

Historical Osteoarchaeology in Iceland

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Abstract Historical osteoarchaeology has not been at the forefront of archaeological research in Iceland. Large-scale excavations of historical cemeteries did not start until the mid-twentieth century, and all excavations of historical cemeteries until the early twenty-first century were development led. This fact means that many of the projects carried out did not have an osteoarchaeological focus, nor asked specific osteological questions of the material, as well as the fact that the state of the publication of these sites is very varied. This paper presents a summary of the larger excavations of historical cemeteries in Iceland alongside discussions of the various approaches to the presentation of the analysis of the skeletal remains of those sites that have been published from Jón Steffensen's focus on identifying the individuals at seventeenth-to-eighteenth-century Skálholt and Hólar; to the evidence presented for the hospital in sixteenth-century Skriðuklaustur and the influence of increased urbanization in eighteenth- and nineteenth-century Reykjavík on the palaeopathology of those buried there.

Keywords Historical osteoarchaeology · Skálholt · Reykjavík · Individuals
Urbanization

Introduction

The history of osteoarchaeological research in Iceland is not long. Although excavations of human skeletal remains date back to the latter part of the nineteenth century, systematic osteological analysis started with Jón Steffensen's involvement in the excavations in the early medieval cemetery in Skeljastaðir, Þjórsárdalur in 1939. Jón was a medical doctor, but until his death in 1991 he was the only osteologist working in Iceland (Zoëga and Gestsdóttir 2010). In the last few years, more

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archaeologists and anthropologists have been specializing in osteology, although the people working in the field in Iceland today can still be counted on the fingers of one hand.

Burial archaeology in Iceland can be split into two oversimplified groups: Viking-age pre-Christian graves (pre-eleventh century) and Christian cemeteries (post-tenth century). Early burial archaeology focused on, as with archaeology in general, the Viking age burials and there are numerous examples of the Sagas being used as road maps to identify burials and the skeleton of little interest except to name the Viking chieftain buried there (Zoëga and Gestsdóttir 2010). Early pioneers in the field showed little interest in the study of Christian cemeteries (Friðriksson 1994), and it was not until the middle of the twentieth century that systematic excavations of historical (post-1550) cemeteries commenced. All the excavations of cemeteries belonging to his period, during the latter part of the twentieth century were development led, with the first research excavation of a historical cemetery in Iceland starting in 2002. This paper gives a brief overview of the larger excavations of historical cemeteries in Iceland, followed by a discussion on the focus of the osteoarchaeological analysis carried out on the excavated material (Fig. 1)

Development-Led Excavations

Skálholt

The excavations of the cemetery at the bishopric in Skálholt in southern Iceland between 1954 and 1958 were the first large-scale development-led excavation of a



Fig. 1 Map of the historical cemeteries discussed

cemetery in the country (see also Lucas, this volume). This work was carried out prior to the erection of a new church to replace the small timber church that had stood there since 1851 (Fig. 2). The project was several years in the making, as it was abundantly clear to those planning the construction that extensive archaeological investigations would have to be carried out, as documentary sources indicated that in addition to the burials on the site, up to 10 churches had stood there, including the 700 m² medieval church that burned down in 1527, to be replaced by Brynjólfskirkja, a much smaller church, the construction of which started in 1650 (Christie 1988).

A total of 87 recorded burials were excavated in Skálholt. The dating of these burials was based on their association with the two main structures at the site, the large medieval church and Brynjólfskirkja. Of the excavated burials, 54 were dated to after 1650 (Eldjárn 1988a, b; Steffensen 1988). The results of the analysis of the skeletons from Skálholt were published in 1988 in a large volume detailing all aspects of the excavation (Steffensen 1988).

Reykjavík

The oldest documented records of a church and cemetery in Reykjavík date to the year 1200. It stood in what is today Fógetagarðurinn, a small paved open area in the center of modern-day Reykjavík. This was the main cemetery for the city until 1838, when Hólavallakirkjugarður was opened (Óla 1963). Three skeletal collections from the old Reykjavík cemetery are curated at the National Museum. One is a large collection of disarticulated human bones with no records as to when they were recovered. The other two collections are clearly excavated inhumations. These include eight skeletons, with no records of the excavation except for the year, 1940 (Gestsdóttir 2009), and a further nine that were excavated in 1967 in lieu of construction work to the east of the modern-day Fógetagarður. The only record of this excavation is a sentence in the yearly report of the National Museum (Eldjárn 1969). Artifacts associated with these burials (e.g., buttons) indicate that they date to the eighteenth and nineteenth centuries (Gestsdóttir 2009).

Fig. 2 Jón Steffensen excavating in Skálholt (Photo: Gísli Gestsson)



Bessastaðir

The church and cemetery at Bessastaðir at the modern-day presidential residence in southwestern Iceland are still in use, but the earliest records of a church at the site date to 1200. During the 1987 season of the excavations at the residence of the former colonial governor at Bessastaðir, part of the cemetery was excavated prior to road work (Fig. 3) (see Lucas, this volume). A total of 18 burials were excavated, all dating to the eighteenth and nineteenth centuries (Ólafsson 1991). No report has as yet been published on the excavation of the burials.

Viðey

The cemetery in Viðey in southern Iceland was investigated in 1987–88 as part of the excavations that occurred prior to restoration work on the houses on the island (Lucas, this volume). The earliest records of a church on the island date to the twelfth century and the church and cemetery are still in use today. A total of 91 burials were investigated during the excavation, but only 36 skeletons were removed. These are all skeletons from burials that aligned with the most recent church at Viðey, which was constructed in 1774, and have therefore been dated by association to the late eighteenth and early nineteenth centuries (Hallgrímsdóttir 1991). A gray literature report on the excavations of the cemetery in Viðey has been published (Hallgrímsdóttir 1989), however, the discussion of the analysis of the skeletal remains is scarce and lacking in consistency.

Hólar

A small part of the cemetery at the bishopric of Hólar in northwest Iceland was excavated in 1988 when burials were revealed inside the current church during repairs of the church floor (see Lucas, this volume). This church was constructed between 1757 and 1763. There are seven grave markers in the floor of the church at Hólar, all dating to between the early seventeenth and the late eighteenth centuries. However, when the floor was lifted, it revealed extensive disarticulated human skeletal remains, representing a minimum number of about 30 individuals, most likely disturbed during the construction of the church, and only two in situ burials. One of these burials could not be dated; the other had a coffin shield with the date of 1710. Within this last coffin were disarticulated skeletal remains and four coffin

Fig. 3 Burial 6 from the cemetery excavation in Bessastaðir (Photo: Guðmundur Ólafsson)



shields, one with the date of 1660. The only publication of the investigations in the church at Hólar is an article by Snæsdóttir (1991), with a brief mention of the results of the skeletal analysis carried out by Jón Steffensen, which focuses on attempting to name the individuals excavated, including that of Ingibjörg Jónsdóttir (d. 1723), the first wife of the priest Þorleifur Skaftason (d. 1748), although there is no detailing of why he concluded that these remains belonged to her (Snæsdóttir 1991).

Hólskirkja in Bolungarvík

Parts of 15 burials and a large collection of disarticulated human remains, dating to the late eighteenth- to early twentieth centuries were recovered from 13 pits which were excavated during the renovation work at Hólskirkja in Bolungarvík in the west of Iceland (Fig. 4). Due to the nature of the investigation, most of the burials were only partially excavated as they did not fit neatly within the investigation area, and this made all interpretation very difficult. In addition, the preservation of the material was extremely poor; the cemetery is located within a very iron-rich bog, which had resulted in a reaction with the phosphates in the bone to form vivianite. The results of the excavation have been published (Guðmundsson et al. 2005).

Research Excavations

Reykholt

Following excavations of the farm site at Reykholt in western Iceland, the focus shifted to the church site in 2002 (see Lucas, this volume). The site sits within the modern-day cemetery in Reykholt, slightly south of the church that stands there today. The last church on the site was built in 1835 and abandoned in 1884 (Sveinbjarnardóttir and Vésteinsson 2003), but the archaeological investigations of the site have demonstrated that it was built on the foundations of various phases of churches dating back to the twelfth century. The excavations of the burials within the cemetery were not specifically on the research agenda, because the main aim of the project was to investigate the church structures. However, 19 graves dating from the late eighteenth to the early twentieth centuries had to be opened during the course of the excavation

Fig. 4 Child's coffin from Hólskirkja. Although the preservation of the bones from the was very poor, the preservation of wood was excellent (Photo: Gavin Lucas)



because they truncated the archaeology. Three of the oldest burials excavated had coffin plates with named individuals; the priest Þorleifur Bjarnason (d. 1783), his father Bjarni Þorleifsson (d. 1758) and sister Þórunn Bjarnadóttir (d. 1779) (Fig. 5). They were all buried within the church at Reykholt, interestingly at a time when this was not permitted by law (Sveinbjarnadóttir and Aldred 2005, 2008). Analysis of the skeletal remains excavated in Reykholt have been published in the gray literature (Sveinbjarnadóttir and Vésteinsson 2003; Sveinbjarnadóttir and Gestsdóttir 2004; Sveinbjarnadóttir and Aldred 2005, 2007, 2008), but otherwise the site is as yet unpublished.

Skriðuklaustur

The ongoing research excavation at the monastery at Skriðuklaustur in eastern Iceland started in 2002. Documentary sources state that a Catholic monastery stood at Skriða between 1493 and 1554. The initial excavations focused on the structural remains of the monastic buildings themselves (Kristjánsdóttir 2003). However, in 2003 the focus shifted to include the church that stood adjacent to the monastery. The church was contemporary with the monastery, but continued to be used as a parish church until 1792. Although the excavation of human remains was not originally part of the published project agenda (Kristjánsdóttir 2003), it has become a central part of the investigation today, in particular because the investigators believe that the evidence of chronic disease supports the theory that a hospice was maintained at the monastery (Kristjánsdóttir 2006, 2008, 2009). The phasing of

Fig. 5 Þórunn Bjarnadóttir's coffin shield from Reykholt (Photo: Guðrún Sveinbjarnadóttir)



the site remains an issue, and as yet the burials contemporary with the monastery (pre-1554) have not been isolated from those associated with the later parish church (Kristjánsdóttir and Valmundsdóttir 2009). There are at the time of writing approximately 200 excavated skeletons from Skriðuklaustur, and the osteological analysis of 28 of these has been published in the gray literature (Pacciani 2006, 2008, 2009; Zoëga 2007). Alongside these is the publication in a gray literature report of the skeletal database from the 2003–08 seasons at the site (Kristjánsdóttir et al. 2009). In addition, there are two published articles detailing palaeothological case studies from the site (Kristjánsdóttir and Collins 2010; Zoëga 2008).

Discussion

It is abundantly clear when considering the publications of excavated historical cemeteries in Iceland that the focus has in general not been on a methodical osteoarchaeological analysis, or indeed the attempt to answer specific osteoarchaeological questions of the material. However, when one looks at the earlier excavations, it is interesting to note the focus that Steffensen placed on his work at both Skálholt and Hólar. In the publication on the skeletal remains from Skálholt, approximately 40 % of the paper deals with attempting to name the individuals excavated (Steffensen 1988). Of the 25 skeletons Steffensen associated with named individuals (all of whom died between the late seventeenth to the late eighteenth centuries) 12 are positively identified by coffin plates. The rest are very tenuously connected to individuals who are known, or at least believed to have been buried in Skálholt:

LII (S-15) a well-preserved skeleton of a young (ad) male who passed away before the construction of Jón Vídalín's tomb. The coffin was of the old form, and the grave shallow because of the bedrock. . . . It is very likely that this is someone who died in the smallpox epidemic [Stóra Bóla] in Skálholt, and then no one more likely than the newly inaugurated priest Árne Gíslason (1677–1707)... There are no records of him being buried within the church, and no descriptions exist of him, but because of his age and all circumstances, it is very likely that this is the man (Steffensen 1988, pp. 200–201; my translation).

This approach by Steffensen to his work is perhaps not surprising when one considers the antiquarian background of the field in Iceland (Friðriksson 1994) with its rich emphasis on the familiarity of individuals through the written Sagas (and Steffensen did publish widely on Iceland's written past, e.g., Steffensen 1975). It is surprising, however, when one considers that Steffensen's colleague at Skálholt, as well as several other projects, was Kristján Eldjárn, who in his work attempted to sway the emphasis away from the antiquated approach to a more archaeological one focusing on the material culture, an archaeology of the common (Lucas, this volume).

This approach to historical osteoarchaeology, of focusing on the documentary sources as truthful historical narratives simply to be used for comparison to the biological data, is not isolated to Iceland. Perry (2007) tackles this issue in her article "Is bioarchaeology a handmaiden to history?" There she criticizes the approach taken

by many historical osteoarchaeologists in not going beyond simply using the skeletal remains to supplement historical or even archaeological data. Rather than using human remains for nothing more than comparative material for documented sources, it could be stated, in fact, that the human skeleton acts as a sort of data recorder for the lived human life, as it is not possible for people to influence the responses the skeleton will have to its environment, whether it be diseases or the stresses put on the human body. Obviously, there are issues with the data as it will always be influenced by the sampling bias, and the problems caused by the paradox of using a dead population to interpret a living one (Bocquet-Appel and Masset 1982; Wood et al. 1992). However, if one takes these into consideration, the biological data should always be able to be interpreted on its own merit, alongside other data sources, rather than just as a supplement to them (Perry 2007).

It can be argued that this is the approach that Kristjánsdóttir is taking in her interpretation of the skeletal material from Skriðuklaustur. There she uses the palaeopathological analysis alongside the material culture of the site and knowledge about the function of monasteries in Europe to present the argument that a hospice existed at the site (Kristjánsdóttir 2006, 2008, 2009). However, if one approaches the published material with a critical eye, it is clear that vague statements regarding prevalence of disease at the site such as “Most of the adult skeletons bear clear signs of various chronic diseases” (Kristjánsdóttir 2008, p. 212) are not supported by data, and, for example in this case, references gray literature that only includes 12 of the excavated skeletons from the site (Pacciani 2006; Zoëga 2007). On the other hand, there are clearly many interesting pathological cases from the Skriðuklaustur site, and the investigation is still in progress, so it will be interesting to follow the ongoing work there.

If we return to the work carried out by Steffensen at the Skálholt site, it is interesting to note the way he discusses the skeletal remains. The next sentence in the quote referenced above, regarding the remains he suggests belong to Árni Gíslason is: “The skeletal remains of LII give a good picture of the man” (Steffensen 1988, p. 201; my translation), and such statements are common in his text. In discussing a disarticulated cranium from the site he says:

But could these be the remains of Bishop Gísli Oddson? He died at the age of 45 and of his cause of death is written: ‘He liked the bottle, and people believe that this finally caused him his demise: he was however always calm and polite’ and in addition ‘he was a big and powerful man.’ Large and powerful fits well with the remains, although they appear to belong to someone older than 45 when assessing the dentition. However, if one takes into consideration problems with aging techniques and that alveolar infections, tooth loss, and dental attrition can be caused by other factors than age, especially in the case of an alcoholic, then these could easily be the remains of bishop Gísli Oddson (Steffensen 1988, p. 212; my translation).

One must of course question the validity of his interpretation in cases like this, and it is clear that the main aim of Steffensen’s work was to use the documentary sources to assign names to the skeletons. On the other hand, it must be said that the way in which Steffensen presents his results is interesting, especially in light of discussions criticizing the purely “scientific” mode of interpreting palaeopathology which is in complete contrast with the emphasis in post-processual archaeology on the individual

and human intentionality. In her article “The somatization of archaeology,” Meskell (1996) uses osteoarchaeological, archaeological, and textual evidence to locate the individuals and give them meaning in the burial of a young boy from the New Kingdom site of Deir el Medina. In doing so, she discusses the difficult life the boy would have had because of his disability, the sadness his family must have felt at his passing, the care and concern with which they would have buried him. Meskell does not claim to be able to read this information from the bones, and she stresses that although it is impossible for us to empathize with ancient Egyptians, it is important for archaeology to reclaim the individually contextualized lived bodies and the contribution of these real bodies and their experiences to the society to which they belonged. Meskell criticizes archaeology’s tendency to ignore the relationship of the individual to society, and notes that individuals have become “micro versions of larger social entities” (Meskell 1996, p. 10). So, although we must remain critical of the conclusions Steffensen draws in identifying some of the named individuals he discusses, there is value in thinking about the way he presents his data, in the way he uses discussions of skeletal remains in conjunction with written sources and paintings of the named people to place the individual within the discussion of seventeenth-to-eighteenth-century Skálholt (Steffensen 1988).

Even though the publications on at least some of the excavations of historical cemeteries are scarce, the curated material is in most instances in excellent condition. The skeletal material of named individuals from Skálholt and all of the material from Hólar is stored in the churches, but all other skeletal remains are stored at either the National Museum or the Reykjavík City Museum. All excavated skeletal material in Iceland is also entered into a central database, which is housed at the National Museum. This means that most of the material is easily accessible for further analysis.

Such work is already being carried out. For example, a recent study by the author on the palaeopathology of the cemeteries in Reykjavík, Viðey, and Bessastaðir, as well as several older sites (Gestsdóttir 2003, 2012). Particularly noteworthy in this study is the result of the analysis of specific infectious diseases in the eighteenth-nineteenth-century cemeteries in Reykjavík, Viðey, and the old Reykjavík cemetery of Fógetagarðurinn (this study has been published previously; see Gestsdóttir 2009). Before discussing the results, there is an important distinction here to be made between infectious diseases (a disease that is spread from one person to another) and an infection (when an infective agent gets into the system, for example, through a wound). The problem when dealing with archaeological material is that infectious diseases affect the skeleton by causing an infection within the bone. This means that it can often be difficult to distinguish between an infection and an infectious disease. There are, however, some infectious diseases (in particular, tuberculosis, syphilis, and leprosy) that do cause specific changes to bone, and therefore can be diagnosed with confidence (Fig. 6) (Roberts and Manchester 1995). The human agent in infectious diseases is an important distinction. Another factor to consider is over-diagnosis of infections. An infection can affect bone in several ways. One is through periostitis, caused by the swelling of the periosteum and resulting in a sheet of new bone formation on the bone surface. Infections can also cause osteitis or osteomyelitis, both of which result in bone destruction and the formation of pus alongside new bone formation (Roberts and Manchester 1995). It is common to see cases of periostitis, in particular of the long bones, alongside osteitis and osteomyelitis used when

Fig. 6 Caries sicca, indicative of syphilis, in a 50-year old male from Viðey (Photo: Jónas Hallgrímsson)



discussing prevalence of infections in skeletal populations. However, unlike osteitis and osteomyelitis, which are always the result of an infective agent, periostitis can be caused by several other factors, for example, trauma or nutritional disease. A recent study by Weston (2008) of skeletons with a known cause of death, demonstrated that periostitis of the long bones was in no way diagnostic of the disease from which the individual suffered, and that it was not possible to distinguish cases of periostitis in those who had suffered from an infectious disease. In the study presented here, such non-specific cases of periostitis therefore are not included, in an attempt to avoid over-diagnosis.

Of the 37 adults within the Reykjavík cemeteries, there were nine (24 %) cases of infections, of which four (11 %) could be diagnosed as infectious diseases; three cases of tuberculosis and one case of syphilis (Gestsdóttir 2009). It is important to note that the five non-specific cases are all periostitis on the interior surface of the ribs, indicative of a lung infection, which, as demonstrated by Matos and Santos (2006), is most likely to be tuberculosis (an infectious disease); however, without further pathological changes it is not possible to exclude diseases such as pneumonia and bronchitis (infections). If one looks at earlier medieval sites in Iceland, for example Hofstaðir (pre-fourteenth century), where of the 51 adults there are three cases (6 %) of non-specific infections and no cases of infectious diseases (Gestsdóttir 2009) or Haffjarðarey (pre-1563), where there is one possible case of osteomyelitis (5 %) and no definitive cases of infectious disease (Gestsdóttir 2003).

What is important to keep in mind when interpreting such data is that we are looking at chronic diseases, that is, diseases that the individuals suffered from for a long time. This means that we are not necessarily looking at a “sicker” population in eighteenth- and nineteenth-century Reykjavík, as these people would have had to have a certain level of health (with good nutrition, for instance) to have lived long enough with the disease to manifest itself on the bone. Another factor that is important to keep in mind is the nature of the diseases, in the case of tuberculosis and syphilis. These are both urban diseases (Roberts and Manchester 1995). What this means is that for an infectious disease to become endemic in a population it is necessary for each infected person to infect at least one other person. How big and how dense the population needs to be for a disease to become endemic depends on how contagious it is. In the case of syphilis (a sexually transmitted disease) and tuberculosis (which remains contagious for a relatively short time), a dense urban population is necessary for the diseases to become endemic (Dobson and Carper

1996). In the population census carried out in 1703, the population of Reykjavík was 185 people (Óskarsson 2002a). By 1850, it was 1,149 (Óskarsson 2002b). In those 150 years, the population density had risen from 18 to over 100 people/km². In other words, the population had grown to a size and density large enough for these urban diseases to become endemic. For this to be possible, it is of course necessary for someone to bring the diseases into the population, and by 1870 the number of ships arriving in Reykjavík from abroad had quadrupled in number since 1792, from 11 to 43 (Óskarsson 2002b). So what the high prevalence of infectious diseases in the Reykjavík population is reflecting is not necessarily that they were in worse health than those who came before, but rather that during the period from which these burials date, there was rapid population increase in Reykjavík, and for the first time in Iceland's history there was a population dense enough for these urban diseases to become endemic.

The documentary sources support this interpretation. Between July 1894 and May 1895, a doctor in Reykjavík records 20 new cases of tuberculosis. Only six years previously, the then head of the directorate of health in Iceland, Schierback, had written a report where he states that it was doubtful whether tuberculosis could be found in Iceland. In addition to general bad health in Reykjavík due to a measles epidemic in 1882 and two influenza epidemics (1890 and 1894), poor conditions due to increased urbanization and an increase in contact outside the island are considered to be the main causes for the increase in the disease (Sigurðsson 1976).

Today, there are several ongoing projects that are using the curated Icelandic material, from historic cemeteries as well as older sites. It is therefore clear that although the research agendas and reporting of previous excavations may be criticized for being wanting, the future of historical osteoarchaeology in Iceland is bright.

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