"For I am long since weary of your storm
Of carnage . . . . ."

How telling it is, too, that in Arnold's poem the gentleness and wisdom that Snorri Sturluson ascribes to Baldur should find their expression in withdrawal and rejection of the world. Even Balder's vision of the new world which will rise from the ashes of the cataclysmic destruction at Ragnarok, "the doom of the gods", is overshadowed by the present, which begins to consume the future hope immediately it is articulated, eroding even the substantiality that a full poetic line might have afforded it:

"Such for the future is my hope; meanwhile,
I rest the thrall of Hela, and endure
Death, and the gloom which round me even now
Thickens, and to its inner gulph recalls."

Arnold aimed at providing and encouring the kind of poetry he felt the age needed, poetry that would, as he put it, "inspirit and rejoice the reader". But it was his own spiritual hunger, a despairing sense of loss and estrangement in the modern world (common to many of his contemporaries and succeeding generations), which fertilised his poetic imagination. Arnold's brief foray into the Norse world locates this tension.

Arnold's poem, like Carlyle's essay and Morris's renderings of the Sagas was inspired by the Norse culture which they all admired so much. But what makes these works so interesting is that they all reveal much more about the Victorian than about the Norseman.

THE POTENTIAL OF SHETLAND–MODEL HULLS FOR HIGH SPEEDS UNDER OAR AND SAIL

Ian A. Morrison

In this Society's special publication 'Scandinavian Shetland: An Ongoing Tradition?' and in an earlier paper (Christensen &

Morrison 1976) the present author considered the traditional Shetland term "sea-loose" and discussed the speeds and handling characteristics of sixareens and smaller boats as described by Sandison (1954), Johnston (1932) and Halcrow (1950). He concluded that the boats were capable of something akin to planing, that is they handled as though showing a tendency towards running over the water, rather than through it at their full draught. Furthermore, whilst potential maximum speeds may be calculated for true displacement craft (i.e. vessels supported fully by the water they displace, rather than by hydrodynamic lift), some Shetland boats seem to have gone faster than the theoretical limiting speeds implied by formulae commonly used.

In subsequent correspondence, the writer was taken to task for these views by a naval architect with experience of yacht design, who was adamant that full flat sections aft (the characteristic of the modern racing dinghy) were necessary for planing, and that Shetland style double-enders, finely tapered aft, while having good sea-keeping qualities, were not adapted to planing.

Scandinavian experience with double-enders seemed however to bear out the Shetland evidence. The writer's co-author in the 1976 paper, Arne Emil Christensen of the Viking Ships Museum, Oslo, quoted old fishermen of Nordmøre as stating that a good **faering** should "lift one strake out of the sea" when under sail, and half a strake when rowed by two men. He also noted the quite striking speeds for their size of over 15 knots achieved by the replicas of **fembøring** fishing boats sailed to Iceland in 1974 (op. cit. p. 277). Gjellested (1969 p. 21; translation in McGrail & Corlett 1977 p. 352) has also described how the double-ender boat type characteristic of Oselver "sometimes has characteristics which, to some extent, remind one of a hydofoil, and which are not noticeable until one is sailing hard downwind. The boat can then suddenly 'let go of the sea', as it is called, and shoot forward like an arrow . . .". The closeness of the Norwegian 'let go of the sea' to the Shetland 'become sea loose' is intriguing. Christensen (op. cit. p. 276) noted also that the sprint speed attained under

oars during the National Maritime Museum's sea trials of their replica of the Gokstad **faering** was 7.4 knots, whereas its theoretical maximum speed as a displacement craft is 5.66 knots. As illustrated in 'Scandinavian Shetland', the hull form of the **faering** is not dissimilar to that of the Ness Yoles of Shetland.

Let us now consider how far theory, observation and tradition may be reconciled.

Broadly, water resistance involves two components, skin friction and wave-making resistance. Skin friction is affected by surface roughness, and by the area of 'wetted surface'. The latter is relatively small in the slim, shallow draught craft characteristic of the Norwegian and Shetland traditions. Skin friction resistance rises slowly and steadily with speed (roughly but not exactly as the square of the velocity; Landels 1978).

Wave-making resistance, which occurs when the boat throws up a wash, does not behave in this way however. It is almost negligible at first, then rises more sharply with increasing speed, until it finally increases dramatically. At that stage, the application of more power merely causes the stern of a displacement craft to 'squat', and a larger wake is entrained without any increase in speed commensurate with the increase in effort. These changes of regime may be determined in terms of a factor known as Froude's number, obtained by dividing speed by the square root of waterline length, in suitable units.

Another factor besides waterline length that must be taken into account is the 'fullnes' of the hull i.e. whether a vessel is slender for its length or relatively tubby. For many purposes in designing conventional modern ships, naval architects find it both convenient and adequate to make their calculations involving 'fullness' in terms approximated by the prismatic coefficient of the hull (i.e. using the concept of the prism encompassing its outline). This approach has its limitations however, and as Sean McGrail of the National

Maritime Museum and Ewan Corlett the naval architect have recently emphasised (1977 pp. 352–3) these limitations apply notably to vessels of the slim Norse-derived types considered here. For these it is more meaningful to make a more detailed calculation of a volumetric coefficient defined in terms of the actual displacement volume in cubic metres, divided by the cube of the waterline length in metres.

Dr Corlett has demonstrated (1969 p. 403) that if a hull has a low enough volumetric coefficient (2 or less, times 10^{-3}), residuary resistance at Froude numbers greater than about 0.18 is independent of the prismatic coefficient. "Furthermore" as McGrail and Corlett put it (p. 352) "as with planing forms, the non-dimensional residuary resistance coefficient becomes constant, related to speed length ratio". Performance thus does not conform to expectations of theoretical limiting speeds from the other basis. So a boat of this order of volumetric coefficient "can be driven at very high speeds without excessive squat or wave making". Technically "it will not be planing, although it will have the appearance of doing so" (p. 352). They adopt the term 'semi-plane' to avoid confusion.

It would thus seem that when more refined theory is brought into play, the accounts given by the Norwegian and Shetland fishermen of the performance of their craft are vindicated. To those who fished northern waters in open boats, it was clearly a vital matter to evolve craft combining the seaworthiness of double-enders with the potential for fast sprints under oars to cut tide strings, and the capability for high speed runs under sail to head for shelter if the weather broke while fishing da far haaf.

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ANNUAL CONFERENCE ISLAY
27th March – 1st April 1978

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People join the Scottish Society for Northern Studies for a variety of reasons: members include archaeologists, historians, linguistists and general nordophiles. If one permutates this with the multiplicity of reasons for spending an Easter vacation at a conference on Islay, one begins to realise the problem facing our organisers: 36 individuals with different backgrounds, different interests, different expectations. It is to the credit of John Baldwin and Ian Fraser that they produced a programme that satisfied all those expectations, though it may not have had the coherence of previous conferences.

This lack of continuity was largely due to the paucity of Northern remains on Islay. We heard references to a doubtful longhouse site, to the burial site of Ballinaby, and to scattered small finds. No theories were laid before us to explain this but since the place-name evidence suggests more extensive settlement,