

The aquatic context of Caisteal Ormacleit, South Uist, Outer Hebrides: Lady Penelope’s chateau and its canals

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ABSTRACT

Caisteal Ormacleit [Ormiclate Castle], on the west side of South Uist, was constructed in the early 18th century by Clanranald for his wife Penelope, reputedly in the style of a French chateau, incorporating building materials imported from or via the east coast of South Uist at a time when there were neither roads nor carts. This high-status building (arguably more a fine house than a castle) and its origins and construction are reviewed in the context of historical sources, geology and topography. The history of the building and that of the couple for whom it was built had close associations with the Jacobite battles of 1689 (Killiecrankie) and 1715 (Sheriffmuir). The possible canal sections are reviewed in detail and a convincing case is provided for the existence of a canal network between the east coast of the Uists and the western situation of Caisteal Ormacleit, linking the Olaidh lochs, thus confirming the local tradition that the inland lochs of the Uists were used for boat-based transport and supporting the case for the existence of a wider navigable network within the Uist interior. Past intervention in water management has to be investigated in order to plan for future climate change impacts, and the Olaidh network is reviewed in this context.

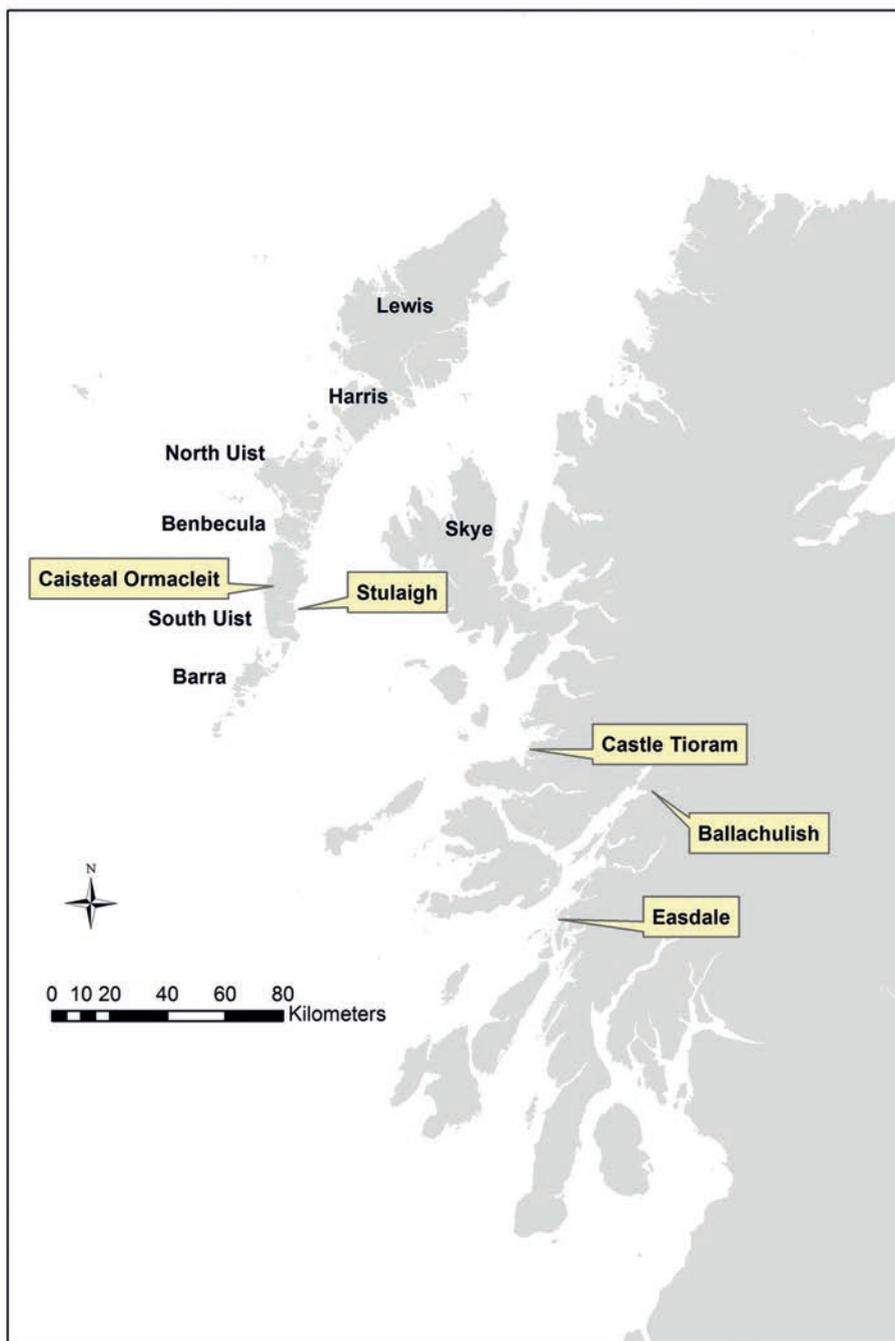
INTRODUCTION

Any study of current ecology or the possible impact of climate change on the coastal lowlands of the Uists requires an understanding of past and current water management. With few written records to go on prior to the initiation of large-scale drainage, clues must be sought in the landscape. Study of the building materials of a laird’s house of known date yields such clues, which together form a coherent picture of a boat-based transport network, including constructed canals, on at least one of the four main loch networks of South Uist. The first castle at Ormacleit [Ormiclate, Ormaclett] in South Uist (Illus 1) was built by Allan, the 9th chief of Clanranald, in the late 16th century, although he died in 1593, before it was completed (Macdonald 1931). Alein Dearg, the 14th chief of Clanranald, had met and married Penelope Mackenzie when taking refuge in

France after the Battle of Killiecrankie of 1689. When he brought his new wife back to Ormacleit, she allegedly announced that her father had a bigger hen house, thus shaming Clanranald into building her a new castle adjacent to the existing building (MacLellan 1997).

The resulting ‘new’ Caisteal Ormacleit [Ormiclate Castle] (NGR: NF 73996 31809, Canmore ID 9897), is generally agreed to have been constructed between 1701 and 1708. Tradition relates that the house burned down on the ‘very night’ that Clanranald was killed at the Battle of Sheriffmuir on 13 November 1715 (though he actually died from his wounds the following day). The Clanranalds then established Nunton in Benbecula as their main residence (Burnett 1986). Alein Dearg is known to have ordered the burning of Castle Tioram in Moidart to avoid it falling back into Government hands in 1715, and it is believed that a similar instruction

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ILLUS 1 Study area context and locations mentioned in the text. (Coast outline © Crown copyright [and database rights] 2018 OS 100017908)



ILLUS 2 Caisteal Ormacleit reconstructed by the architect Professor Charles McKean. For location see Illus 4. (Reproduced by permission of Mrs Margaret McKean)

was the true cause of the destruction of Caisteal Ormacleit (Macmillan & Taigh Eachdraidh Beinn na Faoghla 2006). The widowed Penelope used the Uists as a base for fleeing Jacobites after the failure of the 1715 rebellion, and as a reward was made a Baroness by 'James VIII' of Scotland (more familiar in history as the 'Old Pretender', son of James II and VII) in September 1716 (Daniell 1904).

Though Stell (2014: 289) suggests that the Castle at Ormacleit 'is known to have been used in 1716', his source is a letter written to the Duke of Mar by Ranald, the 15th chief, on 11 April 1716, from 'Ormclate' (Daniell 1904), and there is nothing in the letter to suggest that the Castle, rather than the location, was involved.

BUILDING MATERIALS

The Royal Commission *Inventory* (1928) describes the newer castle as being 'of harled rubble, with dressings of freestone, evidently

imported'. Macdonald (1931) suggested that it had been built in the style of a French chateau, and this is reflected in the artistic reconstruction (Illus 2) by the late Professor Charles McKean, a noted authority on the 'Scottish chateau' (McKean 2001, 2006).

In their geological survey of the Outer Hebrides, Jehu and Craig (1925) stated that mylonites

are well known to the inhabitants, and it is said that the mylonites of Stuley Isle were at one time quarried and used for roofing purposes. Ormacleit Castle near the west coast is stated to have been roofed with slabs obtained from Stuley. Though the Castle is now roofless, flaggy portions of the Stuley rock can still be seen lying on the ground both within and outside the walls (Jehu & Craig 1925: 633).

Mould (1953) noted that Caisteal Ormacleit, 'was roofed with the green schistose tiles quarried on Stuley Island', while Maclean (2012) (citing Mould 1953) reported that

Building material was imported through Locheynort and transported along the channels linking the various parts of Loch Ollay [Olaidh]. Mylonite slates from the flinty crush-fault plane were quarried on Stuley and used for the roofing (Maclean 2012: 366).

However, local sources, who know the Stulaidh (Stuley) mylonite well because of its widespread use in decoration and fireplaces, insist that it is too heavy to use as slate, and that the Castle is more likely to have been roofed with Ballachulish slate, pointing out that the nearby Loch Aineort Inn (constructed by requirement of the Statutes of Iona of 1609) was also initially roofed with Ballachulish slate (Archie Macdonald, Billy Docherty, pers comm). If slate had been imported for the inn, it is highly likely that as a much more viable roofing material than mylonite, it would also have been imported for the later Castle. Jehu and Craig's reports of mylonite lying around the ruins could involve roofing ornament rather than slating; they also reported the presence

around the ruins of the Castle of fossiliferous limestone (a rock that does not occur in the islands of the Outer Hebrides) but their wording is ambiguous in respect of erratics of limestone (rocks transported from the east by glaciers then deposited by melting) found on the south coast of South Uist at Pollachar. Jehu and Craig (1925) do not identify any of the limestones they found, but Peacock (1984) describes the southern South Uist limestone erratics as carboniferous, and of unknown origin. If any limestone could be located around the ruin of Caisteal Ormaclait, analysis would allow a carboniferous erratic to be distinguished from the Durness Limestone that occurs between north-west Sutherland and Skye, which would be the most likely source of quarried limestone. There is thus evidence for the importation of mylonite from the east coast of South Uist to Ormaclait, a high probability of slate from Ballachulish or possibly one of the other slate sources on or very close to the western Scottish mainland, such as Easdale (Illus 1), and some possibility of limestone imported from the



ILLUS 3 Caisteal Ormaclait today, having been destroyed by fire in 1715. Photograph © Stewart Angus

north-west mainland or Skye. The walls of the ruin are all that remain today (Illus 3), though it is possible that some of the materials were reused in the construction of the later steadings and farmhouse at Ormacleit. Though no detailed search was made, there is no sign of slate, mylonite or limestone around the castle today, and even if there were, the possibility that the slate had come from the neighbouring steading or that even thin sheets of mylonite had been used for ornament could not be ruled out.

In his *Economic History of the Hebrides*, Walker wrote (1764/1771) that

in the islands of North Uist, South Uist and Benbecula, the country is so flat, and the natural roads so good, that every heavy article might be transported on wheels, yet no cart has ever yet made its appearance in these islands (Walker 1812, vol 1: 134).

Assuming this description to be true, all transport of goods prior to this date that were heavier or bulkier than a man could carry must have been by boat or pack horse/pony. The *Old Statistical Account (OSA)* for North Uist (MacQueen 1794) confirms that ‘manure’ and fuel were carried in creels on horseback, thus accounting for the very large number of horses in the parish (‘at least 1,600’), but goes on to state that there were eight carts in the parish, thus contradicting Walker’s slightly earlier account. The *OSA* for South Uist (Munro 1794) makes no mention of carts or roads.

Such importation raises the question of how these materials were transported to Ormacleit. Though it is theoretically feasible to ship goods westwards through the Sound of Barra then north along the west coast of South Uist, landing them on the beach and carrying them inland, such a passage is not without hazard, especially with no harbour on the west coast to facilitate landing or to provide refuge in bad weather. It would have been considerably more feasible to land them on the east coast, where Loch Aineort reaches within 4–5km of Ormacleit (Illus 4), and the tradition that the materials were indeed imported via Loch Aineort and transported via the channels of Loch Olaidh (Mould 1953; Maclean 2012) warrants further investigation.

METHODS

The Olaidh investigation was part of a wider study of the pre-drainage loch networks of South Uist and Benbecula (Angus in prep a, b, c). The primary aim of this work was to inform a detailed analysis of habitat vulnerability to climate change. Reconstructions of former lochs involved the production of bathymetric maps that also provided evidence of navigability, and identified sites for investigation of possible canalised links between the main drainage networks that might still function at water table level, though now concealed beneath blown sand as a result of many years of dynamism within the adjacent dune ridge.

The Olaidh loch network was visited in 2013 and in 2015 as part of ground-truthing of a computer-generated visualisation of the former loch networks of South Uist and Benbecula. The visualisation had been based on two Digital Terrain Models (DTMs) used in conjunction with aerial photography and a range of historical and modern maps, as well as historical context and place-names. A partnership led by Scottish Natural Heritage and co-funded by Comhairle nan Eilean Siar, Argyll and Bute Council, Historic Scotland, the Sea Mammal Research Unit and the Ministry of Defence captured 1m LiDAR (1m grid size, $\pm 0.4\text{m}$ horizontal, $\pm 0.15\text{m}$ vertical) and 25cm photography in November 2005 and June 2006, provided under contract by the Environment Agency. This involved only the western section of South Uist, so it was augmented with a 5m IFSAR-derived DTM (5m grid size, $\pm 2.5\text{m}$ horizontal, $\pm 1\text{m}$ vertical) which has national coverage, and NextMap 25cm photography. Using ESRI ArcGIS, the IFSAR dataset was ‘flooded’ to levels believed to correspond to former loch levels, based on levels of old shorelines obtained by Ritchie (1966), thus reconstructing the pre-drainage loch network of South Uist and Benbecula, the Olaidh section of which is shown in Illus 14.

Ormacleit is now separated from the west coast by 1km of machair, being 980m from High Water Mark, but there is no western port in South Uist. The Ordnance Survey 1:10000 map features ‘Corran Ormacleit’, a name that suggests the former

existence of a dune spit, so that there may well have been some form of tidal inlet immediately west of the Caisteal (Illus 14), but of unknown date. Any transport route from the east would have required the connection (if it did not already exist) of a network of lochs, or the enhancement of such a connection. From east to west, the reconstructed sequence is: Loch Aineort (Loch Eynort, a sea loch on the Minch coast), Loch Ceann a' Bhaigh, Loch Olaidh an Ear (East Loch Ollay), Loch Olaidh Meadhanach (Mid Loch Ollay), and Loch Olaidh an Iar (West Loch Ollay) (Illus 4). The current drainage pattern follows this route, though in reverse order from west to east.

Neither the DTM visualisation (Illus 4) nor the aerial imagery provided sufficient resolution in the eastern part of the Olaidh network, so that it was impossible to ascertain from these whether the apparent links between the eastern lochs, and between the eastern lochs and the sea, were drains

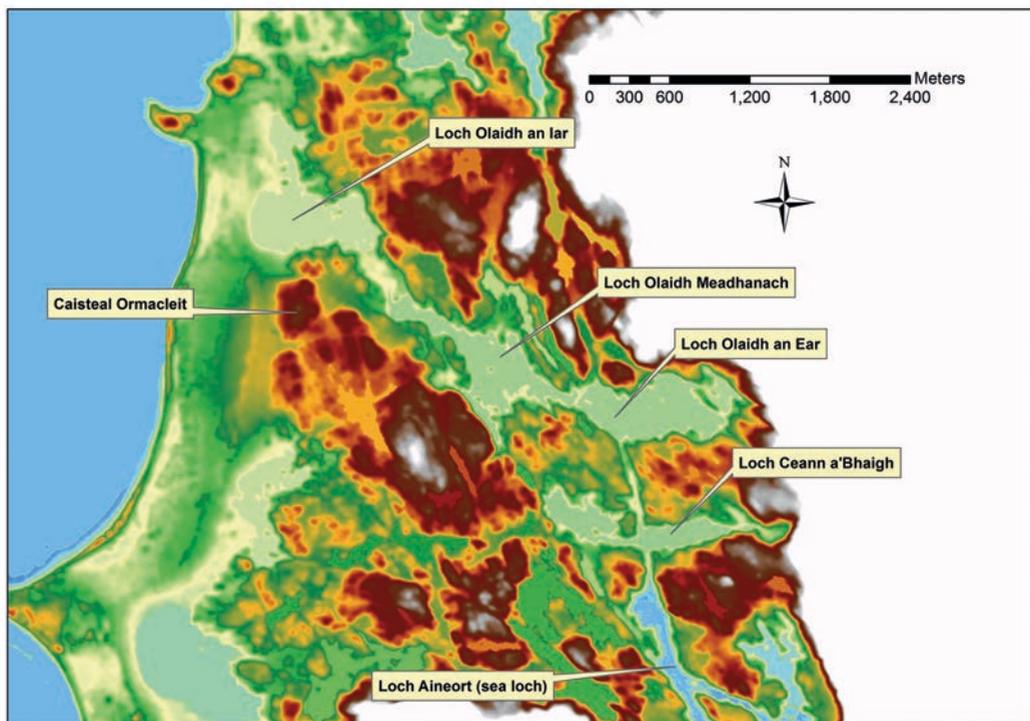
or larger features. The models were clearer in respect of the western section.

Accordingly, two field visits were made, examining each of the three links between the lochs: the western and eastern links were examined in April 2014 and the middle section, linking Loch Ceann a' Bhaigh to Loch Olaidh an Ear, in September 2015. The various sections are reviewed in turn, from sea to castle.

THE TRANSPORT ROUTE

APPROACH FROM LOCH AINEORT

The cargoes of building materials would have been brought to the head of the sea loch (marine inlet) by a sea-going vessel. Macaulay (1996) lists 15 types of traditional vessel used in the Western Isles, stressing that different types were used for cargo and warfare, so that the famous *birlinn*



ILLUS 4 Location of lochs in Olaidh system, and location of Caisteal Ormacleit. The background is a low-ground ramped shading of the IFSAR Digital Terrain Model, with land >10m OD masked out. (DTM Licensed to Scottish Natural Heritage under the PGA, through Next Perspectives)



ILLUS 5 Entrance to the Olaidh network, as seen from Loch Aineort (sea loch). Photograph © Stewart Angus

of Clanranald would not have been involved in carrying freight. A sea-going vessel would probably not have been suitable for the shallower sections of the internal waters of South Uist, and it is highly likely that a transfer of cargo took place. On the 1887 OS 6-inch map, the south end of this channel (at the Loch Aineort end) is named as Loch na Laimlaig, possibly Loch na Laimhrig, the ‘loch of the landing place’. Viewed from the south, the passage from Loch Aineort inland appears obstructed by rocks (Illus 5) and it is probable that any vessel would have made a transit of this section only at high tide, or the cargo was transferred in a way that bypassed the barrier.

LOCH AINEORT TO LOCH CEANN A' BHAIGH

This section (Illus 6–8) takes the form of a straight, stone-lined channel. Apart from a

modern wooden footbridge, the route remains unobstructed and would probably be navigable in a small, shallow-draughted boat. Loch Ceann a' Bhaigh is brackish, so that high tides clearly flood into this loch via the channel. The canalised section of the link is 130m long.



ILLUS 6 Aerial imagery of channel linking Loch Aineort (bottom) to Loch Ceann a' Bhaigh (top). The footbridge from which the photographs in Illus 7 and 8 were taken is clearly seen upper centre. (© Getmapping plc)



ILLUS 7 Looking south towards Loch Aineort from footbridge at NF 76635 30033. Photograph © Stewart Angus



ILLUS 8 Looking north from footbridge at NF 76635 30033, along canal towards Loch Ceann a' Bhaigh. Photograph © Stewart Angus

LOCH CEANN A' BHAIGH TO LOCH OLAI DH AN EAR

Though the DTM (Illus 4) does not reveal a link, and the aerial imagery is ambiguous, ground examination confirmed the existence of a wide, constructed channel between the two lochs. In September 2015 it was noted that drift seaweed had accumulated where the channel exits Loch Ceann a' Bhaigh, confirming the loch's status as a saline lagoon. However, there was no indication of any saline influence north of the channel entrance, and there was strong seaward water flow in the channel. The northern section is 190m long and is completely straight, with stone-lined walls. The southern section is 422m long and is more sinuous, and most of the route is unlined, giving rise to the possibility that the canal has exploited a natural route between the two lochs, with complete re-alignment in the north, and only minor works in the south.

The southern section (Illus 10) probably represents a natural stream route, and may retain this unaltered, but the northern section (Illus 11 and 12) is clearly excavated, having a very straight route, and is stone-lined, presumably to prevent the collapse of peat into the channel. This route is now obstructed by a culvert, a light bridge and the remains of a sluice gate, all of which appear to be of modern origin. Towards the southern end, a large boulder has been placed in the middle of the channel, presumably deliberately.

The channel linking Loch Ceann a' Bhaigh to Loch Olaidh an Ear is 3.7m wide at the bridge towards the northern end, and seems much larger than would be required for drainage alone.

LOCH OLAI DH MEADHONACH TO LOCH OLAI DH AN IAR

Loch Olaidh Meadhonach and Loch Olaidh an Ear would have formed a single loch until they were split by the building of the main road. The



ILLUS 9 Looking generally southwards from the north end of Loch Ceann a' Bhaigh, showing the southern end of the route linking this loch to Loch Olaidh an Ear. Note stone-built channel sides. Photograph © Stewart Angus



ILLUS 10 Much of the southern section of the route from Loch Ceann a' Bhaigh to Loch Olaidh an Ear has the appearance of a natural channel. Photograph © Stewart Angus



ILLUS 11 View from north end of canal, looking south towards Loch Ceann a' Bhaigh from Loch Olaidh an Ear. This northern section is a direct line, with stone-built walls, and a width of 3.7m at the bridge from which the photograph was taken. Photograph © Stewart Angus



ILLUS 12 North end of canal from Loch Ceann a' Bhaigh as it enters Loch Olaidh an Ear, taken from the same bridge as Illus 11. Photograph © Stewart Angus

distinct nature of the channel between Loch Olaidh an Iar and Loch Olaidh Meadhonach at Caisteal Ormacleit strongly suggests that it was excavated to provide a canal (Illus 13). This canalised section is approximately 340m long, and the first edition of the OS map shows a small loch within this channel. However, the location of Caisteal Ormacleit is only slightly nearer to Loch Olaidh an Iar (559m) than to Loch Olaidh Meadhonach (718m), and either there was some now unidentifiable obstacle involving access from the latter, or the channel between the two lochs is a natural one, only resembling a canal.

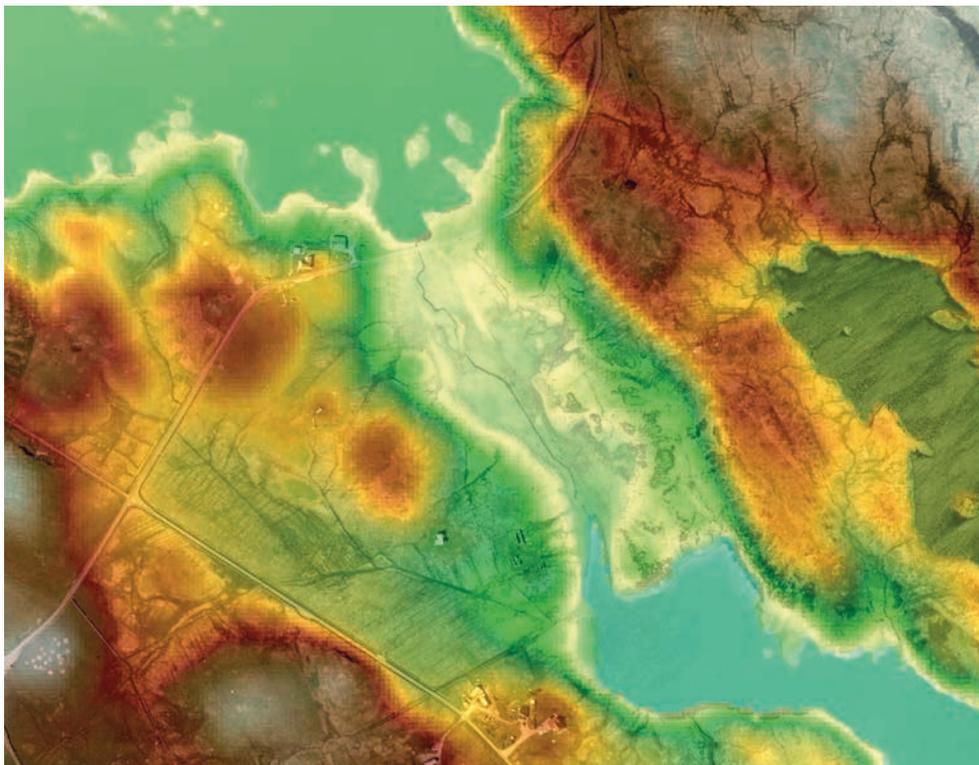
DRAINAGE

There is no record of drainage in South Uist or Benbecula prior to the 1740s, but 'flooding' the DTM to a level corresponding to [later] known falls in loch level gives an indication of the likely impact of drainage on this system. Ritchie (1966) detected old shorelines 3–4ft (c 1.2m) below

contemporary levels. Ritchie measured the level of Loch Olaidh an Iar at 6.4ft (1.95m) which is close to the IFSAR-derived level of 2.2m OD. The DTM can be flooded to the 'normal' pre-drainage loch levels of 2.4m OD, plus 'flood' levels of 2.8m OD and 3.3m OD (Illus 14) that might represent periods of particularly high rainfall.

DISCUSSION

Distinguishing fact from fiction in the colourful story of the castle is difficult in the absence of contemporary sources. Clanranald's wife, Penelope Louisa Mackenzie, is sometimes described as French, and as the daughter of Colonel Alexander Mackenzie, a former Governor of Tangier, and Louise Brivmot (Macmillan & Taigh Eachdraidh Beinn na Faoghla 2006), but neither Routh (1912) nor the Wikipedia list of Governors (which is the only complete list available) mention a Mackenzie.



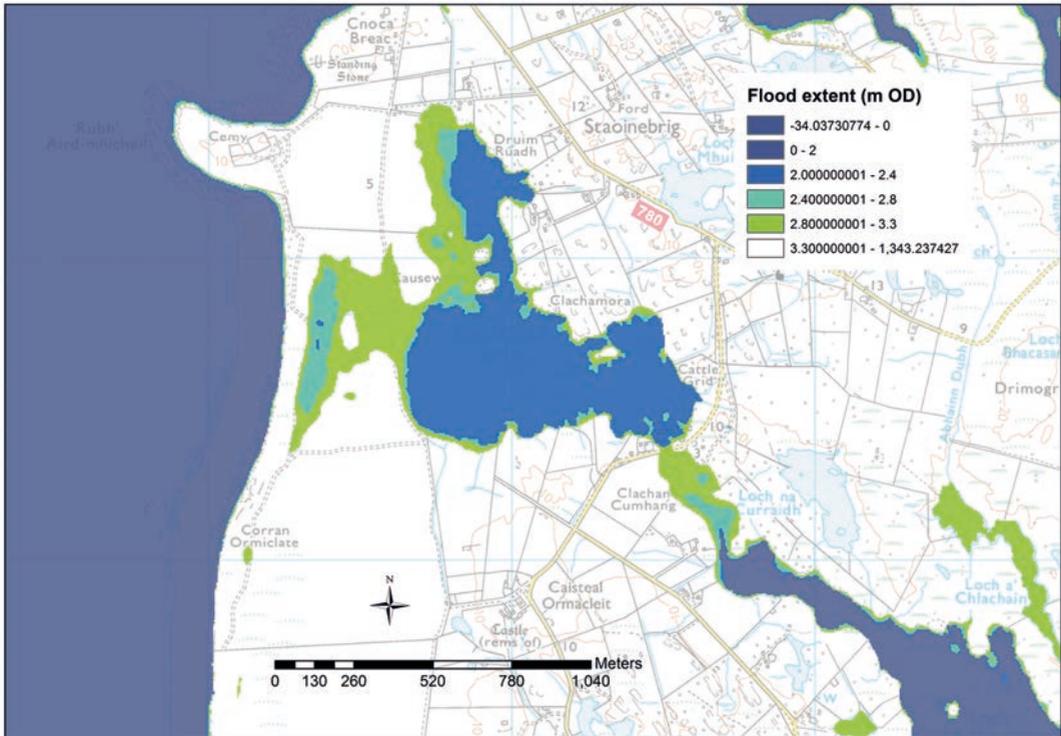
ILLUS 13 LiDAR DTM and associated imagery showing distinct nature of old channel between two parts of Loch Olaidh an Iar and Loch Olaidh Meadhonach. (All © SNH for Western Isles Data Partnership)

Likewise the ‘castle’ is in reality a laird’s house (Strachan 2008). Strachan (2008) and Slade (1992) also dismiss the tradition that it was constructed by French masons and Macdonald (1931) mentions a document in the Clanranald papers referring to three years of work on the house by Henry Urquhart of Cromarty. Though the reconstruction by McKean (Illus 2) reflects a French influence, there are more traditional reconstructions by Slade (1992) and Addyman and Kay (2000).

The extensive western machairs of South Uist are very low-lying (Angus in prep c). Though the knoll on which Caisteal Ormaclait is situated has an altitude of only 13.2m (LiDAR-derived), the machair context confers considerable status (Illus 4); the ruin is a prominent feature and is visible from considerable distance (Illus 15).

The last clan chief to reside at Castle Tioram was Donald, the 13th chief, who died in 1685, and was buried in Uist (Stell 2014). On inheriting the title, Alein chose to remain in Uist, where he had been raised by his tutor (Strachan 2008), and it is assumed he resided in the first Caisteal Ormaclait until he left for the Battle of Killicrankie in 1689, after which he fled to France and Tioram was occupied by Government troops (Stell 2014).

When Clanranald returned to Scotland with his new wife around 1696, the main Clanranald residence at Castle Tioram on the Scottish mainland was unavailable, being still occupied by Government troops (Strachan 2008). The location for the new house built to appease his wife may have been determined simply by an affection for the location of the old one, but the situation undoubtedly benefits from a highly



ILLUS 14 Possible old loch extents in Olaidh system at different flood levels. (DTM Data licensed to Scottish Natural Heritage under the PGA, through Next Perspectives, backdrop © Crown copyright [and database rights] 2018 OS 100017908)

prominent position; though the mound on which the building sits is low, its prominence in the low-lying machair landscape undoubtedly communicates the high status associated with a clan chief.

Though the roof is often constructed just after the walls, it could have been a later part of the castle's construction, and it is believed to have been built between 1701 and 1708; this establishes 1708 as the latest possible date for the building of a canal network on the Olaidh system. Though the 3.7m-wide channels and their stone-built walls strongly resemble canals, this alone is not sufficient to conclude that they were indeed canals: the 19th-century lowering of Loch Scolpaig in North Uist was achieved by the construction of a drain 14ft (4.3m) wide (MacLeod 1831) (though the contemporary width appears considerably narrower) so that channel dimensions alone cannot be used to confirm

canal status. However, if drainage had been the motive, the target area for drainage would have been the machair loch to the west, where Loch Olaidh an Iar is surrounded by land of much higher agricultural quality than the acid moorland to the east, and a western drain would have been easier to construct in sand. Walker (visited 1764 and 1771) reported the 1740s drainage as the first experiment of its kind that had been made in Uist (McKay 1980), providing further support for drainage not being the objective of the Olaidh works several decades prior to this.

The importation of building materials for Caisteal Ormacléit, the lack of a terrestrial transport network, tradition, and the evidence of built canal-like channels that support an aquatic route from the east coast to Ormacléit do not quite attain the status of proof, but the case is very strong indeed for the existence of a canal network in South Uist prior to 1708.



ILLUS 15 View of Ormaclait from Bornais, 2.1km to the south. The Caisteal stands on a knoll on the horizon, just to the left of the line of the drain. Photograph © Stewart Angus

Raven (2005) believed that Dun nan Gallan (NGR: NF 7386 3357; Canmore ID 9900) would have been located on an arm of Loch Olaidh an Iar prior to drainage but also notes a crannog with boat noosts in this loch. Raven (2012) notes an artificial island (crannog) in Loch Ceann a' Bhaigh (NGR: NF 7630; Canmore ID 9894). The crannogs and the boat noost merely confirm that boats were used on these lochs, but the possibility that the routes followed by the canals had an earlier history, perhaps involving the importation of building material for the building of the first castle, cannot be ruled out.

Though no contemporary account of the building of the Olaidh canals has yet been identified, there are two accounts of the later (1740s) construction of another canal in South Uist, linking the former Loch Dalbrog to the sea (Anderson 1785; McKay 1980), which suggest that navigation is highly likely to have been the motive for the 1740s construction, even if water level lowering was the result. The slight increase in area of Loch Olaidh an Iar with

increased water levels (Illus 14) suggests that relatively small areas would have been released to agriculture by a drainage programme, and this is difficult to reconcile with the scale of work undertaken. Furthermore, though the distance to the west coast from Loch Olaidh an Iar is roughly equivalent to the total length of canal construction (Table 1), a western drain through sand would have been easier to excavate than an eastern one through peat and rock.

The field evidence provides important support for the strong local tradition of the use of Uist's inland lochs for boat-based transport in South Uist and Benbecula, and constitutes the best known case for the building of canals, as opposed to the use of only natural waterways. The structures have parallels in south-west Skye, where stone-lined channels associated with boat access linking Loch na h-Airde to the sea have been described. A fragment of boat timber found in the loch was dated to 835 ± 35 BP, though it is not suggested this is contemporaneous with the built channel (Martin 2014). In 2013, SEPA scientists

TABLE 1

Lengths of each stage in an east to west route in Loch Olaidh system within South Uist. Canalised sections indicated by italics. The total length of canal is 1.083km

<i>Stage</i>	<i>Length (m)</i>
<i>Loch Aineort to Loch Ceann a' Bhaigh</i>	129
Loch Ceann a' Bhaigh	250
<i>Loch Ceann a' Bhaigh to Loch Olaidh an Ear (meander 422m, straight 190m)</i>	612
Loch Olaidh an Ear	505
Loch Olaidh Meadhonach	1,686
<i>West canal</i>	342
Loch Olaidh an Iar	900
Total	4,424

identified the phytoplanktonic alga *Bitrichia ollula* in samples from Loch Olaidh an Ear. This was the first time it had been recorded in the UK, but it is also known from the Czech Republic, Switzerland, Sweden and North America (Lang et al 2016). The Swedish records are of interest in the context of the Viking occupation of South Uist (Parker Pearson 2012), but there is nothing to suggest that the origin of the South Uist alga is boat-based: it could have arrived in South Uist via a drinking vessel previously filled from a Scandinavian lake, or via a migratory bird, so that while the biogeographical evidence is compatible with Viking navigation on the Olaidh network, it cannot be taken as evidence for such navigation.

Though drainage may not have been part of the plan in excavating this canal network, the old shore levels identified by Ritchie (1966) confirm that this was a result, though the area released is small compared with that released by the building of the canal to Loch Boisdale (Angus, in prep c). It is likely that the construction of the canal channels facilitated seaward water flow. With relative sea level rise rates in the order of 5–6mm/year in the Uists (Rennie & Hansom 2011), it must also be appreciated that flow of sea water landwards will be facilitated by these channels, as the system lacks the directional constraints (valves and sluices) seen in some

other Uist catchments. Loch Ceann a' Bhaigh is already brackish, and its salinity is likely to increase as more sea water flows in via sea level rise. As with many 'rock basin' saline lagoons, the ultimate conversion of Loch Ceann a' Bhaigh to a marine inlet will probably be prevented by the freshwater recharge from precipitation in the catchment (Angus 2017). Likewise onward flow of saline water from Loch Ceann a' Bhaigh to Loch Olaidh an Ear will usually be prevented by seaward flow of fresh water in the connecting channel. Only for short periods around the time of High Water on very high tides is Loch Ceann a' Bhaigh likely to rise sufficiently above Loch Olaidh an Ear to allow saline water to flow into the latter, a situation that is more likely to occur during periods of drought. Droughts are usually associated with prolonged periods of high pressure with low winds, when stratification of water bodies is more likely, and denser saline water would accumulate on the bottom of Loch Olaidh an Ear (Angus 2017), making western transport less likely. Agricultural crops are grown in the Uists only on the western machair, and the structure of the Olaidh lochs would appear to reduce the probability of saline water penetrating this far west and contaminating the water table around Loch Olaidh an Iar. However, the relative protection from sea level rise afforded by the

structure of the Olaidh network should not be assumed for other South Uist catchments.

Finally, though the statements made by Jehu and Craig of the Geological Survey probably arose from a minor misunderstanding about the exact nature of the involvement of mylonite in the roof of Caisteal Ormaclait, it is useful to note that on occasions even the most reputable of printed sources can prove less reliable than information provided by local people. Academics can learn a great deal from local people in any study of this type, and there is a strong case for improved communication between scientists and the community: such communication is a useful test of the knowledge of both, while together their knowledge can be considerably more valuable than the sum of the parts.

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