

Querns in Context

The Reuse of Quernstones at Firgaarde, an Iron Age Settlement in East Jutland, Denmark

Louise Søndergaard

Abstract

This article examines the reuse of quernstones at Firgaarde, a multi-phase Iron Age settlement in East Jutland (second century BCE–fourth century CE). Such finds are typically regarded as either accidentally abandoned or repurposed as convenient building material, but this study challenges that view. Contextual analysis of 176 recovered querns reveals patterned reuse, with practices shifting over time: from discrete placements in pits, to integration into key architectural features, to the sealing of a household with burnt and broken rotary querns. These patterns indicate that quernstones were perceived as active participants in social life, valued for properties extending well beyond their grinding function. Viewing these relationships through a contextual lens over almost six centuries highlights the enduring cultural and social significance of these objects; a significance often overlooked in archaeological interpretation.

Keywords: quernstones, Iron Age, new materialism, contextual methodology, settlement research.

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Introduction

When archaeologists encounter a quernstone during excavation, it seldom evokes reflections on complexity or intentionality. In Iron Age contexts, such finds are typically ranked among the least significant, assigned a statement value equivalent to a bag of oatmeal on a modern breakfast table. If found in a posthole, quernstones are usually interpreted as providing a pragmatic footing, ensuring that the wooden post has a long life in the moist northern climate, regardless of the broader contextual setting. In pits, they are often viewed as discarded, worn-out tools – even when they look fully functional – and when included in burials, they are dismissed as incidental. The material uniformity of querns has long reinforced the idea that they were simple, utilitarian objects valued only for their role in food processing, implying that they were otherwise culturally inert. Yet this perspective overlooks the long and intimate human/quern relationship that had been sustained for millennia. While grinding was a key function, contextual analysis suggests that quernstones were also considered to be transformative objects, shaping humans, meaning, and domestic space.

When unusually large numbers of quernstones appear within a single longhouse, it may be labelled *the miller's house* or interpreted as having a special production-related function, even when the physical position of the querns, below the floor or the hearth, makes practical use implausible. If functional explanations prove insufficient, it is often assumed that further interpretation is unattainable. Although residue and use-wear analyses illuminate past foodways, object-centred quantitative approaches say little about the cultural significance of the grindstones themselves. How were they used, treated and perceived once they were no longer considered fit for grinding?

This paper explores these issues through a contextual analysis of quernstone deposition in a settlement context. If such deposits reflect intention and meaning, they support the hypothesis that the affordances of querns extended well beyond grinding alone. The aim is not to deny their functional value, but to expand it into a broader field of meaning. Employing an interpretive framework that moves beyond processual descriptions of quernstones as mere tools, allows us to highlight the role of quernstones as active elements in the construction, dismantling and transformation of built spaces and social identities. In doing so, it contributes to a social archaeology of the Iron Age and situates Danish quern deposition in a wider comparative perspective.

Defining and contextualising quernstones

For most of prehistory, the dominant grinding tool was the saddle quern, consisting of a stationary lower stone and a handheld upper stone (figure 1a). Saddle querns are rarely recovered as complete sets, and the identification of a saddle quern therefore generally rests on the presence of the lower grinding slab. Accordingly, the term ‘quernstone’ (or ‘quern’ in repetitive passages) refers here to the lower stone of the saddle quern, unless explicitly identified as a rotary quern.

Querns were essential components of prehistoric households. Their use predates agriculture and includes the processing of roots, nuts, ochre and other materials (Revedin et al. 2010), while later crafts such as pottery production and ironworking also required ground materials. Querns are therefore poor proxies for evidence of agricultural intensity. Ethnographic studies show that households often possessed several querns for different purposes (Gelbert 2005; Hamon & Le Gall 2013), while their accumulation may also reflect inheritance, hoarding and gift exchange.

With the exception of Bornholm, Denmark lacks exposed bedrock, so prehistoric quernstones were made from glacial erratic boulders carried by glaciers from north Scandinavia during the last ice age. In some regions the stones were scattered across the landscape, in other regions prehistoric farmers encountered the stones while clearing new agricultural fields. Granite and gneiss were the preferred material for quern production (Jørgensen 1991). Although petrographic analyses could provide more precise geological provenances, they offer limited insight into acquisition and exchange systems, because the raw materials derive from the erratics scattered across the local landscape. The considerable variation in form and workmanship of both saddle and rotary querns of the Iron Age further suggests largely household-based rather than specialised production. Quernstones are most often recovered in a fragmented state, a phenomenon that has prompted recurring debate but no definitive conclusions (Brück 2006; Chapman 2000:94; Cleary 2018:349–354; Watts 2014a:130–131). There is broad agreement that fragmentation is often deliberate, though no consistent depositional pattern has been identified. Moreover, a quern is inherently fragmented once separated from its upper or lower stone.

Iron Age quernstones in Denmark remain understudied, despite the period witnessing a major technological shift from the saddle to the rotary quern (figure 1b). Although a small selection of basalt rotary quern fragments, dating from the late first century CE (Ethelberg 1995), have been discovered in southern Jutland, these were apparently imported from Germania for a narrow customer group, and the rotating technology did not gain wider acceptance until the third century (Frandsen 2000). In the rest of Jutland, the



Figure 1. a: A typical example of an oblong, lower stone of a saddle quern. b: The upper stone of a rotary quern 4th-5th century. Photos: Museum Skanderborg.

querns were produced from locally available stone until the Viking Age. No rotary quern specimens dated earlier than the third century CE are currently known from East Central Jutland, and the acceptance of the new technology was slow in general across Jutland. The transition involved more than increased efficiency in grinding materials and likely had significant social implications that went beyond the time spent at the task. Grinding is often embedded in traditions, songs, rhythms and bodily routines (Bombardieri 2019:76–78; Nixon-Darcus & D’Andrea 2017:210; Watts 2014a:37–38), and the adoption of rotary querns therefore altered long-established practices through which skill, knowledge and social identities were reproduced – and had been through many generations (Holmberg 2004).

In her seminal study *The Life and Death of Querns*, Susan Watts (2014a) examined prehistoric quern deposition in South West England, identifying recurring contextual patterns across settlement features, burial contexts, pits and production facilities. Many of Watts’ observations make a significant contribution towards reframing our understanding of quernstones beyond South-West England. Although she remained cautious regarding the intentionality of these deposits, many of the depositional patterns she identified can also be recognised in archaeological material from elsewhere in Europe (Andersson 1999; Arrhenius 2013; Carlie 2004; De Vries 2015; Graefe et al. 2009; Hamon 2020; Zachrisson 2014). Despite this growing body of evidence, Iron Age quernstones often receive only limited attention during excavation and post-excavation work. They may not be collected and their recording is frequently cursory, a situation by no means unique to Denmark (Chadwick 2015:54; Fendin 2006:159; Peacock 2013:181; Watts 2014a:134).

The contextual methodology

This article highlights the value of contextual methodology, a core archaeological approach that has become somewhat overshadowed by the so-called scientific turn, yet one that can offer new ways of populating seemingly uninhabited settlements and addressing the complexities of social and ritualised behaviour (Chadwick 2012:296–297). In this article, contextual methodology is understood as the systematic examination of an artefact’s depositional context, including its relationship to features, structures, other artefacts and the wider social and landscape setting in which it was deposited (Croix 2020; Hodder & Hutson 2003).

Quernstones are particularly well suited to such analyses, as they are heavy and their material is durable. Indifferent to bioturbation and soil acidity, they are little changed by their centuries in the ground. This means that querns are found in the context they were deposited in, which makes



Figure 2. The depositional position of a quernstone within a posthole provides important chronological information about its placement. A quern found at the base of a posthole, like the saddle quern placed at the bottom of an entrance post (a), were deposited during house construction, after excavation of the posthole but before erection of the post. A quern found within the postpipe as the rotary quern fragment in a K128 posthole (b), by contrast, relates to the abandonment or dismantling of the building, since the postpipe only became available for deposition once the post had been removed. Photos: Museum Skanderborg.

them valuable indicators of activities associated with the construction, transformation and abandonment of buildings and households. Although the entire assemblage of finds at a site is recognised as being significant, this research confirms that focus on a single artefact category can generate fresh perspectives on settlement organisation and depositional practices.

Details concerning the depositional context of quernstones have important implications for interpretation. For example, a quern placed at the base of a posthole at Firgaarde Iron Age settlement (figure 2a) was deposited during the building's *construction* and can therefore be associated with its foundation. Although stones occasionally occur elsewhere within the fill surrounding the wooden post, it is difficult to imagine large stones being introduced into roof-bearing postholes during the use-life of a house, particularly when situated at the base of the posthole. Querns and other stones may also occur within the postpipe, the cavity created by the removal of a post (figure 2b). In such cases, deposition belongs to the *dismantling* of the structure and can be associated with the house's termination. Such observations provide important information about the temporal biography of households and buildings. The distribution of additional worked and unworked stones must likewise be considered in order to distinguish deliberate depositional practices from patterns shaped by purely structural or architectural requirements.

Natural scientific methods such as use-wear analysis, lipid or residue analyses have made substantial contributions to our understanding of what was processed on particular querns and how (Alonso et al. 2020; Chondrou et al. 2018; Dietrich et al. 2019; Hamon et al. 2021; Out et al. 2024). Yet these approaches primarily illuminate the functional lives of querns rather than their subsequent depositional trajectories. A contextual approach adds new perspectives by focusing on the social practices surrounding the reuse, deposition, fragmentation and final placement of quernstones within settlements. It furthermore allows broader patterns to be identified from excavation archives and grey literature, meaning that meaningful analyses can be undertaken even when artefacts are no longer available. Laboratory analyses of curated finds can contribute to more comprehensive understandings of quern biographies when combined with contextual methods. In Iron Age quern research, however, such analyses have rarely, if ever, been undertaken.

Material and dataset

The present study is based on quernstones recovered from the Iron Age settlement at Firgaarde, near Ry in East Jutland, Denmark (figure 3). Excavations undertaken at this site by Museum Skanderborg over a sixteen-year

period have produced a highly reliable dataset (Bagge 2024). At the Firgaarde excavations, all quernstones were either transported to the museum for description and photo documentation or were documented to the same standard in the field and left behind. Thoroughly excavating every feature at Firgaarde has resulted in a dataset with a high degree of validity and usability, countering the biases that can arise from partial excavation (Eriksen 2019:164).

A GIS-based database was established to visually record each find, along with information on its condition, fragmentation, position, orientation, use-wear and associations with specific features and structures. The dataset comprises 176 quernstones. The study draws on excavation records, photographs, drawings and finds descriptions, supplemented by direct examination of part of the assemblage by the author during excavation, documentation and post-excavation work. Observations concerning use-wear were limited to macroscopic assessment based on visual and tactile inspection of the stones. Opportunities for further analysis are limited, as most quernstones were discarded following documentation and cannot be re-examined.

Theoretical framework

The point of departure of this paper is that querns did things. Through an analysis of their spatial distribution, the paper explores the different roles querns may have played within households and settlement practices. This approach combines contextual analysis with perspectives derived from materiality studies. Whereas depositional patterns reveal where and how querns were situated, theories associated with the Material Turn provide a framework for exploring how objects acquire significance through their material properties and relationships with people and other things (Bennett 2010; Hoskins 1998; Ingold 2007; Olsen et al. 2012). Such approaches challenge a Cartesian worldview in which humans are the sole agents and objects merely passive matter. Instead, they emphasize that things participate in social life in meaningful ways.

Despite their crucial importance in everyday life, quernstones are often treated as purely functional artefacts and are rarely considered in the interpretation of archaeological sites. Yet, by the Iron Age, dependence on querns was already millennia old, and people invested considerable time, attention and labour in their manufacture, maintenance and use (Hodder 2011, 2016). Grinding was, therefore, more than a simple, technical task. Rather, it was a practice constituted through the interaction of human bodies and stone (Ingold 2007). While people shaped and maintained querns, the

stones transformed materials and participated in embodied routines that, over time, affected the bodies of those performing the work (Macintosh et al. 2017; Molleson 1994; Powell et al. 1991:89–101; Struška et al. 2021). Drawing on Ingold (2007) and Brück (2019), querns are approached here as objects embedded in networks of relationships. Connections between people, ancestors, buildings, places, daily tasks and ritual practices may all have shaped how querns were made, moved, reused, fragmented and deposited.

Firgaarde – An Iron Age settlement through almost 600 years

The landscape surrounding the village of Firgaarde is a fertile one, with lakes, streams and forest areas scattered throughout; a very favourable place to settle for most of prehistory, which people did continuously from the Neolithic, and intensively in the Iron Age. The Iron Age in Denmark spans approximately from 500 BCE to the mid-eighth century CE, and development-led excavations have revealed numerous settlements from the period. Across Jutland, settlement structure followed a broadly consistent pattern, with farmsteads clustered to form small communities. Each farmstead generally comprised a central longhouse and one or two ancillary buildings, enclosed within fenced areas. Over time, these farmsteads expanded from modest units into large, fenced complexes with multiple outbuildings.

The rectangular, three-aisled Iron Age longhouse maintained a stable layout. Oriented east–west, the timber building had roof-bearing posts supporting a thatched roof and wattle-and-daub walls. The longhouse was divided into three main zones. The west-end formed the residential area, where sleeping, cooking, eating and craft activities took place around the central hearth. The east-end is traditionally interpreted as the byre, though this identification is not straightforward (Martens 2020:49–53). Between these two were the entrances into the house. The placement of opposing doorways meant that one could not enter directly into either the domestic or animal quarters but had to pass through this central space. The main entrances aligned with fence openings, directing movement towards this point of the building.

Firgaarde represents a so-called ‘wandering village’, meaning that several phases of occupation successively shifted location around the same narrow, seasonal wetland over a span of approximately 600 years, from the early second century BCE–late fourth century CE (figure 3). The wetland alternated between dry and damp conditions: occasionally dry enough to act as foundation for production activities, yet other times the central part was sufficiently wet to be used as a dumpsite, as indicated by large quantities

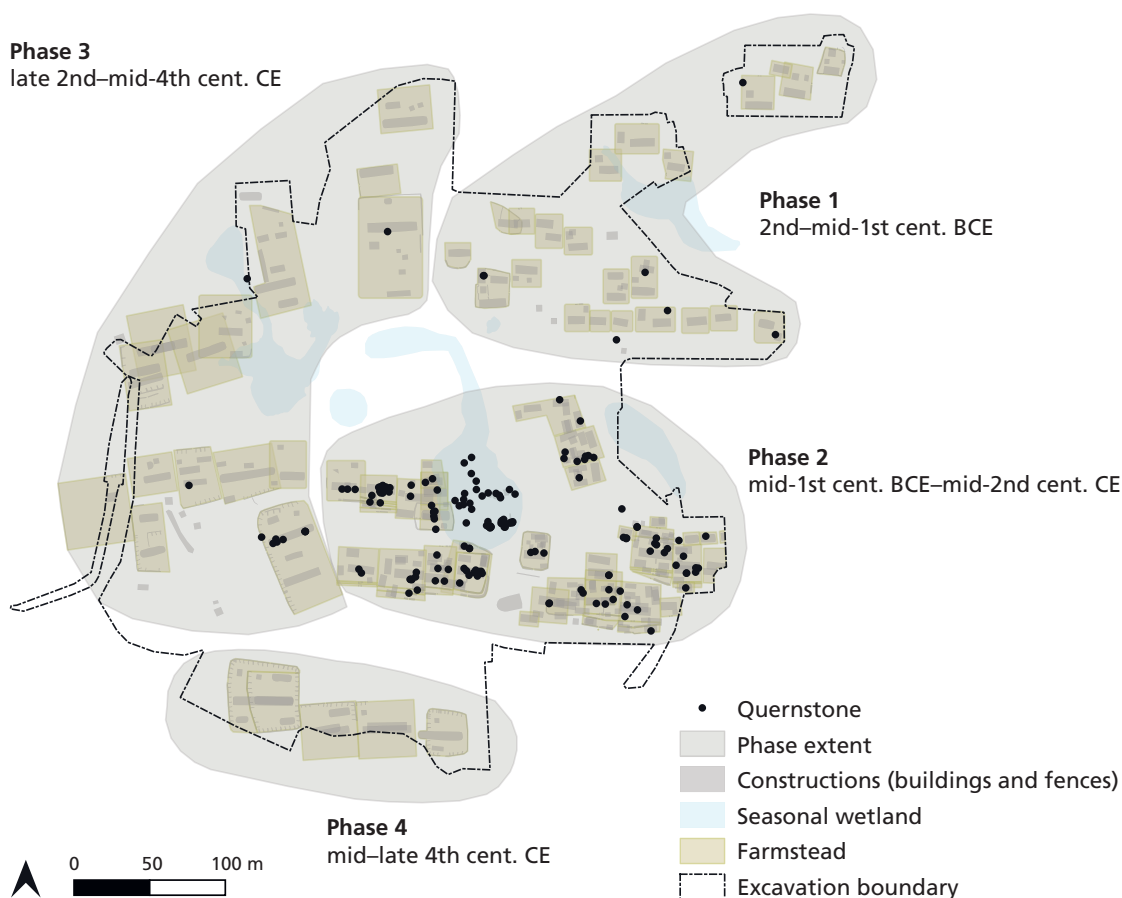


Figure 3. Firgaarde excavation area (12.3 ha) with the spatial distribution of quernstone finds and settlement Phases 1–4. Illustration: Louise Søndergaard.

of settlement debris, including pottery and quernstone fragments found in the deepest layers of the wetland.

The earliest settlers established farmsteads in the north-east, after which the village gradually moved in a clockwise direction around the wetland before, in its final phase, relocating south of the earlier settlement areas, beyond the excavation boundary. The settlement can be divided into four main phases following the Danish chronology for the Iron Age:

Phase 1: Late Pre-Roman Iron Age (early second–mid-first century BCE).

Phase 2: Late Pre-Roman–Early Roman Iron Age (mid-first century BCE–mid-second century CE).

Phase 3: Late Roman Iron Age (late second–mid-fourth century CE).

Phase 4: Early Germanic Iron Age (mid–late fourth century CE).

Table 1. Distribution of quernstones across contexts and settlement phases at the site.

Context	Phase 1	Phase 2	Phase 3	Phase 4
Seasonal wetland (surface and layers of refuse)		16		
Production area on wetland		30		
Pits (usually on the farm plots)	4	11		
Fence (entrance post)		13	1	
<i>Buildings:</i>				
Postholes	3	76	10	
Hearths		2		
Deposit in entrance zone		3		
Cultural layers in / around houses		7		
Total number of quernstones	7	158	11	0

Although the constructional differences between phases at Firgaarde are distinguishable, the precise chronology remains uncertain. Radiocarbon dating was constrained by lack of suitable organic materials, and individual buildings often yielded dates spanning up to 150 years (Bagge 2024). Consequently, the actual demarcation of phases may fluctuate by fifty years in either direction.

The assemblage comprises 176 quernstones, both complete and fragmentary, securely attributable to the settlement: Seven from Phase 1, 158 from Phase 2, and 11 from Phase 3; none were recorded from Phase 4 (table 1). The marked variation between phases is explored below.

Phase 1 (early-second–mid-first century BCE)

The earliest settlement phase at Firgaarde comprises an estimated twenty-two farms, most with additional outbuildings (Bagge 2024:41). These were not all contemporary, and the phase likely spanned two to three generations.

The seven quernstones recorded from Phase 1 features (figures 3 and table 1) were all lower saddle querns, all but one fragmented. Four querns were recovered from pits near houses. One was a surface find by the mechanical excavator during soil stripping, perhaps originating from the entrance post of a small ancillary building. The remaining two finds came from the base and upper fill of an exceptionally wide roof-supporting posthole at the centre of a north–south oriented ancillary structure on a farm, notable for its surrounding ditch and multiple outbuildings. The width of the feature makes it possible that the posthole had been dug into an earlier pit, as more of those were scattered in the vicinity.

Phase 2 (mid-first century BCE–mid-second century CE)

Phase 2 (figure 4) represented the most nucleated stage of the settlement and reflects a broader trend typical of this period in Denmark and elsewhere in North-Western Europe: from a structure of no overlapping houses to a practice of incorporating the earlier house into the new (Webley 2008:30). During this phase of settlement, 28 longhouses, not all serving as main farmhouses, and 131 outbuildings of various forms, orientations and function were distributed across twenty farmsteads (Bagge 2024:92). Each farmstead covered 400–1000 m² and included at least two outbuildings. These seem to have been added as required, and were generally replaced rather than being rebuilt (see also Gerritsen 2008:151).

The structures that were most often rebuilt or refurbished were longhouses. Ten cases of longhouse rebuilding/refurbishing can be seen in Phase 2. In some cases, only the posts at the eastern end were replaced. In others, the entire structure was renewed, at times slightly offset by a few metres from its predecessor. Several houses were reconstructed twice, and a few three times, indicating the continued significance of those specific locations. This rebuilding pattern was echoed in up to three parallel sets of fence-gate posts outside the house entrances – often the only surviving features of the numerous fences of Phase 2 (figures 4 and 6). The number of farms during Phase 2 was broadly comparable to the number in Phases 1 and 3, but extensive longhouse rebuilding increased the number of households requiring at least one quern. A conservative estimate is thirty households, spread across five to six generations, given that a typical settlement of this period comprised five to six contemporary farms (Webley 2008:31).

Quernstone numbers increased in Phase 2: 158 of the 176 recovered during excavation date to this phase, with their distribution shown in table 1. A total of 46 querns were found within the seasonal wetland around which the settlement was centred. Sixteen of these were recovered from various horizons encountered in an excavated trench stretching from the wetland's edge into its central hollow, where layers of settlement refuse (including querns, hammerstones and fire cracked cooking stones and ceramics) extended to 1 m below the surface. The quernstones, almost all fragmented, came from both surface and lower layers, apparently without deliberate arrangement. Winter excavation conditions hindered detailed observation of their deposition, but they appeared randomly intermingled with other stones and broken ceramics.

A large retting basin, as well as additional stone-lined drying ovens associated with flax processing on the dried-out wetland surface, accounted for an additional 30 quern fragments. A few were incorporated into the substructure of the ovens, others in the frame of the basin, but most were



Figure 4. Detail of Phase 2 showing the distribution of recovered quernstones, longhouses with quernstone deposits, farmsteads and seasonal wetlands. Quernstone deposits are present in longhouses across nearly all farmsteads, regardless of their proximity to the wetlands. Note the repeated, multi-phased fence openings located immediately south of several farmsteads. Illustration: Louise Søndergaard.

recovered from two elongated heaps of mixed natural and worked stones, interpreted as convenient stockpiles for processing, where stones served to keep flax submerged during retting (Bagge 2024:69–88). Beyond the wetland, 11 quernstones were recovered from pits on or near farm plots, and 13 from entrance posts in fences.

Although quernstones occurred in all building types, a preference for longhouse contexts was evident (table 2). In larger outbuildings, the dis-

Table 2. Quernstone distribution by building type in Phase 2, showing the number of buildings containing quernstones and the total number of quernstones recovered from each building category.

Building type	Number of buildings	Containing quernstones	Total of quernstones	Percentage
Longhouse	28	18	65	64,3%
Larger ancillary outbuilding	52	8	9	15,3%
Four-poster ancillary	46	5	5	10,8%
North-south building	32	4	4	12,5%

tribution is relatively even, generally one quern per building, with a single exception in which two were found. In all the outbuildings, querns were placed either in an entrance posthole or in a structural posthole within the entrance zone. The four-poster ancillaries suggest a less restrictive pattern, with any post except the north-eastern one apparently suitable. North-south-oriented outbuildings give a similar impression. The limited number of querns makes statistical analysis fruitless but nevertheless points to the main longhouse as the preferred setting for quernstone deposition.

Longhouses of Phase 2 followed a strict layout with two, or more rarely three, sets of roof-bearing postholes on either side of the entrance zone (figures 5 and 6). In contrast to the modest number in ancillary structures, the 65 quernstones from longhouse contexts provide a more statistically robust basis for analysis. Of 28 longhouses, 18 yielded quernstones (table 2). Eight of 18 longhouses contained two quernstones. Two held only one, and

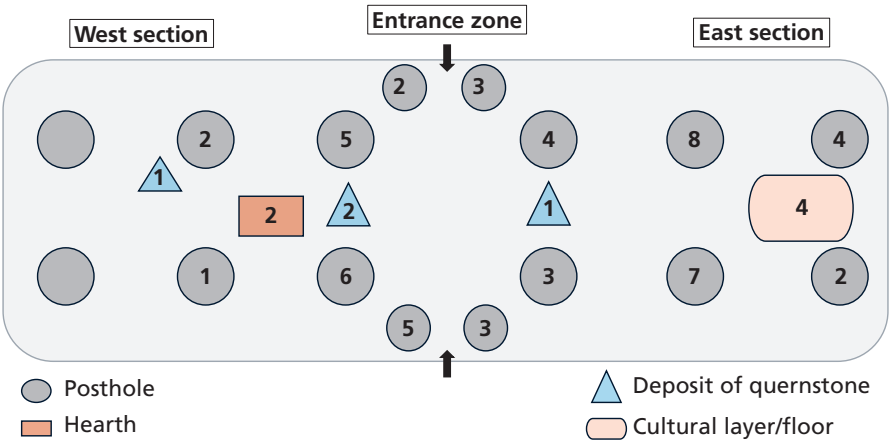


Figure 5. All quernstone finds from Phase 2 projected onto a schematic three-aisled longhouse reveal a markedly uneven distribution between house sections, while showing an overall even distribution among households. Illustration: Louise Søndergaard.

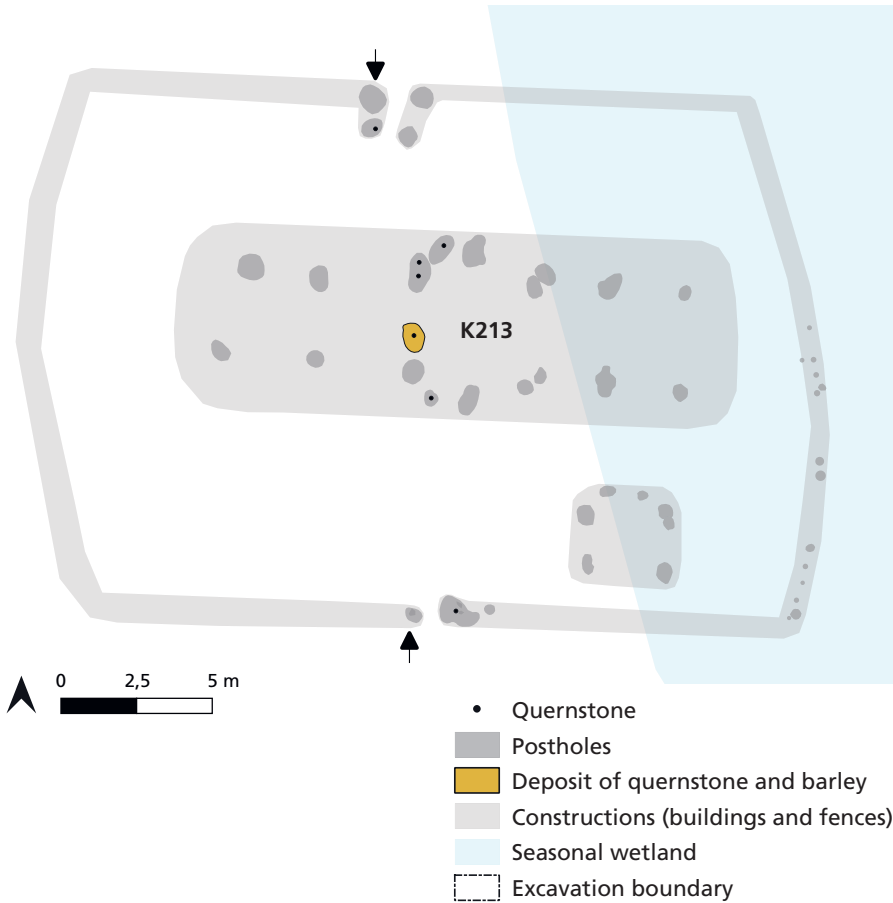


Figure 6. Longhouse K213. A Phase 2 farmstead comprising a central longhouse, an ancillary building, and an enclosing fence, of which only the entrance postholes and a short section of the eastern fence were preserved. The entrance area contained five quernstones, including a deposit consisting of a quernstone and charred barley. Illustration: Louise Søndergaard.

at least one of these cases is questionable (house K149). Three longhouses contained three querns, while a single house accounted for four. Two houses held five and 12 querns respectively. The standard was one quernstone find per posthole, though two querns in the same posthole were not uncommon.

Within houses, the distribution followed a relatively consistent pattern that appears unrelated to the total number of quernstones present. As shown in figure 5, in which all quernstone finds of Phase 2 have been plotted onto one schematic longhouse, the western section was poorly represented, with only five querns recorded. Three of those were incorporated into two (of a total of three) preserved stone-set hearths and the other two placed in postholes by the hearth adjacent to the entrance zone. None were placed

in the outermost pair of western postholes, and apart from a questionable deposit in house K149, where it was difficult to ascertain whether another structure overlapped it, no house contained querns solely in the west section.

Figure 5 shows that the entrance zone exhibits a pronounced concentration of quernstones across all main longhouses. All but one of the longhouses containing querns held at least one quern in the entrance. While the higher number of quernstone finds in the entrance could theoretically account for the increased number of postholes in this area of a longhouse, the entrance postholes were generally smaller and shallower than the roof-bearing posts and often poorly or not preserved at all. The volume of fill in which querns could be deposited is therefore broadly comparable across the sections. The entrance zone additionally contained three features interpreted as deposits as they were not postholes, but shallow cavities, barely deep enough to contain and conceal a (fragmented) quernstone buried below the thresholds of the doorways leading further into the house. Additionally, one of the deposits (K213, figure 6) contained a large quantity of charred barley.

The eastern section accounts for 25 quernstone finds across all Phase 2 longhouses. Four querns were recovered from a cultural layer, interpreted by the excavator as a work area in the eastern section within the same house, meaning that the contextual circumstances of these querns differ from the circumstances of those deposited below the floors. When the contexts of the quernstones were recorded in detail, they were typically interpreted as elements of post footings (figure 2a). As this interpretation was applied regardless of the stones' size or position, it appears to reflect an assumption rather than a context-based analysis. What is clear from the documentation, however, is that the quernstones were never located within the postholes of the earliest building phase in cases where the structure was a multi-phase longhouse. This indicates that the reused querns derived from the early households of Phase 2 and not from Phase 1.

Phase 3 (late second–mid-fourth century CE)

During Phase 3, the settlement moved west and north of the wetland, continuing in both directions (figure 7). Around 14 farms were uncovered, with minimal overlap suggesting that several were contemporary (Bagge 2024:115). The transition from continuous rebuilding of households to a pattern reflecting increased need for space and renewal is obvious here.

The rotary quern was first introduced during Phase 3, along with the first furnaces for iron extraction. Iron was essential for making the central hole in granite rotary querns (Peacock 2013:54), and it is very likely that the



Figure 7. Only three Phase 3 farmsteads contained quernstones. The northernmost and earliest farmstead yielded a saddle quern, while the two southern and slightly later farmsteads contained rotary querns, reflecting the technological transition visible within the phase. Illustration: Louise Søndergaard.

querns were produced locally. As already mentioned, the imported basalt querns did not move far and, later, it was clearly the technology of the rotary quern and not the goods themselves that travelled on or was re-introduced. The technology of production and use of the rotary quern may have been adopted as part of a cultural package that included bread, as interestingly proposed by Torun Zachrisson for the Swedish area (2014:181), though so far, no securely identified bread has been found in a Danish Iron Age context. Despite the likely ability to produce the rotary quern locally, they generally form rare finds on late Iron Age sites in Denmark. Several sites yield none, and anything more than two specimens per site is rather exceptional.

11 quernstones can be assigned to Phase 3 (table 1 and figure 7), all distributed across just three farms. A longhouse located to the north yielded a complete but heavily worn saddle quern in a southern entrance posthole. A fragment of a large, coarse rotary quern was found in a roof-bearing posthole in the western part of a longhouse. A saddle quern fragment was also recovered from a posthole in the fence surrounding longhouse K128, where the remaining querns were found, although it is uncertain whether the posthole marked an entrance in the enclosure.

K128 was a three-aisled longhouse, 31m long and 5.50m wide (figure 8), situated centrally within the large, fenced farmstead with additional outbuildings (figure 7). Most roof-bearing postholes of the house contained multiple stones, primarily crushed granite fragments, that had been placed into the postpipe (figure 2b). In five postholes, the stones were recorded as fragments of rotary querns identified by the smooth parts of the central hole or by the rounded shape of the perimeter combined with a worn surface.

Additional granite chips were observed but not photographed prior to discard. Further investigation and possible re-fitting of those chips would have been valuable, as some were likely quern fragments as well. Thus, while more quern deposits are possible, it can be stated with confidence that fragments from at least five distinct rotary querns were deposited in K128 (Søndergaard 2021). Both upper and lower stones were represented, and it seems possible that a total of three complete querns, consisting of an upper and lower stone, was deposited. These fragments were distributed across five postholes located at either end of the house, with pieces of the same quern represented in multiple postholes. Most fragments were sooty and crumbly, indicating they had been subjected to fire prior to breakage, in order to render the material brittle; a procedure that requires considerable effort given the resistance of stone to intentional destruction (Cleary 2018). Apart from this, the building showed no traces of fire. The fragments were deposited directly into the postpipe, and as there was no indication of loose soil at the bottom of the postpipe, the stones must have been placed very shortly after the removal of the post (figure 2b).

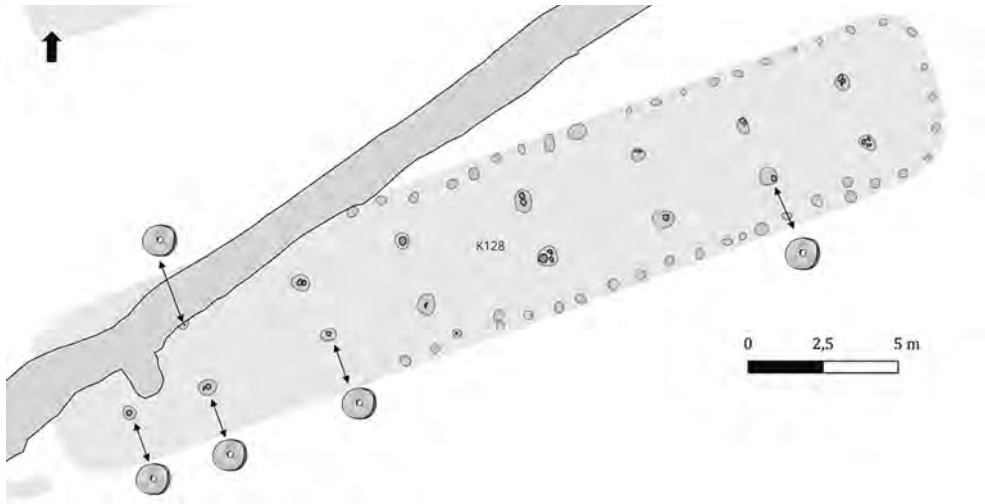


Figure 8. K128, the house of broken querns. Several postpipes contained fragments of rotary querns distributed across the building. Additional fragments may be present among the granite fragments recorded in the postholes. All identified quern fragments derive from postpipe deposits formed after the removal of the posts. The feature cutting through the house in the northwest is a modern disturbance. Illustration: Louise Søndergaard.

Phase 4 (mid–late fourth century CE)

Phase 4 marked a clear shift from Phase 3 (figure 7). Although only four farms were uncovered, most were two-phased, and the settlement clearly extended beyond the excavated area (Bagge 2024:141). The farms increased in size, and new types of outbuildings were introduced, indicating that agricultural activity remained robust. Still, not a single quernstone was recovered from Phase 4. This absence hardly reflects a lack of grinding activity nor necessarily any further break with previous traditions and cosmologies. As observed in Phase 3, the distribution of quernstones within households was highly unpredictable, as with K128. Yet another house of broken querns might lurk just beyond the excavation edge.

Verifying patterns in quernstone reuse

None of the Firgaarde quernstones were recovered in situ within a systemic context (Schiffer 1987:3). Although many were recovered from postholes or beneath house floors, these depositional contexts do not demonstrate that the quernstones originally belonged to or were used by the households associated with those buildings. All had been removed from active use before

deposition, whether due to wear, breakage, replacement or other social circumstances. Rather than documenting their use in grinding, the assemblage provides an opportunity to examine how querns were treated after their primary working lives had ended and to trace changes in depositional practice over several centuries. Such observations are rarely possible. Long-term settlement sequences excavated extensively enough to follow quern distributions across multiple occupation phases remain exceptional, and a systematic recording of quernstones is still far from standard practice. Across the four phases at Firgaarde, shifts in depositional practice are observable. These developments are unlikely to represent changing functional responses to the replacement or disposal of worn grinding equipment. Rather, they reflect changing relationships between households, buildings and objects.

Phase 1 quernstones were characterised primarily by deposits in pits, corresponding to wider regional and European traditions in which pits and wetlands served as important depositional contexts for a broad range of (often, but not always, fragmented) objects, including ceramics, loom weights, hammerstones and wooden artefacts (for instance Becker 1961; Johannesen 2016; Mortensen et al. 2020; Pantmann 2020; Webley 2008; and see De Vries 2015; Hill 1995; Nieuwhof 2015 for comparable practices mirrored across Europe).

In Phase 2, quernstones became markedly more numerous and were incorporated into the built environment, particularly longhouses, but also ancillary buildings, fences, and hearths. Distribution mapping shows that nearly every farmstead contained a longhouse with reused quernstones incorporated into the foundation, regardless of soil conditions or proximity to the seasonal wetland, indicating a shared practice rather than local building needs (figure 4). The spatial patterning within the houses also argues against construction-related explanations and interpretations framing quern fragments as coincidental reuse of a flat stone (figure 5).

Phase 3 introduces a further shift in depositional practice and a decrease in specimens (figure 7). While one early Phase 3 farm retained a saddle quern in the entrance, this practice was soon abandoned. Rotary querns were treated differently from the Phase 2 saddle querns, culminating in the deposition of fragments of at least five rotary querns into Longhouse K128 (figure 8). Finally, Phase 4 was characterised by a complete absence of querns.

Querns and architecture

Now that we have settled that quernstones from Phase 2 onwards were selectively incorporated into domestic structures, let us give closer attention to their contextual circumstances. When recorded in detail, the quernstones

in Phase 2 were most often found in the fill of the post (figure 2a), indicating a careful placement at the very beginning of constructing a new house; at the ‘birth’ of the household. This means that their incorporation into structures was deliberate and planned from the very outset of construction. Although we know little about the procedures preceding house construction in the Iron Age, they likely involved substantial practical, social and ritual preparations (Chadwick 2012:298; Gerritsen 1999:80–82; Webley 2008:55), perhaps not unlike those observed by social anthropologists in indigenous communities in South-East Asia (Waterson 1990). Sourcing timber and digging postholes would have been among the earliest stages in the building process. At Firgaarde, these activities also involved the curation and deposition of specific stones within selected postholes. Hammerstones and whetstones were sometimes also placed in the postholes, but never in similar patterns. Natural stones could accompany any type of worked stone, but stones in postholes are generally rare. Such behaviour suggests that the construction of houses, outhouses and fences involved more than purely technical concerns. Although quernstones may have served a practical role beneath posts, helping to stabilise or level structural timbers, this alone cannot explain their patterned reuse at Firgaarde. Suitable stones were readily available in the surrounding landscape, making the selection of discarded quernstones unnecessary from a purely constructional perspective.

The concentration of deposits in liminal areas such as entrance zones – in both houses and fences – was strongly prevalent in Phase 2 but tapers off in Phase 3.

In Phase 3 the depositional practice appears to have been reversed, as the quernstone fragments in K128 were placed directly into the postpipe, and therefore in connection with the dismantling, or ‘death’, of the longhouse (figures 2b and 8). Taken together the evidence suggests that quern deposition repeatedly occurs at moments when houses changed status.

The deliberate placement of quernstones in foundations is mirrored in hearth contexts. Three stone-packed hearths were identified at Firgaarde, two of which incorporated quernstone fragments, suggesting that these objects were deliberately integrated into spaces of cooking and nourishment, even though this section of the house was otherwise not used for depositing querns. The hearths would have been clay-covered and the querns both invisible and inaccessible, and thus not available for grinding at the food preparation spot.

Depositions of quernstones in the built environment was not a practice unique to Firgaarde, although incomplete recording often limits recognition to individual structures rather than broader trends. Similar practices to those observed in Firgaarde’s Phase 2 longhouses (for instance Jensen 2014, 2019;

Madsen 2023; Trans 2021) and hearth contexts (Jørgensen 2026; Knudsen & Rindel 1989) have been documented across Jutlandic sites, as well as at Funen where a late Iron Age site revealed a building with rotary querns in similar foundation-related contexts (Villumsen 2011). Finds from the island of Zealand are surprisingly absent, considering the depositional occurrences in central Sweden (Carlie 2004:85; Cosgrove-Sonne in press). A settlement at Arlanda contained six three-aisled longhouses, of which the two youngest held several grinding tools in both walls and postholes (Andersson 1999), while a Migration period longhouse in Västmanland held ten rotary quern fragments in the postholes, deposited during the construction of the building (Hallgren 2007). In another example, a late Roman Iron Age longhouse at Skrea, Halland held a deposit of half a rotary quern in a roof-bearing posthole in the youngest of the two building phases (Carlie 2004:87). Beyond Scandinavia, similar practices are known from the British Iron Age (Watts 2014a).

Comparison with these sites suggests that the deliberate incorporation of querns into buildings formed part of a widespread Iron Age tradition, even if the specific practices varied between both regions and settlements. Equivalent depositional practices occur across regions characterised by different environmental conditions, crop regimes and levels of agricultural intensity, suggesting that the significance of querns extended beyond their role as productive tools. From the depositional circumstances at Firgaarde, it was tempting to suggest that it was the introduction of the rotary quern that prompted a different *modus operandi*, but it is clear from comparable sites that the treatment of rotary querns, at least on a wider regional scale, was equal to that of the saddle querns. The shifting patterns at Firgaarde should therefore be viewed in a different light, since the recurring association between querns and buildings raises the question: why were discarded querns selected for deposition at moments of construction, rebuilding and abandonment?

Changing times, changing practices

This inquiry contains two questions, equally challenging to answer: Why querns; and why place them in specific contexts in the built environment? The shifts in depositional patterns at Firgaarde must be seen in tandem with the transformations in settlement structure on a wider geographical scale; from small, scattered farmsteads in the early Iron Age (as in Phase 1) to tightly nucleated farms from mid-first century BCE onwards (as in Phase 2) and from the late second century CE to large complexes (as Phases 3–4).

The causes of such Iron Age settlement transformations have been debated extensively (see Webley 2008:152). Shifts have traditionally been

explained as consequences of technological innovation, agricultural intensification or increasing hierarchies (Hedeager 1992). Bradley (2000:152) proposes that the widespread changes in depositional practices in mid-first century BCE involve a clear shift from the offering of metal in outlying spaces to the use of domestic and agricultural implements deposited within the settlement and household, linked to an increasing focus on food production. As domestic objects continued to feature in broader depositional patterns (Eriksen 2020:3), sustenance was hardly just a concern from the mid-first century BCE, and agricultural explanations, such as changing crop regimes, remain difficult to substantiate through macrofossil evidence (see Grabowski 2013; Hald et al. 2024). Alternative explanations have instead emphasised shifts in social and political organisation (Eriksen 2019:199; Webley 2008:152), as well as climatic change or military pressure from the Roman Empire (see Pauli Jensen 2026). The aim of this article is not to suggest explanations for settlement re-organisations but to point towards possible underlying causes for the shifting paradigms that are visible in the Firgaarde quern depositions.

In Phase 2, querns increasingly became part of the household fabric. The house itself suddenly emerged as a primary arena for depositions, in contrast to the previous practice of pit and wetland deposits. The deliberate placement of quernstones in longhouses echoes building deposits documented elsewhere in northern Europe (Gerritsen 1999; Habermehl 2024; Nieuwhof 2015), indicating that concerns regarding stability and reaffirmation of ancestral plots became prevalent (Artelius 1999; Brück 2019:161; Büster 2021; Webley 2008:37), perhaps catalysed by external threats (Pauli Jensen 2026).

None of the Phase 3 querns were incorporated into the longhouse during the construction of the building, but as this is encountered elsewhere (Andersson 1999; Villumsen 2011), the situation at Firgaarde could reflect a local practice or simply the coincidental nature of archaeological finds. The context of K128 containing at least five rotary querns bears little resemblance to earlier depositional practices. Considerable effort was devoted not only to disassembling the structure, but also to heating and breaking the rotary querns and other granite stones that filled the cavities of the removed posts.

While the deposition of rotary querns during Phase 3 is markedly different from the placement of saddle querns in the foundations of the Phase 2 longhouses, both types of deposition refer to the liminal stages of the biography of the house. As such, the relationship between people and querns apparently remained resilient to changes in farming practice and technology.

Querns in action

This brings us to the first part of the inquiry raised in the previous section: why querns? Though the reuse of quernstones reveals shifting paradigms in deposition practices, the overall concepts of the affordances and effects of the objects were conservative and persistent. Querns were considered to be objects that did something, that affected situations, as well as maintaining everyday life and structuring social relationships. As essential tools in the transformation of grain into food, querns occupied a central place in Iron Age agrarian life. Their role in the agricultural cycle associated them with continuity, regeneration and the interconnected processes of life, death and rebirth (Watts 2014a:45, 2014b). As grains are crushed on the quern, so are crops harvested in the field. They die and yet regenerate every spring (Bourdieu 1977:138; Van Gennep 1960:92; Østigaard 2021:127). Building on this metaphor, the active use of grinding implements in both construction as well as dismantling provides a highly functional explanation for the reuse of querns.

The materiality of querns should briefly be considered. Stone is strong, durable and robust, but can also be viewed as the eternal material of ancestors (Pearson & Ramilisonina 1998). Stone often marks boundaries, graves and property and, as such, can be considered a protective material. The agentive affordances of stone as a reliable matter, combined with the ability to transform, provides a dual perspective that bridges the whole concept of quern reuse and forms an important piece of the complete assemblage that made querns matter (Bennett 2010; Boivin 2008).

The consistent recognition of quern affordances across farmsteads in Phase 2 (figure 4) indicates not only a collective building practice but also shared ideas of the cosmological fabric of the house. According to Webley (2008:68), house construction was a key social occasion, where communal labour not only served practical purposes but also ensured that the layout embodied a collective ideal of the household.

Phase 3 longhouse K128 was abandoned, and the event involved the dismantling of the structure as well as the destruction of three complete specimens of the latest technology: the rotary quern. The durable and eternal materiality of the stone tools was controlled and transformed; this destruction strongly implies that the process was a rite of passage (Van Gennep 1960:134). This further underscores the quernstones' role as mediators of transition, and also as actors in termination and abandonment rites as proposed by other scholars (Brück 2001:66–70, 2006:304; Habermehl 2024:196; Nieuwhof 2015:204, 224; O'Sullivan & Kenny 2008:11).

They were perceived as objects with transformative powers that altered states and mediated this potent transition. These agentive powers residing

in the quern constituted embodied knowledge for Iron Age people, as they experienced it every day, and this knowledge was distributed to diverse contexts and situations related to liminality and rite de passage (Søndergaard 2026).

The activation of both protective and transformative powers is evident in hearth deposits which reflect the enduring link between grain, querns and food provision, encompassing both practical and symbolic concerns surrounding the household fire (Carsten 1995; Therkorn 1987; Watts 2014a). In this context, querns mediated the transformation of grain into food while similarly embodying concepts of fertility, abundance and protection, securing both sustenance and the hearth itself. This concern is also evident by the quern/barley deposition in K213 (figure 6), a configuration that has been linked to rites maintaining household lifecycles (Brück 2001:66).

The protective and transformative powers associated with quernstones likewise structured the wider household. Querns placed in transitional zones suggest a role in safeguarding key household thresholds. Entrance zones have long been under-analysed in Danish Iron Age settlement archaeology, perceived as a meaningless space between the two practical sections of the house. The doors have enjoyed attention (Beck 2011; Eriksen 2019), but the depositional pattern at Firgaarde with heavy clustering in post-holes in the entire space of the entrance section, suggests that the interpretive framework must be extended to include the area between the entrance doors. Querns placed in fence entrance posts further reinforce this pattern. Thresholds are places where boundaries are negotiated and transitions materially enacted (Bourdieu 1977:115; Trumbull 1896; Van Gennep 1960:15–25). Passing a threshold was inherently dangerous and insecure as this was a place of instability, a space of neither/nor, not only for guests, but also for the inhabitants of the house. The repeated occurrence of querns in these locations therefore suggests that they were involved not only in food production, but also in facilitating movement between different social and spatial domains. The querns were not chosen and deposited as *symbols* of transformation, but because they *conceptualised* the transition due to their transformative powers (Boivin 2008:56–57). That these associations may have possessed considerable chronological depth is suggested by ethnographic and historical examples, which repeatedly connect grinding implements with protection, fertility and threshold contexts (Lisowska 2021; O’Sullivan & Kenny 2008).

Despite their apparent social and cultural significance, quernstones were not universally treated as special at Firgaarde. While certain querns removed from use were selected for incorporation into house foundations, others were deposited in wetlands or pits. Although such deposits may in some cases represent disposal, studies have repeatedly demonstrated that

practices of discard and deposition can be highly structured and socially meaningful (Chadwick 2012; Hill 1995; Hodder 1982:156). No consistent differences in size, wear or fragmentation distinguish these groups of quernstone deposits, suggesting that selection was guided by factors other than physical condition. Such a distinction may have rested on object biographies and relational circumstances (Brück 2019; Ingold 2007). Querns associated with particular households, ancestors or events may have been considered suitable for deposition within the built environment, whereas others were not. At Firgaarde, the material presented above can be understood to support and extend this interpretation: early organisational practices entangled past households with present construction via deposition (Brück 2006; Fendin 2000; Hodder 1990; Zachrisson 2014). Meaning was not created through deposition itself, though the deposition may have activated the agentive forces. Querns were selected for specific spatial and temporal contexts because they were already meaningful objects, whose biographies, practical roles and long-standing association with household subsistence made them particularly appropriate for deposition in these locations.

Grinding towards a conclusion

This article has demonstrated that Iron Age quernstones have been misunderstood within the archaeological landscape. Through a contextual analysis of a multi-phase settlement in eastern Jutland, it has identified persistent and patterned practices in the reuse of quernstones over a 600-year period. These patterns challenge interpretations of quern deposition as random discard or as purely symbolic acts and instead demonstrate that quernstones were deeply entangled in the shaping of houses, households and communities. Rather than providing evidence for the practical reuse of materials, querns can be viewed as mediating the transformation of grain into food and linking household sustenance to wider cycles of production, renewal and continuity.

At Firgaarde, quernstones appear as objects whose significance was neither fixed nor intrinsic. Their reuse was governed neither by a single symbolic logic nor by functional necessity alone, but by contextual decisions: as tools of food preparation they structured daily subsistence; as foundations, hearth elements, thresholds and closing deposits they acted as material mediators in spaces and moments of transition. In some contexts, they became refuse or building material, while in others they acquired protective, generative or transformative capacities.

Although recurring patterns can be recognised within richly documented settlements, no single depositional grammar emerges. Instead, querns

appear to have been incorporated into a wide repertoire of practices associated with transition, regeneration, transformation and the negotiation of domestic life. Individual depositional acts followed locally meaningful conventions, yet the archaeological record suggests remarkable flexibility in how the relationship between people and querns was materially enacted.

The long-term persistence of such practices suggests not an unchanging symbolism of cultivation, but a durable relational logic in which querns were repeatedly mobilized in negotiations of continuity, belonging and household reproduction. Querns did not simply signify; they were assumed to act and thus emerge as dynamic participants in expressing the ontological ideas governing the organisation of both household and settlement.

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