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ARTICLE

Temporalising the house: exploring alternative perspectives on time and the archaeological record within Danish settlement archaeology

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ABSTRACT

This article calls for a renewed debate on the role played by time and temporality within Danish settlement archaeology. Recent theoretical debate has challenged the conventional way of thinking about time in archaeology by drawing attention to the multitemporal character of the archaeological record. In the article, the temporalisation of the archaeological record of the house is discussed based on a critical review of the archaeological process. The analysis shows how basic excavation and archiving practices favours a temporalisation of the house based on the chronological date and, at best, downplays other temporalities. The inherent temporalities of the archaeological record of the house, particularly the posthole, are discussed, and it is argued that the posthole should both be perceived as an object and a process in order to create space for alternative temporalities. Instead of seeing stratigraphy as a property of the posthole, the posthole should be seen as an assemblage made up of the events and materials that created the stratigraphy, a process which is directly related to the life history of the house. It is argued that a multitemporal perspective is a prerequisite for new and fruitful ways to understand the house as an archaeological and cultural phenomenon.

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The investigation of house constructions has a long tradition within Danish settlement archaeology. The first traces of prehistoric houses were identified at the turn of the century (Müller 1906), and the number of excavated houses has increased drastically since then. In order to place houses in their right chronological and culture-historical context, a central focus of Danish settlement archaeology has been to investigate the date of the individual house. As a consequence, much research within the field has been aimed at refining both typological studies of houses and scientific dating methods. Latest exemplified by renewed, regional house-chronological studies (Eisenschmidt 2013, Hansen 2015, Laursen and Holst 2017) as well as experiments using large numbers of C14-datings to obtain statistically more precise dates for excavated houses (Villumsen 2013, Hansen 2015). On that background, it seems uncontroversial to claim that the role time and temporality have played in Danish settlement archaeology has primarily been in the form of chronological dates.

In this article, I argue that a renewed debate about the role of time and temporality within Danish settlement archaeology is needed. The predominant position of the chronological date has previously overshadowed other temporalities inherent in the archaeological record and limited the understanding of the house. To encourage the debate, it is suggested that the inclusion of a multitemporal perspective is a prerequisite for new and fruitful ways to understand the house as an archaeological and cultural phenomenon.

Temporalising the record

In very basic terms, *temporalisation* is the process of creating a connection between time and the archaeological record which takes place through the archaeological process based on the entities used in the recording process and the time perspectives reproduced (Munn 1992, p. 116). On a more general level, temporalisation is crucial to the way archaeological data are shaped and interpreted and thereby

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also for the possibilities for further engagement and reinterpretation of the material (Bowker 2005, p. 12, Lucas 2012, p. 91, Nativ 2017, p. 670).

In settlement archaeology, the chronological date has traditionally been regarded as a fundamental temporal condition of the archaeological record and as a prerequisite to untangle the spatial development of settlements (Holst 1999, p. 21). Chronological dates, whether expressed in calendar years or in culture-historical periods, represent a linear temporality, where time is perceived as individual, measurable time units succeeding each other (Lucas 2005, p. 10). This perception of time is often supported by representations of chronologies or typologies as forward-moving timelines built up by graphically separate periods (Rosenberg and Grafton 2010, p. 20, 244). An epistemological predisposition to consider time as linear has been fundamental to the development of the archaeological field and is still to a large degree so deeply ingrained that it is taken for granted and rarely questioned by archaeologists.

However, anthropological studies have argued that linear time is just one among several simultaneous ways that humans perceive, use and understand time (e.g. Bloch 1977, Gell 1992, Munn 1992). The presentation of alternative temporalities has been followed by an increasing theoretical literature exploring the connection between time and the archaeological record (e.g. Gosden 1994, Thomas 1996, 2004, Olivier 2001, 2011, Lucas 2005, 2008, 2012, Pauketat and Alt 2005, Bailey 2007, McAnany and Hodder 2009, Ingold 2010, Arnold 2012, Witmore 2013, Gosden and Malafouris 2015, Sørensen 2015, Bille and Sørensen 2016, Hamilakis 2017). These studies have brought focus on the alternative temporal dynamics inherent in the archaeological record – both in terms of how time was perceived in the past (e.g. Gosden and Lock 1998, Bradley 2002, Stenholm 2012) as well as how time is represented, produced and reproduced in the archaeological process (e.g. Larsson 2006, Lucas 2008, Cobb *et al.* 2012, Bailey and Simpkin 2015, Nativ 2017). Furthermore, they have challenged the conventional way of thinking about time in archaeology by drawing attention to the fact that time, first, needs to be appreciated as more than an abstract, neutral 'container' and, second, that time, besides being measurable and linear, also is experienced, repetitive, durational, material, biographical, remembered, processual and non-linear. In other words, time in relation to the archaeological record should be treated as plural, complex and multitemporal.

Whereas the discussion of a more complex approach to time has been included for a long time in other fields of archaeology for instance in the study of monuments (e.g. Holtorf 1998, Thäte 2007), in the micro archaeology of burials (e.g. Fahlander 2003), in object biographies (e.g. Holtorf 2002, Joy 2009) and in some areas of settlement archaeology, particularly the British (e.g. Bailey 1990, Pearson and Richards 1994, Gerritsen 1999), it has only had limited – if any – impact on Danish settlement archaeology.

Generally speaking, Danish settlement archaeology is characterised by a relatively conservative and empirically founded approach to the field. This has, at least partly, its background in the organisation of Danish archaeology where rescue excavations often constitute more than 90% of all excavations per year (Mikkelsen 1998, Ejstrud and Jensen 2000, p. 125). Rescue excavations are generally characterised by a standardisation of methods and a fundamental approach to the excavation of archaeological remains as a process of recording and accumulating data for future research rather than the investigation of specific, targeted research questions (Mikkelsen 1998, p. 10–11, Jensen 2005, Møller *et al.* 2011). At the same time, more than 50% of all excavations over the last 20 years are categorised as settlement excavations (*source*: Fund&Fortidsminder). As a consequence, the logic of the rescue excavation has a great impact on the broader tradition of settlement archaeology. Research questions are mainly aimed at the development of settlement patterns in the wider cultural landscape, often on a positivistic background (e.g. Fabech and Ringtved 1999, Møller *et al.* 2011). In that sense, Danish settlement archaeology is closer connected to the German tradition of 'Siedlungsarchäeologie' (Gramsch 1996) than to the British post-processual landscape archaeology which only have had limited influence (Jensen 2005).

However, the multitemporal perspective represents ways of thinking about time that is very relevant for the further development of Danish settlement archaeology and should therefore be

explored. But in order to create space for a multitemporal recording of the archaeological record, the temporalisation process of the archaeological record within the current field must first be investigated.

So far, the discussion of time in relation to the archaeological record has to a large degree been a theoretical discussion. However, I will argue that the temporalisation of the archaeological record is equally a direct result of how the current theoretical notions of time is performed through the practices of the archaeological process and a discussion of the temporalisation should include both theoretical and practical aspects (Larsson 2006, p. 42–44, Cobb *et al.* 2012, p. 6).

The practical aspects are defined as the tradition of how the archeological record is investigated, recorded and archived, which to a large degree are defined by specific conditions as the organisation of the archaeology on a national and local level, the methods applied and the registration systems used in the process. The discussion of the practical aspects will therefore necessarily be quite specific and detailed. On the other hand, if the discussion is not also taken on this level, there is a severe risk that practice will continue as usual and fruitful theoretical discussions have no real impact (Hamilakis and Jones 2017, p. 81).

On that background, in this article, I will use a critical review of the typical excavation and archiving practice in current Danish settlement archaeology to serve as an example of the interaction between theory and practice in the temporalisation of the archaeological record related to the house. The aim of the article is to explore the possibilities of including a multitemporal approach to archaeological houses.

I begin by characterising the archaeological house as an archaeological phenomenon and the temporalities inherent within the archaeological record of the house. I then analyse the typical archaeological process of excavation and archiving, respectively, using Danish settlement archaeology as the starting point and discuss the principles of how the archaeological record is temporalised through the transformation process from remains to data. In the final discussion, I explore the principles of temporalisation and the advantages of including other temporalities into the recording of the archaeological record on a more general level. While much of the discussion is placed in a specific Danish context, it is my hope that the debate also will find resonance in other areas of archaeology and inspire to similar reviews of other national registration traditions for the benefit of the development of the broader field of settlement archaeology.

The house and the posthole

The discussion of temporalisation of the record is closely related to the basic question of what the archaeological record is an expression of. The first step must therefore be to characterise the archaeological record constituting the house and the temporal properties inherent within it. The conditions of the material outlined constitute the basic premises for the following analysis and discussion.

Settlement archaeology aims at studying the house as close to its original state as possible but in that process tends to overlook the marked differences between the house in its historical context (what it once was) and the house as an archaeological feature (what it is today) (Nativ 2017, p. 660). As the majority of settlement excavations in Denmark take place in open, cultivated fields and the standard excavation method is defined by removing the plough soil down to the surface of the subsoil, typically nothing of the actual physical house in the form of timber, roof, walls or floor layers is represented in the archaeological remains. Nonetheless, the term *house construction* is often used in all stages of the archaeological process whereas in reality, the majority of archaeological houses are identified solely as systematic collections of archaeological *features* (Näsman 1987, p. 75). The archaeological features constitute the foundations of the house and consist mainly of postholes dug into the subsoil to support the timber construction of the house. On that background, it would be correct to say that the majority of houses excavated in Denmark today are defined by *the posthole* rather than by the construction. As a consequence, the temporal properties of the house must to a large degree equally be defined by the temporal properties of the posthole, and the rest of this section will therefore focus on the posthole.

Conventionally, the primary temporal property of the posthole is the chronological date. The posthole can be dated in several ways, but first and foremost

based on what is found within it. As the post decays, artefacts and organic material from activities in the house can be caught in the hollows left by the decaying post (Zimmermann 1998, p. 50). Soil (including artefacts and organic material) can even deliberately have been filled into the hollows to stabilise the construction as the post decayed (Reynolds 1995, p. 23f). When the artefacts or organic material can be dated (typologically or scientifically) and a connection between finds and posthole is probable, the date is normally taken as an indicator of the posthole's chronological date. The posthole can also be dated stratigraphically if it is cutting or being cut by later or previous features. Whether the posthole is dated according to absolute or relative chronologies, the dating process is aimed at getting as uniform and precise a date as possible (Lucas 2005, p. 5, Laursen and Holst 2017, p. 18).

However, a single date only dates one particular (but rarely more precisely defined) moment in the existence of the posthole (Villumsen 2013, p. 19). And, it can be argued that the posthole, besides having an age (expressed by the date), also has a duration that stretches beyond a single date both practically as well as conceptually (Olivier 2001, p. 65ff, Bailey 2007, p. 217, Ingold 2010, p. 161, Arnold 2012, p. 88, Hansen 2015, p. 56f). The duration is defined as the time period the posthole was 'active' in. That means the time between the posthole was planned until it went out of use, a time period more or less equal to the lifetime of the house. This perspective opens for a perception of the posthole as the material residue of a sequence of *events* in the past (Harris 1989, p. 41f, Shennan 1993, p. 55, Pauketat and Alt 2005, p. 230f, Larsson 2006, p. 51, Lucas 2008, p. 60, McAnany and Hodder 2009, p. 9). Following Lucas (2008), an archaeological event is defined by being material, understood as an action (or sequence of actions) that takes place in relation to the material world and leaves a material residue. The event that creates the archaeological record can either be momentary or have a longer duration, as it can either consist of singular actions or practices (routinised actions) (Shennan 1993, p. 55, Lucas 2008, p. 61).

In its most banal description, a posthole is a hole dug to fix a post in the ground. But it is also a hole that is filled up when a post is raised as well as a hole that is emptied and loses its function when the house is demolished. In this perspective, the posthole is a process with a specific *chaîne opératoire* (Pauketat and Alt 2005, p. 217). The process can be identified, as many archaeological events have left an imprint on the posthole in the form of the stratigraphic entities: the primary cut, the post impression, the backfill etc. (Figure 1) (Zimmermann 1998, p. 25). Sometimes, secondary cuts and fills (which in some cases can have destroyed previous stratigraphical entities) even complicate the sequence of events. Instead of identifying the layers within the posthole on the basis of their physical presence, they can be identified by the events during which they were formed. Some events were short and momentary (e.g. the digging of the hole), whereas others had a longer duration (e.g. the decay of the post, the backfilling of the posthole), but each entity reflects events in relation to the history of the interweaving activities of building, using, maintaining and demolishing the house.

All in all, the posthole can be said to contain different temporal properties depending on the perception of the posthole as an archaeological phenomenon. In the typical dating process as described above, the posthole is treated as an object or artefact in itself, but the posthole can also be perceived as a process that implement an inherent temporality and duration of its own (Lucas 2012, p. 170, Felding and Stott 2013, p. 34, Gosden and Malafouris 2015, p. 701f, Bille and Sørensen 2016, p. 10). Different temporal perspectives do not mutually exclude each other and it is not possible to say that one temporal property is more 'fundamental' than the other (Gerritsen 2008, p. 146, Cobb *et al.* 2012, p. 8f). Which temporal dimensions that are represented in the archaeological record are instead defined alone by the entities used in recording and the temporal properties reproduced in the archaeological process. A multitemporal approach aims at representing as many temporal perspectives as possible.

The archaeological process

In the archaeological process, the archaeological record goes through a translation process where the archaeological record is transformed from fragmented material remains into coherent archaeological data, which are manageable in the interpretation

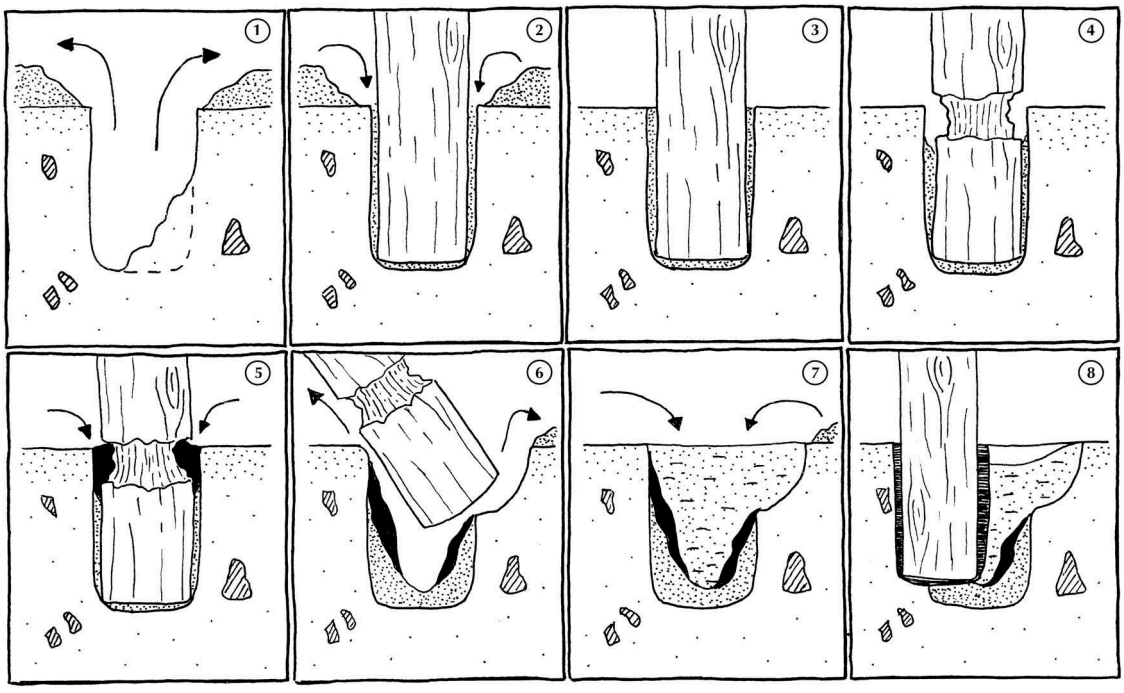

Figure 1. Schematic illustration of the archaeological events forming the posthole: (1) planning and digging the hole; (2) placing the post and backfilling the hole; (3) settling and stabilisation of the fill; (4) rotting of the post at the surface, where air and soil meets; (5) adding of secondary material coincidentally or deliberately; (6) removing the post when repairing or demolishing the house; (7) backfilling the hole, a process that happens either slowly or quickly; (8) if there are secondary cuts (contemporary or later than the primary post), it complicates the stratigraphy. Stratigraphical details can be disturbed or completely removed (drawing by author).

of the house (Larsson 2006, p. 43). In this context, *remains* are understood as the physical traces of past activities that are uncovered and identified during the archaeological excavation, and *archaeological data* are understood as the drawings, photos and descriptions that record and reproduce the physical traces as detailed as possible. Regardless the degree of details included in the recording, the transformative process from material remains to archaeological data will always translate the archaeological record from one medium (the material) to another (the textual) and in that way be interpretative (Figure 2) (Larsson 2006, p. 40, Lucas 2012, p. 238, Nativ 2017, p. 665).

Neither the identification of the archaeological remains nor the recording of them can be said to be completely objective parts of the translation process. To be recorded, the remains need to be identified and interpreted as remains of something, and recording itself is a creative and interpretative process describing the remains as they are perceived (McAnany and Hodder 2009, p. 2, Edgeworth 2012, p. 77, Nativ 2017, p. 670). Every choice in the process involves a selection of elements and a deselection of other elements (Bowker 2005, p. 12, Larsson 2006, p. 40). In that way, the archaeological data are constructed through the ways that archaeologists handle, document and archive the material (Bowker 2005, Lucas 2012). As archaeology is a destructive science, at the end of an excavation the archaeological remains will in most cases be gone. Only the archaeological data will persist, stored in archives and shared among archaeologists. The archaeological process is thus decisive for the creation of the foundation for future archaeological engagements with the site. The aim must therefore be to make as rich a reproduction of the archaeological record as possible.

Broadly speaking, the archaeological process typical for Danish settlement archaeology involves two main operations: excavating and archiving. In the *excavating process*, the material remains are initially identified, investigated and recorded. Most of this process takes place in the field, starting at the moment when the excavation begins. The aim of the excavation is to characterise and record data

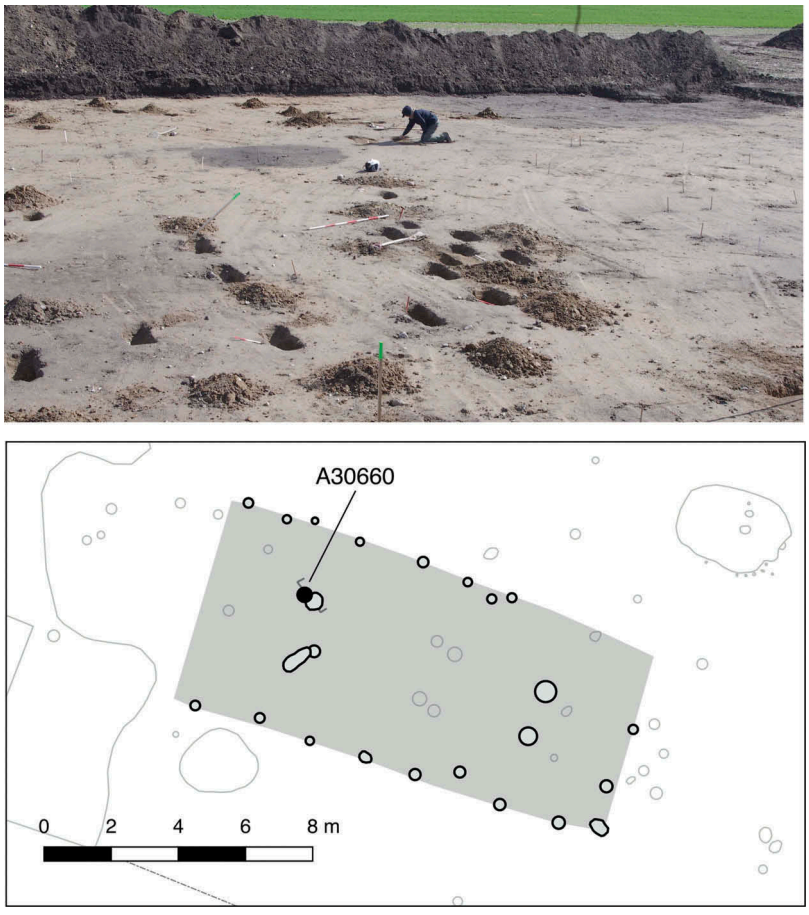

Figure 2. Translation of material remains into archaeological data in the excavation at Strøby Toftegård. At the top, the longhouse K314 during the excavation. The excavated house K314 is in the foreground. At the bottom, the excavation plan of K314. The posthole A30660 used as an illustrative example in the analysis is marked out (photo and drawing: Museum Southeast Denmark).

accordingly so the record can work as a substitute for the actual traces (Lucas 2012, p. 68).

Archiving, on the other hand, is the process by which the documentation and recordings from the excavation are processed, stored and shared, e.g. in central databases. The aim for the archiving process is in principle to reproduce the data from the excavation process, but it often includes its own layer of interpretation when data are transferred from field documentation to the archive (Holst 2005). Today, this process is mainly done in front of the computer. Another aim of the archiving process is to harmonise data to make it comparable and manageable for present and future research (Bowker 2005, p. 9). The archiving process creates the foundation for the excavation report where the results of the excavation are synthesised, but this part of the process is not further discussed here.

Despite its appearance, the process from excavating to archiving is not necessarily strictly linear. In practice, the relationship between excavation and archiving is fluent and dialectical. The initial recordings from the excavation are affected and shaped by the structure of the archives, in the same way as the archival structure and organisation are affected by the character of the recordings (Figure 3) (Bowker 2005, p. 14, Lucas 2012, p. 232). Even though archiving is usually done after the excavation, the increasing use of digital units with internet connection in the field makes it possible to place field recordings directly into the central archives and databases. The archiving process is increasingly moving 'into the field' and, in that way, merging the excavating and archiving processes.

The following analysis aims at investigating the temporalisation of the house by analysing the practice of the archaeological process characteristic for Danish settlement archaeology. In the analysis, the distinction between the two main operations of the

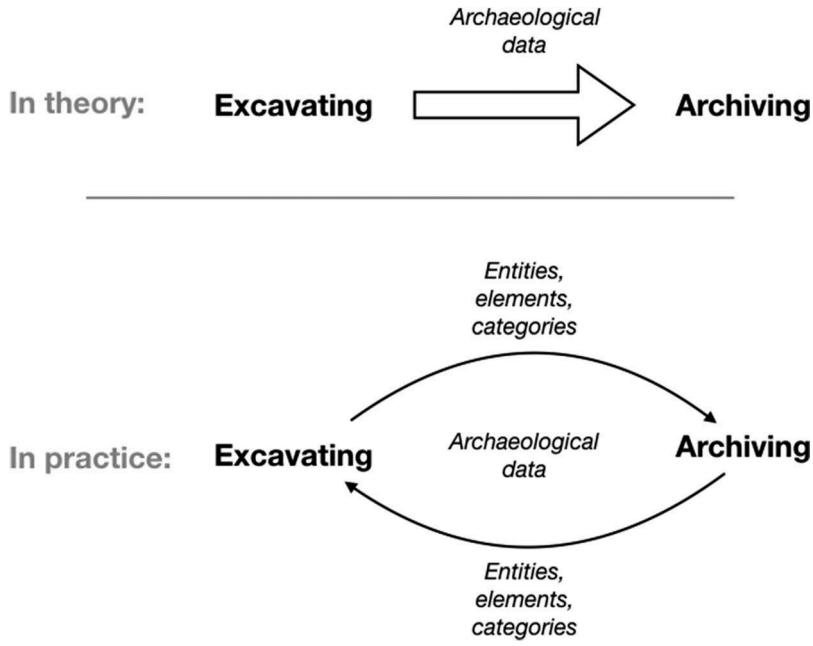

Figure 3. Schematic illustration of the relationship between the two main operations in the archaeological process, excavating and archiving. At the top, the figure illustrates the relationship in theory, where archaeological data are created in a linear process from excavation to archives. At the bottom, the figure illustrates the relationship in practice, where the entities, elements and categories used in excavation define the structure of the archive and vice versa and together create the archaeological data in a dialectical process.

archaeological process, excavating and archiving, will be kept for the sake of the analysis and the clarity of the conclusions. The aim of the analysis is to identify the principles of how the archaeological record is temporalised through the two processes, which will serve as basis for a more general discussion of the principles of temporalisation and the possibilities for a multitemporal approach to the archaeological record.

The analysis will explore the techniques and principles of the excavation and archiving of archaeological data, beginning with an analysis of the existing practices followed by a discussion of the temporal dimensions of the archaeological record. The discussion will focus particularly on the entities used in recording and how time perspectives are represented in the archaeological data. For the sake of a cogent review, it can be necessary to go into details that at first sight might seem banal, but which can turn out to be decisive to the understanding of the temporalisation process. As many practices are taken for granted in settlement archaeology, a fruitful way to create awareness of them is by describing in detail what is actually happening in the process.

To exemplify the archaeological process in the analysis, I will use one particular posthole (A30660) from a longhouse dated to the Late Iron Age to illustrate the process from excavation to the archive. The posthole A30660 was excavated in 2013 at the site Strøby Toftegård (Beck 2014). A30660 is part of longhouse K314 that archaeologically consists of 25 postholes in total, originating from the foundations of the roof supporting construction, the gables and the outer walls (see Figure 2). A30660 is the hole dug for one of the roof-supporting posts. All archaeological features constituting K314 were excavated and documented. There is nothing extraordinary about A30660 or K314, and therefore they serve well as examples of the 'standard' archaeological process.

Excavating the posthole

The excavation process in Denmark is centralised with the majority of excavations (the developer-funded excavations) being administered by the Agency for Culture and Palaces based on common standards, budget models and strategies used in all excavations (Slots- og Kulturstyrelsen 2017). It is therefore meaningful to talk about the archaeological

process as rather uniform even if local variations and traditions do exist.

Most settlement excavations are executed as open-area excavations. This excavation technique, introduced by archaeologist C. J. Becker in the 1960s at the excavations of the Iron Age village at Grøntoft (Becker 1966, 1971), changed the character of archaeology from small and narrow excavation trenches uncovering one house at a time to instead uncover large areas including complete villages and settlement complexes (e.g. Hvass 1983, 1985, Ejstrud and Jensen 2000, Holst 2010). Since then, open-area excavation has become the predominant approach to settlement archaeology in Denmark, as the technique fits well with the fragmented but spatially extensive character of the archaeological record.

In the excavation, each feature is recorded and excavated individually. Postholes are usually box-sectioned. Box-sectioning was introduced into Danish archaeology after the technique had been used at the excavations at Fyrkat in 1950–60 where it proved valuable to investigate not just the depth but also the angle of the original post (Olsen 1968). Furthermore, with the introduction of open-area excavations, the number of archaeological features increased dramatically, which underscored the need for efficient excavation methods. The box-section technique, less time-consuming than the traditional technique of emptying out the archaeological features and recording them, was adopted during the 1970s as a standard at all settlement excavations.

Details in the excavation process vary from excavation to excavation according to the character of the archaeology, the strategy of the excavation and traditions at the excavating institution, but the excavation process typically begins when the plough soil is stripped by machine. This process reveals the surface of the subsoil where dug features are visible as darker areas in the light subsoil. In general, the revealed archaeological record is characterised by an uncomplicated stratigraphy where archaeological features of all periods are found in the same surface with only few intercuts (Berggren 2009, p. 23).

The archaeological features (postholes, ditches, pits etc.) are identified and planned. Each identified feature gets a unique ID number. Possible constructions (houses, huts, fences, outbuildings etc.) are identified from the systematic location of features and equally labelled for identification. The construction ID is typically different from the feature ID. In the current example, the posthole is given the feature ID A30660 and is part of the house construction with construction ID K314.

All postholes in a house construction will usually be box-sectioned using a spade and a trowel. The section is normally placed in accordance with any stratigraphical relationships or, if these are not relevant, in accordance with the orientation of the house. Posthole A30660 has a stratigraphical relationship with posthole A30676. Therefore, the section is placed east–west instead of north–south, which would have followed the orientation of K314 (see Figure 2).

The section is first cleaned and photographed. Next, the layers visible in the section are identified and marked out and a drawing of the section with the identified layers is made. Each layer does not get an individual, unique context ID but instead get a number in relation to the drawing (1, 2, 3 etc.). The numbering serves to relate the layers on the drawing to the description of each layer. A30660 has two identifiable layers, layer 2 and 3 (layer 1 is related to A30676) (Figure 4).

The content of each layer is described according to colour, sediment type and inclusions. As the descriptions are made, a preliminary interpretation is typically made of the origin of each layer (post impression, primary fill, traces of the removed post etc.) as well as the role of the post in the house construction (wall post, door post, roof-supporting post etc.). If artefacts are found during the excavation, they are given unique ID numbers referred to as 'x-numbers' (x1, x2, x3 etc.) and referred to the

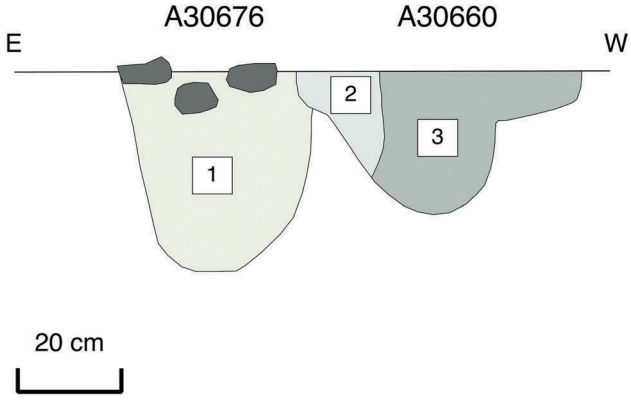

Figure 4. Section drawing of A30660 (layer 2 and 3) and A30676 (layer 1), seen from the North (drawing: Museum Southeast Denmark).

layer and feature they were found in. A30660 is interpreted as a roof-supporting posthole that contains traces of the primary fill from two events: when the post was raised (layer 2) and when it was removed at the demolition of the house, maybe with traces of the original post impression still preserved (layer 3). There are no finds from either of the two layers identified in A30660.

Finally, a soil sample from the youngest layer, preferably the post-impression, in each posthole is taken. The purpose of the soil sample is to acquire organic material suited for C14-dating to date the house. When possible, C14-datings of material from several postholes from the same house are made to support the validity of the result (Villumsen 2013, p. 20, Mikkelsen *et al.* 2016). Dates from typo-chronological interpretations, stratigraphical relations, scientific datings (mainly C14-dating) and dated finds are combined with the aim of getting as precise a date as possible. Typically, the date will be given as being within a certain time period, not as one exact calendar year, even though an exact date remains the ideal. From A30660, a soil sample was taken from layer 3 (the removed post) in which barley, rye and wheat grains were found. The soil sample also contained a large amount of burnt clay, clay slag and charcoal. The grains were not selected for dating because of the risk of contamination due to the intercutting of A30660 with the earlier posthole A30676, but grains from three other postholes in K314 were dated (Figure 5). A30660 is therefore dated on the background of the general date of longhouse K314, not in itself. Furthermore, A30660 is intercutting the post A30676. A30676 is also a roof-supporting post in K314, and A30660 must be a repair of the original roof-supporting post. A30660 belongs in that sense to a later phase of K314. K314 has been dated scientifically (670–885 AD), typologically (Late Iron Age) and stratigraphically (later or earlier than a similar longhouse in the same location [K319]). The dating confirms the house as part of a settlement unit within the large Late Iron Age and Viking Age settlement at Strøby Toftegård (Tornbjerg 1998, Beck in press).

The excavation process defines the entities in the recording of the archaeological record in both theoretical and practical contexts. According to the excavation tradition in Danish settlement archaeology, there are four separate entities in the archaeological record – finds, layers, features and constructions – but only finds, features and constructions are given individual ID numbers. Layers are not recorded as unique entities, and other stratigraphical observations as interfaces and cuts are not numbered or recorded at all (Felding and Stott 2013, p. 33). The organisation of the recording system implies the existence of a hierarchy among the entities recorded, where the stratigraphical layer is subordinated to other entities and seen as (1) a container of finds and (2) a property of the feature rather than as an archaeological phenomenon in itself (Larsson 2006, p. 36, Berggren 2009, p. 24, McAnany and Hodder 2009, p. 5, Lucas 2012, p. 79). Interfaces and cuts are at best seen as properties of the layer but typically are not seen at all.

The hierarchy among entities has implications for the temporalisation of the archaeological house. When layers and other stratigraphical entities are not recognised as separate entities, the temporality inherent in the sequence of the events they represent is easily downplayed and overlooked in the temporalisation of the house. The chronological date of the

Figure 5. C14-datings of samples from K314.

Beta – 429161 (P168, A30676): 690–750, 760–885 AD (95%)/725–740, 770–780, 790–870 AD (68%)Beta – 429162 (P163, A30665): 670–775 AD (95%)/680–770 AD (68%)Beta – 429163 (P170, A30687): 680–880 AD (95%)/715–745, 765–775 (68%)Darker areas = 68% probability; lighter areas = 95% probability.

posthole becomes the most obvious, and often the only, way to record the temporal properties of the house.

As described, the posthole is typically dated on the basis of artefacts, organic material and stratigraphical relations. But what is actually dated in the process? Artefacts and organic material originate from layers within the posthole rather than from the posthole itself, even when the posthole only contains one layer. In the same way, stratigraphical relations are defined by the intercut rather than the posthole as such. Both layers and cuts are directly related to events in the history of the posthole, and, in principle, when taking the usual source-critical issues of dating into account, the date of the finds or stratigraphical relations will therefore date the event rather than the posthole per se. In practice though, chronological dates of finds or relations are more often referred to as general date for the posthole and the house to specific events and actions in the history of the house.

In conclusion, I will claim that the conventional use of dates from specific stratigraphical entities in the posthole as general datings of the house is a direct consequence of perceiving layers, interfaces and cuts as properties of the posthole rather than as individual archaeological phenomena. The temporalisation of the house is in that way influenced directly by the practice of recording and clearly mirrors a perception and recording of the archaeological house as an object rather than as a process. When the excavation process does not support the recording of events and processes, the chronological date becomes the dominating mode of temporalising the archaeological record.

Archiving the posthole

In the archiving process, the data produced in the excavation process are processed and archived, so it can be used as basis for the excavation report and in future research. The main database used in Danish archaeology for archiving archaeological data is Museernes Udgravningsdata (MUD), which is used by 25 out of 27 archeological institutions in Denmark and serves in that way as an image of the standards in Danish settlement archaeology.

MUD has been in use since 2007 (Larsen 2007). Since it was launched, only minor corrections following specific wishes from the institutions have been made (current version: 1.0.0.121). The aim of the database is to provide each museum with safe storage of excavation data as well as to improve the efficiency and homogeneity of the archaeological data (Larsen 2007, p. 28, MUD 2014, p. 7f). Each museum only has access to data from their own excavations.

The structure of the database is site-based, and comparisons between excavation data across different sites cannot be made directly in the system. Connected to each site, every excavation campaign has a set of data lists. Records of the typical open-area excavation include tables of features, finds, photos and drawings, respectively, which are used to archive the excavation data. In the context of this analysis, I will limit my analysis to the feature table and in particular how temporal properties are recorded in this table.

Each numbered archaeological feature has a unique entry in the feature table. The attributes in the description are listed in Table 1. The fields *Campaign-ID, Feature-ID, Main type of feature* and *Start date* are mandatory and these fields constitute the absolute minimum data connected to each feature. The fields *Subtype of feature, End date, Phase, Description* and relations within the database are optional. All fields are in general used for what they are prescribed for, but as the data type of some of the fields are based on free text, there is a possibility for them to be used in alternative ways, if needed.

The fields Start date, End date, Phase and Description are particularly relevant to the temporalisation of the house. The starting date has to be chosen from a predefined list of culture-historical periods (e.g. Prehistory, Iron Age, Germanic Iron Age, Late Germanic Iron Age), with a dating range stretching

Table 1. Fields included in the Feature table in MUD and their data type.

Field	Data type
Campaign ID[a]	Date
Feature ID[a]	Unique number
Main type of feature[a]	Predefined types
Subtype of feature	Free text
Start date[a]	Predefined periods
End date	Predefined periods
Phase	Free text
Description	Free text
Related features	Database relation
Related finds	Database relation
Related photos	Database relation
Related drawings	Database relation

The fields marked by a are mandatory, the rest is optional (translation by author).

from Early Palaeolithic to Present. If the material cannot be dated to any of the predefined periods, then Undated can be chosen as starting date. When archived in the database, the feature is thereby automatically given a temporal property, which places the feature in relation to the conventional culture-historical periods.

All additional descriptions of the temporal properties of the posthole are optional. The End date is mainly used when the culture-historical date stretches over more than one period but is otherwise organised exactly as the Start date and incorporates the same predefined periods. The Phase field can be used to give a feature a more precise date in relation to the internal temporality of the site (MUD 2014, p. 44), but I have rarely seen this field in use even if it might have been relevant. The Description field is open for a more specific description of temporal properties, including stratigraphical observations and the biography of the posthole (e.g. primary post impression, secondary cuts, post being pulled up etc.). The Description field is based on free text, but most museums have defined their own minimum standards of what should be recorded here and how it should be structured.

Posthole A30660 is registered in the database as belonging to excavation campaign '17–04–2013', and '30660' is the unique feature ID of the posthole. A30660 is described as a 'posthole' (main type) and 'roof-supporting post' (subtype). Furthermore, it is given a starting date, 'Late Germanic Iron Age', and an end date, 'Early Viking Age' (based on the general dating of the longhouse). The 'Phase' field is not used. In the Description field, A30660 is described as follows:

> Depth: 27; Diameter: 54; Sides: uneven; Bottom: rounded; Fill: 2: dark black-brown sandy clay with inclusions of charcoal and subsoil (original cut); 3: Light brown-grey clayey sand, small inclusion of brown-grey clayey sand, a few small inclusions of red burnt clay (backfilled trace of post), posthole is stratigraphically later than A30676 (also part of K314); Interpretation: roof supporting post; Excavation method: boxed, soil sample taken (P161). (Author's translation) (Figure 6)

In the archiving process, the archaeological data are standardised and fitted into the existing database structure. Even though based on the recordings made in the excavation process (e.g. the entities), it is the structure of the database that to a high degree defines the final temporalisation of the archaeological data.

In MUD, the temporal property of the posthole recorded is first and foremost a date in terms of

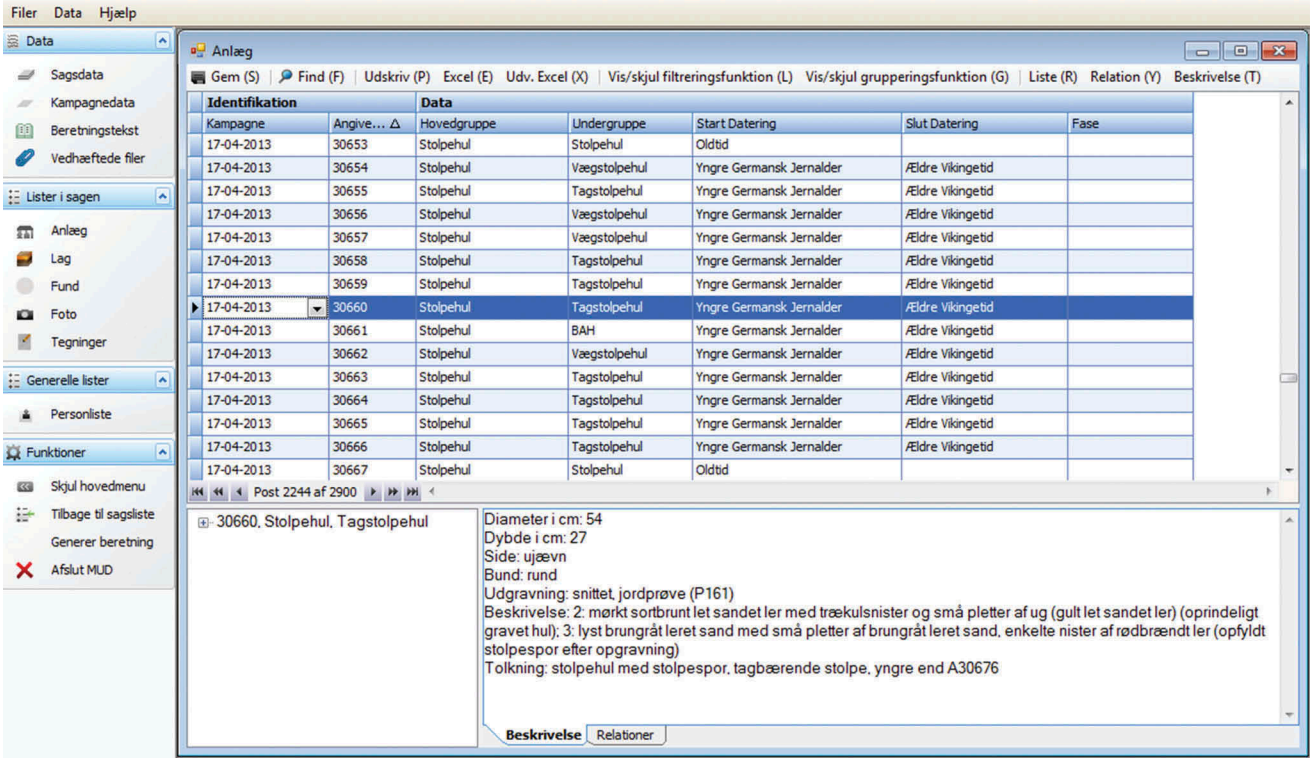

Figure 6. Screenshot from the Feature table in MUD and the recording of posthole A30660.

conventional culture-historical period. A chronological date is mandatory for all posts in the database (even if the date is Undated). All other temporal qualities, such as scientific datings, artefact datings, stratigraphy, phasing, biographical observations etc., can also be recorded in the database but are optional and must be described in free text in the Phase or Description fields. As a consequence, alternative temporal properties to the broad chronological date as well as scientific, and often more precise datings, are subordinated the conventional culture-historical periods, not vice-versa, which influences the temporalisation of the house.

Some archaeologists might argue that they are already including events as they interpret the posthole and the origin of the individual layer (primary fill, post impression, exchange of post etc.), but it is a fact that such interpretations have not had any major impact on how houses are interpreted within settlement archaeology in Denmark. As long as interfaces are not recorded on the same hierarchical level as layers, and as long as the recording of events is not formalised as part of the archaeological process, it is still up to the individual archaeologist whether to engage with the temporalities of the archaeological record or not. The general focus in this sense is still on the object (the posthole, the house) rather than the process and the archaeological events (building, using, demolishing).

Furthermore, there is no formal recording in the existing structure of the database of the dating methods used in relation to the single culture-historical period recorded as Start date (and End date). This is the case even though the dating process often combines different (and sometimes contrary) datings from typology, dated finds, stratigraphy and scientific datings and thus ought to be the conclusion of a longer argument. It can be argued that the argument can be described in the Description field as there is no formal limits of what can be recorded here, but in my time as a field archaeologist I have never seen the dating method recorded.

All in all, the data structure affects the archiving process and thereby also the temporalisation of the archaeological house through the recording of temporal properties of the posthole. Even though free text fields open up the possibility of using MUD in alternative ways, my analysis shows that the use of the database for archiving is often rather conservative. The difference in how temporal properties are recorded defines a hierarchical relationship between different forms of temporalisations, where some appear as primary and other as secondary. The formal and mandatory role the conventional culture-historical dating has in the database makes the chronological dating the primary temporalisation of the archaeological house, whereas other temporal properties appear secondary and for the most part hidden in the free text of the Phase or Description fields.

Discussion

The analysis of the archaeological process shows how the typical archaeological process within Danish settlement archaeology favours a temporalisation of the archaeological data based on the chronological date, in many cases represented by the conventional culture-historical periods. Since the first chronological theories were presented, the purpose of developing the chronological system has been to develop a framework for organising and systematising the past, to 'create order in chaos' (Thomas 2004, p. 61ff, Witmore 2013, p. 130). The same logic directs the temporalisation of archaeological settlement data, where the temporalisation is aimed at dating the house to place it in the right culture-historical context rather than untangling the single events in the house.

But if the temporalisation of the house through the archaeological process consists exclusively of fitting it into a chronological framework and other temporalities are downplayed, there is a severe risk of not thinking about the house – and in a wider perspective the archaeological record – as a temporal phenomena in other aspects than its age (Lucas 2005, p. 40; Olivier 2011, p. 57). In the end, a simplified perception of the house is created, as the temporality of the house is reduced to (1) being there and (2) disappearing at a certain moment in time. The dynamics in between are not described or engaged with, with the result that the house is presented as a static phenomenon (Sørensen 2015, p. 92, Van Oyen 2015, p. 74, Bille and Sørensen 2016, p. 6). The house is, with the words of Adams and Adams, reduced to a 'dating fossil' (Adams and Adams 1991, p. 163). It can help to place a site within a certain chronology but is not something that contains a dynamic life history of its own that can contribute to the general interpretation of the site.

For a richer understanding of the house as an archaeological and cultural phenomenon, I will follow Lucas (2005, p. 25) and argue that a broader and more inclusive perspective that actively engage with the temporality of the archaeological record is needed. Instead of seeing the stratigraphy as a property of the posthole, the posthole should be seen as an *assemblage* made up of the events and materials that created the stratigraphy.

An assemblage is a well-known term within archaeology, where it traditionally designates a collection of similar artefacts or a collection of contemporary artefacts that form a specific context, e.g. the equipment of a burial (Lucas 2012, p. 193ff, Hamilakis and Jones 2017, p. 77). But the concept of the assemblage has recently been reintroduced with the presentation of assemblage theory to archaeology (e.g. Lucas 2012, Bille and Sørensen 2016, Hamilakis and Jones 2017). Assemblage theory has its roots in the works of the philosophers Gilles Deleuze and Félix Guattari but has since been developed further into an analytical tool by Manuel DeLanda (Deleuze and Guattari 2005, DeLanda 2006, 2016). In its new meaning, an assemblage still designates a collection, but, instead of a homogeneous group of artefacts, it is a heterogeneous collection consisting of both tangible and intangible elements as well as the relations between the elements. The assemblage of the posthole will accordingly, among other elements, include the soil, the backfill, the post, the tools, the building, the people who dug the hole as well as the actions around and the intentions for the establishment of the posthole. Essentially, though, the assemblage exists only as a result of the specific situation and composition of the assemblage and changes over time, as the elements and their internal relations change.

Use of the concept of the assemblage as an analytical tool changes the perspective from a conventional top-down to a bottom-up perspective (DeLanda 2006, p. 32). Where a top-down perspective is represented, e.g. by the use of the category 'posthole', which imposes a specific concept onto the archaeological record even before it is excavated, a bottom-up perspective is represented by a focus on the processes that produce the archaeological record building the perception of the archaeological record up from the processes and materials present. Or in other word, the posthole is only a phenomenon recognised by the archaeologist. To the people creating the posthole, it was the events and actions in relation to the posthole that defined its existence. Thinking of the posthole as an assemblage helps us as archaeologists to get beyond the term posthole and creates explicit space for perceiving the posthole simultaneously as an object and a process in connection with its components (Bille and Sørensen 2016, p. 7, Hamilakis 2017, p. 173, Hamilakis and Jones 2017, p. 82). This produces an immensely fruitful perspective in relation to the understanding of the house because, as the anthropologist Tim Ingold (2010, p. 161f) rightly has pointed out, building is not only an object, it is also a verb; it is something you do.

Therefore, returning to the posthole A30660, how would it contribute to the understanding of the longhouse K314 if A30660 was looked at as an assemblage? First of all, the purpose of digging the posthole is clear. The post raised in A30660 was an exchange of the original roof-supporting post (A30676) in the western end of the house. The other roof-supporting post in pair with A30676 was also exchanged and it seems obvious that the exchange happened at the same occasion as part of a larger repair and maintenance of the house. The digging of the hole and raising the post was probably a relatively quick process as it must be assumed that it was done while the rest of the house was still standing. It was probably members of the household who were involved in the digging of A30660 and the raising of the new post using tools that were part of the inventory of the house.

The establishment of A30660 tells us something about the longhouse K314. Somebody cared for the house and had a wish to prolong its lifetime either because it was a dwelling house and somebody's home or it served a central function within the farm that was important to maintain. The wider archaeological record cannot say much about the more specific use of the house, but the fact that the house has an earlier or following phase of a similar longhouse build in the same site indicates that it could have been a dwelling, a place with a longer history and a meaning for the people living there.

The inclusions of burnt clay, clay slag and charcoal in layer 3 of A30660 (as well as in some of the other postholes) indicate that the house burnt down in the end, either as an accident or as a deliberate act. Burning down houses which are abandoned is a well-known way to clear a house site both physically

as well as mentally and could have been part of rituals used in relation with the abandonment of the house (Tringham 2000). The shape of the secondary cut in the posthole indicates further that the remains of the house were removed deliberately after the fire which support the interpretation of the burning down of the house as a deliberate act. The house had to be completely removed. Such an act must have involved at least the household of the former house but could very well also have involved other households in the settlement participating in a common ritual marking the change.

Thinking of the posthole as an assemblage leads to specific questions that even though they cannot always be answered, they cause important reflections in relation to the understanding of the house. The result is, as I see it, a richer idea of what the longhouse K314 once was based specifically on the archaeological record present today. It has even given a little impression of the inhabitants of the house that would not have emerged from a single date. If the rest of the postholes were looked at in the same way and included in the interpretation, it is possible that even more details could be given.

Assemblage theory makes the temporality of the posthole explicit. It gives the posthole an inherent dynamic, rhythm and duration at different scales (Olivier 2001, p. 66, 2011, p. 166, Lucas 2005, p. 41, Hamilakis 2017, p. 173ff, Hamilakis and Jones 2017, p. 82). A multitemporal approach to the archaeological record gives renewed possibilities of thinking in alternative temporalities within already existing approaches as chaîne opératoires, biographies or social memories in relation to the house (e.g. Gerritsen 1999, Tringham 2000, Boivin 2008, Stenholm 2012, McFadyen 2013, Bille and Sørensen 2016, Eriksen 2016). Each action, e.g. digging the hole, preparing the post etc., must be seen as meaningful actions in relation to the history of the house (Pauketat and Alt 2005, p. 223). Ideally, these are not interpretations that should be added after a basic recording of the posthole but thoughts that should be reflected upon during the excavation and recording of the feature. The aim must therefore be to work towards developing archaeological practices that better reflect the multitemporality of the archaeological record than is the case today (Bailey and Simpkin 2015, p. 188). In a Danish context this could be accomplished, for instance through an adaption of some of the elements of single-context excavation e.g. by the simple operation of giving layers and interfaces individual numbers and descriptions so they are acknowledged on the same level as other entities (Harris 1989). In other traditions and other kind of archaeology, other adaptions might be more relevant.

Conclusions

In the article, I have analysed the archaeological process typically used by archaeologists working with Danish settlement archaeology and argued that there is a problem with the temporalisation of the archaeological record. The problem is not with dating or chronology per se, but with the predominant position of the chronological date, which leaves little space for alternative temporalities.

Even if only a short critical review of how the chronological date is dominating the archaeological process can be given here, what has been learned from the analysis and discussion is that while a perception of the archaeological record as objects is dominating the current practice, the archaeological record is more usefully understood as fundamentally multitemporal (Lucas 2005, p. 43). The current archaeological process within settlement archaeology is in this way reducing and simplifying the temporality of the house by focusing one-sidedly on the chronological date and ignoring other temporalities. Instead, a perception of the archaeological record as assemblages gives the possibility of including perspectives of the archaeological record both as material objects as well as processes which in the end can contribute with a more complex and richer understanding of the house as an archaeological and cultural phenomenon.

The debate about temporalities of the archaeological house should be viewed not only as a theoretical debate but also to a great extent as a question of practices that reaches deep into the foundations of settlement archaeology. Archaeological data and archaeological practice can hardly be separated, and the archaeological data created will always constitute the point of departure for the archaeological research. The detailed review of the practices used in Danish settlement archaeology can in that way serve as an example of the close connection between

theory and practice and hopefully inspire to similar review in other traditions.

The aim of the paper has not been to argue that archaeologists should replace the chronology with a new temporal system but rather that we need to go beyond the chronology and complement it with more complex temporal perspectives. The article is therefore not a critique of chronology as a framework or of archaeological work done previously, but a critique of the lack of reflection over the dominant position the chronology has in and because of existing archaeological practice. More than anything else, the article should be seen as a call for a more extensive debate of the basic methods and practices and their relevance to the archaeological data produced in relation to the questions asked. In the end, if the archaeological data do not express a complex temporality, neither will the questions investigated.

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