ GUPTA 2007, 112–21; PEACOCK *ET AL.* 2007, 28–70; PEACOCK, BLUE 2007, 135–40; SINGER 2007, 4–27; SEDOV 2007, 71–111.

⁴⁹ MACAULAY-LEWIS 2006a, 159–70; BEDAL 2004.

⁵⁰ JASHEMSKI *ET AL.* 2002, 101–74.

⁵¹ MACAULAY-LEWIS 2008, 205–25.

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