Author: Astrid Van Oyen (Homerton College, University of Cambridge)

Title: Actor-Network Theory's take on archaeological types: becoming, material agency, and historical explanation

Abstract

Within the recent popularity of Actor-Network Theory (ANT) in material culture studies, scholars tend to lose sight of its origin in ethnography of laboratory work. In particular, ANT studied how scientific facts are constructed and stabilized in laboratories so that they become universally accepted, seemingly platonic, categories. This paper returns to this initial insight, and links it to the long-standing issue of archaeological types. Analysis of the practices of production, consumption, and distribution of terra sigillata – Roman archaeology's most salient pottery type – shows how it became a category, how it was stabilized as such, and how this process imbued sigillata with specific agentic properties that allowed it to shape the range of possible actions in the past. By reframing platonic types as constructed categories, they can become active elements in our historical narratives.[1]

Keywords

Actor-Network Theory, material agency, types, historical explanation, terra sigillata

<u>The terra sigillata question</u>

Terra sigillata is the most emblematic of Roman pottery types: not only did it spread widely to cover the entire Western Roman empire, it has also received much scholarly attention throughout the history of Roman archaeology (Greene 1992; recently Fulford and Durham 2013). As an upshot of this, we can now refer to dictionaries, typologies, and stamp catalogues to identify any single sigillata sherd we find (e.g. Brulet, Vilvorder and Delage 2010; Hartley and Dickinson 2008) and sigillata anchors some of the major debates in Roman archaeology, such as discussions on trade (e.g. Harris 1993; Peacock 1982) and on socio-cultural change in the provinces (e.g. Gosden 2005; Woolf 1998, 185-205; Wallace-Hadrill 2008, 407-421). What is the problem then? Does sigillata not represent the utopic goal of archaeology: a class of material culture so well-studied and determined that we can date pots to within a decade, tie them to specific workshops, and specify which mould they were made in? Yes, certainly, the class of sigillata as it is currently being studied channels a lot of detailed facts and figures. But this does not necessarily mean that it leads to the best historical accounts.

Our detailed grasp of sigillata's different defining traits (forms, stamps, decoration, etc.) has led us to project the existence of some sort of platonic sigillata category in the past, which invariably matched up to those traits. Well-trained archaeologists would be quick to warn for the unwarranted reification of an etic classification: surely the fact that we now describe sigillata as a type does not mean that people in the past ascribed any meaning to this type (Johnson 2010: 83)? This in itself is not the core problem, however. After all, if sigillata studies have been so successful, this is in part to do with their actual correspondence to some such category in the past. The fact that we can neatly summarize the main characteristics of a type called terra sigillata, suggests that its past production processes did indeed achieve the standardization and the narrow latitude of variation that allowed for this. So the 'type' sigillata can be expected to have had some reality in the past, even if that does not imply a certain meaning.

The real problem is that the standardized picture of sigillata communicated to us by typologies, stamp catalogues, etc. neglects the process by which sigillata *became* such a category, at various times between the 1st century BC and the 3rd century AD and in

various settings within the Western Roman empire. Put differently, the firmer our grasp on sigillata's *being* – its defining traits – the more its *becoming* – how those traits were created and stabilized – recedes to the background.

But why does this matter? Isn't this simply a harmless shortcut for guaranteeing analytical clarity? The answer is no, neglecting the process of how things *become* categories has important consequences for the historical plots we build around those things. This issue plays out clearly in the narratives terra sigillata is asked to support in Roman archaeology. Because sigillata is posited as a well-defined category, some fundamental questions tend to get answered along certain lines. One such line is that of universality. Sigillata is assumed to be the same thing, defined in the same way, along the same package of traits, always and everywhere. For example, this leads to a model of production where knowledge is bounded and possessed rather than distributed and embodied. As a consequence, we are bound to rely on narratives of the migration of craftsmen as the prime movers of the spread of sigillata production (e.g. Hartley 1977). If sigillata production – as attested – spread from Italy to Gaul, then this needs to be explained by Italian potters almost literally carrying over the finished product and concept (*cf.* Van Oyen 2013a): neglecting the becoming of sigillata rules out the question of re-becoming. Equally problematically, because sigillata is seen to be the same thing in production and consumption, narratives can project those pots' higher production cost (mainly caused by longer firing at higher temperatures) seamlessly onto a supposed higher value in consumption (e.g. Picon 2002). Or, with regard to distribution mechanisms, the question scholars tend to be interested in revolves around identifying the agents organizing the trade (the army? traders?) that resulted in sigillata's widespread distribution pattern, not around that widespread distribution itself (e.g. Middleton 1980 and 1983; Wells 1992).

Paradoxically, taking for granted a category like sigillata seems to make that category weaker rather than stronger or more important. Because it is in itself fully determined, it is seen to be a fairly unexciting topic of study (we can only ever refine our knowledge about sigillata's date, workshops, etc., not revolutionize it), and a rather powerless object in the past (that needed traders, the army, and all-knowing craftsmen to assure its existence and spread).

Actor-Network Theory on how to acknowledge categories' becoming

This latter perception of sigillata as a passive object in the past runs counter to the credo of material culture studies that things are not just passive accoutrements to human life, but are active (Hodder 1982, 9). But few among the theories drawn on to clarify this issue (for a selection, see Hicks and Beaudry 2010; Tilley *et al.* 2006) pay attention to the 'standardized', 'grey' things like terra sigillata. Granted, studies on blue jeans (Miller and Woodward 2007) or Coca Cola (Miller 2002) tackle similar kinds of omnipresent, well-defined objects. But so far these analyses too have tended to erase the category-ness of their objects of study, through a twofold move of (1) positing the category as already made and defined at the start of the analysis, and (2) contextualizing it to such an extent that the category gets lost.

One approach increasingly appropriated in material culture studies that does take the category-ness of things seriously is Actor-Network Theory (hereafter ANT). ANT's breeding ground consisted of a series of ethnographies of laboratory work (Latour and Woolgar 1979; Latour 1987 and 1999). These showed how the existence of scientific facts as standardized, replicable, well-determined categories followed from a careful process of alignment and negotiation, which involved test tubes, financing, gossip, graphs, etc. Here we find another category – like sigillata – which was seen to be a fairly uninteresting object of study (knowledge about scientific facts could only ever be refined), and a passive 'matter of fact' in the course of actions (scientific facts were seen to be out there, and knowledge about them could be possessed and transmitted, but could not be embodied or negotiated). By drawing attention to the process of emergence and stabilization (the becoming) of such facts, however, ANT radically shifted the questions worth asking about them. This article seeks to show that it holds similar potential for terra sigillata and other unspoken categories in archaeology.

To satisfy its project of tracing how scientific facts were created and stabilized, ANT needed to adopt a non-essential ontology: the question of emergence cannot enter the picture in a world populated by already-defined essences. Its solution has been to emphasise relations over essences, hence the 'network' in ANT (Latour 1999 and 2005).[2] Things are not defined by an inner kernel of essence, but through their relations in situated practices, in-the-doing (Mol 2002: 1-27). As a result, things'

definitions multiply, as they are articulated through different practices, in different settings. For example, the 'single' disease of atherosclerosis is defined differently under a microscope (as thickened cells) or in the consulting room (as pain when walking a certain distance) (Mol 2002; see also Law and Mol 2008), because the material practices of these settings are different (e.g. presence of a slide of the arteries instead of a patient under the microscope). These differences go beyond different perspectives on or meanings of a single object, but instead have practical consequences.

A relational ontology comes with a model of distributed agency, where agency is not a priori located – either in persons or things – but draws upon constellations that have a traceable effect (e.g. the constellation bike-and-rider is a composite actor in traffic – an 'actant' in ANT jargon) (Latour 2005, 54-55; Law 2010, 173-174). ANT's relations thus transgress the traditional divide between social (meanings) and material (stuff): scientific facts, for example, draw on relations of knowledge, friendship, and competition among researchers, as well as chemical reactions, and physical space.

ANT is not a new star on the archaeological horizon (Van Oyen forthcoming (b)). Others have identified its potential for archaeological study of the past[3], in particular with regard to thriving topics, such as material agency (things can be active: Knappett 2005; Knappett and Malafouris 2008) and relationality (Knappett 2011). ANT's take on relations fits into a wider archaeological preoccupation with relational thought (Alberti and Marshall 2009; Harris 2012; Hodder 2012; Knappett 2005; Watts 2013), which is currently in vogue, and much-needed to counter a disciplinary genealogy of dichotomies and polarities (Gonzalèz-Ruibal 2013).

In theory, it is clear that ANT is a rich but untapped resource for archaeology. But so far, substantive empirical case studies that show how ANT actually makes a difference to archaeological narratives are crudely lacking (but Jervis 2011; Whitridge 2004). Studies easily get carried away by the manifold claims of ANT, which is not a coherent 'theory' but a tendency or orientation adopted in different ways by different scholars. As such Hodder's (2012) laudable attempt at using insights from ANT to rethink the Neolithic as a series of increasing human-thing entanglements that trapped actions in a certain way threatens to lose focus because it posits 'entanglement'

(modelled on ANT's version of relationality) as ontology (the world is constituted relationally), epistemology (our analysis should trace and plot relations), and explanation (increasing relations account for changes in the Neolithic). Discussion of ANT's potential can no longer be held in the abstract (as in Boast 1997 or Dolwick 2009), but needs to show ANT at work in specific debates on the past – in the case of this paper, on the Roman world and its most emblematic pottery.

Within the archaeological buzz surrounding ANT, its initial focus on how categories emerged and stabilized tends to be overlooked. Nevertheless, this is a key issue for ANT: relationality is but a method for gaining insight into how things are defined in a certain situated practice (Latour, Harman and Erdélyi 2011: 59). What really matters, are the resultant, emergent properties of these definitions, which shape their conditions of possibility: the kinds of relations they can enter into, and the kinds of actions they can engage in – their 'material agency'. Indeed, once the tightly defined scientific facts were stabilized, they could travel the world (Latour 1988: 227), gain universal validity, and become a powerful force in calculations and formulae, allowing such feats as building bridges or flying to the moon. The category-ness traced by ANT is thus a powerful but emergent kind of material agency.

The etic/emic issue revisited

This could have important consequences for the central issue of archaeological types – introduced above with regard to terra sigillata – in particular by helping us understand why the etic/emic question is not a primary one. From the 1980s onwards, ethnographic studies have inquired into the relation between insiders' categorization of pottery production and outsiders' labelling of the finished products (Miller 1985). Advances in cognitive research have made it clear that the human mind is not a self-contained processor of external information, but that cognition emerges out of the interaction of mind, body, and world (Clark 2008). As a result, the interest of 'emic' meanings "inside people's heads" (Harris 1976) is seriously compromised: outside has become inside, and vice versa (Malafouris 2013). Put differently, we have moved away from a template whereby meaning is generated solely through representation of external phenomena in people's heads (*cf.* Hicks 2010).

While the traditional emic/etic distinction cannot cope with this 'extended cognition', it fits seamlessly with ANT's model of distributed agency (Knappett and Malafouris 2008; Malafouris 2013, 119-149). The test tubes in the laboratories studied by ANT-proponents did not 'represent' or 'mean' much, but actively helped constitute the course of action in those laboratories, so that for instance the correct size of tube could make or break the emergence of a scientific fact. What used to be called 'emic' is no longer about meanings inside people's heads, but has become a question of the possibilities for action within a certain socio-material setting.

Conversely, what we used to think of as 'etic' – external classifications of behavioural traits; like the different observed traits of sigillata – is no longer a neutral analytical tool, but actually says something about past reality and the possibilities for action that it afforded. As a result, if we can make generalized claims about an archaeological type (e.g. all sigillata pots are red, shiny, made with calcareous clays and fired at temperatures exceeding 1000°C), then this is not merely an analytical abstraction, but one facilitated by how sigillata was defined in the past. The archaeological type is thus not a culture-historical carrier of cultural meaning, nor a processual scientific means of abstraction, but a specific constellation that tells us something about that type's possibilities for action in the past – its material agency.

As a consequence, the interesting questions for archaeology are no longer limited to 'what did this type mean in the past?', or 'can we assemble more objective facts about this type in order to refine our knowledge (e.g. dating)?', but can now be extended to cover the more primary issue of 'what does the fact that we can describe this type as an almost platonic category tell us about its past agency?'. In ANT terms, scientific facts did become stabilized 'types' or categories, with certain consequences for action, so that we can now develop science handbooks, charts, and formulas without having to re-engineer those facts. We can literally build bridges on them. But we can only appreciate this if we refrain from retro-projecting this category-ness and if instead we account for the process by which scientific facts, sigillata, or other archaeological types *became* categories.

A category's trajectory

This paper will trace how terra sigillata emerged as a category in production, how it was stabilized as such, and how this shaped the possibilities for action involving this category. Four separate case studies will take us from Central Gaul to Britain, and from the 1st to the late 2nd century AD. Nevertheless, their sequence is not accidental, but makes them hang together as what we will call a trajectory.

Following ANT, things are defined in practice, and these definitions bring emergent properties to their possibilities for action. Put differently, a thing's definition-in-practice at point x will shape the possible actions in which it can enter at point x+1, with space and time co-emergent in the interval. As such a trajectory – or, rather, multiple trajectories – is being spun, which is non-accidental (because the constellation of relations shape the trajectory), but also contingent (because those relations can change at any point). If trajectories – in particular those of categories – appear teleological, then this is merely because we as analysts are bound to unravel them in reverse: we often start from the stabilized category which has taken on the aura, if not of a platonic being, then of an Aristotelian becoming of a final cause.

This can be illustrated by Latour's (1991) example of the so-called 'Kodakization', in which he traces the simultaneous development of the Kodak camera and the mass market of amateur photographers. Rather than explaining the emergence of one or both phenomena by reference to the other as a general (social or material) cause, Latour breaks up the narrative into a sequence of contingent human-nonhuman associations, each one setting the conditions for the next, but not determining it.

As an upshot of this approach, the question of origins is replaced by one of emergence and re-emergence. This bears some resemblance to Foucauldian genealogies (Foucault 1977). Trajectories of stabilized *categories*, in particular, echo Foucault's interest in tracing the history – in practice – of "that which appears invariable": sexuality, punishment, etc. (Flyvbjerg 2001: 112). ANT couples this with its specific take on material practices and distributed agency, and thus paves the way to adding things like sigillata to this list. As a result, the notion of trajectories can help us understand, with Gosden (2005: 196), how "[p]atterns of exchange or consumption

derive partly from the nature of the objects themselves" (see also Olsen *et al.* 2012: 194 and 170-171).

Trajectories differ from 'artefact biographies' (Appadurai 1986; Foster 2006; Kopytoff 1986) in that what happens to the objects in the latter tends to depend on external agencies. With trajectories, instead, objects' situated definitions become driving agencies that shape their future possibilities. A further difference with artefact biographies is that trajectories are never complete, and always generic, in that they do not deal with the actual events of a specific artefact, but with the conditions of possibility of a series of artefacts defined in a certain way. This makes them suitable to inquire into the archaeological unit *par excellence*, the type (Hodder 2012: 192-193). The remainder of this paper will now follow the trajectory of terra sigillata produced at Lezoux in the 2nd century AD, by examining how this type was defined in production (we suspect that it became a category), and how this definition shaped its possibilities for reproduction and consumption.

Category emergence: terra sigillata at Lezoux (Central Gaul)
Lezoux (near present-day Clermont-Ferrand; Fig. 1) was the main sigillata production centre in the 2nd century AD. It offers an ideal setting for tracing whether and how sigillata became defined as a category in production, for a series of reasons. Firstly, if sigillata in general is emblematic of Roman archaeology, then Lezoux has been emblematic of sigillata's definition as a standardized category. Its traits were fixed through pioneering research by Picon (1973) on the ceramics of Lezoux, who pinned down 'real' sigillata as a combination of an oxidizing firing mode and calcareous clays. Secondly, both quantitatively (in terms of volumes imported) and qualitatively (with regard to the range and number of sites reached) Lezoux was the main supplier of sigillata to Britain (Willis (2005) *contra* earlier observations by Marsh (1981)) – to which we will turn our attention in later sections. Thirdly, Lezoux was active as a production centre of different types of pottery from the 1st through (at least) the 4th century AD (Bet, Gangloff and Vertet 1987, xiii), and thus offers unique long-term insight into the becoming of one of those types, sigillata.

Figure 1. *Map showing production sites and areas discussed in the text (N on top)*

Before we zoom in on production practices at Lezoux, let us review the current orthodoxy. One lingering but rarely stated position is that a category of sigillata stood as a teleological end, which only some production sites succeeded in attaining. Sigillata is then taken for granted as an existing category with a 'higher' merit in evolutionary terms. An alternative, more often underwritten narrative is that sigillata was a fully defined economic choice of higher investment and higher return, which could be implemented or rejected by production sites depending on the economic opportunities (Picon 2002). What matters for this paper is that both options take the existence of a sigillata category for granted. But what is lost in doing so?

The first trace of ceramic production at Lezoux is a Late Iron Age kiln of a type common in the region at the time (Mennessier-Jouannet 1991). Even though it is the only kiln attested of such early date, along with its production waste, it testifies to a local mastery of forming and firing methods. From around 10 AD onwards, the intensity of ceramic production at the site increased dramatically, with an organisation in different physically separated workshop groups (Bet and Delor 2002; Chuniaud 2002, 247). A variety of products were being produced (Bet, Delage and Vernhet 1994), among which a series of pots that drew on the shapes and appearance (especially the red colour) of imported Italian and South-Gaulish sigillata (Brulet, Vilvorder and Delage 2010, 108-111). That this imported sigillata stood as something of a reference point, is confirmed by reproduction of the formula *aretinum fecit* ("he made Arretine") on early Lezoux products, referring to Arezzo (Fig. 1), one of the main production sites of Italian sigillata (Genin, Hoffmann and Vernhet 2002, 67; Vertet 1967, 258 and 261).

But while Italian sigillata may well have existed as a notional ideal, 'sigillata' produced at Lezoux during the first part of the 1st century did not exist as a clearly defined package of traits (Fig. 2). For one, the colour and surface treatment reminiscent of imported sigillata were not always congruent with 'sigillata' forms: the typically South Gaulish form of decorated sigillata Drag. 29, for example, was also produced with a lead-glazed surface at Lezoux (Vertet 1968, 30). Furthermore, the non-calcareous clays used for these early Lezoux products had been in use regionally for a long time, and no distinction was made between the clays destined for different products or shapes (Picon 1973; Picon and Vertet 1970; Picon, Vichy and Meille

1971). Finally, the same holds true for the infrastructure and technique of firing, which harked back to the tradition represented by the Late Iron Age kiln (Bet, Delage and Vernhet 1994, 47; Brulet, Vilvorder and Delage 2010, 108), with uneven temperatures and maxima not surpassing 900/950 °C (Picon 1973). In sum, based on a post-hoc constructed platonic category of sigillata, analysts could identify a number of 'sigillata' traits in early Lezoux products. But these traits did not match up in any consistent way, and permeability between different chains of production was part and parcel of the ceramic landscape at Lezoux at the time.

Figure 2. *Lezoux sigillata (1ˢᵗ century AD), form Drag. 29 (photo: Richard Delage)*

This changed towards the end of the 1ˢᵗ century, when the centre of gravity switched between workshop groups and new workshops appeared on the scene of Lezoux (Bet 1988; Delage 1998, 281). New kinds of calcareous clays were being used (Picon, Vichy and Meille 1971; Picon 1973), and a new, oxidizing firing mode was introduced (Bet, Delage and Vernhet 1994; Brulet, Vilvorder and Delage 2010, 108). These changes opened the anchored tradition of 'how to make good pottery' to scrutiny. But most important for the argument of this paper is the observation that these changed practices closely aligned with the production sequence of pots of sigillata form and appearance: sigillata was now set apart from other ceramic products at Lezoux. From the very start of the production sequence onwards when clay was fetched, this had to be identified as 'sigillata' or 'non-sigillata' clay (Picon, Vichy and Meille 1971). Any single firing event, too, was necessarily marked as a 'sigillata' or 'non-sigillata' firing (Picon 1973).

Nevertheless, this alignment of sigillata's different traits in production did not happen overnight. Instead, instances of experimentation around the beginning of the 2ⁿᵈ century show that practices of production were contested. A short-lived phenomenon of black sigillata was associated with the new workshops (Simpson 1957), while others struggled to implement the new firing mode (Brulet, Vilvorder and Delage 2010, 115; Vertet 1967, 257). The new workshops also experimented with forms (Delage 1998, 281; Bet and Vertet 1986, 140) and developed new decorative themes (Bémont and Rogers 1978 and 1979), unseen in other contemporary sigillata production sites.

After the middle of the 2nd century, however, experimentation waned and the latitude of variation of the different technological choices of the sigillata production sequence narrowed down. Firing temperatures became less variable (Picon 1973), the range of forms shrank (Bet and Delor 2000), and decoration was now based on recurrent schemes (Fig. 3). This can be associated with another shift of the centre of gravity, which moved back to the initial core of 1st century production (Delage 1998). Sigillata had now effectively become a category: fully defined by a limited number of standardized traits, and clearly separated from other products (a pot could not be 'a bit' sigillata – either it was sigillata, or it was not). As a result, sigillata could be abstracted from the local contingencies of production: potters, investors, traders, etc. did not need to specify time and again how pots should be made, with which clays, and what they should look like. But what ANT shows us is that despite this abstraction – or, rather, as a necessary precondition for this abstraction – sigillata was firmly anchored in such local contingencies, in local practices. And this anchorage of categories, which becomes newly visible when their emergence is taken seriously, makes them all the more solid.

Figure 3. *Lezoux sigillata (2nd half 2nd century AD), form Drag. 37, with intra-decorative stamp by* Paternus *(photo: Richard Delage)*

Consequently – and in contrast to its platonic counterpart – a category solidly anchored in situated practices can shape actions by altering and creating a range of possibilities. One way in which it does so is through facilitating competition by creating conditions of comparability and measurability. The clear boundary around a category ('what counts as sigillata') delimits a population for comparison (a sigillata pot should be compared to another sigillata pot; *cf.* the proverbial 'not to compare apples and oranges'), and the narrow latitude of variation of its different traits provides a limited scale of comparison on which to plot different instantiations (e.g. sigillata pots could be compared as more or less shiny, but 'shininess' can be assumed as a trait). The resulting possibility of differentiation and competition is evidenced at Lezoux after the middle of the 2nd century, when a number of forms became especially popular against the background of a standard repertoire (Brulet, Vilvorder and Delage 2010, 124), and when large intra-decorative stamps (Fig. 3) stood out

against the standard practice of having a small stamp on the inside of the vessel base (Delage 2004).

So what is lost in neglecting the emergence of sigillata as a category? It is cut off from the on-the-ground reality and negotiations, and thus looses firm ground. As a result, it becomes weaker and external actors with decisive autonomous agency need to be invoked to explain what happened to the passive category. For example, if 1st and 2nd century production of sigillata forms are posited as two alternative catalogue entries to choose from depending on economic opportunity – as per Picon (2002) – then debates are bound to focus on the 'who': who made this choice? This gets us into empirical dead-ends, as we have no way of deciding whether traders, investors, the army, or some other agency made this 'decisive' choice (Delage 1998; Marsh 1981; Middleton 1979, 1980 and 1983; Picon 2002; Pucci 1983; Wells 1990 and 1992). By asking how the category of sigillata emerged, however, we end up with a category which itself channelled action in a certain way, and which can thus be accommodated within more complex models of agency than that of 'the fully intentional actor'. For example, we have seen how competition can be reframed as a product of the contingent process of category emergence, instead of an a priori of or an incentive for a certain economic system. Where lies the agency then in this process? Readers expecting that names be named and fingers pointed will be disappointed: throughout the process of alignment described for Lezoux, agency was distributed across the practices of pottery production and the conditions of possibility set through their enactment.

Category stabilization: sigillata and 'Rhenish' wares at Lezoux (Central Gaul)
If the existence of a category is taken for granted, it follows that the category necessarily *keeps* existing. Put differently, no maintenance work is needed to ensure its continuing delimitation from other things, or its circumscribed package of traits. If, instead, we acknowledge the emergence of a category, then its stabilization becomes an issue that needed to be worked at in the past, and that makes for an interesting avenue of study in the present (Mol and Law 2005).

So how was the category of sigillata stabilized in production at Lezoux? Around the same time as sigillata's definition as a category – after the middle of the 2nd century –

a new ceramic product was launched at Lezoux. These have been called 'Rhenish' wares, after their later success at East Gaulish production sites (Figs. 4 and 5). Contrary to sigillata, scholars have been at pains to define an identifying package of traits for 'Rhenish' wares: some emphasise technology, others shapes, still others surface finishing (Brulet, Symonds and Vilvorder 1999). But different criteria do not neatly overlap as with sigillata studies, and overall 'Rhenish' ware production was characterized by a large latitude of variation in its technological choices. For example, colour veered towards black, but could achieve aspects of green or brown (Symonds 1992, 18; Brulet, Vilvorder and Delage 2010, 346), stamps were randomly applied without consistency as to form, no standard form repertoire existed (Bet and Gras 1999, 26-31), and decorative techniques were varied (Brulet, Vilvorder and Delage 2010, 346-347; Symonds 1992, 17-26).

Figure 4. *Lezoux 'Rhenish' ware beaker (3rd century AD) (photo: Richard Delage)*

Figure 5. *Lezoux 'Rhenish' ware plate (3rd century AD), with stamped base (photo: Richard Delage)*

What did unite 'Rhenish' wares was their relation to sigillata production. They were being produced at the same time and in the same workshop groups as the emergent category of sigillata. This marked link to sigillata production was enforced throughout the production sequence of 'Rhenish' wares: they used the same calcareous clays (Bocquet 1999, 216), also sometimes carried stamps (Fig. 5; Bet and Gras 1999: 33), were slipped (Bocquet 1999, 223), adopted some forms derived from the by now standardized sigillata repertoire (Bet and Gras 1999, 26-31), and sometimes even had a red surface colour like sigillata (Bet in Brulet, Symonds and Vilvorder 1999, 125). But despite – or, as I shall argue, in dialogue with – this similarity, the respective technological choices for 'Rhenish' ware production eventually always diverged from the sigillata production sequence. Clays were treated differently resulting in a wider range of chemical signatures (Bocquet 1999, 219), stamps were rare and never epigraphic (except for a single example) (Fig. 5; Bet and Gras 1999, 33; Brulet, Vilvorder and Delage 2010, 346), the dominant decorative technique consisted of barbotine instead of moulding (Bet and Gras 1999, 33-34; Symonds 1992, 17-26), the surface was black rather than red, and most forms were geared more towards drinking

than the sigillata repertoire. Perhaps the most outspoken difference in terms of production practice was the different firing mode, which meant that sigillata and 'Rhenish' wares could not conceivably be fired in the same batch (Bocquet 1999, 223-225).

The point for this paper is that rather than being positively defined as a category themselves, throughout their production sequence 'Rhenish' wares maintained the boundaries of the category of sigillata (*cf.* Van Oyen forthcoming (a)). They thus guaranteed the stability of this category, by maintaining its difference from other products, and by keeping its traits tightly defined. But this process only becomes visible once we stop assuming that categories, once out there, keep existing by themselves. What ANT helps us understand is that a category's self-containment and self-referentiality are also relational, and need to be worked at (Mol and Law 2005)! Indeed, sigillata's difference and singularity were maintained as a product of the marked one-way references enacted by 'Rhenish' ware production. Even if a specific kind of material culture emerged as a category – like sigillata at Lezoux after the middle of the 2nd century – this definition needed to be maintained by marking out its relation to other products and practices. The typologies, stamp catalogues, and technical manuals miss out on these relations by positing a category cut off from practice and the relations enacted through it; they mistake its final state (*being*) for how this state was created and maintained (*becoming*).

The regrettable result of this is not only evident in increasing specialization of fields of study and their outputs (e.g. publications) (Willis and Hingley 2007 on Roman archaeology), but also, again, in the historical narratives developed. If a category is assumed to persist by itself, then its dissolution or disappearance has to be attributed to 'degradation' of taste, 'failure' to maintain standards, and similar kinds of explanations that make archaeology anno 2013 raise its eyebrows, and rightly so. Moreover, the neglect of a category's 'life-network' (or 'work-net' *sensu* Van Oyen forthcoming (a)) – the relations and practices that maintain its stability – forces us to locate the causal factors for these processes in failing external actors ('who', again): consumers, producers, investors, etc. Instead, this section has shown how we can acknowledge particular relations between things-in-practice as shaping material agency, having an effect on the course of action.

Reproducing a category at Colchester (Essex, Britain)

If we draw attention to the practices from which the category of sigillata emerged and through which it was stabilized, this 'category' becomes one among many ways in which things can be defined (*cf.* Van Oyen 2013a for another such way, the 'fluid'). As a consequence, it is no longer a neutral mode of being, but a constellation that had particular consequences for action. Along with its platonic innocence, the category-as-becoming sheds its powerlessness.

The possibility of competition and the results for the economic frame within which sigillata could be mobilized, were one way in which its trajectory was shaped by its definition as a category. The last two case studies will discuss further ways in which a particular trajectory was woven through sigillata's category-ness: by shaping its possibilities for consumption (next section), and by affecting its production landscape (this section).

The location of sigillata production sites is paradoxically at the same time a well-considered subject and one that is rarely explicitly discussed beyond the truism that raw materials and access to transport networks are needed (Peacock 1982, 119-120). Suitable clay would have been fairly omnipresent, but large quantities of wood for fuel and access to water would have posed more logistical problems. A lack of wood supply has for example been invoked to account for the sudden demise of the short-lived sigillata production at the major centre of Lyon (Desbat, Genin and Lasfargues 1996, 241). In general terms, from the 1st to the 3rd century AD, a gradual displacement northwards of the production sites can be interpreted as a move closer to the prominent consumer that was the army stationed along the Rhine front. The implicit bottom-line of all this is that the knowledge of sigillata production – as a taken for granted category – was carried around by migrating craftsmen and implanted wherever a series of external causal determinants proved suitable (e.g. Fulford 1977, 309 on distance from competitors; Wells 1990). I do not want to suggest that migrating craftsmen did not play an important role, or that distribution mechanisms or the presence of raw materials were not considered at all. But the overall logic is far from watertight. For example, some of the main production sites (e.g. La Graufesenque) were situated in a strategically unhappy position if distribution

was a main determinant; and why did it take so long for sigillata production to move nearer the front; or, still more counter-intuitively, why not have sigillata production in Britain, one of the main outlets for Gaulish sigillata?

This last question remains a riddle to sigillata specialists. Sigillata production was launched at Colchester (Fig. 1) around AD 155 (Tyers 1996, 114-116), but quickly faded (around AD 180) and left behind a limited production output.[4] The excavator attributed this to deficiencies of the local clay, and to problems with firing (a comparatively large number of underfired wasters have been attested) (Hull 1963, 143). But here there is firm evidence that at least some of the potters involved had previously been active in pottery production centres in East Gaul (Fig. 1, oval to the right; Hartley 1977, 256-257), and can be regarded as skilled craftsmen with considerable experience in adapting to different environmental constraints and product ranges. So why were they not able to do so in Britain?

Detailed analysis of the kinds of production practices these potters would have been involved in in East Gaul before moving to Britain – including sigillata and other fine ware products like colour-coated wares – exceeds the scope of this paper (Tyers 1996). What matters here is that these did not confirm to the parameters of a category as described above: their technological choices were variable, production sequences for different products crossed over, and embodied expertise did not converge on a finished product, as with 2nd century Lezoux sigillata (Van Oyen 2013b). Sigillata production at Colchester was largely cast in the mould of those East Gaulish production practices. The single kiln associated with sigillata wasters at Colchester showed technical similarities to some East Gaulish (sigillata) kilns (Hull 1963, 20 ff.; Swan 1984, 92), as did the forms and appearance of the vessels produced (Tyers 1996, 114). Like its East Gaulish inspiration, Colchester sigillata production was not clearly differentiated from other products. Instead the various stages in its production sequence enacted a whole range of connections, especially to so-called colour-coated wares, through forms (e.g. barrel-shaped beaker) and decorative schemes (e.g. hunt scenes) (Hull 1963, 82).

This loose and adaptable, skill-based template of sigillata at Colchester – borrowed from East Gaulish practices (Fig. 1, oval to the right) – was drawn into a comparison

with the mass of sigillata-as-a-category that was imported into Britain from Central Gaul (Fig. 1, lower oval) and in particular from Lezoux. Colchester thus became a point of encounter between different definitions of a 'single' thing, sigillata. As shown by Mol's (2002) account of different definitions of a single disease in different settings (under the microscope, on the surgical table, in the consulting room), the conditions set by these different definitions do not always neatly overlap. In Mol's case study, very practical tensions arose in how different definitions set the threshold for the disease's diagnosis, and in how they evaluated treatment. Did a similar tension characterize the encounter between the two different templates of sigillata at Colchester? And did this too have practical consequences for sigillata production at Colchester?

The sigillata defined as a category that came in from Central Gaul created specific conditions for comparison based on individual traits, as discussed in the preceding section. But the different, skill-based framing of Colchester sigillata *à la* East Gaul did not lend itself to such a comparison. Much like the different definitions of a single disease disentangled by Mol (2002), the two different sigillata templates would have set parameters of evaluation that would have been incompatible. Colchester pots whose production practices were 'a bit like sigillata' but also 'a bit like colour-coated wares' would have been placed firmly outside of the either/or category boundary set by the imported Lezoux sigillata, despite their broadly similar appearance. This incompatibility was exacerbated by the fact that the Lezoux sigillata-as-category came in as a finished product, which was not only ontologically (through the process of abstraction described in the previous section) but also physically (through its long-distance export) removed from the contingency of its production.

In sum, migrating craftsmen, environmental constraints, and economic considerations all have their role to play in our historical accounts of the spread of sigillata production. But not only can they not be assumed to have been full causal agents – even for the simple fact that we could easily come up with other options for this list (e.g. investment) – they are also hard to pin down empirically. So maybe the questions of 'who' (who produced, who sold, etc.) and 'why' (why did sigillata production fail to take off at Colchester) should be amplified through integration with the question of 'how' (how was sigillata produced at Colchester, how did this relate to

other products, etc.), which has the additional benefit of being more readily accessible to archaeology. Part of the explanation why sigillata production at Colchester did not take off is to be found in the misalignment of two differently articulated trajectories: one of (Lezoux) sigillata defined as a category, with the particular conditions for action this created; and one of (East Gaulish) fine wares defined as skilled and flexible production practices, which struggled to mobilize its tradition within a frame of 'either/or' parameters.

A category thus has on-the-ground consequences for its production landscape. Both its either/or boundary and the narrow latitude of variation of its constituent traits have to be maintained. The parameters it set for comparison and measurement in turn compromised other production sequences and their products (in this case, Colchester sigillata). All of this resulted in a fairly centralized production landscape of the category of sigillata.[5]

Consuming a category in Essex (Britain)

Another way in which sigillata's category-ness shaped its trajectory was through consumption. Essex in Roman Britain (Fig. 1, upper oval) provides a good testing ground to evaluate this, because its sites have been well-researched and thoroughly published, and because it received considerable levels of continental imports in the 2nd century (Perring 2002; Willis 2005). Following ANT, we can no longer maintain that an inherent sigillata 'essence' linked pots produced at Lezoux and pots consumed in Britain. Sigillata pots from Lezoux entered into different settings and relations in Essex, which would have redefined their conditions of possibility. Nevertheless, we can posit connections between a sigillata pot's definition in production at Lezoux and its consumption in Britain. These ties, however, are no longer the a priori ones dictated by a platonic essence, but the contingent ones of trajectories.

The standard starting point for studying sigillata in consumption has been its specialness (Willis 2005, 1.3). Analysis shows sigillata to have stood out amongst other pottery in contemporary consumption contexts in Britain, both in visual (its shiny red appearance versus a majority of greyish or buff wares) and economic (its long-distance origin) terms. But was sigillata really coming in with associations of 'Romanness' or 'long-distance origins'?

One unequivocal observation is that 2nd century Central Gaulish (predominantly Lezoux) sigillata spread widely and densely: even the smallest of sites and assemblages would invariably yield not just one but a whole set of sigillata vessels (compare Woolf 1998, 185-205 for discussion of the situation in Gaul). Such a presence of sets – in the loosest sense of the term[6] – would have made it possible to differentiate among the sigillata pots along a series of axes: by form (Willis 2005), by volume (Monteil 2012), by decoration, etc. These axes are now increasingly being recognised and studied in consumption contexts, but they tend to be assumed as essential traits (*being*) of the equally essential and special category of sigillata. The resultant problem is one of meaning: what did this specific decorative selection stand for?, why were these forms preferred in this context? In which case the analyst is again bound to mobilize some sort of external agency to generate this layer of meaning to be laid over the sigillata pots. Indeed, following this logic, specific selections need to be accounted for by conscious, selecting agents. The notion of trajectory, instead, allows us to acknowledge the general possibility of internal differentiation as a consequence of sigillata's definition as a category (*becoming*). The stabilization of sigillata's package of traits made it possible to use these traits as axes of differentiation. As a result, sigillata was fairly flexible as an object of consumption, and could be adapted to the requirements of many different contexts and fields of practice.

Indeed, in Essex sigillata can be found across site types and across contexts of various nature: graves, rubbish pits, religious sites, domestic assemblages, etc. At the site of Great Dunmow at the very western edge of present-day Essex, for example, sigillata – some of which deliberately fractured – was included in cremation graves (Wickenden 1988). But, significantly, it featured equally prominently in a non-funerary gravel pit (857) of the same date on the same site. More generally Willis has shown for Britain that sigillata was not geared towards use in ritual contexts or around temples, but not banned from these situations either (Willis 1998 and 2005, 7.2.6 and 12; Bird 2013 and Cool and Leary 2012 for (non-)uses of sigillata in religious and funerary contexts in Britain). We can deduce that sigillata was easily insertable in many kinds of practice, but that it was not preferentially selected for or targeted to any of these.

The traditional reflex tends to be to attribute this again to sigillata's 'specialness', and to deduce from this a generalized, but taken-for-granted, taste for these pots. Having followed through the emergence, stabilization and consequences of sigillata-as-a-category, however, we can now reframe this interpretation. The definition of sigillata as a category not only stabilized its package of traits, but also enforced its boundedness. Sigillata thus became a kind of thing that was dissociated from its local contingencies, that was so to speak void of ties. As a result – and in diametric opposition to the 'special associations' stereotypically posited – sigillata did not come in with specific relations that prefigured the way in which it could be used. Acknowledging the category-ness of sigillata thus renders visible the way in which this category shaped action.

But have we lost the fundamental questions of 'Romanness' or 'empire' in the process of rediscovering the category-ness of sigillata? The answer is no, we have shifted from questions as 'what does this pot stand for' or 'who selected this pot with which intention' to a more primary question of 'how could this pot attract and generate so many different meanings in the first place'? We can compare this to Miller's (2002) analysis of how Coca-Cola was appropriated in Trinidad as a local 'black sweet drink' that found its way within the existing practices of distribution and consumption. But while Miller uses this example to nuance the degree to which multinational concerns dictate the meaning of their products – Coca-Cola effectively got imbued with a Trinidadian rather than an Americanized or globalized identity – this argument can be turned on its head to illustrate the success that allowed Coca-Cola to become globally taken for granted, albeit in very different ways and reflecting a wide range of meanings. And this success resides in part in its definition as a 'category', much like sigillata. Sigillata thus became what ANT calls an 'immutable mobile' (Latour 1988; Law 1986; Law and Singleton 2005, 335): a thing whose semantic and physical relations are stabilized (immutable) and therefore allow it to travel widely (mutable). The key ANT example here is again that of scientific facts, whose stabilization and subsequent spread generated an 'empire of science' (Latour 1987), in that the parameters of science hold sway over much of the world today. Similarly, as a category, sigillata facilitated a particular structure of empire, which was centralized (*cf.* its consequences for reproduction) but reaching widely, and which homogenized material ambiances without dictating their associations.

Historical explanation and types after ANT

This paper started from the problem that the existence and maintenance of categories of material culture is taken for granted in archaeology, and that this leads to these categories being weakened to the point where we need to lay full causal agency for their past trajectories with external agents. In the case of terra sigillata, the platonic essence that we have read into its detailed typologies, catalogues, etc., has made us oblivious of the process by which sigillata became a category and needed to be stabilized as such. The various case studies in this paper have discussed how this has led Roman archaeology to come up with particular kinds of historical narratives, where the interesting questions are those of 'who' or 'why'. Incidentally, these are the kinds of questions for which archaeology struggles to come up with clear answers, leading to dead-end debates, for instance about whether the army or civilian trade was responsible for sigillata's wide spread.

ANT helped mediate this problem by directing attention to the neglected process of becoming. Other recent approaches, such as assemblage theory (DeLanda 2006; Deleuze and Guattari 2004; Harris 2012; Normark 2010) or meshworks (Ingold 2008 and 2011) might have led to similar results. What ANT adds over and above other theories, however, is a serious account of how categories can stabilize despite (or rather through) this process of constant becoming. With regard to terra sigillata, the crux of the matter is indeed that it did stabilize, and that this had real consequences for its further trajectory, as illustrated in the case studies on reproduction (at Colchester) and consumption (in Essex).

It is these consequences that provide the real payoff by allowing a fundamental remodelling of historical accounts. By unlocking the issue of the emergence and stabilization of sigillata as a category, ANT urges us to shift focus from the questions of 'who' and 'why' to that of 'how' (Latour 1991, 129 and 2005, 103) – a switch repeatedly put to work in the above case studies. But while doing so, ANT also offers us the means to make our answer to the question of 'how' powerful enough to actually contribute to *explaining* past phenomena. The description invoked by the question of 'how' is not one of 'and then A happened…and then B happened…'. Instead, the description of a thing's definition at point A will shape the possible

actions in which it can be mobilized at point B – this is the leverage of the notion of trajectory as introduced in this paper. We can thus have our cake and eat it in two ways: we can emphasize the 'how' of the past without losing touch with causality (but a causality modelled on a more complex form of agency than that of the intentional actor – not unlike what DeLanda 2006: 22 calls "catalysis"; Hodder 2012: 200-204), and we can focus on the details of practices without jettisoning the possibility of a narrative larger than the separate case studies.

Finally, let us return to the long-standing archaeological issue of the identification and nature of types. If we maintain a definition of types as 'groups of artefacts that share similar attributes', then only categories qualify: kinds of material culture, like 2nd century Lezoux sigillata, blue jeans, or Coca Cola, whose package of traits became standardized, bounded, and hence amenable to abstraction from the practices in which they were involved. But not only does such a narrow notion of 'type' misrepresent many other kinds of material culture which were not defined as a package of traits – such as Lezoux 'Rhenish' wares – it also silences the specific agency of the category by degrading it to a normative analytical template. If, instead, we acknowledge that the 'attributes' in the definition of an archaeological type are situated and relational, then it becomes clear that the attributes of 2nd century Lezoux 'Rhenish' wares were defined *in relation to* sigillata production, and that sigillata as a *category* emerged as a particular constellation imbued with a certain kind of material agency.

Conclusion

This paper has not sought to get rid of categories of material culture. This would be a pointless exercise: archaeology – like any analytical discipline – needs categories, and some items of material culture did achieve what we have called 'category-ness' in the past. The problem is that this state of category-ness has come to be regarded as a platonic *being*, which escapes the contingencies of becoming. As a result of this disconnection from the world, the category also loses its agency in that world, and we are bound to fill our historical accounts with external, decision-making agents to explain what happened to the category. Following such a line, sigillata's production needs to be explained as a conscious economic decision, its spread becomes the hallmark of the agency of traders or the army, and its consumption evokes conscious identity-building people.

Paying due regard to the *becoming* of sigillata as a category – on ANT terms – gives that category more rather than less of a role in our historical accounts, and stops us from having recourse to almost Macchiavelian strategies and agents. Through re-anchoring the category in the world and its practices, its dissociation from contingencies (who it was produced by, where, etc.) becomes an achievement, with particular consequences for the kinds of trajectories it can be engaged in. As such, sigillata as a category itself set certain conditions of possibility shaping its spread, reproduction and consumption; put differently, it acquired a specific kind of material agency.

ANT thus helps us ask a new question (how did sigillata emerge and stabilize as a category?), which in turn allows us to mobilize a different model of material agency and causality, and leads us to rewrite some well-established archaeological debates (e.g. the issues of competition and the structure of empire in Roman archaeology). It is time to situate discussions on ANT's potential for archaeology in real archaeological debates, as attempted by this paper. New models of (material) agency can only pay off when integrated with new historical narratives; and the other way round – we cannot make new historical narratives work without appropriate models of causality and distributed agency.

References

Alberti, B. & Y. Marshall, 2009. Animating archaeology: local theories and conceptually open-ended methodologies. *Cambridge Archaeological Journal* 19(3), 344-356.

Appadurai, A., 1986. Introduction: commodities and the politics of value, in *The Social Life of Things. Commodities in Cultural Perspective*, ed. A. Appadurai. Cambridge: Cambridge University Press, 1-63.

Bémont, C. & G. Rogers, 1978. *Libertus* (ou *Liberti* ?). I, Les premiers décors à estampilles. *Gallia* 36, 89-141.

Bémont, C. & G. Rogers, 1979. *Libertus* (ou *Liberti* ?). II, Le style aux graffites. *Gallia* 37, 141-200.

Bet, P., 1988. Groupes d'ateliers et potiers de Lezoux (Puy-de-Dôme) durant la période gallo-romaine. *SFECAG Actes du congrès d'Orange*, 221-241.

Bet, P., R. Delage & A. Vernhet, 1994. Lezoux et Millau: confrontation d'idées et de données. *SFECAG Actes du congrès de Millau*, 43-61.

Bet, P. & A. Delor, 2000. La typologie de la sigillée lisse de Lezoux et de la Gaule centrale du Haut-Empire. Révision décennale. *SFECAG Actes du congrès de Libourne*, 461-484.

Bet, P. & A. Delor, 2002. Les premiers ateliers céramiques de type méditerranéen en Auvergne, l'exemple des officines de sigillée, in *Vivre, produire et échanger: reflets méditerranéens. Mélanges offerts à Bernard Liou*, eds. L. Rivet & M. Sciallano. (Archéologie et histoire romaine 8.) Montagnac: Monique Mergoil, 235-242.

Bet, P., R. Gangloff & H. Vertet, 1987. *Les productions céramiques antiques de Lezoux et de la Gaule centrale à travers les collections du Musée archéologique de Lezoux*. Gonfaron: Association Française d'Archéologie Métropolitaine.

Bet, P. & D. Gras, 1999. Parois fines engobées et céramique métallescente de Lezoux, in *Céramiques engobées et métallescentes gallo-romaines. Actes du colloque organisé à Louvain-la-Neuve le 18 mars 1995*, eds. R. Brulet, R.P. Symonds & F. Vilvorder. (Rei Cretariae Romanae Fautorum Acta Supplementum 8.) Oxford: RCRF, 13-38.

Bet, P. & H. Vertet, 1986. Centre de production de Lezoux, in *La terre sigillée gallo-romaine. Lieux de production du Haut-Empire: implantations, produits, relations*, eds. C. Bémont & J.-P. Jacob. (Documents d'Archéologie Française 6.) Paris: Editions de la Maison des sciences de l'homme, 138-144.

Bird, J., 2013. Samian in religious and funerary contexts. A question of choice, in *Seeing Red. New Economic and Social Perspectives on Gallo-Roman* Terra Sigillata, eds. M. Fulford & E. Durham. (Bulletin of the Institute of Classical Studies Supplement 102.) London: Institute of Classical Studies, 326-339.

Boast, R., 1997. A small company of actors. A critique of style. *Journal of Material Culture* 2, 173-198.

Bocquet, A., 1999. La production et la distribution des céramiques fines engobées et métallescentes dans le nord de la Gaule: approche minéralogique et géochimique, in *Céramiques engobées et métallescentes gallo-romaines. Actes du colloque organisé à Louvain-la-Neuve le 18 mars 1995*, eds. R. Brulet, R.P. Symonds & F. Vilvorder. (Rei Cretariae Romanae Fautorum Acta Supplementum 8.) Oxford: RCRF, 129-286.

Brulet, R., R.P. Symonds & F. Vilvorder (eds.), 1999. *Céramiques engobées et métallescentes gallo-romaines. Actes du colloque organisé à Louvain-la-Neuve le 18 mars 1995*. (Rei Cretariae Romanae Fautorum Acta Supplementum 8.) Oxford: RCRF.

Brulet, R., F. Vilvorder & R. Delage (eds.), 2010. *La céramique romaine en Gaule du Nord. Dictionnaire des céramiques. La vaisselle à large diffusion*. Turnhout: Brepols.

Chuniaud, K., 2002. Le groupe des ateliers de potiers de Ligonnes à Lezoux (Puy-de-Dôme). Un champ d'étude pour les questions relatives à l'organisation de la production céramique en Gaule romaine, in *Vivre, produire et échanger. Reflets méditerranéens. Mélanges offerts à Bernard Liou*, eds. L. Rivet & M. Sciallano. (Archéologie et histoire romaine 8.) Montagnac: Monique Mergoil, 243-248.

Clark, A., 2008. Where brain, body and world collide, in *Material Agency. Towards a Non-Anthropocentric Approach*, eds. C. Knappett & L. Malafouris. New York: Springer, 1-18.

Cool, H.E.M. & R.S. Leary, 2012. Aspects of the use of samian pottery in Romano-British funerary practices, in *Dating and Intepreting the Past in the Western Roman Empire. Essays in Honour of Brenda Dickinson*, ed. D. Bird. Oxford: Oxbow, 305-318.

Delage, R., 1998. Première approche de la diffusion des céramiques sigillées du centre de la Gaule en occident romain. *SFECAG Actes du congrès d'Istres*, 271-313.

Delage, R., 2004. L'écrit en "représentation": les marques de grand format au sein des décors sur sigillée du Centre de la Gaule. *Gallia* 61, 145-152.

DeLanda, M., 2006. *A New Philosophy of Society. Assemblage Theory and Social Complexity*. London: Continuum.

Deleuze, G. & F. Guattari, 2004. *A Thousand Plateaus: Capitalism and Schizophrenia*. London: Continuum.

Desbat, A., M. Genin & J. Lasfargues (eds.), 1996. Les productions des ateliers de potiers antiques de Lyon, 1ère partie. Les ateliers précoces. *Gallia* 53, 1-249.

Dolwick, J.S., 2009. 'The social' and beyond. Introducing Actor-Network Theory. *Journal of Maritime Archaeology* 4, 21-49.

Flyvbjerg, B., 2001. *Making Social Science Matter. Why Social Inquiry Fails and How it Can Succeed Again*. Cambridge: Cambridge University Press.

Foster, R.J., 2006. Tracking globalization: commodities and value in motion, in *Handbook of Material Culture*, eds. C. Tilley *et al.* London: SAGE, 285-302.

Foucault, M., 1977. Nietzsche, genealogy, history, in *Language, Counter-Memory, Practice. Selected Essays and Interviews*, ed. D.F. Bouchard. Ithaca (NY): Cornell University Press, 139-164.

Fulford, M., 1977. The location of Romano-British pottery kilns. Institutional trade and the market, in *Roman Pottery Studies in Britain and Beyond. Papers Presented to John Gillam, July 1977*, eds. J. Dore & K. Greene. (BAR Supplementary Series 30.) Oxford: British Archaeological Reports, 301-316.

Fulford, M. & E. Durham (eds.), 2013. *Seeing Red. New Economic and Social Perspectives on Gallo-Roman* Terra Sigillata. (Bulletin of the Institute of Classical Studies Supplement 102.) London: Institute of Classical Studies.

Genin, M., B. Hoffmann & A. Vernhet, 2002. Les productions anciennes de la Graufesenque, in *Céramiques de la Graufesenque et autres productions d'époque romaine: nouvelles recherches. Hommages à Bettina Hoffmann*, eds. M. Genin & A. Vernhet. (Archéologie et histoire romaine 7.) Montagnac: Monique Mergoil, 45-104.

González-Ruibal, A. (ed.), 2013. *Reclaiming Archaeology. Beyond the Tropes of Modernity*. London: Routledge.

Gosden, C., 2005. What do objects want?. *Journal of Archaeological Method and Theory* 12(3), 193-211.

Greene, K., 1992. *Roman Pottery*. Berkeley-Los Angeles (CA): University of California Press.

Harris, M., 1976. History and significance of the emic/etic distinction. *Annual Review of Anthropology* 5, 329-350.

Harris, O.J.T., 2012. (Re)assembling communities. *Journal of Archaeological Method and Theory*, published online.

Harris, W.V., 1993. Between archaic and modern. Some current problems in the history of the Roman economy, in *The Inscribed Economy. Production and Distribution in the Roman Empire in the Light of* Instrumentum Domesticum, ed. W.V. Harris. *(*JRA Supplementary Series 6.) Ann Arbor (MI): University of Michigan, 11-29.

Hartley, B.R., 1977. Some wandering potters, in *Roman Pottery Studies in Britain and Beyond. Papers Presented to John Gillam, July 1977*, eds. J. Dore & K. Greene. (BAR Supplementary Series 30.) Oxford: British Archaeological Reports, 251-261.

Hartley, B.R. & B.M. Dickinson (eds.), 2008. *Names on Terra Sigillata. An Index of Makers' Stamps and Signatures on Gallo-Roman Terra Sigillata (Samian Ware), 9 vols*. London: Institute of Classical Studies, University of London.

Hicks, D., 2010. The material-culture turn: event and effect, in *The Oxford Handbook of Material Culture Studies*, eds. D. Hicks & M.C. Beaudry. Oxford: Oxford University Press, 25-98.

Hicks, D. & M.C. Beaudry (eds.), 2010. *The Oxford Handbook of Material Culture Studies*. Oxford: Oxford University Press.

Hodder, I., 1982. Theoretical archaeology: a reactionary view, in *Symbolic and Structural Archaeology*, ed. I. Hodder. Cambridge: Cambridge University Press, 1-16.

Hodder, I., 2012. *Entangled. An Archaeology of the Relationships between Humans and Things*. Malden (MA)-Oxford: Wiley-Blackwell.

Hull, M.R., 1963. *The Roman Potters' Kilns of Colchester*. Oxford: Oxford University Press.

Ingold, T., 2008. When ANT meets SPIDER. Social theory for arthropods, in *Material Agency. Towards a Non-Anthropocentric Approach*, eds. C. Knappett & L. Malafouris. New York: Springer, 209-215.

Ingold, T., 2011. *Being Alive. Essays on Movement, Knowledge and Description*. London: Routledge.

Jervis, B., 2011. A patchwork of people, pots and places. Material engagements and the construction of 'the social' in Hamwic (Anglo-Saxon Southampton), UK. *Journal of Social Archaeology* 11(3), 239-265.

Johnson, M., 2010[2]. *Archaeological Theory: an Introduction*. Oxford: Wiley-Blackwell.

Knappett, C., 2005. *Thinking through Material Culture. An Interdisciplinary Perspective*. Philadelphia (PA): University of Pennsylvania Press.

Knappett, C., 2011. *An Archaeology of Interaction. Network Perspectives on Material Culture and Society*. Oxford: Oxford University Press.

Knappett, C. & L. Malafouris, 2008. Material and non-human agency: an introduction: in *Material Agency. Towards a Non-Anthropocentric Approach*, eds. C. Knappett & L. Malafouris. New York: Springer, ix-xix.

Kopytoff, I., 1986. The cultural biography of things. Commoditization as a process, in *The Social Life of Things. Commodities in Cultural Perspective*, ed. A. Appadurai. Cambridge: Cambridge University Press, 64-91.

Latour, B., 1987. *Science in Action. How to Follow Scientists and Engineers through Society*. Cambridge (MA): Harvard University Press.

Latour, B., 1988. *The Pasteurization of France*. Cambridge (MA): Harvard University Press.

Latour, B., 1991. Technology is society made durable, in *A Sociology of Monsters. Essays on Power, Technology, and Domination*, ed. J. Law. (Sociological Review Monograph 38.) London: Routledge, 103-131.

Latour, B., 1999. *Pandora's Hope. Essays on the Reality of Science Studies*. Cambridge (MA): Harvard University Press.

Latour, B., 2005. *Reassembling the Social. An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

Latour, B., G. Harman & P. Erdélyi, 2011. *The Prince and the Wolf. Latour and Harman at the LSE*. Winchester-Washington (DC): Zero Books.

Latour, B. & S. Woolgar, 1979. *Laboratory Life. The Construction of Scientific Facts*. Beverly Hills-London: SAGE.

Law, J., 1986. On the methods of long distance control. Vessels, navigation and the Portuguese route to India, in *Power, Action and Belief. A New Sociology of Knowledge?*, ed. J. Law. (Sociological Review Monograph 32.) London: Routledge & Kegan Paul, 234-263.

Law, J., 2010. The materials of STS, in *The Oxford Handbook of Material Culture Studies*, eds. D. Hicks & M.C. Beaudry. Oxford: Oxford University Press, 173-188.

Law, J. & A. Mol, 2008. The actor-enacted. Cumbrian sheep in 2001, in *Material Agency. Towards a Non-Anthropocentric Approach*, eds. C. Knappett & L. Malafouris. New York: Springer, 57-77.

Law, J. & V. Singleton, 2005. Object lessons. *Organization* 12(3), 331-355.

Malafouris, L., 2013. *How Things Shape the Mind. A Theory of Material Engagement*. Cambridge (MA)-London: The MIT Press.

Marsh, G., 1981. London's samian supply and its relationship to the development of the Gallic samian industry, in *Roman Pottery Research in Britain and North-West Europe. Papers Presented to Graham Webster. Part I*, eds. A.C. Anderson & A.S. Anderson. (BAR International Series 123(i).) Oxford: British Archaeological Reports, 173-238.

Mennessier-Jouannet, C., 1991. Un four de potier de La Tène Finale à Lezoux (Puy-de-Dôme). *Revue archéologique du Centre de la France* 30, 113-126.

Middleton, P., 1979. Army supply in Roman Gaul. An hypothesis for Roman Britain, in *Invasion and Response. The Case of Roman Britain*, eds. B.C. Burnham & H. Johnson. (BAR British Series 73.) Oxford: British Archaeological Reports, 81-97.

Middleton, P., 1980. La Graufesenque: a question of marketing. *Athenaeum* 58, 186-191.

Middleton, P., 1983. The Roman army and long distance trade, in *Trade and Famine in Classical Antiquity*, eds. P. Garnsey & C.R. Whittaker. (Proceedings of the Cambridge Philological Society Supplement 8.) Cambridge: Cambridge Philological Society, 75-83.

Miller, D., 1985. *Artefacts as Categories. A Study of Ceramic Variability in Central India*. Cambridge: Cambridge University Press.

Miller, D., 2002. Coca-Cola. A black sweet drink from Trinidad, in *The Material Culture Reader*, ed. R. Buchli. Oxford: Berg, 245-263.

Miller, D. & S. Woodward, 2007. Manifesto for a study of denim. *Social Anthropology* 15(3), 335-351.

Mol, A., 2002. *The Body Multiple. Ontology in Medical Practice*. Durham (NC)-London: Duke University Press.

Mol, A. & J. Law, 2005. Guest editorial. Boundary variations: an Introduction. *Environment and Planning D. Society and Space* 23, 637-642.

Monteil, G., 2012. The sizes of samian vessels and dining. Evidence from Roman London, in *Dating and Intepreting the Past in the Western Roman Empire. Essays in Honour of Brenda Dickinson*, ed. D. Bird. Oxford: Oxbow, 330-345.

Normark, J., 2010. Involutions of materiality. Operationalizing a neo-materialist perspective through the causeways at Ichmul and Yo'okop. *Journal of Archaeological Method and Theory* 17, 132-173.

Olsen, B., 2007. Keeping things at arm's length. A genealogy of asymmetry. *World Archaeology* 39(4), 579-588.

Olsen, B. *et al.*, 2012. *Archaeology. The Discipline of Things*. Berkeley: University of California Press.

Peacock, D.P.S., 1982. *Pottery in the Roman World. An Ethnoarchaeological Approach*. London: Longman.

Perring, D., 2002. *Town and Country in England. Frameworks for Archaeological Research*. (CBA Research Report 134.) York: Council for British Archaeology.

Picon, M., 1973. *Introduction à l'étude technique des céramiques sigillées de Lezoux*. (Université de Dijon. Faculté des sciences humaines, Centre des recherches sur techniques gréco-romaines 2.) Lyon: Presses de l'imprimerie universitaire.

Picon, M., 2002. A propos des sigillées, présigillées et imitations des sigillées. Questions de "coûts" et de marchés. *SFECAG, Actes du congrès de Bayeux*, 345-356.

Picon, M. & H. Vertet, 1970. La composition des premières sigillées de Lezoux et le problème des céramiques calcaires. *Revue archéologique de l'Est et du Centre-Est* 21, 207-218.

Picon, M., M. Vichy & E. Meille, 1971. Composition of the Lezoux, Lyon and Arezzo samian ware. *Archaeometry* 13(2), 191-208.

Pucci, G., 1983. Pottery and trade in the Roman period, in *Trade in the Ancient Economy*, eds. P. Garnsey, K. Hopkins & C.R. Whittaker. London: Chatto and Windus, 105-117.

Shanks, M., 2007. Symmetrical archaeology. *World Archaeology* 39(4), 589-596.

Simpson, G., 1952. The Aldgate potter. A maker of Romano-British samian ware. *Journal of Roman Studies* 42, 68-71.

Simpson, G., 1957. Metallic black slip vessels from Central Gaul with applied and moulded decoration. *The Antiquaries Journal* 37, 29-42.

Swan, V.G., 1984. *The Pottery Kilns of Roman Britain*. (Royal Commission on Historical Monuments Supplementary Series 5.) London: HMSO.

Symonds, R.P., 1992. *Rhenish Wares. Fine Dark Coloured Pottery From Gaul and Germany*. (Oxford University Committee for Archaeology 23.) Oxford: Oxford University Committee for Archaeology.

Tilley, C. *et al.* (eds.), 2006. *Handbook of Material Culture*. London: SAGE.

Tyers, P., 1996. *Roman Pottery in Britain*. London: Batsford.

Van Oyen, A., 2013a. Towards a postcolonial artefact analysis. *Archaeological Dialogues* 20(1), 79-105.

Van Oyen, A., 2013b. *Rethinking Terra Sigillata. An Archaeological Application of Actor-Network Theory*. Unpublished Ph.D. dissertation: University of Cambridge.

Van Oyen, A., forthcoming (a). Networks or work-nets? Actor-Network Theory and multiple social topologies in the production of Roman *terra sigillata*, in *The Connected Past. Networks in Archaeology and History*, eds. T. Brughmans, A. Collar & F. Coward. Oxford: Oxford University Press.

Van Oyen, A., forthcoming (b). Les acteurs-réseaux en archéologie: état des choses et perspectives futures, in *Les réseaux en archéologie*, ed. C. Knappett. (Special issue of *Nouvelles de l'archéologie*.)

Vernhet, A., 1976. Création flavienne de six services de vaisselle à la Graufesenque. *Figlina* 1, 13-27.

Vertet, H., 1967. Céramique sigillée tibérienne à Lezoux. *Revue archéologique* 2, 255-286.

Vertet, H., 1968. Influence des céramiques italiques sur les ateliers arvernes au début du Ier siècle. *Revue archéologique du centre* 7(1), 25-34.

Wallace-Hadrill, A., 2008. *Rome's Cultural Revolution*. Cambridge: Cambridge University Press.

Watts, C. (ed.), 2013. *Relational Archaeologies. Humans, Animals, Things*. London: Routledge.

Webmoor, T. & C.L. Witmore, 2008. Things are us! A commentary on human/things relations under the banner of a 'social' archaeology. *Norwegian Archaeological Review* 41(1), 53-70.

P. Webster (1975) More British samian ware by the Aldgate-Pulborough potter, *Britannia* 4, 163-170.

Wells, C.M., 1990. "Imitations" and the spread of sigillata manufacture, in *Conspectus Formarum Terrae Sigillatae Italico Modo Confectae*, eds. E. Ettlinger *et al.* Bonn: Habelt, 24-25.

Wells, C.M., 1992. Pottery manufacture and military supply north of the Alps. *Rei Cretariae Romanae Fautorum Acta* 31-32, 195-205.

P. Whitridge (2004) Whales, harpoons, and other actors. Actor-Network Theory and hunter-gatherer archaeology, in *Hunters and Gatherers in Theory and Archaeology*, ed. G.M. Crothers. (Occasional Paper 31.) Carbondale (IL): Center for Archaeological Investigations Southern Illinois University, 445-474.

Wickenden, N.P., 1988. *Excavations at Great Dunmow, Essex. A Romano-British Small Town in the Trinovantian Civitas*. Chelmsford: Essex County Council.

Willis, S., 1998. Samian pottery in Britain. Exploring its distribution and archaeological potential. *The Archaeological Journal* 155, 82-133.

Willis, S., 2005. *Samian Pottery, a Resource for the Study of Roman Britain and Beyond. The Results of the English Heritage Funded Samian Project. An E-Monograph*. Internet Archaeology: http://intarch.ac.uk/journal/issue17/1/toc.html.

Willis, S. & R. Hingley, 2007. Roman finds. Context and theory, in *Roman Finds. Context and Theory. Proceedings of a Conference held at the University of Durham, July 2002*, eds. R. Hingley & S. Willis. Oxford: Oxbow, 2-17.

Woolf, G., 1998. *Becoming Roman. The Origins of Provincial Civilization in Gaul*. Cambridge: Cambridge University Press.

Biographical note

Astrid Van Oyen is a Junior Research Fellow at Homerton College, University of
Cambridge. Having studied archaeology at the Universities of Leuven (Belgium) and
Aix-Marseille I (France), she completed her Ph.D. research at Cambridge on
'Rethinking terra sigillata: an archaeological application of Actor-Network Theory'.
She is currently developing a project on the materiality of storage practices in the
Roman empire.

[1] A more extended version of the arguments presented here will be part of a monograph (in preparation), with the working title *Material Culture and Empire: Rethinking the category of terra sigillata*.

[2] On how this is different from the 'network' in Social Network Analysis, see Van Oyen forthcoming (a).

[3] We will not discuss applications of ANT to rethink archaeological practice in the present (e.g. symmetrical archaeology: Olsen 2007; Olsen *et al.* 2012 ; Shanks 2007; Webmoor et Witmore 2008). See Van Oyen (forthcoming (b)) for an encompassing review of ANT's impact on archaeology.

[4] The case of the 'Aldgate-Pulborough' potter (Simpson 1952; Webster 1975) will not be discussed, as too little evidence is available.

[5] To repeat, East Gaulish sigillata production was not defined as a category, and had a different, multimodal production landscape.

[6] More formal work on 'services' has been done, either typologically (Vernhet 1976) or based on volume and function (Monteil 2012).