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Caroline Fredriksen

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A Realm of Virtual Knowledge: Exploring the Capacities of Norwegian Metal-detected Assemblages

CAROLINE FREDRIKSEN

This paper explores the knowledge potential of the Norwegian metal-detected assemblage through the conceptual framework of assemblage thinking. Drawing on the concepts of the *actual/virtual*, *affect* and *coding*, combined with the actor-network theory (ANT) notion of *inscriptions*, I discuss the metal-detected assemblage's realm of potential for new archaeological knowledge. I identify and articulate the constituents of the Norwegian metal-detected assemblage, identifying inscriptions and coding mechanisms affecting the phenomenon of metal detecting in the present, such as policies, management practices and cataloguing. Further, I discuss how these practices frame specific types of objectives, constituting and affecting the *virtual diagram* of the particular assemblage. In conclusion, Norwegian archaeological practices enable specific types of objectives, actualising specific types of knowledge.

INTRODUCTION

This paper focuses on *potential*, the not-yet actualised capacities of a particular archaeological assemblage and its potential for future archaeological knowledge. The assemblage in question is gathered by Norwegian hobby metal detectorists and consists of recorded archaeological objects primarily found in the plough zone on arable land. In March 2022, almost 17,000 metal objects found by non-archaeologists were recorded in the five regional databases administrated by the Norwegian university museums (Axelsen and Fredriksen in prep).[1]

Since the 1990s, hobby metal detecting for archaeological objects has increased in popularity throughout Europe. Legal and policy approaches towards the hobby vary immensely, ranging from liberal to highly restrictive. Across jurisdictions, professional attitudes towards the hobby are just as diverse (Dobat *et al.* 2020, p. 272, see also Dobat and Jensen 2016, Karl 2016, Lecroere 2016, Lewis 2016, Yáñez 2016). Suzie Thomas (2016) has noted how research efforts across Europe have different focuses when targeting metal detecting–related subjects, resulting in speculation and overlooking the transnational aspects of the topic. A recurring theme in the Norwegian discussion on hobby metal detecting has been the management issues concerning sites in the plough zone and whether plough zone assemblages represent *automatically protected sites* (Fredriksen 2019, see also Gundersen *et al.* 2016, Gundersen 2019).[2]

Caroline Fredriksen, Department of Archaeology and Cultural History, NTNU University Museum, Erling Skakkes gate 47b, 7491 Trondheim. E-mail: caroline.fredriksen@ntnu.no

Internationally, a growing body of scholarly work has demonstrated that metal-detected assemblages could constitute meaningful archaeological signatures and provide information on the character of a site (Dobat *et al*. 2020, p. 279, see, e.g. Hadley and Richards 2018, Christiansen 2019). Within the Norwegian context, such studies are yet to be carried out. As each country manages metal detecting differently, results and experiences from other countries may not necessarily be transferable to the Norwegian case. In Britain, for example, various biases affecting spatial distribution are thoroughly understood from work on the Portable Antiquities Scheme (Dobat *et al*. 2020, p. 279). For the Norwegian record, spatial distribution is extensively biased by both varying recording practices and few very prolific detectorists (Axelsen and Fredriksen in prep).

This article explores the knowledge potential of the Norwegian metal-detected record. I define archaeological knowledge as the act of creating past narratives through engaging with things emerging through archaeological practice (Lucas 2012, Fowler 2013a). Influenced by socio-material ontologies such as *assemblage thinking* and *actor-network theory* (ANT), this view emphasises how archaeologists, heritage management and our present-day practices affect the past narratives we discover, research and narrate. The realm of potential knowledge that archaeological assemblages might produce is structured within their *virtual diagrams*, coded by the present-day practices assembled alongside them, including policies, cataloguing and typology. In the following, I set out to identify the actual constituents of the Norwegian metal-detected assemblage, discussing how they structure the virtual diagram for potential knowledge. My approach aims for a holistic consideration of how the way we do archaeology, in this case exemplified by how Norwegian archaeologists manage hobby metal detecting, shapes the potential for new archaeological knowledge.

CONCEPTUALISING POTENTIAL WITH ASSEMBLAGE THINKING

My conceptual framework draws on the world views and analytical tools of two somewhat similar, yet not equivalent, conceptual approaches – assemblage thinking (e.g. Deleuze and Guattari 1994, 2009, 2013, DeLanda 2006, 2016) and ANT (e.g. Callon 1986, Latour 1987, 1999, 2005, Law and Hassard 1999, Law 2009). I mainly focus on assemblage thinking, borrowing the concept of *inscriptions from* ANT. Assemblage thinking is best described as a set of ideas and tools which can be used to critique and re-conceptualise our conventional frames for understanding, such as *structure, identity, representation* and *power* (Jervis 2019, p. 1). The applicability of assemblage thinking to archaeology has been discussed from different perspectives (e.g. Lucas 2012, Jones and Alberti 2013, Fowler 2013a, 2013b, Hamilakis and Jones 2017, Harris 2017, Jervis 2019). *Flow* is at the core of assemblage thinking – apparent entities are fluid, dynamic multiplicities, where temporary gatherings are brought together through productive processes of *territorialisation* (Jervis 2019, p. 38).[3] Through processes of *de-territorialisation*, assemblages affect each other across time, scale and space, and through *re-territorialisation*, components become part of other assemblages (Jervis 2019, p. 38).

This understanding is fairly different from the conventional archaeological understanding of the concept of assemblage, which emphasises either material similarities within groups of things or spatial [context] and chronological co-presence (Hamilakis and Jones 2017, p. 80). The understanding of *assemblage*, which is discussed here, contrasts with the archaeological concept of *context*: The context is a static entity framing action, while assemblages are dynamic and affective ongoing processes (Jones and Alberti 2013, p. 28). Within this perspective, archaeological assemblages are gatherings of objects, practices and ideas, and archaeological practices are situated within these dynamic assemblages (e.g. Lucas 2012, Fowler 2013a). Assemblage thinking requires a somewhat challenging shift of perspective – from seeing the world as composed of objects and substances where archaeological features possess some form of essence, to a world composed of events and processes in which archaeological features are ongoing processes of composition (Jervis 2019, p. 37). In other words, a static past reality is not revealed through things by the 'right' methods – potential past realitie*s* are actualised through archaeological practices. Which potentials are actualised, and which are not, depends on multiple phenomena.

Focusing on the actual, ANT is best described as a set of methods that seeks to reach understanding through description (e. g. Latour 2005). A core focus of ANT is to demonstrate how knowledge is produced through associations between human and non-human entities, tracing the connections by which associations are built (Law and Hassard 1999, Müller and Schurr 2016, p. 218). One of the key differences between ANT and assemblage thinking lies in the concept of *agency*. ANT sees agency as distributed through associations between the collective of actants, while within assemblage thought, agency is not a critical concept. Assemblage thinking is, however, concerned with *affect*. Affect is both the generator and effect of action – that is, the means through which assemblages gather (or *territorialise*): 'affects are *beings* whose validity lies in themselves and exceeds any lived' (Deleuze and Guattari 1994, p. 164). Affect emerges through relations within assemblages and is not necessarily a capacity within a single actant.

An advantage of ANT is its toolbox of concepts to understand *science in action* (e.g. Latour 1987, Law and Hassard 1999). For exploring the knowledge potential of the metal-detected record, the ANT notion of the *translation process* is fit to precisely describe the discursive processes leading up to the *status quo* of the Norwegian metal-detected record (for a discussion on the process leading to the Norwegian guidelines for metal detecting, see Fredriksen 2019). *Inscriptions* are physical devices or documents serving to direct the translation process in a desired direction (e.g. Latour 1987, pp. 64–68, Callon 1990). From an assemblage point of view, these processes may be described as *coding* and *stratification*. Coding encompasses the processes in which flows are given order: 'Coding refers to the role played by special expressive components in an assemblage in fixing the identity of a whole' (DeLanda 2016, p. 22). This might occur through any sort of process, for instance, from the imposition of rules and regulations (Jervis 2019, p. 38). Stratification is the process of creating particular entities, a process through which flows are sorted. According to DeLanda (2016), strata are strongly coded assemblages. Seeing types of assemblages as a spectrum, strata sit on one end, which stretches to the opposite, the plane of unformed and uncoded flows (Jervis 2019, p. 41).

Assemblage thought is useful for revealing the processes through which potential emerges and becomes actualised, creating new entities (Jervis 2019, p. 70). The advantage of assemblage thinking over an ANT analysis of scientific translation is its emphasis on the *virtual*. The virtual represents the realm of potential, the capacities that form part of all assemblages. It contrasts the *actual*, the empirically available world (Harris 2018, p. 163). The virtual is just as real as the actual: it is the realm of potentials immanent to all assemblages. The virtual is particular and structured, and this structuring is called the *virtual diagram*: 'the diagram captures the structure of the space of possibilities associated with an assemblage's variable components' (DeLanda 2016, p. 130). What an assemblage can potentially do is shaped by the range of elements within the assemblage (Harris 2018, p. 163).

In the following, I combine the ANT concept of *inscriptions* with the assemblage concepts of *coding, affect* and the *virtual/actual*. Focusing on the knowledge potential in metal-detected assemblages, these concepts do two things: First, identifying *inscriptions* helps to highlight the *actual* coding processes structuring the virtual capacities of the assemblage. Second, the concepts of *affect* and the *virtual* help to assess which potentials might become actualised. In this view, actual *realities* emerge (territorialise) through relations, thus generating affects and virtual diagrams.

THE NORWEGIAN METAL-DETECTED RECORD: WHAT CONSTITUTES THE ASSEMBLAGE WE ARE DEALING WITH?

What makes the metal-detected record different from the remaining archaeological record? To understand the capacities we are dealing with, we must first briefly untangle the key constituents of the Norwegian metal-detected assemblage, which includes the constituents making it specifically *Norwegian* and the constituents separating a *metal-detected assemblage* from *other archaeological assemblages*. As archaeologists, we are constantly dealing with changing assemblages (Lucas 2013, p. 369). For metal-detected objects to become archaeological data, they need interpretation: They must first be recognised as archaeological by detectorists, then by the heritage management and then confirmed as archaeological to be described and recorded. Objects are entangled through a whole range of assemblages from the moment they are found until they become records available for researchers. Once recorded, objects have reached a purified state as numerous tiny *black boxes* in a recording scheme. In the Norwegian finds databases, it is not even a straightforward operation to separate metal-detected records from other records (Axelsen 2022, p. 307).

Although the European discussion on hobby metal detecting recently seems to have been silenced with the emergence of collaborative recording schemes (for an overview of publicly accessible recording schemes, see Dobat *et al*. 2020), the topic has been controversial across borders, depending on national policies and personal attitudes towards the hobby (for examples from countries where metal detecting is controversial see, e.g. Lecroere 2016, Temiño 2016). From an assemblage point of view, such controversies aggregated simultaneously with increasing numbers of metal-detected finds. When studying a metal-detected object, one is therefore not only studying an object of the past but an assemblage including a set of phenomena that have generated discourse in the archaeological community:

- a technology (the metal detector)
- a method (metal detecting)
- non-archaeologists (detectorists)
- the plough zone (the disturbed context)

These phenomena are recurring in the international discussion, where recent publications emphasise the *citizen science* aspect of metal detecting (e.g. Wessman *et al*. 2019, Dobat *et al*. 2020). By comparison, the issue of the plough zone might be the most prominent discussion topic in Norway, affecting policies regarding metal detecting (for a review on the Norwegian discussion, see Fredriksen 2019). From the Norwegian point of view, the plough zone has generated significant management issues concerning the recognition of *automatically protected sites*. Sites older than 1537 are automatically protected by law, whether or not they have been recorded by heritage authorities. *The Act Concerning Cultural Heritage* (NCHA) states that it is illegal to initiate any activity liable to damage or disturb an automatically protected site or create a risk of this happening (Lov om kulturminner 1978, section 3). Metal detecting is prohibited once the presence of a site is suspected, including the plough zone. The section makes an exception for farming, as farming is usually allowed to continue even when a protected site is recognised. The combination of substantial rights for farmers and the concept of *in situ* preservation as a 'best practice' constitutes a paradox in Norwegian heritage management, which is questioned by both researchers and detectorists (for a discussion of the compatibility of hobbyist metal detecting with the concept of automatically protected sites, see Gundersen 2019).

Multiple contemporary factors affect both numbers and the spatial patterns of finds, such as detectorist demography, differing recording policies across counties and agricultural density (see Fredriksen 2019, Axelsen and Fredriksen in prep). The Norwegian metal-detected record is modest compared to other 'liberal' countries such as Denmark, England and Wales.[4] In practice, the inscription *NCHA* (Lov om kulturminner 1978) combined with *Guidelines for metal detecting*[5] (Riksantikvaren 2017) and *Guidelines for finder's fees*[6] (Riksantikvaren 2019) limit the number of objects detectorists can collect from a single site, as sites labelled 'automatically protected' or 'unresolved' should be avoided, including the plough zone. When an *unspecified* number of objects *indicates* an automatically protected site, detectorists are advised to avoid searching within a 25-metre radius from recorded find spots (Riksantikvaren 2017, p. 3). The protection status of metal-detected sites recorded in the site-database *Askeladden* complicates the picture, as it dictates how detectorists should act around findspots. The site labels in *Askeladden* are to be understood as inscriptions alongside the guidelines, as they lead to particular behaviour around findspots (Fig. 1). The unclear definition of when a findspot constitutes an actual protected site results in different recording practices across county boundaries (e.g. Maixner 2015). In theory, detectorists have more freedom to return to find-rich fields in counties where find spots are principally labelled as 'not protected' or 'removed'. On the other hand, in counties that prefer to label findspots as 'automatically protected' or 'unresolved', detectorists are obliged to find new fields. These differing practices, combined with the effects of detectorist demography, population and agricultural density, are reflected in the uneven spatial distribution of metal-detected finds (Fredriksen 2019, Axelsen and Fredriksen in prep).

Multiple phenomena constitute specific virtual capacities for the Norwegian metal-detected assemblage, which separate it from other countries' assemblages and partly also the archaeological record at large. For example, the assemblage only includes objects predating 1537 (and coins predating 1650). Advising metal detecting in the plough zone only makes this the most common find-circumstance in Norway. In addition, the legislative emphasis on *in situ* protection combined with unclear policies regarding the plough zone affect the empirical foundation of finds. This applies both to individual sites and the national scale and creates spatial find patterns affected by present policies and not past activities. Defining *automatically protected sites* in the plough zone is a process of stratification, creating strongly coded assemblages based on the idea that objects represent archaeological sites. These strata affect further engagement, such as collecting more empirical data from the site (as discussed by Maixner 2015).

The close relationship between heritage management and archaeological research in Norway is visible through the discussion on metal detecting, as specific terms are used interchangeably (Fredriksen 2019). For example, the legal term *løse kulturminner* is used when discussing research potential (Maixner 2015, Martens and Ravn 2016). Similarly, *fixed archaeological structures* are used synonymously with *automatically*

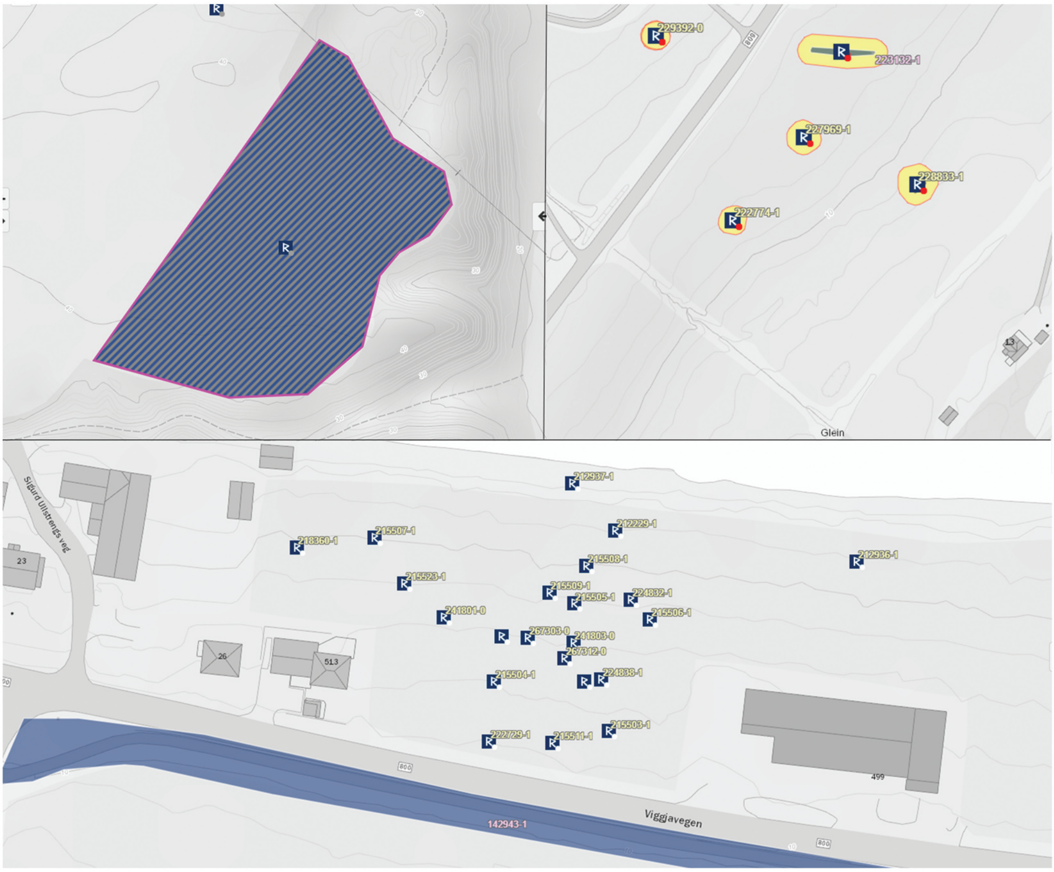

Fig. 1. *Examples of site labels and site geometries in Askeladden. Upper left: An 'unresolved' site in Verdal, Trøndelag. Upper right: 'Automatically protected' find spots in Dønna, Nordland. Lower: 'Not protected' find spots with finds predating 1537 in Viggja, Trøndelag.*

protected sites in consultative statements regarding the guidelines for metal detecting, although the latter term covers a wider sense of sites (Fredriksen 2019). Against this backdrop, the strong focus on identifying automatically protected sites arguably affects the research questions proposed by Norwegian archaeologists concerning metal-detected assemblages. To illustrate this, one might look at recent Norwegian studies on specific detector sites, which aimed to establish context through ground penetrating radar (GPR) surveys. These surveys stress establishing relations between plough zone finds and structures *in situ* (e.g. Stamnes 2017, Tonning *et al*. 2017, Fredriksen and Stamnes 2019, Gustavsen *et al*. 2019, Sand-Eriksen *et al*. 2020). Results fluctuate, and a recent survey suggests that metal-rich sites only serve as an indicator that preserved structures might be found nearby, not necessarily within the metal-rich area. Therefore, metal objects in the plough zone are no guarantee of the presence of preserved archaeological entities near the findspots (Sand-Eriksen *et al*. 2020, pp. 91–92).

Once recorded in the databases, the sense of all the components that constitute the phenomenon *metal detecting* largely become invisible. Through the cataloguing process, metal-detected objects reach a purified state. Recent studies include them in catalogues among other objects found in archaeological contexts (see Axelsen 2021, p. 92, examples include Amundsen 2021, Berg 2021, Røstad 2021, Pettersen 2022). As these studies show, metal-detected assemblages have the potential to shed light on cultural-historical objectives. However, considering spatial biases caused by detectorist demography and differing recording practices, the potential to carry out large-scale spatial analyses might be limited (for a discussion on the spatial differences of medieval coins from metal detecting contra archaeological excavations, see Gullbekk *et al.* 2019, Axelsen and Fredriksen in prep.).

DISCUSSION: ARCHAEOLOGICAL KNOWLEDGE POTENTIAL AND VIRTUAL DIAGRAMS

At this point, we can finally discuss *knowledge potential*. The Norwegian metal-detected assemblage is situated within a particular historical context – actual remnants of the past are assembled with actual people, policies, methods, knowledge and theories in the present. These elements affect the virtual capacities of the assemblage. An assemblage's virtual elements are historically specific – virtual diagrams exist in specific historical contexts and are shaped by specific histories of socio-material relations (Harris 2018, p. 164). Management practices for metal detecting in the Norwegian context are therefore not only actual elements within the metal-detected assemblage, but also part of the diagram which structures its virtual capacities.

From an assemblage perspective, the notion of *knowledge potential* equals the *virtual capacities* of the assemblage in question. How do virtual capacities transform into actual knowledge? One might think about the virtual in terms of solving a particular problem, which then finds its solution in the actual (Harris 2018, p. 163). Let us say, for example, that I'm cold; this is a problem which may be solved in many possible ways: I could buy a new jacket, knit a sweater or find a person to keep me warm. My range of capacities are, however, shaped by the range of elements in the assemblage I form with the range of elements around me: Can I afford to buy new clothes? Do I have the time and skills for knitting? Do I have a romantic partner? The capacities to solve the same problem might be different for another person within a different assemblage (for a similar argument, see Harris 2018). Similarly, solving problems within archaeology calls for finding solutions within the actual set of methodologies available for us in our specific historical context – for example, methodologies such as stratigraphy and typology target specific types of questions answering representational objectives, affecting virtual capacities and structuring virtual diagrams.

Archaeological objects are *actual* remains, products of shared virtual diagrams that produced them in the past. When discovered in the present, they de-territorialise and re-territorialise – components enter new assemblages, presenting them with new virtual diagrams. Archaeological records are more than material objects – objects become *extended objects* through their related descriptions, photographs, typologies, ideas and theories, as well as through their circulation in research (Fowler 2013b, p. 246). Through relations between material objects, archaeological practice and textual reproductions, objects are purified and entangled into the archaeological record and literature.

In a knowledge production context, the transformation process starts with objectives. Objectives are articulated by professionals situated within specific academic, historical, geographical and personal assemblages. As discussed above, there are several elements within the Norwegian metal-detected assemblage affecting which objectives are considered relevant. The central question for metal-detected assemblages from the plough zone within Norwegian heritage management – what they *represent* – is affected by the definition of *automatically protected sites*. The methods available to solve this particular question might involve archaeological excavation or geophysical surveys, in turn adding more components to the assemblage. What about the objects themselves? At the Norwegian university museums, the central problem is determining whether objects comply with the age criteria of the NCHA.[7] When found in the plough zone, typology is a suitable method for age determination.

CODING THROUGH TYPOLOGY

Typologies are vital to archaeological thinking and are considered a foundational aspect of the field. Fowler (2017, p. 95, paraphrasing Boozer 2015) highlights the 'tyranny' of typologies: 'it reduces or even "erases" differences, homogenising diversity among artefacts into rigid schemes'. As noted by Harris (2018, p. 162), typological thinking rests upon the notion of the 'ideal' type – static, closed off and essentialised beings. Marie Louise Stig Sørensen (2015) has called for renewed engagement with the use of types and typologies in archaeology. Sørensen calls for archaeologists to realise that the registration of object-similarities is neither banal nor a matter of obvious observation. Identifying object-similarities is a significant insight: 'it tells us about a dynamic played out at the human-object intersection' (Sørensen 2015, p. 90). Anna Severine Beck (2018) calls for awareness of the effects of the typological process: 'the risk is that the type will appear as an inherent quality of the object and typologisation as a neutral act rather than as an analytical entity and an interpretational process' (Beck 2018, p. 144). Through her example of the 'Trelleborg house', she demonstrates how the former use of types serves to describe the house as an architecturally uniform entity. She argues for describing the type as a collection of architectural components which may not have emerged as coherent events. Attributes do not necessarily follow the same tempi and scales, some may be exchanged, some might reappear and some can stay unchanged (Beck 2018). Beck's argument is transferable to the perception of archaeological objects – while types are useful for mapping the general development, assemblage thinking focuses on the processes involved in the development of tradition, styles and architecture (Beck 2018, p. 154–155).

It is beyond the scope of this paper to provide an in-depth discussion of the concept of typology (see Sørensen 1997, 2015). Typology is a heterogeneous gathering of thoughts and works from, among others, C. J. Thomsen and Oscar Montelius; this includes cultural-archaeological ideas of links between styles and cultures, its conceptual change to a pure classification tool in the 60s and 70s and its current application as a method for recognising objects (e.g. Trigger 2006, pp. 121–128, 223–232, 290–303). Here I would rather focus on its coding function in the cataloguing process, producing inscriptions that affect objects' virtual diagrams.

CODING GENERALISED AND UNIQUE TYPES

Typology is a routinely employed method that does not need explanation (Sørensen 2015, p. 88). In the cataloguing process at Norwegian university museums, typology is a crucial method for age determination, classification and the description of archaeological objects; it also plays a central part in deciding whether objects comply with the age criteria stated by the NCHA. Different types of finds may have different virtual diagrams. This might be illustrated through two types recorded in the Norwegian finds databases: a generalised type (conical brooches,

Fig. 2), and a unique type (the golden horse from Byneset, Fig. 3). I do not aim to provide new interpretations of these types here; instead, I aim to discuss how the coding process of cataloguing – producing inscriptions (catalogue texts) – affects the virtual diagrams for the objects in question differently, in turn enabling different potential objectives.

Metal detecting has contributed to a considerable increase in the number of conical brooches from the Merovingian period nationally, including areas where the type was formerly unknown (Table 1).[8] These are small round brooches cast in copper alloy or bronze, with ranging in diameter from c. 2 to 5.5 cm (Røstad 2021, p. 215). Conical brooches are the most frequently found brooch type from the first phase of the Merovingian period in Norway (Røstad 2021, p. 220). Ingunn Røstad (2021) includes 74 conical brooches in a recent study – 43 from grave finds, while the rest are principally stray finds. Since her data collection, the number of conical brooches has tripled due to metal detecting. These numbers alone potently demonstrate how metal detecting affects the

Fig. 3. *The golden horse from Byneset (catalogue number T26835). Photo: Åge Hojem, NTNU University Museum.*

Fig. 2. *Conical brooches. Left: Animal/Style II variant (catalogue number T18758:a); Right: Geometrical/North-of-the-mountains variant (catalogue number T27318). Photo: Jenny Kalseth, NTNU University Museum.*

empirical potential of types such as conical brooches. The type is now more common in areas where they were rare only a few years ago, such as in Rogaland County.

The type-assemblage *conical brooches from the Merovingian period* consists of specific characteristics, including shape, size and material, in addition to two main categories of style – either the *geometric* (former *north-of-the-mountains*) variant or the *animal style/style II* variant. Catalogue texts describing the brooches shown in Fig. 2 are articulated this way:

> Well-preserved conical brooch in copper alloy resembling Gjessing's north-of the mountains type (...). The brooch has geometric decoration in terms of concentric circles around the centre. The circles are organised in two sets. Both consist of a ring of short transverse stripes with two smooth closed circles on each side and a ring of triangles pointing towards the centre. The needle attachments are partly preserved. (Catalogue number T27318, translated by the author).

> Round, conical brooch in bronze with folded edge and circumferential engraved lines, one pair of which are connected by transverse lines. Between these and an upper line runs a circular series of dots. A wider band below is filled with 3 band-shaped, curved animal figures in style II. The frame at the top is empty. (...). (Catalogue number T18758:a, translated by the author).

Table 1. Numbers of conical brooches in the databases 04.02.2022, including 88 uncatalogued brooches at the Museum of Cultural History. Compared to Røstad's (2021) catalogue, some older finds did not appear in my search, as the term 'conical' is not necessarily used in older records. The total number of recorded brooches is therefore higher than shown here.

	Conical Brooches in total	Conical brooches from metal detecting 2010–2021
Museum of Cultural History (Oslo)	164	132
NTNU University Museum (Trondheim)	22	14
The Arctic University Museum of Norway (Tromsø)	23	10
Museum of Archaeology, University of Stavanger	15	11
Bergen Museum	9	2
Total	**233**	**173**

These two examples of catalogue text aim to accurately describe the objects' attributes, focusing on detailed descriptions of the decorative elements and assigning them to style types. Many typological works on, for example, the Norwegian Iron Age – and still used today – were made in the first half of the 20th century or before, such as O. Rygh, *Norske Oldsager* from 1885; O. Almgren, *Studien Über Nordeuropäische Fibelformen* from 1923; and G. Gjessing, *Studier i Norsk Merovingertid* from 1934. While 63 conical brooches in the Museum of Cultural History database refer to Gjessing's types on a general level, 14 out of 22 brooches catalogued in the NTNU University Museum database refer to Gjessing's geographical style label *north-of-the-mountains* type. Although geographical labels are argued to be a bit misleading (Røstad 2021), their continuous use in the recording process causes geographical perceptions to live on in the archaeological assemblage. In this way, former archaeological thought has affected how we record objects in the present – typological literature plays an active part in coding the virtual diagrams of past objects through the process of transforming them to become archaeological records.

From time to time, both archaeologists and detectorists find objects that unmistakeably predate 1537, but do not fit in any typological scheme. These may include variations of known types, but also unique types never found before. My second example is such a unique type – the golden horse pendant from Byneset, Trondheim municipality (Fig. 3).[9] When objects are clearly archaeological but do not fit into typological schemes, cataloguers opt for more careful consideration of their individual traits. For the golden horse pendant, which measures 1.5 × 1.2 cm and weighs only 1 gram, the catalogue text is based on looser criteria than the more standardised attributes for conical brooches:

> Pendant depicting a stylised horse with a sloping neck. Stylistically, the design is reminiscent of horse figures on the buckle T9826 from Hol, Inderøy, dated to the migration period (. . .). There are also similarities with horse figures on the Danish Gallehus horns from the early migration period (. . .), although these have slimmer bodies (. . .). Attached to the horse's back is a loop type common to gold medallions and bracteates from the late Roman period or the migration period (. . .). (Catalogue number T26835, translated by the author).

Instead of categorisation and description based on a generalised type, the horse pendant requires a broader approach for dating and contextualisation. While conical brooches from metal detecting may be included in discourses considering jewellery in the Merovingian Period quite routinely, objects such as the horse pendant call for different interpretational processes, in this case, aiming for resemblances to other types. The person responsible for recording needs to consider its attributes individually, using multiple sources to determine its age and function while describing it. By bringing together sources covering different types of objects to the assemblage of the golden horse, multiple other types territorialise the assemblage of this particular object, potentially linking it to multiple other discourses, which might widen the interpretive horizon of the object. However, some might argue that basing categorisations on visual similarities in isolated attributes might limit the virtual diagram of such unique objects – assuming provenience and function based on similarities with recognisable types may serve to withhold objects' differences. Once an object can be identified as an existing type, specific qualities emerge. Frequent appearances of relatable and associated types enable potential for cultural-historical objectives, such as the case with the conical brooches. Increasing numbers of specific generalised types from metal detecting enable statistical potency for ongoing discourses, as readily recognisable types have parallels in excavated archaeological records. Occurrences of types that 'do not fit' in our categories force us to think differently. Unique objects might arrange for wider virtual diagrams, enabling new types of objectives aiming for innovative interpretations.

How representative are the examples discussed here for the metal-detected assemblage in general? In September 2021, 15252 objects found via hobby metal detecting were recorded in the five databases of the Norwegian university museums.[10] Brooches (2688 records), coins (1661 records), weights (1667 records), mounts (1054 records) and spindle whorls (992 records), are the five most common find categories recorded in the databases. Numerous types of brooches are generalised through the typological works focusing on the Iron Age mentioned above. The descriptions for conical brooches may therefore be considered representative for typologically generalised types. Standardised terms describing such types make them easily searchable for researchers. Regarding searchability, vague categories such as 'mount' are problematic. These originate from a generally broad time span, covering everything from Viking Age insular style harness mounts to medieval book mounts. Considering the 73 mounts recorded in the NTNU university museum database, descriptions of 10 insular mounts share the descriptive qualities of the catalogue texts for the conical brooches, while descriptions of simpler mounts are often brief, with or without references.

The advantage of the Norwegian legislation is that all find categories complying with the age criteria of the NCHA are recorded. However, the knowledge potential of unidentifiable objects is unclear. Categories such as 'fragment' and 'unknown' appear frequently in the databases. Normally, they are barely described and rarely have any references to known types. With no references to known types, their applicability as archaeological sources is unclear. The number of finds from a typical Norwegian metal-detected site is limited and make functional analyses of sites based on finds in the plough zone challenging.[11] Why are these finds considered archaeological? For the generalised and unique types exemplified above, typologisation codes the metal-detected finds to territorialise them into the archaeological discourse in different ways. If typology does not apply to finds from the plough zone, and no other archaeological methods can shed light on them, are they even archaeological?

CONCLUSION AND FINAL REMARKS

Potential knowledge becomes actualised through our current practices and modes of thought, shaped by a range of past and present elements. At this point, the potential of the Norwegian metal-detected assemblage is mainly actualised in two ways – either as means to identify new sites in the plough zone, by focusing on 'what finds represent', or they play a more subtle part hidden in catalogues among similar and related *types*. Respectively, representational and cultural-historical potential is actualised in the current archaeological literature. To some extent, metal-detected assemblages also hold empirical distributive potential, although affected by current practices on metal detecting and individual detectorists. The potential for find categories such as fragments is unclear, as apparently no archaeological methods have been utilised to identify them.

Assemblage thinking makes it possible to argue that the territorialising processes shaping *the metal-detected assemblage* are slightly different from the processes territorialising *other archaeological assemblages*. This is visible through, for example, the legislative practices touching upon the practice and its finds. These processes actively participate in shaping the virtual diagram of metal-detected assemblages. Similarly, *other archaeological assemblages* might have different capacities, depending on the territorialising processes shaping them. For example, other plough zone finds discovered randomly by farmers share some capacities with those found by metal detectors – the past processes leaving them there in the first place might be comparative, and the plough zone, too, but the processes leading to the moments of discovery are different, as finding them was unintentional. Their circulation through heritage management and research might have been different, too.

I have discussed some central affective components shaping the Norwegian metal-detected assemblage. Arguably, other somewhat complex components affecting the assemblage might have been discussed. For example, agricultural processes affecting objects in the plough zone clearly affects objects' decomposition and distribution (e.g. Schiffer 1983, Haldenby and Richards 2010, Leskovar and Bosiljkov 2016). The relationship between experts and hobbyist could also be a factor affecting which objects end up at the museums (see Rasmussen 2014; for a recent study on the relationship between archaeologists and detectorists in Norway, see Axelsen 2022). There might be several other related components affecting the assemblage, which illustrate one of the challenges of applying assemblage thinking: it is hard to determine where the affective relations of the assemblage start and stop.

A starting point for working with metal-detected assemblages is to consider which types of questions we might propose to them. The major challenge in applying assemblage thought as an archaeological analytical tool is its endless analytical possibilities. Fowler (2017) suggests approaching typologies in a relational manner. As assemblages affect and persist – and elements resonate and fall apart – we must attend to the specificity of each element, as well as their relation to a type (Fowler 2017, p. 105). Recognising the possible multitemporality within each object and acknowledging that individual traits may have formed at different points in time serving different purposes might enable new types of objectives (Beck 2018). Antczak and Beaudry (2019) have proposed the conceptual framework of *assemblage of practice* as a middle-range heuristic tool that bridges deep theory and the data available to researchers. An *assemblage of practice* is 'a dynamic gathering of corresponding things entangled through human practice' (Antczak and Beaudry 2019, p. 103). Recognising that archaeological assemblages are inevitably fragmented and open-ended, their point of departure is to include all available data to produce knowledge on past human–thing entanglements. Norwegian metal-detected objects clearly have the potential to shed light on past phenomena when assembled with other types of sources, such as place names, topography and visible archaeological monuments (see Maixner 2020).

I would add that studying the *processes behind* the assemblages we approach – the theories, practices, methodologies, ideas and thoughts involved in defining particular types and groups of objects – might be a fruitful way to access the possibilities and limitations of the phenomena we study. As archaeologists, we have produced, are producing and will continue to produce object categories and groups of objects to study, such as *grave assemblages, medieval city assemblages* and *stone-age-settlement assemblages*, defined by specific objects, styles, geographical areas, scale and so on. The processes shaping these particular entities affect their virtual diagrams and the actual outcomes as archaeological knowledge. I hope this contribution stimulates discussion on how our archaeological practices shape particular archaeological assemblages, in turn affecting potential archaeological knowledge.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

NOTES

[1]The databases – *Universitetsmuseenes samlingsdatabaser, MUSIT* – are managed by the five Norwegian university museums in Oslo, Stavanger, Bergen, Trondheim and Tromsø, each covering the geographical area of their jurisdiction.

[2]In Norway, sites older than 1537 are automatically protected by law, regardless of whether they are known or visible.

[3]The *rhizome* concept visualises the fluidity of assemblages, entities with neither beginning nor end, in which any part can be removed and become a new rhizome (Deleuze and Guattari 2013, pp. 1–27).

[4]The total quantity of finds recorded in the Portable antiquities scheme (England and Wales) was 1,417,961, on 30/3/2022. The Danish portal DIME, which launched in 2018, counted 139,568 finds 30/3/2022.

[5]NO: Retningslinjer. Privat bruk av metallsøker

[6]NO: Retningslinjer. Fastsettelse av finnerlønn

[7]The university museums are responsible for managing the state ownership of objects predating 1537.

[8]Conical brooches are dated c. AD 550–650/700

[9]The golden horse is just one example of several unique objects found via hobby metal detecting. Another example, catalogued in a similar way, is a Late Iron Age mount from Mære in Steinkjer, Trøndelag county (T27663). Similar to the golden horse, the mount depicting three-dimensional twisted animal figures is interpreted and dated by bringing together multiple sources.

[10]The search was carried out September 27, 2021 as part of my PhD project (Fredriksen in prep.). The figure of almost 17,000 objects mentioned in the introduction was calculated in March 2022 from a combined database (Axelsen and Fredriksen in prep.).

[11]In Central Norway, the top 10 sites from metal detecting count between 22 and 79 finds, which means all other sites have less than 22 finds (Fredriksen in prep., p. 22).

ORCID

Caroline Fredriksen http://orcid.org/0000-0002-0762-6060

REFERENCES

Amundsen, M.D., 2021. Glimrende gull: en utforskende studie av gull fra folkevandringstid i Rogaland, Vestfold og Østfold. Thesis (PhD). University of Oslo.

Antczak, K.A., and Beaudry, M.C., 2019. Assemblages of practice. *Archaeological Dialogues*, 26 (*2*), 87–110.

Axelsen, I., 2021. What's the deal with old things? An exploratory study of attitudes and practices towards certain old things among archaeologists and metal detectorists in Norway. Thesis (PhD). University of Oslo.

Axelsen, I., 2022. Collaboration and communication between hobby metal detectorists and archaeologists in Norway. *Advances in Archaeological Practice*, 10 (*3*), 295–310. doi:10.1017/aap.2022.14

Axelsen, I., and Fredriksen, C., In prep. Organically homegrown archaeological databases and their inherent 'messiness': the curious case of hobby metal detecting in Norway.

Beck, A.S., 2018. Revisiting the Trelleborg House: a discussion of house types and assemblages. *Norwegian Archaeological Review*, 51 (*1–2*), 142–161. doi:10.1080/00293652.2018.1503324

Berg, H.L., 2021. *Mechanisms of security. Locks, keys, and ordered life in Iron Age Norway (c. 0–1050 AD). (Volume I and II)*. Bergen: University of Bergen.

Callon, M., 1986. Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. In: J. Law, ed. *Power, action and belief: a new sociology of knowledge?* London: Routledge, 196–223. doi:10.1111/j.1467-954X.1990.tb03351.x

Callon, M., 1990. Techno-economic Networks and Irreversibility. *The Sociological Review*, 38 (*1*), 132–161. doi:10.1111/j.1467-954X.1990.tb03351.x

Christiansen, T.T., 2019. Metal-detected Late Iron Age and early medieval brooches from the Limfjord Region, Northern Jutland: production, use, and loss. *Journal of Archaeology and Ancient History*, 2, 3–41. http://uu.diva-portal.org/smash/record.jsf?pid=diva2%3A1297079&dswid=4103. Accessed 21 04 2022.

DeLanda, M., 2006. *A new philosophy of society: assemblage theory and social complexity*. London: Continuum.

DeLanda, M., 2016. *Assemblage theory*. Edinburgh: Edinburgh University Press.

Deleuze, G., and Guattari, F., 1994. *What is philosophy?* New York: Columbia University Press.

Deleuze, G., and Guattari, F., 2009. *Anti-Oedipus: capitalism and schizophrenia*. New York: Penguin Group.

Deleuze, G., and Guattari, F., 2013. *A thousand plateaus*. London: Bloomsbury Academic.

Dobat, A.S., et al., 2020. Towards a cooperative approach to hobby metal detecting: the European Public Finds Recording Network (EPFRN) vision statement. *European Journal of Archaeology*, 23 (*2*), 272–292. doi:10.1017/eaa.2020.1

Dobat, A.S., and Jensen, A.T., 2016. "Professional amateurs": metal detecting and metal detectorists in Denmark. *Open Archaeology*, 2 (*1*), 70–84. doi:10.1515/opar-2016-0005

Fowler, C., 2013a. *The emergent past: a relational realist archaeology of early bronze age mortuary practices*. Oxford: Oxford University Press.

Fowler, C., 2013b. Dynamic assemblages, or the past is what endures: change and the duration of relations. In: B. Alberti, A.M. Jones, and J. Pollard, eds. *Archaeology after interpretation: returning materials to archaeological theory*. Walnut Creek, CA: Left Coast Press, 235–256.

Fowler, C., 2017. Relational typologies, assemblage theory and early bronze age burials. *Cambridge Archaeological Journal*, 27 (*1*), 95–109. doi:10.1017/S0959774316000615

Fredriksen, C., In prep. «Funnet med metallsøker i dyrket mark»: en relasjonell studie av norsk praksis overfor privat metallsøking og pløyelagsfunn som vitenskapelig kildemateriale. Thesis (PhD). Norwegian University of Science and Technology.

Fredriksen, C., 2019. Pløyelagsfunn i skjæringspunktet mellom forskningspotensial ogforvaltningsprioriteringer: fokus og holdninger i diskusjonen omprivat metallsøking i Norge. *Primitive tider*, 21 (*1*), 63–79. doi:10.5617/pt.7536

Fredriksen, C., 2021. Pløyelagsfunn som automatisk fredete kulturminner: kunnskapsdrevet forvaltning eller forvaltningsdrevet kunnskap? *Heimen*, 58 (*2*), 136–151. doi:10.18261/.1894-3195-2021-02-03

Fredriksen, C., and Stamnes, A.A., 2019. Geofysiske undersøkelser og sosialt metallsøk på Løykja, Gnr. 41/6, Sunndal kommune, Møre og Romsdal. Trondheim: NTNU University Museum, Report 2019-23.

Gullbekk, S.H., et al., 2019. Kildekritiske refleksjoner omkring metallsøking og myntfunn: må mynthistorien skrives om? *Viking*, 82, 173–182. doi:10.5617/viking.7121

Gundersen, J., 2019. No room for good intentions? Private metal detecting and archaeological sites in the plow layer in Norway. In: S. Campbell, L. White, and S. Thomas, eds. *Competing values in archaeological heritage*. Cham, Switzerland: Springer, 125–138.

Gundersen, J., Rasmussen, J.M., and Lie, R.O., 2016. Private metal detecting and archaeology in Norway. *Open Archaeology*, 2 (*1*), 160–170. doi:10.1515/opar-2016-0012

Gustavsen, L., et al., 2019. Sem: a Viking Age metalworking site in the southeast of Norway? *Archaeological Prospection*, 26 (*1*), 13–20. doi:10.1002/arp.1726

Hadley, D., and Richards, J.D., 2018. In search of the Viking Great Army: beyond the winter camps. *Medieval Settlement Research*, 33, 1–17. doi:10.5284/1017430

Haldenby, D., and Richards, J.D., 2010. Charting the effects of plough damage using metal-detected assemblages. *Antiquity*, 84 (*326*), 1151–1162. doi:10.1017/S0003598X00067144

Hamilakis, Y., and Jones, A.M., 2017. Archaeology and assemblage. *Cambridge Archaeological Journal*, 27 (*1*), 77–84. doi:10.1017/S0959774316000688

Harris, O.J.T., 2017. Assemblages and scale in archaeology. *Cambridge Archaeological Journal*, 27 (*1*), 127–139. doi:10.1017/S0959774316000597

Harris, O.J.T., 2018. Towards virtual typologies. *Norwegian Archaeological Review*, 51 (*1–2*), 162–165. doi:10.1080/00293652.2018.1531917

Jervis, B., 2019. *Assemblage thought and archaeology*. Oxford: Routledge.

Jones, A.M., and Alberti, B., 2013. Archaeology after interpretation. In: B. Alberti, A.M. Jones, and J. Pollard, eds. *Archaeology after interpretation: returning materials to archaeological theory*. Walnut Creek, CA: Left Coast Press, 15–35.

Karl, R., 2016. Archaeological responses to 5 decades of metal detecting in Austria. *Open Archaeology*, 2 (*1*), 278–289. doi:10.1515/opar-2016-0020

Latour, B., 1987. *Science in action: how to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.

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.

Law, J., 2009. Actor-network theory and material semiotics. In: B. Turner, ed. *The new Blackwell companion to social theory*. Oxford: Blackwell, 141–158.

Law, J., and Hassard, J., eds., 1999. *Actor network theory and after*. Oxford: Blackwell.

Lecroere, T., 2016. "There is none so blind as those who won't See": metal detecting and archaeology in France. *Open Archaeology*, 2 (*1*), 182–193. doi:10.1515/opar-2016-0014

Leskovar, T., and Bosiljkov, V., 2016. Laboratory research on the effects of heavy equipment compaction on the in situ preserved archaeological remains. *Conservation and Management of Archaeological Sites*, 18 (*1–3*), 40–58. doi:10.1080/13505033.2016.1181932

Lewis, M., 2016. A detectorist's utopia? Archaeology and metal-detecting in England and Wales. *Open Archaeology*, 2 (*1*), 127–139. doi:10.1515/opar-2016-0009

Lov om kulturminner 1978 [Act Concerning the Cultural Heritage], (LOV-1978-06-09-50)

Lucas, G., 2012. *Understanding the archaeological record*. Cambridge: Cambridge University Press.

Lucas, G., 2013. Afterword: archaeology and the science of new objects. In: B. Alberti, A.M. Jones, and J. Pollard, eds. *Archaeology after interpretation: returning materials to archaeological theory*. Walnut Creek, CA: Left Coast Press, 369–380.

Maixner, B., 2015. Én lov – ulik forvaltningspolitikk. *Fornvännen*, 110 (*3*), 201–213.

Maixner, B., 2020. Connected by water, no matter how far: viking Age central farms at the Trondheimsfjorden, Norway, as gateways between waterscapes and landscapes. *Archäologische Informationen*, 43, 289–308. doi:10.11588/ai.2020.1.81416

Martens, J., and Ravn, M., eds., 2016. *Pløyejord som kontekst. Nye utfordringer for forskning, forvaltning og formidling. Artikkelsamling*. Kristiansand: Portal forlag.

Müller, M., and Schurr, C., 2016. Assemblage thinking and actor-network theory: conjunctions, disjunctions, cross-fertilisations. *Transactions of the Institute of British Geographers*, 41 (*3*), 217–229. doi:10.1111/tran.12117

Pettersen, A.M.H., 2022. Farin Vestir and back: social and itinerary perspectives on insular objects in Viking-Age Norway. Thesis (PhD). Norwegian University of Science and Technology.

Rasmussen, J.M., 2014. Securing cultural heritage objects and fencing stolen goods? A case study on museums and metal detecting in Norway. *Norwegian Archaeological Review*, 47 (*1*), 83–107. doi:10.1080/00293652.2014.899616

Riksantikvaren, 2017. Retningslinjer. Privat bruk av metallsøker. Available from: https://ra.brage.unit.no/ra-xmlui/bitstream/handle/11250/2479072/Guidelines_metal_detectors.pdf?sequence=1&isAllowed=y [Accessed 25 April 2022

Riksantikvaren, 2019. Retningslinjer. Fastsettelse av finnerlønn. Available from: https://ra.brage.unit.

no/ra-xmlui/bitstream/handle/11250/2582716/Fastsettelse_finnerl%c3%b8nn.pdf?sequence=1&isAllowed=y [Accessed 25 April 2022

Røstad, I.M., 2021. *The language of jewellery: dress-accessories and negotiations of identity in Scandinavia, c. AD 400–650/700*. Oslo: Cappelen Damm akademisk.

Sand-Eriksen, A., Skre, D., and Stamnes, A.A., 2020. Hvordan har metallgjenstander funnet veien til pløyelaget? Resultater fra et metodisk prøveprosjekt på Storhov i Elverum. *Primitive tider*, 22 (*1*), 75–94. doi:10.5617/pt.8395

Schiffer, M.B., 1983. Toward the identification of formation processes. *American Antiquity*, 48 (*4*), 675–706. doi:10.2307/279771

Sørensen, M.L.S., 1997. Material culture and typology. *Current Swedish Archaeology*, 5 (*1*), 179–192. doi:10.37718/CSA.1997.12

Sørensen, M.L.S., 2015. Paradigm lost – on the state of typology within archaeological theory. In: K. Kristiansen, L. Sejnda, and J. Turek, eds. *Paradigm found. Archaeological theory past, present and future. Essays in honour of Evzen Neustupny*. Oxford: Oxbow Books, 84–94.

Stamnes, A.A., 2017. *Georadarundersøkelse på Storhov i Heradsbygd, Elverum kommune i Hedmark fylke*. Trondheim: NTNU University Museum, Report 2017-2.

Temiño, I.R., 2016. Rational grounds for dialogue between archaeologists and metal detectorists in Spain. *Open Archaeology*, 2 (*1*), 150–159. doi:10.1515/opar-2016-0011

Thomas, S., 2016. The future of studying hobbyist metal detecting in Europe: a call for a transnational approach. *Open Archaeology*, 2 (*1*), 140–149. doi:10.1515/opar-2016-0010

Tonning, C., et al., 2017. Er de alle løsfunn? Metallsøkfunn og potensialet for bevart kontekst under pløyelaget. *Viking*, 80, 223–243. doi:10.5617/viking.5481

Trigger, B.G., 2006. *A history of archaeological thought*. 2nd. Cambridge: Cambridge University Press.

Wessman, A., Thomas, S., and Rohiola, V., 2019. Digital archaeology and citizen science: introducing the goals of Findsampo and the SUALT Project. SKAS Suomen keskiajan arkeologian seura – Sällskapet för medeltidsarkeologi i Finland, 2–17. http://hdl.handle.net/10138/304879. Accessed 15 03 2022.

Yáñez, A., 2016. Illegal detectorism and archaeological heritage: criminal and administrative punitive systems in Spain. *Open Archaeology*, 2 (*1*), 417–425. doi:10.1515/opar-2016-0030