

## Textual evidence for spilling lines in the rigging of medieval Scandinavian keels



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### Summary

Sail trimming and standing and running rigging on Viking-era craft are elucidated by references in 12th- and early 13th-century Anglo-Norman historical sources and an Icelandic lexical catalogue. It is postulated that Early Medieval ships in Scandinavia and later adaptations in Normandy and Ireland were equipped with spilling lines as a means of emptying the sail.

### Introduction

The Bayeux Tapestry, depicting the Norman invasion of England, seems both to complement and to contradict the testimony of the Gotland picture stones on several points of detail concerning early Scandinavian ship construction and seafaring that have left little trace in the archaeological record, in particular, sail handling.<sup>[1]</sup> Both iconographical sources predate the first vernacular descriptions of sailing in the North that are found in such Old Norse-Icelandic texts as the kings' sagas and the sagas of the Icelanders, the oldest of which may have been composed in the early 13th century. But even when considered discretely the two representations are not unambiguous: were sails actually swept into a funnel shape and handled by a single seaman as the embroidery suggests, or is this a stylised depiction, as the relative scale of ships and

mariners surely is? Were sails trimmed with the myriad ropes that seem suspended from their foot on the Gotland stones, giving rise to Swedish scholars' descriptive but possibly misleading term *skautnät* or 'network of sheets'? Although comparable interpretive problems—now philological rather than iconographical—must be faced, this note seeks to establish that such previously undervalued sources as 12th- and early 13th-century Anglo-Norman historical literature (legendary histories, chronicles, saints' lives) and a somewhat later Icelandic lexical catalogue can also be scrutinized with a view to improving our understanding of sail trimming, and the standing and running rigging on Viking-era craft.

### Anglo-Norman narrative verse

In a scene of mass quayside activity in *Le Roman de Brut* that is reminiscent of Homer and Virgil, the Norman author Wace describes the departure of King Arthur for Gaul with a wealth of nautical detail that is not found in his Latin source, Geoffrey of Monmouth's largely fanciful *Historia Regum Britanniae*. The virtuoso description seems a promise of how the author might handle the equivalent scene of Duke William preparing to cross the Channel in the opposite direction, if Wace were given the commission to write a vernacular chronicle of the Norman dukes. As

it happened, he was so commissioned, but chose to suppress the scene of embarkation in favour of the landing at Pevensey.<sup>[2]</sup> But

Puis vint passer a Suthamtune;  
La furent les nefz amenees  
E les maisnees assemblees.  
Mult veïssiez nés aturner,

Nés atachier, nés aancrer,  
Nés assechier e nés floter,  
Nés cheviller e nés cloer,  
Funains estendre, maz drecier,  
Punz mettre fors e nés chargier,

Helmes, escuz, halbercs porter,  
Lances drecier, chevals tirer,  
Chevaliers e servanz entrer,  
E l'un ami l'autre apeler.  
Mult se vunt entresaluant  
Li remanant e li errant.

Quant as nés furent tuit entré  
Et tide orent et bon oré,  
Dunc veïssiez ancrs lever,  
Estrens traire, hobens fermer,  
Mariniers saillir par cez nés,  
Deshenechier veilles e trés;  
Li un s'esforcent al windas,  
Li altre al lof et al betas;  
Detriés sunt li guverneur,  
Li maistre esturman li meillur.  
Chescuns de gouverner se peinne  
Al guvernal, ki la nef meine:  
Avant le hel si curt senestre,  
E sus le hel pur cure a destre.  
Pur le vent es trés accueillir  
Funt les lispruez avant tenir  
Et bien fermer es raelinges.

Tels i ad traient les guidinges,  
Et alquant abaissent le tref  
Pur la nef curre plus süef.  
Estuins ferment et escotes  
Et funt tendre les cordes tutes,  
Uitages laschent, trés avalent,

Boëlines sachent et halent,  
Al vent guardent et as esteilles,  
Sulunc l'uré portent lur veilles;  
Les braiols funt lacier al mast  
Que li venz par desuz ne past;  
A dous ris curent u a treis.

in this bustling account of Arthur's fleet, the Jerseyman seems to relish the deployment of a specialist nautical lexicon:

Then [Arthur] advanced to Southampton;  
There the ships were gathered  
And the troops assembled.  
You would have seen many ships being  
outfitted,  
Ships moored, ships anchored,  
Ships beached and ships launched,  
Ships being pegged together and ships nailed,  
Cordage spread out, masts raised,  
Gangplanks put over the side and ships  
loaded,  
Helmets, shields, hauberks carried,  
Lances raised, horses led,  
Knights and servants boarding,  
And one friend calling out to another.  
They exchange many greetings,  
Those who are staying behind and those who  
are sailing.  
When all had gone aboard the ships  
And they had the tide and a fair wind,  
Then you would have seen anchors raised,  
Cables hauled, shrouds tied down,  
Sailors clambering around on board,  
Unfurling canvas and sails;  
Some strain at the windlass,  
Others with the luff and tacking spar;  
Aft are the helmsmen,  
The best of the master steersmen.  
Each one is attentive to his navigation  
At the rudder that steers the ship;  
Tiller forward if running to port,  
Tiller back to run to starboard.  
In order to gather the wind into the sails  
They brace the leech-spars forward  
And fix them into the boltropes of the  
leeches.  
There are some who pull the clewlines,  
And lower the yard slightly,  
So that the ship may run more smoothly.  
They secure the fore-braces and the sheets,  
And tauten all the ropes,  
They release the halyards, bring down the  
yards,  
Tighten the bowlines and haul,  
They check the wind and the stars,  
And trim their sails according to the breeze;  
They lash the brails to the mast  
So that the wind does escape past it;  
They run under two reefs or three.

Mult fu hardiz, molt fu curteis  
Cil qui fist nés premierement  
Et en mer se mist aval vent,  
Terre querant qu'il ne veeit,  
Et rivage qu'il ne saveit.<sup>[3]</sup>

Very bold, very gallant was he  
Who first built a ship  
And set sail down wind,  
Seeking a country he didn't see  
And a shore he didn't know.<sup>[4]</sup>

A startling discovery from scrutiny of the lexical resources here utilised is that the vocabulary of ship's parts and gear contains no fewer than 17 terms of Norse origin and, with the exception of the specialised *braiols* 'brails', has no words of Gallo-Romance derivation except for such fundamentals as ship, mast, yard, sail, cordage, tiller, and anchor.<sup>[5]</sup> The passage is particularly rich in the terminology associated with handling the yard and sail. In the following listing, etymologies are proposed along with English equivalents of the French terms (not always exactly coincident with the Norse): *beitas* 'tacking spar' <ON *beitiáss*; *boeline* 'bowline' <ON *bóglina*; *deshenechier* (also found as *desheneker*) 'unfurl' <Gallo-Romance prefix *des-*+ON *hnekkja* 'restrain' or *hanki* 'loop (for tying)'; *escote* 'sheet' <ON *skaut*; *estuín* 'forebrace' <ON *stoedíngir*; *guidinge*, var. *gurdinge* 'clewline' (possibly also 'buntline') <ON *gyrðingr* 'girth'; *haler* 'haul' <ON *hala*; *hoban* 'shroud' <ON *hōfuðbenda*; *lisprue* 'spar for bracing or booming out the

sail' <ON *\*lik-sproti*; *lof* 'luff, weather edge of sail' <ON *lófillópi* 'palm, handsbreadth' or <ON *loppa* 'paw',<sup>[6]</sup> *raelingue* 'boltrope on vertical leech of sail' <ON *\*rá-lik*, lit. 'yard leech' or *\*rá-lína* 'yard rope'; *ris* 'reef' <ON *rif*; *uitage* 'halyard' <ON *\*ak-taug*; *vindas* 'windlass' <ON *vindáss*.<sup>[7]</sup> As will be seen from the hypothetical Norse forms (marked with an asterisk), several of these terms appear to derive from words not attested in the extant Old Norse-Icelandic literary corpus. Similarly, *gyrðingr* 'girth', is not found as a simplex form with the meaning 'clew-' and/or 'buntline' proposed here.

After this illustration of the potential richness of Anglo-Norman sources and of the problems of interpretation, there is a nautical scene from the 12th-century Anglo-Norman *Life of St Gilles*, written by Guillaume de Berneville. The future saint has rescued a group of merchants by appealing to God to calm a storm at sea and then to provide ideal sailing conditions:

Le jur fud bel, le solail cler,  
La mer fud paisible e le vent  
A la nef vunt igneement;  
Lez sunt del bel tens ke il unt.

Traient lur ancras, si s'en vunt.  
A plein se astent d'eschiper,  
Kar mult coveitent le passer.

Bons fud li venz e la mer quieie:  
Ne lur estoet muver lur greie,  
Ne n'i out la nuit lof cloé,  
Estuinc trait ne tref gardé,  
Ne n'i out halé bagordine,  
Ne escote ne scolaringe;  
Ne fud mester de boesline;  
Tute fud queie la marine:  
Ne lur estut pas estricher,  
Ne tendre tref ne hel enger.

The day was fine, the sun bright,  
The sea was peaceful and the winds  
Came briskly to the ship;  
[The mariners] are happy at the fine weather they have.

They haul up their anchors, and depart.  
They are in a great hurry to set sail,  
Because they are anxious to complete the passage.

The wind was fair and the sea calm;  
They had no need to trim their gear,  
Nor was there that night a luff pinned down,  
Forebrace tightened nor yard watched,  
Nor was there a brail hauled,  
Nor sheet nor *scolaringe*;  
There was no need for a bowline;  
The seascape was entirely calm:  
They did not have to strike sail,  
Nor tauten the sail nor adjust the tiller.

Fort ert l'estai e li hobent  
 Ki fermé furent devers lé vent,  
 E d'autre part devers le bort  
 Sunt li nodras e li bras fort;  
 Bones utanges out el tref,  
 Meillurs n'estot a nule nef;  
 Bons fud li tref e la nef fort,

E unt bon vent ki tost les port.

Tute noît current a la lune  
 Le tref windé très k'a la hune:  
 Ne lur estut muver funain  
 Trestute nuit ne l'endemain.  
 Lur aire vunt od la mer pleine,  
 Kar issi veit cil ke Deus meine.<sup>[8]</sup>

Several new terms from the previously considered areas of yard, sail and rigging may be noted: *estai* 'stay' <ON *stag*; *vinder* (a variant of *guinder*) 'to hoist with a windlass' <ON *vinda*; *hune* 'mast-top, hound' <ON *húnn*. The *húnn*, lit. 'knob', was pierced with a hole (*húnbora*) through which various ropes, including the halyard, passed. By way of summary, the author goes on to state that the crew had no need to trim their rigging (*funain*) during the night's sailing and that *Gires se dort, car mult fud las, Od l'esterman lez le windas* ('Gilles fell asleep, for he was very tired, By the helmsman next to the windlass'). This provides circumstantial evidence for the position of the windlass well to the aft on a decked area, so that halyards (*utanges*, a variant of the term found in Wace), here confirmed as the main hauling lines to the yard, could also function as backstays.

More speculative is the derivation of *bagordinge* from a Norse compound *\*buggyrðingr*, with the first element referring to the inner, concave face of the sail (ON *bugr*; the nominative inflexional ending -r would not be retained in compounds). This would be an appropriate name for horizontal or vertical brails that brought the sail in to the mast (cf. Nynorsk Norwegian *bugpriar* and Danish *bugprier* of present-day replica-builders). The verb

Strong were the stay and the shrouds  
 That were pulled tight to windward,  
 And elsewhere, deckside,  
 Are the spare yard and strong spars;  
 The yard had good halyards,  
 There were none better on any vessel;  
 The yard (or sail) was good and the ship strong,  
 And they have a fine wind that carries them quickly.  
 The whole night they ran under the moon,  
 The yard hoisted up to the masthead;  
 They had no need to trim their rigging  
 All that night or the next day.  
 They went their way with a full sea,  
 For thus goes he whom God leads.

*estricher* is not assured of a northern origin since the ON/Icel. verb *strjúka/strýkja* 'stroke, flog' that comes readily to mind is not found in the sense 'strike sail' or 'smooth out'. Nevertheless, the word has phonological contours suggesting a Germanic original. The term may represent a metathesized variant of OFr. *estechir* 'stretch' or a variant on *estrecier* 'diminish'. Without the names of the ropes or other gear which is involved in this trimming activity, it is difficult to know exactly which action is envisaged.

### Emptying the sail of wind

Henceforth, the principal concern of the present note will be the term *scolaringe*, left untranslated in the foregoing excerpt and not elsewhere attested in Old French literature.<sup>[9]</sup> As with the brails and sheets, there is no need for Gilles' companions to haul on this rope. The syntactic construction involves a negative followed by three singular nouns, which leaves us unsure as to whether the *scolaringe* was one rope, a pair, or several.

As most known Viking-Age rigging has been accounted for in these two excerpts, *scolaringe* may refer to a spilling line or lines to the bunt of the sail, pulled to 'kill' or 'cool down' the aerodynamic forces around the sail momentarily in a sudden

squall or in order to stop or reduce the ship's progress.<sup>[10]</sup> The word occurs just before *boesline*, a rope which was employed to pull the sail in the opposite direction, that is forward, to allow it to fill with wind. *Scolaringe* almost surely reflects an *escolaringe* in Old French and Norman, and the syncopated form would be for metrical reasons and because of the preceding negative adverb *ne* and its final vowel. If the word's etymology is Gallo-Roman, a derivation from a word such as *escolorgier* 'to slip, slide, escape' (<Latin *excollubricare*) could be entertained.<sup>[11]</sup> But etymology does not necessarily illuminate function. Like the *braiols* in Wace, *escolaringe* would be a Romance 'isolate' among the Norse-derived rigging terms, a fact which encourages a look beyond Gallo-Romance. If the reconstituted *escolaringe* has a Norse origin, it can hardly have been derived from anything but a word with the initial consonant cluster *sk-*.

With the exception of the few speculative entries in some works on French etymology (see note 5), the only informed treatment of *scolaringe* thus far is by Sandahl (Vol. III, 1982: 4, 164). He proposes an unattested ON-Icel. *skálahringr*, literally 'bowl-ring', but here meaning 'rack' or 'parrel' as the source. Although the phonological match-up with *scolaringe* is ingenious, Sandahl's own comments list some of the weaknesses of this proposal, developed as follows: neither element of his putative ON compound is attested in a use meaning parrel; why would the image of a bowl (*skál*) be chosen when the object in question resembles nothing so much as a bowl with the bottom broken out? This then makes the term *hringr* 'ring' a redundancy and a poor descriptor for less than a full circle. Boomerang-shaped parrels have been recovered (Crumlin-Pedersen, 1997: 137). They display very careful fashioning from natural crooks, which would have had much greater tensile strength than the

upper part of a turned or hollowed-out bowl, likely to split along the grain (unless we are to imagine 'bowl-ring' is simply a metaphor). Finally, the context makes clear that some kind of rope is meant, since *scolaringe* is mentioned among several other lines and the unneeded action of striking the sail by lowering the yard, which would involve movement of the parrel, is mentioned a few verses earlier. Generally, the catalogue device as employed by Anglo-Norman versifiers avoids duplication. The verb *haler* 'haul', which is applied to these various lines, would be out of place with a parrel, since the halyard would not have been attached to it but to the yard itself. It may be concluded that *skálahringr* 'parrel' is a less plausible explanation of *scolaringe* than one focused on ropes to the sail.

To turn now to other options in the lexicon of Old Norse-Icelandic, some unattested nominal form of the ON/Icel. verb *skolla* 'hang, dangle' might be considered a possible northern source and, incidentally, might seem an apt descriptor for the multiple lines seen descending from the foot of the sail on the Gotland picture stones. More attractive, however, is a derivation from the ON-Ice. verb *skola* 'to wash, rinse out', as the notion of emptying a container of unwanted matter accords well with that of spilling the wind from the sail. The form (*e*)*scolaringe* would then represent the verb *skola* plus one or more agent or functional suffixes (cf. the verb *gyrða* 'girth' and *gyrðingr*). Although there survives no medieval attestation of *skola* or its imagery in a nautical context nor any recognised ON-Icel. term for spilling line, the consideration of a nautical glossary included in an Icelandic poetic manual may change this picture.

#### An Icelandic treatise on poetics

In the mid-13th century, the prolific Icelandic author Snorri Sturluson composed a work on poetics, *Skáldskaparmál*.

Continuing the explanation of pagan Norse mythology that he had begun in *Gylfaginning*, Snorri now expounds the myths not from the perspective of the history of religions, but as a source for poetic allusions in the celebrated kennings of the skalds. He then passes to a simpler stylistic device, the substitution of specific nouns, here called *heiti* or 'names', for generic ones: for example and in translation, 'row, tumult, clangor, spear-fight and spear-grab' convey the notion of 'battle'.<sup>[12]</sup> In one of his *pulur* or 'lists' and in the course of ten eight-line stanzas of

Húnn, húnbora  
ol hjálmunvölr,  
húfr, hlýr, hrefni  
ok hálsstefni,  
hefill, háls, hanki  
ok höfuðbendur,  
háir, hæll, hamarr,  
hjálpreip ok lík.<sup>[13]</sup>

rather rudimentary verse, Snorri gives some 160 names for ship types and legendary ships, words for construction material and sailing characteristics, and—accounting for almost 100 entries—the names of the constituent parts of a ship. Of stanzas 5 to 10 devoted to parts and gear, stanza 7 is one of the most finished (although this judgment may wrongly value the thorough application of certain stylistic devices). As elsewhere in the list, alliteration and sequence are employed to create short runs of functionally or spatially related parts:

Mast-head knob, mast-head bore  
and tiller,  
hull, prow, fifth hull strake  
and hawse,  
clewline, tack, tying loop  
and shrouds,  
tholes, heel, hammer,  
rudder-hoisting rope (lit. 'help rope') and  
leech.<sup>[14]</sup>

Characteristic of the list as a whole, the stanza contains no terms that could be called esoteric, and most are attested in the narrative literature of the period. But, modern scholars cannot be sure just what the 'heel' and 'hammer' may have been in the narrow context of naval architecture.

Rigging terms in Snorri's six stanzas on ship's parts are in surprisingly good agreement with the set of Norse-derived Norman words found in Wace's description of Arthur's fleet and Guillaume de Berneville's account of Gilles' voyage. Listed in both are: shrouds, stay, braces (Snorri has both *aktaumar* and *stæðingar*, here suggested to be braces aft and forward, respectively; Norman authors suggest only a term derived from the latter), halyard (plural in Wace and Guillaume); bowline, clewline;<sup>[15]</sup> and sheet (Snorri has both *skaut* and *skautreip* 'sheet' and 'sheet rope'). Apparently unrepresented in

Snorri's list is any form of brail (given a Gallo-Romance name in Wace).

Stanza nine may possibly add to this list of correspondences. Translation is deferred in favour of a brief discussion:

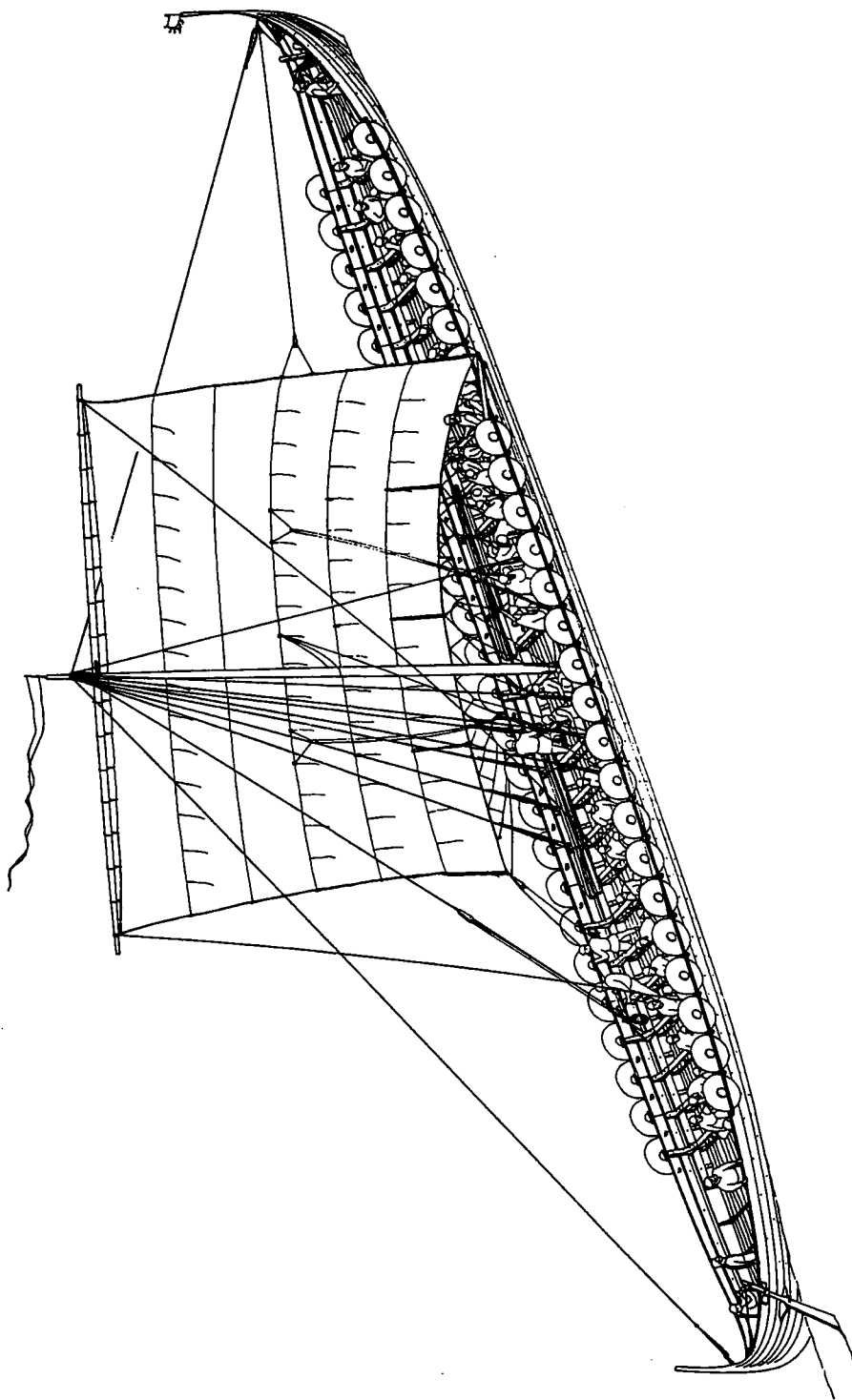
Barð, kné, bygði,  
belti ok kinnungr,  
kjölborð, keili  
ok kjölsýja,  
kraftar, kerling,  
klær ok þóftur  
kjalreip, þrimir,  
klofar ok þiljur. (p. 209, st. 499)

The *kjölborð* and *kjölsýja* of lines 3–4 could both be understood as 'keel planking', and could refer to the first strakes above the keel, the garboards. However, the list as a whole is not characterised by duplication and this reading leaves nowhere in the ten stanzas a discrete simplex for 'keel', while all other fundamental ship parts appear referenced. In the manuscripts, compounds are often

written as two units, so that there are grounds for considering an amendment to line three, *kiavl borð keili* in the standard edition of Snorri's *Edda*, that would read *kjölr, borðkeili*. Although Anthony Faulkes (1987) adopts this reading in his English translation of Snorri's *Edda*, the compound *borðkeili*, which is not found elsewhere, creates a new problem. Three simplex terms, *kjölr, borð, keili*, may well have been the original sequence. Although the problems met in stanza 7 above continue, this stanza (excepting a single term to be discussed below) could be translated as follows: prow, knee, planking (a generic?), belt and bow, keel, plank, wedge (associated with the mast-step) and garboard, bollards, keelson, cringles (or eyes) and thwarts, *kjalreip*, railings, tent-gableboards (or some other jointed cross-pieces) and decking.

Faulkes understands *kjalreip* as 'tack', but this is in part a consequence (or precondition) of the interpretive choices he makes concerning the term *háls*, which he sees as 'hawse'. It was also the regular word for the tack or lower weather corner of the squaresail. Since the list of *heiti* is the only attestation of *kjalreip*, the manuscript variant *kalreip* and other imagery considered in this discussion encourage a reference to the first part of the compound to the ON-Icel. verb *kala* 'to make cold'. Compare the Modern Icelandic expression *kelr seglit*, lit. 'the sail is cooling down', that is 'the sail is losing wind'.<sup>[16]</sup> No other term in Snorri's catalogue is a candidate designation for a 'cooling' or spilling line, nor does any other well-known or assumed element of medieval rigging, apart perhaps from brails, appear to be missing from his enumeration. It might be argued that the spilling line is isolated in a stanza that contains no other rigging terms, but this is also the case for the bowline in stanza 8. With the exception of the alliterative *rup* of stanza 7, *hefill, háls, hanki ok höfuðbendur*, cited above, there is no single stanza dominated by rigging terms.

Yet, despite a plausible association of function, Norman *escolaringe* and ON-Icel. *kalreip* are two quite different words. It should be recalled that Old Danish, for which there is little in the way of Early Medieval records, was a more likely source for 12th-century Norman marine terminology than the Old Norse-Icelandic of Snorri's somewhat later text, and the terminology of some seafaring specifics may have differed in time and place in the northern world. On a more general level and at the risk of impressionistic judgment on matters that cannot be pursued in the present note, the Norman vocabulary for running rigging and sail-handling does not offer the relatively easy one-to-one correspondences with Old Norse nautical lexicon that is found in overall ship construction. For instance, the common Norse term for brace, *aktaumr*, exhibits no derivative, while the less common *stæðingr*, thought to be a forebrace, is present in Norman as *estuinc*; brails are given a Gallo-Romance name; Old Norse *hefill* 'clewline' is not traceable in Norman; reefing is mentioned but alternative sail-furling techniques, also described in Anglo-Norman, give no echo of Norse *heflaskurðar*, the bundles of sail resulting from tricing up, and there are difficult terms such as *heneker* and *desheneker*, perhaps for furling and unfurling, without simple, well-known Norse equivalents; Old Norse *dragreip* 'halyard' has no lexical reflex, although a hypothetical Norse compound can be coined to explain Norman *uitage*, which, curiously, always occurs in the plural. Does all this point to some influence of Mediterranean practices with the lateen sail? To conservatism among seamen who handled the rigging in comparison with shipbuilders, if it were defensible to distinguish these two? Or to some other evolution in Normandy in response to as yet undetermined local conditions?



*Figure 1.* Artist's impression of the longship recovered from Heddeby harbour (Heddeby 1 in Crumlin-Pedersen, 1997). Lines that could be employed to spill wind from the sail are shown with a variety of other sail-trimming ropes (reproduced with the permission of The Viking Ship Museum in Roskilde).



## Conclusion

To summarise and conclude, the connection between the terminology of the Norman and Icelandic writers and, one hopes, seamen is admittedly a tenuous one, since there is no phonological overlap in the principal words here considered. In the Norman case, the spilling line has been identified largely by a process of exclusion, but also through narrative contextualisation. In the Icelandic case, context is reduced to a minimum—a list of terms for ship's parts—and the identification is in part prompted by the imagery of the modern, not medieval, sailing lexicon. Nevertheless, there is a modicum of lexical evidence in Snorri and Guillaume de Berneville on which to advance the claim that the Early Medieval Scandinavian ships and the adaptations that continued to be built in Normandy (and in the Norse ports of Ireland, for instance Skuldelev wreck 2) were equipped with spilling

lines as an expeditious means of emptying the sail of wind. Modern builders of replicas have certainly seen the advantage of such lines for managing the sail, but this of course does not constitute proof of their earlier use (Fig. 1). Whether some of the many lines on the Gotland picture stones also served this function and whether the stylised depictions of ships in the Bayeux Tapestry include any hint of this operation remain open questions. But given the organic constituents of northern ships' ropes in the Middle Ages (walrus and seal hide, linden bast, hemp, animal hair, even fir and heather fibre), and the fact that spilling lines, unlike shrouds, would have left no traces on better preserved portions of the ships such as the sheerstrakes, there is scarcely hope of advancing this discussion with reference to the archaeological record, however rich it has proved in so many other respects.<sup>[17]</sup>

## Notes

- [1] Useful overviews of Viking-Age ship construction and navigation that have appeared since the discovery of the Skuldelev wrecks are: Bill, 1997; Binns, 1980; 1993; Christensen, 1968; Crumlin-Pedersen, 1987; 1997; Crumlin-Pedersen & Finch, 1977; Marcus, 1981; Marsden, 1995; McGrail, 1980; 1983; 1990; Olsen & Crumlin-Pedersen, 1967; Olsen, 1995; and *Vikingarnas Skepp*, 1993. Still useful are: Falk, 1912; now translated in Varenius, 1995, and Brøgger & Shetelig, 1951. With more exclusive attention to sail and rigging are: Andersen & Andersen, 1989; Christensen, 1979; Gillmer, 1979; Haasum, 1978 and her review of some of these works in Haasum, 1992. Two decades ago, what was known of early Norse rigging could be stated by Christensen as follows: 'Summing up, we are left with very scanty knowledge based on tangible sources. A square sail, spread by a yard on a mast amidships. The mast had shrouds, and possibly a stay; the sail was hoisted by a simple haliard and controlled by sheets(?); and the luff was stretched by a tacking boom (?) or bowline(?) or both. That is about all' (1979:191).
- [2] Holden, 1970–73, Wace, *Le Roman de Rou*, ll: 6329–42. The relevant scenes in the Bayeux Tapestry are under the heading *Hic Willelm dux iussit naves edificare*.
- [3] Arnold, 1940, Wace, *Le Roman de Brut*, ll: 11,190–238. Another manuscript tradition is followed in Arnold & Pelan, 1962, ll: 2642–90.
- [4] A broader selection of continental European literary passages that reflect the transfer of Early Medieval Scandinavian nautical technology and its attendant lexicon is cited, translated, and discussed in detail in Sayers, forthcoming.
- [5] The most important reference works and detail studies for this lexicon are: Baist, 1903; Bloch & von Wartburg, 1968; Dauzat, 1946; Frahm, 1914; Gamillscheg, 1928; Godefroy, 1881–1902; de Gorog, 1958; Greimas, 1994; Jal, 1840; 1848; Meyer-Lübke, 1968; Saggau, 1905; Stone & Rothwell, 1977–92; Tobler & Lommatzsch, 1965–; and von Wartburg, 1928–68.
- [6] These are what might be termed conventional etymologies, to which may be added the now largely discredited derivation from ON *lopt* 'air'. In a note in progress, I explore the possibility of tracing Anglo-Norman *lof* to ON *úfr* 'splinter' + an agglutinated Gallo-Romance definite article (putative

- evolution: ON *úfr* > Old Norman *l'of* > Norm. *le lof*). The term would originally have referred to a tack bumpkin of some kind, and only later to the weather edge of the sail. See Crumlin-Pedersen, 1997: 93, for an artist's impression of such a bumpkin on a longship.
- [7] Standard reference works for the study of the Old Norse lexicon and some modern dictionaries with competent treatment of the medieval languages are Cleasby & Vigfusson, 1957; Falk & Torp 1960; Heggsted *et al.*, 1993; Hellquist, 1970; Holthausen, 1948; Jóhannesson, 1951–56; Magnússon, 1989; and de Vries, 1962. Now a major new resource has begun to appear: *Ordbog over det norrøne prosasprog* (Degnbol *et al.*, 1995–).
- [8] Paris & Bos, 1881; Guillaume de Berneville, *La Vie de Saint Gile*, ll: 876–906. In this edition, line 892 reads: *Ne tendre tref ne helenger*, which makes the second verb problematical. I prefer . . . *hel eng(i)er*.
- [9] Nor is a reflex to be identified in Middle English. As a consequence, this considerable body of evidence, so well analysed in Sandahl, 1951–82, is not fully considered in the present context. See below, however, for some ME terms that appear to cover the nautical reality behind AN *scolaringe*.
- [10] Max Vinner, The Viking Ship Museum, Roskilde (pers. comm.). One reason that spilling lines are not found in the catalogue by Wace is that Arthur's embarkation is accompanied by fine weather and good sailing, so that there is no need for this expedient. Since my argument proceeds to a certain degree by a process of exclusion, one might speculate that *scolaringe* could refer to clew- or bunt-lines, but there is no other hint of reefing or furling operations (among the various actions that are not called for), and the immediate context of the relative fullness of the sail (with mention of brails, sheets, bowlines) suggests that *scolaringe* belongs in this functional group.
- [11] Current Scandinavian terminology for spilling lines, e.g. Danish *syfte*, *handsyfte*, Nynorsk Norwegian *handsoft*, *softebånd*, is based in the notion of 'shake, swing out', which is not too distant from the meaning of this French verb.
- [12] Faulkes, 1987: 158.
- [13] Jónsson, 1931: par. 208, st. 497.
- [14] This translation has profited by that of Faulkes, 1987, but is intended to represent a more accurate rendering of the ON-Icel. terminology. A fuller discussion of all 90-odd terms for ship's parts in Snorri's catalogue is found in Sayers, 1998.
- [15] If we so interpret *gurdinges*; there is no attested Norman reflex of Snorri's *hefill* 'clewline'.
- [16] Falk, 1912: 66, proposed this reading of *kalreip* and the imagery of cooling, but was not exactly on the mark as concerns the function of the rope, believing that it was used to secure a sail that had begun to whip in the wind. But brails would have served this purpose, and the spilling line is intended to create the cooling effect, not to control its unwilling occurrence.
- [17] The material record for rigging is not entirely an empty file, as finds from the Early Medieval shipyard on the Fribroðre River in Falster, Denmark, have now shown; see Madsen, 1991, and briefer mention in Rieck, 1995. Naturally, we cannot assume spilling lines to have been designated in Anglo-Norman solely by the term *scolaringe* nor to have passed from use with the term's disappearance. In the Middle English evidence reviewed by Sandahl, 1951–82, *prial-rope* and related forms seem the most likely candidates for some kind of spilling line (Vol. III: 71–78).

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