ASPECTS OF VIKING SMALL CRAFT IN THE LIGHT OF SHETLAND PRACTICE

Ian A. Morrison

To understand Shetland small craft one must view them in the context of their Viking forebears. Equally, when attempting to understand what archaeology has yielded of the original Viking boats, it can be enlightening to consider excavated remains in terms of the traditional practices of the Shetland boat builders and handlers. Like their counterparts among the boatmen of the Norwegian fjords and skerries, the Shetlanders have a clear title to be considered among the direct inheritors of the Norse small craft tradition (vis., e.g., Christensen & Morrison 1976; Goodlad 1971; Halcrow 1950; March 1970; Morrison 1973a; Sandison 1954; Thowsen 1969).

It is worth considering such ethnographic parallels with some care, because the first-hand Viking testimony on their small boat techniques that has come down to us through the Sagas is in fact very limited. Shetland itself is the scene of one of the most intriguing of the reported small boat incidents, in a passage in Orkneyinga Saga where Earl Rognvald ventures into the Sumburgh Roost. Even in this case, however, the saga writer and his contemporary audience were as usual, and very understandably, much more interested in the light the incident throws on the character of the man involved than in what was to them the thoroughly familiar and indeed mundane business of Viking seamanship.

Although the accomplishment of the Vikings as seamen and the elegance of their vessels has always been widely acknowledged, in some respects we are only now beginning to realise just how little practical understanding has come down to us of the actual means by which they secured that effectiveness. Meticulous investigations by excavation and in the museums, together with experiments at sea with full scale replicas of Viking craft, have underlined the subtlety of both principle and practice in the construction and handling of their craft.

Ethnography and this type of sea-going experimental archaeology can only provide ranges of possible solutions to the problems involved. Nothing but direct Viking testimony could provide definitive answers, but with this so often lacking, these two approaches can at least bring degrees of practical probability into focus for the archaeologist to assess.

In general, when experimental and ethnographic lines of evidence converge, it seems reasonable to feel some confidence in the practical insights that the combination may offer. Equally, seeming divergences between observations based on academic experimentation and those based on traditional practices are likely to be worth investigating farther. Such divergences and apparent contradictions can prove valuable in helping to identify differences of aim, as well as differences in method, in the original construction and operation of what has come down to us as archaeological material. It is in this spirit that the various comments made below on the experiments carried out by the National Maritime Museum and others are intended. Their replica projects are an exciting development and deserve a positive response.

Mr Henderson has mentioned how Captain Magnus Andersen sailed a replica of the Gokstad ship across the Atlantic. More recently, Danish sea-scouts have been active with a whole series of replicas (e.g. Crumlin-Pedersen & Hartvig Nielsen 1965; Crumlin-Pedersen 1966; Greenhill 1976). The replica of the little Gokstad *faering* made in Britain for our National Maritime Museum (NMM 1974) is perhaps the most interesting from the Shetland point of view, however, in its closer similarity to the small boats of the isles.

THE BUILD OF A BOAT: HULL, RIBS, FASTENINGS

The *faering* finds its closest parallels in Shetland waters in the *yoles* of Dunrossness and Fair Isle (Henderson 1978. above; Morrison 1973a; Christensen & Morrison 1976) [Fig. 7.1]. These survive at the present day, and it would thus seem that this specialised type of boat has continued to be built with remarkably little change in structure or form for over a thousand years.

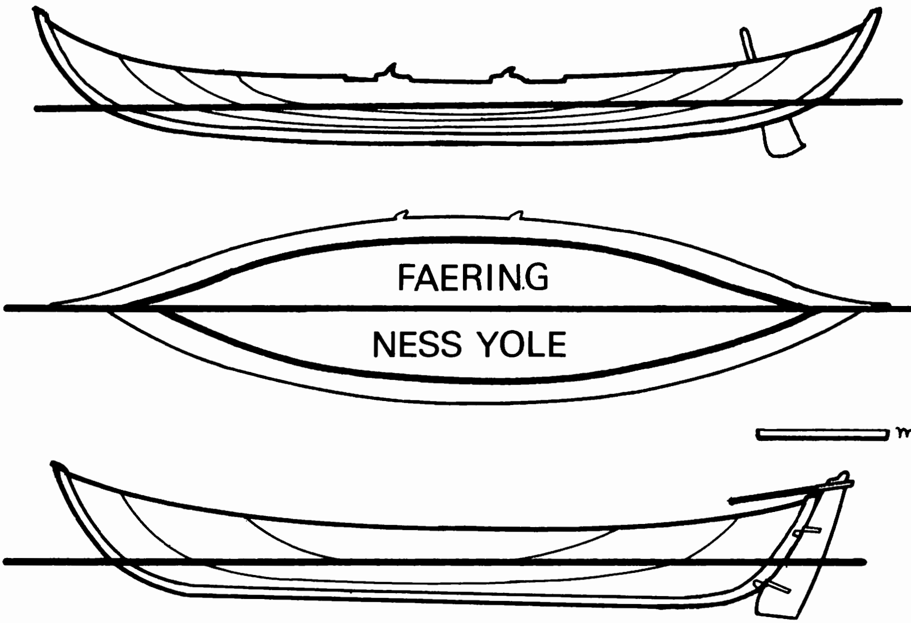
Mr Henderson has alluded to the canny conservatism of the men of Spiggie over changes in the traditional proportions of their *yoles*. That this type of outlook reflects not blind perverseness but a thoroughly practical attitude to a design that was highly evolved and proven for a particular role is emphasised by the islanders' equally marked enterprise and flexibility in developing a new style of vessel within their overall Norse tradition when the emergence of a new role involving different operational conditions called for it.

This is illustrated by the way that the Shetland *sixareen* [*sixern*] arose when the social and economic changes of the 18th and 19th centuries led to the opening up of the *far haaf* offshore grounds, with their different sea conditions. Many of the ways that the hull and rig were progressively modified from the forms of the Norwegian root-stock are noted by Thowsen, Goodlad, March, and Halcrow (op.cit). The essentially empirical attitude of the Shetlanders is brought out particularly clearly by Charles Sandison (1954. 29):-

'a great deal of experimental work was done even in the later years ... as long as *sixareens* were being built in the North Isles individual boats were frequently altered after they were built. They would be taken back to the builder in the off-season, and their behaviour would be discussed with him, with the result that the boat would be laid out over the fore *baund* or taken in at the after *stameron*. Next season her performance would be again compared with neighbouring boats'. He adds that 'this was surely full scale experiment of the most practical kind, and thus tested under oar and sail, in calm and in storm, the perfect model would gradually evolve'.

It is surely not going too far to read a similar process into the high level of development of the Viking craft themselves and envisage similar discussions in the boatsheds and *noosts* around Norwegian fjords and Shetland voes in Viking times.

The Shetland craft such as the *yoles* show the Norse tradition of clinker-built shell construction in very characteristic form (Morrison 1973a; see also Osler



IAN A. MORRISON

Fig. 7:1.

1978. below). That this form of construction has been maintained for over a millenium by these canny empiricists suggests that it has had particular operational advantages in northern waters. In seeking a practical understanding of the achievement of the Viking shipwrights, it is therefore interesting to examine the basic qualities of this type of construction in terms of the Shetland practice of the recent past.

In this, as in the Viking craft and their Norwegian successors, the hull takes its configuration from the shapes of the relatively few broad *boards* (strakes) of thin wood, clenched together along their overlapping edges. It is then reinforced retrospectively with light *baands* (timbers, ribs). This type of shell construction offers the potential of producing a lighter and more flexible hull than the other main traditional style in boat building, in which a firm 'skeleton' is constructed first and then skinned with carvel (flush) planking. Unlike Viking practice, however, pre-shaped stems are not used [Fig. 7.2].

In Shetland, as in the Norse boats, this potential for lightness has been valued, and thoroughly exploited. Even in the bigger *sixareens,* lightness was at a premium, for these boats were not uncommonly rowed a couple of dozen miles out to reach the offshore *meads* in the days of the *far haaf* fishing. Indeed with the tradition of *kemping* enlivening such long hauls, with pulling races between rival crews, it was not unknown for crack skippers to have their boats built of specially selected lightweight larch.

Furthermore, the haaf-boat fishing stations were often chosen for beaches suitable for sun-drying the catch. Charles Sandison of Unst (1954. 8) pointed

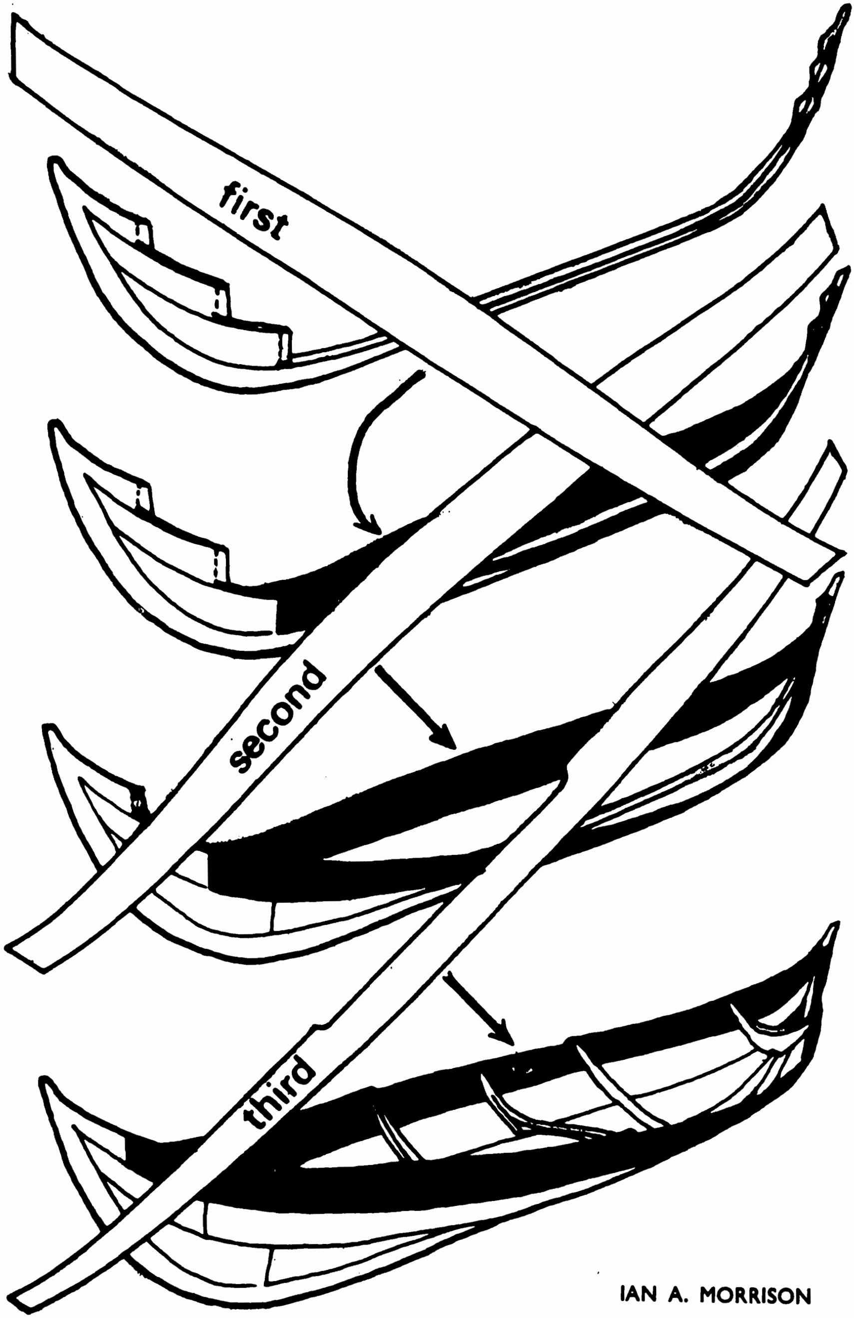


Fig. 7.2. – The Gokstad *faering* had pre-shaped stems. Her planks were also shaped, prior to bending.

out that this was so important that where the choice lay between a secure anchorage and a good drying beach, the latter might be preferred even though this meant that the boats had to be hauled out over the weekend, or indeed after every trip. Even with these bigger *sixareens,* the crew might have to do this without assistance, so that anything that could be removable was made so (see below and Fig. 7.7, re *tafts* and *tilfers*), and the basic structure was kept as light as possible. The displacement of a *sixareen* in fishing trim was around 3 tons, but stripped out the bare hull weighed no more than 0.8 ton. A *Ness Yole* with six oars pulled by three men would go to sea on a displacement of little over half a ton (weights after Sandison 1954. 12, 33).

Shetland experiences around 240 hours of full gales per year; gusts of over 175 mph are not unknown, and even the average windspeed is over 14 mph throughout ten months (three of these averaging over 20 mph, night and day). Thus even when special considerations such as drying beaches were not involved, the frequency of heavy seas together with the exposed and ironbound nature of so much of Shetland's coastline [Fig. 7.3.] has always meant that in many places unattended boats were best hauled out to the security of stone-built *noosts,* well above the storm beach.

Light structural weight also facilitated longer portages. Lying athwart routes between North Sea and Atlantic, the Mainland of Shetland forms a barrier to seamen some 90 km long, with tide races at its north and south ends. Narrow isthmuses however offer opportunities for taking vessels overland, and these have regularly been utilised in recent times, and perhaps also in the Viking past (Morrison 1973b).

The other cardinal quality of clinker-shell Norse construction, its relative elasticity, is also well represented in Shetland craft. The exploitation of the principle of strength-through-resilience, rather than through solidity of structural members, is a necessary concomitant of the desire for a light structural weight. As indicated elsewhere (Morrison 1973a. 65), the design philosophy evolved in the Viking and Shetland craft has much in common with that of, say, a Boeing 707's wing. In either case, a fully rigid structure capable of uncompromising resistence to the order of stresses involved would be too heavy to serve.

To build in the necessary resilience, in Shetland boats (as in many of their Viking forebears and later Norwegian cousins) ribs often do not extend the full way from keel to gunwale, but only link groups of upper or lower strakes [Fig. 7.4.]. Those crossing the keel are not bolted to it, but arch right over, being connected to it only via the garboard strakes. The Shetland sailsman would keep his foot on the garboard to tell from the extent to which it was vibrating whether the boat was being overdriven. The National Maritime Museum's *faering* replica is probably both heavier and less resilient than she should be (Christensen, in Christensen & Morrison 1976). She was built beautifully, but by craftsmen brought up in the Somerset rather than the Shetland or west Norwegian tradition, and for example the ribs are seated firmly on almost the full width of the garboards.

The extent to which it was felt profitable to push this aspect of Norse design philosophy to its very limits is illustrated by the occasional structural failures

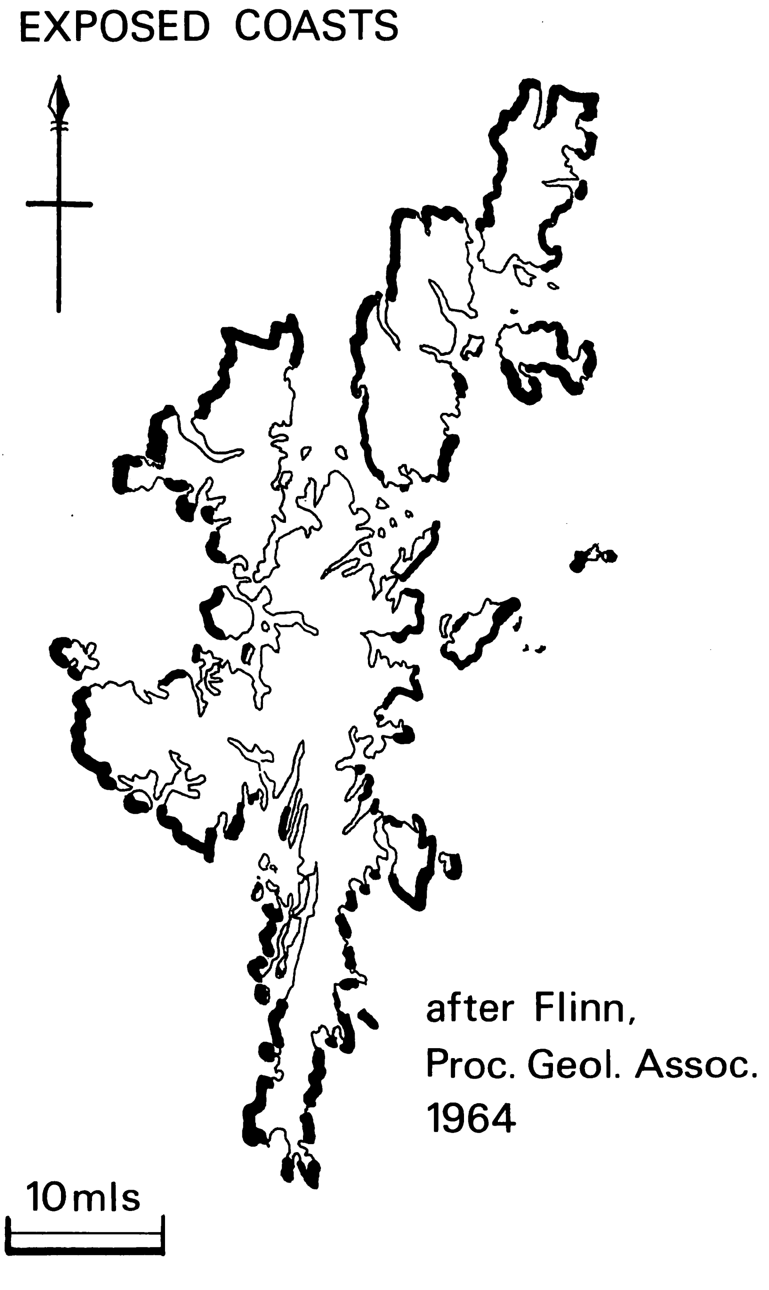
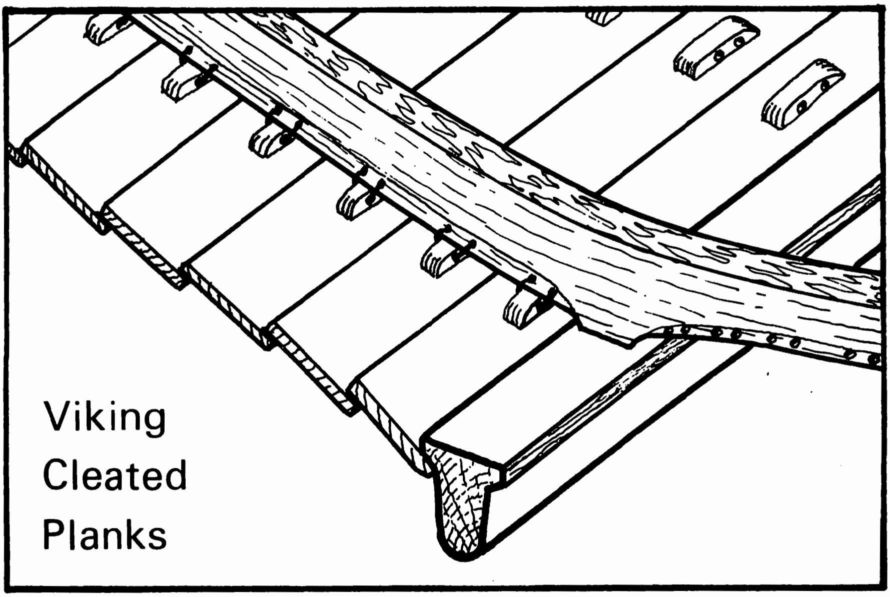


Fig. 7.3.


Viking
Cleated
Planks

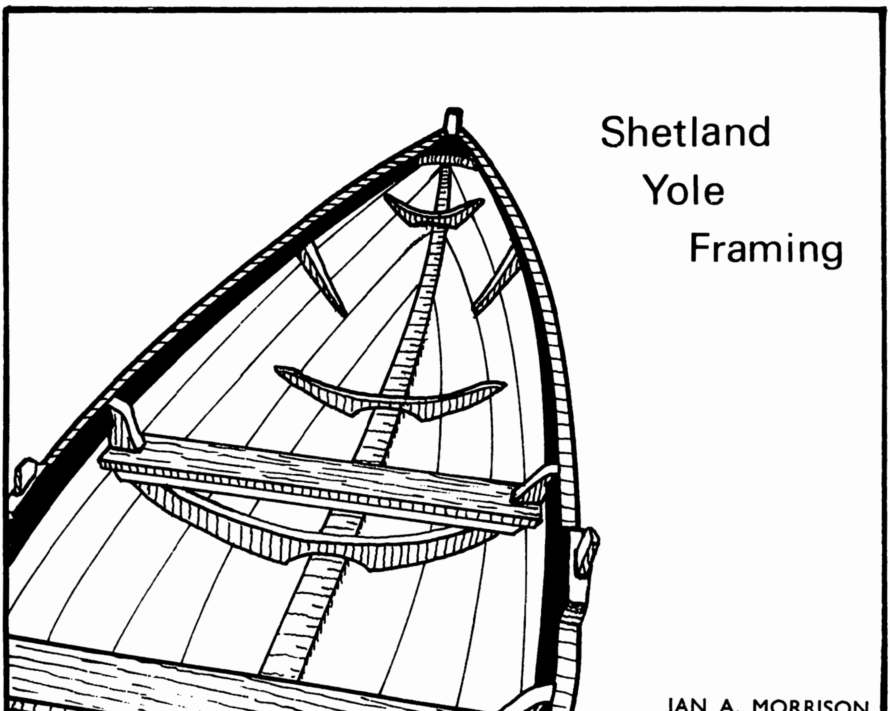

Shetland
Yole
Framing
IAN A. MORRISON

Fig. 7.4.

that took place in exceptional sea conditions. Undecked boats fishing far out in the open Atlantic often survived only through their sheer speed in making for shelter as heavy weather blew up. As with other 'state-of-the-art' racing craft, ancient and modern, they did not always get away with it. Captain Halcrow (1950. 74) noted there were authenticated cases of *sixareens* caught offshore in desperate conditions being driven against a head sea until they split in two along the keel from stem to stern.

Even in these — in Shetland terms — relatively stout vessels that fished the *far haaf* up to 90 miles offshore (Thowsen 1969), the few frames were likely to be as little as 3in. moulded by $2^1/_2$in. sided (ca $7^1/_2$ by $6^1/_2$ cm), while the gunwales tapered down from $3^1/_2$in. by 3in. (ca 9 by $7^1/_2$ cm) amidships to 2in. by $^3/_4$in. (5 by 2cm) at the ends, for an overall length of around 30ft. (ca 9m) (March 1970). The planking was around $^3/_4$in. (2cm) thick and as the *sixareens* developed, extra riblets called *da bettin baands* (the beating bands) were put in forrard to control the flexing and stop the boards splitting when beating to windward in a heavy thresh. In some of the lighter *yoles* on the other hand, where inertia was less, the ability of the bow to cope with pounding in a head sea was enhanced not through reinforcement but by increasing their elasticity ever farther. This was secured by tapering away the wales finely (so as not to localise stresses) and feathering them out completely around half a metre short of the stem.

The advantages of resilience in hull and rig are not merely structural. By not offering dead resistance, a boat tends to come to better terms with wind and wave, to the advantage of its speed. This is no new discovery by the modern proponents of whippy masts for racing yachts. In war, under sail, a pursued vessel would sometimes loosen the mast chocks. Furthermore, it was well known in the days of the clippers that a newly laden vessel would sail like a log until her load loosened up and her hull regained its customary suppleness. Richard Henry Dana gave a graphic description of this in *Two Years Before the Mast.* Commenting on the association in Shetland minds between hull flexibility and speed, Sandison (1954. 14) quotes the Shetland story of a merchant vessel being overtaken by a privateer until her captain cut all the hanging knees stiffening the vessel. She then escaped, though she arrived in port like a basket!

It was once thought that the Viking technique of lashing the ribs to cleats [Fig. 7.4.] carved individually on the planks, using bindings of walrus tendon or spruce root, say, was a primitive and unsophisticated aspect of their ship building. However, they used iron spikes freely in the upperworks, and reserved the laborious cleat-and-lashing technique for the crucial underwater body. It therefore seems likely that like the Shetlanders they were well aware of the advantages of a judicious measure of elasticity in a hull, and were willing to go to considerable trouble to secure it. In Captain Andersen's replica of the Gokstad ship, the gunwales regularly flexed 6in. (ca 15cm) out of line in a seaway.

SMALL BOAT SEAMANSHIP: OARS, RUDDERS, SAILS

The speeds actually attained by replicas of Viking and later Norwegian vessels are impressive. For example, the National Maritime Museum's *faering* reached sprint speeds of $7^1/_2$ knots under oars (NMM 1974 pt 2), and in 1974 *fembøring* replicas achieved 15 knots under sail. Drawing attention to this, Arne Emil Christensen (op.cit.) suggests that these vessels in the Viking tradition are so light for their size that they cannot be described as true displacement hulls, and that they show a tendency to plane that is worth further investigation.

Shetland evidence seems to bear this out. The boats of the isles, like the Norwegian vessels, lack the long flat run with broad sections aft that is characteristic of most modern craft such as sailing dinghies that depend for their performance on dynamic lift. Nevertheless, some of the calculations and direct measurements by Sandison would seem to suggest that the *sixareens* of the past, and also present day 'Shetland model' racing craft, have planed, because they appear to exceed the theoretical limiting speed for true displacement craft of their waterline lengths. The old description that he quotes to explain the traditional term *sea-loose* is also suggestive of planing. A *sixareen* became *sea-loose* when 'she was travelling so fast that the "fluid" under her became a mixture of air and water, and the noise it made was said to be as if "she was being drawn through a beach of pebbles". When sail was reduced she would become normal again' (op.cit. 19). Equally vivid is Captain Halcrow's account of how a veteran halyard man, blinded in an accident while fishing, yet carried through his vital role of controlling the area of the sail as they ran before a storm. Asked how he managed without his eyes, he replied 'My lugs did instead. Whin I heard da wind snorin under da third baand, I kent she wis gettin eneuch' (1950. 73). Over in Norway, old fishermen at Nordmøre told Arne Emil Christensen that a good *faering* 'should lift one strake out of the sea' when under sail, and half-a-strake when rowed by two men (Christensen & Morrison, op.cit.).

The ethnographic evidence and the experiments with replicas would thus seem to be pointing in the same direction in this instance. Let us now consider cases where there are apparent divergences. In their trials of the Gokstad *faering* replica, the National Maritime Museum team found much that pleased and impressed them in handling her. Two aspects proved problematic however. These involved firstly the spacing of the thwarts as it affected their rowing, and secondly the efficacy of the side rudder. Again, it would seem that Shetland practice may offer an interesting light on each case.

In the trials team, 'none liked the close proximity of the two rowers, as collisions occurred when they got out of time when the stroke was long' (NMM 1974 pt2.18). Their various rowers used what they described as a medium to long stroke, indicating that in their terms 'a total sweep of 54° is not extreme. A racing shell with a sliding seat will have a sweep of 70°' (pt2.34). This, together with their graph of stroke rate (pt2.22) and published photographs, suggests that while the replica was certainly being rowed effectively (as the $7^1/_2$ knot sprint demonstrates), the trials oarsmen, some regatta-trained, were using a very different style from that traditional among the *yole* men of Dunrossness and Fair Isle. These latter use a markedly short but powerful stroke, making the whip in the oars work for them. Edgar March (1970. I. 49) describes this not unfairly as a 'chopping' stroke, and in a spurt to cut a tide string, rates of striking may sometimes reach as high as 45 per minute.

There would seem to be two reasons for suggesting that the Shetland type of style should be considered in further experiments assessing the *faering*. Firstly, it is a safe and effective style, evolved to deal with the lumpy cross-waves characteristic around the skerries and headlands of the Norse homelands in Norway and the Atlantic isles. There, in rough weather, wave reflections from coast and reefs set up a zone of confused seas that can often be several miles wide, and the balance of both man and boat would be vulnerable in a long stroke. Secondly, the style is fully compatible with closely spaced thwarts. This is a feature that the Shetland and Fair Isle *yoles* and many Norwegian traditional craft share with the Gokstad *faering,* and the evidence from the islands is that it is neither arbitrary nor undesirable, but in fact an important element in their success as seaboats.

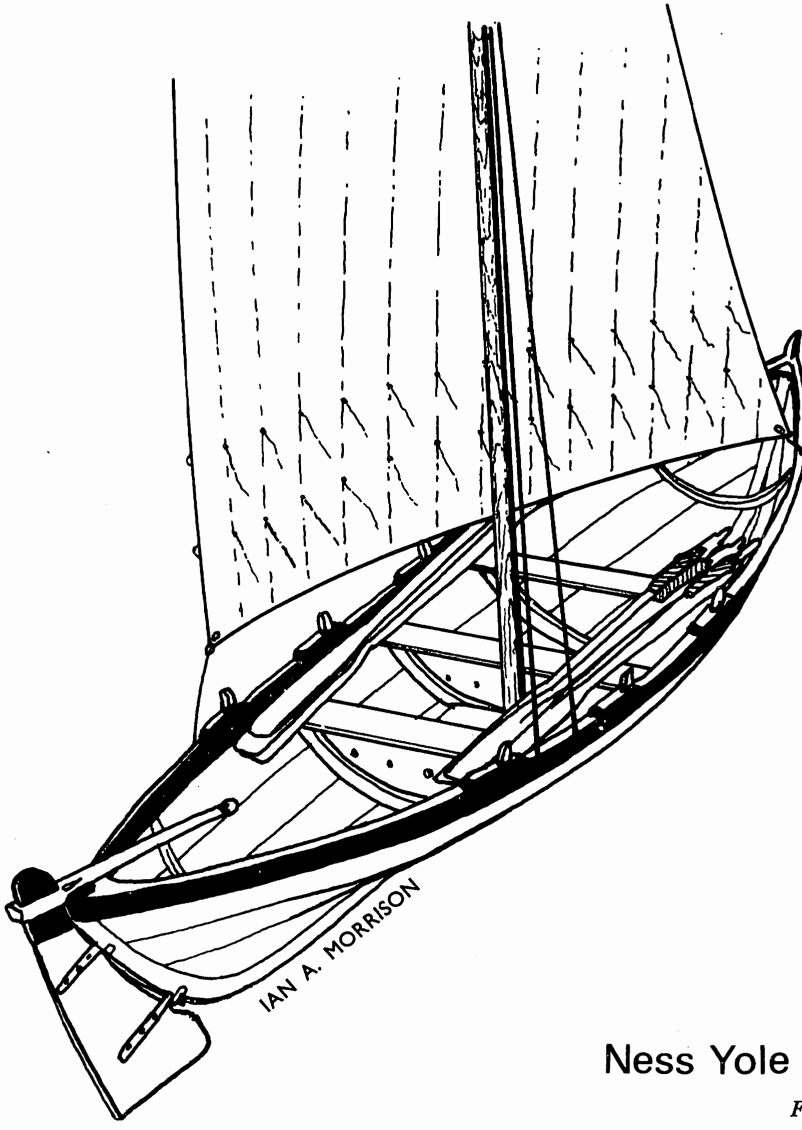
Thus, consistent with the Norse emphasis on strength based on in-built resilience, their internal structure is minimal. There are only two major frames in the two-man *yoles*, three in the three-man, each with the rowing thwart or *taft* fitting directly across it. They are grouped tightly together amidships only ca 3ft. (ca 0.9m) apart [Fig. 7.5.]. This gives a close concentration of the main structural weight and the crew's weight amidships. The ends of the boat are kept light and empty to minimise inertia there, a quality also much sought after by present day offshore racing yachtsmen, who also want to be able to maintain speed in heavy weather. Taken along with their strong sheer and high flared ends, the result is a lively response in pitch to cope with steep waves.

This is achieved by the tight midships grouping of weight without sacrificing the long slim build that gives them not only good rowing qualities but the directional stability necessary to prevent broaching to in confused seas. This is a vital feature because freeboard amidships is minimal in both, to reduce wind resistance. A matching easy response in roll to keep wave crests from coming aboard laterally is secured in both *faering* and *yole* by short slack bilge profiles (cf Goodlad 1971. 104) [Fig. 7.6].

The close spacing of the rowers is hence fully acceptable in Shetland or Norwegian eyes, as an integral part of a design strategy for coping with the difficult sea conditions immediately offshore there. It is notable that the trials team concluded that they felt that their *faering* 'would pass the ultimate test ... [to] look after herself, when the weather had so tired and perhaps frightened her crew that they were no longer able to do their best for her.' (NMM pt2.26). It thus seems little wonder that the effectiveness of this particular Norse combination of form and balance engendered the type of attitude encountered by Tom Henderson at Spiggie, so that this specialised style of boat has continued to be built for so many generations of seamen.

The second problem arising from the trials was that the side rudder of the replica [Fig. 7.7.] proved effective only for small angles of helm (NMM pt2. 14,15,26). It seems reasonable to start from the assumption not only that the trials observation is correct, but also that (like the close spacing of the thwarts) this should be explicable in terms of an operationally effective way of handling the boat.

Certainly, it would seem dangerous to assume that the restriction of effectiveness to small angles indicated the limit of the Viking shipwright's competence. Here experiments carried out with the replica of the Vorsa side rudder on the Danish reconstruction of the Ladby ship [Fig. 7.7.] seem very relevant. When a competition was tried between rowers and helmsman, the crew rowing one side only while opposite helm was applied, the ship turned against the oars '... and it was possible to hold the helm in position with a single finger in spite of energetic efforts on the part of the rowers to turn the ship the other way' (Crumlin-Pedersen 1966. 257). She also answered well with



Ness Yole

Fig. 7.5.

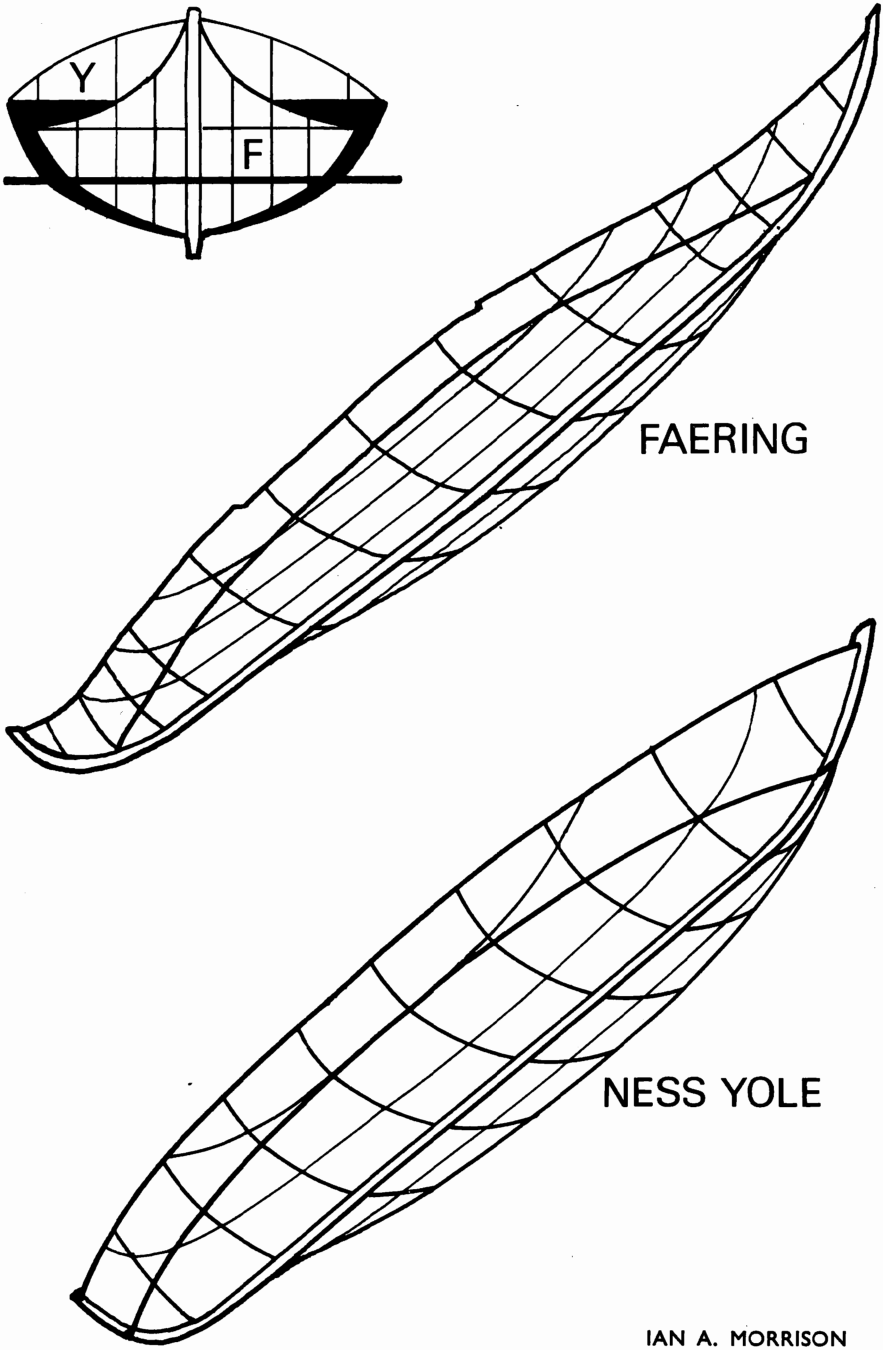
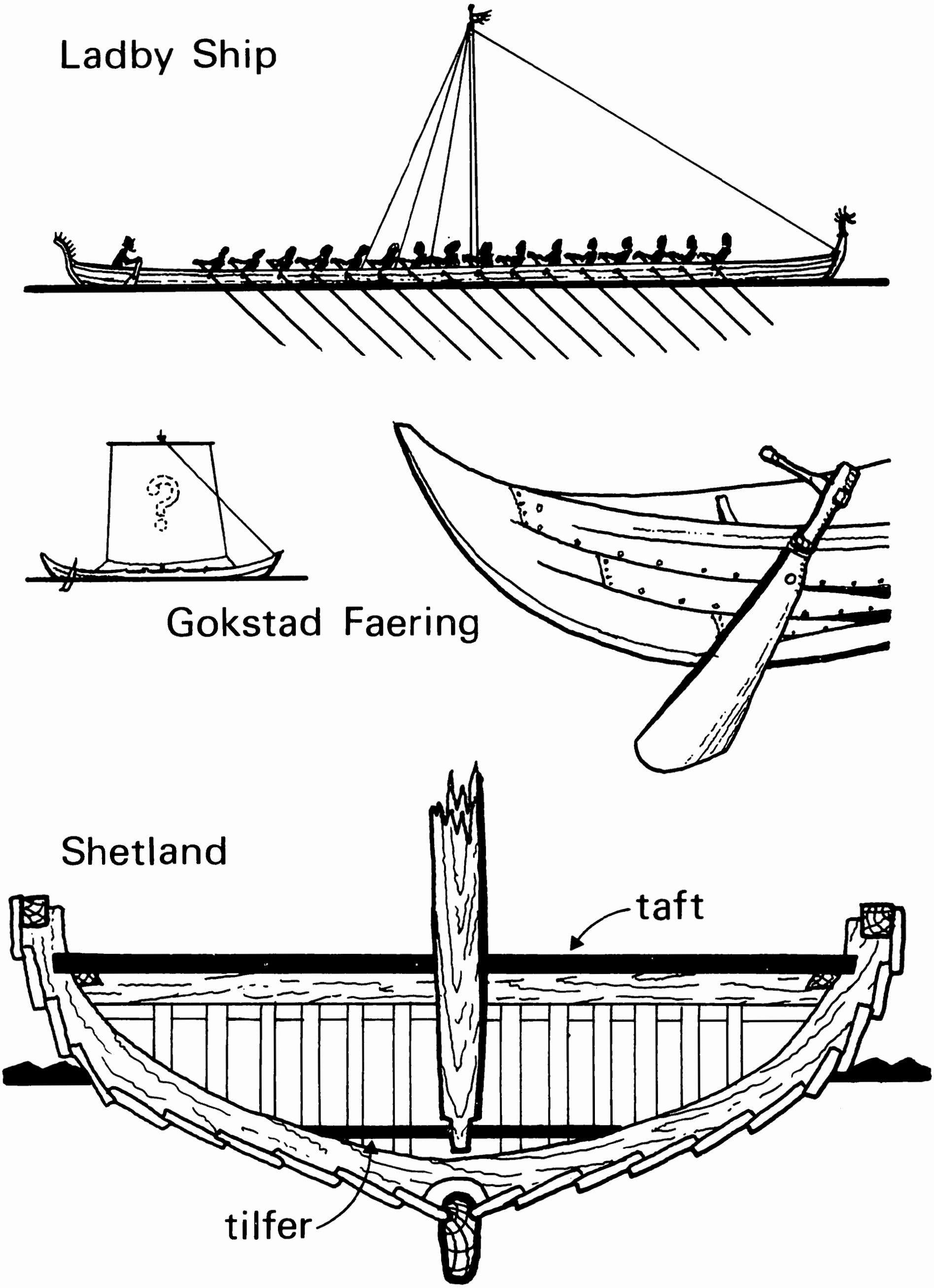


Fig. 7.6.



IAN A. MORRISON

Fig. 7.7.

helm angles as large as 45°. It would thus seem that neither the potential power of side rudders, nor the ability of Viking boat builders to develop versions that reflected their intentions, should be under-rated.

The National Maritime Museum's experiments were under oars and not sail, and it appears valid to question whether the *faering's* rudder was originally intended for this. In the similarly shaped Shetland *yoles*, despite their well-developed stern rudders, the oars themselves are the most effective means of close-quarter manoeuvring. Equally, though careful courses were steered to the fishing *meads,* on the long pulls out to offshore grounds the deadweight of a helmsman was not a welcome notion. Charles Johnston for instance gives a clear picture of a routine nine hour row out to grounds thirty miles away in a *sixareen.* The crew of seven (four men and three boys) pulled eight oars, stroke having the pair (Johnston 1932). As Captain Halcrow (1950.75) comments, a helmsman 'would have meant a hand less at the oars'. In such contexts then, the relevance of the rudder's performance is essentially to sailing rather than to rowing.

Whether the Gokstad *faering* was a sail boat or not has however always been somewhat controversial, because of the imperfect state of what was excavated. In Shetland traditional practice, the mast step is on a removable *tilfer* (floor board), rather than being integral with the keel. The mast also locates in a notch in the sail *taft* (thwart), but this too is removable [Fig. 7.7.]. Thus even in an undamaged boat, laid up or merely stripped out for beaching or portage, there would be little to identify her as a sailing craft. The remains of the original *faering* do show what appear to be holes for shrouds. When it is considered that, except in going about, in sailing one generally tries to avoid coarse angles of helm because of their braking effect, the practical results of the trials would seem to strengthen the case for believing that the *faering* was intended to sail, by emphasising the concentration on fine angles of trim in the mechanical and hydrodynamic characteristics of her side rudder.

Equally, it may be noted that in later centuries those who have used the 'stern', (as opposed to 'side') rudder have not always been interested in its full potential for forcing a ship's head round when changing tacks. The long-continued and widespread use of the whip-staff [Fig. 7.8] which also militates against coarse angles of helm, suggests that stern rudders have also frequently been installed primarily as fine-trimming devices, when alternative means of securing gross changes of course have been customary (e.g. such specialist 'steering sails' as those set on the spritsail topmast [Fig. 7.8] are apparent in the days of the whip-staff).

This again emphasises the important general point that in seeking to evaluate material remains they should not be assessed in isolation, in terms of their absolute potential, but rather viewed in relation to possible operational contexts. This involves considering their characteristics in terms of the likely range of aims and alternative *modus operandi* of their original users, i.e. in terms of their possible place within a total 'operational envelope'.

With this in mind, let us attempt to go further in putting the experimental observations together with Northern Isles practice, to see whether this may yield some additional insight into the Viking approach to small boat

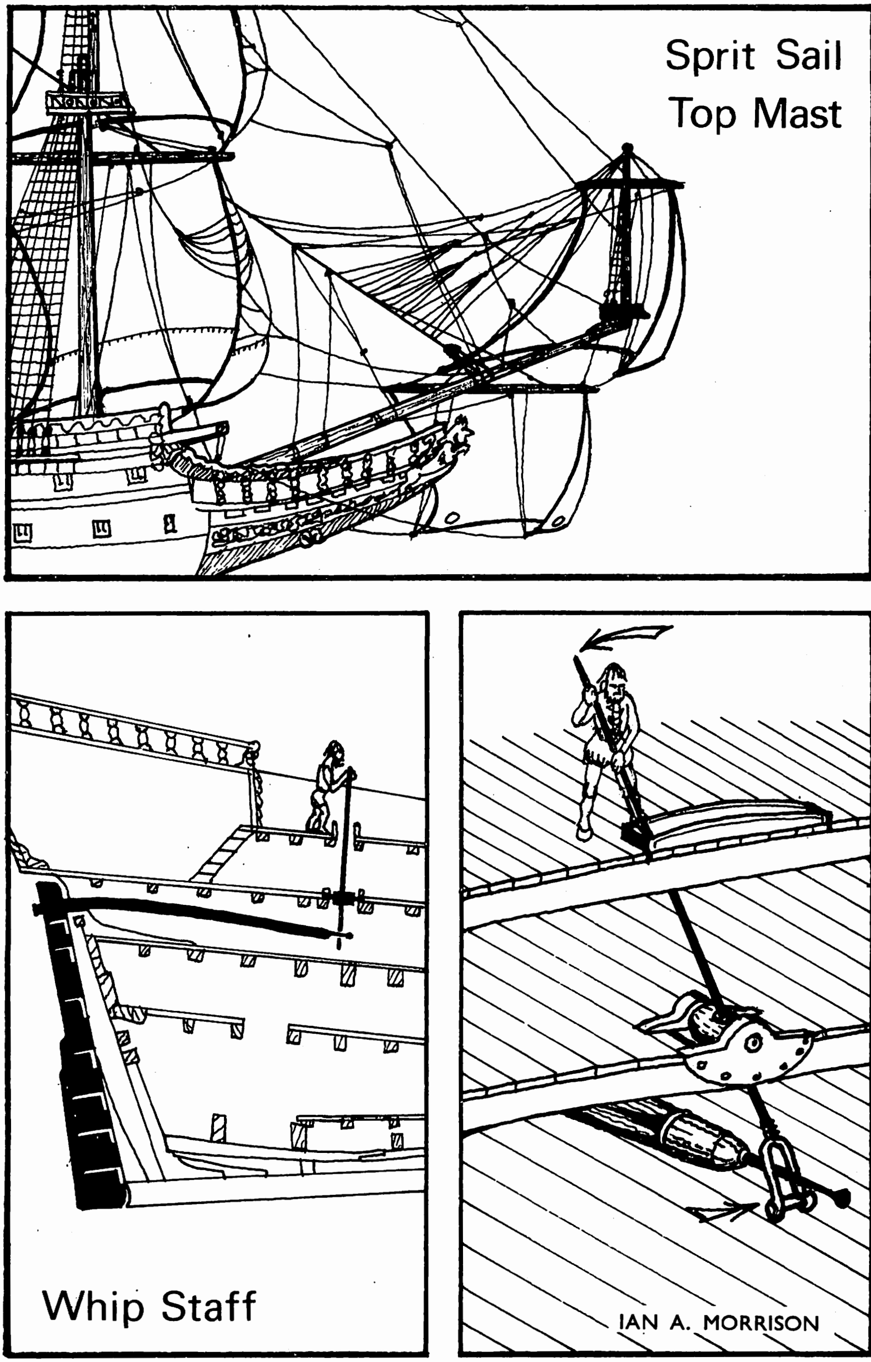


Fig. 7.8.

seamanship.

As noted above, the directional stability of the *faering* and *yole* hulls may be seen as a necessary safety feature. A lower aspect ratio hull would tack more easily, but their stability in yaw was preferable because of the dangers in broaching to. There is, in addition to this, evidence that in Shetland and Norwegian small boats handiness in going about under sail was given low priority on other grounds too, until quite recently. Today certainly, racing 'Shetland model' craft have lively tussles to windward in Lerwick regatta. However, emphasis on beating to windward and the high peaked lugsails that go with it seem distinctly late developments, probably brought on by the shift to *far haaf* fishing.

As Thowsen (1969) points out, until the final century of sail fishing craft, the boats imported into Shetland from Norway were rigged with a square sail (this remained the usual sail in Western Norway itself until the latter half of the 19th century). The *Ness* and, in particular, the *Fair Isle yoles* have in fact retained lugs cut so flat in the head as to be essentially square sails right into the 20th century [Fig. 7.9.]. To the end their rig was organised quite differently from the Scottish East Coast luggers, and reflected Norwegian practice (cf. Andersen, in Molaug et al. 1975).

The square sail, though a better sail for running, was not so weatherly as the Scottish-style lugsails with their taller tighter luffs. This was one farther disincentive for using the traditional square sail for working to windward; another was the laboriousness of handling the rig when going about. Edgar March (1970. I) quotes oral evidence from Shetland that nicely illustrates the attitude to tacking that these factors produced:-

'The idea of the old-time fishermen was that they reached the fishing ground quicker by rowing than by tacking ...' (p55); '... the son expressed the wish to put the sail up and tack to windward. The father replied that if there was any tacking he would refuse to steer... '(p57); ' ... a great deal of work had to be done when the boat was put about, so it was little wonder that the men preferred rowing when they had a head wind ...'(p55).

The 'great deal of work' involved first lowering the sail and undoing the *rakki* (parral). The yard was then drawn forward of the mast and turned, and the clew passed round to the other side. The tack was shifted across, the *rakki* refastened and the sail hoisted again. This all took time, and working in a seaway in boats with such low freeboard amidships (the *Fair Isle yoles* were sometimes barely 18in., i.e. 0.45m, deep inside at the mast thwart), to avoid swamping if the seas threw the head off, it was vital to have oars ready for immediate intervention.

The system of *kaeb* and *humlabund* (thole pin and grommet), common to the Viking *faering* and the later Norwegian and Shetland boats, is particularly well adapted for this [Fig. 7.10]. The flexible grommet allows the oar to be swung instantly inboard or outboard, yet retains it safely in either position in the liveliest of seas. The oar is restrained from rolling about inboard or (aided by a small nib on the loom) from slipping away if left hanging outboard.

Viewed in terms of an operational context of this kind where

(a) ability in tacking is given relatively low priority;

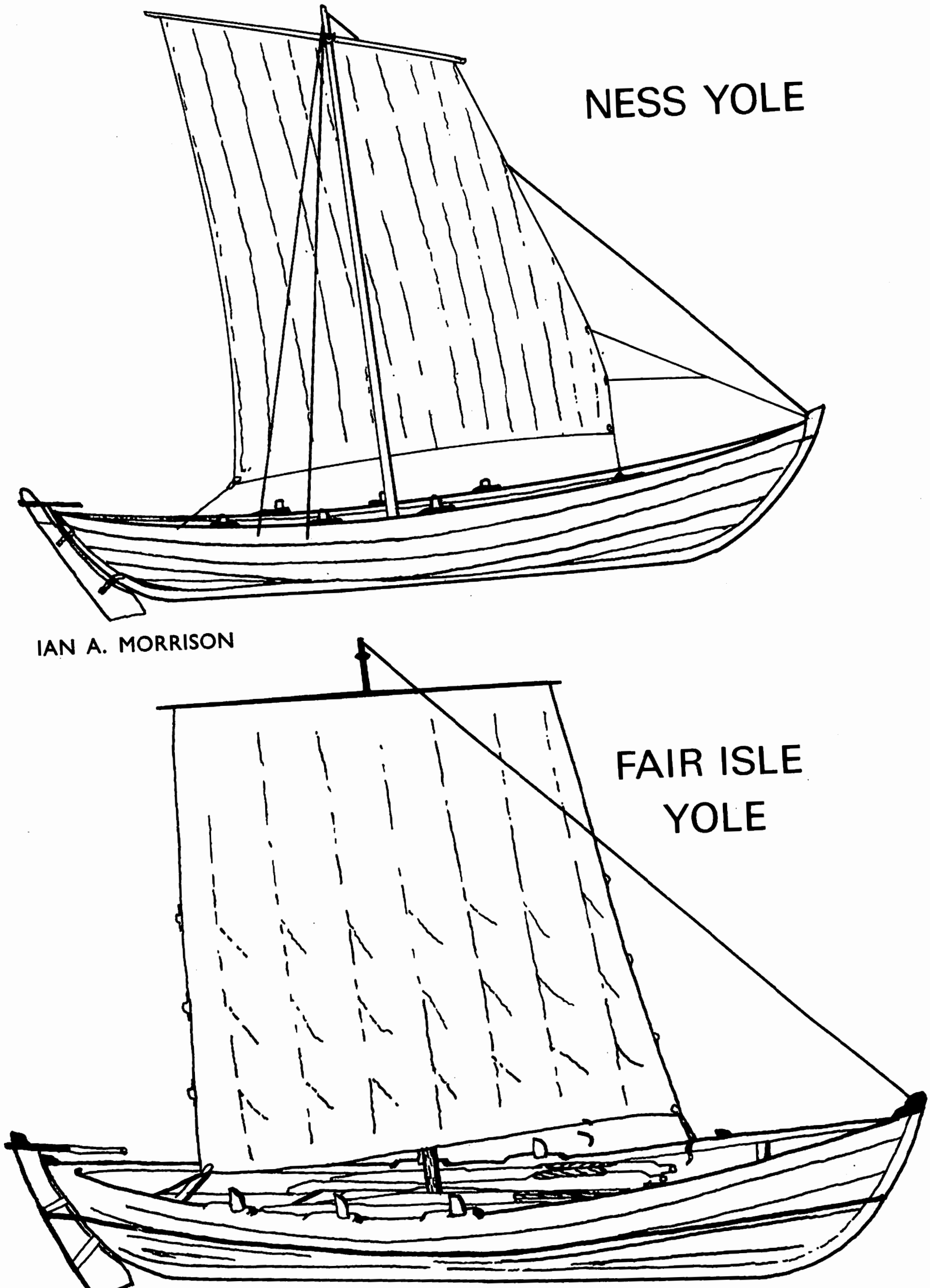
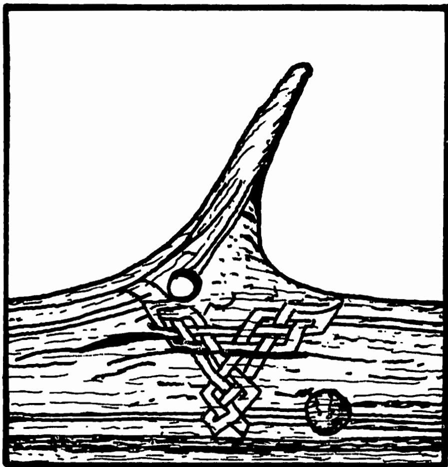
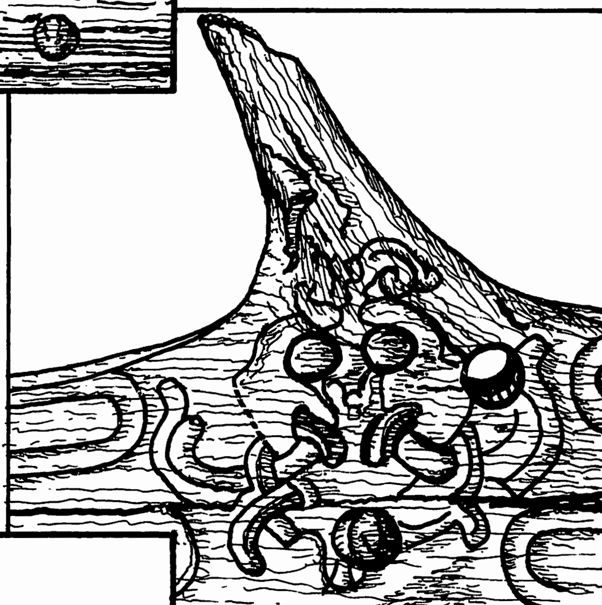
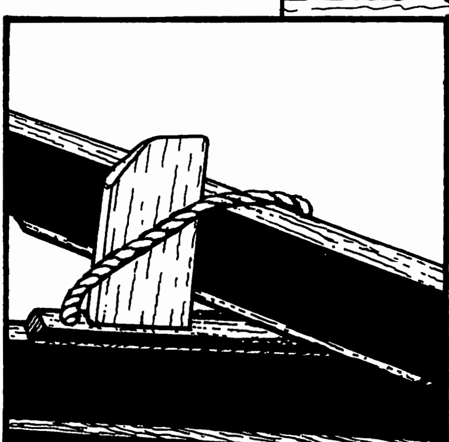


Fig. 7.9.



Gokstad Kaebs





Shetland Kaeb & Humlabund

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Fig. 7.10.

(b) the lightweight boat's momentum is lost in the time taken to re-set the sail;

(c) the oars are of necessity kept ready for action;

there would seem to be less of a problem than Eric McKee envisaged in his conclusion from the *faering's* trials that she would 'almost certainly have needed the assistance of an oar to put her about' (NMM pt2.26).

It is indeed tempting to go as far as to see the experimental observations fitting into a picture of boisterous northern seas amid reefs and skerries, in which the original *faering's* fast-striking Viking boatmen row their lithe craft rapidly to windward, on a course chosen to place her strategically for raising a squaresail to make a long run with the wind free.

It would be a most intriguing and indeed exciting extension of the valuable trials already carried out, to combine the experimental and ethnographic approaches directly by taking the little *faering* replica to Shetland. Arne Emil Christensen likes this notion too, adding the hope that Scandinavians as well as Shetlanders might take part — after all not all the Vikings left their homelands for the Atlantic islands! She could be tested under sail and oars in the exacting seas off Jarlshof itself, where they still fish the edge of the great Roost of Sumburgh in their *yoles*, in the very way Orkneyinga Saga tells us the *faerings* fished there when the boundary between Scandinavia and Scotland still lay far to the south.

Note

This paper has been modified from that originally presented in Shetland. Some of the material has been developed further in collaboration with Arne Emil Christensen (Christensen & Morrison 1976), and aspects of the developed discussion have been incorporated above.

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