Somewhere Beyond the Sea: 250 Years of Cemetery Disturbance and Bioarchaeology at Haffjarðarey, Western Iceland

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The church and cemetery of Saint Nicholas on the island of Hafffjarðarey served a coastally based fishing community in Western Iceland from approximately 1200 to 1563 CE. After the island was abandoned, relative sea level rise and coastal erosion immediately began to cause irreparable damage to the archaeological remains of the church and the over two hundred inhumation burials surrounding it. Four separate instances of burial removal, beginning in 1886 and terminating in 1945, have distorted the bioarchaeological record at Haffjarðarey through the international separation of osteological materials and differential collection methodology. Until recently, the osteological remains from Hafffjarðarey were never presented as a cohesive sample. When considered as a single cemetery population, patterns of pathology, cultural practice, and landscape organization are identifiable. This paper presents a historical and landscape-based reconstruction of Haffjarðarey in its entirety in an effort to understand the processes that have led to the division of bioarchaeological material, and a correlated underrepresentation the size of the cemetery and its regional importance within the medieval marine economy.

Introduction

From ca. 1200 to 1563, the church and cemetery of Saint Nicholas on the island of Haffjarðarey served as the center for religious practice and burial for the entire region of Eyjahreppur, now modern Eyja-og-Miklaholtshreppur, in Western Iceland (fig. 1).[1] While small in size (.25km^2) the island was home to a farm, church, and one of the largest cemeteries excavated thus far from this period in Iceland. Three episodes of cemetery disturbance and excavation took place between 1886 and 1945, which removed the skeletal remains of up to 228 individuals.[2] Local inhabitants removed the first remains in 1886 when ongoing coastal erosion began to expose burials on the surface.[3] In 1905 a geological team from Harvard University removed the remains of at least 61 individuals also noted to be already exposed on the surface due to erosion.[4]These remains are currently housed at the Peabody Museum of Archaeology and Ethnology at Harvard University. Finally in 1945 a team of Icelandic archaeologists carried out the only systematic excavation of burials on the island, collecting the remains of an additional 58 individuals, which are currently housed at the National Museum of Iceland.[5] These instances salvaged osteoarchaeological remains that would have otherwise been damaged by erosion, however a lack of excavation records from the earlier removals and the international division of the remains has hindered any comprehensive analysis until recently (see Table 1 for a timeline of the events described in this paper). As a result the full extent of this site and its role within the region was largely unknown. This paper attempts to reconcile historical, archaeological, and osteological data from the cemetery at Haffjarðarey in order to reconstruct and analyze this unique regional community.[6]

Foundations: Consecration, Land Rights, and Wealth

There are three medieval manuscripts that inventory church belongings at Haffjarðarey. Dating to throughout the 14th century, these charters are known as máldagar.[7] The oldest of these charters dates

Fig. 1. Matthias Quad Map of Iceland ca. 1600, Germany. Despite being a copy of an earlier more geographically accurate map by Abraham Ortelius (ca. 1590), the Quad map is the only known map of Iceland from the pre-modern period to depict a church structure on the Island of Haffjarðarey. This structure is an addition by Quad, which is not included on the original by Ortelius (The National and University Library of Iceland, Íslandskort online map collections, https://islandskort.is/en/category/list/10).

to the beginning of the 14th century, the second to the mid-14th century, and the last one to approximately 1400 C.E.[8] Máldagar record the consecration of the church at Haffjarðarey to the year 1223 C.E., however the accuracy of the dates found within these records is regarded as slightly problematic given the fact that they were continuously updated.[9] Therefore is entirely possible, and plausible, that the church at Haffjarðarey was constructed on farm property shortly after the Icelandic conversion to Christianity in the year 999/1000 C.E., with official consecration following some time later.[10] This is supported by a brief passage in Eyrbyggja Saga, which describes a wealthy farmer from Haffjarðarey shortly after the conversion to Christianity. It is also supported by the fact that hundreds of small farm-based churches appeared throughout Iceland shortly after the conversion, and while some fell into disuse by the 13th century, others were transformed into larger parish churches.[11]

By the end of the 14th century C.E., the church at Haffjarðarey had amassed a considerable amount of wealth and valuable furnishings. There were five chapels and eleven farms within the Haffjarðarey parish paying a tithe, or tax, to the church in the 14th century.[12] The Jarðabók census of 1702-1714 lists fourteen farms in Eyjahreppur, some of which are probably the same farms that would have been included in the medieval church parish (Fig. 2).[13] Most of these 18th century farms had formal documented links to the fishing industry.[14]

The 14th century máldagar describe fishing rights belonging to the church at Haffjarðarey along several main fishing rivers, with a place to dock ships (*skipshofnn*) at an as yet unknown location.[15] There are also landholdings listed specifically for the cutting, collection, and drying moss and turf, or peat, which was a common component in medieval Icelandic architecture.[16] The church was also paid a *lysitollr,* or a lighting tax[17] and owned a church bell, at least one image of the patron saint (in this

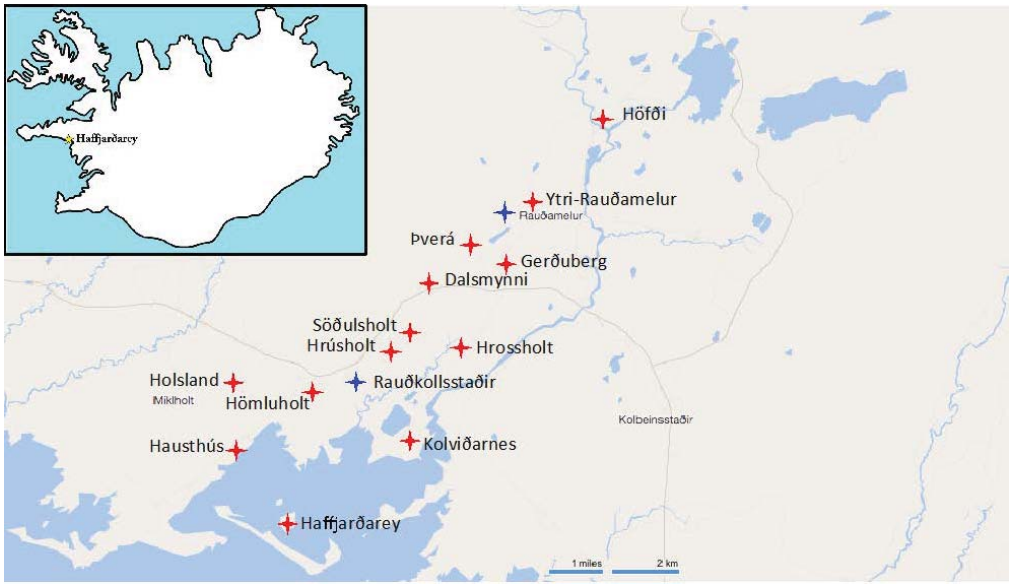

Fig. 2. Map of Haffjarðarey with red stars indicating the placement of farms in Eyjahreppur as listed in Jarðabók. Base image from Bing Maps with alterations by the author.

case Saint Nicholas), priestly vestments made of velvet, an altar or shrine, and an expensive collection of books.[18] Generally speaking, the more recent máldagar (mid-14th century and ca. 1400 C.E. documents) list considerably more holdings and rights than the earlier documents. This suggests that the máldagar were updated to reflect increasing, or changing, church wealth and holdings as they were intended.

Given the timeline of these documents, it appears that what originated as a small farm-based church was eventually able to amass a considerable amount of wealth and regional prestige over the course of the 14th century. This includes owning the farm and all of the land on which the church is located, coastal and riverine fishing and drift rights, some form of port or docks for fishing and/or mercantile boats, and expensive church furnishings. This timeline of increasing wealth and prestige as described in the máldagar parallel the establishment and growth of the early Icelandic fishing industry[19] in which the community at Haffjarðarey was an active participant.[20]

Early Erosion, Flash Floods, and the 1883 Removal

In 1563, shortly after the arrival and adoption of Lutheranism in Iceland, the Catholic church of St. Nicholas on Haffjarðarey was closed and Bishop Gísli Jónsson deconsecrated the land.[21] After the closure a regional folklore was established describing the drowning deaths of the last priest and all of his parishioners on Christmas Eve the year the church was closed (see Table 1 for more detail).[22] While this folk tale supported Reformation ideals, it also hints at the early impacts of coastal erosion within this community.[23]

In his 1861 travel diary, Frederick Metcalfe describes a local tale where "the waters encroached by degrees; a boat took the place of a plank; and in this the worshippers passed over to the house of God; till at last, the clergyman and thirteen souls were engulphed in the breakers."[24] While this story shares several elements of the Christmas Eve event, it focuses more on the progressive nature of erosion within the tidal flat. Historical accounts of supposed flash floods killing people on their way back from church in the 16th century only support the notion that access to the island became increasingly dangerous around the time of abandonment.[25]

The first real Icelandic census carried out in the early 18th century states that the last farmer on Haffjarðarey left the island in 1708, possibly due to the ongoing effects of coastal erosion.[26] To make matters worse, between January 8th and 9th, 1798 a massive storm hit the southern coast of Snæfellsnes making landfall at Lágafell to the west and destroying 14 farms, severely impacting grasslands, and forever altering the coastline.[27]

Paleoclimatic and environmental data supports the historical descriptions of both the erosive damage and potential major storm surges in Western Iceland. Approximately 3.7km Southeast of Haffjarðarey, in the same bay, is the Viðarhólmi salt marsh. Viðarhólmi has been the focus of paleoclimatic and environmental research concerning the determination of relative sea level rise (RSL) along the western coast of Iceland since 2006. These studies suggest an overall RSL rise of 1.3m since ~100 C.E.[28] with three episodes of rapid sea level rise occurring from 1620-50, 1780-1850, and 1950-present.[29] These instances of rapid sea level rise are theorized to be related to shifts within the North Atlantic Oscillation (NAO) pressure system.[30] In the winter, shifts within the NAO are associated with frequent and intense storms in Iceland[31] such as the aforementioned 1798 storm.

After centuries of progressive erosive damage and two episodes of rapid sea level rise, in the 19th century local inhabitants along the coast began to notice

Date	Description
Pre-1200	A farm is established on Haffjarðarey. Noted in Eyrbyggja Saga to be shortly after the conversion to Christianity in ca. 1000 CE.
ca. 1200	A church dedicated to St. Nicholas is consecrated on the island of Haffjarðarey (DI, I, 116, 421-423; DI, III, 43, 82-83; DI, IV, CCIX, 179-180).
1300s	Multiple church charters, or máldagar, are compiled describing land rights and taxes of churches throughout medieval Iceland (DI, I, 116, 421-423; DI, III, 43, 82-83; DI, IV, CCIX, 179-180).
1563	The church and cemetery are deconsecrated. No further burials take place on the island (DI, I, 116, 421-423; DI, III, 43, 82-83; DI, IV, CCIX, 179-180).
1708	The last farmer leaves the island due to the impacts of coastal erosion (JÁM V 1931-3: 45-47).
1798	A massive storm hists the Southern Coast of the Snæfellsnes Peninsula destroying 14 farms (Trans. By author, Hermann 1907-10: 93).
1855	"Once a priest and 13 lay people crossing the flat were surprised by a flood and perished" (Trans. by author, Ersch and Gruber 1818-1898: 174).
1861	"in ancient days the church is said to have been no here, but on the Haffiorderó, that island lying well out to sea over the sands…the narrow stream that separated it from the mainland was spanned by a plank. But the waters encroached. By degrees; a boat took the place of a plank; and in this the worshippers passed over to the house of God; till at last, the clergyman and thirteen souls were engulphed in the breakers" (Metcalfe 1861:308).
1883	Erosion uncovers the skeletal remains of about 109 individuals who are subsequently reburied elsewhere (Trans. By author, Steffanson 1946: 146).
1905	The remains of 61 individuals are removed by John W. Hastings and Viljhalmur Stefansson and brought to Harvard University where they currently remain.
1905	The remains of an unknown number of individuals are removed by locals and reburied elsewhere following the Hastings-Stefansson expedition (Trans. by author, Steffanson 1946: 147).
1918	Ernest Hooton publishes, "On Certain Eskimoid Characters in Icelandic Skulls" using the 1905 remains collected by Hastings and Stefansson.
1935	"It is said that the priest and many parishioners, on the last Christmas Eve before the church closed, died on their way back to land." (Trans. By author, Kristjánsson, 1935).
1945	The burials of 58 individuals are excavated by a team of archaeologists from the National Museum of Iceland (Steffanson 1946).
2004	Hildur Gestsdóttir publishes an osteological analysis of remains recovered in 1945 (Gestsdóttir 2004).
2012	S.Hoffman carries out an analysis of the 1905 Hastings-Stefansson Collection for the M.Sc. Project Health in the *Sagas of the Icelanders*.
2014	Hildur Gestsdóttir includes the 1945 remains from Haffjarðarey in her dissertation on osteoarthritis in Iceland (Gestsdóttir 2014).
2017	S. Hoffman carries out an analysis of the 1945 remains from Haffjarðarey at the National Museum of Iceland for the ongoing dissertation project *Place, Practice, and Pathology in Medieval Iceland*. These data are combined with that from the 1905 collection to establish a more complete picture of health in this medieval population (Hoffman 2018a, Hoffman 2018b, Hoffman 2019).

Table 1. A timeline of historical events and archaeological/osteological work done at Haffjarðarey.

the emergence of human remains from the surface of the island. In 1883 locals living in farms along the coast gathered the remains of approximately 109 individuals and reburied them elsewhere.[32] To date, these remains have not been excavated nor has their exact location been identified, although it is possible that they were reinterred in the Miklholt churchyard.

This episode is important for three reasons: first it reflects a cemetery population size not typically taken into consideration for this site; second it showcases the first recorded incidence of site disturbance resulting in the removal of human remains; and thirdly, it shows that the integrity of the site has been significantly compromised by exposure to erosional processes.

Erosion Provides Permission: 1905

Twenty-two years after the first removal and reburial, a geological team from Harvard University conducting volcanological research in Iceland visited Haffjarðarey and another cemetery site at Álftanes near Borgarnes.[33] This team included John W. Hastings, an anthropology student at Harvard University who financed part of the expedition,[34] and Vilhjalmur Stefansson, an anthropologist and arctic explorer also affiliated with Harvard.[35] While the majority of the geologists on the expedition kept to their research, Hastings and Stefansson separated from the group and travelled to Álftanes and Haffjarðarey for the express purpose of collecting human skeletal remains.[36]

At Haffjarðarey, Hastings and Stefansson were given tentative local permissions from a clergyman to retrieve skeletal remains already exposed on the surface of the island. They were informed that, "the authorities would certainly permit [them] to carry away any skulls that had been disinterred by the sea."[37] In the span of two weeks the duo collected skeletal remains along the beach that they found "rolling around in the surf" as well as a "cupful of loose teeth" picked out of the beach at low tide.[38] Hastings and Stefansson considered their expedition a great success and the bones they collected to be their "prime harvest."[39] The remains were shipped back to Harvard, where they are now housed within the Peabody Museum of Archaeology and Ethnology.

Until recently, the exact minimum number of individuals (MNI) within the Hastings-Stefansson Collection from Haffjarðarey remained unpublished. In his autobiography Stefansson records the collection of eighty-six skulls and several nearly complete skeletons collected from the eroded beach at Haffjarðarey.[40] This number, however, represents a combination of the remains taken from both Haffjarðarey and Álftanes in the same summer, as Stefansson does not differentiate between the two within his personal account.[41] Later publications report approximately fifty skulls within the Hastings-Stefansson Collection from Haffjarðarey.[42] A recent assessment of the collection places the MNI at sixty-one individuals.[43] This count is also based on cranial skeletal remains. It should also be noted that while there are nearly complete skeletons from Álftanes, there are no complete skeletons within the Hastings-Stefansson Collection from Haffjarðarey.

Shortly after Hastings and Stefansson left the site in 1905, there was another removal of remains from the surface that were reburied at Miklholt church.[44] While the location of this mass reburial is somewhat understood vaguely as the Miklholt cemetery, the number of individuals removed from the cemetery in this incident and where in the cemetery they were reburied can only be speculated.

Excavation and Site Plan: 1945
(Archaeologists enter stage right)

Forty year after Hastings and Stefansson left Haffjarðarey, archaeologists Kristjan Eldjárn and Jon Steffensen with the National Museum of Iceland returned to the site to carry out a salvage excavation.[45] Unlike the 1905 expedition Eldjárn and Steffensen, as archaeologists, made thorough notes and drawings during excavation, and later published some of the results.[46] The site plan (fig. 3) includes areas labeled "rof," which refer extensive patches of erosion within the church cemetery. This excavation recovered the remains of approximately 58 individuals, 24 in-situ burials and an additional 34 disturbed burials.[47] It is possible that many of the disturbed remains were found within these eroded areas, and are therefore not labeled on the map as discrete burials. Excavators believed that they recovered all skeletal remains, however no evidence of church or farm structures was found during this excavation.

All in-situ burials were in supine position

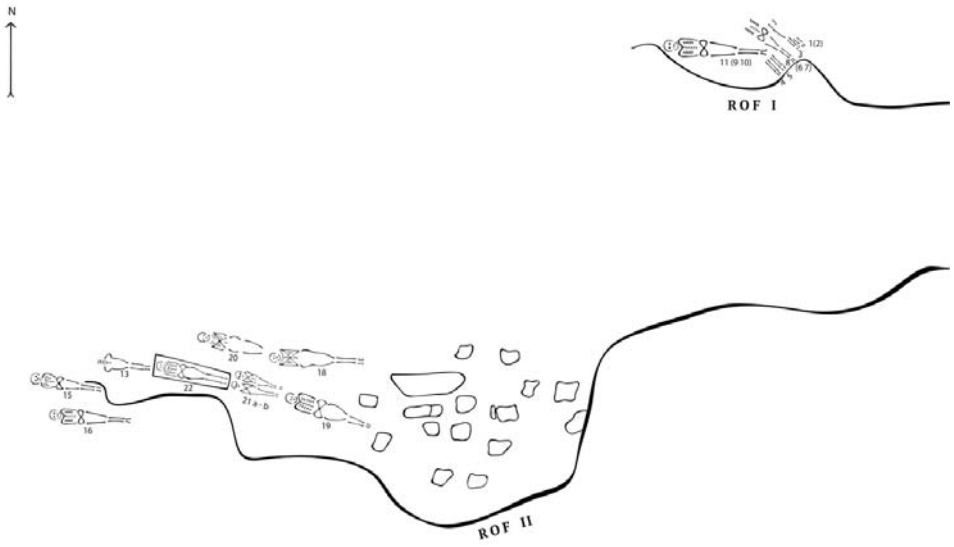

Fig. 3. Site plan of 1945 excavations adapted from Steffensen 1946. While no scale was provided for the original map, some distances can be estimated by average burial length. Areas labeled 'rof' indicate where severe erosion has damaged the site (after Steffensen 1946: 148; digital artwork by Alana Tedmon).

in an east-west orientation with no grave goods, all common features of Christian period cemetery burials at this time in Iceland.[48] This is consistent with Vilhjalmur Stefansson, who also recorded the complete absence of grave goods in 1905.[49] There also does not appear to be any cemetery organization based on age, sex, or social status at Haffjarðarey. Earlier farm-based church cemeteries in Iceland were segregated by sex, age, and social status.[50] Specifically, men were buried to the north, women to the south, children and infants closer to the cemetery boundaries, and those of lower social status further away from the church structure.[51] The practice of segregating burials on these bases seems to have been discontinued in later parish church cemeteries after 1300 C.E. and this appears to hold true for Haffjarðarey.[52]

Although only 58 individuals were recovered during this excavation they were all found within a relatively small area (see fig. 3). Many of the graves were overlapping, intercut, or stacked vertically.[53] In some instances newer burials displaced older ones resulting in reburial of the older graves on top of the newer ones.[54] For example the grave of an adult male (HFE-A-11), shown in the top right quadrant of the cemetery plan, disturbed two earlier non-adult graves (HFE-A-9 and HFE-A-10) that were then reinterred with the later burial.[55] This type of overlapping and intercutting of graves has also been seen at the roughly contemporary parish church cemetery of Höfði in Northern Iceland, however Höfði was in use for considerably longer than Haffjarðarey.[56]

Discussion: A Maritime Parish Community Reassembled

From 1886 to 1945 an estimated at least 228 individuals were removed from the Haffjarðarey cemetery with an additional unknown number removed between the 1905 and 1945 excavations.[57] Overall, earlier small farm-based church cemeteries generally contain a relatively small number of graves, thirteen at the 11th-12th century Hrísbrú cemetery[58] and 53 at the 11th -12th century cemetery at Keldudalur.[59] Later medieval and Renaissance sites such as the monasteries at Viðey (13th-

18th centuries) and Skriðuklaustur (15th-16th centuries), had larger cemetery populations with approximately 100 and 300 individuals respectively.[60] Therefore, the approximate size of the cemetery population at Haffjarðarey places it among some of the largest excavated thus far for the period between the 13th-18th centuries, a previously unreported fact given the geographical and academic separation of the skeletal material.[61]

The cemetery size and crowding at Haffjarðarey suggests not only long-term cemetery use and church popularity, but also informs our understanding of the formation of the parish church system in medieval Iceland. Other contemporary cemeteries that display intercutting and overlapping of burials, as seen at Haffjarðarey, are thought to have transitioned from small farm-based churches to communal parish churches.[62] It is possible that the church at Haffjarðarey followed this course, as there are saga references to a possible farm on the island as early as the conversion to Christianity in the year 999/1000 C.E.[63] If this is the case, future archaeological work at Haffjarðarey may present a unique opportunity to better understand the transition from farm- to parish-based church communities. Bioarchaeological data on the other hand can address the link between these new regional community centers and international economies such as the fishing industry.[64]

The transition from early medieval farm-based churches to the later medieval parish church system began with the introduction of the 1096/7 tithe, which ultimately led to the independence of churches from their former secular land-owners.[65] These parish churches could amass considerable wealth from the tithe, especially if the secular landowner still had a role in everyday church function.[66] After the tithe, smaller farm-based churches diminished in size, ceased functioning as a burial location entirely, or alternatively would grow into later parish churches.[67] What caused some to fall into disuse and others to succeed is the focus of several ongoing archaeological projects.[68]

At Haffjarðarey, success was likely tied to the increasing role of a maritime economy in medieval Iceland. With the remains from 1883 unavailable for study there are approximately one-hundred and nineteen (MNI=119) individuals available for paleopathological analysis from the 1905 and 1945 collections. Paleopathological[69] and isotopic analysis[70] of the skeletal remains from Haffjarðarey support the supposition that this was, in fact, a maritime-based community heavily reliant on fishing for personal dietary support in addition to economic income.[71] High prevalence of periodontal disease and ante-mortem tooth loss, as well as probable cases of non-adult vitamin C deficiency, can all be associated with a diet highly reliant on marine resources like dried fish.[72] A 2014 study concerning osteoarthritis in Iceland came to the conclusion that unusually high rates of the joint disease at Haffjarðarey when compared to other medieval sites were directly related to strenuous activities associated with intensive participation in the fishing industry.[73] Strontium isotope analysis of ten individuals from Haffjarðarey also suggests a highly marine-based diet when compared to the more varied terrestrial and marine mixed diets of sites further inland.[74]

Historically speaking, a saintly dedication to St. Nicholas is a frequent indicator of a church with maritime affiliations in the medieval world.[75] As the patron saint of sailors, fishermen, merchants, children, and thieves the saint was popular in Iceland with at least forty church dedications across the country.[76] Máldagar recording a place to dock ships[77] and proximity to an international trading post[78] only solidify the connection to the fishing industry. While máldagar suggest the rights to nearby rivers were under the purview of the church, the precise economic relationship between this

ecclesiastic institution and local fishermen was however, remains unknown.

Conclusions

When serious erosive processes began to affect access to the island both the church and cemetery were deconsecrated and abandoned. Abandonment of the church and cemetery happened quickly and the island was never re-settled after the last farmer left in the early 18th century.[79] Damage from coastal winds, storm surges, and relative sea level rise ate away at the cemetery surface until human remains were readily visible on the surface of the beach. Subsequent removal of these remains in multiple episodes since the mid-19th century resulted in a distorted representation of the site with only half of the skeletal sample included in most publications.

It is clear from bioarchaeological and historical data, that Haffjarðarey was not a small farm-based church cemetery, nor was it insignificant within the regional landscape. On the contrary it appears that the island church was a focal point for a fairly large regional community heavily engaged in the maritime economy, an economy that would go on to become the predominant Icelandic export across the North Atlantic and into Western Europe in the later middle ages and pre-modern era.

Endnotes:

1 Níelsson 1869, 98; Þorkelsson 1888, 80; DI, I, 116, 421-423 (This notation refers to the 16 volume collection of medieval church charters (máldagar) referred to as the Diplomatarium Islandicum. Citation format is as follows (DI, Volume, Entry Number, and Inclusive Page Numbers)).
2 Steffensen 1946, 146-151; Gestsdóttir 2014, 40-41; Hoffman 2018b, 35.
3 Steffensen 1946, 146.
4 Pálsson 2005, 53; Stefansson 1964, 52-53.
5 Eldjarn 1945 handwritten notes; Steffensen 1946, 147-152; Gestsdóttir 2014, 40-41.
6 See table 1 for more detail.
7 Cormack 1994, 25-29.
8 Cormack 1994, 170.
9 DI, I, 116, 421-423; Cormack 1994, 170; Vésteinsson 2012, 128. Cormack (1994) and Vésteinsson (2012) note that máldagar were intended to be updated annually, this results in the alteration of dates and details throughout the historical record.
10 DI, I, 116, 421-423; Cormack 1994, 27-28
11 Zoëga 2014, 35-49. No archaeological work has been carried out regarding the farm at Haffjarðarey. The upcoming 2019 field season is focused on identifying the exact locations of the farm and church structures through remote sensing.
12 DI, I, 116, 421-423; Steffensen 1946, 9.
13 Jarðabók V 1931-3, 36-49; The church of Haffjarðarey was noted as serving "allr Eyjahreppr" in 1397 (DI, 1, 116, 421), however the farms contained within the hreppur at this time are not named. It is only in the 18th century Jarðabók where we have a list of farms, and it is theorized (Gestsdóttir 2014: 124) that many of the farms listed in the 18th century census would have been included within the medieval parish of Haffjarðarey.
14 Gestsdóttir 2014, 124.
15 DI, III, 43, 82-83; DI, IV, CCIX, 179-180.
16 Van Hoof and van Dijken 2008.
17 Dennis et al. 2000, 363; DI, IV, CCIX, 179-180.
18 DI, I, 116. 422; DI, III, 43, 83; DI, IV, CCIX, 179. Books worth 'fiogur hunndrað í bokum', which, in the post-1280 value system, is worth about 13 modern ounces of silver (Cormack 1994: 251).
19 Barrett 2016; Fagan 2017; Gardiner and Mehler 2007; Hastrup 1990.
20 Gestsdóttir and Price 2003; Gestsdóttir 2014; Hoffman 2018a; Hoffman 2018b.
21 DI, I, 116, 421-423.
22 Kristjansson 1935; Hoffman 2018a, 2.
23 Munnmæli vestra herma, að margt kirkjugesta, er var Þar síðasta aðfangadagskvöld áður en kirkjan var lögð niður, hafi farizt á leið til lands. //It is said that the priest and many parishioners, on the last Christmas Eve before the church closed, died on their way back to land.// Luðvik Kristjánsson, 1935. Translation by author. For further discussion see Hoffman 2018a.
24 Metcalfe 1861, 301.
25 Ersch and Gruber 1818-1898, 174.

26 JÁM V 1931-3, 45-47; Gestsdóttir 2014, 40.
27 Herrmann 1907-10, 93.
28 Gehrels et al. 2006, 949.
29 Saher et al. 2015, 34.
30 Saher et al. 2015, 34.
31 Hurrell and Deser 2010, 240.
32 Steffensen 1946, 146-147. Another source living at Hausthús farm on the coast told Steffensen that they had heard the number was closer to two-hundred and fifty, although that seems extremely high.
33 Pálsson 2005, 53.
34 Stefansson 1964, 51.
35 Pálsson 2005, 51.
36 Pálsson 2005, 53.
37 Stefansson 1964, 52-53.
38 Stefansson 1964, 53.
39 Pálsson 2005, 53.
40 Stefansson 1964, 53.
41 Stefansson 1964, 52-53.
42 Steffensen 1946, 146; Gestsdóttir 2004, 9; Gestsdóttir 2014, 40.
43 Steffensen 1946, 146; Gestsdóttir 2004, 9; Gestsdóttir 2014, 40; Hoffman 2018b, 35.
44 Steffensen 1946, 147.
45 Steffensen 1946; Gestsdóttir 2004; Gestsdóttir 2014.
46 Eldjárn 1945; Steffensen 1946.
47 Steffensen 1946, 147-151; Gestsdóttir 2004, 9; Gestsdóttir 2014, 41.
48 Friðriksson and Vésteinsson 2011, 59; Zoëga 2014, 46.
49 Stefansson 1964, 53.
50 Zoëga 2014, 47-48.
51 Zoëga 2014, 47.
52 Zoëga 2014, 49.
53 Eldjárn 1945; Steffensen 1946, 147-150; Hoffman 2018b, 35-36.
54 Eldjárn 1945; Steffensen 1946, 147-150; Hoffman 2018b, 35-36.
55 Eldjárn 1945; Hoffman 2018b, 36.
56 Zoëga 2014, 41.
57 Eldjárn 1945; Steffensen 1946, 147-150; Gestsdóttir 2004, 9; Gestsdóttir 2014, 41; Hoffman 2018b, 35-36.
58 Walker et al. 2004, 1.
59 Zoëga and Murphy 2015, 574.
60 Hallgrímsdóttir 1990, 123; Gestsdóttir 2014, 550; Kristjánsdóttir 2015, 154.
61 Previous studies on the population at Haffjarðarey (Gestsdóttir 2004, 2014; Gestsdóttir and Price 2003, 2006) briefly mention the existence of the Hastings-Stefansson Collection, but the remains are not included in analysis or discussion.
62 Zoëga 2014, 35, 41, 49.
63 Eyrbyggja Saga, translation by Quinn 2003.
64 Hoffman 2018b.
65 Sigurðsson 2007, 180; Jakobsson 2010, 7; Zoëga 2014, 43.
66 Cormack 1994, XIV.
67 Zoëga 2014, 25.
68 Some notable projects include: The Skagafjörður Church Project, Death and Burial in Iceland for 1150 Years, and the authors' ongoing dissertation project Place, Practice, and Pathology in Medieval Iceland.
69 Gestsdóttir 2014, 164; Hoffman 2018b, 37-47.
70 Gestsdóttir and Price 2003, 11.
71 For a complete breakdown of isotopic data and paleopathological analysis of the human remains from Haffjarðarey see Gestsdóttir 2004, 2014; Gestsdóttir and Price 2003, 2006; Hoffman 2018b, 2019.
72 Hoffman 2018b, 38-47.
73 Gestsdóttir 2014, 123-125.
74 Gestsdóttir and Price 2003, 11. All tested individuals are considered to have been born in Iceland.
75 Miller 2003: 133
76 Þorkelsson 1888, 80; Curtis 1995; Miller 2003, 133.
77 DI, III, 43, 82-83; DI, IV, CCIX, 179-180
78 The international trading port of Buðarhamar is less than 10km west of Haffjarðarey. Gardiner and Mehler 2007, 410-412.
79 JÁM V 1931-3, 45-47; Gestsdóttir 2014, 40.

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