

Pompeii, a fully urban society: charting diachronic social and economic changes in the environmental evidence

Roman meals as an indication of social and economic change

Food in Roman society was a powerful visible marker of wealth, status, and ethnic and cultural differences between individuals. Unfortunately, the surviving ancient written sources do not provide details on a 'standard' Roman meal.¹ The earliest surviving cookery book, *De Re Coquinaria* (On Cooking) by Apicius, likely dating to the late fourth or early fifth century AD, was only directed at a favoured affluent few.² However, the archaeobotanical record provides critical evidence to fill in the gaps of the historical sources. In general, the diet of the Roman middling and lower classes, aside from local variations, was most likely heavily concentrated on cereals such as wheats, millets, oats, and rye, along with fruits such as olives and grapes.³ Dried or fresh vegetables and fruits, honey, a variety of nuts including walnuts, almonds, hazelnuts, pine nuts, and chestnuts, and animal protein from milk, cheese, meat and fish would have supplemented this diet.⁴ This article provides a synthesis of the known legacy and recent archaeobotanical evidence that both testifies to an established 'standard' Mediterranean diet for the city of Pompeii and also demonstrates changes in the number and diversity of plant species recovered over time. The variety of accessible foodstuffs to middling and lower classes and the shift in location of cereal crop-processing activities are not only indicative of cultural and political change, but more importantly, of economic change in Pompeii.

During the Late Republican and Imperial periods cultural and gastronomic pressures surged with increasing contact with foreign cultures. Roman society was quickly transforming with the growing cash economy and the increasing wealth and expenditure of privileged groups within this newly expanded Roman world. New luxuries and foods were incorporated into the traditional Roman status hierarchies, even as these newly created rankings of food consumption were 'destroying' the Romans' image of themselves as self-sufficient farmers.⁵ However, aside from mostly (biased) literary and artistic ideological representations, the so-called food of the others was not an issue for the Romans, whose diet was largely free of food taboos. Throughout the empire the tables of the elites as well as the middling and lower classes of Roman society, depending on their context, were laden with a wide range of local and imported food items.⁶ Simultaneously, these pressures had consequences for the 'hard driven' Pompeian traditional agricultural economy. With the creation of the Sullan colony in 80 BC, the city of Pompeii was forced into a tighter relationship with Rome, and there was an apparent growing importance of the city as a regional market. The production of olives, fruit, beans, perfume, cloth, fish sauce and wine was particularly important to the economy.⁷ Spices were known to have been traded into and consumed across the Roman world. Exotic trade goods have been discovered at Pompeii by Ciaraldi,⁸ such as black pepper and citrus fruit, and sesame by Zech-Matterne, Tengberg and Van Andringa,⁹ which suggest that some of the items may have passed through the main Italian port city of Puteoli, on the Campanian coastline, implying that Pompeii may have been engaged to some degree with the trade networks throughout the Mediterranean Basin.

A survey of the botanical evidence from Pompeii.

The earliest attempts to identify economic and edible plants from Pompeii and the surrounding villas came from the, often biased, ancient textual and art historical sources such as wall paintings and mosaics. Jashemski et al. 10 have argued that based upon these sources there is evidence for 184 plant species, with an additional 95 species known from the pollen record, producing a grand total of 279 plant species that were present at the time of the eruption in 79 AD.

Over the course of the past two centuries of excavations at Pompeii a number of publications were produced on the palaeobotanical evidence; plant remains recovered from the AD 79 destruction horizon.¹¹ Early discoveries of carbonised botanical remains from the cities of Pompeii and Herculaneum tended to be of easily recognisable food types such as whole fruits and pulses, often recovered in large quantities in dolia and the famous whole loaves of bread; both types found in a range of properties including shops, bars and private houses.¹²

More recent environmental collection and research on stratified assemblages have been recovered from systematic modern excavations over the last thirty years,¹³ including the evidence from the gardens by Jashemski;¹⁴ the Porta Nocera Necropolis by Matteredne and Derreumaux;¹⁵ taxon work by Zech-Matteredne, Tengberg and Van Andringa;¹⁶ The House of Amaranthus (I.9.11-12) by Robinson;¹⁷ the Herculaneum sewer by Robinson and Rowan;¹⁸ and Insula VI.I19 . The results of these analyses have revealed a change in the number and diversity of plant species recovered and represent a significant change in the economic history of Pompeii. Perhaps most importantly, the lack of cereal crop-processing waste recovered from contexts from the first century AD suggests that cereal processing was taking place in the hinterland as opposed to within the city itself, suggesting a spatial separation of agricultural tasks. This will be discussed in more detail below.

Preservation biases

Before delving into the data, it should be mentioned that urban archaeobotany, as carried out at the city of Pompeii, presents us with a number of difficulties and preservation biases: the presence of intact mosaics, floors, and construction events and secondary fills likely all contributed to the lack of preserved botanical material. The lack of rubbish deposits or obvious middens is also problematic. Ancient sources remark on some large cities, like Rome, having a rudimentary public refuse collection service. Thus, it is not improbable that a town the size of Pompeii may have also possessed a similar rubbish collection system, although no physical evidence of this has been recovered at this point.

The Pompeian food economy

Cereals were the most extensively cultivated crops throughout Roman Italy. The diet of middle and lower class Romans was heavily concentrated on cereals and included einkorn wheat (*T. monococcum* ssp. *monococcum*), emmer wheat (*T. turgidum* ssp. *dicoccum*), durum wheat (*T. turgidum* ssp. *durum*), common or bread wheat (*T. aestivum* ssp. *aestivum*) and barley (*Hordeum vulgare*).²⁰ Motta²¹ found that the dominant wheat identified in her study of early Rome was emmer. This also corresponds to the results of other small assemblages from early Rome.²² Pliny the Elder²³ writing in the first century AD, stated that emmer was the staple cereal of the Romans. Romans were regarded as 'gruel (puls) eaters', as emmer grains were traditionally pounded in a wooden mortar with water to create a type of gruel, which included pulses, or alternatively baked into an unleavened flatcake.²⁴ Indeed, the archaeobotanical evidence supports this claim, as emmer was the main crop of the Mediterranean Basin and was grown throughout Roman Italy.

Despite the stigmatised status of millets in the ancient sources, the evidence from Pompeii suggests that both foxtail millet (*Setaria italica* (L.) P. Beauv.) and broomcorn millet (*Panicum miliaceum* (L.)), were never abandoned as a food source in the Roman diet.²⁵ Millet occupied a useful niche, it was cheap to purchase as it was easy to grow in less favourable agrarian areas. Indeed, emmer, barley, and millet persisted into the first century AD despite ancient sources' insistence of its less favourable status. Oats were likely not cultivated as a distinct crop until the beginning of the first century AD, possibly as a replacement for millet.²⁶

Pulses were widely used as an important source of protein in Italy. It has been suggested that the majority, and likely most consistent source, of protein found in the Etruscan diet came from pulses. Within the Roman diet, pulses would have been an important source of protein as well, particularly for the lower classes. During Roman times, the most important pulses for human consumption were broad beans (*Vicia faba*), chickpeas (*Cicer arietinum*), lentils (*Lens culinaris*) and peas (*Pisum sativum*). Beans appear to have been more favoured than peas. Vetches (*Vicia ervilia* and *Vicia sativa*) were the most common pulses recovered from Insula VI.I. Vetches, like millet, occupied a derided status yet likely offered a source of food in times of scarcity.

A range of fleshy fruits were incorporated into a mediterranean standard assemblage, including olive (*Olea europaea*), fig (*Ficus carica*), grape (*Vitis vinifera*), pomegranate (*Punica granatum*), apple (*Malus domestica*), peach (*Prunus persica*), cherry (*Prunus avium*), blackberry (*Rubus* sp.) and melon (*Cucumis melo*). In addition, pine nuts (*Pinus pinea*), walnuts (*Juglans regia*), hazelnuts (*Corylus avellana*) and almonds (*Prunus dulcis*) were also present.

Thus, wheat, barley, leguminous crops, and fruits such as grapes and figs formed the basis of the Mediterranean diet. This standard Mediterranean assemblage has been reinforced by archaeobotanical studies from Italy and other regions within the Mediterranean. Significantly, the growing corpus of ritual botanical offerings recovered from Pompeii suggests that ritual offerings were composed of the staples of everyday life within the Mediterranean world.²⁷ These results accord well with Van der Veen's²⁸ terminology of funerary rite foods, which meet instrumental needs rather than being luxuries. the

The rise of the 'consumer' city

There is little evidence for cereal crop-processing within the city of Pompeii. It may have been that bakeries were receiving the cereal grains already dehusked from their rural suppliers in the surrounding hinterland. Taken as an index of Romanised urbanism, this lack of evidence supports Mark Robinson's hypothesis that a fundamental change in agricultural processing took place at Pompeii after the institution of the Sullan settlement in ca. 80 BC.²⁹ Thus, based upon this evidence, Pompeii can be seen as an urban centre by the first century BC. Likewise, similar changes took place in Rome with the presence of chaff within early pre-Roman deposits dating from the eighth to sixth century BC, followed by the disappearance of cereal processing by-products from some areas at a later date.³⁰

This type of developed urbanism with its lack of crop-processing evidence is significant, as it will not be seen in the archaeobotanical record again until the modern industrial age in the 19th century. This type of urban city is in contrast to later 'agro-towns' in the Middle Ages and the Early Historic period, in which farmers lived in minor urban centres but farmed nearby plots of land outside the city's gates.³¹ Thus, at Pompeii, agricultural tasks were largely diverted to the countryside and inhabitants of urban centres became consumers, mostly divorced from the production and processing their own food.

The initial academic debate surrounding 'consumer cities' began with Finley's adaptation of the Greek polis as the ideal ancient city as an economic model based upon Werner Sombart and Max Weber's original description of the evolution of the ideal Western modern capitalist city. The 'consumer city' was defined as a city, which is economically parasitic upon the agricultural production of its hinterland.³² It should be noted that this concept of a 'consumer city' was never intended for application to the ancient city and this is not how this term is being used in this paper. The 'consumer city' is in opposition to the 'producer city', in which agricultural produce from the surrounding countryside was purchased in part through the manufacture and export of luxury goods to the countryside and external markets. Although this terminology is considered outdated and too simplistic, this model was used in the recent past as the accepted theoretical framework for understanding the economy of the Roman city.

Historical perspective on food

Starting from the fifth to fourth centuries BC the Etruscan and Greek cities' cuisine in Italy became increasingly sophisticated.³³ The use of culinary practices and food to distinguish and mark social classes within Roman society increased in the third century BC, in conjunction with a decline in subsistence farming. Culinary influences from the Greek colonies in Magna Graecia in southern Italy increased throughout Italy at this time. Although we do not know the reaction in the city of Pompeii itself, the general approval by the Roman people to the brutal sack of Syracuse in 212 BC demonstrates the prevailing attitudes that Sicily and southern Italy had come to stand for the corrupting influence of Hellenistic cuisine and culture.³⁴

Conclusions

With changing attitudes towards food and cuisine in Roman culture important economic and social issues can be examined. The archaeobotanical evidence from Pompeii and its hinterland suggest that the city was a fully urban consumer society by the first century AD with no evidence of cereal crop-processing activities taking place within the city walls. Despite little evidence for exotics and trade, Pompeii at the time of its destruction would have been fully integrated into the Roman Empire and would have experienced all the benefits this integration would have offered in terms of the availability of food and resources. With continuing archaeological and non-destructive research activities in the city of Pompeii and surrounding areas of Mount Vesuvius, it is hoped that a fuller and more nuanced picture can be achieved for consumption and cuisine in the Roman world.

Acknowledgements

This paper was supported by a European Research Council advanced grant (ComPAg no. 323842), from 2013-2018.

Literature

- Bober, P.P. 1999, *Art, culture, and cuisine: ancient and medieval gastronomy*, The University of Chicago Press, Chicago.
- Borgogino, M. 2006, *Archeobotanica: reperti vegetali da Pompei e dal territorio vesuviano*, Studi della Soprintendenza Archeologica di Pompei 16, L'Erma di Bretschneider, Rome.
- Braun, T. 1995, "Barley cakes and emmer bread" in *Food in Antiquity*, (eds.) J. Wilkins, D. Harvey & M. Dobson, pp. 25-37.
- Ciaraldi, M.R.A. 2001, *Food and fodder, religion and medicine at Pompeii*, PhD thesis, University of Bradford, Bradford.
- Ciaraldi, M.R.A. 2007, *People and plants in ancient Pompeii: a new approach to urbanism from the microscope room, the use of plant resources at Pompeii and in the Pompeian area from the 6th century BC to AD 79*, Accordia specialist studies on Italy, vol. 12, University of London, London.
- Corbier, M. 2000, "The broad bean and the moray: social hierarchies and food in Rome" in *Food, a culinary history from antiquity to the present*, (eds.) J.L. Flandrin & M. Montanari, pp. 128-140.
- Dupont, F. 2000, "The grammar of Roman dining" in *Food, a culinary history from antiquity to present*, (eds.) J.L. Flandrin & M. Montanari, pp. 113-127.
- Finley, M.I. 1973, *The ancient economy*, Chatto & Windus, London.
- Goody, J. 1982, *Cooking, cuisine, and class: a study in comparative sociology*, Cambridge University Press, Cambridge.
- Gowers, E. 1992, *The loaded table: representations of food in Roman literature*, Clarendon Press, Oxford.
- Jashemski, W.F. 2002, "The Vesuvian sites before A.D. 79: The archaeological, literary, and epigraphical evidence" in *The natural history of Pompeii*, (eds.) W.F. Jashemski & F.G. Meyer, pp. 6-28.
- Jashemski, W.F., Meyer, F.G. & Ricciardi, M. 2002, "Plants: evidence from wall paintings, mosaics, sculpture, plant remains, graffiti, inscriptions, and ancient authors, catalogue of plants" in *The natural history of Pompeii*, (eds.) W.F. Jashemski & F.G. Meyer, pp. 80-180.
- Longo, O. 2000, "The food of others" in *Food, a culinary history from antiquity to the present*, (eds.) J.L. Flandrin & M. Montanari, pp. 153-162.
- Malanima, P. 2005, "Urbanisation and the Italian economy during the last millennium", *European Review of Economic History*, vol. 9, pp. 97-122.
- Matterne, V. & Derreumaux, M. 2008, "A Franco-Italian investigation of funerary rituals in the Roman world, "les rites et al mort à Pompéi", the plant part: a preliminary report", *Vegetation History and Archaeobotany*, vol. 17, pp. 105-112. DOI: 10.1007/s00334-006-0112-z.
- Meyer, F.G. 1980, "Carbonized food plants of Pompeii, Herculaneum, and the Villa at Torre Annunziata", *Economic Botany*, vol. 34, pp. 401-437.

- Meyer, F.G. 1988, "Food plants identified from carbonized remains at Pompeii and other Vesuvian sites" in *Studia Pompeiana & classica in honor of Wilhelmina F. Jashemski*, vol 1, (ed.) R.I. Curtis, pp. 183-230.
- Meyer, F.G. 1994, "Evidence of food plants of ancient Pompeii and other Vesuvian sites" in *Garden history: garden plants, species, forms and varieties from Pompeii to 1800: Symposium held at the European University Centre for Cultural Heritage, Ravello, June, 1991*, (eds.) D. Moe, J.H. Dickson & P.M. Jorgensen, pp 19-23.
- Motta, L. 2002, "Planting the seed of Rome", *Vegetation History and Archaeobotany*, vol. 11, no. 1, pp. 71-77.
- Murphy, C. 2011, *Pompeii, a changing city: the archaeobotanical assemblage of regione VI, insula I*, PhD thesis, University College London, London.
- Murphy, C. 2015, *Romans, rubbish, and refuse: the archaeobotanical assemblage of Regione VI, insula I, Pompeii*, Archaeopress Publishing, Oxford.
- Murphy, C. 2016, "Finding millet in the Roman world", *Archaeological and Anthropological Sciences*, vol. 8, pp. 65-78. DOI: 10.1007/s12520-015-0237-4.
- Robinson, M.A. 1999, "The macroscopic plant remains" in *Towards a history of pre-Roman Pompeii: excavations beneath the House of Amarantus (I.9.11-12)*, (eds.) M. Fulford & A. Wallace-Hadrill, Papers of the British School at Rome, vol. 67, pp. 95-102, 139-144.
- Robinson, M.A. 2002, "Domestic burnt offerings and sacrifices at Roman and pre-Roman Pompeii, Italy", *Vegetation History and Archaeobotany*, vol. 11, pp. 93-99.
- Robinson, M. & Rowan, E. 2015, "Roman food remains in archaeology and the contents of a Roman sewer at Herculaneum" in *A companion to food in the Ancient World*, (eds.) J. Wilkins & R. Nadeau, pp. 105-115.
- Spurr, M.S. 1986, "Arable cultivation in Roman Italy c. 200 BC- c. AD 100", *Journal of Roman studies*, monograph no. 3, Society for the Promotion of Roman Studies, London.
- Van der Veen, M. 2003, "When is food a luxury?", *World Archaeology*, vol. 34, no. 3, pp. 405-427.
- Veal, R.J. 2014, "Pompeii and its hinterland connection: the fuel consumption of the House of the Vestals, 3rd c. BC to AD 79", *European Journal of Archaeology*, vol. 17, no. 1, pp. 27-44. DOI: <http://dx.doi.org/10.1179%2F1461957113Y.0000000043>.
- Zech-Matterne, V., Tengberg, M. & Van Andringa, W. 2015, "*Sesamum indicum* L. (sesame) in 2nd century BC Pompeii, southwest Italy, and a review of early sesame finds in Asia and Europe", *Vegetation History and Archaeobotany*, vol. 24, no. 6, pp. 673-681. DOI: 10.1007/s00334-015-0521-3.

About the author

Charlene A. Murphy (charlene.murphy@ucl.ac.uk) is a European Research Council Research Associate at the Institute of Archaeology, University College London on the Comparative Pathways to Agriculture (ComPAg) project. She is currently undertaking research on South Asian archaeobotany from the Neolithic to the historic period throughout the subcontinent. She completed her doctorate at the Institute of Archaeology, University College London in 2011 on Mediterranean archaeobotany, focusing on the city of Pompeii entitled Pompeii, a changing city: the archaeobotanical assemblage of Regione VI, insula I. She completed her master's degree in Anthropology at Trent University on North American archaeobotany and her honours Bachelor of Science at the University of Toronto, St. Michael's College. To date she has undertaken archaeobotanical fieldwork in Italy, Scotland, Romania, Turkey, Iraq, Canada, India, Bangladesh, Romania and Sri Lanka.

Endnotes

- 1 Gowers 1992.
- 2 Goody 1982.
- 3 Braun 1995.
- 4 Corbier 2000.
- 5 Corbier 2000.
- 6 Longo 2000.
- 7 Mattusch 2008.
- 8 Ciaraldi 2001: p. 32.
- 9 Zech-Matterne et al. 2015: p. 673.
- 10 Jashemski et al. 2002: p. 476.
- 11 Borgongino 2006; Meyer 1980; Meyer 1988; Meyer 1994.
- 12 Meyer 1988.
- 13 Ciaraldi 2001; Ciaraldi 2007.
- 14 Jashemski 2002; Jashemski et al. 2002.
- 15 Matterne & Derreumaux 2008.
- 16 Zech-Matterne et al. 2015.
- 17 Robinson 1999; Robinson 2002.
- 18 Robinson & Rowan 2015.
- 19 Murphy 2011; Murphy 2015; Veal 2014.
- 20 Spurr 1986.
- 21 Motta 2002: p. 73.
- 22 Braun 1995; Motta 2002; Robinson 1999; Robinson 2002.
- 23 Pliny, NH 18.83-84.
- 24 Corbier 2000.
- 25 Murphy 2015.
- 26 Murphy 2015.
- 27 Matterne & Derreumaux 2008.
- 28 Van der Veen 2003: p. 407.
- 29 Robinson 1999; Robinson 2002.
- 30 Motta 2002.

31 Malanima 2005.

32 Finley 1973: p. 131.

33 Dupont 2000; Motta 2002.

34 Bober 1999.