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Reconstructing the Roman London flavourscape: new insights into the exotic food plant trade using network and spatial analyses

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ABSTRACT

Using archaeobotanical data and examining them with a novel combination of density interpolation surfaces and social and spatial network analyses, this study has brought together exotic food plants in Roman London to outline the changing 'face' of its flavourscape, and contextualise it within the broader exotics commerce in Britannia. Consumption of a variety of exotics appeared to be widespread since the very first stages of London's establishment and their presence was maintained throughout although later on, as life in the town developed and its character changed, the focus of their distribution also changed. The emphasis shifted from the core of the city in its early days towards its outer zones, such as the upper Walbrook valley and Southwark in the Middle Roman, and the western and eastern sectors in the Late Roman phase. These changes appeared to largely reflect the changes in the overall commerce network of exotics in *Britannia*. In this network London starts as a mainly consumption place in the Early Roman phase to become the main redistribution centre in the Middle Roman and the necessary intermediate node in the transport system that had been established by the Late Roman phase, connecting the south to the north.

1. Introduction

A substantial body of work on exotic food plant introductions in the northern provinces during the Roman period, adopting more contextual approaches, has been underway during the past decade (e.g. Bakels and Jacomet, 2003; Jacomet et al., 2002; Livarda, 2008a, 2008b, 2011; Livarda and van der Veen, 2008). As a result, significant advances have been made, indicating a diverse socio-cultural pattern in accessing these food plants. This research has demonstrated that, alongside the movement of people, urban centres and military sites were key in the introduction and dispersal of exotic food plants, whilst rural sites seem to have somewhat lagged behind in time in accessing them.

In Britain, this contextual approach has indicated the presence of several consumer groups (military, major towns, rural), regional variations (e.g. rural southeast, rural southwest and north) and temporal changes in the incorporation of new food plants into the cuisine of its population (Van der Veen et al., 2008), highlighting the diversity of Roman foodways. Of the major town consumer group identified, London stands out as one of the richest sites in terms of types of new food plants, including some of the rarest ones (Van der Veen et al., 2007, 2008). London is also among the best-studied places in regards to archaeobotany. This is due to the systematic work carried out since the 1970s largely by the Museum of London Archaeology (MOLA) but also other units that were responsible for the study of material from numerous excavations conducted prior to urban development projects. This unique past and present privileged position of London offers a great potential to move one step further and investigate in detail, at a site level, how and why a new 'flavourscape' emerged during the Roman period. Most importantly, it offers a means to study how this impacted on and became intertwined with the new ways of life in Britain after the Roman invasion.

The term 'flavourscape' has been coined here in order to convey the methodological and theoretical approach adopted in this study. It refers to the urban and socio-cultural landscape that consists of several nodes, that is sites, linked together by their shared acquisition/possession of exotic food plants, following a network analysis approach (*sensu* Knappett, 2013). Exotics are defined here as those food plants that were either imported or started to be cultivated more widely in Britain during the Roman period (see Livarda,

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2008a; Livarda and van der Veen, 2008). Willcox (1977) first reported on exotics from London, providing an early stimulating glimpse of their presence and trade. Now, almost 40 years after this publication, the dataset has increased significantly allowing better insights into the exotics' access and circulation in the city.

Within the suggested framework of network analysis, London can be characterised as an 'impact' site because it fulfils two criteria (*sensu* Knappett, 2013, 10): first, it is large in size and the largest city in *Britannia*; and second, it is a 'busy' site with high inflow and outflow of exotics (Orengo and Livarda, forthcoming). London is thought to have started as a commercial centre at a boundary area that fell outside the control of native groups and it is speculated that it had some military presence, potentially used as a supply base, by around 50–55 AD (e.g. Mattingly, 2006, 273–274; Perring, 2011, 252). Wallace (2013) recently revaluated the character of early London and refuted the argument for its planning by a central administration to provide supplies to the army. Instead she favoured the idea that London started as a port town where the traders had stronger ties to the trade networks and craftsmen of Gaul and Germany than to the British ones, and only in the post-Boudican period (i.e. post AD 60/1) the military and administration became actively involved in the town (see also e.g. Jones and Mattingly, 1993; Millett, 1994; Carreras Monfort and Funan, 1998). London's key role in the early post-conquest overland communications has been attributed to its geographical position (Mattingly, 2006, 511), and to the commercial nature and varied socio-cultural make up of the early settlement (Wacher, 1975, 80–82). Its pivotal role and commercial success were also reflected by the size of its port and variety of imports and services found there (Hall, 2008, 36).

Given this prominent role of *Londinium*, our aim is thus to investigate the trade and distribution of exotics within London to shed light on the factors related to the weight of the 'node' of London within the exotics trade network of Roman Britain as a whole. This micro-scale, site-specific approach can provide one of the most significant basic building blocks upon which solid new interpretations of aspects of Roman society and economy in this province can be achieved.

2. Methods

2.1. The archaeobotanical data

The collection of the data on food plants from Roman Britain was completed in 2013. It involved extensive bibliographical research, including use of an updated version of the ArchaeoBotanical Computer Database (ABCD) (Tomlinson and Hall, 1996) kindly provided by Dr Allan Hall, the Ancient Monuments Laboratory reports from English Heritage, and the Museum of London Archaeology (MOLA) archive. Any information retrieved through the ABCD database was double checked with the original publication report. All available published texts reporting on archaeobotanical finds from London were accessed as well as a great body of grey literature from MOLA.

The presence of all plants, including exotics, in each London excavation site was recorded on a sample-by-sample basis in order to record both presence and absence of material and to take into account contextual evidence. Samples taken from possibly mixed stratigraphic layers, as stated in the archaeological reports, were excluded. For the rest of Britain, only the exotics presence was noted at this stage of the project. The preservation mode/s of each species, the security of its identification, and the part of the plant recovered were noted. All taxa were classified as native or exotics to differentiate between those that were already fully established or not in Britain prior to the Roman conquest. A full list of species that are classified as exotics is provided in Van der Veen et al. (2008, 13). The same list is used here with the exclusion of those referred to as 'other' as they are not food plants, vegetables and mint (*Mentha* sp.). Vegetables pose particular preservation issues and thus their distribution is harder to trace, and asparagus in particular, according to contextual evidence is likely to represent intrusive material from much later, post-Roman layers (Pelling et al., 2015). The *Mentha* genus contains several species that are difficult to distinguish morphologically and thus usage of the herb for culinary or other purposes is difficult to infer with a high degree of certainty.

2.2. Archaeological information

To obtain a more detailed level of information on the usage of various plants, a series of other parameters were recorded. Thus, the exact location of every excavation site was noted and geolocated in a GIS environment. Sites were divided into 'records' according to their chronology, following Livarda, 2008a; Van der Veen et al., 2008 and Livarda, 2013, and classified as early (ER: 1st century AD up including up to early 2nd century AD), middle (MR: 2nd and 3rd centuries AD) or late (LR: 4th century AD including those starting in the 3rd century AD) Roman. Where detailed dating was lacking the closest match was taken or an intermediate, broader category was attributed. If samples were attributed a specific date range then this was also noted. For every record, contextual information (per sample in the case of London) was recorded alongside more detailed descriptions where available. Finally, the recovery method and the minimum mesh size used to retrieve the archaeobotanical material were noted as a control means for the potential absence of certain items, such as small sized ones.

2.3. Social and spatial network analysis

Social Network Analysis (SNA) studies relationships and in archaeology it has been mostly used to study the links between sites according to their shared material culture (e.g. Sindbæk, 2013). Here, SNA is employed to investigate the relationships between records that include exotics. Our approach follows Dobres and Robb (2005) who maintain that material culture in reality 'constitutes social relations and meaning making', and extends this argument to include food culture and its remains. We hypothesise that the shared use of exotic foods (as defined in this study) were sought after for a variety of largely socio-cultural reasons. New fruits, condiments and other such foods were not essential ingredients for the physical, but for the social individual, newly arrived from elsewhere in Britain or beyond in the developing commercial centre of *Londinium*.

Two types of SNA metrics are employed: degree centrality and betweenness centrality. Both measurements display the relative importance and centrality of nodes (here referring to records) according to their shared use of species. However, there are some differences. Degree centrality values (colour coded nodes in Figs. 1–3) highlight those records with a higher number of exotics shared with other records. Therefore, those records with higher degree centrality have access to a higher number of exotics. Betweenness centrality (size coded nodes in Figs. 1–3) measures the relative potential of records to act as (re)distribution centres according to the presence of certain species serving as links between records. A second category of measures has also been introduced in the analysis: the number of shared species between records ('number of connections' in Figs. 1–3, thickness coded lines) and the betweenness values of the links (colour coded lines in Figs. 1–3). The former provides an indication of the strength of the connection, with a thicker line representing a higher number of shared species between the connected nodes, while the latter highlights those records with access to few but particularly rare