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## 7 The Prehistoric Settlement and Buildings

This chapter describes and discusses three identified and one possible prehistoric building at Avaldsnes, alongside an overview of the settlement's organisational layout during various periods of prehistory. The buildings vary in age, size, and function; all these aspects are discussed. Each building is treated in its own section, with an initial description that clarifies the building's essential construction elements, followed by discussion of its possible functions. The poor preservation of the buildings, particularly in Area 1, complicates the interpretation, as aspects of their construction and functions remain unknown. The archaeological features are the main material for the discussion, supplemented by macrofossil and micromorphology analyses, osteology, soil chemistry, and artefacts. The excavations, coupled with previous surveys at Avaldsnes, indicate a settlement that existed over a long period of time, during which the site's organisation became increasingly fixed and the site's various functions increasingly localised in specific areas.

The excavation plan for the Avaldsnes Royal Manor Project was conducted with the stated aim of examining those elements that might elucidate the settlement's social status, as well as identifying possible reorganisations of the settlement that could imply changes in social status. The fragmentary building remains uncovered were difficult to interpret, but a tentative assessment from the stated perspective is still plausible.

Prior to the excavations of the current project, no complete prehistoric buildings were known at the Avaldsnes headland, although postholes and other construction remains had been identified in Areas 1–6 and on the Kongshaug ridge in the course of surveys carried out by the Museum of Archaeology in Stavanger in the period 1992–2006 (Bauer and Østmo, Ch. 5:68–70). As previous investigations were limited to surveying, most of construction remains were documented only superficially, and only a small selection were radiocarbon dated or dated by stratigraphic relations. As such, the 2011–12 excavations provided a wealth of new information in terms of the chronology, spatial distribution, and function of the features excavated.

Some of the areas surveyed earlier were not included in the excavation areas of the Avaldsnes Royal Manor Project, leaving unknown the character of these settlement remains, particularly the features at Kongshaug. This elevated ridge running north–south for approximately 200 meters near the western border of Area 2 was dominated by grave monuments of various forms and dates (Østmo and Bauer, Ch. 12:243–5), most prominently a large stone packing in the southern end containing at least two graves. This grave monument was built over a group of postholes and cooking pits. The grave monument is believed to date from late Site Period (SP) II or early SP III, while the settlement traces must therefore predate this (Hafsaas 2005:12–17; 2006:22–3). It is unknown whether these postholes were components of dwellings or merely fences or other minor constructions. An undated, rectangular posthole was docu-

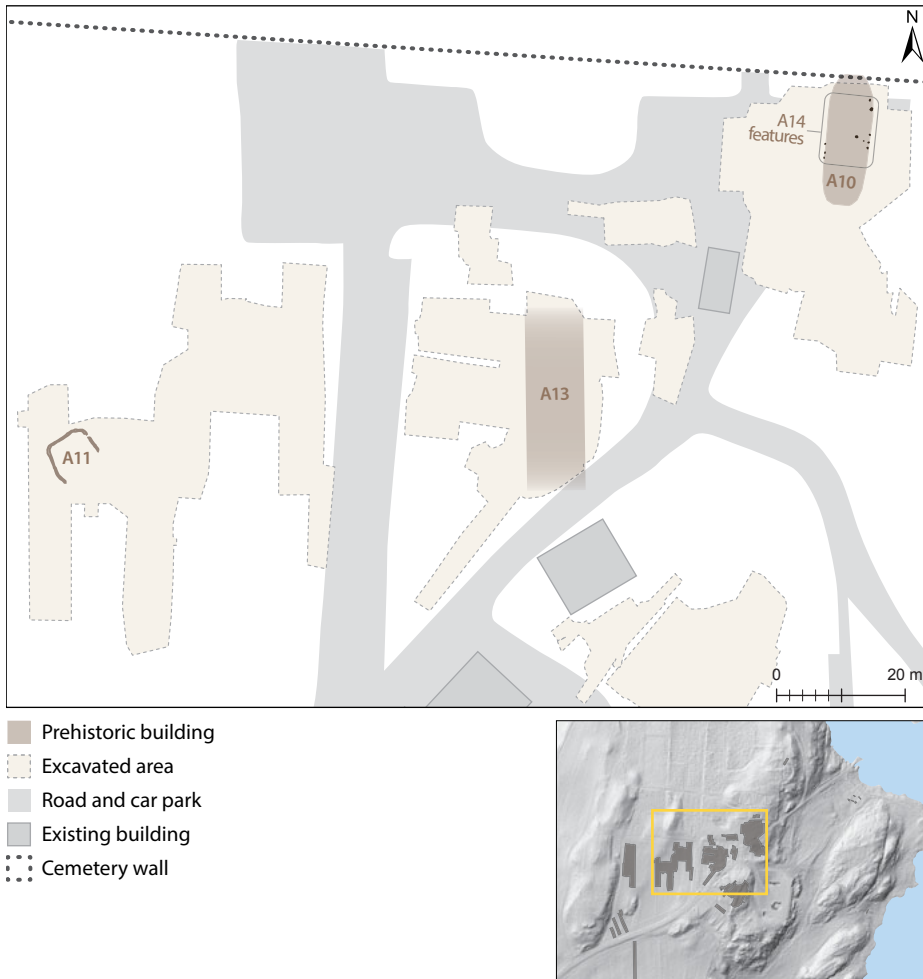
mented underneath the present-day barn by the southern end of Area 6 (Hemdorff 1994). The posthole's size (approximately 0.5 × 0.4 m) could imply a building, but the degree of modern disturbances precluded further examination in the adjacent area. Features discovered during earlier surveys point to the likelihood that while the settlement at Avaldsnes included other buildings in addition to those described below, these constructions are either lost due to disturbance from later activities – especially in the central parts of the modern farmyard – or unknown as they are located outside the limits of the excavation areas.

The three buildings that could be distinguished with certainty consist of a Bronze Age building (A11) from SP I located in Area 2 and two buildings from early and mid-SP III interpreted as a possible hall building (A10) and a longhouse (A13), located in Areas 1 and 5, respectively (Fig. 7.1). A possible fourth building (A14), located in Area 1, dates to early SP V; its function has not been defined due to poor preservation. All building remains were exposed by stripping away the overburden with a mechanised digger. The excavation was complicated by modern disturbances, thick colluvium, modern roads, and obstructing buildings; hence the great variation among the buildings in their degree of preservation and availability for exposure.

Numerous other construction remains such as postholes occur across the site, with comparatively higher density in Areas 5 and 6, but none could be identified as consistent with buildings. The excavation results provide a fragmented representation of prehistoric settlement; the possibility of Iron Age buildings that have been disturbed beyond recognition or are located in unexcavated areas cannot be dismissed. Still, two primary periods of settlement are identified, the first in SP I and the second from SP III to SP V. However, some aspects of the spatial organisation as it existed from SP III gradually emerged during SP II. In SP II, the cultivated areas were expanded and permanently established, while the first buildings in what was to become the farmyard appeared in SP III.

## 7.1 SP I – Building A11: Building of uncertain function

Building A11 was built sometime between c. 1600–600 BC in the central northern part of Area 2, covered by roughly a meter of colluvial cultivation deposits. The building consisted of a U-shaped ditch (A13306), probably indicating the line of the walls. Two postholes lay inside the building, but could not be securely related to A11. The wall ditch's north-western side measured 6.7 meters, the south-western 6.3 meters, and the north-eastern 4.6 meters. The north-eastern wall was possibly shorter due to truncation by later cultivation. Ard marks are cut into deposits both stratigraphically above and below the wall ditch, demonstrating that the area was cultivated both before and after the building stood there (Bauer and Østmo, Ch. 8:144–5). The ditch was up to



**Fig. 7.1:** The location of buildings A10, A11, A13, and A14 (?). Illustration: I. T. Bøckman, MCH.

40 cm wide and cut up to 18 cm into the subsoil. The area within the wall ditch measured about 38 m<sup>2</sup>, but it is uncertain whether this represents the entire building. The slight curvature in the southern part of the ditch's south-western side suggests the building's termination. A 0.6 m wide opening in the ditch's north-eastern part may represent an entrance. The ditch was diffuse in this area, so the presumed opening might alternatively be a result of truncation. A collection of stones lay scattered slightly off-centre within the wall ditch area. Between and around the stones were several imprints of removed stones. An interpretation as a hearth was considered, but the lack of fire-cracked stones and charcoal makes this unlikely. Soil chemistry samples from the area where the wall ditch was located showed decreased values

of magnetic susceptibility immediately around these stones and features compared to those in the area to the south and west (Macphail and Linderholm, Ch. 17:388–92, Fig. 17.6.b) – another indication it was not a hearth.

No artefacts indicative of the building's functions were recovered from the wall ditch or any other part of the area. The building's stratigraphic position between dated deposits placed it in the Bronze Age. In the north-eastern part, the wall ditch cut into a deposit (A4216) dated to 1608–1501 BC (Beta-304878). The agricultural deposit (A5882) covering the wall ditch was dated to 795–595 BC (TRa-4231). Consequently, the building was constructed and in use between these periods.

It is unlikely that the wall ditch was part of a larger building stretching further south-east. Firstly, this is due to the aforementioned inward curvature of the south-western side of the ditch, which suggests an almost quadratic shape for the building. Secondly, if the building had extended further south-east, building features such as postholes or continuing wall ditches would be expected, particularly as the surface sloped down towards the south-east, lower than the exposed building remains, and therefore probably would have been less disturbed by cultivation. The uneven shape of the cut for the trench seen in Profile D and partly in Profile B could represent poorly preserved postholes within the ditch (detail in Fig. 7.2); however, such features are not sufficient evidence for drawing definite conclusions about the wall construction or any roof construction. The ditch's curved corners make sill-beams less likely than possible postholes placed directly into the ditch. A wattle-and-daub wall is possible, but such a construction would probably have left traces of stakeholes within the ditch; none were found in the four excavated segments. It is possible that the ditch, rather than forming part of the wall, represented a drainage ditch below the building's eaves. In that case, the roof-bearing construction must have been further into the building. Only two postholes were found inside the building, and their stratigraphic relationship to the building was uncertain. Stakeholes littered the area; their stratigraphy demonstrated that, rather than belonging to the building, they are related to a later phase, possibly as parts of hay-drying racks or fences concentrated along the northern edge of the cultivated field or pasture.

There are many uncertainties regarding the construction and thus building type. Based on the observations accounted for above, there is little evidence that building A11 was a dwelling. There is no evidence of a roof or a hearth, so the construction was probably simple and might have functioned as some sort of outbuilding, perhaps a byre or a storage building. The soil chemistry mapping indicated that the surfaces outside the building were manured and cultivated (Macphail and Linderholm, Ch. 17:388), while diverging readings suggest a possible division between the surrounding surfaces where the agricultural activities took place and the area inside the building. Details regarding the building's construction remain uncertain.

Similar building remains exist in Rogaland and in other parts of the country as well as from other time periods. Børsheim et al. (2002:167–71) thoroughly account for a building with a U-shaped ditch at Gausel, along with similar building occurrences



**Fig. 7.2:** Wall ditch with profiles, and other features in and around building A11. For the soil chemistry mapping, see Macphail and Linderholm, Ch. 17:Fig. 17.6. Illustration: I. T. Bøckman, MCH.

in Rogaland (Bårdsgård 1981; Haavaldsen 1984; Løken 1987; Steen 1995; Skare 1998). On the basis of similarities with the other buildings, the Gausel building is dated to the late Iron Age; however, some material from the Gausel building was radiocarbon dated to the late Stone Age. The dating of the other buildings spanned from the early Bronze Age through the pre-Roman Iron Age to the Merovingian Period. The U-shaped ditch at Stavnheim in Hå was of similar size to the ditch at Avaldsnes, although somewhat wider and more irregular (Børsheim et al. 2002:fig.136). This construction was dated to the pre-Roman Iron Age and had no postholes from roof-bearing posts. Similarly to the Avaldsnes building, it had an opening in one corner, although it is unknown whether this is a coincidence or whether the void represents an entrance. In fact, several of the U-shaped wall ditches in Rogaland had a small opening (Børsheim et al. 2002:fig.136), indicating the presence of doorways. Most of the buildings with U-shaped or round wall ditches had clear traces of postholes in a square pattern. The lack of such postholes in the Avaldsnes building suggests a different construction method or that such construction traces were shallow and removed by later cultivation.

Near Værnes church in Nord-Trøndelag, a similar feature was exposed in 1999–2000 (Gundersen 2001:22). This building consisted of a U-shaped wall ditch measuring 6.7 by 6 meters, thus of similar size to the building at Avaldsnes. No traces of internal constructions were found either within the ditch or in the area inside the building. The macrofossil evidence provided no clue as to the function of the building, and no interpretation of the building was suggested. The building was dated to AD 245–415 (Gundersen 2001:22).

If the dating of the buildings in Nord-Trøndelag and in Rogaland is correct, it indicates that this building type was in use throughout much of prehistory, at least from the Bronze Age and well into the Iron Age. Similar features found in other parts of the country demonstrate further that this building type was not exclusive to western Norway (e. g., Diinhoff 2005a:78; Nilsen 2005:4). As of yet, no one has been able to present a convincing interpretation of this type of remains. However, that lack of hearth in most of the buildings makes it unlikely that the building type represents a dwelling; thus, it probably is related to farm-economic activities.

## 7.2 SP III – Building A10: Possible hall building

Building A10 lay at the eastern edge of the settlement plateau, in a part of Area 1 containing multiple building remains. The distribution of building remains, coupled with the radiocarbon dating results, suggests that two separate buildings lay in the same location: one from early SP III (A10) and one from early SP V (A14, see section below); see Figs. 7.1 and 7.4. The remains from the earlier of the two buildings were more accessible and could contribute to a suggested building plan of two hearths, a



**Fig. 7.3:** Overview of the area where remains of buildings A10 and A14 were found. Facing north. Stripes from the teeth of mechanical diggers are clearly visible in the area south and west of building A10's hearth. Photo: MCH.

wall ditch, and cluster of five postholes potentially bearing some relationship to the building. The remains from the more recent building are dealt with in a later section; first, an account of some general observations of the area.

The features from the two buildings consisted of postholes, a wall ditch, and two hearths, the larger of which yielded three radiocarbon dates to early SP III and one to SP V. Recent activities had truncated most of the features, making them fragmented and shallow. The truncations were caused by a range of activities, including those related to the high-medieval royal manor, the St Óláfr's Church, and the post-Medieval rectory. Modern disturbances include the levelling of the terrain to create a car park and a cable ditch (see impact of disturbance in Fig. 7.3). The later use of the area is attested by patches of cultural deposits and features with finds dated to medieval or more recent times. Macrofossils from all features in this area were relatively scarce, restricting the datable material. In addition, micromorphological analyses showed that the features in the area had been affected by bioturbation (Macphail 2012a:8–12, 38–48). Vertical burrowing by earthworms may have contributed to homogenisation

between overlapping deposits or features. In fact, the younger postholes (overview in Fig. 7.4) cut into the wall ditch could only be observed where the cut was deeper or wider than the ditch, as there was hardly any colour contrast between different fills (cf. Canti 2003a:139). Another indication of worm activity was a “pea grit horizon” – a layer of tiny stones at the bottom of certain features, where the bedrock prevented further burrowing (Canti 2003a:143). The pea grit included tiny fragments of modern brick from the overlying layers, indicating vertical transportation via worm burrows. In addition to these disturbances, the generally scarce volume of macrofossils indicates that the <sup>14</sup>C dating results should be treated with caution. Dating results are more reliable when they form a consistent pattern or are in line with interpretations based on the spatial relationship between features. Two such cases are the set of SP III dates from hearths and wall ditch fill from building A10 and the set of SP V dates from postholes within this ditch; it is thus reasonable to infer that the latter are the remains of a later construction (A14).

The features belonging to the building from SP III have been identified based on their spatial relationship, supported by coinciding radiocarbon dates. The features comprise two hearths (A5793 and A8957) and a wall ditch (A9231), and possibly a disturbed cluster of postholes north of the hearths (Fig. 7.4). An estimated ground plan, based on the curvature of the wall ditch and the internal distance between wall ditch and hearth, indicates that the building was 18–20 meters long by about 6 meters wide, thus covering an area of 108–120 m<sup>2</sup>. The wall ditch was preserved for a length of 16.7 m, but truncated at both ends. In the north it was obscured by the cemetery wall, while in the south it was cut by a modern ditch. Nonetheless, given its curved ends, it is unlikely that the wall ditch extended significantly into the present-day cemetery or beyond the modern ditch. The wall ditch, measuring about 0.3 m wide and up to 0.2 m deep with straight sides and a flat bottom, was cut into the green schist bedrock. While no trace of a corresponding western ditch was found, the bedrock formation does slope towards the west, leaving open the possibility that a ditch could have been dug only in the covering soil; any remains of such a feature would have been removed at the time the car park was levelled, if not earlier due to farmyard activities. The ditch infill has a *terminus post quem* date to AD 236–333 (TRa-4246), which corresponds with the fuel in hearth A8957 that was dated to AD 243–423 (Beta-222063, TRa-4236, Beta-304879), and with that of hearth A5793 dated to AD 255–345 (TRa-4235) (Fig. 7.4). It should be noted that there is also a date (TRa-4242) from the ditch infill that corresponds with an overlying late- to post-medieval dirt floor (Macphail and Linderholm, Ch. 17:383). Vertical movement due to earthworm activity provides a probable explanation for this phenomenon as well as for the homogenisation that renders the ditch infill indistinguishable from that of the postholes. Only the shape of the cut into bedrock – slightly wider or deeper than the ditch – together with the smaller size of the clustered stones compared to those in the ditch infill allowed the postholes to be identified. Three of the identifiable postholes in the ditch were not radiocarbon dated and could in theory belong to building A10, but as will be discussed later, given their



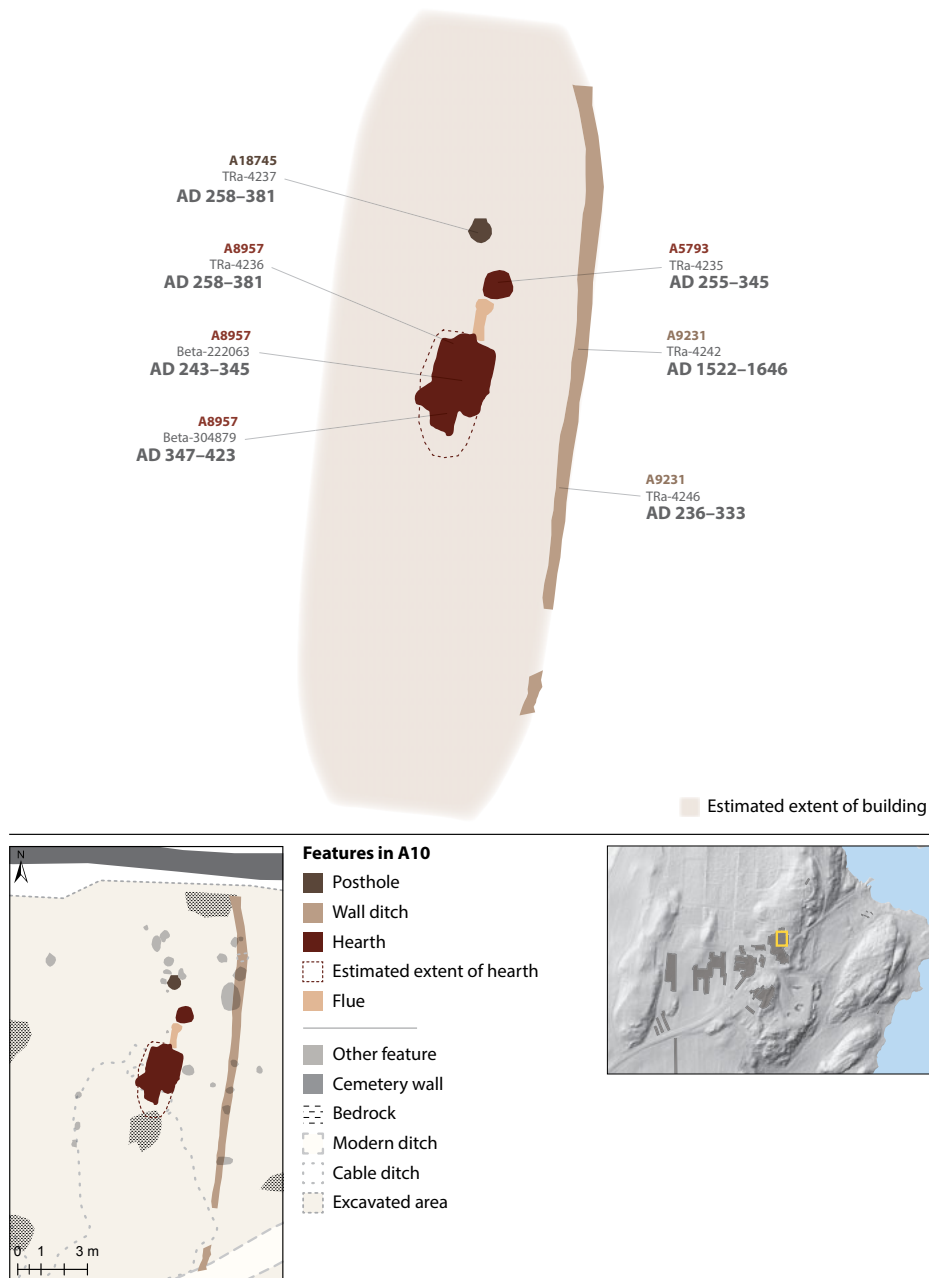


Fig. 7.4: Suggested plan of building A10 with radiocarbon dates. Illustration: I. T. Bøckman, MCH.

shape and size this row of posts are more plausibly related contextually and dated to SP V. One larger posthole lay stratigraphically below the ditch and was dated to AD 135–219 (TRa-4245). As no other traces of posts were found in the ditch, it is likely that the building had a palisade wall construction with standing planks or split logs set directly in the ditch or upon a sill in the ditch. A similar wall construction has been suggested for a hall building at Eide in Gloppen dated to late Roman Iron Age and early Migration Period (Diinhoff 2009:26–7). This building had wall ditches with traces of sills from either a post-and-plank or palisade wall construction. The walls were curved towards the gable end, the sill plate having been cut in short segments to allow for curvature. The lack of physical traces in the ditch in A10 precludes definitive conclusions regarding further details of the wall construction, but standing planks in a sill beam would be in line with the contemporary buildings from other sites in Rogaland (Løken 1991:66–7).

There were no preserved traces of roof-bearing construction, either because the postholes had been shallow and removed by later activity or because roof-bearing posts had been placed on stones. Located along the central axis of the building approximately one meter north of the circular hearth was a group of five postholes, one of which was radiocarbon dated to AD 258–381 (TRa-4237), and another tentatively dated by pottery to AD 350–450 (S12768/12, Kristoffersen and Hauken, Fig. 21.5); that is, seemingly to the period when the building was standing. The radiocarbon-dated posthole was 40 cm wide and only 7 cm deep and the best preserved of the group. It is uncertain whether the remaining features are contemporary. The individual postholes were observed at different levels due to modern disturbance as the border of the levelled car park ran through them. As the group of postholes was located along the central axis of the building it is unlikely that they were part of a roof-bearing construction. Possibly they were part of an inner wall or other internal installation, but the poor state of preservation prevents firm conclusions. As their eventual constructional function within A10 is unclear, it remains likewise uncertain whether the pottery and overlapping radiocarbon date indicate some possible relation to the building or whether they simply contain secondary deposited material originating from activities within A10.

The large, semi-rectangular hearth was heavily disturbed by recent activities, and its original extent is preserved only in the northern and most of the eastern side of the hearth (estimation of original extent in Fig. 7.4). A furrow in the bedrock ran from the north-eastern corner of the hearth and ended with a slight depression filled with humus and silt. It was initially suggested that this may have functioned as a flue, but as the fill of the furrow was mainly mineral and contained humus and charcoal only where it ran into the hearth, this may rather be a natural bedrock formation. The hearth A8957 contained charcoal mainly dated to the early SP III (Beta-222063, Beta-304879, TRa-4236), but there was also a date to AD 1041–1154 (TRa-4240). The north-eastern part of the hearth, which contained the later date, had two distinct charcoal lenses, indicating reuse (cross-sections in Fig. 7.5). Such reuse was con-

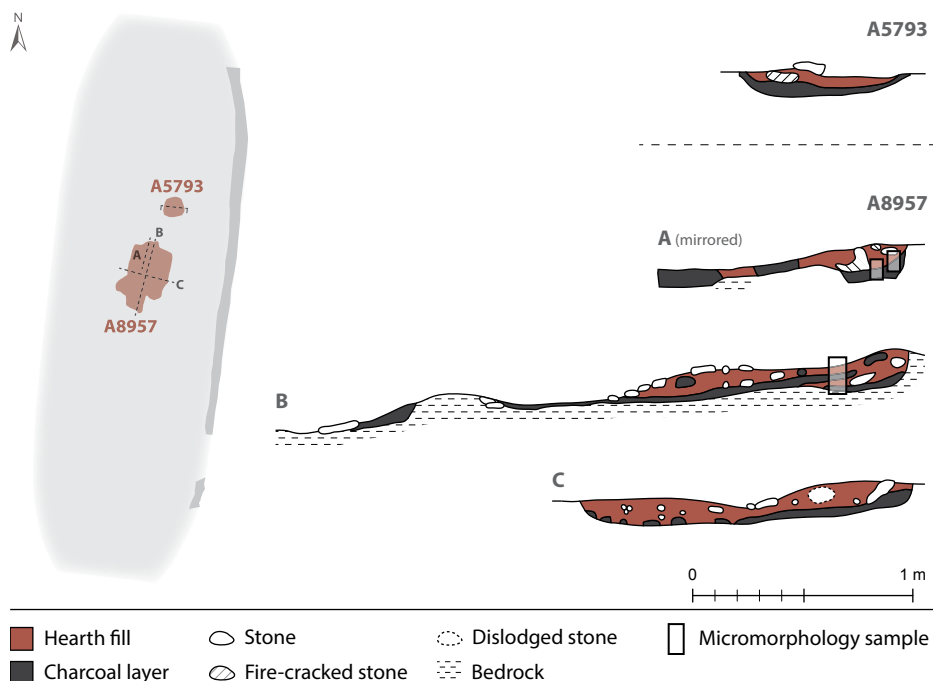


Fig. 7.5: Cross-sections of hearths A8957 and A5793. Illustration: I. T. Bøckman, MCH.

firmed by the micromorphology analyses (Macphail and Linderholm, Ch. 17:395), likely related to an ongoing process of cleaning out the hearths when the building was in use. An intrusion of younger material, rather than existence of a later SP V hearth overlapping the same location, is the most likely reason for the chronological gaps between dates. A smaller, circular hearth of similar date lay one meter further north, slightly displaced from the building's central axis and not in physical contact with the possible flue.

The differences in size, shape, and fuel types may suggest that the two hearths differed in function, but precisely how they differed is unknown. Some information related to their construction may be lost as both were preserved as shallow cuts into the subsoil, stopping at the bedrock. Indications of maintenance, such as cleaning out ashes, were observed in micromorphology samples from the semi-rectangular hearth. Different layers of charcoal were visible in the sections, suggesting repeated episodes of use and ash removal. The circular hearth contained a scant number of fire-cracked stones as well as a charcoal-rich fill with more concentrated charcoal towards the bottom; however, there was no definitive indication that its function was as a cooking pit. In some of the better-preserved parts of A8957, the sides and parts of the bottom of the hearth were packed with small, angular stones, though this was not consistent throughout the feature and seemed more likely to have been the border

component of a hearth rather than the more random fill characteristic of a cooking pit. While the primary fuel in the large hearth was oak, almost all of the charcoal in the smaller hearth was birch (Ballantyne et al., Ch. 19:480, Tab. 19:4). Many of the oak fragments in the larger hearth displayed weakly curved growth rings, indicating use of large logs for firewood. Ballantyne et al. (Ch.19:481, 507–8) suggest that because wood of this type, highly valued as timber, was probably scarce in the immediate landscape and would have incurred a long regeneration period after cutting, its presence in the large hearth might represent the use of discarded construction parts for fuel – an interpretation supported by the discovery of iron nails in the hearth. The distribution of oak across the site shows particular concentrations in hearths inside buildings and adjacent cooking pits, indicating a structured selection of fuel. Possible interpretations of this pattern are discussed in detail by Ballantyne et al. (Ch. 19:507–8; see also general interpretations later in this chapter); in their view, any connection between the selection of oak and prominent hearths or cooking pits becomes more likely if related to the entertaining of guests.

The poor state of preservation clouds details of A10's construction, making the interpretation of the building's function challenging. Its most striking feature is its location on the plateau between the two monumental grave mounds, Kjellerhaug and Flaghaug. Both Flaghaug and Kjellerhaug seem to be multi-phased monuments first constructed in SP I, though certain younger phases, such as the 3rd century AD central grave from Flaghaug, are most prominent (Østmo and Bauer, Ch. 12:231–55; Stylegar and Reiersen, Ch. 22:574–614). Given the building's location at the midpoint between the funerary monuments and its visibility from the strait, it can be reasonably inferred that the building was part of a grouping at Avaldsnes that presented a monumental façade towards the sea route through the Karmsund strait. The building's spatial and temporal relationship to the wealthy Flaghaug grave raises the question of whether it functioned as a hall. Hall buildings are defined by Frands Herschend (1993:182–3; 1998:16) as buildings belonging to big farms that consist of a large, open room, occupy a distinct position on the farm, feature hearths that were used for neither cooking nor facilitating a handicraft, and contain artefacts distinct from those from the dwelling part of the main house on the farm. Based on these criteria, although possibly with special emphasis given to the size of the building, numerous halls have been identified in Norway during investigations in recent decades (Diinhoff 2010:84). Building A10 is unfortunately too poorly preserved to allow consideration of several of the criteria concerning construction details or artefact collection; the relevant aspects will be discussed in the following.

Although length by itself in many instances has evidently been taken as the main criterion when identifying hall buildings, the layout of the hall as a building type did not remain constant throughout the Iron Age. The hall originated as a separate building extraneous to the traditional longhouse (Løken 2001:76–81; Herschend 1998:17). The free-standing halls of the 3rd and 4th centuries were small or medium-sized buildings within the settlement, developing into a larger dwelling house with several

rooms in the early Migration Period (Herschend 2009:252–60). The hall was traditional in its structural similarity to ordinary dwelling houses, and at the same time novel in that its architecture reflected the needs of the owner, rather than the community. Familiar features took on new functions, for instance hearths used for heat and light rather than cooking (Herschend 1998:37). Amongst the halls, great structural variation is seen with respect to building size; whether a building features specific entrance rooms or entrance directly into the main room; whether it features one or several entrances; whether it features a high-seat placed in the side aisle, the corner, or the short-end; and the quantity of artefacts indicative of gender-specific zones (Herschend 1998). Herschend (1993:184–5; 1998:17) interprets the hall as a room suited not only for representation of economic and military leadership, but also for positioning the family as separate from the subsistence-level activities centered on the main longhouse. To the extent that the preserved remains of A10 permit conclusions on its size and layout, it does not diverge significantly from the contemporary embryonic halls at other Scandinavian sites, for example at Vallhagar in Gotland and Uppåkra, but this cannot be confirmed on the basis of the surviving archaeological features (Herschend 1993:fig. 183; Larsson and Lenntorp 2004). Carstens (2015) underlines the importance of place for the location of hall sites – they were typically built at an elevated position, where they could be spatially associated with large grave mounds or places of cultic worship, and usually show traces of cooking, presumably connected to feasting. Due to the lack of construction details in building A10, these latter aspects become most relevant for considering the building's social status and function. A10 was clearly part of a larger settlement with a position allowing for control of the Karmsund strait. The settlement was characterised by monumental grave mounds, and the building's location may have allowed it to contribute to Avaldsnes' visual impact towards the strait, providing a public façade (Herschend 1998:39–42). Furthermore, numerous cooking pits spanning the same period of prehistory are indicative of social gatherings.

The collection of finds from the building is scarce (S12768/1–28), consisting of half of a pair of tongs or pliers, four nails, a few small shards of pottery, and pieces of glass. Based on the quality of the glass, these fragments likely came from overlying remains dating to the period AD 1400–1600. The nails found in the hearth are difficult to assess in terms of date but could be an indication of building material being reused as fuel. Besides the pliers, there are no indications of crafting in the hearth, as metalwork would likely have left traces observable either during flotation or in the analyses of micromorphology or soil chemical samples. Thus, the pliers cannot be definitively associated with crafting in the building. Regarding Herschend's (1993) criterion that the hearth in halls are not used for cooking or handicraft, but rather functioning solely as sources of light and heat, Carstens (2015:17) contends that such functional diversity is difficult to assess as hearths would have been subjected to at least occasional cleaning, but accepts that a find of multiple hearths within a single building could be taken as an indication that at least some of them were used solely for lighting

and heating. The macrofossil material from the hearths in A10 is too scarce to provide information on cooking activities (Ballantyne et al., Ch. 19:481).

Amongst the few preserved burnt bone fragments is one from the lower front leg of a red deer stag (Ballantyne et al., 19:481). Bones from wild animals are found in both settlements and graves throughout the Iron Age, though domesticated animals dominate the bone assemblages (e. g., Jennbert 2002:110–11; Mansrud 2006:142; Nilsson 2006:63). Some authors have argued that finds of bones from wild animals such as deer are indicative of sites related to cult activities, whereas others hold that the distribution of wild animal bones is not particularly higher at such specific or high-status sites (Ballantyne et al., Ch. 19:497–8 with references; Jennbert 2002:11). Though the small fragment of bone from Avaldsnes does not provide enough information to assess whether consumption of venison and the hunting of large animals is linked to high status in this region in the Iron Age, this association has been generally accepted due to a close connection between such activities and landownership (Andrén 1997:470; Oehrl 2013:508). Trapping undertaken by farmers can be differentiated from high-status hunting with horses, hounds, or birds of prey, which moreover served as a demonstration of power and wealth due to the parallels between this mode of hunting and Iron Age warfare (Dahlgren 2001; Ahrland 2013:442; Lie 2004:48). Whether such cultural notions were current in the Avaldsnes area during the Roman Iron Age is unknown. In Roman England, however, bones of deer are mainly found at high-status sites such as Roman villas and near the lodgings of high-ranking officers at military garrisons, indicating that red deer hunting was subject to regulation (Allen 2015:178). Though Roman influence can be seen in, for example, the high-status artefacts of the late 3rd-century Flaghaug grave, it is by no means certain that the concept of a noble hunt had reached Scandinavia at this point. While antler finds can be merely those shed naturally, bones in the proper context are an absolute indication of hunting. The fragment found in building A10 is likely waste from food or slaughter, possibly having seen secondary use as fuel (Ballantyne et al., Ch. 19:506). A single bone fragment does not constitute substantial grounds for deductions regarding the general diet and subsistence economy at Avaldsnes and its hinterland in the Roman Iron Age. However, the fact that bones from wild animals are rare at Iron Age settlements makes its presence here an interesting detail amongst other aspects of the building's social milieu.

In summary, the preservation of construction elements is poor and cannot by itself provide a clear interpretation of the building's function. A central hearth may indicate a central or main room; the possible preference of oak logs for fuel in the central hearth sets it apart from ordinary cooking pits, while the fragment of red deer bone may possibly be related to high-status hunting. All other aspects, such as the absence of a byre or household activities, are known through merely negative evidence and cannot in themselves explain the function of the building. The strongest argument for interpreting A10 as part of a high-status settlement is the context of the monumental grave mounds (Østmo and Bauer, Ch. 12), the contemporary boat-

houses (Bauer, Ch. 10:183), and the nearby cooking pits (Bauer, Ch. 13). The building's location becomes meaningful when considering its visibility from the Karmsund strait. The hall would have risen up from the settlement ridge, monumentally positioned between two grave mounds – clearly a statement of the farm-holder's status.

### 7.3 SP III – Building A13: Longhouse

The longhouse (A13) in Area 5 was a three-aisled, trestle-framed construction with several repair events or adjustments, possibly representing different building phases. The building was probably in continuous use throughout most of SP III. The building remains were covered by a modern cultivation deposit (A107) and a deposit containing heated and cracked stones (A18505) dated to the 11th century on the basis of artefacts. Concentrations of such stones indicate the presence of a dwelling nearby, as they were probably used to heat water in affinity to the farmyard (Pilø 2005:136–7). The preserved remains from building A13 below these two deposits consisted of 37 postholes, two hearths, and three segments from two different wall ditches (Fig. 7.6). The building was at least 28 meters long, 8 meters wide, and oriented north to south. The distance between the northernmost and southernmost trestle postholes was just over 24 meters. The building's original length cannot be determined due to substantial recent disturbances in the north and a gravel road covering a possible continuation to the south. A rocky outcrop about 12 meters to the south of the excavation area marks a likely maximum southern extent of the building. The northernmost building remains were faint and shallow due to construction works at the site in the 18th and 19th centuries. These activities appear to have completely removed any possible continuation northwards of the identified building remains. The even and slightly sloping ground extending over 100 meters north of the excavation area is well suited for building and does not delimit the possible maximum. By adding a reasonable distance to the gables from the preserved postholes, the building's minimum length is estimated at 28 meters.

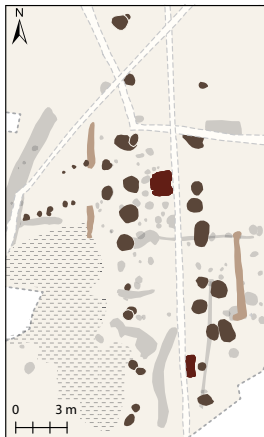
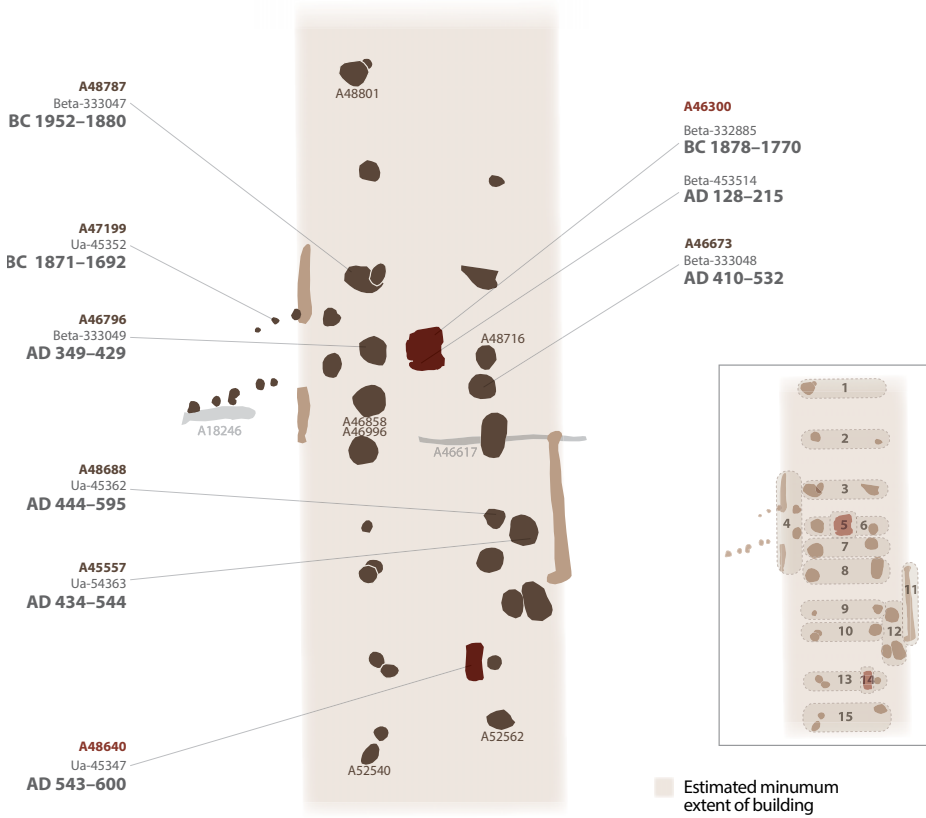
In Iron Age longhouses, the distance between the trestles commonly varies within the building to accommodate function-specific needs. In order to create a capacious hearth room in the dwelling part of the building, the distance between the trestles is usually greater than it is in the byre or storage rooms (Løken 1991; 1998). The distance between the posts within the trestles in the hearth room in the middle of the building can also be greater, with the posts placed closer to the wall to open the room even further (Løken 1991:66–7; 1999). No such variations could be measured in A13, making it difficult to discern functional areas within the building or to calculate its original size based on the layout of construction remains. However, an indication of a differently constructed hearth room is given by the diameter of the post imprints in some of

the postholes closest to A13's northern hearth, which were generally larger than those found elsewhere in the building (3, 6, 7 in Fig. 7.6; below).

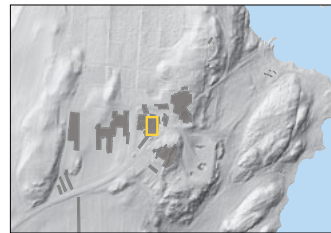
The position of the postholes and the wall ditches indicates that the building was approximately 8 meters wide. Based on the postholes' distribution, the building was interpreted as a three-isled, trestle-framed construction, with a series of post pairs and tie beams supporting the roof – the common Iron Age farmhouse type (Nærøy and Børsheim 2005:186–8). At least 24 postholes for roof-bearing posts were distributed among a minimum of ten trestles, of which nine had both postholes preserved (all except from trestle 1 in Fig. 7.6). The features' layout and stratigraphy suggested a history of several repair events or adjustments made to the building. Some of the building features could not have existed contemporaneously. Such mutually exclusive structural elements in practical terms were particularly visible around the northern hearth and by the entrances. Around hearth A46300, the distance between the trestles was too short for them all to be contemporary. Rather, in this area there seem to be four trestles from two different building phases (3 and 7, 6 and 8 in Fig. 7.6). Double postholes and postholes located directly adjacent to one another (1, 3, 10, 13, 15 in Fig. 7.6) were other signs of the building's development or multiphase history. In theory, the composition of the postholes' fill – the colour, texture, or contents such as charcoal or burnt clay – could be expected to help distinguish the construction phase, repair/modification phases, or deconstruction/tearing-down phases, but in this case no pattern could be discerned. Posts were probably replaced while the building was standing, possibly due to decay or in an effort to adapt different parts of the building to changing functions. The hearths in the longhouse were radiocarbon dated using charcoal, while the postholes were dated using material from either the infill of the features or the likely post imprints, in the cases where such existed. The dating results varied from 1952 BC to AD 543–600. The wide age spread of the dated features as well as inherent uncertainties related to dating secondary deposits prevent definite delineation of building phases. The wide range of dates is discussed below.

The building's height is difficult to estimate. However, post imprints for thirteen of the postholes were visible in section, either as darker soils or as void spaces between supporting stones (Fig. 7.7). The imprints were not detected in plan prior to excavation; therefore, no information could be gathered about the posts' shape. The imprints' diameters varied from 30 to 74 cm, and seven were greater than 57 cm. Compared to contemporary longhouses in western Norway, these dimensions are truly exceptional. For instance, House 8 at Gausel had roof-bearing posts with a diameter of 16–20 cm, while House 4/10 at the same site had posts 15–17 cm in diameter (Børsheim et al. 2002:113–15, 41). The Roman Iron Age/Migration Period hall at Eide had post imprints 26 and 28 cm in diameter (Diinhoff 2009:13–15), and a Migration Period/Merovingian Period longhouse excavated at Sandane airport had posts probably 15–20 cm in diameter (Olsen et al. 2010:135). Four of the largest postholes (in trestle 3, 6, 7, 8 in Fig. 7.6) in the longhouse at Avaldsnes lay in the area around the northern hearth, indicating that the posts were more massive here than in other parts

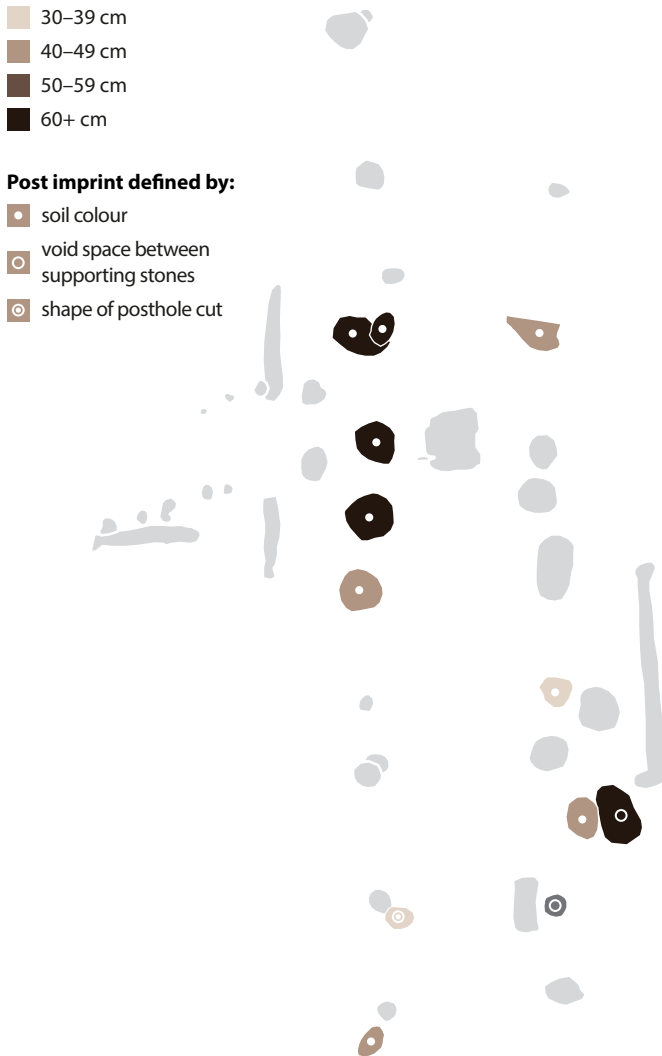




- Features in A13**
- Posthole
  - Hearth
  - Wall ditch
  - Other feature
  - Bedrock
  - Modern ditch
  - Excavated area



**Fig. 7.6:** Building A13 with all building elements and radiocarbon dates. The numbering of trestles etc. (right) refers to the discussion in the text. Illustration: I. T. Bøckman, MCH.



**Fig. 7.7:** Diameter of post imprints in excavated postholes of building A13.  
Illustration: I. T. Bøckman, MCH.

of the building, suggesting that this part of the building was taller, possibly because it constituted the mid-point of the construction.

Wall ditches would have been used for draining water dripping from the eaves or possibly would have contained the actual wall posts and sills. In the case of the longhouse at Avaldsnes, the latter is more likely; if the former were case, the distance between walls and roof-bearing posts would have been significantly smaller. Situated between the postholes for the trestles and the wall ditches were other postholes, interpreted as related to entrances (below) – due partly to their proximity to the post-

holes from the trestle construction, but primarily to the two western postholes corresponding to an opening in the wall ditch (4 in Fig. 7.6).

The building's multiphase history is confirmed by postholes interrupting the entrances, of which there probably were two: one in the centre of the remains of the western wall trench (4 in Fig. 7.6) and one in the centre of the eastern wall's southern half (12 in Fig. 7.6). Identification of the second was less convincing than the first, but the dating result (Ua-54363) of the posthole infill for one of the entrance-related features indicates its contextual relationship to the longhouse. On the other hand, the eastern wall ditch segment (11 in Fig. 7.6) interrupted the eastern entrance – a clear sign that the two features were disassociated. Eight small postholes in two rows and a wall ditch segment (A18246) extended from the western entrance at an angle. The respective orientations of the postholes and the wall ditch diverged slightly from one another, indicating the two features were not part of the same construction. The postholes suggest a passageway leading up to the entrance, perhaps as a fenced aisle or a planked walkway. The aisle was about four meters long and two meters wide; its termination against the building corresponded with an opening in the north–south-oriented wall ditch, suggesting contemporaneity. The east–west-oriented wall ditch might belong to another entrance phase or to a feature altogether unrelated to the longhouse. Similar angled entrances to Iron Age longhouses are not frequent. However, at Hove-Sørbo, Merovingian House 33, a possible passageway for leading cattle into the building is suggested, lending support to an interpretation of the building as a barn or byre (Bjørndal, pers. comm. 2014). A similar situation may have prevailed at Avaldsnes though there are no clear indications of a byre in this part of the building. At Gausel, there were angled entrances to House 8 and House 4/10, but these consisted of a stone pavement between the two buildings (Børsheim et al. 2002:104–7, 119). There, the angled entrance led into a large central room that may have functioned as either a byre or a hallroom, based on macrofossils or architectural details and large hearths respectively; the contradicting indications possibly relating to different building phases (Børsheim et al. 2002:239). A connection between the paved passageway and the hallrom is suggested, leading into into a particularly important social arena. Similarly, reconstructions and change of functions in parts of A13 make it difficult to establish what kind of room the angled passageway led into, see below. However, the spatial relation to contemporary cooking pits (Bauer, Ch. 13) which likely relate to the entertaining of guests west of A13, make it more likely that the entrance was for people rather than cattle.

The longhouse area contained two hearths (5 and 14 in Fig. 7.6), of which the northern was the larger. It was centrally positioned between the two rows of trestle postholes, roughly midway along the stipulated building's long axis. A modern drainage ditch cut the hearth's eastern part, truncating its original, probably roughly quadratic shape. A flue led out from the hearth's south-western part. In section, two different extents of the hearth were visible, perhaps related to different building phases. Radiocarbon dating of charred alder from the hearth resulted in the 14C-date 1878–1770

BC (Beta-332885), whereas charred oak was dated to AD 128–215 (Beta-435314). The feature's location firmly connects it to the SP III longhouse, and the early date of the alder is closely synchronous with radiocarbon dates from two neighbouring postholes in the building (A48787 to 1952–1880 BC, Beta-333047, and A47199 to 1871–1692 BC, Ua-45352; see Fig. 7.6). Diverging dates within a building present a recurring challenge and may have different explanations. Examples of the presence of old turf can be found regionally, for instance in Building 3 at Kjernevikveien in Stavanger, and super-regionally, for instance at Ringdal, Vestfold where turf with Mesolithic dates retrieved in Iron Age houses has been interpreted as either fuel or building material (Sandvik et al. 2012:4; Gjerpe and Østmo 2008:132–3). The presence of such turf is reflective of activity in the building during the Iron Age; however, this does not seem to be the case with the charcoal of Neolithic origin in building A13. Microscopic assessment of the charcoal has led Ballantyne et al. (Ch. 19:482) to conclude that it is most likely represents the product of redepositing of waste from earlier activity, rather than the residue of waterlogged fuel. A case with similarly diverging radiocarbon dates is seen in houses II and IV at Veien, Buskerud (Gustafson 2016:110–11). Both houses could be dated stratigraphically to the late Roman Iron Age and Migration Period, whereas the <sup>14</sup>C-results provided dates from the Neolithic, Bronze, and pre-Roman Iron Age. Consequently, all macrofossils in the area apparently originated from activity pre-dating the two houses (Gustafson 2005g:50–2). Likewise, at Avaldsnes, the Neolithic dates seem to originate from charcoal related to earlier activities included and redeposited in younger features. In hearth A46300, the charred alder stands out both due to its <sup>14</sup>C age and because the context is otherwise dominated by charred oak providing a date to the transition between SP II and III (above and Fig. 7.6). This is still c. 200–300 years older than other dated postholes, but explicable by an expected substantial age of the oak log fuel. Finds from the building (below) concur with the remaining radiocarbon dates, which seem to represent the building's actual period of use in late SP III.

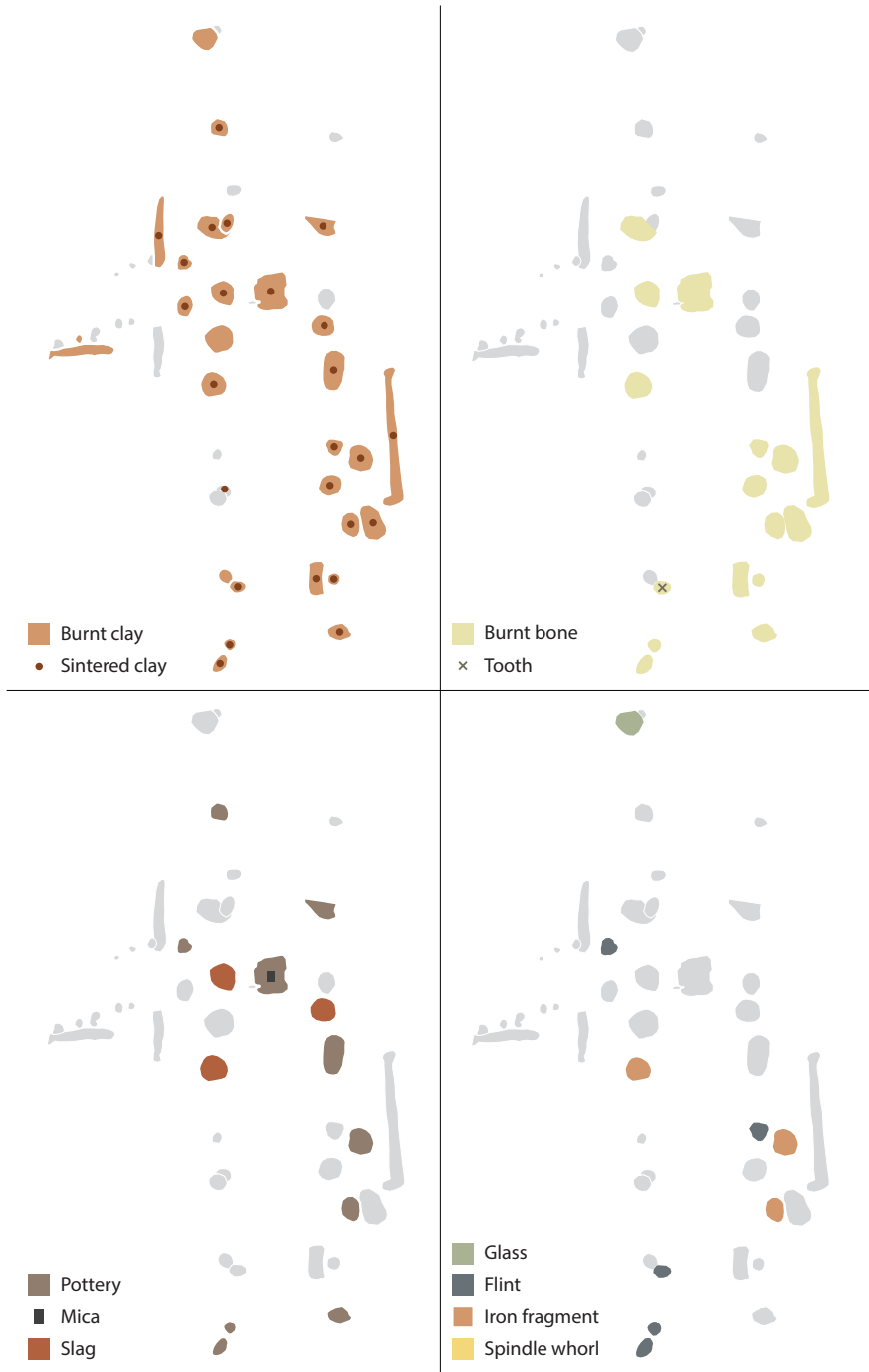
The smaller hearth lay in the building area's southern part, truncated by the same modern drainage ditch as the northern hearth. The southern hearth was oriented north to south and lay parallel with, but displaced one meter east from the building's long axis. Considering its proximity to the eastern row of posts, it is doubtful that the hearth was contemporary with the second trestle from the south (13 in Fig. 7.6). The hearth was dated using roundwood from willow/poplar to AD 543–600 (Ua-45347).

The radiocarbon dating results suggest that the building was in use for a long time; rather than distinguishing specific building phases, the broad span of the dating results indicates the entire period of the building's use. The spatial layout of building remains is the strongest evidence for identifying different phases: the internal spatial relation among certain structural elements contradicts contemporaneity (4 and 6, 10 and 12 in Fig. 7.6). In the present case, the radiocarbon dating results could be expected to suggest that some parts of the building belong to an early phase and some to a later phase. Such an attempt at analysis should begin with those features where the dated

material originated as closely as possible to the building's use phase – that is, with post imprints and charcoal from the hearths. There are two postholes which are dated using material from the post imprint: A46796 and A48688 (Figs. 7.5–6). Together, the dating results from these postholes suggest at least two broad building phases in each end of this spectrum: the first from the first half of SP III and the second from the latter half of SP III. The posthole with the youngest date (A48668) overlaps in time with a dated posthole situated immediately to the east: A45557. The latter posthole is interpreted as part of an entrance, perhaps from a later building phase. The posthole dated to the early SP III (A46796) lies immediately east of the building, practically blocking the western entrance (12 in Fig. 7.6). Their likely non-contemporaneity suggests that this entrance is also from the later building phase. As mentioned above, the limited trestle distance in the area around the hearth indicates different phases. Possibly, postholes A46796 and A48716 could belong to a trestle (6 in Fig. 7.6) in an earlier phase, while postholes A46858 and A46673 could belong to a later trestle (7 in Fig. 7.6). The dating results from A46673 (albeit from the posthole's backfill) support this hypothesis. Pottery found in the imprint fill in posthole A52562 indicates that it was not an imprint of the decomposed wooden post, but rather the backfill resulting from the post's removal. It is possible, however, that this backfill is mixed with waste from activities within the house. Nevertheless, the artefact resulting from the imprint demonstrates the difficulty of dating postholes, whether by artefacts or radiocarbon dating (or both in combination), even when a post imprint is preserved. The southern hearth's dating result partly overlaps with that of posthole A48688, suggesting the hearth's relationship to the later building phase.

The layout of postholes, wall ditches, hearths, and entrances did not allow a division into functionally different building parts, such as dwelling, byre, barn, and storage (e. g., Herschend 2009:14). A ditch (A46617) running east to west across most of the building area was investigated as a possible division for a tri-partite longhouse, but given the stratigraphy of the area a connection to the building is unlikely (Macphail and Linderholm, Ch. 17:400). The aisle leading up to the western entrance suggests that this ditch could be part of a fenced passage for cattle, leading from the outfield through the infield into a byre part of the longhouse, but this does not accord with the entrance leading into a hearth room. If the aisled entrance and the hearth were contemporary, it could be that the entrance led into a dwelling room, but whether this room was located in the building's middle section or closer to one of the ends is unknown, as the building's length has not been established. The two postholes belonging to the western entrance which lay between the opening in the wall ditch and the trestle posts suggest the presence of a dormer projecting beyond the roof plane, with the door situated between the longhouse's outer wall and the inner roof-bearing construction. A similar construction is possible for the eastern entrance.

All excavated postholes and hearths were sampled for macrofossil analysis (Balantyne et al., Ch. 19:482). During floatation, several artefacts were furthermore recovered (Fig. 7.8 and below). Soil chemistry samples were collected in a grid (Cannell,



**Fig. 7.8:** Overview of artefacts and macrofossils from the building features in A13.  
Illustration: I. T. Bøckman, MCH.

Ch. 18; Macphail and Linderholm, Ch. 17). Neither sampling scheme was able to establish functional differences in the longhouse. Specifically, no presence of a byre or stable in any part of the building could be found (Ballantyne et al., Ch. 19:482; Macphail and Linderholm, Ch. 17:400). There were elevated MS values in Area 5's south-eastern part, but this might rather be caused by proximity to the later production activities in Area 6 (Østmo, Ch. 9), approximately 30 meters further south-east. Only a single posthole (A46764) contained a large amount of grains – insufficient evidence for suggesting that the posthole was inside a byre or storage part of the building.

As was the case in the possible hall building (A10) from early SP III, oak was the primary fuel used in the two longhouse hearths. The dated material from the larger hearth, which produced the older radiocarbon date (Beta-332885), was alder (*Alnus*), and not representative for the fuel found in the hearth. As mentioned in relation to A10, oak regenerates slowly and is a valuable building material. The symbolically wasteful use of a valuable building material as fuel could be interpreted as conspicuous consumption (Veblen 1899). Alternatively, cut-offs from oak logs intended for building construction or building elements were reused as fuel after repairs, as is suggested for A10 (Ballantyne et al., Ch. 19:480–1, 507–8). However, no iron nails or rivets were found in the hearth in A13 that would have substantiated such an interpretation. Ballantyne et al. (Fig. 19.6) show that the distribution of oak logs indicates a structured selection of fuel, where oak logs were preferred in the large hearths inside the building as well as larger cooking pits located on the more visually prominent spots in the farmyard. A somewhat similar situation was observed at Gausel where oak dominated the hearths inside dwellings. Functional qualities such as oak being a heat-efficient fuel that produces less sparks, well suitable for certain craft processes as well as reducing the risk of house fires were suggested as possible explanations for this preference (Børsheim et al. 2002:235)

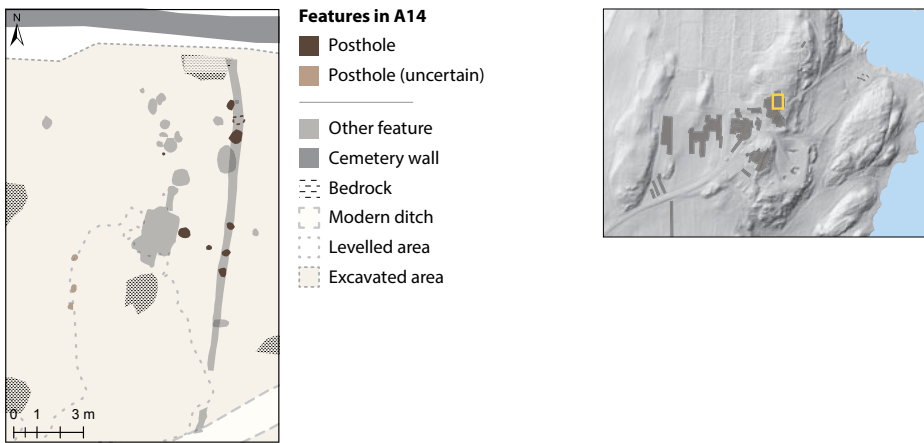
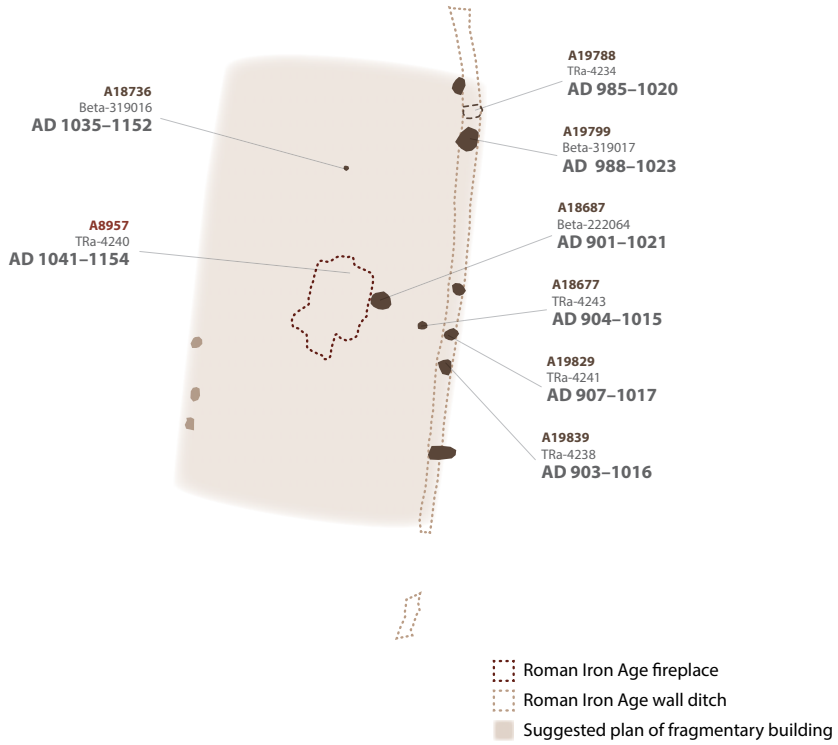
The artefacts recovered from the excavated longhouse features (Fig. 7.8) provide no further clue as to the building's function or to the dating of the building phases. The artefacts consisted of mainly burned and sintered clay, burned bones, slag, flint, and ceramics (S12780/1–70). There was also a heavily corroded iron nail (S12780/1), as well as two iron fragments (S12780/2), which possibly had been part of the same needle-like object. Some pieces of mica, apparently intentionally cut along the edges, came from the northern hearth. The mica was distributed throughout the hearth and might have been used as temper in pottery production. The various building features contained 19 sherds (S12780/5–15) from 16 ceramic vessels. With one Migration Period exception (S12780/11), none of the sherds could be dated with greater accuracy than to the early Iron Age. The Migration Period sherd was found in posthole A52540's backfill in the south-western part of the building remains; the sherd was undecorated, soapstone-tempered, and possibly from an undecorated bucket-shaped pot (Kristoffersen and Hauken, Ch. 21:529). Only one of the sherds (S12780/14) bore traces of decoration, in the shape of two parallel angled lines. This sherd was recovered from the

post imprint of roof-bearing post A52562 in the southern half of the building remains. Another posthole five meters to the north contained a small soapstone spindle whorl (S12780/4), typologically datable only to the Iron Age. In a sample from posthole A48801 – the northernmost of the building remains – a piece of curved, white, semi-opaque glass (S12780/3) was recovered. The glass could be from a prehistoric vessel, but the possibility cannot be dismissed that it is a more recent intrusion into this heavily disturbed part of Area 5. In a sample from another posthole, A46996, in the middle part of the building remains (8 in Fig. 7.6), five pieces of iron slag (S12780/17) were recovered from a sample. One posthole contained a polecat/ferret's tooth and two other teeth, possibly from the same animal. Furs from such animals were used in high-status fur clothes (Ballantyne et al., Ch. 19:499), although it remains uncertain whether the presence of the teeth in one of the longhouse's features implies manufacturing or other use of such a material. Apart from suggesting a combination of household and production activities, the combined artefacts contribute little to establishing the age and function of the longhouse.

## 7.4 SP V – Building elements A14: Possible building remains

In the same location as the early SP III building (A10), there were postholes that may represent a SP V building (in the following referred to as A14). In an even more fragmented state than building A10, the remains of building A14 consisted only of nine postholes, none of these forming complete trestles in a roof-bearing construction. Six of the postholes were quite similar to each other, forming a row overlapping and cutting into the SP III wall ditch. Of the six cutting into the ditch, three were dated to SP V, while three remain undated. Another three features were dated to SP V: two stake-holes and a posthole lying directly west of the line of postholes within the ditch. The postholes within the ditch formed a line that could correspond to a wall construction, but lacking a relation to roof-carrying constructions it cannot be ruled out that these postholes are remains of a simpler construction, such as a fence. The radiocarbon dates of the postholes in the ditch correspond well with those of the postholes west of the ditch. The close dating results support the interpretation of a contextual relationship for the area between the postholes, though a suggested ground plan produced on such a basis remains highly tentative (Fig. 7.9). An additional possible posthole was observed at the surface of building A10's wall ditch but could not be distinguished from the ditch's fill during cross-sectioning. A sample taken from the section provided a date overlapping with the SP V postholes (TRa-4234) and may indicate the presence there of a posthole, despite homogenisation of the deposits filling the features rendering such a posthole indistinguishable. In addition, one of the samples from the large early SP III hearth (A8957) produced a later date of AD 1041–1154 (TRa-4240), though





**Fig. 7.9:** Suggested ground plan for the possible building A14 with all related construction elements and radiocarbon dates. Illustration: I. T. Bøckman, MCH.

this dating shows that the sample likely represents a disturbance caused by activities related to SP V, rather than a relationship to the actual hearth.

Three vague and shallow depressions in the bedrock were discovered while removing a deposit containing modern rubbish in search for a western wall of building A10. The depressions were approximately 5 cm deep, and their fill was mixed with modern rubbish. No undisturbed prehistoric fill was recognised, due either to its absence or to modern intrusions obscuring a transition between deposits. The depressions were recognised as possibly man-made only after they had been emptied. Their size, shape, and interspatial distances correspond well with the bottoms of the postholes cut into the ditch about 6 meters further east; this correspondence furnishes the only evidence to argue for including them in the interpretation of A14. If they functioned as postholes, they could represent a western wall; otherwise, all that can be said for A14 is that it was a construction with a row of posts, forming either a wall in a building or a fence. A posthole with a contemporary radiocarbon date (Beta-222064) could be contextually related to the row of post, but remains highly tentative as traces of roof-bearing trestles are otherwise lacking.

The poor state of preservation of the building remains makes it difficult to ascertain whether they are part of a building or another type of construction, such as a fence. The combined SP V dates in postholes, stakeholes, and likely intrusion in the hearth (A8957) would indicate a rather concentrated period of activity in early SP V. Though the radiocarbon dates from A14 span the period AD 901–1021, the calibration curve indicates a slightly higher probability for a date to the second half of the 10th century (Fig. 7.9, Appendix II). As the dated fragments of birch were taken from the backfill in the postholes and no post prints were observed, it is unknown whether the dated samples reflect the time of construction or backfill from when the building was torn down. No further details of the construction can be deduced from the preserved remains. If the vague depressions in the west are included in the interpretation, the building would be of a width similar to A10; however, the length or any other details would still be unattainable. High phosphate readings across the area with building remains, especially in its western part, have been interpreted as a reflection of intensive occupation, but such data cannot be connected to a specific period of use (Macphail and Linderholm, Ch. 17:392–6).

Although the placing of posts into the older wall ditch must have facilitated the erection of the construction from SP IV, it is highly questionable whether this co-location was intentional – primarily because it is unlikely that such a ditch would have been visible a few hundred years after the removal of A10. Still, given the location's prominence overlooking the Karmsund strait, a large construction there would be visible to travellers by sea: an ideal site for demonstrating status.

## 7.5 Organisation of the prehistoric settlement

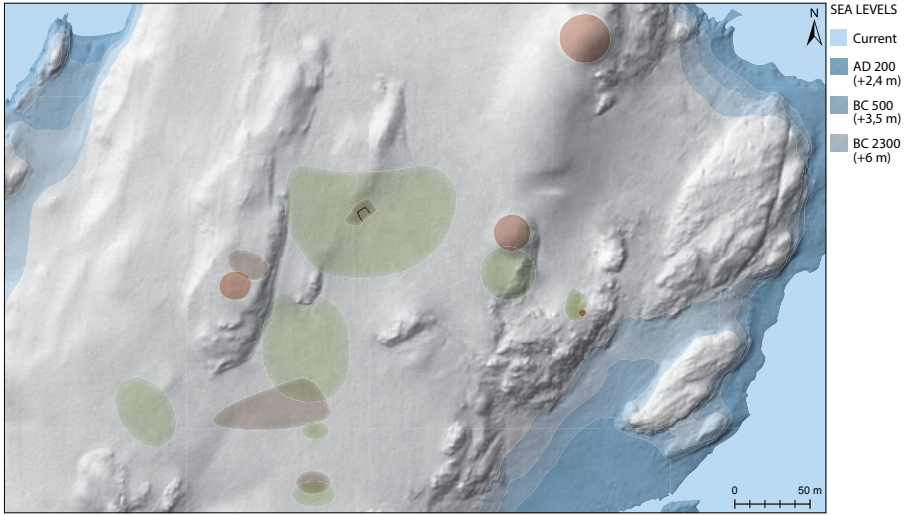
The excavations at Avaldsnes exposed features related to dwellings and other types of buildings, food production, processing of grain and other foodstuffs, funerary customs, and military aspects such as seafaring and fortification (overview in Østmo and Bauer, Ch. 6). A layout of the prehistoric organisation of the settlement can be suggested based on the spatial relationship of the remains. The settlement spanned a long time, but two main phases are distinguishable: one in SP I and one SP III-IV.

### 7.5.1 Settlement in SP I–II

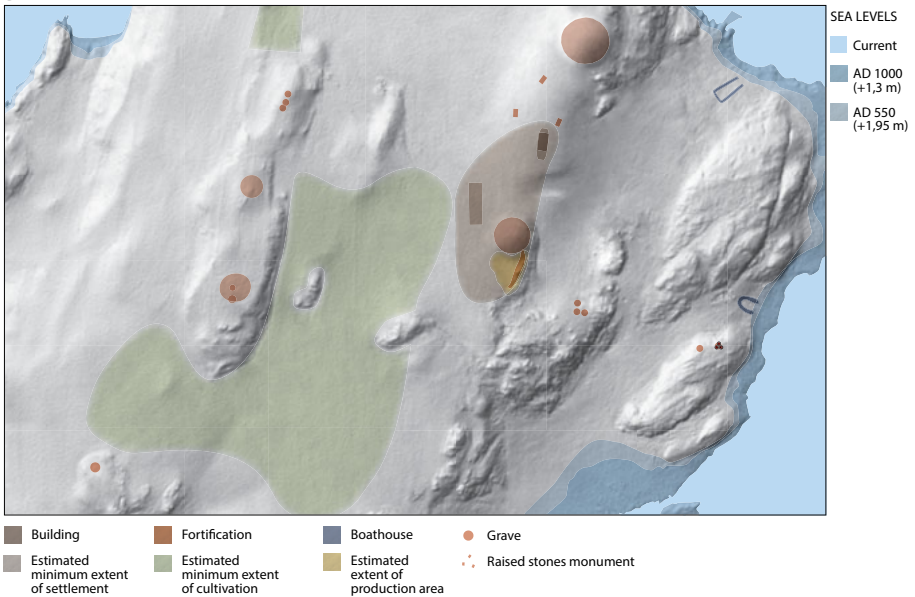
In SP I–II, up to the 2nd century AD, the main identified features and activities at the site were the earliest phases in the grave mounds Kjellerhaug and Flaghaug (Østmo and Bauer, Ch. 12:231–42; Stylegar and Reiersen, Ch. 22:563), building A11 in Area 2 east of Kongshaugen, and the initiation of agriculture with signs of land clearing by fire and a patchwork of smaller fields that were relocated after shorter periods of use and which in SP II gradually were developed into a larger continuous cultivated area. Sporadic postholes indicate possible buildings in other locations across the site, mainly underlying the cultivated soil in Areas 2, 3, and 5 (Fig. 7.10); however, these were too fragmentary and dispersed to form distinct buildings or other types of constructions. In Area 5, radiocarbon dates from the postholes span most of SP I, probably due partly to sporadic activity during this SP and partly to the inclusion of redeposited Neolithic charcoal waste in younger back-fill. The high-status Bronze Age grave monuments at Reheia indicate that the high-status centre at this time was not located at Avaldsnes, but a few kilometers further north. The Kjellerhaug grave mound and the earliest phase in the Flaghaug grave mound show that Avaldsnes was nevertheless a site suited for symbolic communication based on its visibility from the strait; as no artefacts have been recovered, the question of social status at this time is left unanswered.

Building A11 from SP I appears to have fallen into disuse fairly quickly. In the time period between this building and building A10 from SP III, there are no known buildings, only traces of other activities such as cultivation and the use of cooking pits. Based on conditions elsewhere, hiatuses as well as reorganisations of the prehistoric settlement are to be expected (cf. Gjerpe 2010:15). However, the large size of the areas left unexcavated, together with the possibility that other building remains have been disturbed beyond recognition in the most central parts of Avaldsnes, prohibit a definite conclusion in this matter. As the agriculture from SP I seems to have been present in the form of patchwork fields relocated in the landscape, a similar movement could have characterised the dwellings and other buildings. Speculatively, settlement traces on Kongshaug could relate to this form of settlement. Latrine waste and other microstratigraphic indications of settlement in several areas, for example underlying the Flaghaug grave mound, suggests a more widespread character of set-

## SP I–II



## SP III–V



**Fig. 7.10:** The organisation of the prehistoric settlement. The two maps depict accumulated evidence from SP I–II (upper) and SP III–V (lower). A patchwork of relocated fields and buildings is characteristic of SP I–II. SP III–V saw a farm structure with a large continuously cultivated area, a farmyard with dwellings, a possible hall, and structures related to crafts as well as processing of agricultural produce. Near the farmyard is a harbour with boathouses, as well as grave monuments in prominent locations. Though not all these elements are present throughout SP III–V, the general spatial structure of the farm seems to have been stable. Illustration: I. T. Bøckman, MCH.

tlement in SP I and II. Though Stylegar and Reisersen (Ch. 22) argue convincingly for a early Bronze Age phase in Flaghaug, the extent of this phase compared to expansions related to the SP III burials remains uncertain. The time-frame for the underlying settlement-related deposits remains wide at either SP I or II. The remains of agricultural activities imply a more or less continuous use of the entire headland, though of varying local intensity. An intensive cultivation with manured, permanent field(s) gradually taking form during SP II does, however, support a shift in the land use at this time and corresponds with a development resulting in settlement of a different character in SP III onwards.

### 7.5.2 Settlement in SP III–V

Within the context of concurrent activities, the buildings dated to SP III and V at Avaldsnes contribute to an understanding of the settlement structure (Fig. 7.10). As emphasised elsewhere in this volume, it is possible that additional buildings may have existed beyond the extent of the previous surveys and the current project's excavation. Intensive cultivation east of the Kongshaug ridge from SP II onwards evolved into a continuous and permanent field on the flatter areas surrounding Kongshaug. The presence of long-lasting buildings dating to SP II–V in the field in Area 2 in the western part of the settlement plateau seems unlikely: firstly because the limited number of postholes discovered were insufficient evidence for identifying buildings, and secondly because the cultivation, at least in Area 2's central part, seems to have been continuous based on observations in the micromorphology analyses from Profile 15653 (Bauer and Østmo, Ch. 8:145; Macphail and Linderholm, Ch. 17:401). Temporary constructions might have been placed there when fields were relocated; some of the features were substantial enough to have belonged to proper buildings, but most probably represented remains of temporary shelters or other small constructions, perhaps erected for seasonal work or temporary gatherings. Some of the undated features beneath the thick colluvium might also be part of constructions pre-dating the permanent field and the settlement from SP III further east. This is likely also the case for the postholes at Kongshaug, though their *terminus ante quem* dates cannot distinguish between SP I or SP II.

The field in the site's western part remained in use over a long period, with possible interruptions during short periods of disuse, as observed in the microstratigraphy in the earliest part of the colluvial sequence in Profile 15653 (for a discussion of agricultural activity at Avaldsnes, see Bauer and Østmo, Ch. 8; Macphail and Linderholm, Ch. 17:400–3). A ditch (A18206) containing postholes from a wooden fence running roughly north to south through the middle of Area 5 marked the boundary between the settlement area and the field. The ditch's back-fill was dated to the medieval period, but the spatial distribution of cultivation deposits and other feature types shows a transition in this area (as discussed below), indicating that this boundary

probably was older, possibly dating back to SP II. The field in Area 2 extended into the western part of Area 5, although micromorphological analyses showed marked differences in the fertilisation in these two parts of the field. While animal dung was the primary fertiliser in the middle of the excavated field in Area 2, the cultivation deposits immediately west of building A13 contained charcoal, latrine waste, and other kind of refuse, such as iron slag and glass fragments, indicating an infield close to the settlement (Macphail and Linderholm, Ch. 17:402). The deposit is interpreted as the eastern delineation of the cultivated colluvial formation otherwise observed and documented in Area 2. The deposit's stratigraphic relationship to many of the cooking pits and other pit features found in a concentration immediately west of building A13 spanning 356 BC–AD 615 (Bauer, Ch. 13; Beta-319015, Ua-45358) supports the conclusion that this extent of the cultivation deposit was established during SP II and continued through SP III. The building remains were clearly separated from this food preparation area, indicating long-lasting functional differences between the two areas. The continuation of the aisled entrance to the longhouse passed through or just south of this cooking pit concentration. Such a layout featuring cooking pits near the entrance of Iron Age longhouses is known from other sites, for instance at Eide, Forsandmoen, and in Fedjedalen (Diinhoff 2005a:82–3; Dahl 2009:101; Bjørdal 2011:5).

Unlike the cooking pits in other parts of the farm further away from the farmyard, several of the features in the area close to the longhouse had been fuelled with oak logs (Ballantyne et al., Ch.19:474). A mix of wood species is not uncommon in cooking pits, often thought to represent collection of available fuel from the surrounding woodland (Gustafson 2005g). A distribution pattern has been observed by Lars Erik Gjerpe (2009:142) in his analyses of charcoal from cooking pits and hearths in Vestfold in the period 200 BC to AD 600. He notes that a higher proportion of mixed assemblages are found in specialised cooking pit fields compared with hearths and cooking pits at Roman Iron Age and Migration Period settlements in the same region. In pits and hearths at settlement sites such as Gulli, Ringdal, Elgesem, and Rødbøl, there was a tendency toward a more frequent presence of pits containing fuel of a single taxon; oak and pine were over-represented (Gjerpe 2009:143). The make-up of the surrounding forest, collection strategy, and preferences are suggested to have contributed to the distribution pattern in Vestfold (Gjerpe 2009:143). In another study from Vestfold, the charcoal contained very few fragments of old trunks, indicating the presence of a managed forest that was cleared, pollarded, and subjected to several strategies to extract the woodland resources (Mikkelsen and Bartholin 2013:96–8). The Vestfold flora is obviously quite different from that of Norway's western coast, but it is to be expected that the woodland resources were equally managed at Avaldsnes with respect to firewood and fodder collection, gathering and management of building material, or other farm-economic productions. Considering the coastal heathland formation (Prøsch-Danielsen and Simonsen 2000a:199–201) and the decreasing presence of oak in analysed pollen samples, Macphail and Linderholm (Ch. 17:418, Fig. 17.5) argue that oak used as a construction material (e.g. for shipbuilding) was

probably not local. Ballantyne et al. (Ch. 19:480), however, refer to the presence of small ancient woodlands with oak and pine at Kormt today and argue that while all wood types may possibly have been gathered at Avaldsnes, gathering large oak and pine logs would likely require greater time and resources compared to other fuels. Ballantyne et al. (Ch. 19:480–1) argue that the distribution of oak logs reflects a structured selection of fuel, possibly for practical reasons connected to the fuel's heat-producing quality or for the specific smell or taste it contributes to the food prepared in hearths or pits. It should be noted that two of the ovens in Area 6 include a large proportion of oak, adding to the argument that this structured selection was at least partly functional. At the same time, the inclusion could also have held symbolic meaning – massive oak logs may constitute a form of conspicuous consumption when used as fuel in the hearths or cooking pits most closely related to the dwelling and entertaining of guests. Such an interpretation would bind together contextually the large area of cooking pits, the longhouse, and the possible hall, alluding to special occasions of feasting. Of relevance here is Lydia Carstens's (2015:17) suggestion that if the hall was intended for a specific selection of guests, the rest of their retinue might have been entertained elsewhere, but likely in proximity to the hall. Whatever the reason for this selection of fuel, it seems planned and structured as the other cooking pits, most ovens, charcoal lenses and the like show a different fuel assemblage in greater correspondence with the vegetation in the close surroundings (Ballantyne et al., Ch. 19:480).

The phosphate distribution across the site confirms the interpretation of Areas 1 and 5 as the main occupation locations, with values five times higher compared with the field in Area 2 (Macphail and Linderholm, Ch. 17). The high phosphate values correspond to the higher density of building remains in Areas 1 and 5 compared with the remaining excavated areas. This indicates that the activity was either of high intensity and/or of long duration. Topography was probably a deciding factor for the long-term use of this settlement area. The possible hall building from SP III in Area 1, on the eastern ridge of the settlement plateau, was visible from the strait, and could have been important for communicating power and possession of the area. The building lay between monumental grave mounds located at each end of the eastern ridge of the settlement plateau (Skre, SP III in Fig. 28.2), underlining the farm-holder's high status.

Contemporary with the possible hall and the longhouse, the southernmost tip of the settlement was a production area with ovens used for high-temperature processes (Østmo, Ch. 9:171–7; Macphail and Linderholm, Ch. 17:385, Fig. 17.4). There were also settlement traces in Areas 1 and 5 that were not part of the hall or longhouse, but rather belonged to pre- or post-dated constructions. Some of the postholes in Area 5 had SP I dates, but these are likely caused by inclusion of older material in younger features.

Close to the settlement, the boathouses from SP III and the transition to SP IV were investigated (Fig. 7.10). Additional boathouse remains are possible in other areas

around Avaldsnes (Bauer, Ch. 10), but the proximity of the boathouses in question would have facilitated quick use of sea-faring vessels as needed. The two-phased SP III boathouse in Area 8 demonstrates functional continuity in this area, explicable by topography. The sea level in SP III prohibited practical use of Gloppe – then an island, now a peninsula – as a harbour; with the gradual land rise, this area became more available for such functions.

While the postholes constituting A14 indicate continuity of the SP III-farmyard area into SP V, the general lack of buildings from SP IV has raised the question of a possible hiatus in the settlement at Avaldsnes. With the existing data not accounting for large unexcavated areas particularly around the St Óláfr's Church and the present-day barn (Bauer and Østmo, Fig. 5.2), this question cannot be properly addressed. However, certain findings from around the site indicate settlement in SP IV as well, although the buildings themselves are not identified. Care must be exercised, as two dated features in building A13 extend into SP IV. A small boathouse east of the settlement plateau was dated to AD 582–637 (Ua-45327). Other indications include a few postholes, ditches, and pits in Area 5 (Ua-45358, Ua-45349, Ua-45374), and a rather large group of small postholes in Area 6 dated to SP IV and the early SP V. These latter postholes were likely part of small buildings or constructions related to storage or food processing, although no certain buildings were identified (Østmo, Ch. 9:169–71). Immediately east of the postholes in Area 6, a deposit containing latrine waste sealed ovens dated to SP III (Ua-45334, Ua-45336). As the deposit itself contained charcoal dated to AD 414–532 (Ua-45332), it likely formed through episodic dumping, probably during the transition between SP III and IV (Macphail and Linderholm, Ch. 17:406; Østmo, Ch. 9:181). Latrine waste indicates a nearby dwelling, likely located in Areas 1 or 5 or in unexcavated areas nearby. A surveyed posthole under the present-day barn is a possible indication of such a building (Hemdorff 1994). Immediately overlying the deposit containing latrine waste was a large stone construction (A20) extending along the eastern edge of the farmyard plateau, probably built as a fortification during early SP IV (Østmo, Ch. 11:215–18). The sporadic features and indirect indications of settlement from early SP IV are too numerous to dismiss this period as a hiatus in the settlement. Moreover, while the boundary in Area 5 towards the field in the west seems to have continued throughout SP IV, the central farmyard may have extended further than indicated by the buildings A10, A13, and A14. The St Óláfr's Church and cemetery immediately to the north and the present-day barn immediately south of the identified buildings constitute locations that could potentially have complemented the suggested activity areas shown in Figure 7.10. In Area 5 there are also indications of settlement in SP V in the form of a deposit containing mostly fire-cracked stones. Such stone heaps occur frequently on the outskirts of settlements of the late Iron Age and early Middle Ages (Pilø 2005:136–7). The deposit could be related to the remains from the royal manor that lay in the same area in SP V (Bauer, Ch. 14).



## 7.6 Summary

Avaldsnes is a site with a long and extensive history. Settlement traces are scattered over the entire site. The traces of the settlement in SP I and II are not conclusive; they are documented indirectly in the form of latrine waste under Flaghaug and probably directly in the form of postholes in survey trenches on Kongshaug and possibly in Area 3, none of which were excavated due to their expected pre-AD date. It is not clear how these traces relate chronologically to building A11 from SP I below thick cultivation deposits in Area 2. A11 appears to have fallen into disuse fairly quickly, and the next clearly identified building is A10 from early SP III. The concentration of SP III and V features on the large settlement plateau in Areas 1 and 5 suggests that the settlement organisation was fairly fixed from SP III onwards, with a large settlement plateau east of a large field for cultivation and pasture. The two identified buildings from SP III and the possible building remains from SP V comprised a possible hall, a longhouse, and a possible building of unknown function. There were no identified SP IV buildings, though indirect settlement indications and the production in Area 6 suggest continuation of the overall farmyard structure. Stratigraphy and radiocarbon dates show activities at Avaldsnes throughout SP I–VII, but the state of preservation varied greatly. Though the buildings are too poorly preserved to provide details by themselves of the social status of the farm to which they belonged, their relation to features such as grave monuments, boathouses, a possible palisade, cooking pits, and areas for food processing and storage indicate an overarching context of a manor encompassing numerous activities, several of which testify to the holders' social, economic, and military power.



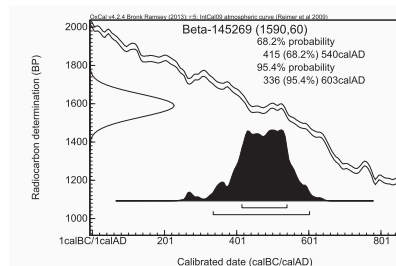
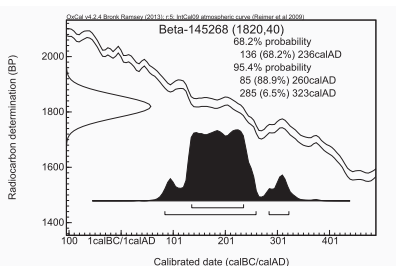
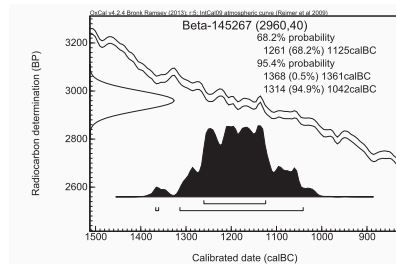
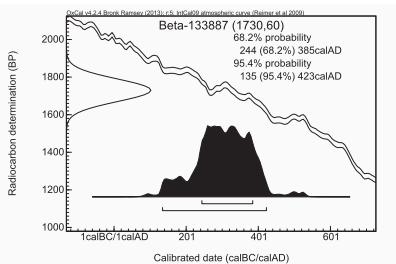
## Appendix II: Radiocarbon Dates

All radiocarbon datings from the ARM excavations 2011–12 have been calibrated according to OxCal v4.2.3 (Reimer et al. 2009); they are listed by laboratory numbers, and with their respective calibration curves. Pre-2011 datings (in italics) have been recalibrated. Datings on material from previous excavations on courtyard sites (Iversen, Ch. 26) are listed separately (pp. 889–97). Prefixes in each dating's laboratory number indicates laboratory and dating method – see Abbreviations (pp. XIII–XIV).

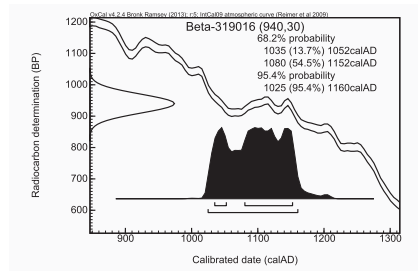
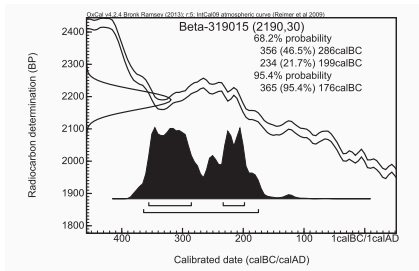
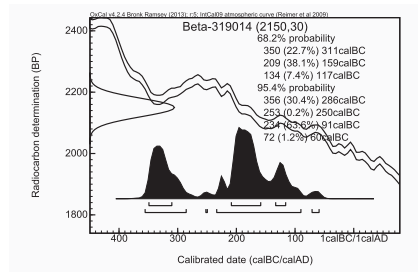
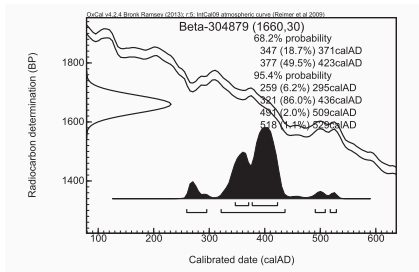
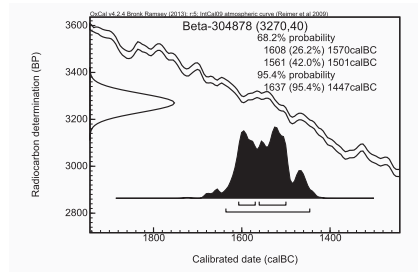
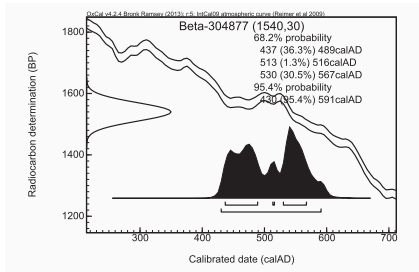
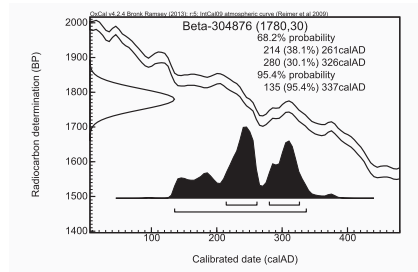
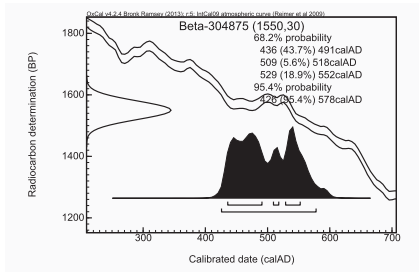
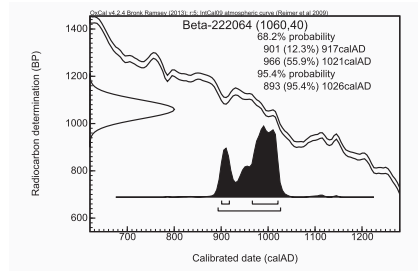
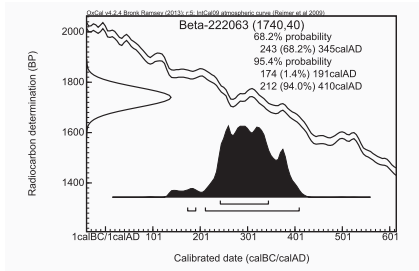
When referred to in the text, datings are given in terms of the one sigma (68.2% probability) unless otherwise stated. If the one sigma spans more than one time interval, only the start of the earliest and end of the most recent is indicated. For example, for the dating Beta-304876 where the one sigma spans the two periods AD 214–61 and 280–326, this is written as AD 214–326.

### Avaldsnes and Vicinity

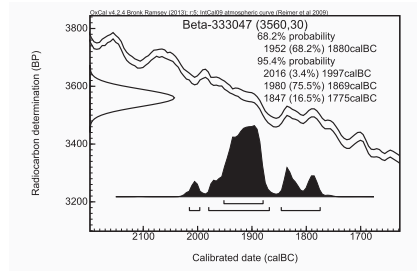
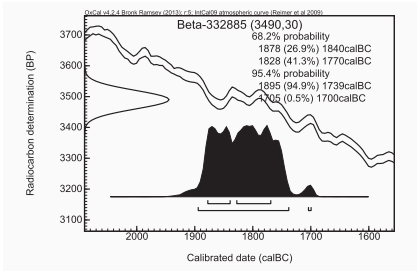
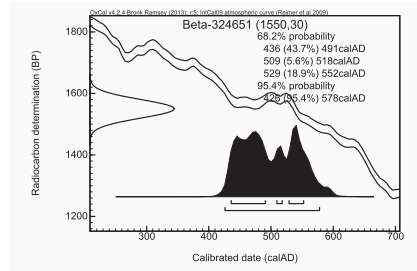
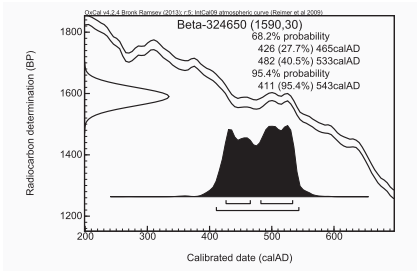
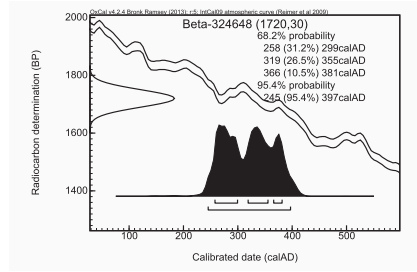
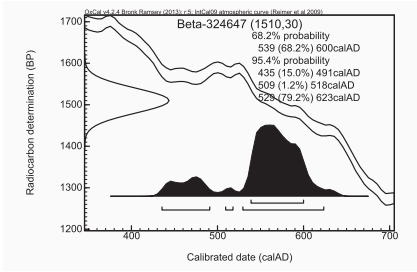
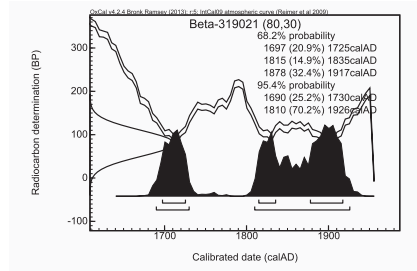
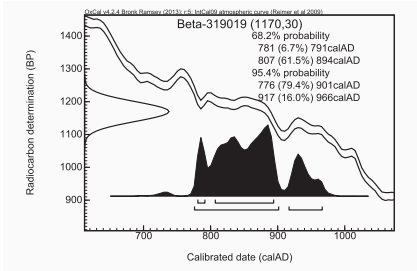
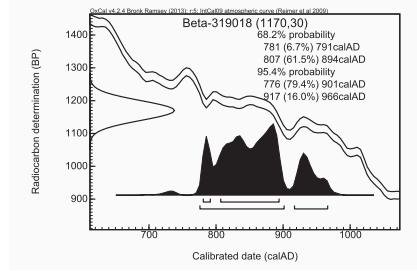
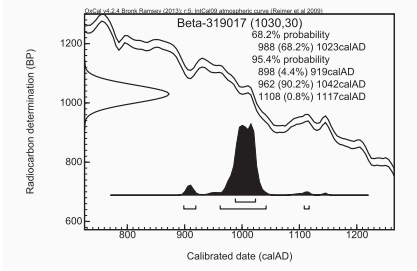
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Beta-133887	Avaldsnes		1730 +/- 60	AD 244–385	AD 135–423	Grave 2000: structure 1
Beta-145267	Avaldsnes		2960 +/- 40	BC 1261–1125	BC 1368–1314, 1042	Cultivation deposit 2000: layer 5
Beta-145268	Avaldsnes		1820 +/- 40	AD 136–236	AD 85–260, 285–323	Grave 2000: structure 2
Beta-145269	Avaldsnes		1590 +/- 60	AD 415–540	AD 336–603	Grave 2000: structure 4



LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Beta-222063	Avalsnes 2006/19-1	Charred material	1740 +/- - 40	AD 243-345	AD 174-191, 212-410	Hearth A8957, A10
Beta-222064	Avalsnes 2006/19-2	Charred material	1060 +/- - 40	AD 901-917, 966-1021	AD 893-1026	Posthole A18687, A14
Beta-304875	Avalsnes 1546	Betula	1550 +/- - 30	AD 436-491, 509-518, 529-552	AD 426-578	Cooking pit A2046
Beta-304876	Avalsnes 1552	Betula	1780 +/- - 30	AD 214-261, 280-326	AD 135-337	Cooking Pit A3889
Beta-304877	Avalsnes 1555	Betula	1540 +/- - 30	AD 437-489, 513-516, 530-567	AD 430-591	Cooking pit A5031
Beta-304878	Avalsnes 1721	Betula	3270 +/- - 40	BC 1608- 1570, 1561-1501	BC 1637- 1447	Cultivation deposit A4216
Beta-304879	Avalsnes 1566	Betula	1660 +/- - 30	AD 347-371, 377-423	AD 259-295, 321-436, 491-509, 518-529	Hearth A8957, A10
Beta-319014	Avalsnes 39	Hordeum vulgare	2150 +/- - 30	BC 350-311, 209-159, 134-117	BC 356-286, 235-250, 234-91, 72-60	Cooking pit A9568
Beta-319015	Avalsnes 61	Hordeum vulgare	2190 +/- - 30	BC 356-286, 234-201	BC 365-176	Cooking pit A18656
Beta-319016	Avalsnes 76	Avena	940 +/- - 30	AD 1035- 1052, 1080-1152	AD 1025- 1160	Stakehole A18736, A14

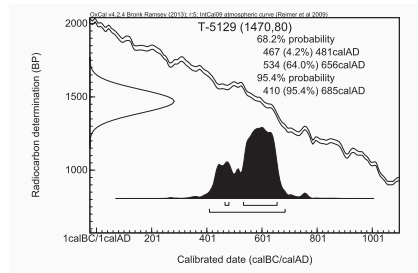
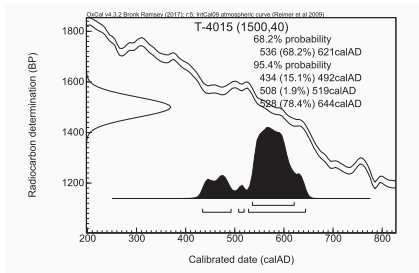
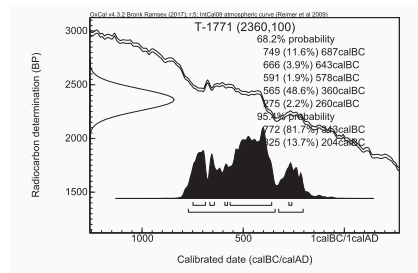
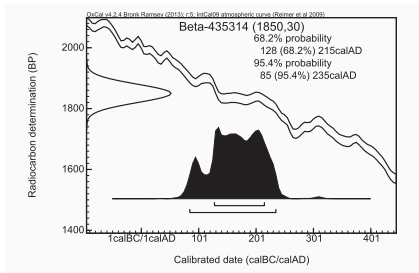
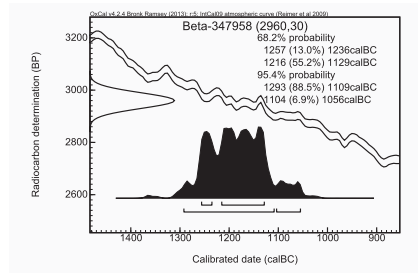
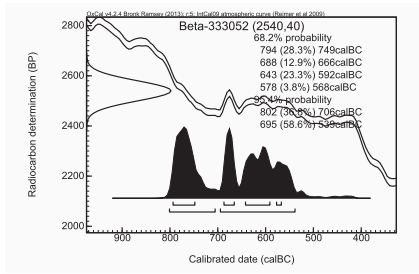
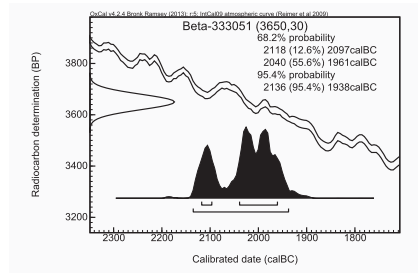
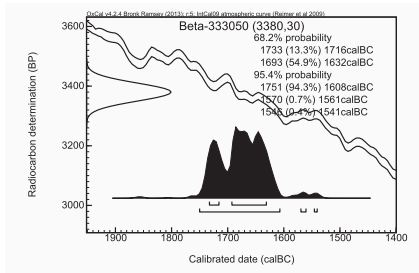
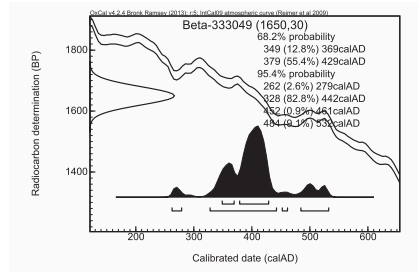
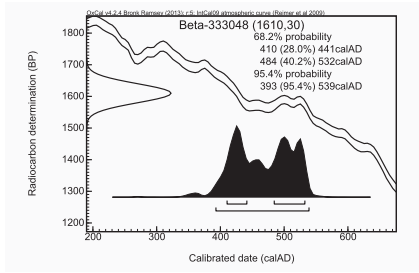


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Beta-319018	Avalsnes 91	Hordeum vulgare	1170 +/- - 30	AD 781-791, 807-894	AD 776-901, 917-966	Posthole A10197
Beta-319019	Avalsnes 98	Hordeum vulgare	1170 +/- - 30	AD 781-791, 807-894	AD 776-901, 917-966	Pit A20476
Beta-319021	Avalsnes 126	Corylus avellana nutshell	80 +/- - 30	AD 1697- 1725, 1815- 1835, 1878-1917	AD 1690- 1730, 1810-1926	Well A11062
Beta-324647	Avalsnes 129	Populus	1510 +/- - 30	AD 539-600	AD 435-491, 509-518, 529-623	Possible floor, A28805, A40
Beta-324648	Avalsnes 130	Alnus	1720 +/- - 30	AD 258-299, 319-355, 366-381	AD 245-397	Posthole A31295, A40
Beta-324650	Avalsnes 132	Betula	1590 +/- - 30	AD 426-465, 482-533	AD 411-543	Conduit A30325, A40
Beta-324651	Avalsnes 135	Betula	1550 +/- - 30	AD 436-491, 509-518, 529-552	AD 426-578	Posthole A31003, A40
Beta-332885	Avalsnes 473	Alnus	3490 +/- - 30	BC 1878- 1840, 1828-1770	BC 1895- 1739, 1705-1700	Hearth A46300, A13
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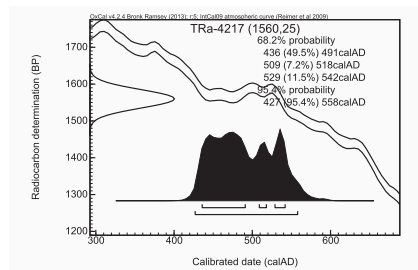
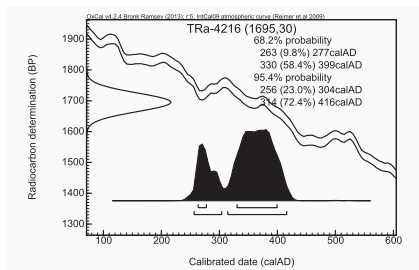
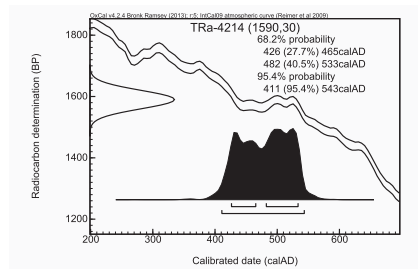
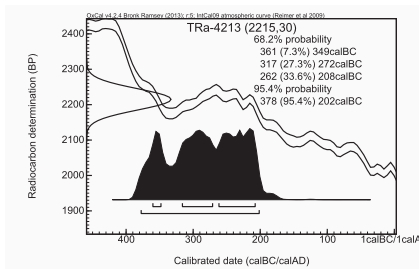
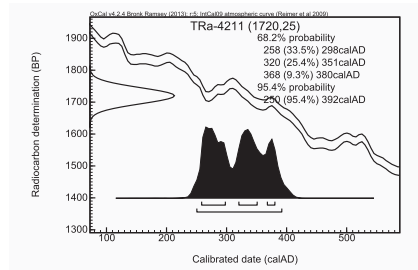
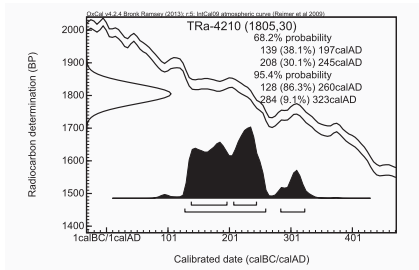
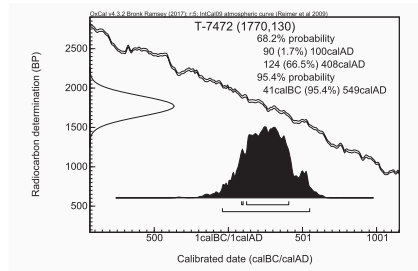
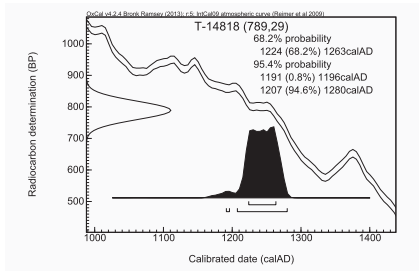
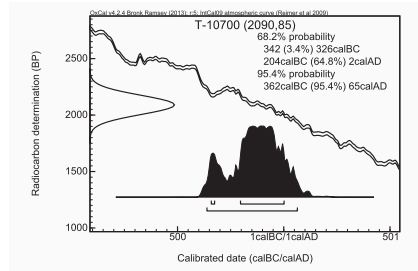
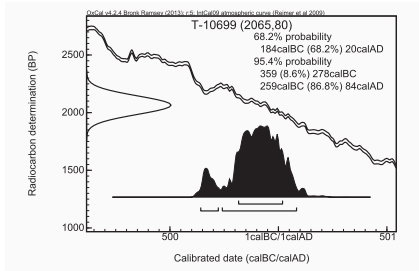


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Beta-333048	Avalsnes 320	Betula	1610 +/- - 30	AD 410–441, 484–532	AD 393–539	Posthole A46673, A13
Beta-333049	Avalsnes 313	Hordeum vulgare	1650 +/- - 30	AD 349–369, 379–429	AD 262–279, 328–442, 452–461, 484–532	Posthole A46796, A13
Beta-333050	Avalsnes 304	Alnus	3380 +/- - 30	BC 1733– 1716, 1693–1632	BC 1751– 1608, 1570–1561, 1546–1541	Charcoal concentration A42891
Beta-333051	Avalsnes 279	Betula	3650 +/- - 30	BC 2118– 2097, 2040–1961	BC 2136– 1938	Impression of removed stone A44121
Beta-333052	Avalsnes 216	Hordeum vulgare	2540 +/- - 40	BC 794–749, 688–666, 643–592, 578–568	BC 802–706, 695–539	Charcoal deposit A39717
Beta-347958	Avalsnes 1720	Humus	2960 +/- - 30	BC 1257– 1236, 1216–1129	BC 1293– 1109, 1104–1056	Cultural deposit A9601
Beta-435314	Avalsnes 475	Quercus	1858 +/- - 30	AD 128–215	AD 85–235	Hearth A46300, A13
T-1771	Taksdal	Quercus	2360 +/- - 100	BC 749–687, 666–643, 591–578, 565–360, 275–260	BC 772–343, 325–204	Ard, S8749
T-4015	Madla	Bog butter	1500 +/- - 40	AD 536–621	AD 434–492, 508–519, 528–644	Bog butter, S9457
T-5129	Salhusaug -	Pinus	1470 +/- - 80	AD 440–450, 460–490, 530–660	AD 410–700	Wooden spade from grave mound

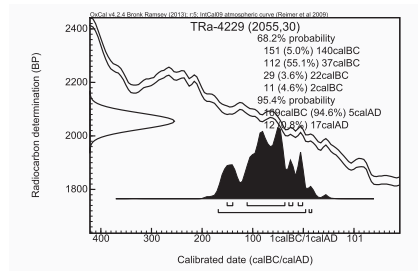
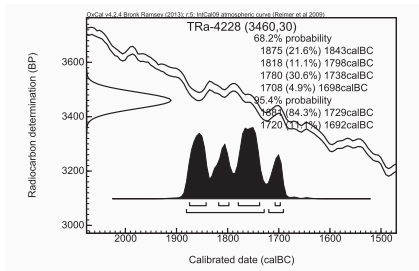
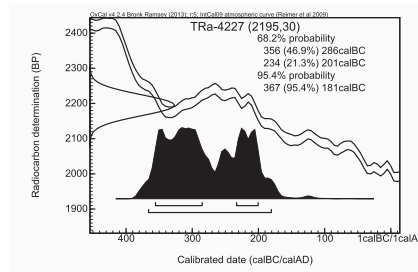
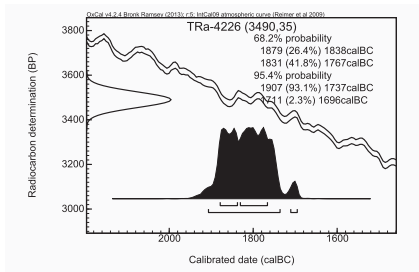
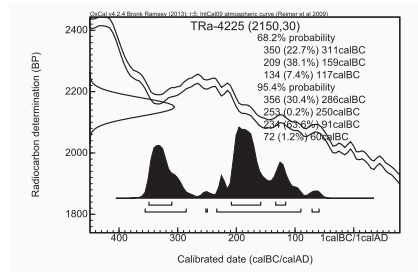
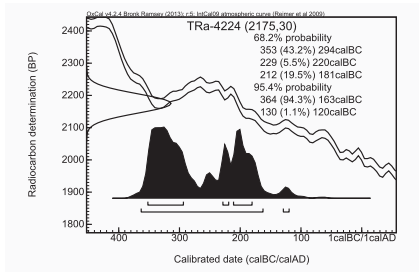
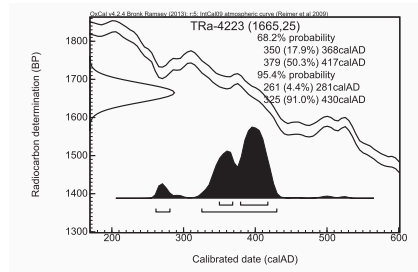
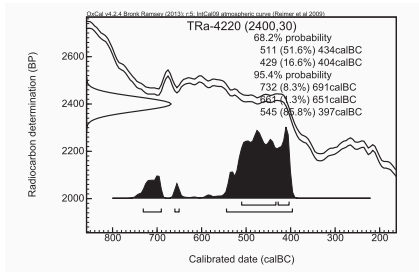
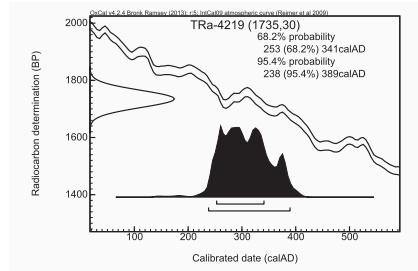
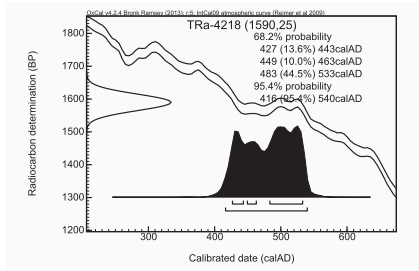




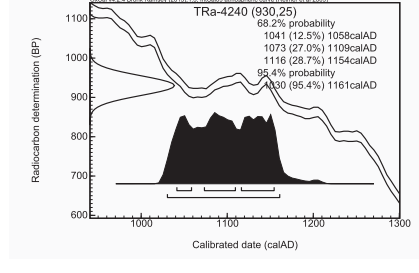
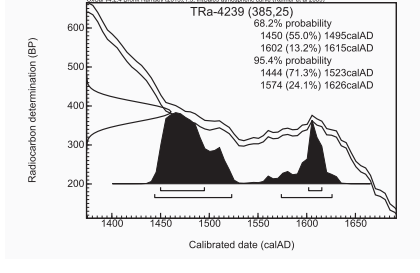
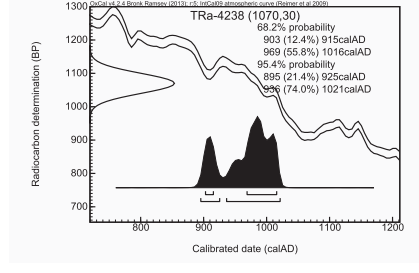
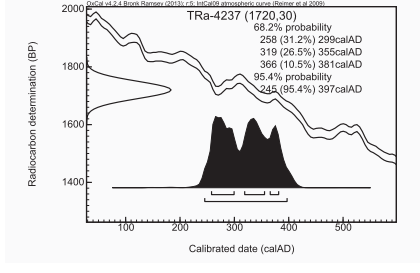
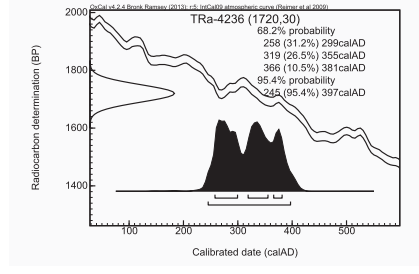
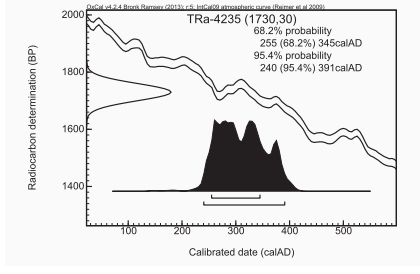
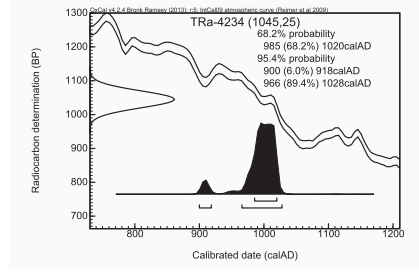
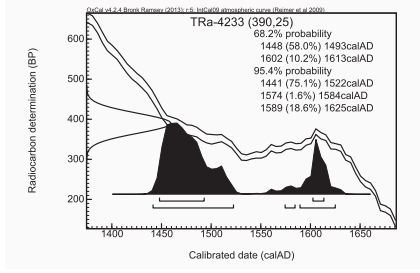
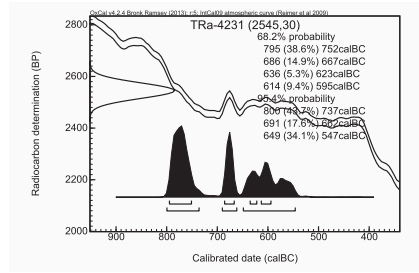
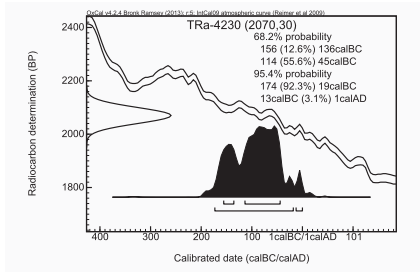
LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
T-7472	Bø	Skeletal remains (human)	1770 +/- - 130	AD 90–100, 124–408	AD 41–549	Skeletal remains (human), S10968
T-10699	Avalsnes	Betula, Salix, Corylus	2065 +/- -80	BC 184–AD 20	BC 359–278, 259–84	Hearth 1992:35
T-10700	Avalsnes	Betula, Salix	2090 +/- - 85	BC 342– 326,BC 204–AD 2	BC 362–AD 65	Hearth (1992: 31)
T-14818	Gloppehavn -	Unknown	789 +/- - 29	AD 1224– 1263	AD 1191– 1196, AD 1207–1280	Shipwreck in Gloppehavn P. #
Tra-4210	Avalsnes 274	Alnus	1805 +/- - 30	AD 139–197, 208–245	AD 128–260, 284–323	Cooking pit A44603
TRa-4211	Avalsnes 9	Corylus avellana nutshell	1720 +/- - 25	AD 258–298, 320–351, 368–380	AD 250–392	Cooking pit A3646
TRa-4213	Avalsnes 11		2215 +/- - 30	BC 361–349, 317–272, 262–208	BC 378–202	Impression of removed stone A4079
TRa-4214	Avalsnes 14	Hordeum vulgare	1590 +/- - 30	AD 426–465, 482–533	AD 411–543	Cooking pit A1425
TRa-4216	Avalsnes 24	Corylus avellana nutshell	1695 +/- - 30	AD 263–277, 330–399	AD 256–304, 314–416	Cooking pit A5049
TRa-4217	Avalsnes 23	Salix	1560 +/- - 25	AD 436–491, 509–518, 529–542	AD 427–558	Cooking pit A5263



LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
TRa-4218	Avalsnes 27	Corylus avellana nutshell	1590 +/- - 25	AD 427-443, 449-463, 483-533	AD 416-540	Cooking pit A5376
TRa-4219	Avalsnes 25	Salix/ populus tremula	1735 +/- - 30	AD 253-341	AD 238-389	Cooking pit A5541
TRa-4220	Avalsnes 29	Corylus avellana nutshell	2400 +/- - 30	BC 511-434, 429-404	BC 732-691, 661-651, 545-397	Posthole A5815
TRa-4223	Avalsnes 30	Pinus	1665 +/- - 25	AD 350-368, 379-417	AD 261-281, 325-430	Cooking pit A5504
TRa-4224	Avalsnes 36	Betula	2175 +/- - 30	BC 353-294, 229-220, 212-181	BC 364-163, 130-120	Cooking pit A9150
TRa-4225	Avalsnes 37	Betula	2150 +/- - 30	BC 350-311, 209-159, 134-117	BC 356-286, 253-250, 234-91, 72-60	Cooking pit A9533
TRa-4226	Avalsnes 43	Corylus avellana nutshell	3490 +/- - 35	BC 1879- 1838, 1831- 1767	BC 1907- 1737, 1711-1696	Posthole A10500
TRa-4227	Avalsnes 49	Betula	2195 +/- - 30	BC 356-286, 234-201	BC 367-181	Cooking pit A12577
TRa-4228	Avalsnes 50	Salix	3460 +/- - 30	BC 1875- 1843, 1818-1798, 1780-1738, 1708-1698	BC 1881- 1729, 1720-1692	Cooking pit A4193
TRa-4229	Avalsnes 47	Betula	2055 +/- - 30	BC 151-140, 112-37, 29-22, 11-2	BC 169-AD 5,AD 12-17	Cooking pit A1640

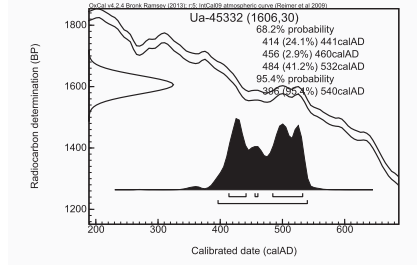
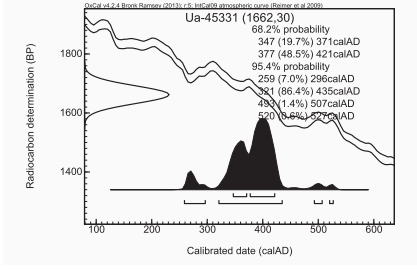
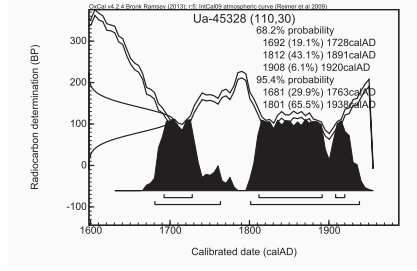
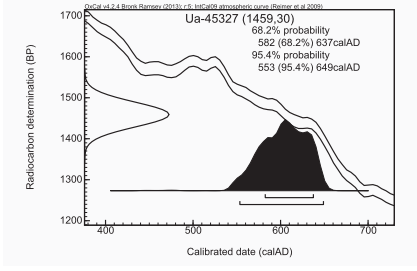
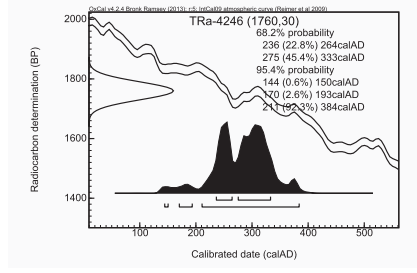
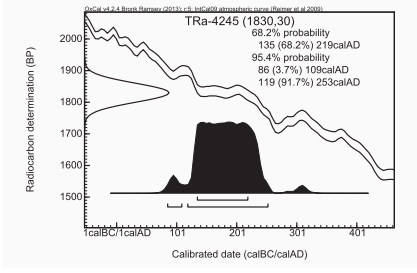
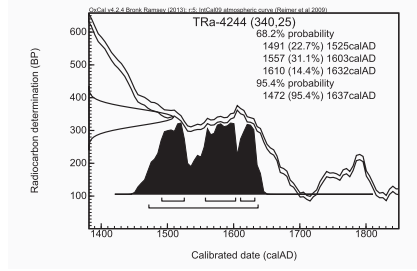
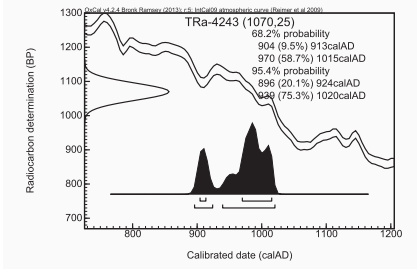
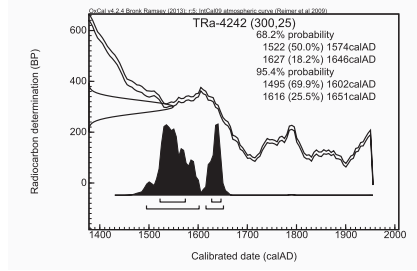
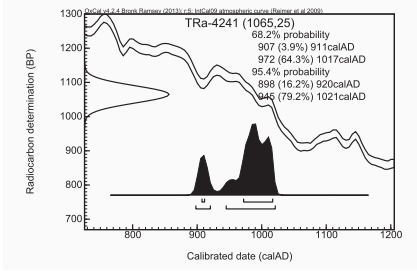


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
TRa-4230	Avaldsnes 53	Betula	2070 +/- - 30	BC 156-136, 114-45	BC 174-19,BC 13-AD 1	Cultivation deposit A103
TRa-4231	Avaldsnes 54	Corylus avellana nutshell	2545 +/- - 30	BC 795-752, 686-667, 636-623, 614-595	BC 800-737, 691-662, 649-547	Cultivation deposit A5882
TRa-4233	Avaldsnes 82	Salix	390 +/- - 25	AD 1448- 1493, 1602-1613	AD 1441- 1522, 1574- 1584, 1589-1625	Floor layer A6488
TRa-4234	Avaldsnes 89	Betula	1045 +/- - 25	AD 985-1020	AD 900-918, 966-1028	Discarded A19788
TRa-4235	Avaldsnes 74	Betula	1730 +/- - 30	AD 255-345	AD 240-391	Hearth A5793, A10
TRa-4236	Avaldsnes 86	Quercus	1720 +/- - 30	AD 258-299, 319-355, 366-381	AD 245-397	Hearth A8957, A10
TRa-4237	Avaldsnes 69	Betula	1720 +/- - 30	AD 258-299, 319-355, 366-381	AD 245-397	Posthole A18745, A10
TRa-4238	Avaldsnes 87	Betula	1070 +/- - 30	AD 903-915, 969-1016	AD 895-925, 936-1021	Posthole A19839, A14
TRa-4239	Avaldsnes 1953	Betula	385 +/- - 25	AD 1450- 1495, 1602-1615	AD 1444- 1523, 1574-1626	Possible post- hole A19880
TRa-4240	Avaldsnes 80	Betula	930 +/- - 25	AD 1041- 1058, 1073- 1109, 1116-1154	AD 1030- 1161	Hearth A8957, A10

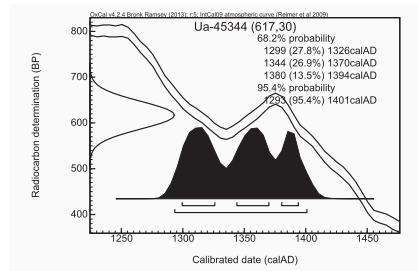
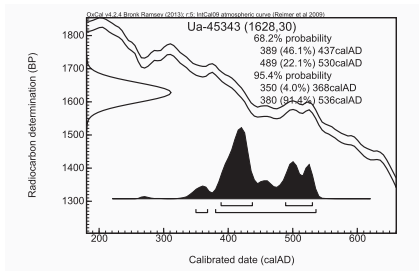
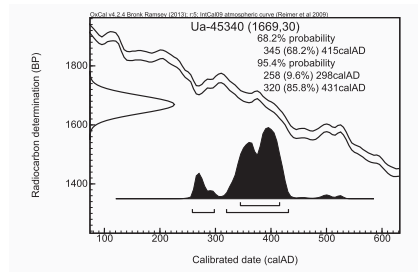
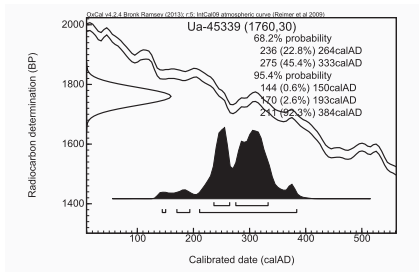
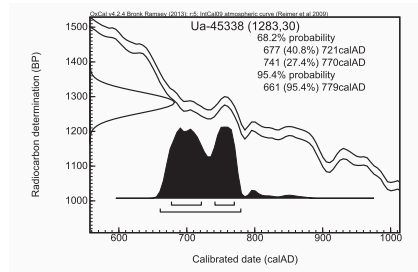
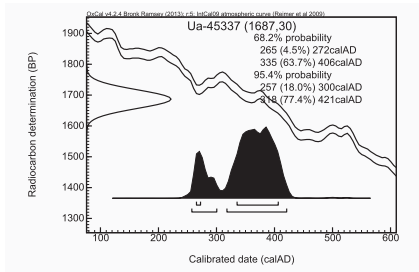
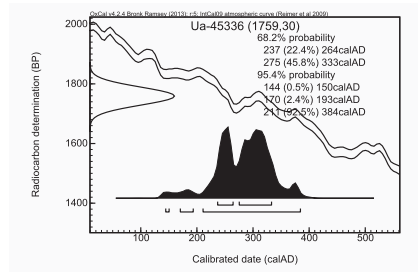
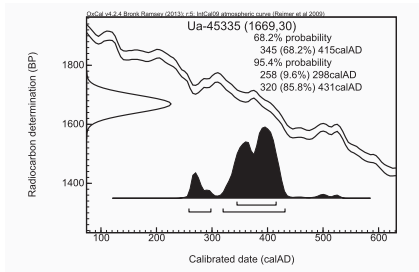
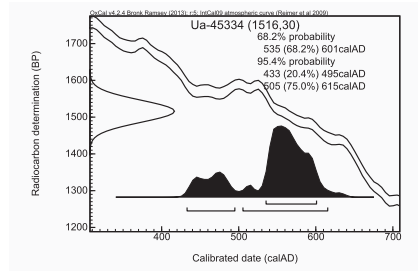
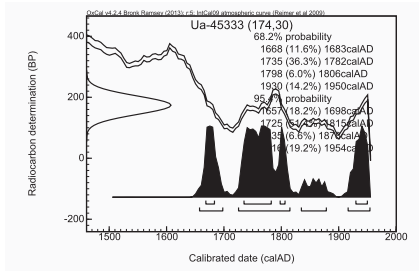


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
TRa-4241	Avalsnes 88	Betula	1065 +/- - 25	AD 907-911, 972-1017	AD 898-920, 945-1021	Posthole A19829, A14
TRa-4242	Avalsnes 93	Betula	300 +/- - 25	AD 1522- 1574, 1627-1646	AD 1495- 1602, 1616-1651	Wall ditch A9231, A10
TRa-4243	Avalsnes 65	Betula	1070 +/- - 25	AD 904-913, 970-1015	AD 896-924, 939-1020	Posthole A18677, A14
TRa-4244	Avalsnes 72	Betula	340 +/- - 25	AD 1491- 1525, 1557- 1603, 1610-1632	AD 1472- 1637	Floor layer A20326
TRa-4245	Avalsnes 122	Betula	1830 +/- - 30	BC 135-AD 219	AD 86-109, 119-253	Post impres- sion A20921
TRa-4246	Avalsnes 109	Betula	1760 +/- - 30	AD 236-264, 275-333	AD 144-150, 170-193, 211-384	Discarded, A19860
Ua-45327	Avalsnes 127	Salix/ populus	1459 +/- - 30	AD 582-637	AD 553-649	Posthole A25343, A41
Ua-45328	Avalsnes 171	Betula	110 +/- - 30	AD 1692- 1728, 1812- 1891, 1908-1920	AD 1681- 1763, 1801-1938	Old ground surface A27331, A46
Ua-45331	Avalsnes 195	Betula	1662 +/- - 30	AD 347-371, 377-421	AD 259-296, 321-435, 493-507, 520-527	Construction layer A25526, A20
Ua-45332	Avalsnes 149	Betula	1606 +/- - 30	AD 414-441, 456-460, 484-532	AD 396-540	Charcoal concentration A32030

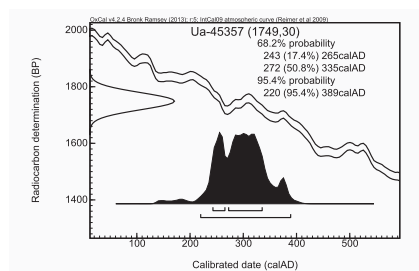
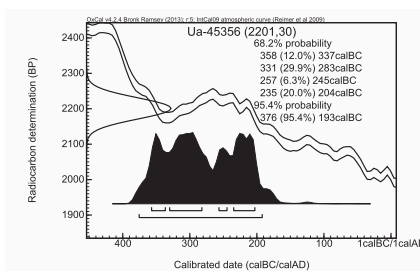
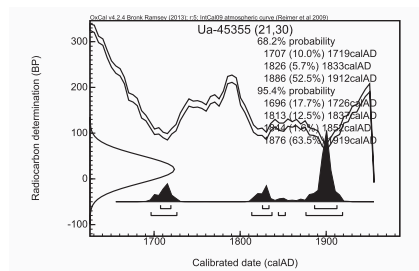
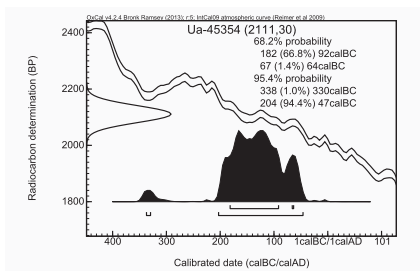
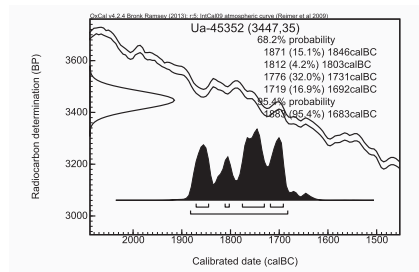
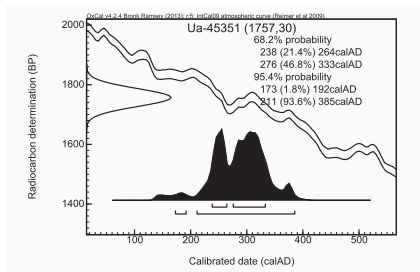
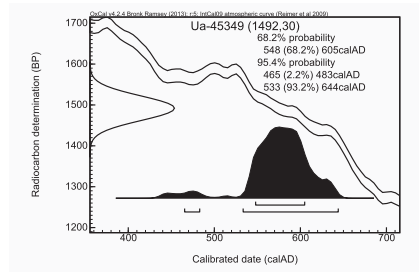
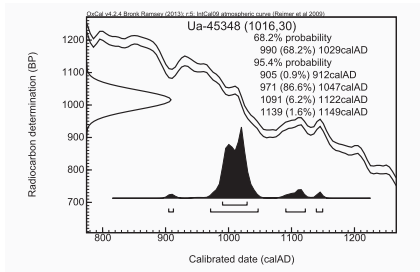
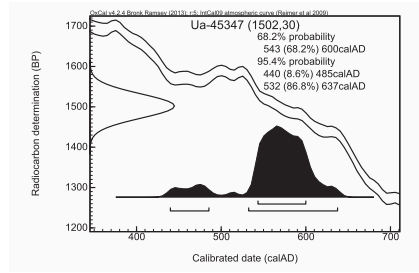
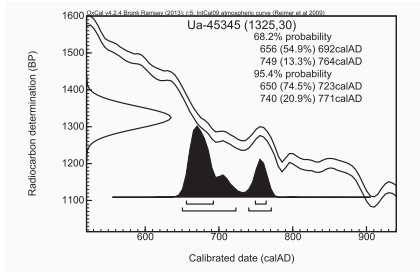




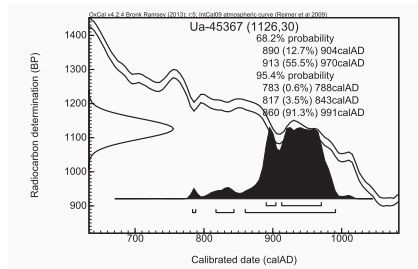
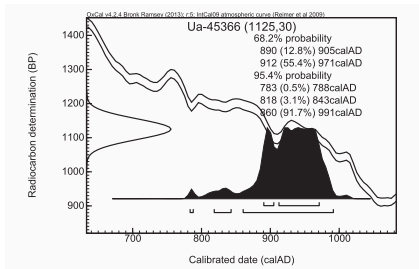
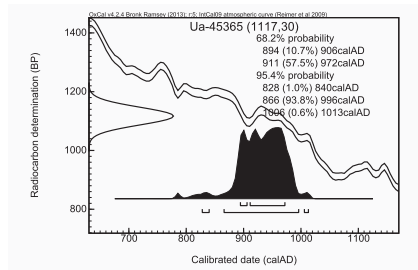
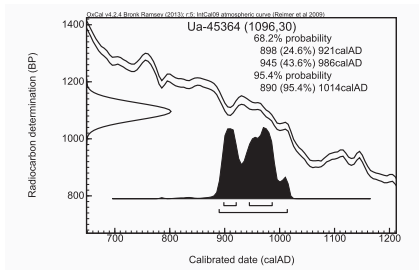
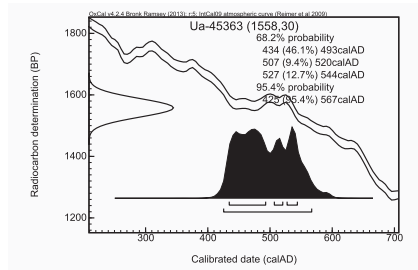
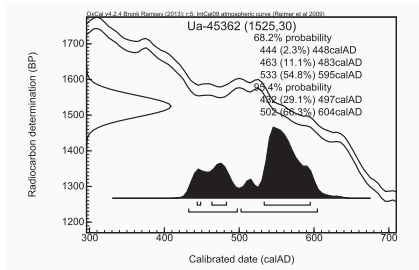
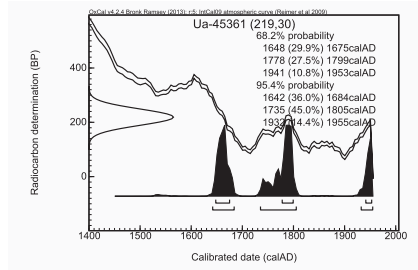
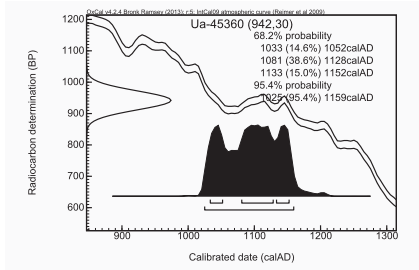
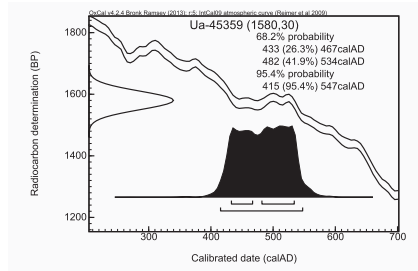
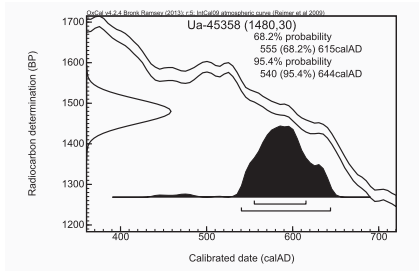
LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-45333	Avalsnes 192	Betula	174 +/- - 30	AD 1668- 1683, 1735- 1782, 1798- 1806, 1930-1950	AD 1657- 1698, 1725- 1815, 1835- 1878, 1916-1954	Posthole A32087
Ua-45334	Avalsnes 287	Salix/ populus	1516 +/- - 30	AD 535-601	AD 433-495, 505-615	Oven A37744
Ua-45335	Avalsnes 196	Betula	1669 +/- - 30	AD 345-415	AD 258-298, 320-431	Cooking Pit A37846
Ua-45336	Avalsnes 200	Corylus	1759 +/- - 30	AD 237-264, 275-333	AD 144-150, 170-193, 211-384	Oven A37770
Ua-45337	Avalsnes 220	Corylus	1687 +/- -30	AD 265-272, 335-406	AD 257-300, 318-421	Oven A39340, A401438
Ua-45338	Avalsnes 245	Betula	1283 +/- - 30	AD 677-721, 741-770	AD 661-779	Construction layer A25526, A20
Ua-45339	Avalsnes 238	Betula	1760 +/- - 30	AD 236-264, 275-333	AD 144-150, 170-193, 211-384	Waste layer A35150
Ua-45340	Avalsnes 286	Alnus	1669 +/- - 30	AD 345-415	AD 258-298, 320-431	Cooking pit A44578
Ua-45343	Avalsnes 467	Betula	1628 +/- - 30	AD 389-437, 489-530	AD 350-368, 380-536	Posthole A49699
Ua-45344	Avalsnes 1916	Betula	617 +/- - 30	AD 1299- 1326, 1344- 1370, 1380-1394	AD 1293- 1401	Ditch A18206



LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-45345	Avalsnes 407	Betula	1325 +/- 30	AD 656-692, 749-764	AD 650-723, 740-771	Posthole A50691
Ua-45347	Avalsnes 471	Salix/ populus (round-wood)	1502 +/- 30	AD 543-600	AD 440-485, 532-637	Hearth A48640, A13
Ua-45348	Avalsnes 418	Betula	1016 +/- 30	AD 990-1029	AD 905-912, 971-1047, 1091-1122, 1139-1149	Posthole A48560
Ua-45349	Avalsnes 425	Salix/ populus	1492 +/- 30	AD 548-605	AD 465-483, 533-644	Posthole A46825
Ua-45351	Avalsnes 374	Prunus	1757 +/- 30	AD 238-264, 276-333	AD 173-192, 211-385	Cooking pit A52790
Ua-45352	Avalsnes 376	Salix/ populus	3447 +/- 35	BC 1871-1845, 1812-1803, 1776-1731, 1719-1692	BC 1883-1683	Posthole A47199
Ua-45354	Avalsnes 190	Hordeum vulgare	2111 +/- 30	BC 182-92, BC 67-64	BC 338-330, 204-47	Activity surface/cultivation deposit A25600
Ua-45355	Avalsnes 183	Avena	21 +/- 30	AD 1707-1719, 1826-1833, 1886-1912	AD 1696-1726, 1813-1837, 1844-1852, 1876-1919	Burned deposit A35555
Ua-45356	Avalsnes 246	Hordeum vulgare	2201 +/- 30	BC 358-337, 331-283, 257-245, 235-204	BC 376-193	Cooking pit A40222
Ua-45357	Avalsnes 254	Hordeum vulgare	1749 +/- 30	AD 243-265, 272-335	AD 220-389	Cultivation deposit A34995

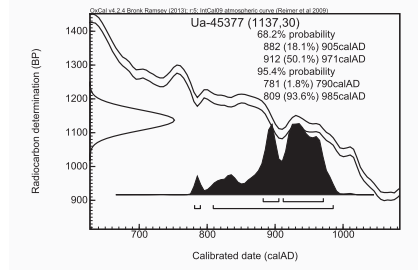
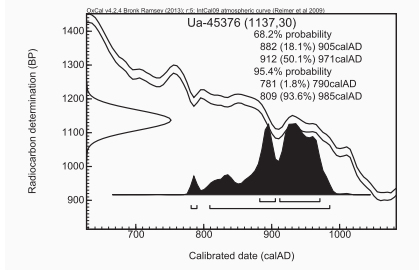
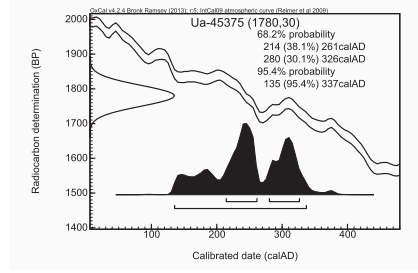
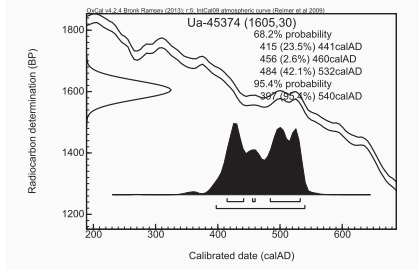
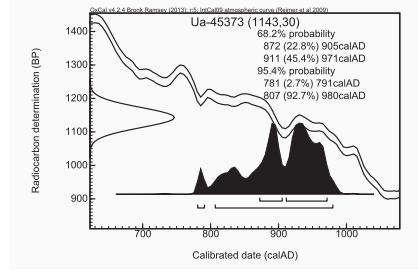
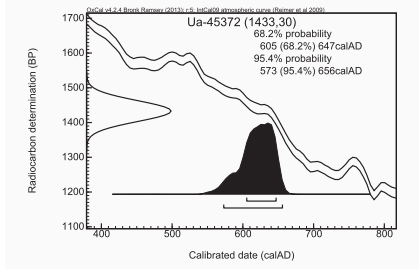
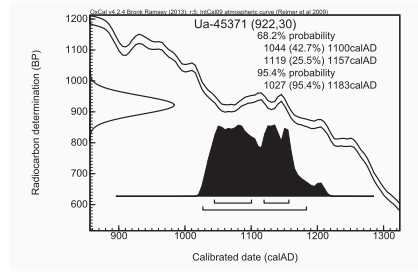
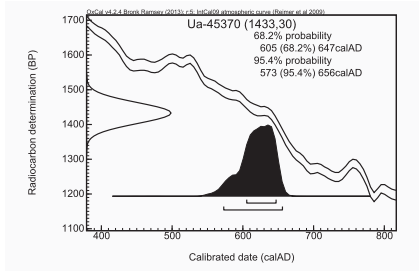
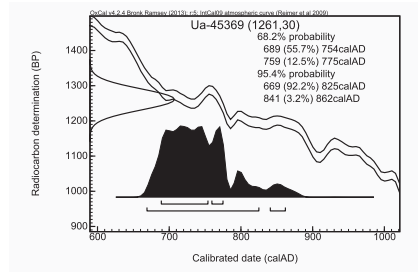
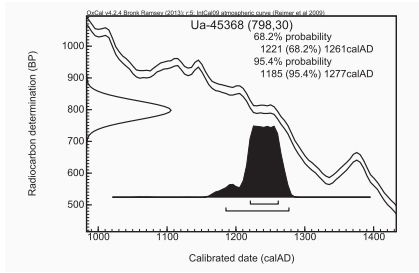


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-45358	Avalsnes 273	Hordeum vulgare	1480 +/- - 30	AD 555-615	AD 540-644	Cooking pit A44483
Ua-45359	Avalsnes 276	Hordeum vulgare	1580 +/- - 30	AD 433-467, 482-534	AD 415-547	Cooking pit A44432
Ua-45360	Avalsnes 289	Hordeum vulgare	942 +/- - 30	AD 1033- 1052, 1081- 1128, 1133-1152	AD 1025- 1159	Oven A44031
Ua-45361	Avalsnes 296	Corylus avellana nutshell	219 +/- - 30	AD 1648- 1657, 1778- 1799, 1941-1953	AD 1642- 1684, 1735- 1805, 1932-1955	Burned deposit A45350
Ua-45362	Avalsnes 348	Hordeum vulgare	1525 +/- - 30	AD 444-448, 463-483, 533-595	AD 432-497, 502-604	Posthole A48688, A13
Ua-45363	Avalsnes 332	Hordeum vulgare	1558 +/- - 30	AD 434-493, 507-520, 527-544	AD 425-567	Posthole A45557, A13
Ua-45364	Avalsnes 329	Hordeum vulgare	1096 +/- - 30	AD 898-921, 945-986	AD 890-1014	Posthole A12036
Ua-45365	Avalsnes 355	Hordeum vulgare	1117 +/- - 30	AD 894-906, 911-972	AD 828-840, 866-996, 1006-1013	Posthole A50604
Ua-45366	Avalsnes 333	Hordeum vulgare	1125 +/- - 30	AD 890-905, 912-971	AD 783-788, 818-843, 860-991	Posthole A12060
Ua-45367	Avalsnes 340	Hordeum vulgare	1126 +/- - 30	AD 890-904, 913-970	AD 783-788, 817-843, 860-991	Posthole A51007

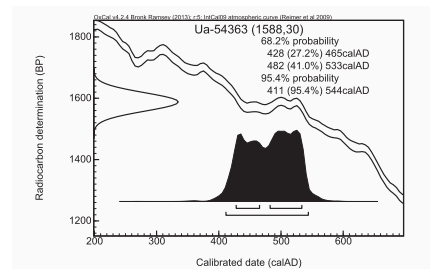
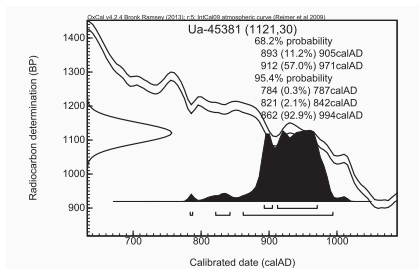
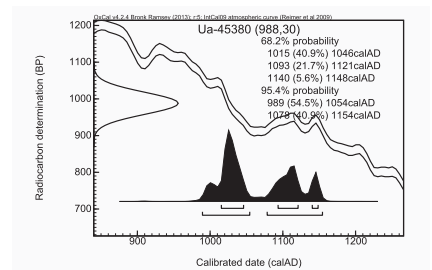
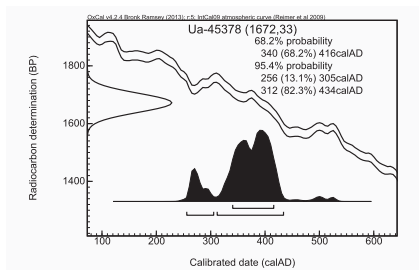


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Ua-45368	Avalsdsnes 343	Hordeum vulgare	798 +/- - 30	AD 1221- 1261	AD 1185- 1277	Layer A12780
Ua-45369	Avalsdsnes 439	Hordeum vulgare	1261 +/- - 30	AD 689-754, 759-775	AD 669-825, 841-862	Posthole A10161
Ua-45370	Avalsdsnes 410	Hordeum vulgare	1433 +/- - 30	AD 605-647	AD 573-656	Posthole A49884
Ua-45371	Avalsdsnes 414	Hordeum vulgare	922 +/- - 30	AD 1044- 1100, 1119-1157	AD 1027- 1183	Posthole A46764
Ua-45372	Avalsdsnes 432	Hordeum vulgare	1433 +/- - 30	AD 605-647	AD 573-656	Posthole A50677
Ua-45373	Avalsdsnes 419	Hordeum vulgare	1143 +/- - 30	AD 872-905, 911-971	AD 781-791, 807-980	Posthole A49724
Ua-45374	Avalsdsnes 391	Hordeum vulgare	1605 +/- - 30	AD 415-441, 456-460, 484-532	AD 397-540	Posthole A46847
Ua-45375	Avalsdsnes 413	Hordeum vulgare	1780 +/- - 30	AD 214-261, 280-326	AD 135-337	Posthole A50424
Ua-45376	Avalsdsnes 417	Hordeum vulgare	1137 +/- - 30	AD 882-905, 912-971	AD 781-790, 809-985	Ditch A12178
Ua-45377	Avalsdsnes 334	Hordeum vulgare	1137 +/- - 30	AD 882-905, 912-971	AD 781-790, 809-985	Cooking pit A10438



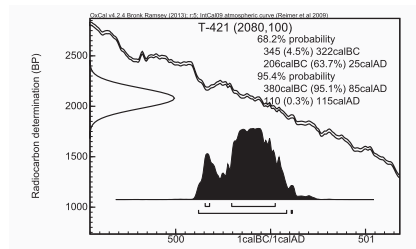
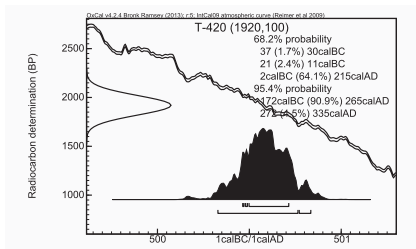
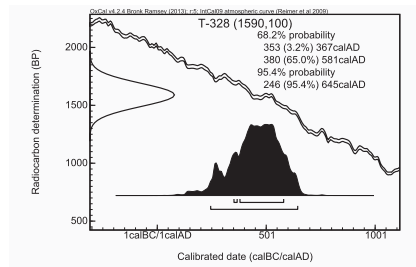
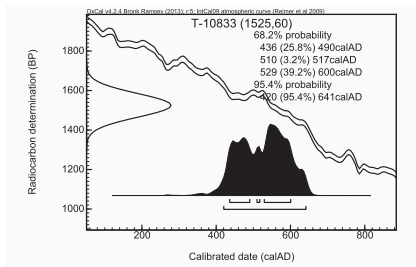


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-45378	Avalsnes 385	Avena	1672 +/- 33	AD 340-416	AD 256-305, 312-434	Posthole A46437
Ua-45380	Avalsnes 450	Hordeum vulgare	988 +/- 30	AD 1015-1046, 1093-1121, 1140-1148	AD 989-1054, 1078-1154	Posthole A52453
Ua-45381	Avalsnes 382	Hordeum vulgare	1121 +/- 30	AD 893-905, 912-971	AD 784-787, 821-842, 862-994	Posthole A53576
Ua-54363	Avalsnes 332	Hordeum vulgare	1558 +/- 30	AD 428-465, 482-533	AD 411-533	Posthole A45557, A13

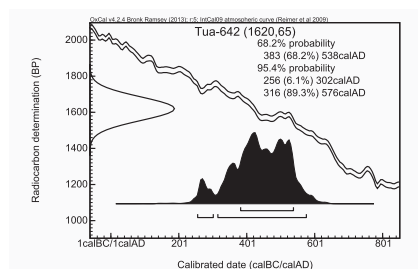
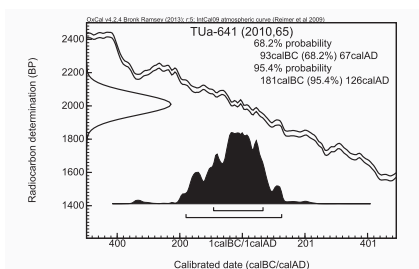
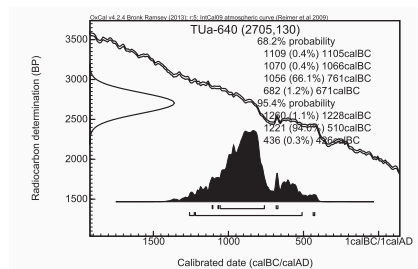
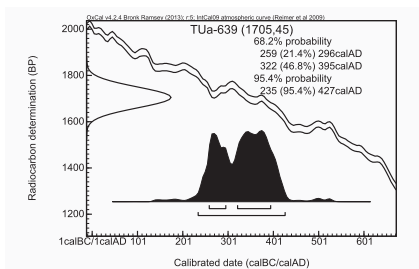
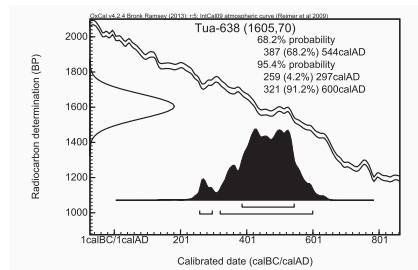
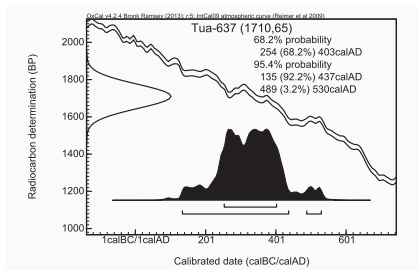
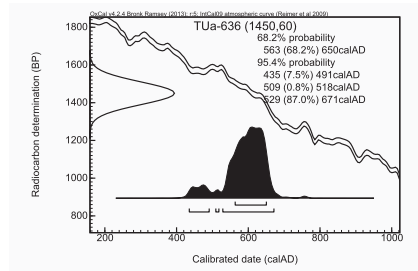
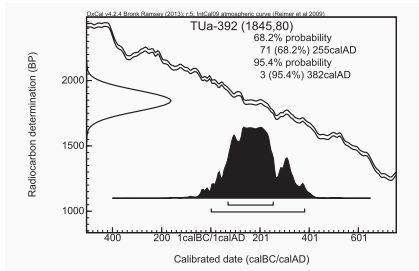
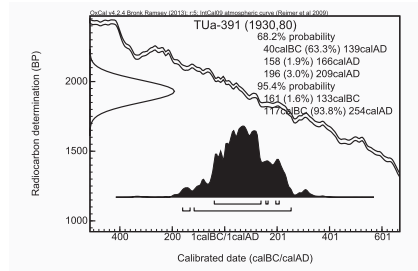
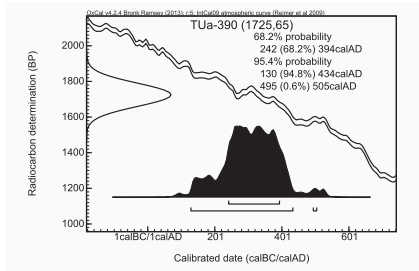


## Courtyard Sites

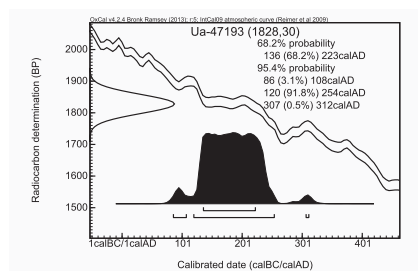
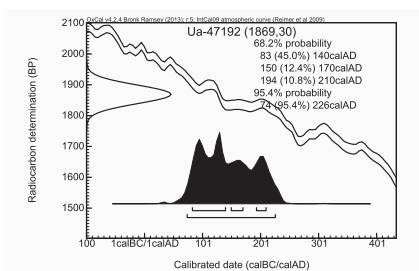
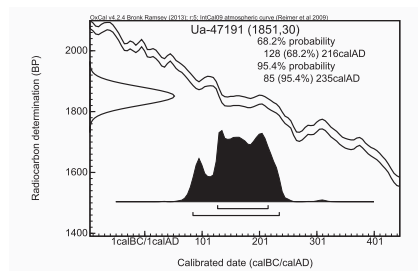
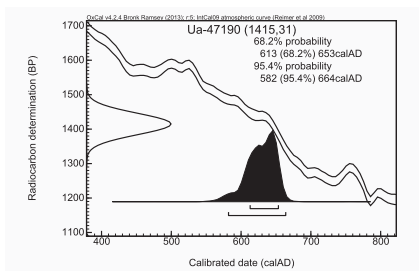
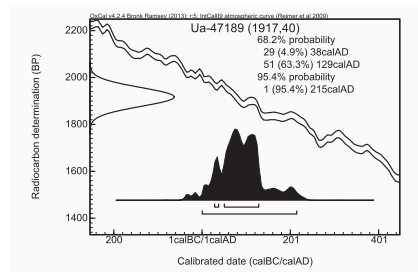
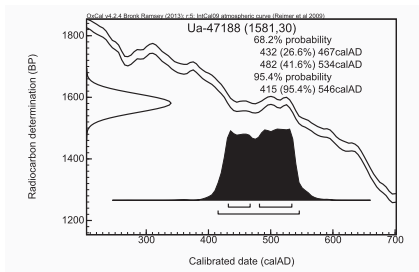
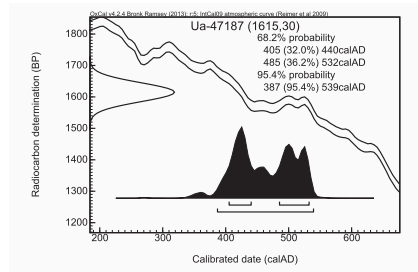
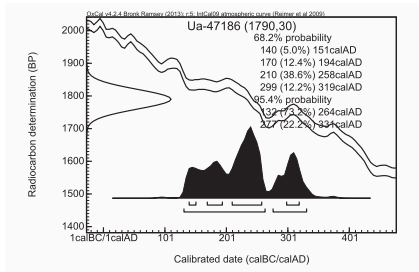
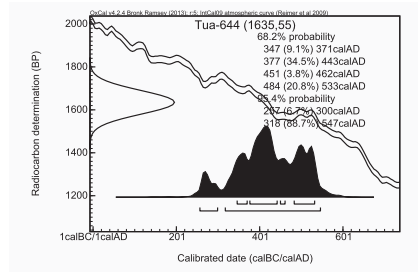
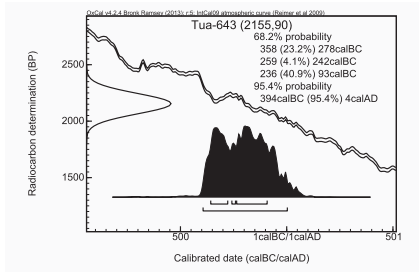
LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
T-328	Klau- haugane	Charcoal	1590 +/- 100	AD 353–367, 380–581	AD 246–645	Building 21, wall trench
T-420	Klau- haugane	Charcoal	1920 +/- 100	BC 37–30, 21–11, BC 2–AD 215	BC 172–AD 265, AD 272–335	Building 21, hearth
T-421	Klau- haugane	Charcoal	2080 +/- 100	BC 345–322, BC 206–AD 25	BC 380–AD 85, AD 110–115	Building 21, hearth
T-10833	Leksaren	Betula, salix	1525 +/- 60	AD 436–490, 510–517, 529–600	AD 420–641	Building 12, hearth 3



LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Tua-390	Leksaren	Betula	1725 +/- - 65	AD 242-394	AD 130-434, 495-505	Building 9, heart 11
Tua-391	Leksaren	Betula	1930 +/- - 80	BC 40- AD 139, 158-166, 196-209	BC 161-133, BC 117-AD 254	Building 9, layer
Tua-392	Leksaren	Food residue	1845 +/- - 80	AD 71-255	AD 3-382	Building 12
Tua-636	Leksaren	Betula	1450 +/- - 60	AD 563-650	AD 435-491, 509-518, 529-671	Building 2, hearth 6
Tua-637	Leksaren	Bark	1710 +/- - 65	AD 254-403	AD 135-437, 489-530	Building 15, culture layer
Tua-638	Leksaren	Betula	1605 +/- - 70	AD 387-544	AD 259-297, 321-600	Central mound
Tua-639	Leksaren	Food residue	1705 +/- - 45	AD 259-296, 322-395	AD 235-427	Building 2
Tua-640	Leksaren	Food residue	2705 +/- - 130	BC 1109- 1105, 1070- 1065, 1056-761, 682-671	BC 1260- 1228, 1221-510, 436-426	Building 2
Tua-641	Leksaren	Food residue	2010 +/- - 65	BC 93-AD 67	BC 181-AD 126	Buildng 9
Tua-642	Leksaren	Food residue	1620 +/- - 65	AD 383-538	AD 256-302, 316-576	Building 15

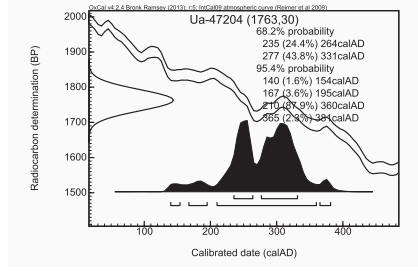
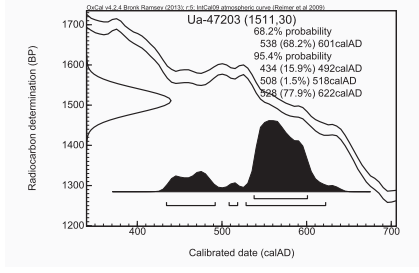
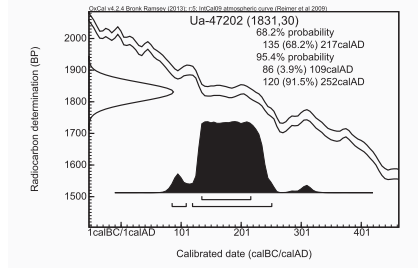
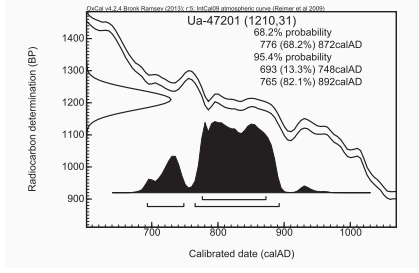
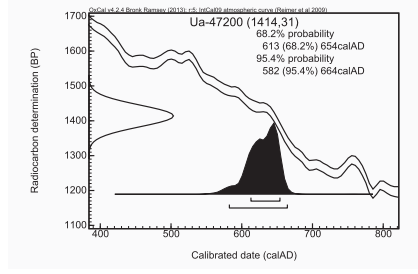
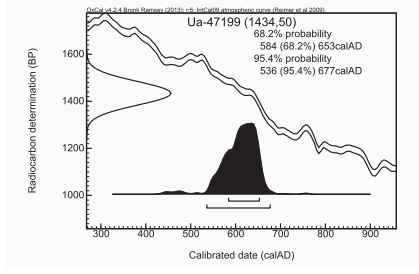
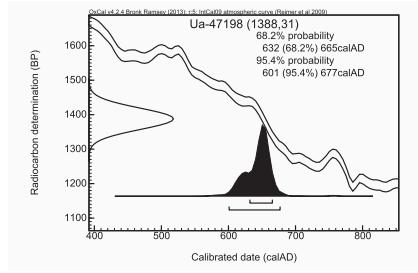
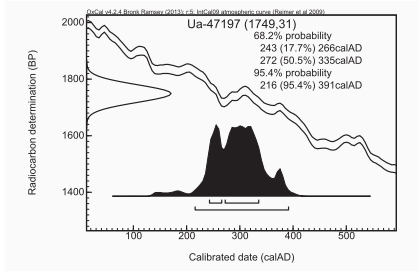
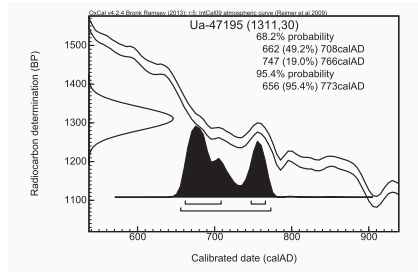
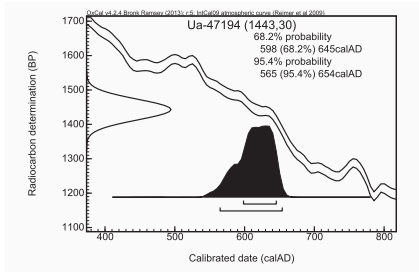


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Tua-643	Leksaren	Food residue	2155 +/- - 90	BC 358-278, 259-242, 236-93	BC 394- AD 4	Building 15
Tua-644	Leksaren	Food residue	1635 +/- - 55	AD 347-371, 377-443, 451-462, 484-533	AD 257-300, 318-547	Central mound
Ua-47186	Øygarden	Betula	1790 +/- - 30	AD 140-151, 170-194, 210-258, 299-319	AD 132-264, 277-331	Building 2, hearth 8
Ua-47187	Øygarden	Bark, betula	1615 +/- - 30	AD 405-440, 485-532	AD 387-539	Building 3, cultural deposit 1
Ua-47188	Øygarden	Betula	1581 +/- - 30	AD 432-467, 482-534	AD 415-546	Building 4, cultural deposit 5
Ua-47189	Øygarden	Betula	1917 +/- - 40	AD 29-38, 51-129	AD 1-215	Building 5, cultural deposit 7
Ua-47190	Øygarden	Bark, betula	1451 +/- - 31	AD 613-653	AD 582-664	Building 6, cultural deposit 15
Ua-47191	Øygarden	Betula	1851 +/- - 30	AD 128-216	AD 85-235	Building 7, cultural deposit 3
Ua-47192	Øygarden	Bark	1869 +/- - 30	AD 83-140, 150-170, 194-210	AD 74-226	Building 8, cultural deposit 7
Ua-47193	Øygarden	Bark	1828 +/- - 30	AD 136-223	AD 86-108, 120-245, 307-312	Building 8, cultural deposit 12

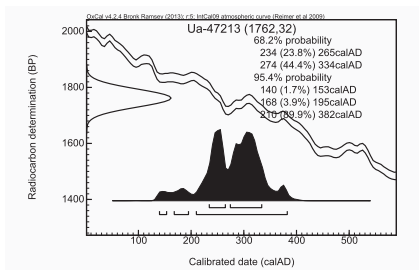
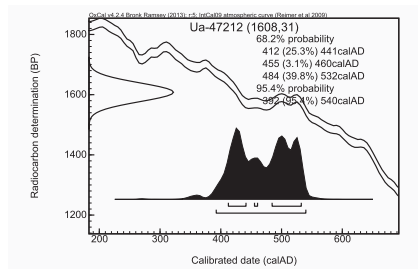
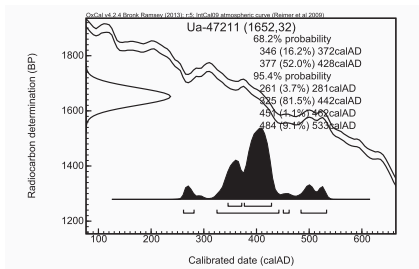
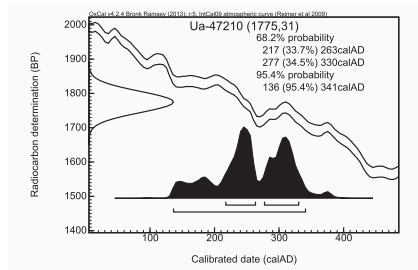
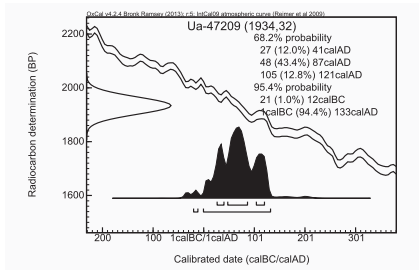
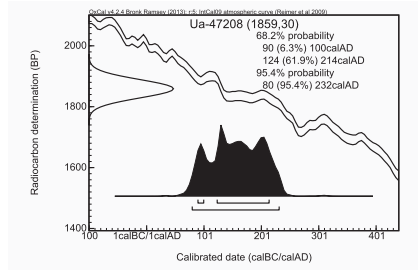
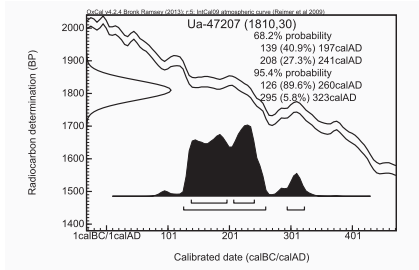
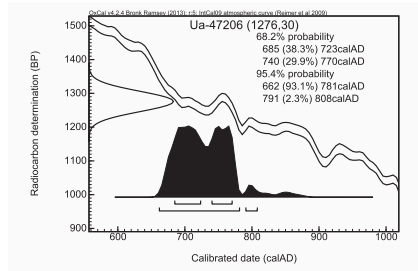
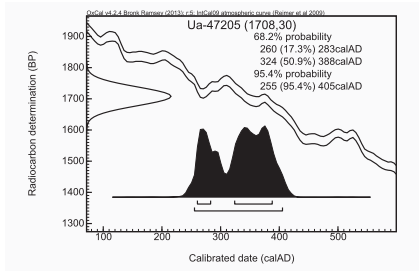


LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-47194	Øyarden	Betula	1443 +/- - 30	AD 598-645	AD 565-654	Building 10, hearth 20
Ua-47195	Klau- haugane	Corylus	1311 +/- - 30	AD 662-708, 747-766	AD 656-773	Building 1, cultural deposit 3
Ua-47197	Klau- haugane	Betula	1749 +/- - 31	AD 243-266, 272-335	AD 216-391	Building 3, hearth 125
Ua-47198	Klau- haugane	Betula	1388 +/- - 31	AD 632-665	AD 601-677	Building 4, Cultural layer 10
Ua-47199	Klau- haugane	Bark	1434 +/- - 50	AD 584-653	AD 536-677	Building 4, Cultural layer 76
Ua-47200	Klau- haugane	Betula	1414 +/- - 31	AD 613-654	AD 582-664	Building 4, hearth 132
Ua-47201	Klau- haugane	Betula	1210 +/- - 31	AD 776-872	AD 693-748, 765-892	Building 10, Cultural layer 238
Ua-47202	Klau- haugane	Betula	1831 +/- - 30	AD 135-217	AD 86-109, 120-252	Building 10, Cultural layer 238
Ua-47203	Klau- haugane	Betula	1511 +/- - 30	AD 538-601	AD 434-492, 508-518, 528-622	Building 13, cultural layer 33
Ua-47204	Klau- haugane	Betula	1763 +/- - 30	AD 235-264, 277-331	AD 140-154, 167-195, 210-360, 365-384	Building 16/17, cultu- ral layer 255





LAB NO.	SITE, SAMPLE NO.	MATERIAL	RADIOCARBON AGE BP	CALIBRATED 1 SIGMA	CALIBRATED 2 SIGMA	CONTEXT
Ua-47205	Klau- haugane	Corylus	1708 +/- - 30	AD 260-283, 324-388	AD 255-405	Building 16/17, post- hole 287
Ua-47206	Klau- haugane	Betula	1276 +/- - 30	AD 685-723, 740-770	AD 662-781, 791-808	Building 19, cultural layer 1
Ua-47207	Leksaren	Betula	1810 +/- - 30	AD 139-197, 208-241	AD 126-260, 295-323	Building 3, cultural layer 4
Ua-47208	Leksaren	Betula	1859 +/- - 30	AD 90-100, 124-214	AD 80-232	Building 3, cultural layer 182
Ua-47209	Leksaren	Betula	1934 +/- - 32	AD 27-41, 48-87, 105-121	BC 21-12, BC 1-AD 133	Building 4, cultural layer 67
Ua-47210	Leksaren	Betula	1775 +/- - 31	AD 217-263, 277-330	AD 136-341	Building 5, cultural layer 47
Ua-47211	Leksaren	Bark	1652 +/- - 32	AD 346- 372, AD 377-428	AD 261-281, 325-442, 451-462, 484-533	Building 6, charcoal...
Ua-47212	Leksaren	Betula	1608 +/- - 31	AD 412-441, 455-460, 484-532	AD 392-540	Building 7, hearth 25
Ua-47213	Leksaren	Betula	1762 +/- - 32	AD 234- 265, AD 274-334	AD 140-153, 168-195, 210-382	Building 8, cultural layer 23





# References

Icelanders are listed according to their first name. Ä, Æ, Å, and Á are alphabetised as A, while Ö, Ø, Q, and Ó are alphabetised as O. Bibliographical abbreviations are listed pp. XIII–XIV.

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# Appendix I: The ARM Project Council, Advisory Group, Staff, and Authors

## The Project Council

The ARM Project Council, scheduled to meet twice annually, is a forum for contact and information-sharing between the ARM Project and its main funder, Karmøy Municipality. The Council's role is to ensure that the project is conducted within contract and budget, making no decisions regarding the project itself. Council members are appointed by University of Oslo (UiO, up to 6 members) and Karmøy Municipality (KM, up to 6 members).

Professor Emeritus Knut Helle, University of Bergen (appointed by UiO, 2007–15)

Head of Research Mads Ravn, Archaeological Museum, University of Stavanger (appointed by UiO, 2007–11)

Professor Siv Kristoffersen, Archaeological Museum, University of Stavanger (appointed by UiO, 2011–17)

Archaeologist Frans-Arne Stylegar, Vest-Agder County Council (appointed by UiO, 2007–17)

Associate Professor Torun Zachrisson, University of Stockholm (appointed by UiO, 2007–17)

Professor Dagfinn Skre, Museum of Cultural History, University of Oslo (UiO, 2007–17)

Mayor Kjell Arvid Svendsen, Karmøy Municipality (appointed by KM, 2007–17)

Mayor Aase Simonsen, Karmøy Municipality (appointed by KM, 2011–15)

Mayor Jarle Nilsen, Karmøy Municipality (appointed by KM, 2015–17)

Chief administrative officer Arnt Mogstad, Karmøy Municipality (appointed by KM, 2007–13)

Chief administrative officer Sigurd Eikje, Karmøy Municipality (appointed by KM, 2013–17)

County Mayor Janne Johnsen, Rogaland County Council (appointed by KM, 2011–15)

Head of Culture, Egil Harald Grude, Rogaland County Council (appointed by KM, 2007–10)

Marit Synnøve Veia, Karmøy Municipality (appointed by KM, 2007–17)

Sigurd Steen Aase, Haugesund (appointed by KM, 2007–17)

The Directorate for Cultural Heritage has appointed an observing member of the Project Council:

Advisor Bjørn-Håkon Eketuft Rygh (2007–13) and Senior Advisor Atle Omland (2013–17).

## The Advisory Group

The task of the Advisory Group has been to offer scholarly support to the project. As the project entered the excavation phase in 2011, new members were appointed to strengthen the competence on excavation methods and strategies. The members have been:

Head of Culture, Egil Harald Grude, Rogaland County Council (2007–10)

Professor Emeritus Knut Helle, University of Bergen (2007–10)

Researcher Olle Hemdorff Archaeological Museum, University of Stavanger (2011–10)

Professor Mads Kähler Holst, Århus University (2011–17)

Professor Frode Iversen, Museum of Cultural History, University of Oslo (2007–10)

Professor Lars Jørgensen, National Museum of Denmark (2011–16)

Researcher John Ljungkvist, Uppsala University (2011–17)

Archaeologist Trond Meling, Rogaland County Council (2011–15)

Dr. Arnfrid Opedal, Stavanger (2007–10)

Associate Professor Unn Pedersen (2011–2019)  
Archaeologist Lars Pilø, Oppland County Council (2007–17)  
Researcher Morten Ramstad, University of Bergen (2011–17)  
Archaeologist Frans-Arne Stylegar, Vest-Agder County Council (2007–17)  
Marit Synnøve Vea, Karmøy Municipality (2007–10)  
Associate Professor Torun Zachrisson, University of Stockholm (2007–10)

## The Project Staff

Geir Ove Åmodt, Operator, mechanical excavator (2011–12)  
Egil Lindhart Bauer, Excavation manager (2011–14)  
Ingvild Tinglum Bøckman, Field archaeologist, GIS specialist, Project assistant (2011–19)  
Rebecca Cannell, Field archaeologist (2011–12)  
Marianne Hem Eriksen, Field archaeologist (2011)  
Magnar Mojaren Gran, Field archaeologist (2011–12)  
Christoffer Hagberg, Field archaeologist (2012)  
Hans Christian Hauge, Operator, mechanical excavator (2011)  
Silje Lillevik, Field archaeologist (2011)  
Knut Steinar Løften, Operator, mechanical excavator (2011)  
Tor-Geir Løften, Operator, mechanical excavator (2012)  
Stella Macheridis, Field archaeologist (2012)  
Jessica Leigh McGraw, Field archaeologist (2011–12)  
Erlend Norlie, Field archaeologist (2012)  
Mari Arentz Østmo, Head of excavations, PhD candidate (2007–18)  
Maryon Evelyn Østvik, Field archaeologist (2011)  
Josefine Kristin Sandvik, Field archaeologist (2012)  
Anja Nordvik Sætre, GIS specialist (2011–12)  
Andreas Skredsvik, Field archaeologist (2011–12)  
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