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Findings from the Mosfell Archaeological Project's Seminal 2002 Excavations

Gunnar Karlsson has long been interested not only in the different facets of life in early Iceland but in how the pieces fit together. In recent years, his interest in archaeology has grown, and from the start of the Mosfell Archaeological Project (MAP), we have consulted with Gunnar on historical issues. Gunnar often visits the archaeological site in Mosfellsdalur, and he assists us in gathering additional information to augment what we are learning from our archaeological finds. Gunnar's pioneering article on chieftains and farmers¹ demonstrated his early interest in the power and social position of the *goðar*, areas of particular interest to MAP, which is investigating the habitation site and the areas of political sway of the Mosfellingar, a major chieftain family in the tenth and early eleventh centuries. The MAP excavations at Hrísrú are uncovering an unusually complete chieftain's farmstead, and at this site, we have excavated a tenth- and eleventh-century graveyard, a large and well-preserved longhouse, an early church, and a pagan cremation site. Gunnar and his colleague Helgi Þorláksson were among the first historians to step outside their discipline and help us consider the implications of our archaeological discoveries. For my part, it is always a pleasure to work with Gunnar as a colleague on the social and historical background of Icelandic society and archaeology.²

¹ Gunnar Karlsson, „Goðar og bændur“, *Saga X* (1972), pp. 5–57.

² Gunnar Karlsson, *The History of Iceland*. University of Minnesota Press (Minneapolis 2000); Gunnar Karlsson, *Goðamennning. Staða og áhrif goðorðsmanna í þjóðveldi Íslendinga* (Reykjavík 2004); Gunnar Karlsson, *Inngangur að miðöldum. Handbók í íslenskri miðaldasögu I* (Reykjavík 2007).

History and archaeology are both sciences for studying the past, but each has its methods and foci. This article in honor of Gunnar offers insight into archaeological methods and presents types of raw data from which historians, anthropologists and saga scholars can draw inferences. At its most obvious, we can now draw the conclusion that the descriptions found in *Egil's Saga* and *Gunnlaug's Saga* about the farmstead of the Mosfellingar³ are to some extent reflected in the archaeological finds. It is hard to imagine it now, in light of the rich finds, but when we started our excavations, a considerable chorus of archaeologists, historians, and saga scholars thought it was futile to consult the family sagas as sources for aiding in locating sites, since everyone knew or was supposed to know that the *Íslendingasögur* were thirteenth-century fictional literary creations.⁴ The question we asked was whether a careful researcher should or should not use every tool and clue at hand in the process of discovery, especially in light of the rather clear hint in *Egil's Saga* (Chapter 86) about when, why, and by whom, a conversion-age church was built at Hrísrú.⁵

Grímr at Mosfelli⁶ var skírðr, þá er kristni var í lög leidd á Íslandi; hann lét þar kirkju gera. En þat er sögn manna, at Þórdís hafi látit flytja Egil til kirkju, ok er það til jarðtegra, at síðan er kirkja var gör at Mosfelli, en ofan tekin at Hrísrú sú kirkja, er Grímr hafði gera látit ...

When Christianity was adopted by law in Iceland, Grímr of Mosfell was baptized and built a church there. People say that Thórdís had Egil's bones moved to the church, and this is the evidence. When a church was built at Mosfell, the one Grímr had built at Hrísrú was taken down ...

³ *Egils saga*, ed. Sigurður Nordal. Íslenzk fornrit 2 (Reykjavík 1933), chapter 86. – *Gunnlaugs saga ormstungu – Borgfirðinga sögur*. Ed. Sigurður Nordal and Guðni Jónsson. Íslenzk fornrit 3 (Reykjavík 1938), p. 105.

⁴ Jesse Byock, *Viking Age Iceland*. Penguin Books (London and New York 2001). See chapter 1, the section, „The Sagas: An Ethnography of Medieval Iceland“, pp. 21–24 and Chapter 8, the section, „The Sagas as Sources: Modern Nationalism and the Medieval Sagas“, pp. 149–151.

⁵ For the full passage in English, see *Egil's Saga*, trans. by Christine Fell. Everyman's Library (London 1975), pp. 170–171.

⁶ Grímr was the Law Speaker of Iceland from 1002 to 1004. His wife was Thórdís.

The process of archaeological discovery is multidisciplinary. The process ought not to be limited by the artificial disciplinary boundaries of university departments, and the old arguments that sagas fall under the disciplines of literature or history should not deter archaeologists from regarding the medieval writings as sources holding clues for discovery. Sagas and Iceland's other medieval written documents are one resource for inquiry among numerous resources. Archaeological methods, especially those used in excavation and on-site data collection, have been honed over the years. Absence of clear distinctions within Icelandic archaeology between the methods of initial site discovery and the methods of excavation has constrained the possibilities of archaeological discovery.

Ignoring the research possibilities of Iceland's written sources turns our archaeologists into technicians. Most cultures in the world lack rich narrative resources equaling Iceland's sagas and to dismiss these texts simply out of hand is to deny the use of a national resource. With these thoughts in mind, this article looks specifically at the Kirkjuhóll (Church Knoll) part of our excavations at Hrísrú during the seminal 2002 field season.⁷ This was the year on the Hrísrú farm when, after discovering the graveyard in 2001, we turned our attention to uncovering the first parts of the remains of the conversion-age stave church.

The Mosfell Archaeological Project, which has resulted in annual excavations, is unusually interdisciplinary, employing the methodologies of archaeology, history, anthropology, forensics, environmental sciences, and the study of Icelandic written texts. The work aims at constructing a picture of human habitation and change in the Mosfell region. The Mosfell Valley, the surrounding highlands, and the lowland

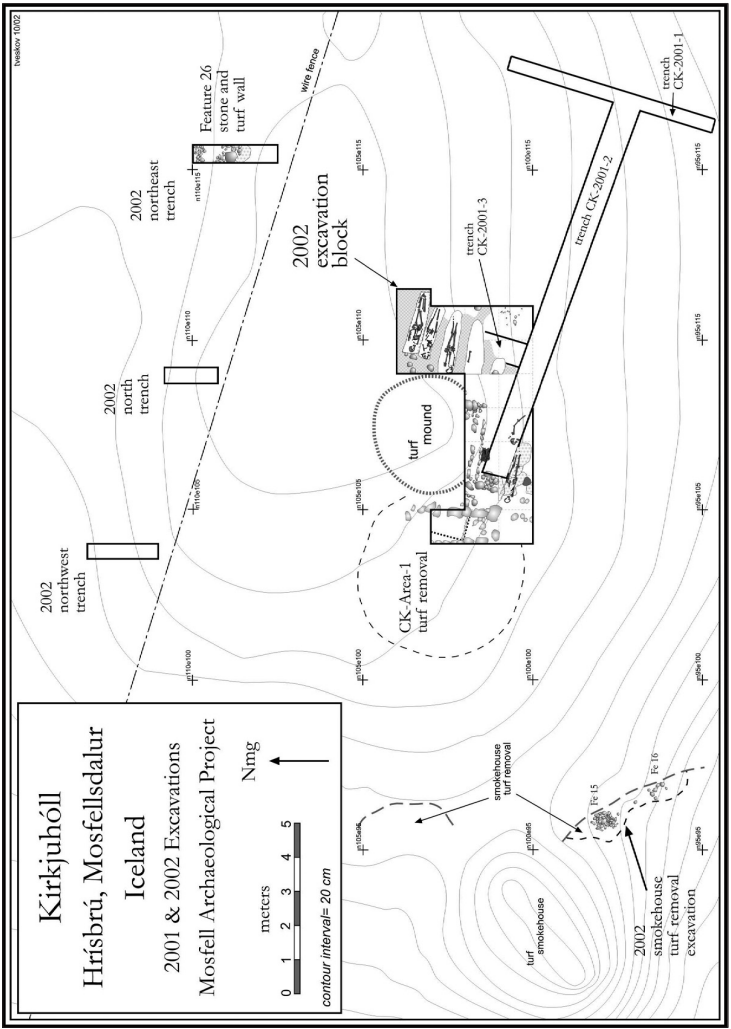
⁷ This current article draws on the 2002 MAP site report by Jesse Byock, Phillip Walker, Jon Erlandson, Per Holck, Mark Tveskov, Alan Dickin, Jacqueline Eng, Magnús Guðmundsson, Kaethin Prizer, Melissa Reid, Henry Schwarcz, David Scott, Magnús Sigurgeirsson, and Davide Zori. Also: Byock, J., Walker, P., Erlandson, J., Holck, P., Eng, J.T., Prizer, K., Byock, A., Tveskov, M., „A Viking Age farm, church, and cemetery at Hrísrú, Mosfell Valley, Iceland“, *Antiquity* Vol. 77:297 (September 2003). – Byock, J., Walker, P., Erlandson, J., Holck, P., Zori, D., Guðmundsson, M., and Tveskov. M., „A Viking-age Valley in Iceland: The Mosfell Archaeological Project“, *Medieval Archaeology* 49 (2005), pp. 195–218. Translated to Icelandic as: Byock, J., Walker, P., Erlandson, J., Holck, P., Zori, D., Guðmundsson, M., and Tveskov. M., „Valdamiðstöð í Mosfellsdal: Rannsóknir á fornleifum frá tímum Víkinga að Hrísrú og Mosfelli“, *Ólafía, Rit fornleifafraeðingafélags* II (2007), pp. 84–106. Special thanks to my colleague Jon Erlandson.

coastal areas are a valley system, an interlocking series of natural and man-made pieces that beginning in the ninth-century *landnám* period evolved into a functioning Viking Age, Icelandic community. Directed by myself and Phillip Walker, MAP has excavated in the Mosfell Valley and the surrounding region since 1995, working with Þjóðminjasafn, Mosfellsbær, professors and students at Háskóli Íslands, and local historians and farmers. Focusing on this valley system, our task is to unearth the prehistory and early history of the Mosfell region. We seek data to understand how this countryside or *sveit* evolved from its earliest origins. The *sveit* includes the major ecologies of Iceland: coastal, riverine, and highland, and the archaeology has implications for the larger study of Viking Age and later medieval Iceland, as well as perhaps for the North Atlantic world.

Our archaeology began with surveys, preliminary research,⁸ and test excavations in 1995 and this large project exploring the Mosfell Valley (Mosfellsdalur) as a valley system continues in 2009. When we began excavating, the knoll at Kirkjuhóll was covered with thick grass and used for pasturage. The deposits, especially at Kirkjuhóll, are complex, but 14C dates, stratigraphic relationships, tephrochronology, and burial associations all support a general sequence spanning the pagan and early conversion eras of the Viking Age. Some discoveries evidence a range of ceremonial behaviors at Hrísrú, especially during the conversion period around the year 1000. Chemical and stratigraphic analyses of volcanic ash layers and radiocarbon dating concur that remains of the early turf building, graveyard, and stone foundation first unearthed at Kirkjuhóll date from the 10th and 11th centuries. The oldest layers of habitation at Hrísrú are from around the year 900.

Our excavations in 2001 revealed burials as well as further evidence of occupational activity, including the well-preserved stone foundation of the south wall of a small wooden (stave) church. The radiocarbon dates obtained in 2001 and 2002 are all consistent with the hypothesis that this structure is the conversion-age church described in *Egil's Saga* and *Gunnlaug's Saga*. The latter at the site around the year AD 1010.

⁸ Byock, Jesse, „The Skull and Bones in *Egils Saga*: A Viking, A Grave, and Paget's Disease“, *Viator: Medieval and Renaissance Studies* 24 (1993), pp. 23–50. Translated into Icelandic as „Hauskúpan og beinin í Egils sögu“, *Skírnir* (vor 1994), pp. 73–109.



Map 1. Overall view of the Kirkjuhóll (Church Knoll) excavations at Hrísbú in the Mosfell Valley at the end of 2002. The church was fully excavated in the following years.

The Kirkjuhóll Site

Kirkjuhóll rises about 1–2 m above the surrounding fields and measures approximately 25 m from east to west and 20 m from north to south. The sides are steeper and higher on the south and southwest where they run against the overall slope of the surrounding meadow. A small turf and stone smokehouse is constructed into the southwest corner of the knoll, and cut banks from the removal of turf for this structure are visible on either side of this traditional building. A small but distinct

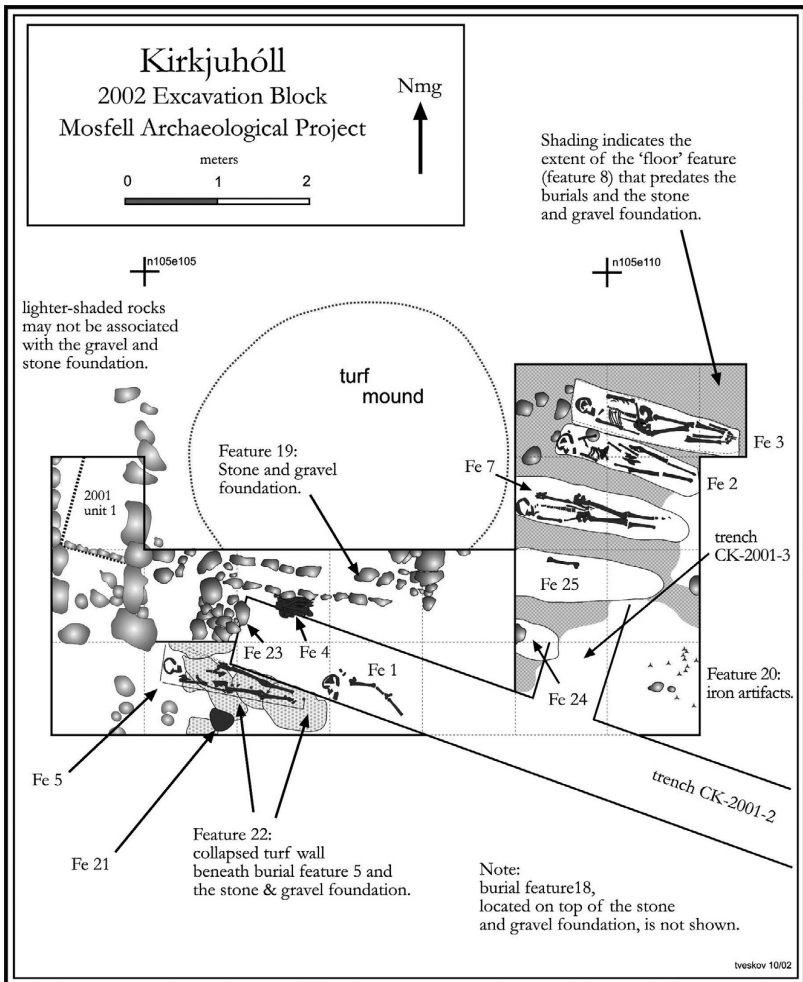
circular turf mound, roughly 4 m in diameter and 40 cm tall, is visible on the southwest edge of the level surface of Kirkjuhóll.

Field work at Kirkjuhóll in summer 2002 used a metric grid to record the provenience of excavations, features, and artifacts. This grid was oriented to magnetic north and originates from an arbitrary point designated north 100 m east 100 m (N100E100) located several meters east of the turf smokehouse on the southwest slope of the knoll. Corner points were established on 5 meter intervals using large, steel nails and pink flagging. We used point N105E105 as our primary mapping datum and assigned an arbitrary elevation of 100 m to this point. We mapped these points, the site topography, each datum for the individual excavation units, and the backhoe trenches from the previous year. Three datums were also established by surveyors from Mosfellsbær, and we tied these into our grid: (1) a nail set into rock just outside the fence on the eastern edge of Kirkjuhóll on the northern edge of the level top of Kirkjuhóll was mapped to N102.40E127.82, elevation 99.60; (2) a pin within a PVC pipe driven into the ground on the northern edge of the level top of Kirkjuhóll was mapped to N105.089E119.709, elevation 100.105; (3) a nail set into a rock at Loddahóll on the base of the scree slope, on the upper corner of the *tún* (hay field) to the northeast of Kirkjuhóll, was mapped to N156.573E267.850, elevation 119.135.

In the preceding summer of 2001, MAP excavated three 60 cm wide backhoe trenches across the top of Kirkjuhóll and cleared an area of sod (Area-CK-1) just west of the small turf mound (see map 1 “Church Knoll 2002). Thirteen features were identified, including six human burials, midden deposits of burned animal bone and charred wood, a section of a turf wall, and dry-laid stone foundations of two buildings (see map 2). We designed the 2002 work at Kirkjuhóll to clarify the character and spatial/stratigraphic relationships of these cultural features through extensive mapping and limited horizontal excavation.

Kirkjuhóll Sampling Strategies and Procedures

We used several excavation strategies at Kirkjuhóll in 2002. We began by using a backhoe to re-excavate in the trenches excavated during the previous season. The sidewalls of these re-excavated trenches allowed us to reacquaint ourselves with the stratigraphy of the site and to



Map 2. A close-up of the 2002 excavations on Kirkjuhóll showing the initial phase of unearthing feature 19, the foundation stones of the south wall of the church chancel (the place of the altar). The two rows of stones were used to hold a wooden sill beam in place.

introduce new team members to the site history and the types of layers they could expect to encounter. Most of the work during 2002 involved the excavation of 19 contiguous 1 m x 1 m square and one 0.5 m x 1 m square units that subsumed the west end of trench CK-2001-2 and all of trench CK-2001-3 (see map “church block”). After the sod was removed with a shovel, each unit was hand-excavated with a trowel

until we encountered either a significant cultural feature or prehistoric sediment. All features and burials were mapped in situ with reference to the site grid. Each unit was designated by the grid coordinates of its southwest corner. Soil around burial features was water screened over fine hardware cloth to systematically recover smaller artifacts and bone fragments.

We employed a second strategy along the southwest slope of the knoll, where we took advantage of an existing cut bank resulting from the removal of turf for the construction or repair of the smokehouse. This curving cut bank was exposed and cleared to provide a stratigraphic profile of soils and sediments for comparison to other areas of the site. We encountered two clusters of burned vesicular basalt cobbles. These were subsequently exposed through horizontal excavation.

Finally, three trenches designated the northwest trench, north trench, and northeast trench, respectively, were hand-excavated on the northern slope of the knoll (see map 1 “Church knoll overall”). These were excavated to determine whether the site extended to the north and to compare the stratigraphy in this area to that exposed in the main excavation. The long axis of each trench was oriented to magnetic north-south and ranged between 50–70 cm wide and 1.5–2 m long. A portion of the sediment from all excavations was opportunistically screened over ¼-inch and ⅛-inch mesh, usually on the odd sunny day when the soil was dry, but this method recovered no artifacts. The northeast trench, feature 26 (stone and turf wall) was the first indication of the large tenth-century longhouse which we would excavate in the 2007 and 2008 field sessions.

A large assemblage of artifacts, features, and architectural remains were further revealed or newly identified during the 2002 excavations on Kirkjuhóll. Although many stratigraphic questions remained after the 2002 season, two broad cultural components were identified. Closest to the surface is the Upper Component, which consists of stone features and human burials. These are the remains of the foundations of an early modern agricultural building and a wooden church with an associated cemetery dating from the 10th century and afterwards. Beneath runs the Lower Component, consisting of stone and turf features, a cultural floor of organic-rich sediment. This component contains the remains of one or more small turf and stone structures from the late 9th or 10th

century. As part of the Lower Component, we also excavated a number of midden features that pre-date the construction of the church.

Stratigraphy

Most of the cultural remains identified at Kirkjuhóll (upper and lower cultural components) are found within Stratum I, which is a relatively homogenous sedimentary unit of dark brown (7.5yr 2.5/3) and relatively organic-rich silty loess soil. Given the presence of *landnám* tephra in the immediately lower Stratum II, Stratum I post-dates AD 870. This sedimentary unit ranges from over one-meter thick under the top of the knoll to less than 0.5 m thick along the slopes. This stratum contains less than 5 percent sub-angular vesicular basalt cobbles, charcoal, and large numbers of very small fragments of calcined (burned) animal bone, all most likely of cultural origin. The sediment of this stratum appears fairly homogenized, probably—given the frequent observation of worm casts—by earthworms. Consequently, while burials, midden features, and stone and turf foundations remain fairly well preserved, very few distinct grave shafts (that are often visible as cuts filled with contrasting soil) were evident at the Hrísrú site. Still, some grave shafts appeared in Stratum I over the burial features as mottled and displaced chunks of soil, ephemeral stains of mixed pieces of turf with oxidized red and yellow clayey sediment.

Stratum I contains two additional sub-strata, each possibly of cultural origin. A 2–3 cm thick band of oxidized red and yellow (2.5yr 4/8 and 10yr 5/8) sediment lies 30 cm below the surface of the top of the knoll. This stratum is most clearly expressed beneath the small, artificial surface mound. It conforms to the surface contours across the main excavation block where it lies over all the burial features and the stone and gravel foundation.

A second sub stratum—a poorly sorted gravel lens—is also centered beneath the surface mound and over the gravel and stone foundation, upon which it directly lies. This lens, comprised of dark brown (7.5 yr 3/4) sandy silt and up to 25 percent sub-angular vesicular basalt gravels and small cobbles, is thickest (~15 cm) immediately beneath the surface mound and tapers to the south, east, and west, where it is truncated by the larger stone feature. The origin of this lens was unknown during the

2002 season, but was later confirmed to be the remains of the disturbed floor foundations of the church chancel. Careful examination of the lens showed that it contained a localized stringer of small carbonized and uncarbonized wood fragments. Hypothesizing that these could be weathered remnants of wood from the church itself, we submitted a fragment of uncarbonized wood for radiocarbon dating. An uncalibrated AMS date of 1150 ± 40 RYBP (Beta-175676) produced an estimated calendar age of AD 890, with an age range of AD 870 to 960 at one sigma. If the dated wood is part of the church, perhaps from the built up flooring, there is a strong potential that the resulting date is affected by the „old wood“ effect, and it gives more an indication of the age of the timber than the date of its use by the occupants of Hrísrú.

Immediately beneath Stratum I lies Stratum II, a 10–15 cm wedge of dark gray (7.5 yr $3/2$) fine silty clay and loess mottled with charcoal. Smears of *landnám* tephra visible within turfs in this stratum suggest that, like Stratum I, it post-dates AD 870. Stratum II is partially cultural in origin, as it is most visibly expressed directly beneath the turf and stone walls and floor features of the Lower Component. It contains at least one pit feature, a 15 cm wide and 20 cm deep intrusion of this stratum into the lower prehistoric strata that is visible on the north wall of trench CK-2001-2 in unit N100E107. The contact between Stratum II and Stratum I is very distinct around the Lower Component architectural features, but to the east it becomes much more diffuse, and Stratum II itself is much more ephemeral and at times invisible east of the E10 line. Nevertheless, Stratum II can be traced at least as far as the northern slope of Kirkjuhóll, as evidenced in profiles of all three trenches excavated in this area.

Beneath Stratum II lies Stratum III, a 20–30 cm thick wedge of prehistoric sediment comprised of lenses of dark orange brown (7.5yr $4/4$) and dark brown (7.5yr $2.5/2$) sandy silt, loess, and tephra with some gray mottling. Stratum III sits on top of Stratum IV, a layer of dark orange-brown fine silty sand with about 40 percent sub-angular vesicular basalt, large gravels, and small cobbles. This stratum may represent a mudflow or glacial outwash that covered the knoll at some point.

The cultural strata (i.e. Stratum I and Stratum II) at Kirkjuhóll were likely deposited over the last 1,100 years and form a cap on top of the knoll that, in places, is over one meter deep. The stratigraphic pro-

file indicates that this sediment is constructed of a mixture of cultural debris, organic-rich eolian loess, tephra, or poorly sorted debris flows. Much of the non-cultural sedimentation may originate from the high slope and hill of Mosfell to the north, as well as wind-blown particles from further afield. The primary agents of sediment deposition on the knoll—humans, wind, and gravity—may testify to the relatively rapid accumulation of sediment following the anthropogenic deforestation of Iceland during the *landnám* period. In and around Mosfellsdalur in particular, debris flowing from the surrounding highlands have occasionally covered hay fields on the slopes extending down to the valley floor, and, to the present day, sediments from the interior plateaus are often windblown into the valley.

Kirkjuhóll Bioarchaeological Summary.

By the end of 2002 we had excavated 9 burial features at Hrísbú (1–5, 7, 18, 24, & 25). During 2001 two burials on Kirkjuhóll were recovered for analysis as well as fragments of a poorly preserved infant burial. The adult burials consisted of an older female and an adult male in his mid-40s who had died violently from head wounds. The remains of the infant contained decomposing fragments of bone and tooth enamel as well as the clearly visible outlines of either the remnants of a coffin or a plank. The discovery of these burials, as well as indications of additional coffin outlines, indicated that we had discovered a cemetery. The skeleton in Feature 2 was better preserved than the Feature 1 burial, although the bones were somewhat pliable and fragile. The acidic soil appears to have removed much of the calcium from these skeletons. In 2002, we excavated the burials that we had determined were present in 2001 based on coffin or plank outlines or exposure, as well as additional burials encountered during our expanded excavation.

In 2002 we excavated seven burial features and in these features recovered the remains of six additional individuals. Feature 4 was the only secondary burial (a reburial). All of the others were primary, or assumed to be, as in the case of the isolated humerus in Feature 25. These primary burials, like those found earlier, were lying extended with the head to the west, which is typical of Christian-era burials in Iceland. All primary burials had their faces turned toward the south,

except for the burial in Feature 18, which faced upwards. The burial in Feature 6 is distinct as an infant burial, but little analysis could be made from its fragmentary remains. Also unclear is the association between the burials in Features 2 and 3, which, respectively, represent a homicide victim and a person holding some kind of wooden implement.

The individuals are mostly middle aged to older adults, except for the Feature 4 burial, who likely died of infection in early adulthood and the infant in Feature 6. All adult burials are those of males, except for the older woman in Feature 1. The cause of death can be determined for two of the individuals: homicide through blows to the head by a bladed weapon for the Feature 2 burial and a brain abscess in the case of the Feature 4 burial. For the other individuals there were no obvious indications of the cause of death. Most adults had signs of active lifestyle through arthritic changes in elements such as the hand, as well as wear from age as in common vertebral arthritic lipping.

Several of these burials appear to have association with Feature 19, a structure witnessed by stone and gravel remains (see map 2). The burials were lying outside of it. The burial in Feature 5 is located just south of the stone feature. The cemetery around Feature 19 provides some unique information regarding mortuary practices during the decades around the Icelandic conversion to Christianity. Feature 4 (the disarticulated remains of an individual reinterred from another location into the Kirkjuhóll graveyard) confirms accounts of the practice of exhumation and reinterment described in several sagas and other written sources. Our work at Hrísrú also suggests that Kirkjuhóll was used as a cemetery after the church was abandoned. At least one, and possibly two, of the excavated burials date to after the structure was no longer in use. The skeleton in Feature 18 was buried directly on top of and in line with the foundation.

Isotopic Evidence for the Place of Origin for the Kirkjuhóll Burials

The concentrations of strontium isotopes in the teeth of the Kirkjuhóll burials provide a basis for determining if these people were born on the Scandinavian mainland and immigrated to Iceland. Iceland has a unique volcanic lithology that differs markedly from the Scan-

dinavian mainland and these isotopic values would be transferred to the calcified tissues of the people living in these areas. For example, the $^{87}\text{Sr}/^{86}\text{Sr}$ of tooth enamel in someone who grew up in Norway would likely be higher than that of someone who grew up in Iceland owing to the higher $^{87}\text{Sr}/^{86}\text{Sr}$ values of the geological formations of coastal Norway ($^{87}\text{Sr}/^{86}\text{Sr}$ ca. 0.714) relative to the Mid-Ocean Ridge basalts of Iceland ($^{87}\text{Sr}/^{86}\text{Sr}$ = 0.703). Another variable that could reduce the difference in the $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of people from the two areas is the consumption of fish or other marine foods (sea-water has a $^{87}\text{Sr}/^{86}\text{Sr}$ ratio of 0.709).

Isotopic analyses of three of the people buried at Kirkjuhóll revealed that all three were natives of Iceland. These individuals had an average $^{87}\text{Sr}/^{86}\text{Sr}$ value of 0.70724, which contrasts with a control sample from a medieval cemetery at Bjølstad, Norway which has a much higher mean value of 0.71492.⁹

Metallographical Analysis and Metal Artifacts

86 metal artifacts from Kirkjuhóll and Hulduhóll (Elfin hill to the west of Kirkjuhóll) were analyzed at the Getty Conservation Institute in Los Angeles. The metals consist mostly of iron nails and clench bolts associated with the inhumation graves but also include fragments of bronze (<0.5 cm) discovered in association with the cremated human remains at Hulduhóll. X-ray fluorescence analysis, which reveals the elemental make-up of metals, identified the bronze fragments as part of a highly worked bronze sheet whose composition is consistent with Viking Age metal-working techniques. Subsequently, we employed X-ray diffraction analysis to reveal the crystalline structure of the bronze as well as one of the iron rivets. Radiographs made at different exposures revealed that most of the metal in the iron artifacts has been mineralized by the highly corrosive environment at Hrísrú. The site is very environmentally aggressive towards metallic artifacts because of high oxygen availability and frequent exposure to water draining through the soil.

⁹ Schwarcz, H. and Dicken, A. Appendix E: Preliminary Report on Strontium Isotopes in Teeth from Kirkjuhóll. In J. Byock et al., *Pagan and Christian Burial Sites at Hrísrú: The Mosfell Archaeological Project, 2002*, Preliminary Report.

The differential use of metals in the various burial contexts reveals social choices and provides venues to investigate variation in Viking Age ritual and mortuary systems. Bronze was discovered in the cremation site at Hulduhóll, whereas no bronze has yet been discovered in the inhumation graves at Kirkjuhóll. Iron clench bolts of different lengths (2–4 cm) were found in the inhumation contexts, but not in the cremation context. These clench bolts were initially thought to be coffin hardware, but the nature of the artifact, their relative locations, and the higher economic production cost compared to simple iron nails suggest that the clench bolts are the remnants not of a coffin but of a different kind of grave good. The wood remnants still visible on many rivets reveal their use in the construction of wooden objects. Viking Age Scandinavians used the clench bolt for a variety of purposes such as roof and cart construction, but this artifact type was most commonly used in ships and boats constructed in the clinker style with overlapping planks. The relatively short length of the rivets (between 2 and 4 cm long) found at Hrísrú makes their use in large ocean-going ship unlikely, but their length is appropriate for a smaller boat. Burial Feature 5 at Hrísrú had 3 clear lines of clench bolts over the body, supporting the idea that these clench bolts held together overlapping planks. It appears then that the people at Hrísrú were depositing parts of boats into nominally Christian but perhaps in some instances pagan graves as a symbolic reference to the ritual importance of boats in the pagan Scandinavia.¹⁰

The iron finds uncovered at Kirkjuhóll in 2002 consist of iron clench bolts, iron nails, small iron fragments, and an iron ring pin. The latter is stylistically consistent with other 10th–11th century ring pins from Scandinavia and the North Atlantic,¹¹ but is unusual in being made of iron rather than bronze. According to the conservation department at the National Museum, this is the only such pin made of iron rather than bronze that has been found in Iceland. Men in the Viking Age used such pins to fasten cloaks, probably over the right shoulder so that the sword-arm was left free.

¹⁰ Davide Zori, „Nails, Rivets, and Clench Bolts: A Case for Typological Clarity“, *Archaeologia Islandica* 6 (2007), pp. 32–47.

¹¹ Orri Vésteinsson, „The Archaeology of Landnám“, in W.W. Fitzhugh and E.I. Ward (eds.), *Vikings: The North Atlantic Saga* (Washington, D.C. 2000), pp. 164–174.

Summary of the Archeology and Architectural Features

Excavations at Kirkjuhóll during 2002 identified two separate components, an upper and lower, each containing architectural remains. The Lower Component contained structural features of turf and stone and a floor-like layer of organic material, which appears to have been used by livestock. This cultural floor is made up of layers containing grass or hay and animal bone, together with a number of domestic midden features of organic-rich sediment, animal bone, and shellfish remains. The archaeology, including part of a turf wall, suggests that the Lower Component contains the remains of at least one structure built of turf and stone. The function and configuration of this structure is unknown, but associated features are found across all the excavations on Kirkjuhóll. The exact age of the Lower Component is unknown. However, the presence of *landnám* tephra and the ^{14}C date from Feature 21 suggest a late 9th or early 10th century age for these deposits, i.e., from the first century of the Norse colonization of Iceland. The turfs also contain lenses of Katla tephra, which probably originated from the volcanic eruption in c. AD 920. Given the likelihood that the burials and structures of the overlying Upper Component date to the late 10th century and afterward, it seems reasonable to suggest that the Lower Component has a *terminus post quem* of around AD 900, with use of its structure(s) ending before the turn of the century.

The Upper Component contains a complex assemblage of architectural features and burials. On strictly archaeological grounds, the Upper Component can be said to contain the remains of two structures, one overlaying the other. Outside the lowest stone foundation there is a surrounding grave field that was in use in the 10th or early 11th century. Our 2002 sampling showed that the older building was a small, wood structure built on the stone and gravel foundation represented by Feature 19. As we confirmed in subsequent seasons, Feature 19 represents the foundation of the southern wall of the church chancel, measuring just over two meters in length. The second, stratigraphically higher and chronologically later upper structure built on the large stone foundation evident in CK-Area-1 was constructed from turf and stone.

Although the age of the lower structure would not be determined until after 2002, we hypothesized rightly at the time that Feature 19

represented the foundations of a wooden stave church initially constructed about the year 1000. This hypothesis is supported by the absence of domestic features such as a hearth or middens associated with the structure and architectural similarities of the building's foundation to those of other 11th century churches excavated in Iceland, Greenland, and Norway.¹² Feature 19 is also associated with the surrounding 10th and early 11th century grave field. Identification of this structure as a church is consistent with the story at the end of *Egil's Saga* about the church which Grímur Svertingsson is said to have built at Hrísrbrú.

Archaeology is discovery. It is a slow, careful endeavor with its own processes, requirements, and forms of documentation. When successful, archaeology produces new facts and details, offering historians, such as Gunnar Karlsson, an additional systematic entryway into the study of the material culture, social identity, cultural evolution, and health and environment of Iceland's past. Archaeology and history go hand in hand, and the excavations in Mosfellsdalur illustrate this complementarity. It is our hope that MAP's work will result in a deeper understanding of Iceland's history expanding the archaeological knowledge of the North Atlantic World.

¹² Steinunn Kristjánsdóttir, *The Awakening of Christianity in Iceland: Discovery of a Timber Church and Graveyard at Þórarinsstaðir in Seyðisfjörður*. Ph D Thesis. Gothenburg Archaeological Thesis, Series B, No. 31. (Gothenburg 2004); Steinunn Kristjánsdóttir, *Timburkirkja og grafreitir úr frumkristni. Áfangaskýrsla fornleifarannsókna árið 1999*. Skýrslur Minjasafns Austurlands VII. (Egilsstaðir 2000); Howell Roberts, *Nedri-Ás í Hjaltadal: Preliminary Excavation Report 1998*. Fornleifastofnun Íslands (Reykjavík 1998); Orri Vésteinnsson, *Forn Kirkja og Grafreitir á Nedra Ási í Hjaltadal*. Fornleifastofnun Íslands (Reykjavík 2000); Vilhjálmur Vilhjálmsson, „Gård og Kirke på Stöng i Þjórsárdalur: Refleksjoner på den Tidligste Kirkeordning og Kirkeret på Island“, *Nordsjøen: Handel, Religion og Politik*. Ed. Jens Flemming Krøger and Helge-Rolf Naley. Dreyer Bok. (Stavanger 1996); Jørgen Jensenius, *Trekirkene for stavkirkene. En undersøkelse av planlegging og design av kirker før ca. år 1100*. Con-Text, avhandling nr. 6. Arkitekthøgskolen i (Oslo 2001); Knud Krogh, *Erik den Rødes Grønland*. Nationalmuseet (Copenhagen 1967); Hjörleifur Stefánsson, „Church and Art: the Medieval Church in Norway and Iceland“, in *Medieval Icelandic Churches*. Norwegian Institute for Cultural Heritage Research and National Museum of Iceland (Reykjavík 1997); Holger Schmidt, „Om Rekonstruktion af Stavkirken fra Hørning“, paper presented at Femtende Tværfaglige Vikingsymposium (1996); Knud J. Krogh, „The Royal Viking-Age Monuments at Jelling in the Light of Recent Archaeological Excavations. A Preliminary Report“, *Acta Archaeologica* 53(1983), pp. 183–216.