

Relationality and Economic Emergence: Ceramic Networks and Urban Assemblages in Medieval (c. 1250–1400) England

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This article presents an analysis of the relationship between urbanization as an ongoing process and economic development in medieval (c. AD 1250–1400) southern and midland England. It is proposed that understanding the distribution of pottery through network analysis provides a means of comprehending the role played by affective material relations in these processes. Rather than seeing pottery distributions as reflecting an overarching economic context, the author investigates how relations with pottery, and between pottery and other commodities, generated distinctive and situated modes of urban life. He proposes that the medieval economy was a patchwork rather than a coherent system. The study draws on Deleuze's concept of the 'virtual' to examine how economic emergence and urbanization are open-ended and difference-making processes.

Keywords: medieval pottery, network analysis, urbanism, assemblage theory, medieval archaeology, economy

INTRODUCTION

When we think about the medieval English economy, we inevitably generalize diverse interactions between people, materials, spaces, and other organisms within an ultimately teleological framework. At some point after the Middle Ages, a capitalist economy emerged, and debates have raged over whether capitalist elements existed in medieval society, about its key drivers, and the scale and pace of change (e.g. Brenner, 1982; Britnell, 1996; Masschaele, 1997; Hatcher & Bailey, 2001; Dimmock, 2014). Urbanization was both a driver and a symptom of economic change.

The medieval economy was a complex system; local agricultural regimes could be shaped by the needs of international markets, with distant demand influencing localized interactions and experiences (Campbell, 2003; Rose, 2018). Prices and trajectories of commercialization varied regionally (Britnell, 1996; Broadberry et al., 2015). Archaeological evidence can illuminate this diversity by reconstructing the material processes integral to the economy. Here I develop a new approach intended to reveal diversity in trajectories of urbanization and commercialization in England. Inspired by Deleuze (1994), I understand societies as having the capacity

to develop in a plurality of ways, with a multitude of small-scale interactions and processes resulting in what we generalize as an urbanized or commercialized economy. To this end, I use ceramic data from urban excavations in southern and midland England, dating from *c.* AD 1250 to 1400.

COMMERCIALIZATION AND URBANIZATION IN MEDIEVAL ENGLAND

Through the twelfth and thirteenth centuries, England's economy underwent rapid commercialization, driven both by landowners (royal, seigniorial, and ecclesiastical), who established numerous markets and towns, and the peasants and town dwellers who made use of them and engaged in increasingly specialized production (Britnell, 1996). Development was uneven; there is regional variation in the rate of urbanization and the relative proportions of towns and rural markets, for example (Laughton & Dyer, 1999; Jervis & Morton, *in press*). Small towns have occupied a central role in narratives of commercialization, being specialized centres of making and trading, closely embedded within their rural, agrarian, context (e.g. Hilton, 1985). A range of sources, including pottery distributions and historical records, have been used to reconstruct urban hinterlands (e.g. Dyer, 1996, 2003: 105–09; Galloway, 2005), with the concept of hierarchy implicit to these discussions. Regional urban hierarchies, based on population, economic complexity, and taxable wealth have been developed for many areas of England (e.g. Slater, 1985; Postles, 1987; Laughton et al., 2002). Inherent to the idea of hierarchy is the notion that 'bigger is better'; economic development is dominated by larger towns, with London at the apex, and regional centres such as Chester and York being dominant forces, whose

hinterlands overlap with the local market areas of smaller towns. Such an approach masks the social and economic complexity of small towns and potentially over-emphasizes the role of the demand from larger towns in driving commercialization (Britnell, 2000). Recent studies (Jervis, 2025a, 2025b) argue that hierarchical frameworks reinforce a false dichotomy between urban and rural, being a barrier to understanding the wider consequences of small-town life (Dyer, 2002). Instead, they develop approaches that consider urbanization as a transformative process which extends beyond towns and is characterized by diversity. Here, I draw questions of scale and difference into focus by revealing and interrogating ways in which commercial relationships relate to the specific developmental trajectories of towns and their regions, and how these small-scale interactions form part of urbanization and commercialization as variegated processes.

From an archaeological perspective, commercialization can be seen in the distribution of a range of objects, including pottery (e.g. Mellor, 1994; Spoerry, 2016; Mephram, 2018). Pottery distributions facilitate reconstruction of regional economic networks, showing how pottery moved through a range of mechanisms within and beyond the market (e.g. Jope, 1963; Moorhouse, 1983). Pioneering analyses by Vince (1983) and Streeten (1985), for example, have reconstructed in detail the dynamics of both ceramic production and exchange in parts of England; however, the locally specific character of pottery has inhibited larger scale analysis. A common approach has been to attempt to discern an urban 'signature' by comparing urban and rural assemblages. Repeatedly, such analyses have shown that, whilst some urban households had particularly diverse assemblages (e.g. Brown, 1997), such a signature is not clearly evident. While urbanization

stimulated innovation in pottery production (Jervis, 2025c), urban and rural assemblages are broadly comparable, although with subtle differences in the relative quantities of some vessel forms (e.g. Hayfield, 1988; Mellor, 2005; Jervis, 2012; Mephams, 2018), a pattern reflected in other forms of material culture (Egan, 2005).

This study advances these long-standing debates by using network analysis to reveal patterns in ceramic exchange networks. Network analysis is a means of understanding the flow of resources between active communities, drawing out relations between archaeologically observable phenomena (Brughmans, 2013: 633). Such an analysis provides an empirical basis to advance the study of the twin processes of urbanization and commercialization, which is not framed by a concept of hierarchy but by an understanding of connectivity.

DEFINING CERAMIC NETWORKS

The ability to link pottery to specific production areas, as well as its ubiquity in archaeological contexts, makes it an ideal material for network analysis. This study is based on an analysis of a pottery exchange network for the period spanning *c.* AD 1250–1400 in much of southern and midland England. This is a broad period, in which there was substantial demographic, economic, and political change. Such a date range is necessary due to the imprecise nature of ceramic dating, a particular challenge when working at scale. The start date of AD 1250 is associated with the diversification of ceramic assemblages, particularly the increasing prevalence of glazed jugs (Figure 1; Table 1); the end date corresponds with a widespread transition towards later medieval industries characterized by highly fired and plainer wares such as the Late Medieval Reduced Wares typical of the southern Midlands (Slowikowski, 2011).

East Anglia and the counties of Dorset and Cornwall, as well as northern England, have been excluded for lack of suitably quantified and documented assemblages and inconsistent use of terminology. The network analysed is based on data collated from reports on pottery excavated from 736 sites in 265 towns in southern and midland England (the reports' full bibliographic references are not cited here but can be found in the dataset available at <http://doi.org/10.25392/leicester.data.28264694>). This dataset includes the node (a list of the towns and production regions) and edge (a list of the relations between nodes), tables, a list of sites included in the analysis, and a list of the pottery types included and their date ranges. Further methodological description is also available in the [Supplementary Material](#) accompanying this article.

Due to variability in reporting, the network is based on a weighted presence/absence approach, whereby pottery types are defined as a major (a weighting of 1) or minor (a weighting of 0.5) component of assemblages. Because most medieval pottery from this region cannot be confidently assigned to a known workshop, ware types were grouped into broad production regions, which, along with the towns, form the nodes in the network, with the pottery being the edges linking the two. Data were imported to Gephi, a widely used open source package with the capability to visualize and undertake basic analysis of complex networks for interrogation.

This analysis resulted in the production of a network graph (Figure 2) representing the links between production regions and towns. Where these links are major types, the join (edge) is represented in red, and where the link is minor, it is represented in blue. Small towns are represented as pink dots and larger ones as blue dots, with the size being a representation of the number of production regions supplying the town. Production regions are represented by black dots. The



Figure 1. Example of some types of ceramic vessels referred to in the text. A: London-type Ware jug (BM 1899.0508.4; height: 325 mm). B: Lyveden/Stanion Ware jug (BM OX.10269; height: 260 mm). C: Surrey Whiteware jug (BM 1865.0701.1575; height: 260 mm). D: Brill-type Ware jug (BM 1965.1006.4; height: 420 mm). © The Trustees of the British Museum. Shared under a Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) licence.

data were also imported into ArcGIS Pro for representation as a heat map (Figure 3). Here, towns are mapped to represent the diversity of their ceramic assemblages based on the number of production regions present,

with the darker areas of the heat map depicting those parts of the study area with the most diverse ceramic assemblages.

A network based on pottery distributions is only ever a partial representation of

Table 1. Summary of key pottery types referred to in the text.

Ware	Production location	Summary description	Date range	Reference
Laverstock Ware	Laverstock, Wiltshire	Highly decorated jugs and coarseware cooking jars	c. 1200–1350	Mephram, 2018
London-type Ware	London area, including Woolwich	Wide range of vessels including jugs and cooking vessels	c. 1150–1350	Pearce et al., 1985
Surrey Whiteware	Surrey, including Kingston-upon-Thames and Cheam	Glazed vessels, primarily jugs, some highly decorated	c. 1250–1400	Pearce & Vince, 1988
Thames Valley Wares	Various locations including Camley Gardens (Maidenhead, Berkshire), Ashampstead, Berkshire and Denham, Buckinghamshire	Coarseware jars and bowls	c. 1150–1300	Mellor, 1995; Mephram & Heaton, 1995
Oxford Ware	Oxford region	Range of plain utilitarian vessels	c. 1050–1300	Mellor, 1995
Brill-type Ware	Brill, Buckinghamshire	Glazed jugs, some highly decorated, as well as coarsewares	c. 1250–1400	Mellor, 1995
North Devon Ware	Northern Devon, including Barnstaple	Medieval vessels primarily coarseware jars, with some jugs and bowls	c. 1250–post-medieval	Allan, 2021
Exeter Area Wares	Exeter area	Glazed jugs	c. 1250–1450	Allan, 2021
South Devon Wares	Southern Devon, including Totnes	Coarseware cooking vessels	c. 1250–post-medieval	Allan, 2021
Grimston Ware	Grimston, Norfolk	Plain jars and bowls and glazed, often highly decorated, jugs	c. 1200–1500	Spoerry, 2016
Ely Ware	Ely, Cambridgeshire	Range of, primarily utilitarian, vessels	c. 1150–1500	Spoerry, 2016
Huntingdon Fen Edge Sandy Ware	Huntingdon?, Cambridgeshire	Plain utilitarian vessels, primarily jars and bowls	c. 1175–1300	Spoerry, 2016
Bourne Ware	Bourne, Lincolnshire	Range of utilitarian vessels including jars and bowls	c. 1150–1400	Spoerry, 2016
Lyveden/Stanian Ware	Lyveden and Stanion, Northamptonshire	Often fairly crude, glazed jugs	c. 1225–1400	Spoerry, 2016
Potterspurty Ware	Potterspurty, Northamptonshire	Wide range of vessels produced in village with multiple pottery kilns	c. 1250–1500	Spoerry, 2016
Hedingham-type Ware	North Essex	Coarseware jars and fineware jugs	c. 1150–1350	Walker, 2012
Colchester-type Ware	Colchester, Essex area	Glazed jugs	c. 1200–1400	Cotter, 2000
Mill Green Ware	West Essex	Coarse ware vessels and fineware jugs	c. 1250–1400	Spoerry, 2016

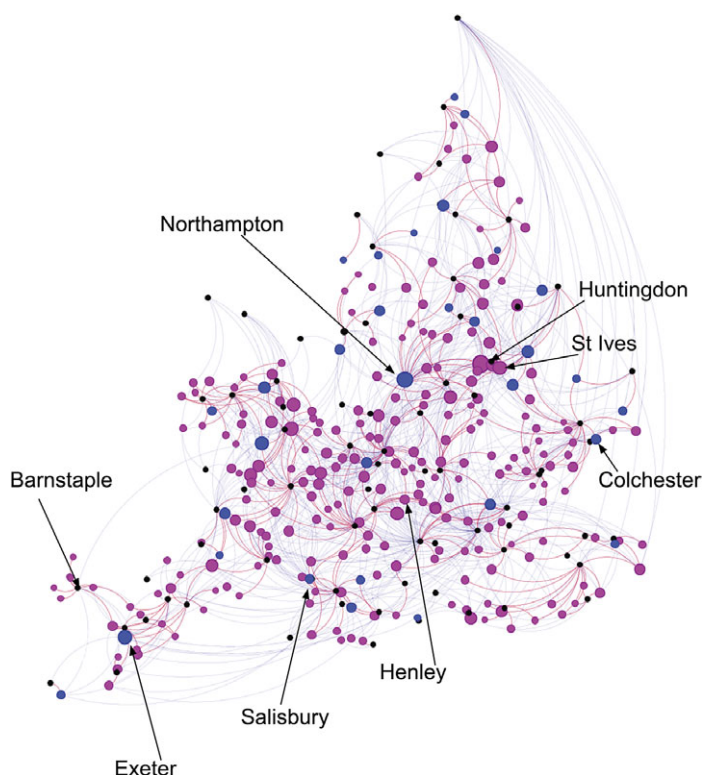


Figure 2. Network graph showing the ceramic links between production regions (red dots) and towns (black dots) in southern and midland England. The dot size relates to the number of connections. Red lines: major types. Blue lines: minor types. Key places referred to in the text are labelled. See Figure S1 in the Supplementary Material for a large-scale labelled version.

economic relationships, both because our understanding of pottery is always incomplete and because pottery could move independently of other commodities. Nonetheless, this mapping reveals some broad patterns. Particularly diverse ceramic assemblages occur in the Severn Valley in western England, the Thames Valley to the west of London, and the Fenland of eastern England. The Severn facilitated the northward movement of products from the Bristol area and the southward movement of products from Worcestershire, with assemblages supplemented by pottery brought overland from Wiltshire and Oxfordshire. Thames Valley assemblages are typified by products from Surrey and the London region, alongside local wares, while pottery from Fenland

towns was sourced from a wide area of eastern England.

In other areas, assemblages are less diverse. Across south-eastern England, they are typified by a limited range of local products with topographic features appearing to have formed boundaries to the movement of ceramics. For example, a group of towns following the chalk ridge of the North Downs in Surrey and Kent are characterized by products from the Kent/Surrey border. The Chilterns, a band of hills running north-west of London, and the Cotswolds, a hilly area covering eastern Gloucestershire and western Oxfordshire, also acted as barriers to the movement of pottery; for example, the core distribution of greywares produced in Hertfordshire and Middlesex does not

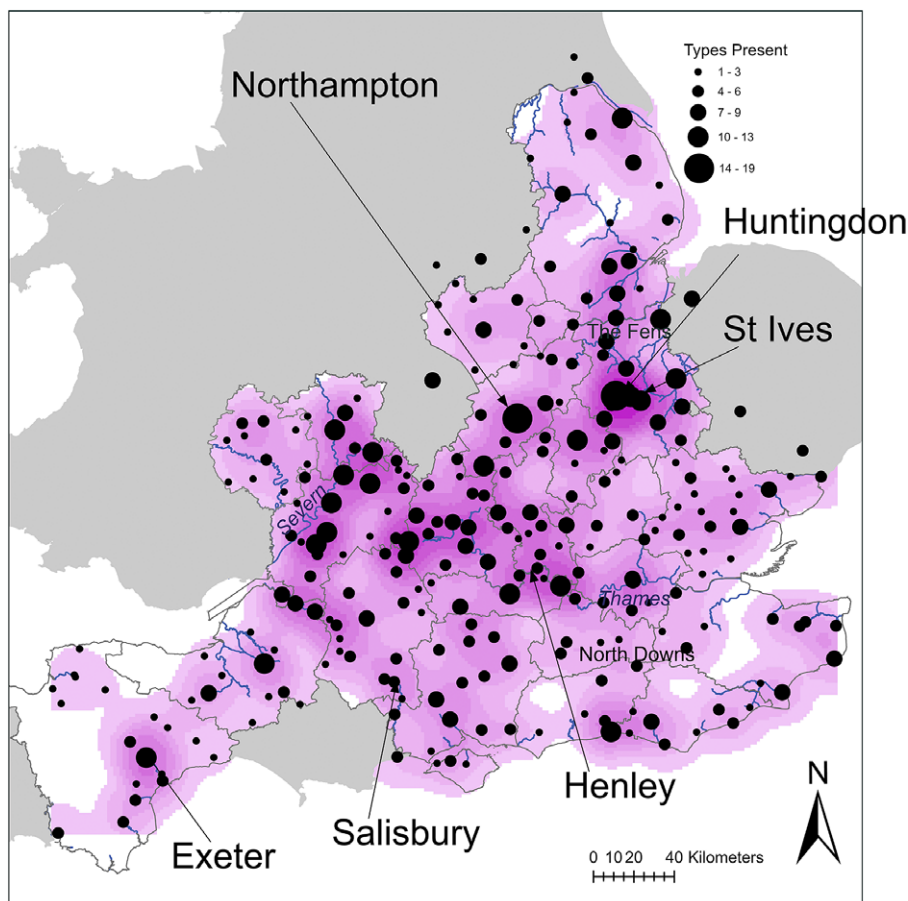


Figure 3. Heatmap showing the density of connections in the ceramic exchange network in relation to main roads, navigable rivers, and key places referred to in the text. Rivers derived from Oksanen (2019) and roads from Oksanen and Brooks (2024).

extend west of the Chilterns, although assemblages from towns such as Dunstable, on main routes running through this upland area, include some wares from beyond the immediate region (Figures 3 and 4).

Recent work (e.g. Sindbæk, 2007, 2013; Hodder and Mol 2016; Knutson, 2021; Palsson, 2021) has brought formal network approaches into dialogue with relational theory such as Deleuze and Guattari's (1984, 1987) assemblage thought. In simple terms, an assemblage is a collection of diverse entities, their critical characteristic being that the relations between those entities are productive. If we take a network

to be a representation of relationships, then it is what Deleuze and Guattari (1987: 11–13) term a 'tracing'. Tracing does not generate something new but is a process of replication. To view a network diagram as a representation of some singular past reality overlooks the productive capacities of relations. We might make simple inferences about the extent of a town's hinterland, but in doing so neglect how ceramic networks might be entangled with and shaped by other relations (Jervis, 2025a, 2025c). The alternative is to 'map' relations, whereby we seek to understand the new possibilities generated through interaction.

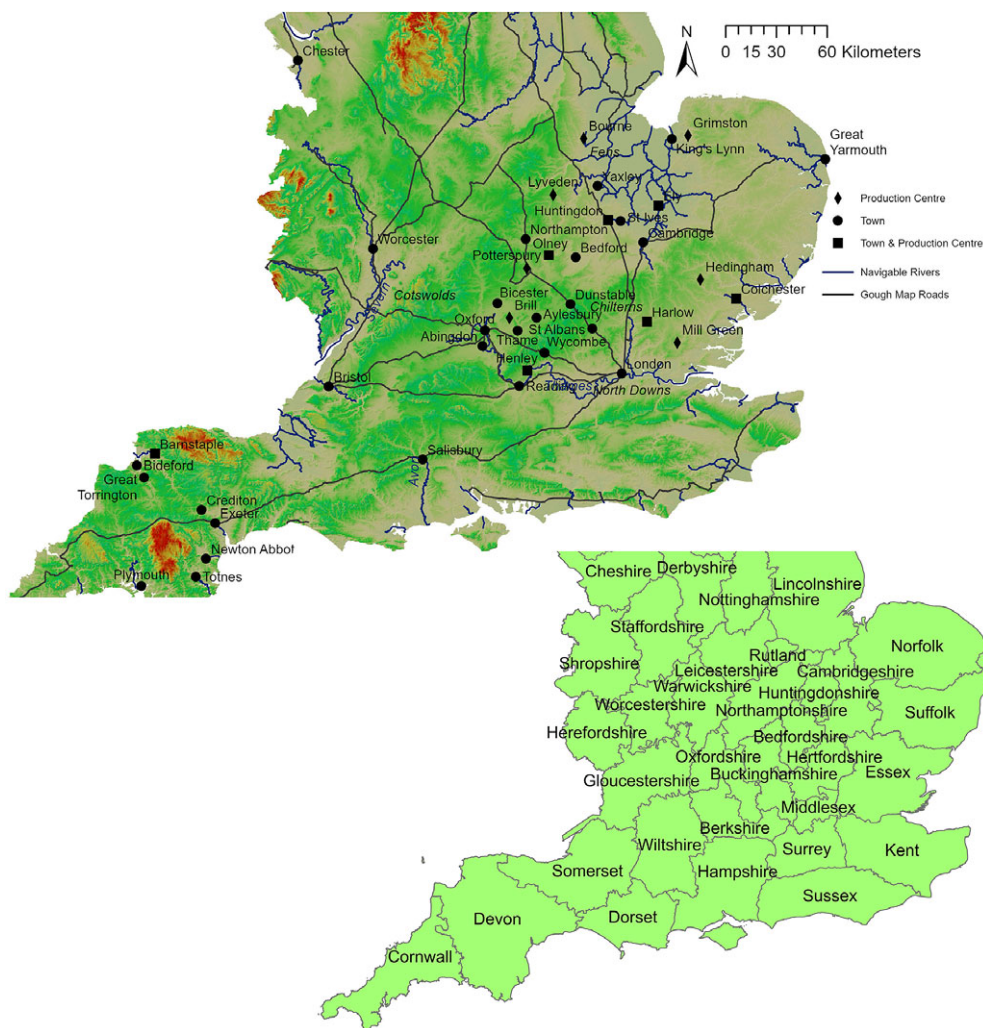


Figure 4. Top: Location of places mentioned in the text in relation to key roads and rivers. Bottom: historical counties of England. Image created by using OS Boundary data, rivers derived from Oksanen (2019) and roads from Oksanen and Brooks (2024).

This contrast can be illustrated through the network presented here. Whilst, in broad terms, larger towns have more diverse assemblages than smaller ones, several large towns have extremely homogenous assemblages. Salisbury, for example, was a major religious and commercial centre, but its ceramic assemblage is mostly limited to very local products from workshops established to serve the urban market. Salisbury's regional importance is demonstrated by

the distribution of the wares produced at Laverstock on the outskirts of the city, which are a defining feature of assemblages between the valleys of the Hampshire Avon and Test (Mephram, 2018). Tracing this pottery distribution would illustrate that Salisbury commanded a large hinterland, but mapping these relations demands we consider why this pattern developed here but not around other large towns such as Exeter (see below), and its consequences for

the situated forms of urbanization and commercialization which could emerge.

Palsson (2021) demonstrates the productive potential of bringing network and assemblage approaches into dialogue, building on the fact that both networks and assemblages are inherently spatial, multi-scalar, and dynamic. Both approaches challenge the spatially delimited and hierarchical approaches which have characterized the study of medieval towns and their hinterlands. My analysis therefore examines the ceramic relations encapsulated in the network not as representative of an economic whole but as constitutive of an emergent economic patchwork.

POTTERY NETWORKS AND URBAN ASSEMBLAGES

The pottery assemblage from Henley-on-Thames (Oxfordshire), which marked the navigable limit of the Thames, provides a starting point. Tracing Henley's pottery assemblage reveals the movement of pottery up the Thames from London, with small quantities of London-type Wares and larger quantities of Surrey Whitewares, both common in London, present. London-type Ware is found further upstream at Reading (Berkshire) and Abingdon (Oxfordshire), as well as in towns such as Dunstable and Wycombe on key overland routes into London, but did not penetrate other overland markets, whereas Surrey Whitewares have a wider distribution (Figure 5; see Pearce & Vince, 1988). Most of the other pottery comprises local products, some possibly from a documented thirteenth–fourteenth-century workshop in Henley (Mellor, 1994: 200). Figure 5 shows presence/absence data for five key pottery types in the region. The distribution of Thames Valley wares can be seen to cluster around the Thames, while largely absent further north. In contrast, wares produced in the Oxford region are primarily found in the

area north of the Chilterns, characterizing assemblages from places such as Thame and Bicester, and down the Thames as far as Reading. Brill-type wares, typically in the form of highly decorated jugs, are a substantial element of the Henley assemblage, and occur across this area. They were probably shipped downstream from Oxford. The Henley assemblage is thus distinct from those to the north of the Chilterns.

To understand how these relations shape urban life and economy, it is helpful to see Henley as an assemblage. Assemblages are fluid compositions, formed in moments of gathering (i.e. territorialization), but always pulled apart as their components are incorporated into other assemblages (de-territorialization). Clay offers a simple example: it is incorporated into the potting assemblage, creating a relationship between pottery and wider environments. As clay is territorialized into pots, it is pulled beyond, or de-territorialized from, its environment. This relationship is transformative, commodifying clay, possibly leading to the charging of clay rents, and pulling clay and pottery into regimes of manorial administration. This illustrates how assemblages and their constituent parts are continually transformed through generative relations. To think of towns like Henley as assemblages is to understand them as dynamic coagulations of diverse parts, always expanding beyond the perceived limit of urban life (Jervis, 2025a).

Thinking of urbanization as an ongoing process of transformation emphasizes how urban modes of life emerge from relations rather than being a defined characteristic of towns (see also Sindbæk, 2007). Although the functions of pottery could be met by other materials (see Blake, 1980), urban households became dependent on ceramic vessels and, by extension, distant pottery workshops and the market networks through which these vessels moved. Towns existed in a range of relations to production

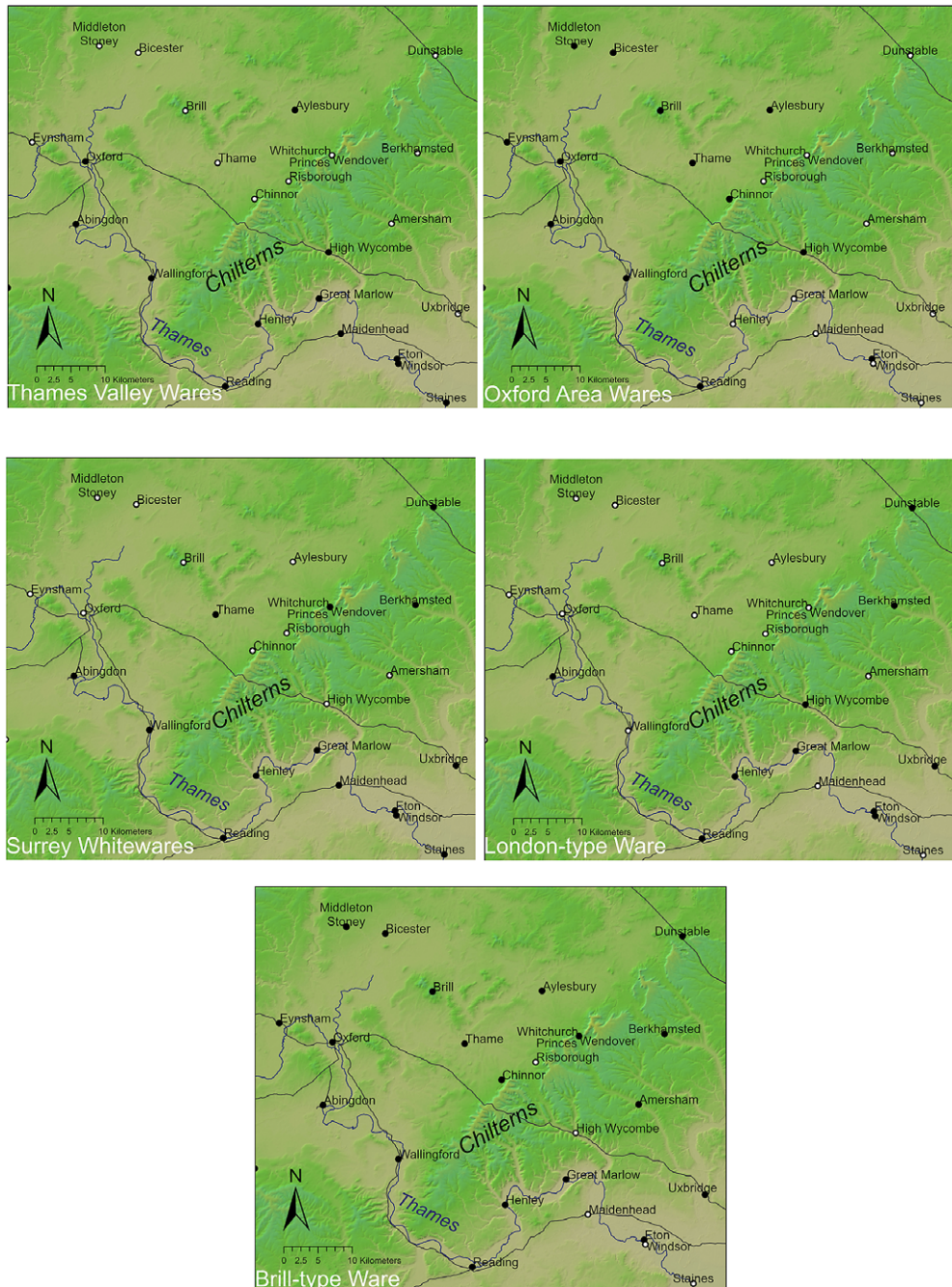


Figure 5. Distribution of key wares in the Henley-on-Thames region. Black: present. White: absent. Rivers derived from Oksanen (2019).

centres. Henley was dependent on several centres, particularly for decorated jugs, whereas other towns, such as Salisbury,

were able to support a dominant local industry. Urban life's dependence on ceramic vessels pulled pottery beyond towns,

de-territorializing it to generate and sustain landscapes of pottery production which were, in turn re-territorialized, i.e. reincorporated into the urban assemblage, generating further dependencies. Sets of relations created and exacerbated difference, and caused urban lifeways to spill beyond the spatial limits of the towns themselves.

The inability to define a specifically ‘urban’ ceramic signature demonstrates how pottery from urban excavations does not reflect a singular ‘urban culture’. Rather, urban ways of living emerged situationally through the relations which we can map from our materials; there is no single form of urban life. We can understand it as what Deleuze terms a ‘virtual’ capacity of relations. For Deleuze (1994: 208–12), reality exists as ‘virtual’ and ‘actual’. The ‘actual’ comprises those things which are perceptible at any given moment, whereas the ‘virtual’ comprises the capacities of things made actual through intensive relations. The example of clay illustrates this: the ‘actual’ characteristics of clay are its geological composition that gives it plasticity. The clay has ‘virtual’ capacities to be made into a pot and fired, or to be commodified through clay rents. These capacities are real but only become ‘actual’ once the clay is incorporated into intensive, generative, relations, which, in turn, may give rise to new capacities; once filled with hot liquid, the pot has the capacity to scald, but this is not a capacity exhibited by an empty pot. These virtual capacities are, therefore ‘immanent, emergent and changing’ (Harris, 2021: 54); they are a process of becoming.

This takes us from tracing urban lifeways through the occurrence of distinctive material culture signatures, to asking what the role of pottery was in the emergence of contextually situated urbanization processes. Henley’s pottery demonstrates the significance of river traffic. Along with other towns such as High Wycombe (Buckinghamshire) and St Albans (Hertfordshire), it played an important role in London’s grain supply (Galloway &

Murphy, 1991: 6–7). Several London merchants held property there, including granaries where grain from an area stretching from north-east Oxfordshire to the Oxford region could be stored. The grain market drew Henley into London’s metropolitan assemblage, with the sustained interests of London corn-mongers amplifying this process over time, creating an urban form of life unique to Henley but resonating with similar processes elsewhere (Jervis, 2024). London area ceramics formed part of this process, a material articulation of a bi-directional trading relationship along the Thames, through which Henley developed contextually specific capacities for urban and economic becoming.

Grain was brought to Henley overland across the Chilterns, often carried by manorial tenants who were obligated to undertake carrying service (Postles, 1987: 19–20). It is therefore significant that Henley’s pottery is distinctive from that found north of the Chilterns, indicating how flows of pottery and grain were independent of each other. The grain trade drew a wide hinterland into an urban assemblage, which was transformative in the way it shaped the actions of demesne (manorial farm) managers and, by extension, rural labour and agrarian landscapes, as the repeated provisioning of the market served to exacerbate and sustain difference. Pottery reveals a different set of connections, through which Henley’s presence was transformative as it, along with other towns in the region, stimulated and sustained local pottery industries.

This discussion illustrates how material relations led to a distinctive mode of emergent urban life in Henley, which, through material linkages such as pottery and grain, resonated with, was shaped by, and shaped urbanized life elsewhere. Through these relations we can perceive the actualization of regional economic capacities for specialized production and bulk exchange, which took place in dialogue with this ongoing

urbanization process, one process working to transform, yet sustain, the other.

VIRTUALITY AND THE MEDIEVAL ECONOMY

Market development was central to the commercialization of medieval England. Places like Henley-on-Thames often lie at an intermediate level within a commercial hierarchy, below large towns such as London and Oxford, but above smaller rural markets and fairs (e.g. Postles, 1987). This hierarchical ordering emerges from a tracing of commodities and wealth through an exchange network shaped by a mixture of local, regional, and international demand. Understanding these commodities as transformative elements of urban assemblages enables us to perceive relations between towns differently, as a 'meshwork', defined as 'an interlocking system of complementary economic functions' (DeLanda, 2000: 32–33). Whilst a hierarchy is a relatively rigid system of categorization, in which the importance and complexity of places are closely related, in a meshwork it is the relations between commercial sites that matter. Rather than asking how big a town's hinterland is, or seeking to insert a town into a hierarchical scheme, this approach questions the implications of the flows of goods as generative components of urban life.

Seeing urban lifeways as a virtual capacity of relations, rather than existing before those relations, emphasizes urban diversity. It also allows us to rethink the relationship between towns, commodities, and the broader concept of economy, whereby 'the economic' is a virtual component of every social system (Deleuze, 1994: 186; Roffe, 2019: 28). There are clear resonances between this statement and the substantivist approach defined by Polanyi (1944), in which 'formal' economic laws based on a notion of rationality are considered inappropriate for the study of 'pre-capitalist' economies. The approach proposed

here is different, as reading economic change as emerging through generative flows means that trajectories of development are unpredictable and cannot be distilled into a simplistic capitalist/pre-capitalist dichotomy. Deleuze and Guattari's (1984) writing challenges capitalist hegemony by imagining the potential for other forms of life; society has the capacity for economy to be made actual in a variety of ways. As argued elsewhere (Jervis, 2025c), this perspective chimes with Brenner's (1982) argument that capitalism need not be the inevitable outcome of 'feudalism'. Medieval urban and rural societies were not monolithic, and it follows that different developmental trajectories could emerge from relations which we might broadly recognize as 'economic'.

This invites us to perceive the medieval economy not as a single 'thing', but as relationally constituted at multiple scales, with change articulated through relations from which we can piece together a larger whole. Rather than representing economic trends, flows of commodities encapsulate the relations from which these trends emerged. As an example, we can look at the area around Exeter (Devon) in south-western England, a highly connected node within the network. Exeter's pottery was mostly sourced from the immediate area, in east Devon and Somerset, but with smaller quantities coming from south, west, and north Devon, as well as more distant locations (Allan, 2021). Exeter exemplifies what might be expected of a large and commercially important city, with a diverse assemblage dominated by material from its immediate hinterland but with evidence of far-reaching connections. Whilst the urban market stimulated local production, understanding the occurrence of the minor wares here requires us to examine the relationship between ceramics and other flows constitutive of urban life in south-western England.

Figure 6 shows the distribution of three main pottery types in Devon. North Devon

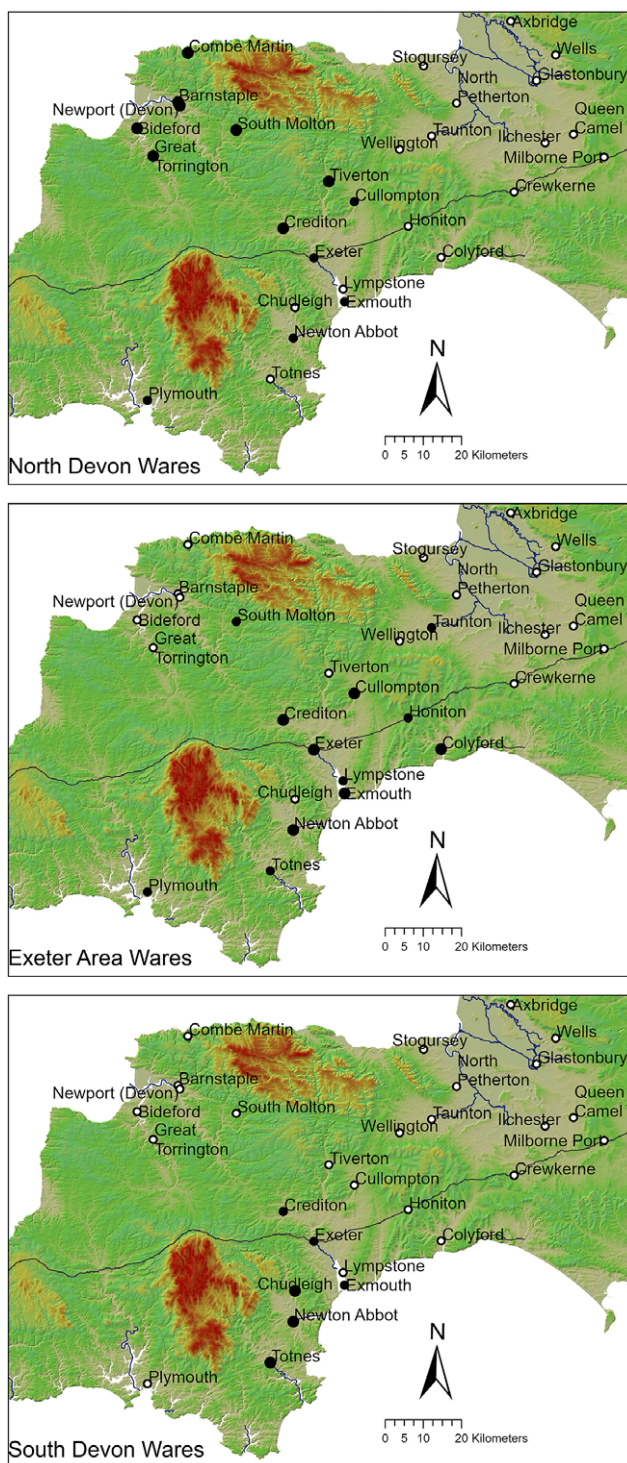


Figure 6. Distribution of key wares in the Exeter region. Large black: present as major type. Small black: present as minor type. White: absent. Rivers derived from Oksanen (2019) and roads from Oksanen and Brooks (2024).

Wares occur as a major ware in towns in northern Devon such as Bideford, Barnstaple, and Great Torrington, but are found only occasionally as a minor type further south, accounting for less than one per cent of Exeter's pottery (Allan, 2021: 490–92). The distribution of Exeter Area Wares is centred on Exeter, but it occurs as a major type in towns across southern Devon, whilst the distribution of South Devon Wares is largely limited to the south-west of the county, occurring as a minor type in Exeter.

Tracing flows of pottery reveals diversity in the composition of assemblages, but we can go further by mapping the relationship between pottery and other flows, to understand how 'the economic' surfaces as a capacity of urbanized life in this region. Devon has a diverse landscape and economy, with livestock rearing being a particular feature of upland areas in the north and west, and crop growing dominant in the south and east (Kowaleski, 1995: 10–17). The primary commodity from northern Devon imported to Exeter was livestock, with Crediton, to the north of Exeter, being a particularly important livestock market (Kowaleski, 1995: 294). Crediton's ceramic assemblage is significant because North Devon Wares account for around forty per cent of the material, the remainder largely coming from eastern Devon and the Exeter area. Analysis of the credit relationships of Exeter merchants suggests that their commercial links were primarily with eastern and, to a lesser extent, southern Devon. The towns in north Devon were linked to Bristol (Kowaleski, 1995: 69). Pottery was seemingly not traded directly between Exeter and northern Devon, although small quantities were acquired at intermediary markets such as Crediton as a by-product of the livestock trade, or found their way to Exeter through other means, perhaps as the personal possessions of migrants from northern Devon.

Fish was the main commodity linking Exeter and the towns in south Devon. In

the early fourteenth century, most local fish imports into Exeter came from east Devon but the ports of south Devon became increasingly important (Kowaleski, 2000). Exeter was a major port for the redistribution of other southern Devon products, including roofing slates and tin. It is through these coastal and riverine links that we can envisage the bi-directional movement of pottery on the back of other trade between eastern and southern Devon. By the late fourteenth century, this coastal trade accounted for seventy per cent of the shipping through Exeter, and small-town merchants acted as middlemen for the redistribution of a range of commodities, probably including pottery (Kowaleski, 1995: 225–30).

The network of ceramic exchange was thus an assemblage, entangled with flows of other resources, reflected in the contrasting directionality of pottery supply. In isolation, the ceramic evidence suggests that the towns in southern Devon are more connected than those in northern Devon, but once these flows are mapped rather than traced, their intersections with other flows of materials interrogated, we find this not to be the case; these towns are connected, but differently. Whilst Exeter can be placed at the peak of a regional commercial hierarchy, the evidence from the small towns hints at a meshwork; flows relate to the emergence of forms of urban life with distinctive relational dependencies. Whereas a hierarchical approach would seek to identify similarities in the volume and character of commercial activity, a meshwork approach reveals difference, showing how the nodal role of towns led to the emergence of distinctive material worlds.

Pottery distributions are not reflections of a singular regional economy which can be traced, but residues of a patchwork of intensive relations that constitute that economy. From this standpoint, the commercialization

of England was not a single process; it emerged through localized intensities which, following DeLanda (2016: 19; see also Crellyn, 2020: 173–75), can be understood as a ‘phase transition’ whereby numerous small-scale changes eventually accrue to form a perceptible transformation.

ASSEMBLAGES AND PRODUCTIVELY PARTIAL ANALYSIS

Our understanding of the medieval economy can only ever be partial. Whilst tracing this evidence leads to an approximation of a thing we define as ‘the economy’, mapping builds an understanding that is productively partial. Rather than seeking to reconstruct a singular totality, we accept the fact that our evidence provides a fragmentary picture with the potential to be related to other strands, revealing other economic processes.

The concept of ‘meshwork’ as encapsulating the economic role of towns within regions can be further explored through examples from eastern England (Figure 2). The small towns around the Fen edge are among the most connected within the ceramic network. This area is linked to the coast by the rivers Nene and Great Ouse, with Ermine Street continuing in existence as a key north–south overland route. Whilst the high degree of connectivity demonstrated by ceramics can be linked to this infrastructure, closer analysis reveals diversity in the composition of assemblages, from which we can infer differentiated capacities for urbanization that intersected with economic processes in specific ways. Two towns, St Ives and Huntingdon (both now in Cambridgeshire), form a basis for analysis (Figure 7).

St Ives was the site of an important fair and is located at the effective navigable head of the Great Ouse, with mills restricting shipping upstream to Huntingdon (Masschaele,

1997: 216). It functioned as a gathering point for grain to be shipped from King’s Lynn (Masschaele, 1997: 220–21). The pottery assemblage from St Ives reflects its position on the navigable stretch of the river, with wares from Norfolk (Grimston Ware) and Ely being common, although probable Huntingdon products also occur.

In contrast, the assemblage from Huntingdon, the most connected small town in the network, is orientated towards the west. Although Huntingdonshire Fen Edge Sandy Ware produced in the town (Spoerry, 2016: 66) is dominant, the primary glazed ware here is Lyvden/Stanton Ware from Northamptonshire, brought to Huntingdon overland. Masschaele (1997: 210–11) demonstrates that in this landscape a fully-laden cart could cover distances of up to 25 km in a day, making major regional towns such as Bedford, Cambridge, Ely, and Northampton accessible to Huntingdon traders. Bourne wares, produced in south Lincolnshire, could have been shipped downriver to Yaxley, the navigable head of the Nene (Masschaele, 1997: 190), before being transhipped overland in small quantities (Figure 2). Other wares were also likely to have been brought overland, from Essex, Surrey, and Hertfordshire. The pottery suggests that the lack of regular shipping beyond St Ives contributed to the limited importance of Ely and Norfolk wares here, reflecting Masschaele’s (1997: 191) conclusion that it was roads, rather than rivers, that offered the more viable transport option in this region.

The ceramic evidence from St Ives and Huntingdon shows how the economic capacities of urban assemblages are determined relationally, in this case highlighting the importance of communication links. The evidence from Huntingdon is complex; on the one hand, the town adheres to a typical picture where pottery was primarily sourced from a local industry, and its role as a

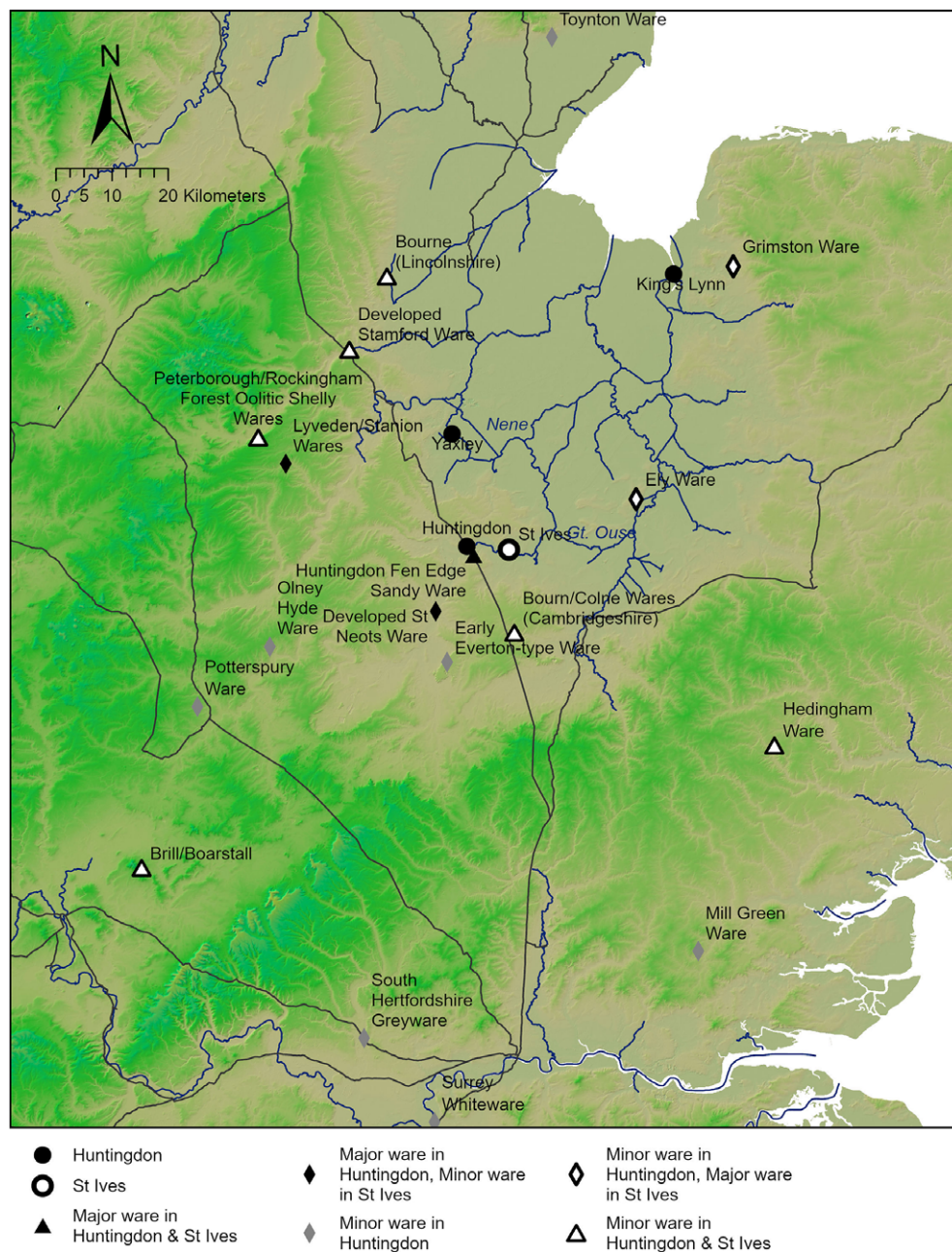


Figure 7. Places supplying pottery to Huntingdon and St Ives. Rivers derived from Oksanen (2019) and roads from Oksanen and Brooks (2024).

regional hub is demonstrated by the wide distribution of this pottery (Spoerry, 2016: 66–67). On the other hand, the small quantities of pottery from a diverse range of

locations point to Huntingdon's connectivity, although all of these types are relatively minor components of the assemblage. Huntingdon was a step in the transport of

grain surplus to east coast markets, but St Ives was the key town for its onward shipment (Masschaele, 1997: 216). In topographic and ceramic terms, both St Ives and Huntingdon are highly connected, but, despite their proximity, this connectivity was different; St Ives was a point of redistribution orientated towards coastal markets and Huntingdon was a nodal point in overland trade networks.

Using the ceramic exchange network as a starting point allows us to map the connectivity of these places, to understand how towns that appear to have similar degrees of connectivity might see this emerge and be sustained by different types of commercial relationships. At places such as St Ives, Huntingdon, and Henley-on-Thames, the outward trade in agrarian produce shaped ceramic assemblages, with material present from the places to which grain was exported. However, the supply of grain existed in different types of relation to ceramics in each town. At Henley, where grain was largely carted from demesnes across Oxfordshire, the Thames was key to pottery supply. At Huntingdon, a nodal point in regional road networks and connected to a range of inland markets, the supply of agrarian produce and ceramics is more tightly integrated, reflected in the diversity of pottery sources and perhaps related to the role of Huntingdon merchants as middlemen in overland trade. At St Ives, inland links, as demonstrated by pottery at least, are largely limited to Huntingdon, from where grain was transhipped to be exchanged down the Great Ouse, with the St Ives fair primarily functioning in the exchange of imports traded into the east coast ports (Carus-Wilson, 1962: 195). This contrast illustrates that flows of goods as depicted in a network graph are not reflective of an economic system but, rather, represent the residues of the generative relations through which ‘the economic’ surfaces. Rather than thinking of the

economy as a coherent whole, we can understand it as a patchwork, whereby individual patches have implications for the form that the wider whole might take, and in which the texture and effect of relations can be widely differentiated. Rather than asking what the medieval economy was and how it changed, this approach investigates how the relations that constitute the economy generated difference.

Understanding the relationship between pottery, urban modes of life, and economic emergence can be further explored through contrasting assemblages from two adjacent areas: the inner Midlands (Northamptonshire, west Oxfordshire, and north Buckinghamshire) to the west and Essex to the south. Towns in the inner Midlands stand out as having fairly diverse assemblages, sourcing pottery from multiple regional centres, as illustrated in Figure 8b, which depicts flows of pottery to urban and rural sites in the region. At the region’s heart is Northampton, where wares from across the Midlands and the London region have been recovered (e.g. Brown, 2021). This is a landscape characterized by nucleated villages and open fields. It has a high density of village markets, which played a key role in regional exchange networks (Reed, 1978; Goodfellow, 1987; Laughton & Dyer, 1999: 332). Reed (1978) draws attention to the close association between markets in northern Buckinghamshire and overland routes, contrasting this with the area south of the Chilterns where the market network appears more insular, as indicated by ceramic assemblages. This was a region of intensive arable production, with pottery manufacture well attested in the peripheral forested areas with abundant supplies of wood and clay, for example at Potterspury, Brill, and in Rockingham Forest (Mellor, 1994; Foard, 2001).

Within this landscape, small village markets played an important role in the exchange of the products of rural industries

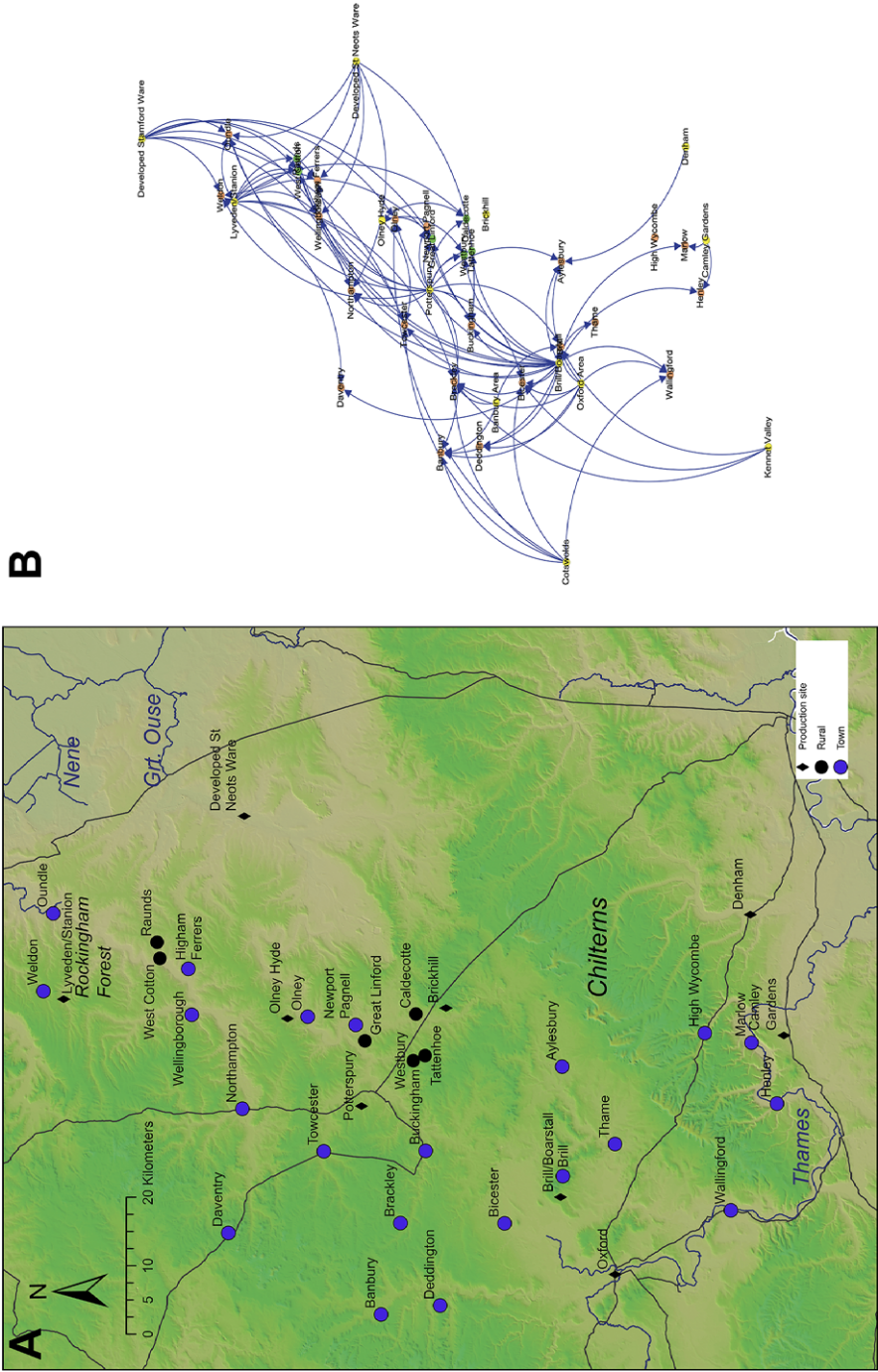


Figure 8. A) Location of places and key pottery production centres in the inner Midlands. Rivers derived from Oksanen & Brooks (2024). B) Network graph showing the relationship between production centres and settlements in the inner Midlands: orange dots: towns; yellow dots: production centres; green dots: rural sites.

and small quantities of agricultural surplus. Ceramic assemblages are typically dominated by the most local products, but supplemented by smaller quantities of wares that may have been acquired through occasional use of larger markets or from itinerant chapmen (pedlars). For example, the assemblage from Aylesbury (Buckinghamshire) is dominated by products from Brill to the west, Milton Keynes to the north, and Hertfordshire to the east, whilst at Olney (Buckinghamshire) wares from the kilns at Olney Hyde and Potterspury (Northamptonshire) dominate, but with small quantities of material from elsewhere. This model of dynamic regional exchange is supported by the fact that, despite their diversity, there is nothing particularly distinctive about these urban ceramic assemblages; the large rural assemblages from the region (Mynard & Zeepvat, 1991; Zeepvat et al., 1994; Ivens et al., 1995; Audouy & Chapman, 2009; Chapman, 2010), show a fairly decentralized market network between the core agricultural landscape and the industries at its periphery. The rich agricultural landscape of this area, coupled with a relatively high population density and strong communication routes, all combined to create a situation where connectivity is a regional characteristic, reflected in this loose relationship between town and country.

A contrast can be drawn with areas of south-eastern England, where the settlement pattern is more dispersed (Wrathmell & Roberts, 2003: 105–08). An example is Essex, where pottery assemblages show a considerable lack of diversity (Figure 9). Hedingham-type finewares, produced at several centres in north Essex, were exchanged northwards into East Anglia and southern Essex, but Hedingham-type coarsewares have a more limited distribution. Walker (2012: 111–16) highlights the significance of key roads in the distribution of this pottery. In Colchester, the largest town in Essex, most pottery came from within four miles, in marked contrast to the diverse assemblage

from Northampton (Cotter, 2000: 354). Hedingham Ware was probably distributed along with the carting of wool from East Anglia to London, whereby pottery could be picked up on the return journey (Walker, 2012). A similar mechanism may account for the movement out of the town of Colchester of pottery produced there. Colchester was primarily a local market that did not have a substantial hinterland. Poor soil quality made it reliant on the Colne Valley and coastal areas; the grain trade largely looked beyond the county, and only limited quantities were sent to London and to the east coast market (Britnell, 1986: 47). In contrast to assemblages in the north and east, where Hedingham and Colchester types dominate, those in the south-west are characterized by wares from Harlow and Mill Green.

In this area of dispersed settlement in south-eastern England, urbanization and the economy emerged differently than in the inner Midlands. As in the Midlands, towns were generally small, playing a distinctive role as waypoints in the overland distribution of wool and livestock towards London (Britnell, 1981). The contrasting characteristics of these two regions, however, had implications for the supply of pottery. In Essex, the grain supply was relatively limited. This was through local markets, but, compared to the examples of Henley-on-Thames, Huntingdon, and St Ives, there was relatively little potential for the bulk disposal of large quantities of surplus to cornmongers, creating a much closer relationship between producers and local markets. Pottery is likely to have moved on the back of the trade in wool and dairy produce. In the Midlands, grain was abundant, with rural and small-town households typically able to grow sufficient quantities for their own subsistence, selling the surplus locally. The network of small markets across this region facilitated the exchange of non-agrarian products, including pottery, from beyond the core of the agricultural landscape, with the

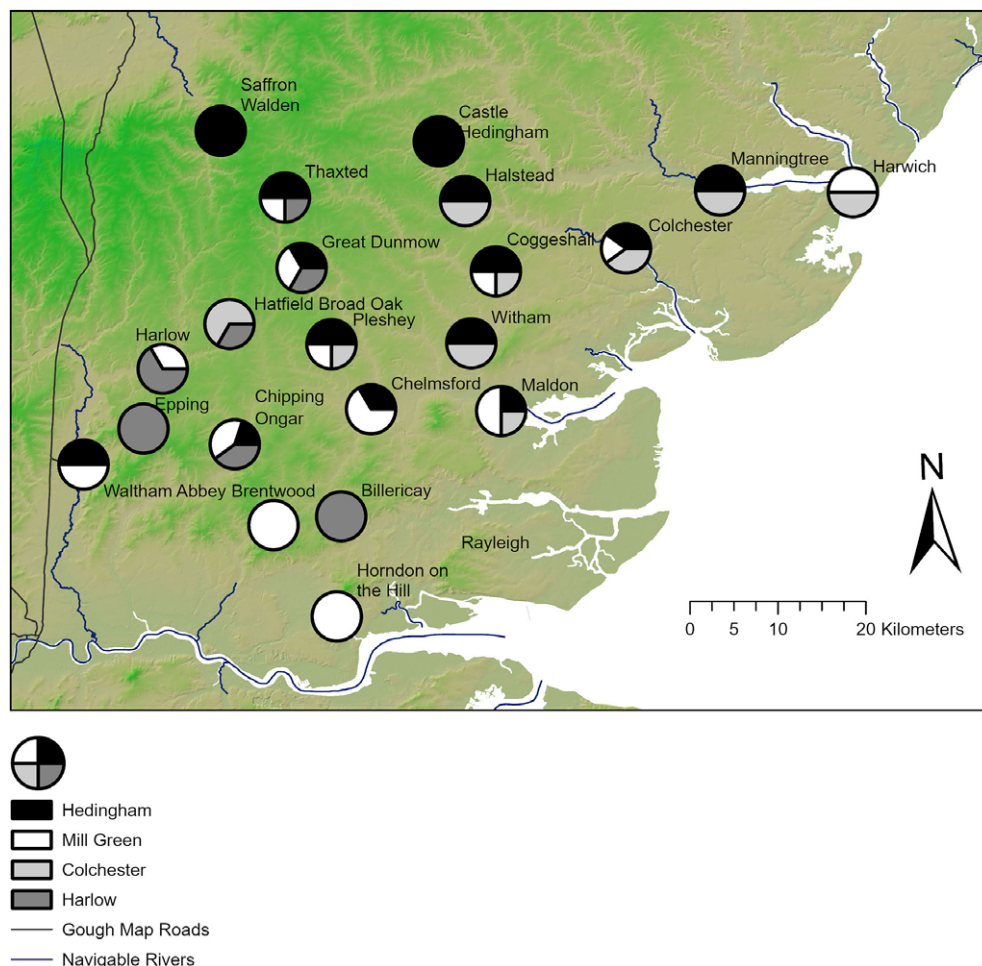


Figure 9. *Composition of ceramic assemblages from Essex. Roads from Oksanen and Brooks (2024).*

abundance of agricultural surplus, high population density, and links to larger towns, themselves regional redistribution hubs, creating a regional exchange network. These examples illustrate how capacities for difference emerge at the intersections between urbanization and the wider networks of which pottery was a part. Understanding this relationality allows us to perceive economic difference, addressing the way that economy exists as a differential virtual capacity of living in and with particular landscapes, rather than being an overarching system reflected in material evidence.

CONCLUSIONS

This discussion took as its starting point a network graph representing the supply of pottery to towns in southern and midland England. As pottery provides only a partial picture of exchange networks, this graph can be understood as one representation of a complex economy. Drawing this network graph into emerging discussions about relationality as well as the potential for understanding networks as assemblages has resulted in an inversion of standard approaches to

interpreting ceramic distribution; rather than reflecting a particular model of the economy, the relations encapsulated in the network graph are seen as forming part of processes of economic emergence, where the economy is understood as a virtual capacity of social life. I have tried to identify and explain patterns of difference, and to perceive of the economy not as a singular integrated system, but as a patchwork of interactions through which the economy surfaces. This is an approach that seeks to challenge the explanatory role of the economy as a 'reified generality' (DeLanda, 2016: 48), by considering the specific characteristics of archaeological evidence to understand how it is differentially constituted through material relations; being emergent, these traits are unstable and intersecting with locally specific articulations of urban life.

My study leads me to formulate three key points. First, the wealth of archaeological data derived from development-led excavations, coupled with the emergence of network methodologies and relational interpretive frameworks, offers a renewed potential to plot the distribution of ceramics and other artefacts. However, to maximize this potential, we must accept that simply tracing these distributions will result in a generalized understanding, in which pottery distributions are framed as a singular system. Second, models of economic growth and debates about the drivers of economic change generalize a whole from partial data. We should embrace the partial insights provided by archaeological data, seeing our own relations with these fragments as productive. Understanding the economy and urban lifeways not as predetermined features of society but as emerging as relational capacities provides us with an interpretive method whereby, rather than fitting our data into a preconceived interpretive frame, we can actualize certain capacities of our datasets through bringing them into relation with ideas and data

drawn from elsewhere. Shifting our approach towards mapping, in Deleuze and Guattari's (1987) use of the term, allows us to take a different approach, i.e. to understand the relations encapsulated in the network as generative and transformative, as constitutive of difference and complexity which emerges in the relationship between pottery and other flows of commodities, people, and capital. Third, the approach taken here enables us to develop a multi-scalar understanding of economic and urban development, not in the sense that towns are arranged in a hierarchy, but in the sense that it places an emphasis on relations which might cross-cut or enfold different scales; at any moment, interactions with a particular object may have implications for what the economy or urban modes of life might become. Whilst this statement may seem to overstate the economic importance of an object, once we take the economy as emerging out of material interactions, every relationship has the potential for difference-making; analysis can thus reveal how difference was made. Rather than framing pottery assemblages as a representation of urban life, it is productive to examine how they were constitutive elements of it.

SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit <http://doi.org/10.1017/aaa.2025.10025>.

OPEN DATA STATEMENT

Underlying data can be downloaded from <http://doi.org/10.25392/leicester.data.28264694>. Additional methodological information can be found as supplementary materials.

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BIOGRAPHICAL NOTE

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Relationalité et émergence économique : réseaux et ensembles de céramiques en milieux urbains en Angleterre au Moyen Âge

Cet article présente une analyse du rapport entre l'urbanisation en tant que processus évolutif et le développement économique dans le sud et le centre de l'Angleterre au Moyen Âge (entre environ 1250 et 1400 apr. J.-C.). L'auteur propose que l'examen de la répartition de la céramique par l'analyse des réseaux permet de comprendre le rôle que les relations affectives avec cette poterie aurait pu jouer dans ces processus. Plutôt que de considérer la répartition de la céramique comme reflétant un contexte économique dominant, il examine comment les relations avec la céramique et entre la céramique et d'autres produits auraient généré des modes de vie urbaine distincts et spécifiques. Il envisage l'économie médiévale comme une mosaïque plutôt que comme un système cohérent. Son étude s'appuie sur le concept du « virtuel » de Deleuze pour examiner comment une économie émergente et l'urbanisation représentent un processus à caractère ouvert mais décisif. Translation by Madeleine Hummler

Mots-clés: céramique médiévale, analyse des réseaux, urbanisation, théorie des ensembles, archéologie médiévale, économie

Relationalität und wirtschaftliche Entwicklung: Netzwerke und Keramikbefunde in mittelalterlichen englischen Städten

In diesem Artikel wird der Zusammenhang zwischen Urbanisierung als laufender Prozess und wirtschaftliche Entwicklung im mittelalterlichen (ca. 1250–1400 n. Chr.) Süd- und Mittelengland untersucht. Der Verfasser schlägt vor, dass die Untersuchung der Verteilung von Keramik durch Netzwerkanalyse es ermögele, die Rolle, welche die affektiven materiellen Beziehungen zu dieser Keramik in diesen Prozessen spielte, zu verstehen. Er ist der Meinung, dass die Verteilung von Keramik nicht einen vorherrschenden wirtschaftlichen Kontext widerspiegelt; stattdessen untersucht er, wie die Beziehungen zur Keramik und zwischen Keramik und anderen Waren zu unterschiedlichen und spezifischen Formen von städtischen Lebensweisen geführt haben. Er betrachtet die mittelalterliche Wirtschaft eher als ein Mosaik als ein zusammenhängendes System. Die vorliegende Studie stützt sich auf Deleuzes Konzept des „Virtuellen“, um zu untersuchen, wie eine entwickelnde Wirtschaft und Urbanisierung einen Prozess mit offenem, aber entscheidendem Charakter bilden. Translation by Madeleine Hummler

Stichworte: mittelalterliche Keramik, Netzwerkanalyse, Urbanisierung, Theorie der Fundvergesellschaftung, mittelalterliche Archäologie, Wirtschaft