Rubh’ an Dùnain, Bracadale, Skye

Data Structure Report

September 2009

RUBH' AN DÙNAIN 2009

Data Structure Report

(Text by Colin Martin unless otherwise stated)

1. Summary

1.1. Two weeks of non-intrusive fieldwork funded by Historic Scotland were conducted in and around Loch na h-Àirde on the Rubh' an Dùnain peninsula of SW Skye between 24 April and 9 May 2009. This followed the discovery in 2000 and 2008 of medieval boat remains there by Dr David MacFadyen, and the earlier recognition by Roger Miket of the site's probable historical association with watercraft, manifested by the conjunction of a dun, what have been identified as two boat docks (nausts), and a partly artificial channel linking the loch to the sea. The survey included a visual search of the loch bed, EDM plotting of the loch, canal, and adjacent topography, high-level panoramic photography, and plane-table and PhotoModeler surveys. This programme was substantially completed, although time, access difficulties, weather, and other constraints have left some aspects of the work unfinished. The survey was complemented by a preliminary environmental sampling of sediments in Loch na h-Àirde and a small un-named lochan nearby. Aerial reconnaissance was subsequently conducted in collaboration with RCAHMS. Off-site work has included a search of the muniments at Dunvegan and other documentary sources, and the recording and analysis of the previously found boat timbers.

1.2. The site has clearly been a focus of maritime activity for many centuries, reflected by physical evidence and its traditional associations with the MacAskills and Macleods. It is likely that the loch and canal were used for the secure wintering of vessels, and perhaps for their construction and maintenance, possibilities reinforced by the identification of the remains of a now-submerged stone-built quay just beyond the canal's entrance into the loch. The associations of these various features, and their chronological relationships, have the potential to reveal aspects of the use of watercraft on Scotland's western seaboard in the medieval period, and perhaps during the early historic and prehistoric eras as well. No directly comparable site in Scotland is known. The discovery of diagnostically-significant medieval boat timbers, which are extremely rare in Scotland (they are known elsewhere only from Eigg, Loch Laggan, and Perth High Street), is of considerable significance in itself.

2. Introduction

2.1. *Previous work*: A galleried promontory dun (NMRS site NG31 NE1) was noted in the RCAHMS *Inventory* of 1928 (144, No. 483). A chambered cairn (NMRS site NG31 NE2) was also noted in the *Inventory*. Other features, including vernacular buildings and cultivation traces, are listed in NMRS. The cairn was excavated by W.Lindsay Scott in the 1930s (*PSAS* 66 (1932), 183–213; *ibid*., 68 (1934), 194–9). Scott also excavated a cave, Craig a' Chapuill (NMRS site NG31 NE5) (*PSAS* 68 (1934), 200–23). This revealed evidence of iron-working and the finds included a wooden blade-like object which has been further studied by R. Mowat (1966, 36–8).

In the late 1980s Roger Miket, then working on Skye, began investigating the site, and in March 1995 commissioned a survey of the loch, canal, and adjacent features by Adam Welfare and D. Kear (Fig. 1). This was subsequently published in Miket and Roberts (2007). In July 1995 Dr Nicholas Dixon of the Scottish Trust for Underwater Archaeology was

commissioned to carry out a preliminary underwater search of Loch na h-Àirde. Some boat timbers were observed on the shallow silty bottom but left *in situ*. In 2000 Dr David MacFadyen, of Tarskavaig, Skye, exploring the reeded margins of the loch when its level was exceptionally low, recovered an oak boat timber (Appendix C) which was subsquently lodged in the Inverness Museum and later radiocarbon dated to *c* 1100 AD (Appendix E). The piece can confidently be identified as a *bite*—the transverse timber which joined the upper midships strakes of a clinker-built boat in the NW European tradition. Its configuration and dimensions suggest that it was part of a vessel similar in construction and size to the *faering* (6.1 x 1.38m) found in conjunction with the ship burial of *c*. 900 AD from Gokstad in Norway (McGrail, 1974). In 2008 Dr MacFadyen discovered two more pieces of timber, one of which is the frame of a substantially larger clinker-built vessel (Appendix C). It has not yet been dated.

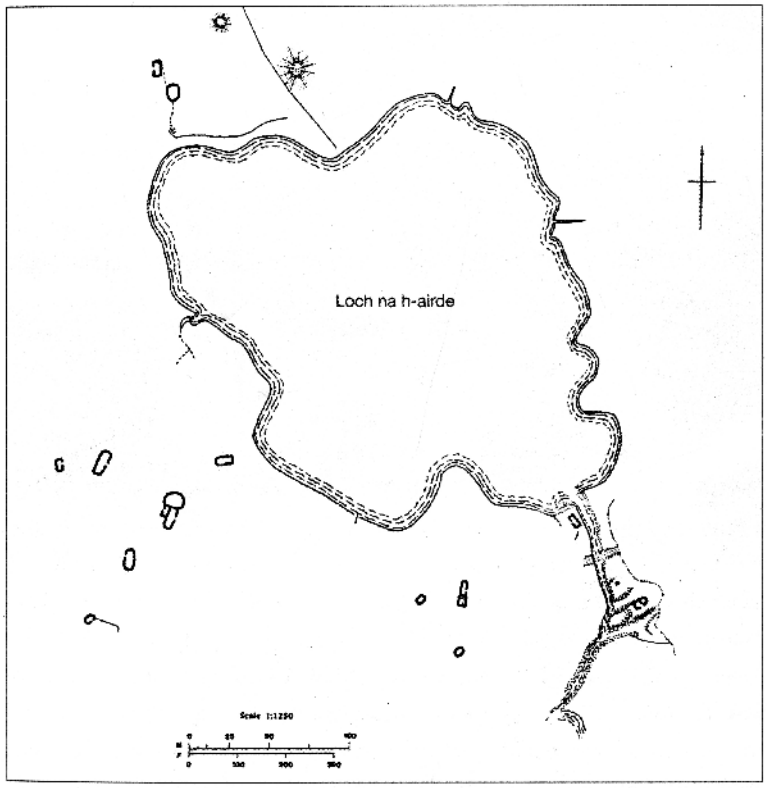


Figure 1. The 1995 survey, from Miket and Roberts (2007), p.xi.

2.2. *Background to the present project*: Following an initiative by Roger Miket, Historic Scotland hosted a meeting of potentially interested parties at Longmore House on 2 September 2008, under the chairmanship of Philip Robertson. Those attending included Roger Miket (the Gefrin Trust); Dr Nicholas Dixon and Ms Barrie Andrian (Scottish Trust for Underwater Archaeology); Dr David Caldwell (National Museums of Scotland); and Dr Colin Martin (Morvern Maritime Centre). Roger Miket tabled an outline proposal for an interdisciplinary investigation of the loch and its surroundings, involving marine, terrestrial, and environmental archaeology supported by documentary, cultural, and place-name research, and this was unanimously endorsed. Philip Robertson confirmed that Historic Scotland would encourage the development of such a project, and those present expressed their willingness to become involved as appropriate. Colin Martin undertook to prepare a bid to cover preliminary work in 2009 for submission to Historic Scotland. This was subsequently formulated under the aegis of Morvern Maritime Centre, a charitable company registered in Scotland, and the submission was successful in obtaining funding to carry out an assessment survey in 2009.

2.3. *Local involvement and support*: A follow-up meeting was held at Sabhal Mòr Ostaig (the

Gaelic College on Skye) on 16 September 2008, chaired by Gavin Parsons of the College. Those attending were: Dr Noel Fojut (Historic Scotland); Dr Hugh Cheape (Sabhal Mòr Ostaig); Hugh Macleod of Harris and Dunvegan (landowner); Martin Wildgoose and Stephen Birch (Skye-based archaeologists); Drs Colin and Paula Martin (Morvern Maritime Centre); and Dr David MacFadyen (Skye). The research potential of the site was discussed, and the College expressed interest in adding its expertise in local studies, Gaelic language and literature, place-name studies, and material culture to the interdisciplinary mix. This was warmly received. Operational and logistical aspects of the project, and the need to respect the sensitivities of environment, wildlife, and farming activities, were then considered. It was agreed that the project would liaise with the farmer, Hugh Macrae, and the local SNH officer, Alex Turner, on these matters. Subject to this requirement being met, Hugh Macleod was extremely supportive of the project, and emphasised the desirability of carefully-managed publicity to avoid any negative impacts on the site, offering his expertise as a former media professional in helping to secure this. He also generously offered the project free access to the Dunvegan archives.

2.4. *Location of the study area*: The main area of the survey is centred on Loch na h-Àirde (NG 3940 1620) and a radius of some 350m around that point (Fig. 2). Less intensive (and lower priority) survey is proposed for the peninsula as a whole, defined by the Slochd Dubh (Black Dyke) which cuts it off on the E, running from NG 4010 1740 to 4985 1635, with particular interest focused on the main settlement centred on 4015 1650 (Fig. 3).

Figure 2. The end of the peninsula, showing the dun, loch and canal (Colin Martin).

2.5. *Duration of work*: A preliminary visit to the site was made by Colin Martin on 19 November 2008. The main season took place between 23 April and 9 May 2009, based at a

self-catering cottage at Carbost. Those involved were Dr Colin Martin (23 April–9 May), Dr Paula Martin (24 April–9 May), Edward Martin (23 April–8 May), Peter Martin (24 April–8 May), Roger Miket (27 April–7 May), Dr David Caldwell (27 April–7 May), and Dr Chris Burgess (1–5 May). Dr Richard Tipping (University of Stirling) carried out a reconnaissance coring of loch-bed sediments on 6 May.

Figure 3. Main area of settlement (Colin Martin).

2.6. *Access and logistics*: The site lies to the SW of the Cuillin massif, some 6km from the nearest road access at Glenbrittle (Fig. 4). There is a track for much of the way which Hugh Macrae has improved to accommodate all-terrain farm vehicles, and he kindly gave us permission to use it. However the LandRover Discovery hired for the operation proved unable to negotiate the first ford about 1km up the track, and we were obliged to walk from this point each day. This reduced working days on the site by up to four hours which, coupled with an unseasonally poor spell of weather, seriously restricted the amount of work that could be accomplished. The option of using boat transport had been considered but the exposed conditions at the head of Loch Brittle and around the site created a high risk of losing whole days because of weather, and was therefore rejected. However our small inflatable boat proved invaluable in transporting heavier equipment to the site (and getting it back), and supporting search and coring operations in the loch. A tent was maintained on site for the overnight storage of equipment and team comfort during breaks.

3. Objectives and methodologies

3.1. *Overall strategy*: The primary aim of the project is to obtain, through intensive non-intrusive survey, as full an understanding as possible of the site and its potential for future

research. This information will be used to identify any threats to the site, whether human or natural, and inform future decisions on its protection, access, and management.

Figure 4. The peninsula from the air, Glenbrittle towards upper left. (Edward Martin)

3.2. *Search of the loch*: A datum line 220m long was established on the axis of the loch, between NG 3945 1610 and 3935 1631. This datum was used to project lines running at right-angles from it in either direction at each end, along which corresponding paired opposing points were marked with pegs at 3m intervals. Angle-iron holdfasts located sequentially on these points were then used to stretch a rope defining search lanes which were moved progressively across the loch. The loch is extremely shallow, most being less than 1.5 m deep under normal conditions. Much of its floor is covered with weed, which militates against the recognition of timbers or other evidence, though there are substantial areas of unencumbered silt (Fig. 5). Although the water is generally clear its shallowness means that the bottom sediments are easily disturbed. Moreover the interface between the loch's largely fresh water make-up, derived from drainage from the *c*.1 km^2 basin surrounding it, and the salt water ingress which occurs during high tides and floats on top of the fresh water, is easily disturbed by a swimmer or boat. When mixed it forms an opaque partial solution not unlike the effect obtained by adding water to whisky. These characteristics make free-swimming snorkel searches guided by the datum lines difficult, since the shallow depth makes it easy to disturb the bottom sediments with finning, while the mixing effect of salt and fresh water, though it does not seriously restrict the forward view of a swimming snorkeller, is triggered whenever he stops to examine something more closely. These difficulties were partially solved by using a small inflatable raft on which the snorkeller lay prone, pulling himself along the line. Aerial photography has since provided more information about the underwater morphology of the loch, and this, together with observations made during Nick Dixon's 1995 search, will assist future work (Fig. 6).

Figure 5. Loch na h-Àirde, showing underwater topography and vegetation. (Colin Martin)

Figure 6. Snorkeller on raft following datum line. (Colin Martin)

3.3. *Survey of the canal*:
Three separate survey techniques were applied to the canal (Fig. 7). A conventional plane-table survey with self-reducing alidade was conducted by Martin Wildgoose to a scale of 1:100 (Fig. 8). The canal was also surveyed, together with adjacent features and the major part of the loch's margins, by Chris Burgess using a Leica TCRP1205 = R1000, 5" (1.5mgon)

Figure 7. The canal and its immediate surroundings. (Colin Martin)

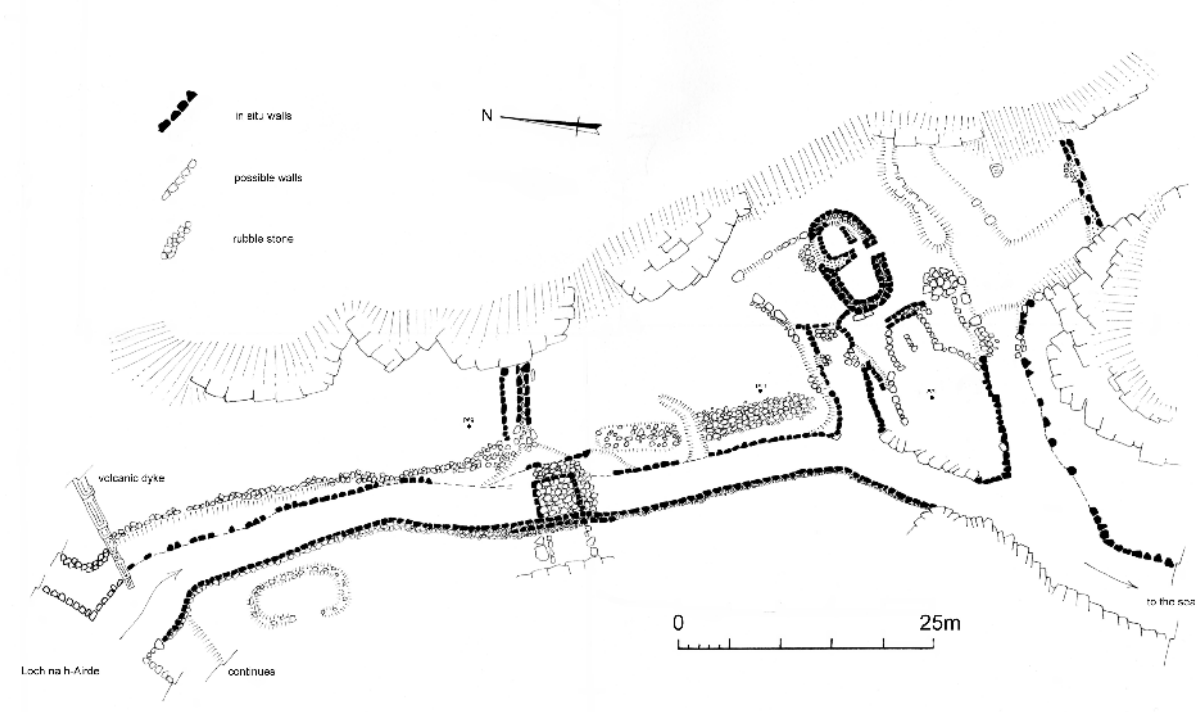


Figure 8. Survey of the canal and associated features. (Martin Wildgoose)

total station with reflectorless EDM, automatic target recognition, PowerSearch, and laser plummet.Leica had provided this equipment at a reduced charge in return for publicity, together with an undertaking to conduct the necessary post-survey processing of the data. Unfortunately the processing had not been completed at the time of writing, which in turn has delayed production of a third set of survey data. This is a PhotoModeler record of the canal undertaken by Roger Miket, who received training in the technique and the calibration of his camera prior to the project. He was assisted in the field by David Caldwell and Peter Martin. The fieldwork involved the careful setting out of the canal feature with datum markers and lines, tied in with the EDM survey and coupled with the taking of a large number of calibrated digital photographs. Thus, although the required data has been obtained, its final resolution awaits the completion of Leica's processing of the EDM survey (Fig. 9).

Figure 9. Left: reflectorless EDM survey. Right, setting out datums for PhotoModeler survey (Colin Martin; Edward Martin)

3.4. *Photography*: Under Edward Martin's direction a 15m Easy Up photographic mast was deployed on site to take high-angle obliques of archaeological features, some of which were processed into panoramas using Photoshop (Fig. 10). These included views of the canal, dun, loch, quay, and settlement. Conventional photographs were taken as appropriate during all stages of the survey, recording not only archaeological features but also the various methodologies employed. Underwater photographs were taken of the quay. Pictures were also taken for publicity purposes.

3.5. *Loch-bed coring*: This was conducted by Richard Tipping on 6 May, assisted by Peter Martin who acted as boatman. Richard's report is attached as Appendix A.

Figure 10. Photo-mast at the dun. (Colin Martin)

3.6. *Archival research*: This was conducted in the Dunvegan muniments and elsewhere by Paula Martin. A full report is attached as Appendix B.

3.7. *Aerial reconnaissance and photography*: Through an arrangement kindly made by Dave Cowley of RCAHMS, the Commission's aircraft was made available to the project while it was based at Connel airfield near Oban. On 31 May Colin Martin, accompanied by Edward Martin and piloted by Ronnie Cowan, undertook a 2½-hour sortie to photograph the features at Rubh' an Dùnain. On the way opportunity was taken to photograph the site at Laig on Eigg, where early boat remains were discovered in the 19th century. Some close parallels with Rubh' an Dùnain were noted (see Appendix D).

3.8. *The Rubh' an Dùnain boat remains*: On 24 August Colin Martin visited Martin Wildgoose on Skye to examine and record the ship timber found by David MacFadyen at Rubh' an Dùnain in 2006, and on 2 September he travelled to Inverness to record the 2000 find. A full report (Appendix C), and the radiocarbon dating certificate for the 2000 timber, is attached (Appendix E).

4. Contextual framework for the 2009 survey (Roger Miket)
4.1. The generic site reference and fieldwork season is RD09. This is sub-divided into Terrestrial Survey (RD09.TS) and Marine Survey (RD09.MS). Further sub-divisions are, for the Terrestrial Survey: GPS plots (RD09.TS,GPS); Alidade Plane Table Survey (RD09.TS,Al); and PhotoModeler Survey (RD09.TS,Pm). For the Marine Survey there is Visual Search (RD09.MS,VS); Sub-Bottom Search (RD09.MS,SB); and Core Sampling (RD09.MS,CS). Photography references will cover the project as a whole (RD09.Photo) apart from aerial and underwater photographs, which will be identified by the suffixes 'AP' and 'UW' respectively. Additions and adjustments to the system will be made as required.

5. Description and preliminary analysis of the canal and associated features
(David Caldwell)

5.1. Rubh' an Dùnain is a headland lying at the tip of a peninsula in the SW of the Isle of Skye, beneath the peaks of the Cuillin Mountains. It is in the district of Minginish and Parish of Bracadale. The name Rubh' an Dùnain also refers to a farm which has been of considerable extent, but for the purposes of this survey it is used in the more limited sense of the area from the headland eastwards to the Slochd Dubh.

5.2. The survey in 2009 concentrated on one relatively small area of Rubh' an Dùnain consisting of a flat bottomed gully, some 40m wide. At the S or seaward end it is protected by a rocky hill 17m above sea-level on which stands the ruins of a dun. At the N end it opens out into Loch na h-Àirde, a shallow expanse of water about 300m across, with its main axis running SE-NW and E-W. Through this gully is a watercourse linking the loch to the sea, apparently a natural feature later enhanced and canalised. It keeps close to the W side of the gulley and turns SW round one side of the hill with the dun. Its egress into the sea is sheltered by a low rocky islet called Sgeir Mhòr. On the W side the gully is defined by low rocky escarpments and slopes up to low moorland. On the E side it is bordered by cliffs. Its floor is encumbered by large blocks of basalt which have fallen from the cliffs, many perhaps before the human activity described in the rest of this report.

5.3. The dun (Figs 11–13)consists of a curved wall, thrown across the neck of a small promontory at the seaward end of a flat-topped hill. There are remarkable views from it to the neighbouring coasts of Skye, to the mainland, to Soay, Eigg, Rum, Canna and Barra. It is bounded on all sides except the landward by sheer high cliffs, and much of it may have been lost by the collapse of these cliffs at various times. At present the interior space is approximately triangular in shape, 28m along the inside face of the wall and 14m from the wall to the apex at the cliff end. Its defensive wall varies in thickness from about 3m to 4m and is composed of large rectangular blocks of basalt quarried in the immediate vicinity. These blocks are up to 1m long and 0.5m high and laid in courses with some smaller blocks used as pinnings to even up the courses. The work now stands to a maximum of 13 courses with a height of 3.5m, and the front face is battered at a slope of about 0.2m in 1m. In front of it is a spread of tumbled blocks suggesting it was originally several courses higher. The wall has an outer skin over 1m thick and the interior portion has included chambers and/or passages. About 10m in front it a series of stones form an arc, perhaps the remains of an outwork.

The entrance to the dun is near the W end. It is 1m wide with jambs 1.15m deep. The entrance passageway then broadens out to about 1.8m, and a large broken slab here is probably one of the lintels that formerly covered it. In the eastern jamb there is an aperture, 0.4m high by 0.14m across with a depth of 0.3m, which may have been a bolt hole. Another behind the eastern jamb is 0.23m high by 0.16m and at least 0.32m deep. In the thickness of the wall to the E of the entrance there is a mural chamber, largely collapsed and missing its roof. It is 1.17m wide and extends now for a distance of about 2.3m to what may be a collapsed stair up. The entrance to this chamber from the interior of the dun still has its lintel in place but it is only about 0.3m above the present ground level. This entrance splays from an external width of 0.9m to an internal width of 0.65m.

Figure 11. The dun promontory from the west. (Colin Martin)

Along the E edge of the interior turf-covered stones suggest a protective wall, and there appears to have been another along the edge of the cliff within the entrance through the main landward defensive wall. Other portions of this walling may have fallen away in cliff collapses. There are tenuous traces of structures within the dun interior, particularly a building with an overall length of 8m, width of 4.75m and walls 0.9m thick running back at right-angles from the interior face of the main defensive wall.

Figure 12. Dun wall from interior looking north-west. (Edward Martin)

5.4. Between the dun summit and the neighbouring rocky hill to the NE is a flat-bottomed gully with good cropped grass. It forms an extension at a slightly higher level of the main gully connecting Loch na h-Àirde with the sea and is separated from it by the collapsed

remains of a wall, 0.9m thick with two faces of large blocks and boulders and a core of smaller rubble. At the seaward end there is another wall of similar character acting as a barrier to the boulders and cobbles washed up by the sea. The main access to the dun was probably by a narrow path up the cliff side from the area within these walls which is about 27.5m long and 10.5m across.

Figure 13. The dun from the north, with its prospect towards Rum. (Edward Martin)

Within the main gully, on the E side of the watercourse, there is evidence for several phases of human activity, none of which can presently be closely dated with any confidence. Early in the sequence are two sets of nausts formed by digging out long hollows in gently sloping ground and heaping the spoil along the sides, thus forming low banks. These were then faced with large stones on both sides, though few are now *in situ* (Figs 14–15). The naust nearer the dun (no 1), running approximately SW-NE, has a width of about 3.5m and appears to have a smaller naust branching off it in a SE direction (though this might merely be a hollow way created by a path running up to the dun). The other naust (no 2), approximately parallel to the first, widens out to about 5m perhaps to take two boats alongside each other. Its size seems to be defined or controlled by the distribution of large tumbled blocks of rock which may have been firmly embedded prior to naust construction. A retaining wall, now visible as a line of blocks, has nevertheless been constructed at the rear of this naust, presumably to keep out further slippage.

Figure 14. Panorama of the canal from the east, showing the dun, the nausts, the blockage in the canal, and the loch. The apparent curvature is perspective distortion. (Edward Martin)

5.5. Between the two nausts is a spit of land up to 12m wide, the portion of which nearer the watercourse is flat with cropped grass fringed by rocky outcrops. On the sloping upper section of this space there are the grass-covered foundations of a barrel-shaped house (no 3), the long NW side of which overlies the bank of naust no 1. It is 10.5m by 6m at widest with walls 1m thick. Its entrance is midway in its SE wall, 0.9m wide splaying in the way to 0.6m. Built over the ruins of this structure, in its N corner, is a smaller rectangular building (no 4), 5m by 4m with its entrance at the SW end of its SE wall. It is constructed mostly of smallish field stones, and it SW gable is substantially complete, standing to a height of 1.4m.

To the SW of structure no 3 the spit between the two nausts is scattered with tumble from built structures. There is also a group of large rocks which have fallen from the cliffs, probably in ancient times. The foundations of a building (no 5), apparently about 5.5m by 6m with walls 1.5m thick, can be recognised. Its walls are composed of massive slabs of basalt in each face with a core of smaller rubble. This is only clear in the case of the NE wall. The rest is rather tenuous. Its NW wall would seem to have been built into or over the mound along the side of naust no 2. There appears to have been a slipway, 2m wide, partially cut in the rock and lined with large boulders, extending S from the S corner of structure no 5 to the bottom end of naust no 1. This has later been infilled with large boulders.

Figure 15. Panorama of the canal from the west, showing the nausts. (Edward Martin).

5.6. The bottom ends of the nausts have, perhaps some time after their initial construction, been lined with stone, creating small inlets into which it may have been possible to float small vessels at certain stages of the tide. In the process the bottom end of the spit between the nausts has been built out an extra 2.5m on its NW side, possibly creating an actual jetty. The stonework is mostly composed of large blocks and boulders of basalt, and where the faces survive relatively intact it can be seen that these stones have not been faced in anyway, and have been deliberately placed diagonally or upright rather than horizontally in courses. This may have been in an attempt to lock them more securely in place. The stone facing on the N side of naust no 2 appears to overly the naust bank.

5.7. The gully on the E side of the watercourse, from the nausts N for a distance of about 30m, is relatively unencumbered with rock-fall, apparently because much of it has been cleared, perhaps quarried for building purposes. There are the foundations of a wall across the gully that mark the end of this cleared zone. Beyond it to the N there is a heavy concentration of tumble. The wall is 1.5m thick with two faces of large blocks and a rubble core. It is not

possible to see what relationship, if any, it had to the canalised watercourse or a dam across it. Within the cleared area there are limited signs of human activity including a small cairn, perhaps of very recent date, and a possible setting for a shelter or hearth, partially surrounded by large rocks and otherwise by a setting of stones. There is a narrow path which turns up through a cleft in the cliffs to the summit of the hill and indications of fire-blackening under a slight overhang in the cliffs which may have offered some shelter.

In the gully to the W side of the watercourse the only obvious man-made structure is a building (no 6), reduced to its grass covered foundations, just where the watercourse joins with the loch. It is rectangular with rounded corners, about 9m by 5m overall.

5.8. The watercourse running through the gully has been canalised at some stage, possibly about the same time as the mouths of the nausts have been encased in stonework (Figs 14–15). The walls lining the canal are, however, different in character, in that the stones are roughly dressed with flat faces, and generally of smaller size. They are positioned in a similar manner, often diagonally or in an upright fashion. The W canal wall stretches from opposite the spit between the nausts into the loch. Further towards the sea it consists mostly of natural rock, probably improved by quarrying to create a channel of 6m or more in width. The bank of the watercourse has probably been cut back to create a vertical face with the wall facing being built in front of it, and the narrow gap between the two being packed with small pieces of rock. About the mid section, where the bank is particularly low, the canal wall has been built with two faces.

Figure 16. The canal blockage and associated features. (Edward Martin)

The E canal wall stretches from the N corner of naust no 2 to the loch. The canal has a width of 3.5–4m for much of its length, but widens out to 6m before entering the loch by stepping back its E side about half way along its length. It has all been reduced to its foundation and the stonework left in a low heap on the low natural bank behind it.

5.9. The canal is blocked by a substantial dam, 6m wide, which does not stop, only slows, the flow of water from the loch (Fig. 16). At high tides the incoming water rises above the dam and keeps the water-level in the loch relatively constant. The dam is made up of large blocks and boulders with smaller rubble, and may have contained a mill leet. Although surface tumble has obscured the structural details of the dam, part of what may be one side of such a channel can be traced in it.

5.10. Some suggestions for the function, phasing and dating of these structures can be offered. The nausts appear to be amongst the earliest features, and the possibility should be born in mind that they could relate to the Iron Age occupation of the dun. A second phase involving improvements with stone lining and the canalisation of the watercourse could well be medieval in date. The barrel-shaped house is clearly later than the nausts. Houses of this shape have been shown at Finlaggan on Islay to be as late as the 15th century. Structure no 4 within it seems to be much later, and is likely to be of 18th or 19th century date. Structure no 5 is also later than the nausts and could also be medieval. Its substantial walls, relative to its size, might suggest it had more than one storey, was even some sort of tower. The dam in the canal may be of relatively recent date, perhaps for a mill in the 18th or 19th century, though the possibility of its earlier use as a means of maintaining a constant water-level in the loch to facilitate the management of vessels inside it should be borne in mind.

The canal might have provided access to the loch for galleys and birlinns in the Middle Ages, not so much that they could be moored there but possibly for repair or to be pulled out the water during the winter months. Perhaps shipbuilding may also have taken place here.

6. The quay

Figure 17. Canal entrance to loch (left); the line of the quay can be seen beyond marked by ranging rods. (Edward Martin)

6.1. During the underwater search of the loch a stone-built linear structure was identified just beyond the northern end of the canal, apparently the revetment of a quay the tumbled upper courses of which lie scattered across the loch floor. The feature extends some 80m in a SW-NE direction, with a gap across the entrance to the canal, and it peters out some 15m short of the eastern shoreline. It is built of medium-sized boulders, roughly coursed, and its upper surviving course stands some 0.75m above the silty loch-bed, at which point it comes to within a few centimetres of the present water-level at high tide (Figs 17–18).

6.2. It should be noted that although there is some seepage of water through the canal blockage when the water-level on its seaward side is lower than that in the loch, the loch-level falls only a few centimetres over the course of the tidal cycle, and is replenished each high tide. Whatever the date and function of the blockage, it seems clear that one of its purposes was to retain water in the loch at a constant level. Without this arrangement the quay would have no purpose, for the ground beside it and indeed across most of the loch would be dry and inaccessible to vessels except only briefly during very high Spring tides. It follows that the blockage and the quay are either contemporary and complementary, or that the blockage pre-dates the quay. The most likely interpretation is that the blockage was part of a mechanism by which the level in the loch was maintained so that shipping could manoeuvre there at all states of the tide, and enter or leave via the canal during high water. This would have required some kind of sluice arrangement, perhaps controlled by a gate.

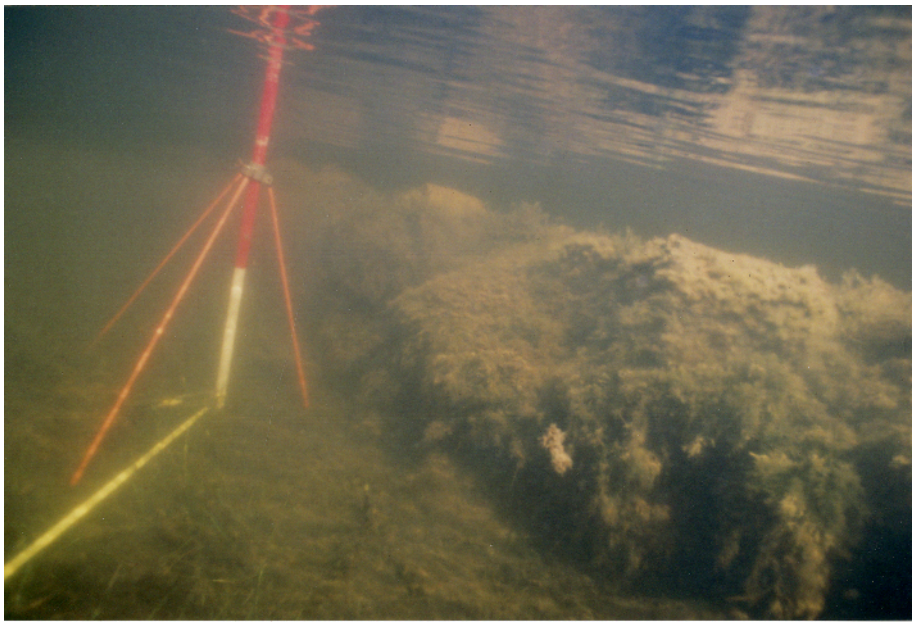


Figure 18. The face of the quay in situ. (Colin Martin)

6.3. The *bite* found in the loch, identified as probably coming from a four-oared clinker-built boat, has a radiocarbon date of *c.*1100 (No 1 in Appendix C). This suggests that control of the loch level has been exercised since the medieval period. This argument does not amount to conclusive proof, but further investigation of the blockage structure is clearly called for.

Recommendations

The 2009 survey and supporting investigations suggest that this site, which has no known surviving close parallels in Scotland, has been associated with the management and perhaps maintenance and building of watercraft since at least the 12th century AD. The two vessels so far represented by isolated components, provisionally identified as a small four-oared rowing boat and a larger sailing vessel, are unlikely to have been intended for use in this tiny and shallow loch which leads nowhere other than to the adjacent sea. They must therefore have either been built there with the intention of bringing them to the sea along the watercourse (which at some point has been canalised) between the loch and the shore, or they must have been brought from the sea into the loch. From this interpretation the following research questions emerge:

- What are the dates of construction and subsequent phases of the dun, nausts, canal, canal blockage, quay, and adjacent buildings?
- What were the functions of these features, and what associations between them can be demonstrated?
- What evidence of boat and ship structures survives in the loch sediments and margins, and how can this best be investigated? Was boatbuilding or maintenance carried out here? If vessels were built here, where did the materials come from?
- What is the environmental profile of the study area, and how does it relate to human settlement on the peninsula from prehistory to its final abandonment in the mid 19th century?
- What contributions can be made to a fuller understanding of the site and its environment by documentary sources, folklore, material culture studies, and

toponymy?
- How do answers to the above questions contribute to wider issues concerning the history of maritime cultures and communities on the western seaboard of Scotland and in NW Europe more generally?
- What other individuals or organisations might be contacted for advice or collaboration?

It is believed that aspects of these questions can usefully be addressed by further fieldwork, involving survey, geophysical prospection, environmental sampling, and perhaps some small-scale targeted excavation. Because, for the reasons explained above, some of the work commissioned by Historic Scotland in 2009 has not yet been completed, it is proposed not to apply for further funding for the 2010 season but to concentrate on finalising the 2009 work and to conduct further field survey aimed at defining detailed proposals for an intensive season in 2011. The interim season will enable us to explore ideas for improving logistics and methodologies on this challenging site, and to seek additional sources of funding.

Publication and outreach

Although publicity has been kept low-key to avoid stimulating excessive visitor pressure on this environmentally-sensitive site, positive coverage for the project has been generated. We have developed a friendly relationship with the MacAskills of Rubh' an Dùnain Society, and one of our photographs has been selected for their 2010 Society Calendar. Historic Scotland's Members' Magazine carried a picture spread on the project in their Autumn 2009 issue, while BBC Alba filmed our activities on-site for transmission around the end of the year. Articles are currently being prepared for submission to *History Scotland* and *Current Archaeology*. Although the journal(s) to which final publication will be submitted have not yet been decided upon (should the material justify it, a monograph will be considered), an obvious outlet would be the *Proceedings of the Society of Antiquaries of Scotland*, while any boat-related topics might merit submission to the *International Journal of Nautical Archaeology*.

Colin Martin
Project Co-ordinator 21 September 2009

Rubh' an Dùnain Data Structure Report

Appendix A

Rubh' an Dùnain, Skye: Report on Reconnaissance and Provisionally Costed Proposals for Phase 2

Richard Tipping: April 6th 2009

1. Loch na h-Àirde

Sediments in the loch are of major significance to the understanding of the canal, and the past use of the loch itself for two reasons: (1) because dating of the sediment stratigraphy can establish the minimum depth of water in the loch under natural conditions in the past and (2) because laboratory analyses can establish the connections between the loch and the sea *via* what is now a canal.

Figure 19. Core sampling in the loch. (Edward Martin)

Sediments were recorded from the back of a small inflatable boat steered by Peter Martin (Fig. 19). The loch was surveyed in a series of looping transects (a) from just east of the outflow towards the mouth of the only significant inflowing stream, in the east, (b) from this inlet towards the headland on the south west of the loch, (c) from near this headland towards the next headland on the western shore, (d) from here towards the chambered cairn in the north and (e) from here to the point of origin. A 1.0m long, 2.5cm diameter Eijelkamp gouge sampler was successfully employed, reducing the time needed from days to hours. Sediments were sampled in the gouge initially every 5m or so, but most commonly after that every 10–

15m. Water and sediment depths were only approximated because of the instability of the boat. Positions of critical sediment stratigraphies were recorded from a hand-held GPS.

The water depth appeared uniform at around 70–80cm. Nearshore sediment depths were of the order of 50–60cm. However, on transect (b) the sediment gradually thickened to 250–270cm over a large area in the south-western and western parts of the loch. In these deeper parts of the loch, at grid ref NG 39372 16148 the following sediment stratigraphy was recorded, with depths below the sediment surface approximate:

200–0cm: structureless mid-grey silt/silty clay with common to very abundant smashed shell fragments and rare to occasional complete shells of *Turritella* sp. and ?*Thracia* sp.
230–200cm: pale brown gyttja (algal mud)
250–230cm: pale grey clay/silty clay
270–250cm: pale brown gyttja.

The sediment sequence below 230cm depth can confidently be assigned a Devensian Lateglacial age, earlier than *c*.11500 cal BP. The gyttja between 200 and 230cm depths very probably represents the accumulation in fresh water of organic-rich algal mud in the early Holocene period, when relative sea-level (RSL) was below the loch shore. This stratigraphy is not found in cores approaching the loch shore, and the basin prior to the accumulation of shelly clay was probably rather small. The shelly clay at around 200cm depth is interpreted from the shell fragments to represent the inundation of loch waters by marine water after *c*.8000 cal BP. Selby and Smith (2007) show that the highest Holocene RSL was around 6.3m OD or 3.6m above present MHWS at Portree (2.67m OD). In some cores the basal shelly clay is a coquina, with very abundant smashed shell fragments, and the marine inundation appears to have been rather violent. This sediment is recorded throughout the loch. Cores were also sunk in the valley floor of the small stream entering the loch from the east to establish the highest altitude the shelly clay rises but it is not preserved. The persistence of shell fragments to the sediment surface in the loch might indicate that the loch has been marine, or at least consistently connected to the sea, throughout the last *c*.8000 years, but because shell fragments can be reworked from older sediment, this interpretation needs to be tested by laboratory analyses: a fuller interpretation also needs the current altitude of the loch to be known. Selby and Smith (2007) have argued that RSL on Skye was high until *c*.3200 cal BP. The chronology and pattern of the fall to the present level are not defined on Skye and are very incompletely known elsewhere in the British Isles (Shennan and Horton 2002). The loch is currently saline but it is not known whether this marine input is natural or is a consequence of the canalisation of the outlet.

The very low organic content of the shelly clay suggests very low organic productivity in the loch. The *c*.230cm of Holocene sediments also indicates overall a very low rate of sediment accumulation (0.02cm/yr), a product of the limited weathering and transfer of material from the bedrock-dominated catchment, and possibly the influence of blanket peat growth dampening the response of mineral soils to disturbance. The sediment of the valley floor of the stream draining the cultivated ground of the fermetoun is peat, with no mineral component, probably because there has been very limited soil erosion, and there is no deltaic accumulation of sediment in the loch from this source. It may be that some phases had higher rates of sediment accumulation, such as the period of early-mid Holocene marine inundation, but in general the short sediment sequence does not encourage major investment. The following is recommended:

1. sampling of the full sequence of loch sediments in the west of the loch from a stable platform (raft rather than boat) with both narrow-diameter (6.0cm) closed-chambered Russian corer and with wide-diameter (12.0cm) Russian corer.
2. slicing at 1.0cm intervals of wide-diameter Russian cores and sieving to isolate complete shells.
3. assuming that complete shells represent their *in situ* preservation contemporaneous with surrounding sediment, around five shells from evenly-spaced depths should be AMS ^{14}C dated, which after correction for marine reservoir effects, can yield a more precise estimate of sediment accumulation rates. Five AMS ^{14}C assays at the SUERC facility cost £1600 + VAT, but Historic Scotland might support this expense.
4. following this estimate of sediment accumulation, it would be useful to define the past salinity of sediments younger than *c*.2000 cal BP, the later Iron Age in this region, from diatom and ostracod analyses, to allow a reconstruction of the loch's connection to the sea in the recent past, to establish whether the current salinity is a product of anthropogenic modification, and if demonstrated, when this happened. This might be our best chance of defining the date of canal construction although it is likely that salinity has been high throughout this period. Costs of diatom analyses can be approximately defined if we assume that the temporal resolution of analyses needs to be around 50 years for the last 2000 years. This results in 40 individual analyses, which will take 70 days including sample preparation and interpretation. This will need to be sub-contracted: employing a postdoctoral researcher (spine point 32) for 2.0 months will be around £4900 + FEC.

2. Pollen analyses

If the interpretation of the archaeological data is that Loch na h-Àirde was the location for ship building and renovation, the local availability of timber needs to be understood. It is also important to understand the settlement and agricultural context of shipbuilding. This is not possible from existing data. Later Holocene pollen diagrams are quite abundant on Skye (Vasari and Vasari 1968; Birks and Williams 1983; Lowe and Walker 1991; Selby 2004) but their temporal resolutions are poor, and they do not describe the landscape on the Rubh' an Dùnain peninsula. In general, woodland is seen to have been scarce in the last *c*.2000 years but this is an inadequate and rather hollow description. Improved temporal and spatial resolutions of analyses, approaching the depiction of local landscapes at intervals equating that of human generations, have shown that parts of northern Scotland experienced a re-establishment of *Quercus* (oak) woodland at around 500–600 cal AD (Tipping *et al*. 2006): the nearest site to Skye is at Morvich, at the head of Loch Duich. Tipping *et al* (2006) argued that this expansion was of oaks protected from grazing, and possibly planted to provide a timber resource for activities such as ship building. Analyses on the Sleat Peninsula show a possibly comparable expansion, not discussed by the analyst (Selby 2004).

It is important to pursue this at Rubh' an Dùnain. Lake sediment at Loch na h-Àirde has accumulated too slowly to be relevant in such analyses. Blanket peat stratigraphies around the fermetoun are truncated by peat-cutting, and it is very likely that sediment pertaining to the last *c*.2000 years has been lost. However, directly above and to the north-west of the fermetoun, and 1km from the loch, is a small unnamed and peat-infilled lochan (NG 403 166) (Fig. 20) which would provide no fuel resource, and which will almost certainly have a rapidly accumulating and complete sediment sequence from which to describe vegetation and land uses pertaining directly to the Rubh' an Dùnain peninsula. As with diatom analyses, the following is recommended:

Figure 20. The lochan at NG 403 166. (Colin Martin)

1. sampling of the upper 2–3m of peat by the lochan with narrow-diameter (6.0cm) closed-chambered Russian corer.
2. AMS ^{14}C dating of five x 0.5cm thick slices of peat to reconstruct the rate of peat accumulation in the last few thousand years. Five AMS ^{14}C assays at the SUERC facility cost £1600 + VAT, but again Historic Scotland might support this expense.
3. following this estimate of peat accumulation, sediments younger than *c*.2000 cal BP will be pollen analysed to reconstruct woodland cover and its possible management, and the relation of this to settlement and agriculture. Costs of pollen analyses can be approximately defined if we again assume that the temporal resolution of analyses needs to be around 50 years for the last 2000 years. This results in 40 individual analyses, which will take 70 days including sample preparation and interpretation. This will need to be sub-contracted: employing a postdoctoral researcher (spine point 32) for 2.0 months will be around £4900 + FEC.

Rubh' an Dùnain Data Structure Report

Appendix B

Paula Martin, 21 September 2009

Presented below are the results of preliminary historical research into the history of the site. There is no doubt that further work in the archives at Dunvegan, the National Archives of Scotland and the Highland Archives would yield further information.

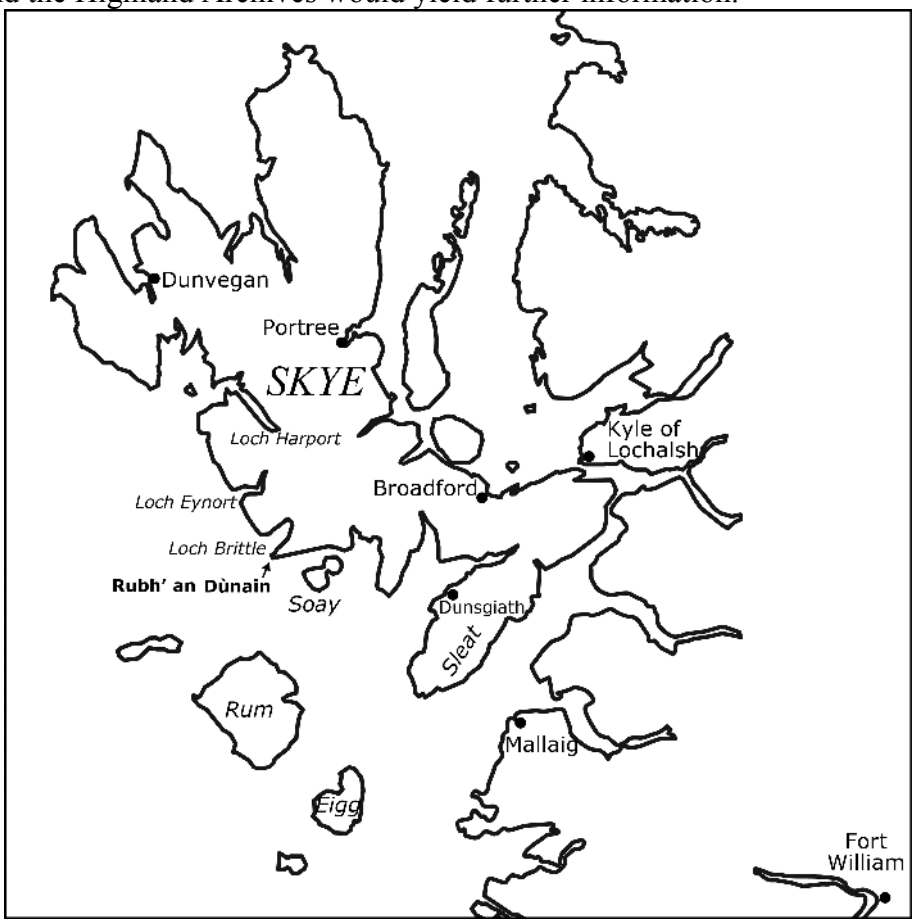


Figure 21. Location map.

Landownership

The land of Rubh' an Dùnain has always belonged to the Macleods, whose first chief was said to have lived between 1200 and 1280. Their main base on Skye is at a very sheltered natural anchorage overlooked by a dun/castle. However, Dunvegan looks north and north-west, while this site, towards the south-western limit of their lands (from the later medieval period) looks out towards the Small Isles.

The site is traditionally the home of the MacAskills, thought to be one of the oldest families in Skye and, like the Macleods, of Norse origin. 'From very early times this sept occupied the district of Rudha 'n Dùnain, where the ruins of the family residence may still be seen. Before the MacDonalds took possession of Dun Sgathaich [on the west side of Sleat], it is said to have been held by the MacAskills as wardens of that fort under the Norse kings of Man. In after days, when reiving prevailed, they filled the office of *comes litoris*, or coast-watcher, to

the MacLeods; and one of them always did duty as commodore on board the principal galley of the chief of that clan' (Nicolson 1930, 361–2). Most of them were buried in the churchyard by Loch Eynort. The first MacAskill named in historical documents is William, seneschal of Dunvegan and foster-brother of Malcolm, the third chief (*c*.1296–*c*.1370).

If other timbers from the site are also dated to c.1100, this raises the question of whether they relate in any way to either the Macleods or the MacAskills. at least in terms of present historical knowledge.

Macleods and the sea

Like other clans on the western seaboard, there is no doubt that the Macleods built and maintained galleys/birlinns for their own use. According to the Privy Council Records in 1613, a galley had 16–24 oars, a birlinn 12–16 (Grant 1959, 16). The finest surviving representation of a west highland galley is on the tomb built by Alexander Macleod (c.1455–1547), 8th chief, at Rodel, on Harris.

Under the feudal system subordinate landowners had a duty to provide vessels when required by their overlord. There are four references to boat-service in the Dunvegan archives. NRAS2950/1/1/1–3 [1329–1371], is an 18th-century copy of a charter by David II in favour of Malcolm, son of Tormod MacLeod, of 8 davochs and 5 pennyland of the tenement of Glenelg for reddendo of service of one ship of 26 oars. NRAS2950/1/2/1–4, 15 Jun 1498, is a charter by James IV to Alexander MacLeod, son and heir of deceased William John MacLeod of Dunvegan, of lands commonly called Ardmanach in Lewis, with the islands pertaining thereto, and of 6 unciates of the lands of Duirinish, 4 unciates of the lands of Minginish, 4 unciates of the lands of Bracadale, 1 unciate of the lands of Lyndale and 2 unciates of the lands of Trotternish with the office of baillie of the latter, lying in Skye in the lordship of the Isles. Part of the reddendo is the maintenance of a ship of 26 oars and 2 ships of 16 oars to be at the service of the kings of Scotland in times of peace as well as war.

There is a reference to a large galley being built below Dun Sgathaich in 1506 (Nicolson 1930, 47). In the mid-16th century, 'an injunction was served on Donald Gormeson, to restrain him from taking timber 'for long faddis (galleys) from the MacKenzie's territories' (Nicolson 1930, 100). NRAS2950/1/37, 15 Feb 1613, is a contract of marriage between Rory MacLeod of Harris and Moir, his daughter, and Donald MacAllan Vicean of Island Tirrim and John (of) Moidart, his son. Rory binds himself to provide for his daughter's tocher, nine score 'quick ky' together with other 20 should they be desired and a 24-oar galley with sails and rowing gear. NRAS2950/4/70/1–2, 6 May 1693, is a letter from John Moore to Roderick MacLeod of Dunvegan borrowing a saw and some rope for use on his '8 oared' boat.

The last known mention at Dunvegan relating to a galley is recorded by I. F. Grant in her history of the Macleods (1959, 360) from the accounts for 1706 (though the document she refers to has not yet been identified by the present archivist). MacLeod's birlinn cost 24 merks for 30 yards of white plaiding for her sails, 80 merks for 'wages for beating the said boat', 39 merks for 6 dozen of oak, 18 merks for 3 stones of oakum (for caulking), and 18 merks for 600 seams and roof to the said boat, and for 300 double-plencher nails, a total of 179 merks (about £119 Scots or £10 sterling). 'In the epic tales there are many 'ranns' describing the lofty, peaked, smooth galleys with their speckled, bulging sails, and, alike in the classic poetry in praise of the chiefs and the less formal rowing and 'waulking' songs, the qualities of the galleys are a constant theme. There are many allusions in MacLeod poetry, notably in the Songs of Mary Macleod' (Grant 1959, 16–17).

Rubh' an Dùnain in context

'towards the base of these bare and precipitous crags [Cuillins], the ground, enriched by the soil washed away from them, is verdant and productive' (Scott, 1998, 84). The farm of 'Rhudunan', as it is generally referred to in estate documents, lies in the barony of Minginish and the parish of Bracadale. By modern roads, via Sligachan, it is slightly closer to Portree than Broadford. The old parish church stood on the shore of Loch Eynort, and would have been accessible by boat from Rhudunan, weather permitting.

As the farm has always lain within the lands of the Macleods of Dunvegan, no specific records have so far been identified from before the 18th century. It is good arable land, and has long been associated with the island of Soay, which provided pasture. Martin Martin described the island, which he called 'Soa-Brettil', as 'full of bogs, and fitter for pasture than cultivation' (1716, 161). He also noted that 'there is an Anchoring-place for Barks, between *Skie* and the Isle *Soa*' (1716, 138). Because of the quality of the land at Rhudunan, tracing its history is complicated by the fact that as small farms were combined, the name was sometimes applied, as is Glen Brittle today, to a wider area than the original farm. Indeed when Glenbrittle House was first built it seems to have been called Rhudunan House.

According to the *Old Statistical Account*, 'The greatest number of farms in the parish have no kelp, and such of them as have any, manufacture it only once every two or three years'. Loch Bracadale and Loch Harport are safe anchorages, Loch Eynort less so, and Loch Brittle 'an open bay, and not a safe harbour'. The islands of Haversay, Vulay, Oransay and Soay were not inhabited, just used as pasture (*OSA* 153–4). The population of the parish was estimated at 2250, despite emigration (128 people had left between 1771 and 1774, about 200 in 1788, and about 200 in 1790). All attended the Church of Scotland except for 2 Episcopalians. The main agricultural product was black cattle, with a few sheep and horses, some grain, oats, barley and potatoes, but no flax or hemp. Macleod of Macleod was patron and sole heritor. There were no roads or bridges; 'there are in general no stone inclosures; there are some feal dykes, which get an annual reparation. There are some other kinds of ditches, or feal dykes of a more durable form'.

Although the *Old Statistical Account* stated there were no towns or villages, the situation was changing. Sir James Macdonald (1741–66) was an improver and 'among his many projects was the building of a large village at Portree, in order to stimulate local industries and to foster trade' (Nicolson 1930, 282). In 1787 the British Fisheries Society bought land at Stein to build a fishing station, to be called Lochbay. They built a quay, stores and dwelling-houses (Nicolson 1930, 298).

By the time the *New Statistical Account* was written in 1840, the population had decreased to 1769 at the last census, due to agricultural changes. There was little arable land, and the annual exports included *c*.4500 sheep and *c*.450 black cattle. The only modern buildings were 'the church, a distillery, two slated houses on feued ground lately built, and some farm-houses, all of the ordinary materials'. There was a Post Office at Struan, half a mile from the Parliamentary road, of which there were about 20 miles within the parish. 'The road and bridges are always kept in good repair'. The church had been built in 1831, the manse about 40 years ago, with additions and repairs in 1828. There were 5 schools in the parish (*NSA* 298). 'The only fuel used in the parish, except in gentlemen's houses, is peat'. The presence of the distillery was seen by the minister as 'a curse', and the excessive availability of whisky 'to the manifest injury of the temporal interests of the people, and the progressive and sure destruction of their morals' (*NSA* 299).

By the 1890s there were cattle markets at Broadford in May, August and September, at Portree in May and August, and at Sligachan in August and September. The lime produced in Broadford and Vaternish was not 'of a quality very suitable for agricultural use, and much of what is so employed is brought in from the N of Ireland'. Sheep were sold at Inverness, Muir of Ord and Falkirk. The only woollen manufacture on the island was at Portree, where there was also a sheriff court. Of the 19 first-class, 343 second-class, and 503 third-class fishing boats registered in the Skye and Loch Carron district in 1894, probably only a third belonged to Skye. In 1892 the Fisheries Board erected a 700-ft-long stone pier at Broadford.

Glen Brittle saw increased activity in the 1930s, when the beach at the foot of the glen was for a number of years the calling-place for 'planes flying between Renfrew and the Outer Isles. The most suitable landing-ground in Skye, it was probably the most inaccessible by road' (MacPherson 1946, 161).

Rhudunan—tenancy history

Tacksmen named in estate records include John MacAskill c.1640; Kenneth, his son, 1644; John Dhu, another son, 1683, and John (Iain Mor), son of the above (Murray 2002). The lands in the barony of Minginish in 1708 (*Book of Dunvegan*, 79) consisted of 23 named farms, of between 1 and 6 penny value, with 23 tenants: Rhudunan was a 3-pennyland paying 110 merks, 8 bolls of grain/meal and one mairt (beef killed and salted in the autumn, for eating over the winter), the only one of the farms to contribute a mairt). This John was succeeded by John (Iain Og), his son (1721–1775) who held Rhudunan from 1754 to 1791 (NRAS 2950/2/66.). From 1769 he also rented Leasol (NRAS 2950/1/987/1–2; 4/290; 2/66).

Farm	**Penny-lands**	**Rental 1664–1724**	**% of total**	**Farm**	**Rental 1784**	**% of total**
Rhudunan	3	£11 5 4	12	Rhudunan and Leasol	40	17.5
Leasol	3	£8 15 10	9.4			
Achshard		£8 15 0	9.3			
Bualintur	3	£8 5 8	8.8	Bualintur	14	6
				Glenbrittle	20	8.7
Kraiknish	3¼	£11 16 4	12.6	Kraiknish	30	13
Brunal	3½	£8 9 8	9	Brunal	20	8.7
Grula	3½	£10 2 0	10.8	Grula and Clachan	34	14.8
Brae Eynort	3½	£6 4 8	6.6	Brae Eynort	20	8.7
Meikle Carbost		£4 13 1	5	Meikle Carbost	10	4.3
Merkadale and Trien	1 + 1	£8 17 0	9.4	Merkadale	7	3
				Trien	15	6.5
Satran	2	£6 11 9	7	Satran	20	8.7
Total		**£93 16 4**			**230**	

Table of rental values of farms in the Rhudunan group (NRAS 2950/2/510/2)

In 1791 John was succeeded by Kenneth MacAskill (1756–1841), a soldier, who rented Rhudunan, Leasol, Bualintur, Soay and part of Glenbrittle for 19 years from Whit 1792, for a rent of £130, rising to £150. At the same time he arranged to lease 'Glenbrittle and Forest of Culline', in partnership with Norman Macleod at Islandreoch, for 19 years at £50 per annum, presumably for sporting purposes (NRAS 2950/2/148.). From 1808 and 1811 there are records of a John Stewart, described as 'merchant of Glenbrittle' (NRAS 2950/1/1132). The front (west) part of Glenbrittle House dates from the late-18th century, and may have been built by Kenneth MacAskill (Miers 2008, 243).

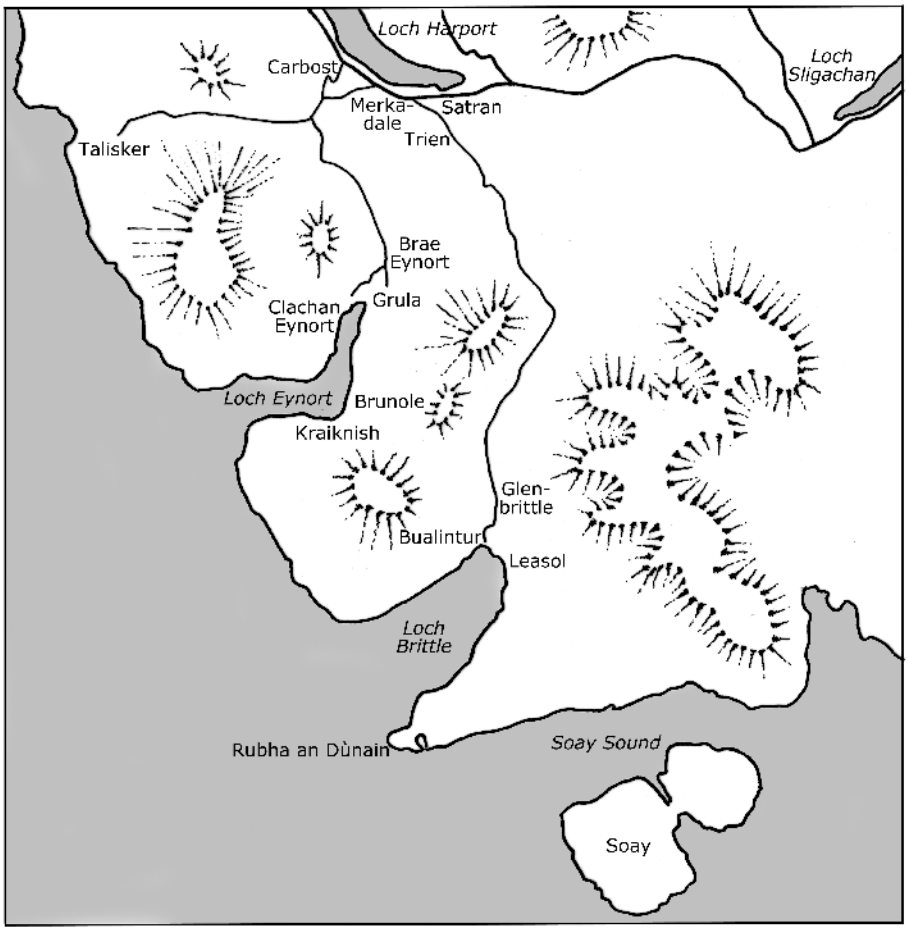


Figure 22. The main farms associated with Rhudunan..

In 1810, when his lease came up for renewal, Kenneth MacAskill offered £700 per annum for 14 years for Rhudunan along with Soay Island and Glenbrittle (NRAS 1950/2/196/1–2), but he subsequently wrote asking for the rent to be reduced to £600 (NRAS 1950/2/208/1), and mentioned the possibility of emigrating to America. He asked for the kelp to be included in the lease, without any extra payment. He also asked for permission to start building houses of stone and lime, provided he was allowed half their value when his lease expired. The agreement included sowing a green crop every third year, no ploughing without manuring, and replacing turf dykes with stone ones (NRAS 1950/2/196/1–2).

Another of Kenneth MacAskill's initiatives was to establish a fishing community on Soay. In 1811, however, he chartered an emigrant ship, and went with his people to Carolina, but returned in 1821 (Murray 2002). In 1821 he asked to renew the lease of Rhudunan, Glenbrittle, Bualintur, Kraiknish, part of Brunal, Brae Eynort with Grula, and the rest of Brunal, Satran with extra muir ground, Trien, Merkadale and Meickle Carbost for 15 years from Whit 1825 for £1260 annual rent (NRAS 2950/2/271). The lease stated that any new buildings were to be of stone, lime and slate, and he was to provide accommodation for an SPCK missionary.

In 1831 Kenneth MacAskill and his son Donald offered to purchase Rhudunan. Three years later Donald offered to purchase 3 acres of Rhudunan. Donald subsequently renewed his lease for 15 years from Whit 1840, for the lands of Rhudunan, Kraiknish, Grula, Brae Eynort,

Carbost Beg, Carbost Mor, Trien and Merkadale, Satran, Salachary, Brunal and Bualichill (NRAS 2950/2/287; 2/387/1–3; 2/310). Donald Mor had 28 tenants at Camus a-Mhoran (the beach at the west side of the headland, here used to describe the tip of the headland, almost an island at high tide) (NAS GD403/87/28–9).

In 1844 Donald and Hugh MacAskill (the founder of the distillery at Carbost) offered to renew the lease for 15 years for £1200, the land including Rhudunan and Soay (NRAS 2950/2/219/1–2). Later that year, however, Hugh MacAskill asked for a 15-year lease only on the 'north part of Rhudunan', bounded by the March of Kraiknish to Beallach then down in a line to the river of Brittal, and by Allt Leary across the Cuillins to Coruisk, including the island of Soay (another list refers to Rhudunan, Soay, Kraiknish and Trien), offering £780 (NRAS 2950/2/320). He was to allow the working of stone quarries in Soay or elsewhere, provided he was paid for any damage. He was also to repair the 'house of Eynort', and keep it in repair until the owner wanted it back, and meanwhile it was to provide accommodation for the minister (NRAS 2950/2/319–20). The back (east) part of Glenbrittle House dates to the earlier 19th century, and is built of red stone from Soay. This red stone can also be seen in the lintels of the farm steading (Miers 2008, 244; pers. comm. Hugh Macrae). Hugh is said to have used all his money on poor relief during the potato famine. The old farmhouse on the headland was abandoned. Hugh, the last MacAskill of Rhudunan (though he lived at Glenbrittle House, then known as Rhu an Dùnain House), died in 1857.

In 1854 a lease of Kraicknish, Bualintur, Leasol, Rhudunan, the Cuillin hills and the Island of Soay (the implication being that he already farmed this) for £625, and the north part, formerly farmed by Hugh MacAskill, consisting of Glenbrittle, Eynort, Carbostmor, Merkadale, Trien, Satran and the North Cuillins was granted to Donald Charles Cameron of Glenbrittle, nephew of Ewan Cameron, tacksman of Talisker, for 15 years for £775 (NRAS 2950/2/346). In 1869 despite a rival offer, Cameron's lease of 'Glenbrittle and Rhudunan', with the shootings and fishings of Borline (in fact the whole of the area once split between him and Hugh MacAskill), was renewed for 10 years (NRAS 2950/2/360; 2/346/8; 2/367/1–3, he offered £1750 for the first five years and £1800 for the next five). He also asked for reimbursement of costs incurred for drainage. The rent for the whole block of land had therefore risen from £93 16 4d in the second half of the 17th century to £1800 by 1884.

Farm	No. of residents	Occupations	Comments
Soay	54 (7 families, 2 single men; 2 cottars, rest landless)	Neil Campbell, 'a competent boatbuilder'	an encumbrance because does not pay rent, so 'is a fit subject for emigration'
Rhudunan	46 (10 families, 1 old maid; 7 crofters/cottars, 2 landless)	Donald McRae	'this man is hard working and would do well in Canada'
Satran	9 + 59 + 16	'a good quarrier'	
Soay	15		
Leasol	25 + 23	1 shoemaker, 1 fisherman	
Kraiknish	46 + 6	1 mason, 1 shepherd	
Grula	44	1 tailor	
Carbost	41	John Maclean 'boat carpenter', 1 merchant, 1 mason, 1 carpenter, 1 shepherd	

List of residents in 1881. The list does not include 'necessary working people' (shepherds and a smith), and it was noted that most of those listed were 'an encumbrance' (NRAS 2950/2/644/7/1–2).

In 1902 there were 20 tenants on Soay (including 6 widows), 4 on Coul, 4 in Bualintur and 1 in Grula. Together they paid £12 10sh in cash and £41 15sh in cattle, and owed arrears of £121 17 6d (NRAS 2950/2/510/1–2).

In 1921 Glenbrittle had about 5000 sheep, and had the potential to be divided into seven farms. Glenbrittle Lodge was described as having Dining Room, Drawing Room, Smoking Room, kitchen, four bedrooms, one dressing room, and two attic rooms. Adjacent were a gamekeeper's house, and the manager's house 'to which the tenant farmer retires when the shooting tenants are in the Lodge'. There were also kennels, stables, byres, and a threshing mill (NRAS 2950/2/383/1–2).

In 1930 there was correspondence between the Macleod estate and the Department of Agriculture. The estate was struggling to find an agricultural tenant, and wanted to sell Glenbrittle (except the Lodge, which was needed for shooting tenants), but not the Cuillins. The Department of Agriculture pointed out that including the Cuillins would make a neat block of land which would not need much fencing, as animals could not cross the river Drynoch. However, without the Cuillins the cost of fencing would be prohibitive. Some points raised include 'The Department again suggested that it might make the land at Glenbrittle easier to let if the motor boat service from Mallaig to Soay could be extended to Loch Brittle' (20/03/1930). In reply the factor wrote (26/03/1930): 'The Bay of Glenbrittle is open to the prevailing winds from South to North West, and consequently for weeks on end the Mallaig motor boat would be unable to call. I do know, however, that the repair of the road from Glenbrittle to Carbost would be of great assistance' (NRAS 2950/2/391/1–35).

There are the remains of a stone jetty at the mouth of the river, of uncertain date, though it is marked on the 1st edition 6" Ordnance Survey map of 187?. It has been covered in sand, and the top stones were removed by the present farmer's father to construct a boathouse to the east of it (now itself ruinous) (pers. comm. Hugh Macrae).

Note on place-names
The farms in the Carbost group are still named on the modern 1:25000 OS map, as are all the Eynort group (though Brunal has been lost under forestry). Glen Brittle, however, is very thin on surviving names. Leasol was found on Thomson's County Map of 1832, and I was unable to find what the ruined settlement in the glen was called, unless that was the original Glenbrittle farm, and the name subsequently migrated seawards.

Rubh' an Dùnain Data Structure Report

Appendix C

Colin Martin, 21 September 2009

The boat timbers

Two oak timbers which can be identified as components of clinker-built boats were found among the reed-beds at NG3921 1632 close to Loch na h-Àirde's northern margin when the water levels were exceptionally low. The discoveries were made by Dr David MacFadyen of Tarskavaig, Skye, in 2000 (No. 1) and 2008 (No. 2) (Fig. 23). No. 1 is currently in the care of the Inverness Museum & Art Gallery, while No. 2 is held by Mr Martin Wildgoose of Dùnain in Skye. Both are unconserved and in wet storage.

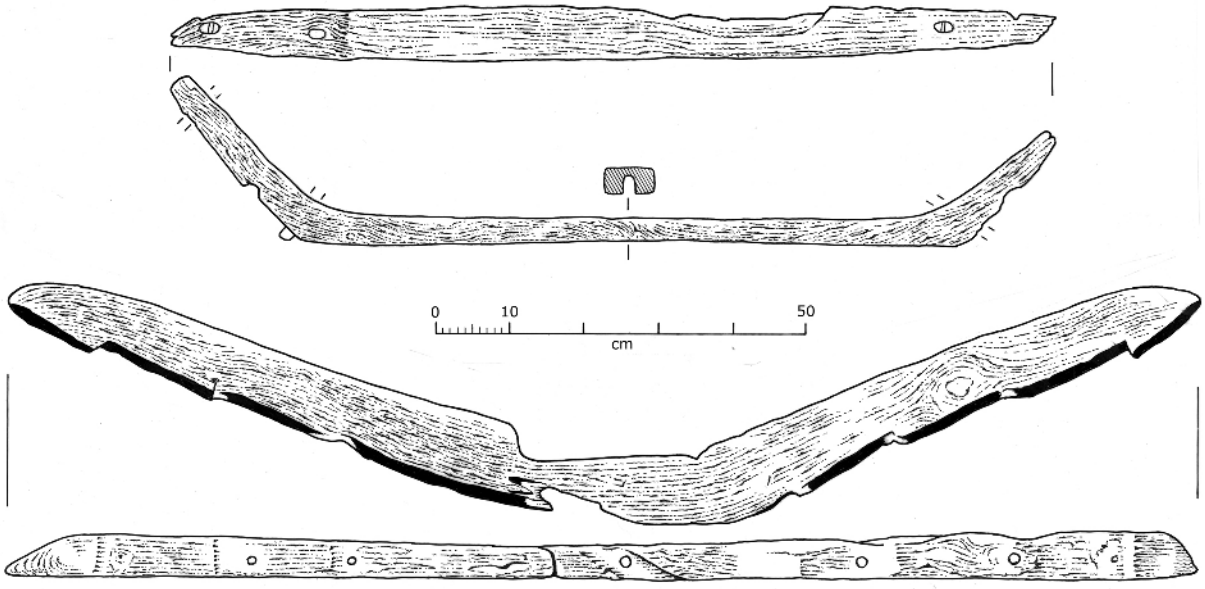


Figure 23. Boat timbers from the loch: top, Timber 1; bottom, Timber 2. (Colin Martin)

No 1. This double-ended timber with upturned ends spanning 1.19m can be identified as a *bite*, a light cross-beam which connected the sides of the hull above the floor timbers in the N European clinker tradition. It is a 'grown' timber: that is, it has been selected from a part of the parent tree which has allowed the grain structure to follow the shape of the component. At the centre of its lower face is a hole 2cm in diameter and 2.4cm deep which would have received a supporting strut bedded in the floor timber beneath. The left-hand end (as shown in the drawing) is complete, and two juniper dowels or treenails 2 cm in diameter, locked at their inboard ends by wedges, are placed at the top and bottom ends of the splayed arms. The exposed outer stub of the lower treenail, which appears to be unbroken and little abraded, indicates a plank thickness of about 1.5cm. A semi-circular transverse housing 2.4cm wide has been cut on the outboard face of the arm, towards its lower end. This probably accommodated a longitudinal stringer. The angle of the upper part of the arm, above the transverse housing, is slightly less acute than that of the lower part, and this, together with the presence of the two treenails, suggests that the *bite* carried two upper strakes. The top of the right-hand arm is missing, but the lower treenail is in place and a corresponding, though

abraded, transverse housing matches that on the other side. It is reasonable to suppose that the arms were symmetrical.

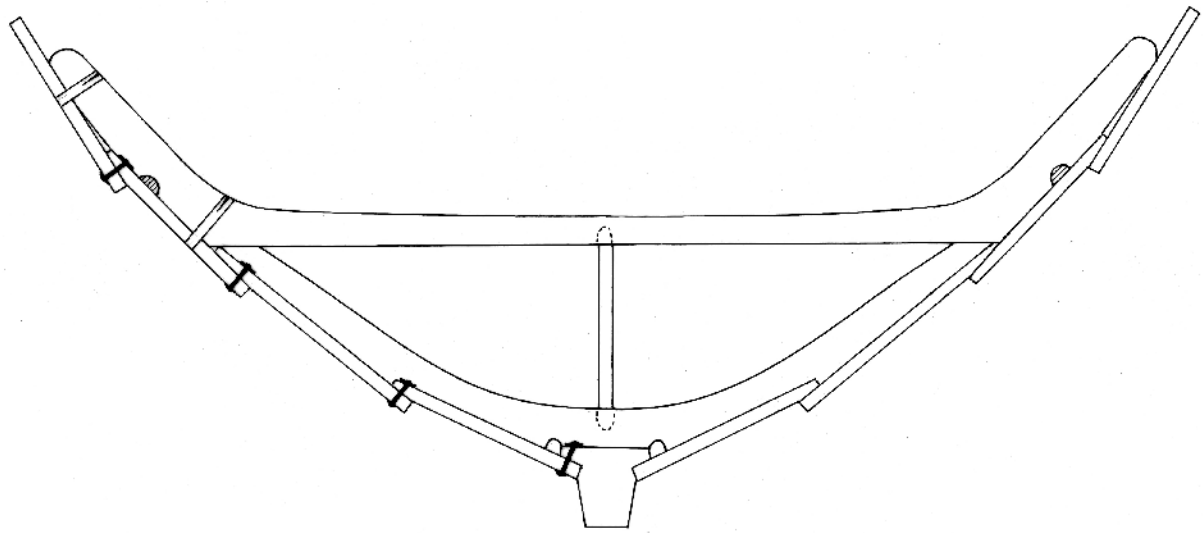


Figure 24. Tentative midships section of Timber 1 as the bite *of a* faering *(fastenings shown on left-hand side only). (Colin Martin)*

A radiocarbon dating certificate in respect of this timber, issued by the Scottish Universities Environmental Research Centre (SUERC-4334 (GU-12361)) to the Inverness Museum & Art Gallery, records a Radiocarbon Age BP of 835 ± 35, suggesting a date for the felling of the timber of around 1100 AD (Appendix E).

Although other interpretations are possible, the boat of which this component was a part was probably similar to the small *faering*, or four-oared (i.e. two-man) rowing boat, found in association with the ship-burial of *c*.950 AD at Gokstad in Norway (Brøgger and Shetelig 1971:41; McGrail, 1974). This vessel is 6.1m long with a beam of 1.38m, and has only three strakes on each side, the *bite* supporting the upper one. A much later parallel is the *faering* from Sogndal in Norway recorded by Bernhard and Øystein Færøvik in 1926 (Christenson, 1979: 41). This is a four-strake boat with the *bites*, of which there are two, carrying the upper two planks. It is 5.6m long and has a beam of 1.38. A reconstruction of the Rubh' an Dùnain *bite* as a midships cross-section within the context of a four-strake *faering* has been attempted in Fig. 24. This putative vessel would have been about 5.85m long and 1.32m in the beam.

No 2. This oak timber (Fig. 23, bottom), which is complete and spans 1.6 m, is a lower frame from a vessel significantly larger than No 1. Like the first timber the grain follows its shape. Though heavily abraded on all surfaces, checks or joggles to receive five overlapping planks on each side can be identified, placing it in the N European clinker tradition. Because of its condition not all the fastening holes can be positively identified, but treenail joints appear to have been provided for strakes 2 and 3 on each side, and there is evidence of iron nails on strake 1 (the garboard strake) at the right, and at the head of both strakes 4, close to their junctions with the upper strakes 5. There is a hole at the apex of the frame which probably accommodated an iron bolt secured to the keel. Across the inner central face a rebate 24cm wide and 5cm deep has been cut.

The rebate is unlikely to have been for a full keelson, which would be unusual in a ship of this

type, and was more probably intended to seat a short keelson incorporating a mast-step. This is characteristic of N European medieval clinker vessels. The Skuldelev 3 wreck from Roskilde, 13.8 m long and 3.4 m broad, provides a possible parallel (Crumlin-Pedersen 2004, 47). On Skuldelev 3 the keelson/mast-step is notched to receive the frames rather than the other way round (*ibid*., 43). Like the Rubh' an Dùnain frame, Skuldelev 3's primary framing accommodates five lower strakes on each side and two upper strakes are carried above them on secondary framing. Skuldelev 3's shaped stem-timber is very similar to (though rather larger than) the paired end-timbers found on Eigg about 1878 (MacPherson 1878, 594–6). By scaling Rubh' an Dùnain No 2 to Skuldelev 3's proportions a ship of about 10 x 2.5m can be postulated. A vessel this size would have sat comfortably in the nausts at the seaward end of the canal.

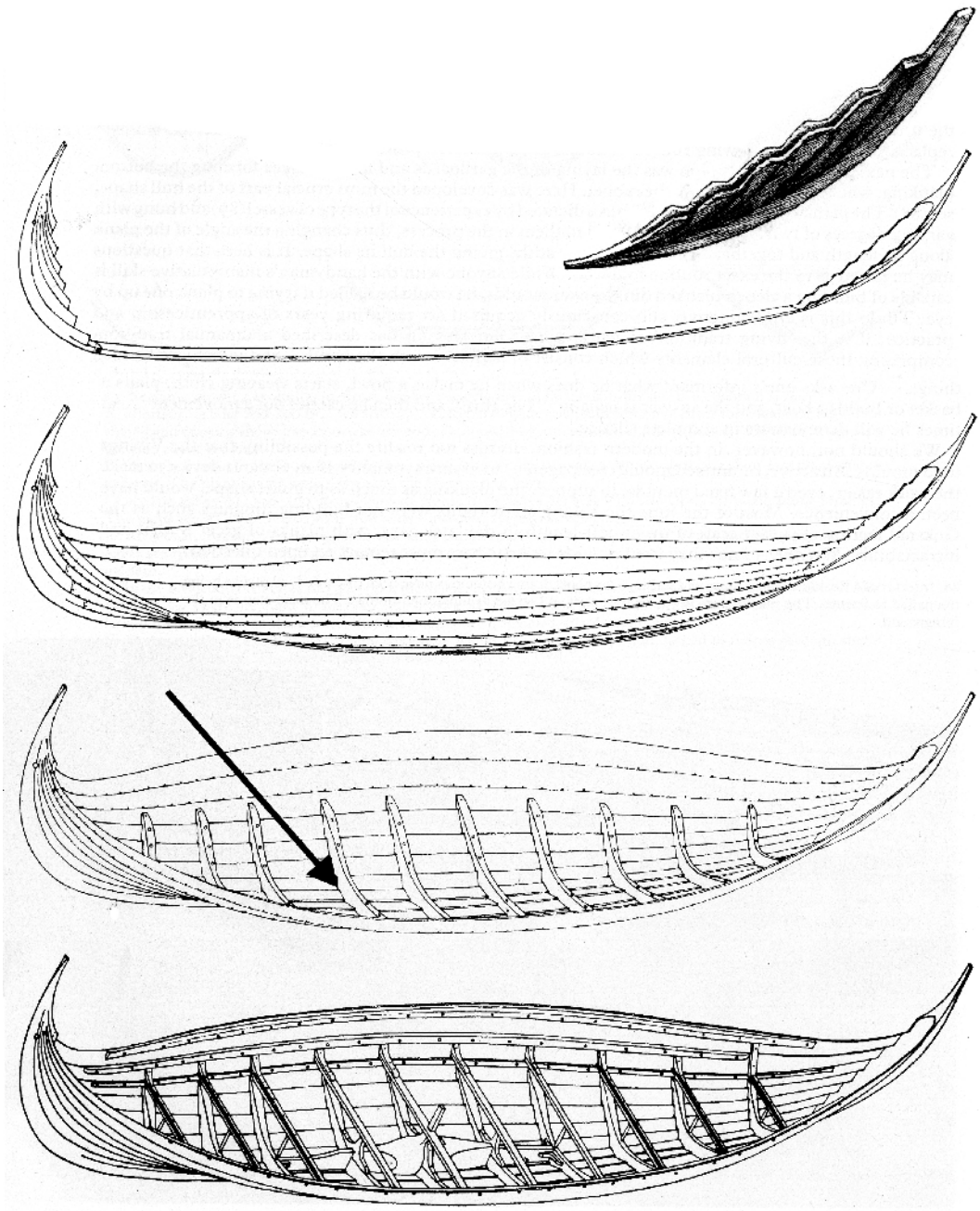


Figure 25. Construction sequence of Skuldelev 3, from Crumlin-Pederson, 2004, p.47. Rubh' an Dùnain 2 may have been similar to this. The arrow indicates the probable equivalent location of Timber 2, while the endpost from Eigg (not to scale) is shown for comparison at the top.

Rubh' an Dùnain Data Structure Report

Appendix D

Paula Martin, 21 September 2009

Rubh' an Dùnain as a type-site?
Having looked at the site in detail, it is perhaps time to think about its wider context. So far as we are aware, the canal is unique in Scotland, but other features of the site are not unique, so it is possible that there were other similar sites. Considering this question has two main functions. One is simply to inform future archaeologists of what to look for when they come across similar features elsewhere, and the other is to help develop discussion of the site itself.

Rubh' an Dùnain has certain geographical features, which may or not be relevant to the siting of the canal there:

- Headland facing south-west, and fairly exposed, but therefore a good look-out point
- Fertile land
- Shallow freshwater/brackish loch barely above sea-level
- A canal has been cut (or a natural feature enhanced), evidently to provide access at high tide for boats
- The canal is overlooked (guarded?) by a dun.
- Evidence of iron-working has been found in a cave nearby (though currently dated to the Iron Age rather than later).
- There is no easy or protected landing-place on the headland, though there is a sheltered anchorage just to the east, between the headland and the island of Soay, and a natural harbour on the north-west side of Soay. This might suggest that the loch is providing more than a harbour/anchorage. A secure site for overwintering and/or building boats would be a logical deduction.

Rubh' an Dùnain is one of several south-west facing headlands on the Macleod lands, so what makes it different? The answer would seem to be the presence of the loch. The corollary of this observation is that there may be other similar lochs close to the sea which were also used for boatbuilding and repair. A few potential sites are listed below.

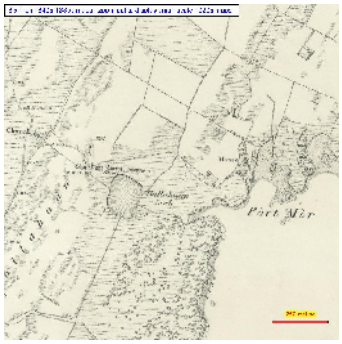
Eigg
Eigg is only 30 km by sea from Rubh' an Dùnain). Two endposts were dug up in or not long before 1878 during drainage of a moss on the farm of Laig (NM 467 888) (Fig. 26), along with a third piece of wood which was softer, and cut in half by the drain. 'Extending from the sea below the farmhoue of Laig is a low tract little above high-water mark, and once a moss. It is about half a mile long from west to east, and about a quarter of a mile broad from north to south. It is separated from the sea by a ridge consisting chiefly of gravelly soil, rising gently from the sea-;evel at the west to from 30 to 50 feet at the east. At the west end, close by the sea, are parallel ridges of rolled shingle, storm-barriers, cast up by the waves—those next the sea without vegetation, those further removed now grass-grown. It used to be said that the whole flat was formerly a lake,which the Norsemen used as a winter harbour for their galleys; while a gap in the ridges of shingle [dividing the flat area from the beach], probably an old water channel, was pointed out as the canal by which they drew them to the lake'. A nearby rock, about a third of a mile inland, not prominent from seaward, is known as *sron na laimhrig*, or 'rock of the landing-point' (MacPherson 1878, 594–6).

Figure 26. The farm of Laig, on the west coast of Eigg. (Colin Martin)

Denis Rixson (1998, 63–6), points out that this same Norse borrowing into Gaelic, *laimhrig*, can be found on the eastern coast of Rum, at Bagh na h'Uamhna (NM 418 968), describing a small beach below the cave, where a gaming piece of narwhal ivory was found, strongly suggesting a Norse presence. This same place-name appears on the south side of the mouth of Loch Eynort (NG 356 235), on Skye.

Other possible sites

There are not many locations on the west coast and western isles of Scotland where a freshwater loch is found close to the sea and virtually at sea-level (some lochs close to the sea drain into the sea by waterfalls!). A search of maps has identified a site at Oban (NM 859 298) (left), where the loch shown on the Roy map, and still surviving on the first edition OS 6 inch map, is now thoroughly drained and built over, and no investigation is possible. Another potential site on the east coast of Seil (NM 762 152) (right) was investigated in September 2009. The loch is close to sea-level, and both ends of the channel are wide enough for small boats, but the central part of the channel has been re-routed through a narrower rock-cut section, perhaps in an attempt to lower the level of the loch. If this is the case, then the original level would have been at a greater elevation than at present, which makes the potential for boat access less likely.



Summary of Records

Drawings
All field drawings are currently held by the project co-ordinator. They include: Martin Wildgoose's plane-table survey of the canal, and the final drawing in digitised form; a working record of the loch search-lanes; and a partially-completed survey of the quay.

Record and publication drawings of the timbers recovered in 2000 and 2006 are also held.

Photographs
Full coverage of features, methodologies and team activities has been obtained. The core collection consists of digital files created by Colin Martin (346 general photographs, 92 aerial, and 36 underwater) and Edward Martin (176 general photographs, 176 from the photographic pole, and 9 panoramas). There is also the digital coverage taken by Roger Miket for his PhotoModeler survey, plus photographs taken by other team members which have not yet been formally archived.

Electronic Data
Electronic data for the EDM and PhotoModeler surveys is currently held by Chris Burgess and Roger Miket respectively.

Documentary Research
Notes taken during documentary searches at Dunvegan and elsewhere are currently held by Paula Martin.

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Rubh' an Dùnain Data Structure Report

Appendix E

SUERC

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Scottish Universities Environmental Research Centre

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Scottish Enterprise Technology Park
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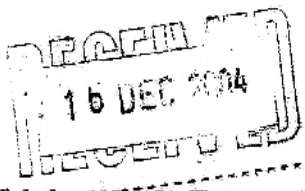
Telephone: 01355 223332
Direct Dial: 01355 270136
Fax: 01355 229898

RADIOCARBON DATING CERTIFICATE

13 December 2004

Laboratory Code	SUERC-4334 (GU-12361)
Submitter	Jeanette Pearson Inverness Museum & Art Gallery Castle Wynd Inverness IV2 3EB
Site Reference	Rubh an Dunain, Skye
Sample Reference	INVMG:SKYE 2000
Material	Wood : Quercus
$\delta^{13}C$ relative to VPDB	-27.4 ‰
Radiocarbon Age BP	835 ± 35



N.B. 1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

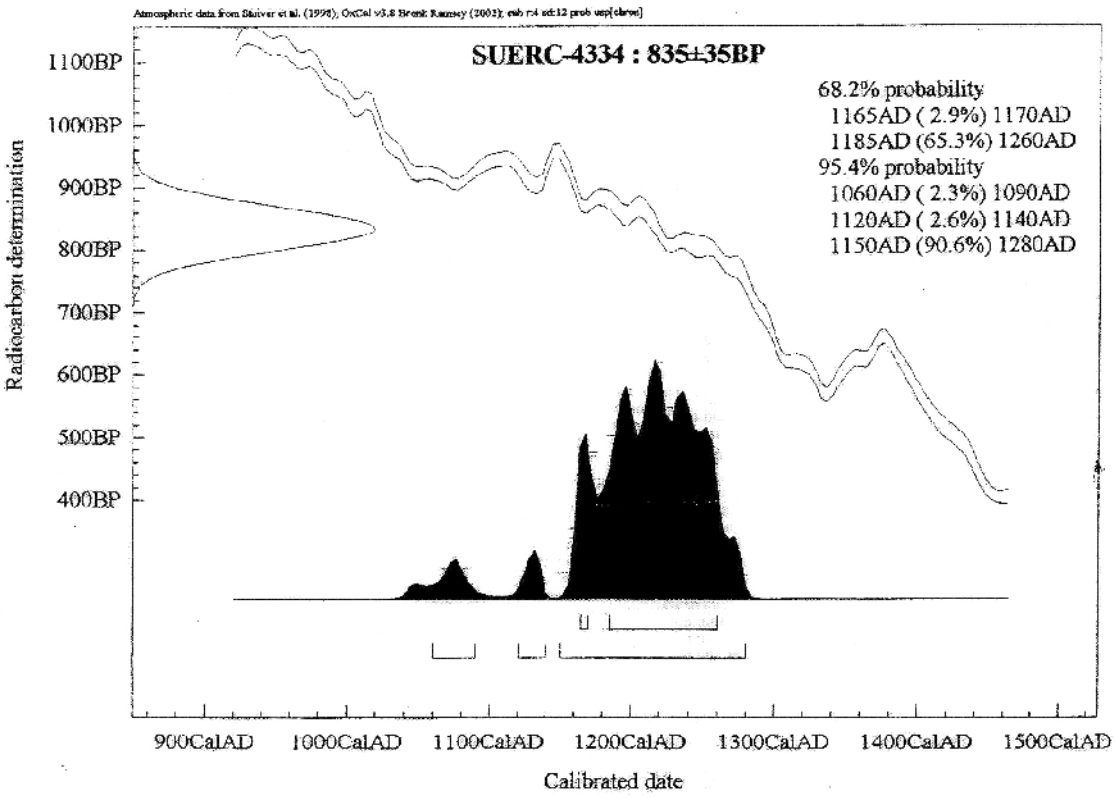
2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).

3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code.

Conventional age and calibration age ranges calculated by :- R. Anderson Date :- 13-12-04

Checked and signed off by :- P. Naysmith Date :- 13-12-04

Calibration Plot



DUALCHAS
THE HIGHLAND COUNCIL
CULTURAL & LEISURE SERVICES
TIGH NA SGIRE, PARK LANE
PORTREE, ISLE OF SKYE IV51 9GP
SERVING SKYE & LOCHALSH

OAK BOAT FRAGMENT

NERSHIP

depositor: MR DAVID MACFADYEN — phone number: 01471 855260

address: 16 TARSKAVAIG, ISLE OF SKYE

owner — phone number

address

copyright holder — phone number

address

TAILS

summary description and history of group

POSITED TERIAL

WOODEN OAK FRAGMENT OF BOAT FOUND ON LOCHSHORE AT RUBH AN DUNAIN: SW EDGE OF LOCH NA H-AIRDE, BRACADALE NG 400 165. ~~WEEKEND OF~~ TUESDAY 18/7/00
PASSED TO MUSEUMS OFFICER 26/7/00
EXAMINED, SKETCHED AND WRAPPED FOR DELIVERY TO INVERNESS MUSEUMS + ART GALLERY

TRY

reason for entry: IDENTIFICATION — price — insurance valuation — (return required) SUBJECT TO TREASURE TROVE — agreed return date

note

depositor: I agree that the information given on this form is correct. I have read and accept the conditions overleaf: — signed: David MacFadyen — date: 6/9/00

museum recipient: I acknowledge receipt of the group described above, on behalf of the museum: — signed: Mary C. Carmichael — date: 26/07/00

TION

group passed to: INV. M+AG — curator — temporary store — signed — date

note

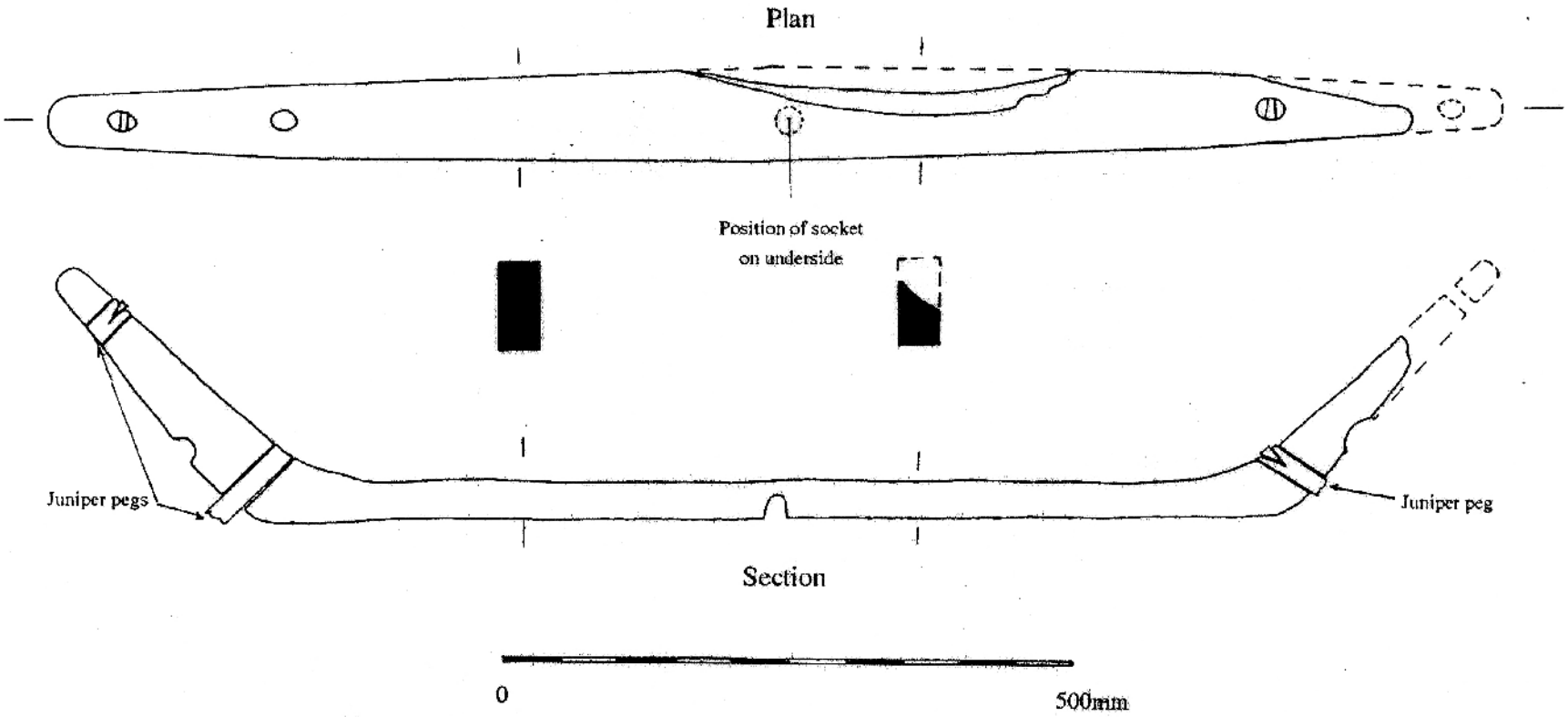
retained group: — accession number — store — signed — date

returned group: I acknowledge the return of the group described above, in satisfactory condition: — signed — date

ENTRY

Oak, Boat Fragment
from
Rubh.an Dunain, Isle of Skye

August 2000



MW·00

Entry for *Discovery and Excavation*

Highland
Bracadale
Rubh' an Dùnain
Field survey
Colin Martin - Morvern Maritime Centre

NG 394 162 (centred on) An assessment survey was conducted on behalf of Historic Scotland in April and May 2009 following the discovery of medieval boat timbers on the northern edge of Loch na h-Àirde in 2000 and 2006. An aerial photography sortie facilitated by RCAHMS was conducted on 31 May 2009. Detailed surveys were conducted on the partly artificial channel 100m long which links the loch to the sea. Associated features include two nausts (stone-lined boat docks) which extend from its N side, close to the seaward end, and the tumbled foundations of at least three buildings. A promontory dun stands on a headland nearby (NG 396 159). Close to the centre of the canal is a blockage of stones, now tumbled but showing evidence of former structural cohesion. The margin of the loch follows the High Spring Tide contour, though its fill derives mainly from the surrounding catchment and is therefore partly fresh, seawater entering only during extreme high tides. Although water now percolates through the blockage, the level in the loch remains largely constant throughout the tidal cycle.

A systematic search of the loch bed, most of which is less than 1.5m deep, was conducted with masks and snorkels. No further boat components were found, but a partly collapsed stone-built quay, now almost completely under water, extends on either side of the canal's inshore mouth, with a gap in the middle. It was surmised that the canal was constructed so that vessels could be brought into and out of the loch, and water levels managed so that while there they would remain afloat throughout the tide, facilitating mooring or use of the quay. Since the process of bringing vessels into and out of the loch would have been quite complex, it seems likely that the system was intended for the secure over-wintering of craft, or for maintenance and perhaps boatbuilding on the loch's shores.

One of the boat timbers found in the loch has characteristics indicating that it comes from a clinker-built four-oared rowing boat about 6m long. It has been radiocarbon dated to *c.*1100 AD. The other timber, which has not yet been dated, appears to be from a larger sailing vessel in the same tradition, perhaps more than 10m long. Neither craft could have had a local function in this tiny shallow loch, and were presumably there for safe-keeping, repair, or were being built there. This implies that from at least the early 12th century the canal, blockage, and quay system—or some precursor of it—was in operation.

Study of this remarkable maritime landscape is continuing, with research focused on determining the dates, associations, and functions of the various features, including the dun.

Archive: RCAHMS (on completion of project)
Funder: Historic Scotland

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Images to be sent: Figs 7 and 23 (above).