

Thorir's bargain: gender, *vaðmál* and the law

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Abstract

Archaeological textiles from Iceland have not been objects of significant analyzes until recently, yet they provide important new data on the use of cloth in legal transactions. Medieval Icelandic law codes and narrative sources include regulations governing the production of 'legal cloth' – *vaðmál* – and its uses for paying tithes and taxes, for economic transactions and in legal judgments. Archaeological data provide new insights on its production, the extent to which these laws were followed, and how ubiquitously Iceland's 'legal' cloth was produced. This paper compares documentary sources and archaeological data to document intensive standardization in cloth production across Iceland from the eleventh to the late sixteenth centuries. The role of women as weavers is critical, as it is they who oversaw production and ensured that regulations were respected and as a result they may have been bestowed with more power than previously anticipated.

Keywords

Icelandic medieval textiles; *vaðmál*; cloth currency; cloth as currency and the law; gender and cloth.

Introduction

Late in the tenth century, according to the thirteenth century *Ljósvetninga Saga*, a Norwegian merchant named Helgi struck a bargain with an Icelandic farmer named Thorir Akraskegg in northern Iceland's Eyjafjörður district. Thorir agreed to purchase goods from the merchant with woven cloaks, which he brought to the ship as payment; but in Helgi's haste to depart they were not immediately examined. At sea, Helgi examined the cloaks and found they were full of holes, upon which he exclaimed, 'This is a great fraud, and it's going to turn out badly for him' (Andersson and Miller 1989, 170). Thorir – a troublesome individual – was ultimately outlawed for his bad bargain.

Helgi's accusation and its consequences in this story reflect the fact that medieval Icelandic laws closely governed and protected transactions in cloth. From its settlement (AD 870–930) until the late thirteenth century, Iceland's powerful chieftains held much of the island's wealth and controlled its distribution, yet, as silver supplies dwindled after the Viking Age, cloth became Iceland's dominant currency (Gelsinger 1981). Legal standards and exchange values for cloth currency were established after the Althing or National Assembly was founded in AD 930. This assembly established laws (codified in writing after AD 1117) governing relationships between chieftains and their followers, the organization of the legal system itself, methods of punishment and retribution and standards for economic, social, ritual and personal conduct. Within this system cloth was used for all legal transactions, to pay tithes and taxes or settle fines, for internal trade and for export as well as for home consumption (clothing, tents, sails and farm items, etc.) (Gelsinger 1981; Hayeur Smith 2012a, 2013; Ingstad 1982; Þórlaksson 1991). Standards for the production and trade of cloth were legally defined in successive medieval law codes, *Grágás* (1117–271: Dennis, Foote and Perkins 1980, 2002), *Járnsíða* (1271–281), *Jónsbók* (after 1281) and *Búalög* (twelfth to nineteenth century). To be used legally as currency, cloth had to be woven in a particular manner, to specific lengths and widths, as evaluated by regional authorities.

The Old Norse and medieval Icelandic term *vaðmal*, found throughout these legal texts and as a unit of valuation into the seventeenth century – in documents ranging from sales accounts to inventories and registers of farms (e.g. Lárusson 1967) – integrates the Old Norse root words 'váoð' (stuff/cloth) and 'mál' (a measure) to mean 'cloth measured to a standard' (Cleasby, Vigfússon and Craigie 1957, 673, 683). As these standards were established and regulated in law (see below), I use the terms 'legal cloth' and *vaðmal* synonymously to reference its legally regulated production and circulation for use as a currency. In this regard, it is important to realize that the Icelandic primary sources and law codes (e.g. *Grágás*: Dennis, Foote and Perkins, 1980, 2002; *Járnsíða*: Bernharðsson, Magnússon and Jónsson 2005; *Jónsbók*: Jónsson 2004) make it equally clear that *vaðmal* was not defined by its function and not a product intended for specialized uses. Rather, it was both a currency within Iceland and a commodity used for a number of different functions, within Iceland and beyond.

In continental Scandinavia and other parts of northern Europe, the term *vaðmal* appears to represent a less specific range of legally defined cloth types than in Iceland and in some areas may have encompassed tabby weaves as well. Hoffman (1974) suggests that the definition varied according to region, in places referring simply to twills and coarse homespun tabbies, while Gelsinger (1981, 253–4) notes that in Germany and around the southern Baltic region the term *watmal* was synonymous with rough cloth used for the poor, regardless of its formal definition in Iceland. Despite these different uses of the term outside Iceland, *vaðmal* as used in this article refers only to the Icelandic context.

Written sources regarding cloth in a legal context in Iceland have been studied by Helgi Þórlaksson (1988, 1991) and Marta Hoffman (1974). However, archaeological textile collections, the material evidence of this legal product, remained virtually untouched until recently. The late Else Guðjonsson focused the majority of her work on embroideries, tapestries, ethnographic items of clothing and fine textiles from Iceland's past (Guðjonsson 1965, 1970, 1973, 1988a, 1988b, 1992, 1994). Discarded cloth fragments from the middens of Norse farms remained largely untouched, although specific fragments were analyzed by Guðjonsson (1962), Marta Hoffman (1974) carried out some analyzes on textiles from the sites of Bergþórshvöll,

Snaehvammur and Reykjasel, and Walton Rogers reported on the textiles from the site of Reykholt (Sveinbjarnardóttir 2012).

This paper examines archaeological data to supplement issues unresolved through historical research – in particular when cloth currency first appeared, how it fit within the range of cloth production in Iceland, whether it was produced ubiquitously across Iceland or as a specialized product, how standardized it was and whether it was more important as a legal construct or actually structured the economics of cloth production itself. A further consideration is the role of women in this cloth production.

In Iceland, cloth currency, or *vaðmál*, was a woollen 2/2 twill of regulated length, width and fineness – measured by the number of threads per ell in its warp and weft systems. Medieval sources suggest that all aspects of Icelandic and Scandinavian cloth production were undertaken by women who collected the wool, processed it, spun it with drop- or high-top whorls and wove it on warp-weighted looms (Andersson Strand 2012; Bek Pedersen 2007, 2009; Bender Jørgensen 1992; Hoffman 1974; Robertsottir 2008;). From this perspective, it has been inferred that the forms of cloth used as legal currency in Iceland were woven on all farms, rather than being a commodity whose production was monopolized by the elite. This implies either that legal controls over cloth production regulated women's work or that women, though legally disenfranchised in political decision-making, were directly engaged in establishing the production standards for the currency upon which Icelandic society and its legal system operated.

Legal cloth: definitions and parameters according to medieval legal sources

The medieval Icelandic sagas known jointly as the Icelandic Family Sagas (*Íslendingasögur*) primarily describe life in the earliest years (AD 870–1050) of Iceland's settlement, but were written 200–300 years later (Smith 1995), raising questions about their utility for reconstructing the finer details of economic or political structures in earlier periods. Law codes that regulated cloth, however, are extremely useful sources for the periods when each law code was in use. The earliest regulations addressing cloth currency are found in the law code *Grágás*, the oldest portions of which were written in AD 1117 and which remained in Icelandic law until 1271 (Dennis, Foote and Perkins 1980, 2002).

According to *Grágás*, *vaðmál* two ells in width (1 legal ell = 49.2cm) and six ells in length was considered legal currency. This unit, the *eyrir* (pl. *aurar*) – equivalent to one ounce of silver – became the basic unit of measurement for all types of exchange in Iceland (Dennis, Foote and Perkins 1980, 2002).

Changes in the lengths and widths required for *vaðmal* as legal currency are recorded through time in successive law codes and other narratives (ibid.). For example, *Búalög* stipulates that *vaðmál* was to be woven in panels three and one-half ells in width – roughly one and one-half metres (Østergård 2004). The ell also changed in length over time: around 1100 the long ell was set at 56cm, replacing an earlier 46cm ell, and was eventually replaced by a 49.2cm ell (Dennis, Foote, and Perkins 1980; Gelsing 1981). Gelsing (1981) has used these changes to infer periods of inflation and economic stress in Iceland, but also argued that some of these fluctuations were the results of trade with the British Isles (Hayeur Smith in press). English demand for Icelandic cloth grew after changes in the woollen industry allowed the English to sell most of their own fine cloth abroad and Gelsing (1981) notes that fluctuations in the Icelandic ell

directly mirrored changes in the legal length of the English ell, suggesting close trade links between these countries.

Ensuring the quality and standardization of woven cloth was critical for its use as currency. *Grágás* describes methods for evaluating legal cloth on a twenty-ell piece:

A new law. Homespun shall not be so slack at the selvage that it makes a difference of more than one ell in a twenty-ell piece. If the difference is greater, it is to be measured along the middle. Homespun is to be double the forearm broad and it is lawfully offered if the breadth amounts to that, measured with fingers extended and it is of good quality. The parties to a deal shall take two lawful viewers to view trade goods offered as payment should it be slack in the selvage or narrow.

(Dennis, Foote and Perkins 2002, 350)

The twenty-ell unit is mentioned in another passage of *Grágás* under the heading 'lawful measures', which describes using the '*stika*' to measure legal cloth. This was a measuring tool one-tenth of the twenty ell in length marked on the wall of the church at Þingvöllum, where the Althing met, around AD 1200. Both this twenty-ell mark on the church wall at the national assembly and the individual *stikur* were materialized legal mechanisms to standardize units of cloth measure (Gelsinger 1981; Dennis, Foote and Perkins 2002). Although women could presumably weave *vaðmál* in various lengths, the laws regulating measurement and quality underscore the significance of standardization in legal and commercial transactions.

As Thorir's case – outlined at the start of this paper – exemplifies, penalties existed for those who produced inadequate *vaðmál*, attempted to cheat by trading in false ells or skimmed in the quality of the cloth traded. Helgi was legally entitled to prosecute Thorir and in the final result Thorir was outlawed for his deception (Andersson and Miller 1989).

Information on the quality required of cloth to be legally traded is less clearly specified in medieval sources, yet regulations apparently existed for widths, warp thread counts, cloth weight and the prices of specific types of cloth that were termed *gjaldavoð* (*vaðmál* suitable for legal payments), *klæðavoð* (cloth for clothing), *vöruvoð* (marketable cloth or common *vaðmál*) and *smávoð* (finer quality cloth). Although Hoffman (1974) felt these guidelines were frequently inconsistent, she concluded that legal cloth had four to fourteen warp threads per centimetre. Þorláksson (1991) identified legal guidelines from circa AD 1300 and AD 1613–1640, stating that *gjaldavoð* was to have nine to ten warp threads per centimetre, *klæðavoð* eleven warp threads per centimetre and *smávoð* eleven to fourteen warp threads per centimetre (Þorláksson 1991). The finest of these, *smávoð* and *þragðarvoð*, had the highest thread counts and, although never used in domestic trade, could be used to pay tithes to the church (Østergård 2004).

Many regulations covered the technicalities of trading cloth, what it was worth relative to silver and other goods and the circumstances in which exchanges were appropriate. *Vaðmál*'s value was based on weights of silver or gold, media of exchange that became scarce in Iceland after Viking raids ceased and population increased (Gelsinger 1981). Livestock were also used as standards of value in medieval Iceland, as in mainland Scandinavia (Gullbeck 2011; Skre 2011), but unlike cloth they were inconvenient to transport over long distances. Medieval Scandinavia and Iceland thus had what Gullbeck (2011) and Skre (2011) define as a 'commodity

money system’ – a form of commodity exchange based on stable exchange rates for the value of different goods relative to other products (Skre 2011).

Tracing such exchange systems archaeologically can be difficult due to poor preservation of organic materials in the archaeological record (Gullbeck 2011) and their transformation into other products before discard (Skre 2011). In Iceland, for example, most of the cloth collected from midden deposits shows evidence of stitching, re-patching and wear, although it may indeed have been used as currency before being ‘consumed’ as clothing, sails or other items.

Archaeological evidence for the production and use of legal cloth

Iceland’s archaeological textile collections are abundant and preserved in deep deposits at many farm sites where midden layers representing accumulations of household waste alternate with dense blankets of silt and clay from the demolition of turf-walled structures. Over the course of a century, excavations have yielded a substantial corpus of textiles, with estimates of the total number ranging between 4,000 and 6,000 fragments. These figures include finds from sites not yet fully analyzed, and are very likely conservative approximations. The known material incorporates fragments from sites of different ages, scales, socio-economic ranks and functions across Iceland, which form a relatively representative cross-section of contexts within which cloth would have been made, used and discarded.

Few textiles had been researched before 2010 when I began analyzing these collections with funding from the US National Science Foundation to gain information on women’s roles within Icelandic society and economy. Very few of these textile fragments represent elaborate items used in ecclesiastic rituals or elements of fine attire for the wealthy. Most examples are derived from thirty-one sites which have produced a small number of fragments and mineralized textiles from the Viking Age, rather more medieval textiles – although with notably few pieces from the twelfth and thirteenth centuries, and particularly abundant assemblages from the post-medieval and early modern periods (Fig. 1 and Table 1).

Assemblages were examined at the National Museum of Iceland in 2010–12. Data were systematically collected on fibre types, thread counts, spin direction and tension, weave structure, wear, surface treatment and evidence of use as textile objects. Many pieces were sub-sampled for AMS dating, dye analysis and fibre identification. The sites examined include large, medium and small farm sites representing different ranks in the Icelandic socio-political and economic hierarchies, ecclesiastic sites and two harbour sites.

In total, approximately 4,558 textile fragments have been examined thus far. These provide a detailed picture of the development of medieval Icelandic textile industries, anchored by a suite of twenty direct AMS dates on context-controlled textile fragments from eight of the sites (see Fig. 6 below) and, on a site-by-site basis, other chronological indicators including tephra (volcanic ash horizons) and temporally diagnostic objects.

Icelandic archaeological textiles: identifying ‘legal cloth’ or *Vaðmál*

The most important assemblages of medieval (*c.* AD 900–1500) textiles come from the farm sites of Kúabot, Reykjavík (Alþingisreitir) and Bessastaðir, as well as the northern harbour

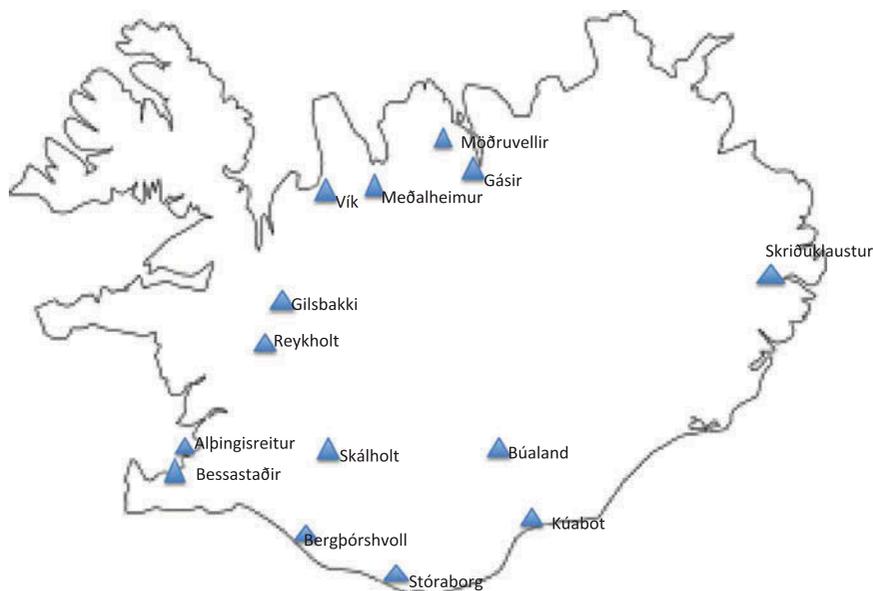


Figure 1 Map of Iceland showing medieval and post-medieval sites that have figured in this project. Viking Age sites are scattered across the country but are not shown here.

site of Gásir and an adjacent elite site, Möðruvellir, that may have had an oversight role for the harbour (Harrison, Roberts and Adderley 2008). Textile assemblages from these sites include woollen tabbies, twills of varying structure and density, felts and processed wool.

Identifying *legal cloth* within these assemblages presented a critical first step for assessing its ubiquity, origins and trajectory. Icelandic historical documents and post-medieval textile collections indicate that Icelandic *vaðmál* was a 2/2 twill, but, while these sources describe the length and breadth of complete panels of *vaðmál* (Gelsinger 1981; Hoffman 1974; Þórlaksson 1991), archaeological specimens are inevitably fragmentary. Yet one would expect some degree of standardization in cloth used as a legally regulated form of currency, in order for buyers and sellers to assess the suitability of goods provided in exchanges. Thus, the identification of *vaðmál* in the archaeological record also entails an assessment of changes through time in the standardization of weaving, expressed as a reduction in range of variability of basic features of cloth, especially its warp and weft counts and surface finishes.

Several varieties of twill dominate medieval Icelandic archaeological textile collections, and within these the 2/2 twills can be divided into four categories: type 1 is a basic 2/2 twill without any surface treatment; type 2 is fulled on one side; type 3 is fulled on both sides and possibly teasled and sheared; and type 4 or *pakkavaðmál* (also referred to as *Fletjuvefnaður*) is a coarse packing material with very low thread counts. Type 1 dominates the medieval assemblages, accounting for 45–88 per cent of twills at the five sites with the largest medieval collections, and 61 per cent of all medieval textiles. Type 2, accounts for just 21 per cent in the medieval corpus, while type 3 (which may be imported or speciality products, since teasling, and shearing are the work of specialized craftsmen (Walton Rogers 2012) represent just 11 per cent. *Pakkavaðmál* and indeterminate items account for the remaining 7 per cent.

Table 1 List of all sites that have featured in this project with numbers of textiles. Viking Age numbers include both mineralized and non-mineralized textiles

Site Name	Site type	Region	Periods	No. of fragments
Snæhvammur	Burial	Múlasýsla (S)	Viking Age	1
Reykjasel	Burial	Múlasýsla (N)	Viking Age	11
Ketilstaðir	Burial	Múlasýsla (N)	Viking Age	2
Dalvík Brimnes	Burial	Eyjaíjarðarsýsla	Viking Age	5
Granagil	Burial	Skaftafellssýsla (W)	Viking Age	8
Þórisá, Eyrartigur	Burial	Múlasýsla (S)	Viking Age	4
Selfos	Burial	Árnessýsla	Viking Age	2
Gamla Berjanes	Burial	Rangárvallasýsla	Viking Age	1
Kaldarhöfði	Burial	Árnessýsla	Viking Age	9
Syðri Hofdalir	Burial	Skagafjarðarsýsla	Viking Age	1
Silastaðir	Burial	Eyjaíjarðarsýsla	Viking Age	1
Berufjórður	Burial	Barðastrandarsýsla	Viking Age	1
Austarihöll	Burial	Skagafjarðarsýsla	Viking Age	1
Glumbær	Burial	Þingeyjarsýsla (S)	Viking Age	1
Hrísar	Presumed burial	Eyjaíjarðarsýsla	Viking Age	2
Kalastaðir	Burial	Árnessýsla	Viking Age	1
Skogar í Flokadal	Burial	Þingeyjarsýsla (S)	Viking Age	1
Daðastaðir	Burial	Þingeyjarsýsla (N)	Viking Age	1
Heynes	Farm site	Borgarfjarðarsýsla	Viking Age	1
Bessastaðir	Elite residence	Gullbringusýsla	Viking Age-1900	102
Meðalheimur	Small farm	Skagafjörðursýsla (N)	1300-1700	50
Gásir	Harbour	Eyjaíjarðarsýsla (N)	1200-1500	79
Möðruvellir	Elite residence, monastery	Eyjaíjarðarsýsla (N)	1450(?) -1850	103
Kúabot	Mid-ranked farm	Skaftafellssýsla (W)	1400-1500	6
Bergþórsvöll	Mid-ranked farm	Rangárvallasýsla (S)	1350-1900	169
Stóraborg	Mid-ranked farm	Rangárvallasýsla (S)	1200-1900	754-1000
Alþingisreitir	Harbour site	Reykjavík (SW)	Viking Period-1600	161
Skriðuklaustur	Monastery	Mýlasýsla (N)	1400-1500	2
Reykholt	Elite residence	Borgarfjarðarsýsla	1050-1900	705
Vík	Mid ranked farm	Skagafjörðursýsla	1300-1500	1
Gilsbakki	Elite residence	Mýrasýsla	1450-1900	124
Skálholt	Elite residence	Árnessýsla	1600-1900	2000
Búaland	Burial	Skaftafellssýsla	1780	2

Thread counts reflecting the quality of textiles are useful archaeologically for tracking changes in textile production strategies, assemblage variability, cloth standardization, industrialization and more (Hayeur Smith 2012a). They may also be important attributes for identifying legally sanctioned cloth. At Gásir and Möðruvellir – two sites with clear links to mercantile trade – the textile assemblages are dominated by Type 1 2/2 twills with tightly constrained, overlapping thread count distributions: six to twelve threads/cm on the warp and four to eight threads/cm on the weft (Fig. 2). Given the role of these sites in commercial activity and tithe/tribute consolidation, legal cloth currency would be expected to dominate their assemblages. I argue that the thread count boundaries at these sites provide contextually reasonable *archaeological* signatures for *vaðmál*, and although these signatures are generated independently of medieval historical sources, they are consistent with Hoffman's (1974) and Þórláksson's (1991) information on *vaðmál* thread counts, based on later medieval and post-medieval texts.

Gásir and Möðruvellir

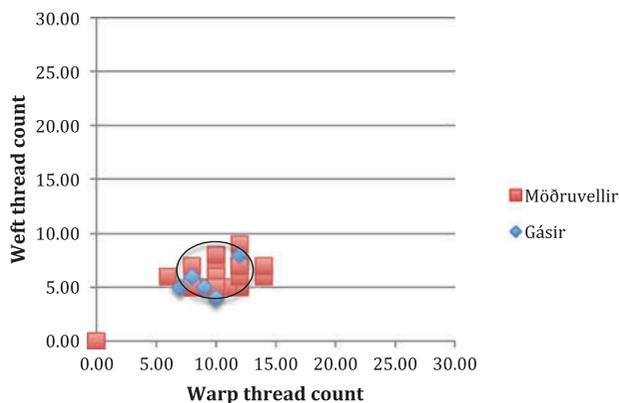


Figure 2 Thread counts on Type 1 2/2 twill cloth from the adjacent commercial and elite sites of Gásir (n = 79) and Möðruvellir (n = 103), Iceland, with the oval identifying the zone of overlap for *vaðmál*.

How ubiquitous and significant was *vaðmál* production in medieval Iceland? At every medieval site analyzed, 2/2 twills outnumbered all other textiles and the vast majority of these mirrored the narrow thread count distributions recorded at Gásir and Möðruvellir (Fig. 2). The constrained nature of these distributions is especially evident when compared to textile assemblages from earlier Viking Age sites, where thread counts ranged from six to twenty-five warp threads per centimetre. Similarly, later post-medieval assemblages (Fig. 3) regularly exhibit a broader range of thread counts (four to twenty-four warp and weft threads per centimetre). These broader ranges in thread counts from assemblages both pre-dating and post-dating the medieval period are what ought to be expected of production for domestic/

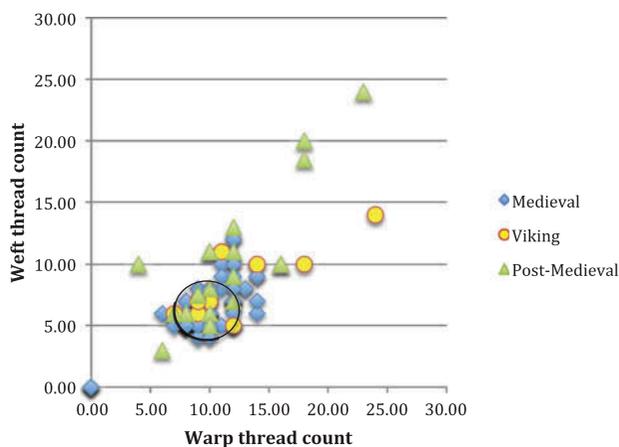


Figure 3 Medieval thread count distributions for 2/2 twill textiles compared with earlier Viking Age (n = 54) and later post-medieval assemblages (approx. n = 3,056). While the vast majority of medieval twills represent standardized *vaðmál* production, both earlier and later periods' textile assemblages include a wider range of textile types representing the production of cloth for varied uses in domestic contexts.

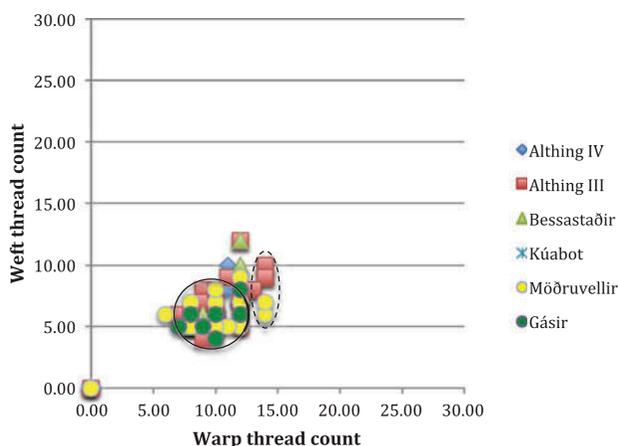


Figure 4 Thread counts from five medieval Icelandic sites: Althingisreitur phases III and IV only (n = 60) representing sequential phases in excavations within downtown Reykjavik, Bessastaðir (n = 102), Kúabot (n = 6), Möðruvellir (n = 103), Gásir (n = 79). The solid line encloses textiles matching the signature for *vaðmál*, while the dashed oval identifies a second grouping of textiles with fourteen threads/cm on the warp representing *smávöð*, finer textiles accepted for paying tithes but not for use as general currency.

household use, where the range signals the production and consumption of a diverse assemblage of cloth, including coarser and finer textiles employed in a similarly broad range of uses. By contrast, medieval textile production appears to have been remarkably constrained and standardized (Fig. 4).

Standardization is a key factor in the emergence of any currency beyond the barter system, providing a ‘universal yardstick’ by which to evaluate objects (Mauer 2006), while currency itself comes to symbolize and measure the social value of other objects (Harris 1995; Saul 2004). Standardization in Scandinavia, as elsewhere, emerged with higher volumes of inter-regional trade (Skre 2011). Thus, in Iceland, the reduction of variability in the range of textile types found on sites across the island during the medieval period and the marked standardization seen in their production at this time strongly suggests a significant shift in household production strategies to near-industrial levels of cottage industry focused on the production of legal/trade cloth. In essence, it appears that during the medieval period Icelandic women were weaving money in abundance.

The directions in which warp and weft threads were spun on legal cloth are similarly consistent within assemblages of medieval legal cloth. The terms z-spin and s-spin respectively refer to whether yarn was spun clockwise or counter-clockwise. Spin direction is technologically neutral – either direction produces usable yarn – yet choices to spin one way or the other often remain constant across large geographic regions. These decisions have been regarded by some (e.g. Minar 2001) as cultural markers passed from experienced to inexperienced cloth makers across generations.

As in Iceland, early Viking Age cloth from Norway was generally spun z/z (Bender Jørgensen 1992), though at some point in the tenth century z/s appears in Iceland alongside z/z textiles. By the eleventh/twelfth century z/s became the dominant spin direction for all cloth including that defined above as *vaðmál*. This technological shift obliterated all earlier spin traditions and persisted until the early modern period (Fig. 5).



Figure 5 Changes through the medieval period in the frequencies of different spin direction combinations in Icelandic textiles. Diversity in spin direction characterizes the first centuries of Icelandic textile production, to be replaced in the eleventh–twelfth centuries by a nearly exclusive focus on z/s combinations.

It is possible that the shift from z/z to z/s reflects the spinning traditions of women who came to Iceland from regions other than Scandinavia. DNA profiles suggest that many women in Iceland's founding population came from the British Isles (Helgason et al. 2001), where z/s spun cloth was more common particularly in mainland Britain and outside the Norse settlement areas where textiles are the same as those in Norway and spun z/z (Bender Jørgensen 1984, 1992, 2003). A more parsimonious explanation may be that the z/s spin direction had become the standard for cloth production in much of Europe, especially in the urban centres of the British Isles (Bender Jørgensen 1989, 1992, 2003). Icelandic women weaving *vaðmál* may, therefore, have shifted their spinning techniques to produce a product that met commercial standards in overseas ports, just as Icelandic chieftains adopted the English ell to be Iceland's standard for measuring cloth (Hayeur Smith in press).

The adoption of uniform thread count ranges and spin directions at sites across Iceland suggests levels of standardization similar to those apparent in other monetary systems (Gullbeck 2011; Maurer 2006), while the dominance of *vaðmál* in medieval textile assemblages from the full range of site types of this period implies that its production was decentralized and household-based. The obvious question arises: at which point in Icelandic history did cloth currency become so standardized that nearly all other types of weave disappeared?

Hoffman (1974), Þórlaksson (1991; pers. comm., February 2012), Skre (2011), and Gullbeck (2011) suggested that cloth was used as currency in Viking Age Scandinavia, but others (Jochens 1995) have argued on the basis of literary and legal inferences that its use intensified in Iceland during the twelfth century.

Dating this transition archaeologically is complicated by the limited number of excavated Icelandic sites with organic preservation from the period AD 1050–1200. Nevertheless, direct AMS dates on *vaðmál* from the sites described here suggest a clear temporal sequence (Fig. 6). While twills occur in

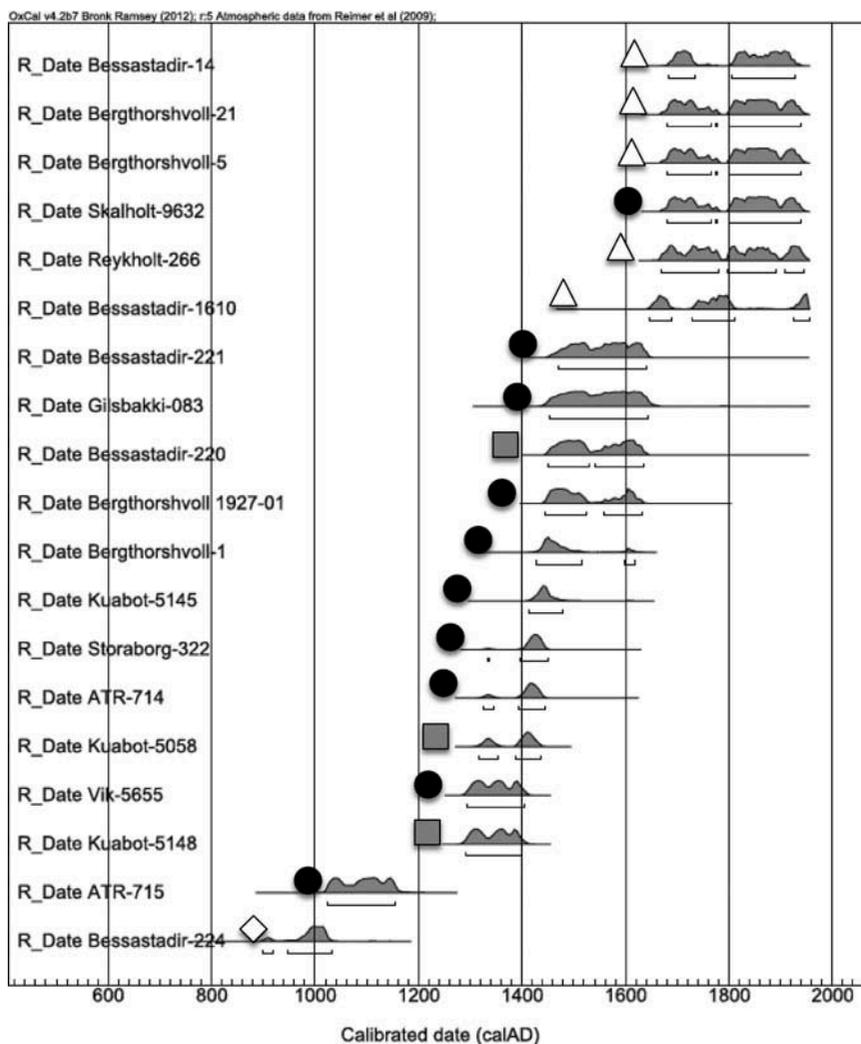


Figure 6 Direct AMS dates on Icelandic textiles run through the Rags to Riches project.¹ Black circles identify *vaðmál*; open triangles are plied-wool twills; grey squares represent tabbies; the open diamond is a Viking Age basket weave. *Vaðmál* dominates assemblages from the eleventh century, especially after the fourteenth century, until the sixteenth/seventeenth centuries.

the Viking Age, as at Hofstaðir in north-eastern Iceland (Lucas 2009), their attributes do not fall consistently within the ranges discussed above and they exist as minor elements within a far more variable and evenly divided textile assemblage than characterizes later centuries, implying production for diverse uses rather than a focus on making standardized products for exchange. The earliest dated example of *vaðmál* (ATR 2008-32-715) exhibiting the characteristics described above came from a deeply buried wet site (Alþingisreitir) in the centre of Reykjavík (Garðarsdóttir 2010) and produced a calibrated AMS date of cal. AD 1020–1160 (Beta-339967, 2 sigma) with intercepts at 1040, 1110 and 1120 and highest internal probabilities at cal. AD 1082–1125. Eight further dates on *vaðmál* from the

sites of Vík, Reykjavík (Alþingisreitur), Stóraborg, Kúabot, Bergþórshvoll, Bessastaðir and Gilsbakki document its production through the sixteenth century.

An outlier date from the bishop's school at Skálholt documents that twills with the characteristics of *vaðmál* continued to be produced into the seventeenth century. This is consistent with the economic values of cloth described in *Diplomatarium Islendicum* for 1504 and in Búalög (Hoffman 1974). It also accords with accounts that *vaðmál* remained a key component of ships' cargoes into the sixteenth century, with legal specifications for thread counts in *gjaldavöð* from AD 1613–40 (Þorláksson 1991), and with late seventeenth-century legal property valuations expressed in terms of *vaðmál* (Lárusson 1967). It is worth noting, however, that assemblages from this period are dominated by denser, plied textiles that were a local Icelandic response to climatic deterioration during the Little Ice Age and that *vaðmál* gradually drops to a minor role in household textile assemblages by the late seventeenth century (Hayeur Smith 2012a).

The degree of standardization seen within the data from medieval Iceland suggests that during the late eleventh or early twelfth century, 2/2 twill was promoted for use both as a legal currency and as a commercial product. This z/s-spun, 2/2 twill with five to twelve warp threads and four to eight weft threads dominates all assemblages after c. 1100 and was produced on farms of all types across Iceland until the late sixteenth century, and perhaps later (Hoffman 1974; Þorláksson 1991). The near-simultaneous shift in spin direction and thread counts, along with the formal adoption of Henry I's ell as the basis for the Icelandic ell, and the later formalization of a unit of measure (the *stíka*) based on English standards suggest that the impetus for legal standardization at the micro-level (spin direction and thread counts) and at larger scales (panel widths, lengths and weights) was commercial and triggered by overseas trade, especially with the British Isles.

Legal cloth and gender relationships

While medieval legal documents and archaeological data show that cloth was heavily regulated as currency and produced by women, they are also explicit that women were not considered equal to men nor always permitted a public voice (Hayeur Smith 2004; Jochens 1995; Norrman 2008). Women in Scandinavia, including Iceland, were the keepers of the home, while men were normally more active participants in the world outside (Norrman 2008). While the ideals to which all aspired in this patriarchal society were more masculine than feminine (Jochens 1995), women had critical economic roles. Among other things, women produced *vaðmál* and other textiles from wool that they gathered, carded, washed and spun (Meulengracht Sørensen 1983). Men, on the other hand, were responsible for other aspects pertaining to sheep husbandry, establishing trade relationships and setting legal guidelines, as discussed above. However, women must have also played a crucial role by making cloth that respected legal regulations and seeing to it that they were maintained. How did relations between the sexes play out regarding the making and distribution of cloth currency?

It has been argued that gender roles were more balanced in the pre-Christian world of the Viking Age, when more personal power was bestowed on women, through the rights to marry, own property and to divorce, than during the Middle Ages (Jesch 1991; Gråslund 1995, 1999, 2001a, 2001b). Women balanced a mixture of legal rights and limitations throughout their lives (Jesch 1991), with weaving providing a means of expression that was uniquely female and



Figure 7 Measuring *vaðmál*. © The Árni Magnússon Institute, Reykjavik (Ref. Jónsbók, GKS 3269b 4to, fifteenth century). Photographer: Jóhanna Ólafsdóttir.

perhaps associated with strong female deities linked to concepts of birth, life and death (Bek Pedersen 2007, 2009; Hayeur Smith 2012b; Heide 2006).

The silence of written sources on women's roles in the regulation and distribution of cloth currency makes it impossible to know to what the extent they partook in this important activity. An illustration in *Heynesbók*, a fifteenth-century manuscript of the *Jónsbók* law code, suggests that women were not excluded from its public distribution (Fig. 7). In this image, a woman is depicted with a man who carries a measuring stick to verify the dimensions of the *vaðmál* she is presenting to him. She asks '*Ert þú konungs umboðsmaður*' ('Are you the King's steward?'), to which he answers '*Já, já*' ('yes, yes'). It is not clear if she is assisting him or whether the illustration points to the necessity of identifying who had the king's authority for validating goods in exchange after Iceland became a colonial dependency. In either case, the artist's choice of a woman as a participant in the legal action is significant.

Iceland's medieval sources provide little evidence for women's resistance to male domination of the economic interactions that set values for cloth currency. Each gender appears to have understood its complementary role in this economic system. At the same time, making *vaðmál* was making money and this may have provided women with a source of power that was socially understood, as the weavers knew best the differences between good and poor-quality *vaðmál*. This seeming symbiosis may stem from the small size of the Icelandic colony, the harsh nature of the North Atlantic environment and the need for collaboration between the sexes to guarantee survival. This is not to say that resistance did not exist, but it may have been subtle and reflected in the values and symbolic associations connected to the making of cloth (Hayeur Smith in press).

Conclusions

From the eleventh century to the seventeenth century, *vaðmál* thrived as a form of legal currency in Iceland. Archaeological data demonstrates that, as with all currencies, intense standardization and commoditization characterized its production in the Middle Ages and that it continued to be produced into the early modern period (Hayeur Smith 2012a). Archaeological data also contradicts earlier views that *vaðmál* diminished in use after the thirteenth century, when dried fish was thought to have taken its place as Iceland's most important export product (Gelsing 1981; Gjerset 1924; Jochens 1995). Instead, a more complex and nuanced picture emerges: undoubtedly Iceland's fish production grew in importance as an item of overseas trade, yet within

Iceland – and somewhat in foreign trade – cloth currency remained important until the early modern period (Hayeur Smith 2012a).

Archaeological evidence concurs with medieval documents regarding the significance of *vaðmál* in Iceland and it provides a material correlate for this legal product to be both identified and tracked through time. These analyzes indicate that *vaðmál* was highly standardized and formed the focus of Iceland's weaving industry from the eleventh century onwards. *Vaðmál* was clearly significant enough that its production nearly eliminated other textile types from the island's woven repertoire, suggesting that women's efforts were channelled almost exclusively to the creation of this product. Simultaneous changes in thread counts and spin direction, correlated with documented shifts in the measures and standards by which legal cloth was valued, suggest that Icelandic *vaðmál* evolved as a currency in the context of international trade.

The presence of *vaðmál*-dominated assemblages at sites representing both wealthy and poor farms argues that cloth currency was not exclusively a product of elite-supported specialists and speaks instead to the power of law to regulate household production across socio-economic and socio-political divides. At the base of this economic system were women who wove money on their looms, producing a legally regulated commodity that must have provided them with pride and power in sustaining and contributing to the survival of their people for 1000 years.

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Note

- 1 Rags to Riches – An Archaeological Study of Textiles and Gender in Iceland AD 874–1800 (NSF project 2010–2013, NSF award no. 1023167) focused on issues of gender in curated archaeological textile collections from Iceland, reflected through weaving.

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