
8 Conclusions and Discussion

The excavation of the Geodha Smoo cave complex resulted in the recovery of numerous archaeological deposits containing well-preserved artefactual and environmental evidence (Table 12). These deposits clearly indicate the importance of this coastal location in the past. The deposits in the Wetweather Cave indicate prehistoric activity, but most of the evidence, from all of the other caves, indicates their use during the Viking, Late Norse and post-Norse periods.

8.1 Prehistoric activity

The discovery of evidence for prehistoric activity in the Wetweather Cave is of considerable importance. Our present understanding of the extent and character of prehistoric and indeed later settlement in this extreme north-west corner of mainland Scotland is limited, with very little fieldwork so far carried out in the area. Because the excavations reported here, survey of the Sutherland coast (Brady & Morris 1998) and of the area around Durness (Lelong & MacGregor 2003) has built on the work of rare predecessors (Reid et al 1967; Mercer 1985), and will make a valuable contribution to understanding the history of human activity in the region. However, a general absence of excavation work still makes it very difficult to place the sites reported here within their local and regional cultural context.

Despite the problems highlighted above, these cave sites should not be viewed in isolation. In the past a focus on coastal sites, which include caves, to the exclusion of other locations has resulted in a somewhat distorted picture of past human activity in these areas. The Oban cave sites are the most obvious example of this distortion, with discoveries of a limited artefact assemblage, including antler barbed points, recovered from Mesolithic shell middens, giving birth to the erroneous idea of the Obanian Culture (Pollard 1987; Pollard 1991; Bonsall 1996; Pollard 1996c).

In Oban it is now apparent that the caves and the shell middens which they contained did not represent settlements but specialized extraction camps given over to the procurement and processing of marine resources (Pollard 1987; Bonsall 1996). The settlements themselves were located further inland, and marine foodstuffs processed in the caves may have been consumed at these sites. Wetweather Cave may have functioned in the same way, with the site used as an extraction camp by people living elsewhere, but probably quite close to the cave.

Field survey has so far failed to identify any trace of Neolithic settlement in this corner of the Scottish

mainland. However, the presence of a number of chambered cairns in the vicinity of Tongue and Bettyhill, around 15km and 25km respectively to the east, provides clear evidence that Neolithic communities were active in the region (Henshall & Ritchie 1995). The apparent absence of settlement sites from this period should come as no surprise, as it is becoming increasingly apparent that Neolithic houses on the Scottish mainland, as opposed to the Northern Isles, may have been insubstantial timber structures unlikely to leave any upstanding remains detectable through field survey (Pollard 1997).

Although it has been suggested that people were not using the cave as a place of residence, the presence of structural features does point to something more than a temporary shelter. However, these structural elements may not relate to the Neolithic use of the cave but to much later activity. The recovery of a copper-alloy pin of Norse or later date demonstrates that people were at least visiting the cave, perhaps while most of the deposits in the other caves were accumulating.

The variety of marine shells from the caves suggests a wide-ranging use of the shoreline. The presence of *Nucella lapillus* is especially intriguing; its probable use in the production of purple dye has been noted in the shell report (see Section 7.4 – Marine shells). However, the recovery of this species from a cave which also included late Neolithic pottery does not mean that purple dye was being produced during the Neolithic. The midden deposit (1/006) from which the majority of these shells were recovered does not appear to be Neolithic, as it contained the copper-alloy pin of a type similar to those recovered from the Norse/early medieval site at Freswick, Caithness (see Section 5.3.2 – Copper-alloy pin). Tyrean Purple was certainly in use during this later period, in places such as the monastery on Iona, but the use to which any dye produced from these shells was put is uncertain. It may have been transported elsewhere to be used in the production of illuminated manuscripts or the dyeing of fabrics.

Direct evidence for later prehistoric activity takes the form of Iron Age pottery sherds from Glassknapper's Cave. However, the analysis of this small assemblage has also highlighted a problem when dealing with cave deposits. The recovery of Iron Age sherds from upper and lower deposits that also included Norse and medieval sherds suggests that some mixing of strata has occurred in the past (see Section 5.1 – Pottery). This observation serves to highlight the complex nature of the deposits and the problems inherent in drawing firm conclusions from purely stratigraphic observations, as has also been recognized at the cave site of An Corran on Skye (A

Table 12 Comparison of artefactual and ecofactual material from the four caves

Material	SC	GKC	AC	WWC
Pottery		P1, P3, P5: Iron Age, from lower midden deposits.P4, 10, 11: Medieval, from lower midden.P6 (Illus 7): Norse from upper and lower midden.Some disturbance of deposits evident from sherd dispersal		P12: Neolithic
Bone and antler		Red deer antler peg: tree nail or shroud pin? (suggests association with ships).Possible needle, bone pin.Other worked pieces		
Iron rivets	Square- and rectangular-headed iron rivets (5) and nails (3) from shell midden. All but one snapped across shaft	Square- and rectangular-headed iron rivets (7) (Illus 7). Larger and sturdier than SC ones. Most intact, suggesting from pieces of ship's timber, perhaps used as firewood?	Square- and rectangular-headed iron rivets	
Copper-alloy pin				Spherical head with spiralling incised line. Similar to two from Freswick, but could be post-Norse. From shell midden
Slag and fuel	Suggests iron smelting/smithing on site, but results not definitive			
Animal bones				
Fish	Phase 3: Mostly saithe, possibly from inshore fishing.Phase 5: Mostly haddock (cf LN deposits at Earl's Bu) from deep sea fishing. Probably not being cured in cave for consumption elsewhere, but possible. Some cured fish brought to and consumed in cave	Variety of species, including young saithe and pollack, mature cod, haddock, ling, herring, etc. Evidence for both inshore and deep sea fishing. No evidence for fish curing. Very few cut marks. Fish probably caught to be consumed on site. Much burnt bone	Very few remains, mostly young saithe and pollack, some cod and mature herring. Probably represents inshore fishing and fishing from boats using lines and nets at different times of the year	Mostly young saithe and pollack. Evidence for small-scale, inshore fishing, probably during autumn
Birds	Most bird bones from Phase 5, one charred. Remarkable absence of seabirds	Only one bone from domesticated species, the majority from seabirds	N/A	Only one bone from domesticated species, the majority from seabirds
Mammals	Most bones were fire-altered. Meat probably brought to cave for consumption.Phase 1: Cattle, possibly red deer.Phase 3: Sheep,?goat,?cattle.Phase 4: Cattle, pig, sheep/goat, large ruminant.Phase 5 (largest assemblage):Cattle, sheep/goat, dog/wolf, ruminants, vole, stoat. Some had cut marks	Largest number of bones. Both domesticated and wild animals, including cattle, sheep, pigs, deer and pup seals, many bearing cut marks. Also evidence that long bones and red deer antlers were processed into artefacts in the cave	Some evidence that red deer antlers were processed into artefacts in the cave	

Table 12 (cont.) Comparison of artefactual and ecofactual material from the four caves

Material	SC	GKC	AC	WWC
Amphibians	Phase 5: A few toads			A few frogs
Animal bone conclusions	Both fish and mammal flesh were consumed in the cave in Phase 5. Little or no evidence of fish curing. Cave apparently occupied up to medieval period, at least for food consumption, perhaps as fishers' shelter	Fish were consumed in the cave, and meat from wild and domesticated animals and seabirds was prepared here. Antler and bone artefacts were also created in the cave	Antler artefacts were created in the cave	Fish procured through small-scale, inshore fishing were probably consumed in the cave, along with seabirds
Marine shell	Shells of common limpet, edible periwinkle and common mussel, a small proportion burnt. Probably consumed as food, although some may also have been used as fishing bait	Mainly common limpet and common mussel (much of it burnt), along with whelk, oyster, edible periwinkle and edible crab. Probably consumed as food, although some could also have been used as fishing bait	Mainly common limpet with some edible periwinkle and common mussel, none of it burnt. Probably used mainly as fishing bait	Mainly common limpet, with some common mussel, common cockle and edible periwinkle. Much broken and burnt shell, and these were probably consumed as food with some used as fishing bait. Much broken whelk, used to produce purple dye
Plant remains	Birch and hazel charcoal from Hearth 021	Carbonized oat and hulled barley from upper midden (008) along with field weeds, indicating grain was processed on site. Some carbonized seaweed, probably from manuring fields. Also plants from dry heathland, bog and mountain/limestone scree habitats. Evidence that peat was collected and brought to cave for use as fuel, or possibly to build/enhance barrier across mouth	Very few heath and wetland macrofossils. No cereal grains or charcoal	

Saville, pers comm). Iron Age deposits may also have been present in Smoo Cave, within those deposits sealed by the Viking Age horizons, but in the absence of more direct evidence this suggestion must be treated with caution. A clearer understanding of deposition patterns and formation processes would be possible only with detailed geomorphological analysis, which was not possible within the constraints of the rescue excavation.

8.2 Viking/Late Norse and later activity

Whatever the true nature of the activity attested by the Neolithic deposits in Wetweather Cave and Iron Age evidence from Glassknapper's Cave, the evidence from the other caves clearly indicates that the Geodha was an important focus for activities related to marine exploitation in the Viking/Late Norse and later periods.

Evidence for fishing took the form of fish bones, which were recovered from all of the excavated caves. Analysis of samples recovered from the various cave deposits does suggest some difference in the type of fishing which took place at different periods in the history of the caves' use. The fish bone assemblage from the earlier, probably pre-Norse and possibly Iron Age phases of activity in Smoo Cave, notably Phase 3, was dominated by saithe, which may indicate inshore fishing. In the Viking period (Phase 5), activity in Smoo Cave shifted to focus on haddock, which is indicative of deep sea fishing, a practice similar to that found in the Late Norse deposits at Earl's Bu. It is doubtful whether these fish were being cured in the cave, but some cured fish may have been brought to the cave and consumed there (see [Section 7.1 – Animal bones from Smoo Cave](#)).

The evidence for fishing from Glassknapper's Cave suggests both inshore and deep sea fishing, with a variety of species including young saithe and pollack, mature cod, haddock, ling, herring, etc. The fish bones displayed very few cut marks and were probably caught to be consumed on site. Antler Cave produced very few fish remains, and these were limited to young saithe and pollack, along with some cod and mature herring. This mix may suggest inshore fishing using lines and nets at different times of the year. A more seasonal pattern may be suggested from the sample recovered from Wetweather Cave, where young saithe and pollack may have been caught close to shore during the autumn months (see [Section 7.2 – The fish remains from Glassknapper's Cave, Antler Cave and Wetweather Cave](#)).

The dominant feature, at least visually, of many of the deposits excavated were of course the marine shells which were to be found in varied concentrations throughout all of the caves. The dominant species in all of the caves were limpet and mussel, both of which are still found in abundance in the tidal

zone of the inlet. Other species included periwinkle, which was found in all of the caves, while oyster and crab were found in greatest quantity in Glassknapper's Cave. Whelk shells were recovered from Glassknapper's Cave and Wetweather Cave, and in the latter it has been suggested that their fragmented state may be indicative of dye extraction (see [Section 7.4 – Marine shells](#)). Evidence of the burning of shells from Smoo Cave and Wetweather Cave may be indicative of human consumption, but this seems likely of at least some of the species from all of the caves. Studies elsewhere suggest that species such as the mussel, periwinkle and oyster were commonly consumed, while the limpet may have been used more commonly for bait in line-fishing ([Pollard 1994](#)), but human consumption cannot be ruled out.

Fish bones and marine shells represented only one part of a mixed economy practiced by people utilizing the caves. The earliest phase of activity from Smoo Cave (Phase 1) included the use of cattle and possibly red deer. The later phases in Smoo Cave are dominated by domestic species, which may indicate less reliance on hunting. However, it would be rash to draw too many conclusions from samples recovered from a small portion of the site. Phase 3 included sheep and possibly goat and cattle; Phase 4 cattle, pig and sheep/goat; and Phase 5 cattle, sheep/goat and dog/wolf. Although red deer antler and some long bones were recovered from both Glassknapper's Cave and Antler Cave, the general picture is of an economy which utilized domesticated species, but continued to place some importance on hunting red deer (see [Section 7.3 – The mammal and bird bone from Glassknapper's Cave, Antler Cave and Wetweather Cave](#)) while the antler was used in artefact production in these caves. The presence of a few young seal bones may indicate some low-scale, opportunistic exploitation of seal colonies perhaps inhabiting the shore line not far from the inlet.

By far the largest number of domestic animal bones was recovered from Glassknapper's Cave, but this again is likely to reflect the greater intensity of the investigation rather than a difference in economy or activity. Samples from throughout the deposits included cattle, sheep and pig. Many of these bones exhibited cut marks, which may suggest that meat was processed in the cave, although it is also possible that butchered animal bones were brought to the cave to be modified into artefacts (see [Section 7.3.4 – Economy of the site – evidence of butchery and bone working](#)).

Evidence for cereal cultivation was restricted to small quantities of oat and hulled barley from the upper parts of a shell midden deposit (context 008) in Glassknapper's Cave. Only natural plant residues were recovered from the other caves, notably birch and hazel from the hearth (021) in the Smoo Cave section. However, caution must again be exercised in drawing conclusions as the other caves were not subject to such intensive investigation. Interestingly, though, the presence of field weeds may

indicate that grain was processed in the cave (see [Section 7.5 – Plant remains](#)).

As with the prehistoric deposits in Wetweather Cave, the remnants of Norse-period use of the other caves must represent only one component of a complex archaeological landscape, with settlements located not far away from the caves. Indeed, since the excavations reported here a possibly contemporary settlement has been identified and investigated at Sangobeg, 1km to the south-east of the Geodha Smoo ([Brady & Lelong 2001](#)).

Some of the evidence reported here may suggest that the caves themselves were inhabited. In the case of Glassknapper's Cave and Antler Cave, especially, this seems somewhat unlikely, as today these are relatively shallow and exposed, but at the time of Viking/Norse activity may have been somewhat deeper. If these caves were to have been in any way habitable, it is probable that they would have required some form of modification. No convincing evidence was found for structures inside them, although a concentration of stones near the entrance of Glassknapper's Cave may have resulted from a crude attempt to create a barrier at the mouth.

The most likely candidate for any longer-term occupation is Smoo Cave, where limited investigation has suggested that structures did exist. However, at certain times of the year the cave would have been inundated by storm-driven waves and exceptionally high tides, and any occupation may therefore have been on a seasonal rather than year-round basis. This is obviously not a problem that would befall the much higher Wetweather Cave, which has provided evidence for structures in the form of probable post-holes.

It should also be noted that the artefact assemblage from the caves is at odds with what one would expect to recover from a full-time settlement site, with only very small amounts of pottery present. Other artefacts such as combs, which are fairly ubiquitous on Norse settlement sites, were also absent. Numerous examples have been recovered from the various excavations at Freswick Links, Caithness ([Batey 1987](#); [Morris et al 1995](#)), and even the very limited trial trench evaluation of the site in sand dunes at Dunnet, Caithness, recovered a fine antler comb ([Pollard 1996a](#)). This absence does not, however, negate the possibility that antler combs may have been manufactured in the caves, as evidenced by waste shavings, and exported elsewhere (see [Section 7.3 – The mammal and bird bone from Glassknapper's Cave, Antler Cave and Wetweather Cave](#)).

Given the marine context of the sites and the nature of much of the material (fish bones, shells, ship's fittings, etc.), the caves may have been devoted to a limited range of specialized craft and procurement activities focused on the sea. The working of bone and antler is a notable feature, with an interesting collection of bone and antler artefacts recovered from Glassknapper's Cave. Analysis of the mammal bone assemblage has established that

these pieces were probably made in the caves, with small bone splinters and removal scars from larger bones suggesting waste from the production process (see [Section 7.3 – The mammal and bird bone from Glassknapper's Cave, Antler Cave and Wetweather Cave](#)). Although it is not possible to assign many of these worked pieces a definite function, it has been suggested (see [Section 5.2 – Bone and antler artefacts](#)) that at least some may relate to the repair of boats.

A more definite indicator of craft activity related to boats and their maintenance is the presence, in Smoo Cave and Glassknapper's Cave, of iron rivets of a type known to have been used on Viking and Late Norse vessels. The recovery of lumps of iron ore and slag from the same caves could suggest that nails were manufactured on site. It is important to note, however, that most of the nails recovered had already been used, having both heads in place, rather than just one as would be the case with a newly manufactured nail. The presence of both heads would suggest that the rivet had at one time been attached to a boat timber which had totally decayed as opposed to nails which had been extracted from timbers, a process that would have dislodged or damaged at least one head. It is perhaps more likely that damaged timbers cut from a boat, with nails in place, were used as fuel on a fire, a process that would obviously have left the nails undamaged.

The presence of large quantities of marine shells and fish bones, along with the bones of some sea birds and seals, also suggests that these were specialist sites related to marine exploitation, linked to practices such as deep sea fishing. The apparent importance of coastal and marine exploitation need not be negated by the presence of terrestrial mammal bone and deer antler, which as suggested above may have been brought to the caves as raw materials for the manufacture of artefacts used to procure marine resources.

This picture of specialized use breaks down somewhat when the charred plant remains are considered. The presence of quantities of cereal grains from the Norse-period deposits appear somewhat out of place on sites related to marine exploitation. The recovery of oats and barley, including the waste products from processing, strongly suggests that the caves saw the wider range of activities which one might expect to occur on settlement sites.

This point is further emphasized by the recovery of a quern stone eroding from the Glassknapper's Cave/Antler Cave section prior to the excavation (R Hingley, pers comm). It may be that harvested oats and barley were brought to the caves to be processed before being taken to a settlement site for consumption. Although the caves may have provided suitable shelters for crop processing, it seems unlikely that people would have gone to the effort of carrying stalks from fields down into the inlet only to have to carry the processed grains back up to the settlement. It is more likely that harvested grain was brought

into the inlet by boat, in which case the caves would be the obvious place in which to carry out processing, thus reducing the weight of material which had to be carried up the steep slope. Whatever the case, the processing of grain clearly negates any suggestion that the cave sites were exclusively related to marine exploitation, while also making it harder to reject the possibility that people were living in the caves, even if this were on a temporary basis.

Although no Viking (Norse), as opposed to Late Norse, settlements have thus far been identified on the Scottish mainland, there is little reason to believe that they did not exist, given their presence on the nearby Northern Isles. It has been suggested that the failure to locate these sites may be due to their location beneath modern settlements or destruction during early broch excavations (Batey 1987). Until recently, evidence for Late Norse activity has been lacking in Sutherland, although it has been suggested that rectangular buildings at Tongue, Klibreck and Ault Loch Sian may represent Viking or Late Norse settlements (Batey 1987). More recently, however, a number of probable Late Norse sites have been identified, including a grave found eroding from sand dunes at Balnakeil (Low et al 2000), some 4km to the west of Smoo, and the occupation site mentioned above at Sangobeg (Brady & Lelong 2001).

As with the case of prehistoric settlement, our understanding of Early to Late Norse activity along this part of the northern Scottish coast requires a more intensive programme of research. The excavations at Freswick Links and Robert's Haven have provided physical evidence for the Norse presence in Caithness, already suggested by a proliferation of Norse place-names, while small-scale excavation at Dunnet Bay, some 75km to the east of Smoo, has revealed the presence of a Norse settlement on the northern coast of Caithness (Pollard 1996a). It remains to be established whether the Norse-period activity at Smoo fits into this larger settlement pattern or whether the deposits in the caves resulted from temporary stopovers by Norse mariners on their voyages from Scandinavia and the Northern Isles to the Western Isles, Ireland and the Isle of Man.

In the absence of further evidence, the latter hypothesis is an attractive one, with the sheltered Geodha and the caves the ideal place in which to carry out repairs on boats that suffered damage in heavy seas, the beach allowing boats to be hauled ashore if necessary. They would also provide the

opportunity to process and consume (see Section 7.1 – Animal bones from Smoo Cave and Section 7.2 – The fish remains from Glassknapper's Cave, Antler Cave and Wetweather Cave) fish caught on the voyage and to procure other foodstuffs, both wild and domestic, from the immediate environs of the caves. Although the deposits in both Glassknapper's Cave and Antler Cave were of considerable depth, radiocarbon dates suggest they accumulated quite rapidly, the majority perhaps over 200–300 years, and possibly resulted from regular visits, perhaps several times a year. Although most of the remains appear to relate to Viking/Norse-period activity, the potential for earlier activity, suggested by what is probably Iron Age pottery in the lower levels (see Section 5.1 – Pottery) and later (medieval and post-medieval) phases of use, should not be overlooked.

The deposits in Glassknapper's Cave strongly suggest that the Norse, in an area with an exposed coastline regularly battered by heavy seas, regarded the Geodha Smoo as an important natural harbour. The place had probably long been known to Norse mariners, certainly by the time the Earldom of Orkney was established by the late ninth century. At this time Viking raiders regularly set out from Orkney and may have visited Smoo during voyages to places further south and west. Such visits would certainly be in keeping with the earlier end of the range provided by radiocarbon dates, with the two earliest date ranges from Glassknapper's Cave being cal AD 820–1000 (OxA-8212) and cal AD 770–980 (OxA-8211), expressed at the 2-sigma (95.4%) level of confidence. The broad range from Smoo Cave, cal AD 780–1020 (at 95.4% confidence) (GU-4545) is perhaps not so helpful, but the relatively high stratigraphic position of a similar range from Glassknapper's Cave, cal AD 890–1160 (OxA-8210), does point to continuation of activity into the period when the Norse were probably settlers rather than raiders, with the site ceasing to be treated merely as a port in a storm and instead perhaps adopted as a beach-head for settlement in this area.

A consideration of the environmental evidence, both plant and animal, does not really allow for grand statements to be made about a change in the type of economy practiced over this period, as raiders became settlers. However, this is not necessarily something we should expect to detect from the archaeological record as it is the mode of resource procurement that is more likely to have changed than the resources used.