2 Beneath the Surface

Disability in archaeological and osteobiographical contexts

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Introduction

Congenital, infectious, or traumatic pathologies diagnosed from human skeletal remains may at first sight be observed as splendid sources to investigate concepts, such as disability in the past. However, given the fact that disability is simultaneously a social construct, different between societies and even variable over time within each society, the task to determine such intangible information from skeletal remains may prove difficult or even impossible. Explicitly, although skeletal remains are certainly the keepers of human biographies, in regard to injuries, inborn or acquired impairments, traumata, food consumption, occupation, and many more, such data rarely includes information about their observations during life. Furthermore, neither impairments nor skeletal changes necessarily indicate disability and inversely individuals can become disabled without having observable impairments (Roberts 2000, Murphy 2000, Groves 2003, Battles 2011).

This approach to disability, in fact, has its roots in the post-humanistic discourse that seeks to focus on the ongoing and multifaceted encounters of nature and culture in the past as well as the present, whereas in humanism humans were observed as the main force behind social and cultural developments without the notice of natural mechanisms that simultaneously influence their observations and thoughts (Hayles 1999, Braidotti 2006, p. 197–208, Callus and Herbrechter 2013, p. 144–153). Accordingly, disability justifiably requires both the impaired body and specific social adherences in order to exist. However, even though the premise of post-humanism declares that disability is simultaneously a social and biological construct, a wide range of bodily impairments may more likely imply reduced quality of life but only in the context of what the social environment can offer. Therefore, rather than focusing solely on impairments in this chapter, the spotlight will concurrently be directed at the socially based opportunities of people living with severe impairments to improve the quality of their lives and how these factors may affect the potential process of becoming disabled. This chapter deals, thus, not only with the question of if and how physically disabling impairments appearing

in skeletal remains can be used to explore disability as a social construct in the past. It seeks moreover to consider the issue of whether impairing conditions may rather highlight the reduced possibility of people to live without being imprinted as disabled and the applied ways of adapting to the experienced situation.

The excavation of the monastic site of Skriðuklaustur, East Iceland, will be used for this study, wherefrom skeletal remains of five individuals will specifically be examined within the context of the advanced hospital that was run at this monastery which was established in 1494 and closed down due to the Reformation in the mid-16th century. The research intends to discuss both the social and medical treatment of individuals facing pathological conditions that sought care at this monastic site in question. They could have come there as patients either seeking medical treatment or salvation or even as outcasts searching for shelter from society. Grave context and the burial practises applied in the past can surely shed light on certain aspects of the broader society and all such information will be used here accordingly, besides other contextual data on the Icelandic late medieval society. Consequently, by considering the treatment of bodily impairments and the social circumstances of individuals facing potential disabling conditions from one site might provide further possibilities to examine evidence of disability in past societies in general.

The aim of the osteological analysis was to investigate each skeletal individual's overall health conditions and identify bone changes suggestive of physical impairments could potentially lead to socially disabling conditions. Previously published trace element and isotope results were used in combination with standard and specialised osteological methods to provide deeper context (Walser III *et al.* 2019, 2020a, 2020b, 2021). The osteological results were considered within the greater archaeological context and were informed by historical records and secondary data.

Impairments or disability?

Disability is socially and environmentally imposed, often occurring in combination with physical, cognitive, or sensory impairment, and illness. Knudson and Stojanowski (2008) states, furthermore, that bioarchaeologists have increasingly distinguished between *disease*, *impairment*, and *disability*, as disease is a temporary or permanent pathological condition while impairment is a physical or mental state that may result from a disease. Thus, disability refers on the other hand to the relationship between society and individuals with impairments. Moreover, overall health, social support, and access to treatment can significantly influence the extent of experienced disability. Not all individuals experience the same condition in the same way. For example, pain is tolerated at different values by every individual and is socially shaped by ethnicity, sex, age, overall health, and cultural factors. People also undergo “adaptation” and thus, what may

be experienced as a painful condition to one person may go unnoticed by another (Roberts 2000, Waldron 2007). Perception and acceptance of disability can also dramatically change over time within a society, such as occurred with tuberculosis, which was sometimes romanticised as a fashionable, creative impetus in the 17th century before it was redefined in the 19th century as an affliction of the poor and “inferior” resulting from bad behaviour (Roberts 2000).

Some secondary sources (e.g., art, written descriptions, and iconography) suggests marginalisation and mistreatment of the sick and disabled in some past populations, while other evidence suggests care and nondifferential treatment (Groves 2003, Bethard *et al.* 2017). There is iconographic evidence of the use of devices, such as crutches and artificial limbs to aid impaired individuals, but little physical evidence of these implements is preserved today. Neither treatment and care nor social acceptance are the same everywhere and although it can sometimes be seen that interpersonal care was required for survival it does not necessarily imply that an individual was socially accepted despite their disability (Stirland 1997). Class differences affected access to treatment, overall health and cultural acceptance and some scholars suggest that impaired and disabled people were often poor due to their occupational limitations and exclusion from certain social arenas (Roberts 2000). However, historical records and skeletal evidence clearly show that high-status individuals also experienced potentially disabling impairments, such as due to disease and congenital conditions (Roberts 2000, Groves 2003). They are also more likely to suffer from diseases of affluence and abundance, such as those resulting from alcoholism, obesity, and purine-rich diets (i.e., gout) (Roberts and Manchester 2010).

This being said, skeletal evidence of impairment does not directly reveal disability, regardless of the severity of bone changes, but may indicate that the individual faced decreased ability, function, or mobility for some period during their life (Bethard 2017). However, other scholars note that the extent of functional limitations associated with bodily impairments cannot be assumed because the same conditions are not necessarily experienced the same way between individuals or even populations (Kasnitz and Shuttleworth 2001, Roberts 2000). Additionally, an individual with an initially impairing condition may “adapt” and never face disability (Sugiyama 2004, Roberts 2000). Still, physical impairments, such as bone fractures, always have the potential to heal or vanish as well, especially with treatment (Waldron 2007). Additionally, many bodily impairments are only expressed in soft tissues, which are in fact rarely recovered from archaeological contexts. Disability, however, extends beyond skeletal and general bodily impairments to conditions that cannot be observed from physical remains (e.g., sensory, and psychological or cognitive impairments) (Jeffreys and Tait 2000, Zakrewski 2014). Thus, we cannot establish the frequency or prevalence of disability in archaeological populations

because we cannot directly observe disability based solely upon skeletal impairments (Roberts 1999, Cross 2007, Zakrewski 2014).

Furthermore, linking skeletal data to secondary data, such as written records, is often presumptuous and inaccurate as bone displays a limited range of reactive change to a markedly wide range of aetiologies that may all result in the same impairment (Roberts 1999, Mitchell 2011). Other complications arise from changing understandings of pathological conditions over time, the disappearance and emergence of some diseases, inadequate translations of historical records, and the presence of concurrent conditions (Mitchell 2011). In the archaeological context we must attempt to frame our perspectives on past disability without inferring causative values about past social perspectives based solely upon pathological lesions, irregular skeletal development, and other variations (Roberts 1999, 2000, Zakrewski 2014, Bethard 2017).

Skriðuklaustur

Skriðuklaustur monastery was established in 1494 on the farm of Skriða, located in the inland valley of Fljótisdalur in East Iceland. It was run according to the Rule of the Augustinian Order until the Reformation in the mid-16th century. During an excavation, undertaken on the monastic ruins in 2002–2012, a total of 298 graves were found buried in its cemetery. Burials provided important information about the inhabitants of the monastery and its aim, by proving that this was not solely the resting place for the resident canons. The burial context and skeletal findings demonstrated that in the monastery, a multitude of people lived and died – people who obviously sought aid there because they suffered from a wide range of afflictions, brought on by disease, injuries, health stress, and birth conditions. Furthermore, many of the patients who made their way to Skriðuklaustur had clearly been afflicted with severe, chronic illnesses. More than half of the skeletons excavated from its cemetery showed bone changes indicative of various diseases, revealing that the canons at Skriðuklaustur ran an advanced hospital serving people of both sexes, all ages, and social classes. Furthermore, both the artefacts and medicinal plants, found at the monastery point towards attempts to provide healing to their patients. Instruments, such as lancets, scalpels, and needles were among the finds, as well as evidence of non-native medicinal plants, growing at the monastery. Imported mercury was also used as a chemo-therapeutic treatment for healing various conditions, especially those causing skin lesions (Kristjánsdóttir 2012, p. 277–283, Kristjánsdóttir, Larsson and Åsen 2014, Walser III *et. al.* 2019, p. 48–61). Isotope ($\delta^{18}\text{O}$, $^{87}\text{Sr}/^{86}\text{Sr}$, $\delta^{13}\text{C}$, and $\delta^{34}\text{S}$) and trace element (Pb, Sr, Zn, Cd, Sb, Hg, As, and Ba) analyses conducted to investigate the geographic provenance of the people buried at Skriðuklaustur showed, furthermore, that they were locals, coming exclusively from the south-eastern quarter of the country. It is worth noting that in the vernacular land law of

that time, Jónsbók (Jónsson 2004, p. 141–149), the counties and relatives of those in need were obliged to take care of them. However, it seems clear that Skriðuklaustur offered, nevertheless, an additional option for the public in this manner, though this may have mostly been done in extremely severe cases, such as if people became outcasts, homeless or otherwise socially marginalised due to their impairments.

The cases from Skriðuklaustur

The cases from Skriðuklaustur chosen for this study are as follows: Metabolic insult, cleft premaxilla (lip) and maxilla (palate) (SKR 22), treponemal disease (syphilis) (SKR 23), Hydatid disease, tuberculosis, and mobility impairment (SKR 128), Traumatic injury and comorbidities (SKR 130), and Paget's disease of bone (SKR 174). The osteological summaries for the five cases discussed below are presented in [Table 2.1](#).

The individual identified as SKR 22 was an older teenager at time of death. While osteological methods cannot be accurately used to determine sex in human non-adults, the individual was identified as male through ancient DNA analysis. The occipital, frontal, and right parietal bones have concave, reactive cranial lesions, which could potentially have been caused by an infection, such as treponemal disease. However, the lesions do not bear the typical appearance of *caries sicca* and may instead originate from traumatic injuries or other pathological processes. Regardless, treponemal disease is an important differential diagnosis in this case, especially considering the individual's young age-at-death and other comorbidities. If the depressed cranial lesions resulted from traumatic injury, an accident, interpersonal violence or even child abuse could potentially be indicated. The right tibial tuberosity (upper part of shinbone) also had evidence of a healed traumatic injury, such as an incomplete fracture, which is the most common type of fracture affecting nonadults.

The individual also had a congenital cleft premaxilla (lip) and maxilla (palate), conditions only seen in a handful of cases in the Icelandic skeletal record (See [Fig. 2.1](#)). Congenital orofacial clefts or perforations, which often cause significant problems in eating, drinking, and speaking, result from defects occurring during embryological development of the maxillary, premaxillary, and palatal structures (Bhattacharya *et al.* 2009). Infants born with congenital cleft palate normally have difficulty breastfeeding and take longer than other children to start eating solid food (Müldner *et al.* 2009). Until the 19th century when the successful surgical correction of cleft lips and palates commenced, infants in the past would have required significant social care to survive, especially for the first year of the life when they require careful handfeeding to receive adequate nutrition (Bragg 1994, Bhattacharya *et al.* 2009). Bioarchaeological investigations of care in the past have indicated that people born with cleft palates did not necessarily always experience social marginalisation

Table 2.1 Osteological summaries for the five cases discussed in this research. Original data published in Kristjánsdóttir (2011, 2012), Kristjánsdóttir and Collins (2011) and Walser *et al.* (2019, 2020a, 2020b, 2021)

<i>Osteological summary</i>						
<i>Skeleton ID</i>	<i>Preservation</i>	<i>Completeness</i>	<i>Sex</i>	<i>Age</i>	<i>Stature</i>	<i>Pathology</i>
SKR 22	1	90%	Male ^a	15–17	~125 cm	Cleft maxilla and premaxilla. Treponemal disease. Linear enamel hypoplasia. Incomplete tibial fracture (right) resulting in secondary infection of the distal right femur and proximal tibia.
SKR 23	1	90%	Female	17–25	~154 cm	Cranial stellate scarring (caries sicca) on almost all cranial bones (especially on ectocranial vault). Gummatous lesions on long bones. Osteitis and anterior bowing of tibiae. Evidence of non-specific respiratory disease in the form of lytic lesions and new bone formation on multiple ribs.
SKR 128	2	90%	Female	45+	~154 cm	Spinal kyphosis (possible tuberculosis) from collapse of 2nd lumbar vertebra. Button osteomata (3) on frontal bone. X vertebral compressions fractures. Healing cranial lesion (circular, concave lesion with reactive new bone). Linear enamel hypoplasia.
SKR 130	2	90%	Male	26–35	~161 cm	Pronounced lingual wear on maxillary incisors and canines. Large (>7 mm Ø), externally draining mandibular (L PM1, PM2, M1) and maxillary (L M2, M3; R M3) periapical lesions. Nodular, lamellar bone formation throughout ribs (respiratory disease). Distal right femur (healed or unhealed) fractured. Tibiae, femora, parietals and frontals with gummatous lesions (treponemal disease). Tibia and femora with osteitis. Left clavicle with lytic lesion and bone destruction on sternal joint surface.
SKR 174	2	<50%	Male	45+	~166 cm	The scapula, skull, and long bones exhibit exaggerated expansion, porosity, osteitis, and new bone formation (Paget's disease of bone). Bilateral cribra orbitalia. Large (>7 mm Ø) external draining periapical lesion (R Max. M2). Right maxillary dentition with slight calculus and alveolar bone with slight resorption (periodontal disease). Degenerative joint disease and/or osteoarthritis on all observable joint surfaces.

Notes: Preservation was graded 0 (no modification) to 5+ (heavy erosion) according to Brickley and McKinley (2004).

^a Sex of SKR 22 revealed by aDNA analysis (unpublished results).

Figure 2.1 Left, inferior view of the cleft maxilla and premaxilla from SKR 22. Right, for comparison, is the inferior view of the maxilla of another individual (SKR 201) with palatal perforations resulting from an infectious process, such as from treponemal disease, rather than from congenital or developmental defects. © Joe W. Walser III, National Museum of Iceland.

and in some cases may have even been honoured, considering their survival into adulthood and the nondeviant burials they are typically recovered from (Curry, 2019). In the Icelandic narrative of *Þorgils skarða* from *Sturlunga saga* (13th–14th centuries), a man known as Þorgils skarði Böldvarsson is described as strong, trustworthy, and handsome despite his cleft lip, from which his name “skarði” originated (Bragg 1994). This description implies that at least some individuals with disfiguring or physically impairing conditions were revered in Icelandic society rather than socially marginalised.

The results of isotope analyses ($\delta^{18}\text{O}$, $^{87}\text{Sr}/^{86}\text{Sr}$, $\delta^{13}\text{C}$, and $\delta^{34}\text{S}$) show that he was born in Iceland and likely immigrated to Skriðuklaustur from somewhere within the south-eastern quarter of the country (Walser *et al.* 2020a). Perhaps his family took him to the monastery to seek aid or treatment in managing his health conditions, however, it cannot be ruled out that he managed to travel there on his own. Isotope results ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{34}\text{S}$) showed that he was the only analysed individual from the site ($n=31$) that consumed a wholly terrestrial diet, while the rest of the sample population had a diet dominated by mixed marine protein and terrestrial resources supplemented with freshwater fish (Walser *et al.* 2020a). He also faced a period of health stress, infection or malnutrition that was indicated by linear enamel hypoplasia on about half of his teeth. Considering the congenital orofacial clefts and the comorbidities of trauma and possible infectious disease, poor overall health and dietary restrictions may explain why he consumed a different diet than the other people residing at Skriðuklaustur. It is also possible that the previously mentioned period of health stress in childhood – indicated by linear enamel hypoplasia – is associated with poor nutrition resulting from eating difficulties caused by the orofacial clefts.

Treponemal disease (Probable Venereal Syphilis) (SKR 23)

The individual identified as SKR 23 was a young adult (ca. 17–25) at the time of death. Her skeletal remains show advanced bone changes consistent with treponemal disease (probable venereal syphilis), according to the criteria described by Hackett (1976) and Ortner (2003) (See [Fig. 2.2](#)). The skeleton exhibits gummatous and lytic lesions on the cranium (stellate scarring) and long bones, osteitis and bowing of lower leg bones (tibiae) and cribra orbitalia. At least nine individuals found at Skriðuklaustur had skeletal changes indicative of treponemal disease, specifically probable venereal syphilis, a sexually transmitted disease caused by a spirochete organism called *treponema pallidum* (Walser III *et al.* 2019). While the initial phases (primary and secondary) can cause pain, psychological impairment and disfiguring bodily changes, a latent stage void of these signs and symptoms that may last for years follows (Meyer *et al.* 2002, Crozatti *et al.* 2015). Advanced skeletal changes associated with venereal syphilis often do not appear until the tertiary stage, which could take as long as 10–30 years to emerge after the infection begins and can be fatal (Ortner 2003). Considering her young age at death, the extensive skeletal changes observable in the young adult female described here (SKR 23) indicate that she likely initially acquired the infection at a young age, perhaps as a teenager. The discovery of several individuals with late stage treponemal disease at Skriðuklaustur suggests that the disease spread to Iceland about the same time that the first

Figure 2.2 Cranium and tibia of young adult female individual (SKR 23) with bone changes suggestive of treponemal disease (probable venereal syphilis). © Joe W. Walser III, National Museum of Iceland.

known outbreak occurred throughout western Europe (ca. 1494–1495) (Kristjánsdóttir 2011, Walser III *et al.* 2019).

Venereal syphilis is caused by sexual contact or contact with syphilitic lesions or bodily fluids, or rarely, while using contaminated objects. It can also be acquired congenitally through transplacental infection *in utero* if the mother is infected (Meyer *et al.* 2002). At the time, it was believed that people contracted serious illnesses and impairments, such as venereal syphilis and blindness, due to divine punishment for sin or from bad air and blood (Meyer *et al.* 2002, Woolgar 2006). Venereal syphilis significantly impacted public health and living conditions across Europe, requiring society to renegotiate cultural behaviour in everyday life: Sanctions were placed on prostitution, religious devoutness was emphasised, and public baths were closed. The widespread use of wigs and gloves may have been used to conceal disfiguring syphilitic lesions, implying that people infected with syphilis faced social stigma and shame in Medieval society. These various cultural changes were thus conducive to the “prudeness” often associated with the Reformation (Meyer *et al.* 2002, Woolgar 2006).

In the past, mercury, which is highly toxic, was used to treat venereal syphilis and other medical conditions, especially those that cause dermatological lesions. Evidence for the use of mercury as a medicine has been discovered at archaeological hospitals and monasteries (Rasmussen *et al.* 2015). In a study by Tucker (2007), it was noted that skeletons displaying the most extensive bone changes are also the ones that had lower mercury concentrations, which may suggest that treatment with it reduced reactive bone changes. In the case described here, despite the advanced skeletal changes, she (SKR 23) presents with a low bone mercury concentration, within the normal range (Walser III *et al.* 2019, 2021.). On the other hand, it is also possible that she did not survive long enough to undergo treatment, refused treatment altogether, died shortly after treatment started, or died due to a comorbidity or even mercury poisoning, especially considering the non-standardised dosage that was used in the 16th century (Ioannou *et al.* 2016). Mercury poisoning can cause tooth and hair loss, severe dermal lesions and potentially irreversible psychological impairments and could not be treated in the past (Boyd *et al.* 2000, Crozatti *et al.* 2015). Other individuals with treponemal disease (SKR 201) had exceedingly high mercury concentrations, indicative of both medical treatment and potentially mercury poisoning resulting from it (Walser *et al.* 2019, Walser 2021). Thus, it is uncertain whether its use as a medicine resulted in harm or rather in healing, however, anecdotal evidence from 19th century Iceland claim that it successfully treated some cases of hydatid disease and venereal syphilis (Hjaltelin 1868, 2013).

Hydatid disease, tuberculosis, and mobility impairment (SKR 128)

The individual identified as SKR 128 was female, and she was an older adult (45+) at the time of death. The individual was infected with hydatid disease caused by a parasite known as *echinococcus granulosus*, which was

Figure 2.3 The individual (SKR 126) from Skriðuklaustur with possible comorbidities of hydatid and treponemal disease. The black arrow indicates the ossified hydatid cyst (© Steinunn Kristjánsdóttir, University of Iceland).

introduced to Iceland during the Settlement. The parasite has a life-cycle involving canids (e.g., dogs) and ungulates (e.g., sheep) as definitive, and intermediate hosts, respectively. In Iceland, the transmission was promoted by the practice of home butchering sheep and feeding their offal to farm dogs. It became endemic by the 13th century and was finally eradicated in the 19th century following extensive public outreach and education. At least 13 skeletons excavated from the cemetery at Skriðuklaustur presented with calcified hydatid cysts (See [Fig. 2.3](#), Kristjánsdóttir and Collins 2011, Walser *et al.* 2021). Hydatid infections can remain active for decades while the parasites reproduce and the condition causes shock, allergic reactions, increased bone fracture rates, pain, osteosclerosis, and other signs and symptoms. Cysts may take as long as a decade to grow substantially, do not always ossify and, even if ossified, are not always well preserved in archaeological contexts, indicating that the disease burden was probably higher than it appears from the skeletal record (Moro and Schantz 2009, Kristjánsdóttir and Collins 2011, Walser *et al.* 2021). The cysts can develop in the kidneys, lungs, liver, spleen, bones or central nervous, and may grow to a very large size over time, causing pain, vomiting or nausea, and becoming externally visible, which may potentially be disfiguring (Kosmidis *et al.* 2018).

The biceps brachiorum of the humeri (upper arms) showed pronounced enthesal attachment sites, skeletal markers that are often associated with physical activity and occupation. However, numerous studies have shown that increased enthesal robusticity is strongly correlated with increasing age (Henderson *et al.* 2013). Additionally, degenerative joint disease was observed on the wrists, collarbone, and joints of the rotator cuff (shoulder) and advanced osteoarthritis on the auricular surfaces (hip joints). Joint disorders at the sternoclavicular joint can cause substantial pain and limit the range of motion of the arm (Moravek and Wiater 2017). Considering

the degenerative changes to the joints of the upper body along with the pronounced enthesal attachments sites, heavy activity could possibly be implied. The severe fracture to the second lumbar vertebra, which obliterated the neural canal, caused a spinal cord injury that likely resulted in impairment of the lower body (Weiss 2013). Thus, it is possible that she used her upper body to compensate for limited function in the lower body. Such an injury is often severely or completely physically disabling without medical intervention. In light of her possible paralysis, we may postulate that she could not have travelled to Skriðuklaustur alone, unassisted, unless she went there seeking treatment for something else (i.e., hydatid disease and tuberculosis) and subsequently experienced the traumatic injury at the monastery.

The frontal and parietal bones presented with reactive lesions, indicative of infectious diseases, such as tuberculosis or treponemal disease, and other bone changes consistent with tuberculosis (See [Table 2.1](#), Ortner 2003). Tuberculosis in humans is caused by infection with *Mycobacterium tuberculosis*, or other species from the *Mycobacterium tuberculosis* complex, and primarily spreads between people through the airborne transmission of respiratory droplets, but can also occur through other exposure routes, such as through the consumption of infected material (e.g., contaminated dairy products) (Roberts and Buikstra 2008, Spekker *et al.* 2020). It is one of the most ancient diseases known to still affect the human population today and recent evidence shows that it was common in the past, even reaching endemic levels in some regions (Zakrzewski 2014, Spekker *et al.* 2020). Cases of tuberculosis have been observed in the skeletal record from sites occupied as early as the tenth century and may have already become endemic in Iceland by that time (Collins 2019). It remains to be a common disease of poverty today, killing more people every year than any other infectious disease, with nearly a quarter of the world population concurrently affected (Houben and Dodd 2016). Both in the present and the past, tuberculosis has overwhelmingly afflicted the socially marginalised, homeless, and the lower socio-economic class as they tend to face more pathogen exposure due to poor and overcrowded living conditions that generally expose them to immune compromising factors (Zakrzewski 2014). Tuberculosis is debilitating in terms of pain, psychological condition (e.g., headaches and mental changes associated with meningitis), mobility and bodily function (e.g., impairment of the liver and kidneys), and though it can spontaneously resolve in some cases, it is often fatal without treatment (Dye *et al.* 2009).

Traumatic injury and comorbidities (SKR 130)

The individual known as SKR 130 was male and he was a middle-aged adult at the time of death. He presented bone changes throughout the skeleton that are indicative of treponemal disease (probable venereal syphilis) according to the criteria described by Hackett (1976) and Ortner (2003). The

remains display *caries sicca* on the cranium as well as gummatous lesions and osteitis (bone swelling) on the leg bones (See [Table 2.1](#) and [Fig. 2.3](#), for example), suggesting that he had venereal syphilis. He also had an elevated bone mercury concentration, indicating that he may have received medicinal treatment with it at the monastery, most likely due to his illnesses (Walser III *et al.* 2019).

Of particular note, however, is the severe fracture to the distal half of the right femur. Femoral fractures primarily occur due to high force impacts, such as may occur during car accidents today, and thus were not very common in the past. Such fractures may have occurred more frequently among older individuals, especially those with advanced osteoporosis or otherwise weakened skeletal systems. Bones become more prone to fracture with increasing age, but other factors, such as pathological processes (e.g., destructive activity from treponemal disease), biomechanical stress, and disorders of the bone metabolism may also increase risks (Malcuk *et al.* 2016, Cooper *et al.* 2019). Roberts (2000) notes that individuals exhibiting healed fractures without apposition implies that they received treatment in the form of splinting and limb or bone realignment. The fracture that this individual suffered from healed remarkably well despite the malalignment that shortened the overall length of the leg, which would have resulted in the permanent alteration of the individual's gait and mobility. However, the fracture healed well, and no secondary infection was noted in association with this severe fracture, which indicates that the individual received medical care and assistance for a considerable period of time following the injury until he was able to walk again (e.g., at least 4–12 months). This implies that he may have experienced a temporary period of physical disability, but the question still remains as to whether the individual faced social disability or long-term physical impairment following the healing of the fracture.

Paget's disease of bone (SKR 174)

The male individual identified as SKR 174 was an older adult (45+) at the time of death. Though the skeleton was incomplete, the recovered skeletal remains had pathological changes indicative of Paget's disease of bone (see e.g., Bhargava and Maki 2010, Whyte 2006), a rare condition influenced by environmental and hereditary factors (See [Table 2.1](#)). Clinical research has shown that individuals with Paget's disease of bone involving the tibiae, femora, or acetabular portion of the ilium, such as in the case described here, are statistically likely to experience mobility and functional impairments that may lead to disability (Lyles *et al.* 1995). Initially the condition is usually asymptomatic, but various signs, symptoms, and complications can occur during the clinical course, such as increased bone fracture rate, osteoarthritis, bone pain, arthropathies, achiness, osteosarcomas, spinal compression or ischemia, muscular atrophy, sensory impairment (e.g., hearing loss), and neurological problems (e.g., headaches/migraines and dementia)

(Monsell 2004, Whyte 2006, Kimonis *et al.* 2008). Archaeological cases of Paget's disease of bone often reveal secondary complications, including osteosarcomas, deformity, fractures, and joint disease or osteoarthritis (Mays 2010).

Considering the low $^{87}\text{Sr}/^{86}\text{Sr}$ value (0.7062) determined from a dental enamel sample, he likely had an inland childhood residence (Walser III *et al.* 2020a). Thus, at some point after childhood he went to Skriðuklaustur, possibly for treatment and/or hospice. The evidence of degenerative joint disease noted on all preserved joint surfaces in the skeleton is likely associated with the individual's advanced age, however, it may have also originated as a secondary complication to the long bone changes arising from Paget's disease of bone. The combination of Pagetic bone changes and degenerative joint disease are likely to have caused notable mobility and functional impairment, which may have been socially disabling. Considering the challenging climate and topography of Iceland, he may have required substantial assistance from other people to have successfully made the journey to Skriðuklaustur.

Conclusion

In this chapter, the notions of disability in the past have been challenged by emphasising that disabling conditions are always based on the constant entanglement of nature and culture. Nonetheless, such conditions seen in skeletal remains often indicate reduced quality of life for the affected individual, rather than explicitly implicating social disability. All the individuals referred to had severe impairments to deal with during their lives. Some may have been capable of travel to Skriðuklaustur on their own, such as SKR 22, SKR 23, and SKR 174, while SKR 128 and SKR 130 may have not unless their serious impairments only occurred after arrival there. SKR 22 had difficulties with gaining adequate nutrition but had nonetheless survived childhood. He would have required substantial care from his relatives in early childhood, but the aid he gained from the brethren at Skriðuklaustur may have been essential for his survival into his late teenage years. The journey to Skriðuklaustur would have been vastly demanding, requiring assistance, for people suffering from certain conditions, such as paralysis or walking issues caused by limb-length discrepancy (pathologically shortened leg). These journeys would have been especially challenging for those suffering from psychological impairments or illnesses, as may have resulted from some the conditions described in this chapter.

Although evidence of bodily impairment can be detected from skeletal remains, simultaneously indicating conditions that may lead to potential social disability, these identifications may rather provide evidence about medical treatment or care that could improve the quality of their lives in the past. Thus, in this way, while these identifications may answer little about social attitudes and past perspectives on disability, they do nonetheless

provide indications about life experience and the possible functional limitations these individuals may have faced. In historical overviews, it has on the other hand been underlined that the monastic houses in Iceland did not take care of the sick and poor, since the common people, such as the relatives the sick and invalid, were meant to fulfil these tasks (Guttormsson 2000, p. 101).

The cases from Skriðuklaustur show at least that people had some reason to seek medical care there instead of staying at their relative's residency. The question here is if this was done in the hope for renewed life. All things considered, skeletal data offers clear and useful indications about the care provided to the people that sought treatment at Skriðuklaustur, yet we still cannot explicitly untangle the social perspectives people held about functionally impaired people in the past. It is plausible that they received treatment because they were seen as valued members of society – not in any sense as disabled – that made important contributions to it through renegotiated social roles or occupations. It is though still necessary to consider their presence there as if the monastery was obligated to provide such assistance to the public by the religious mandates of monasticism. Thus, disability lies beneath the surface, in between the lines of impairment and temporal social perspectives.

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