The Marine Shell from excavation at Castle Hill, Banff

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The excavation at Castlehill, Banff provided a large sample (718 shells) of marine molluscs for analysis. The shell was collected from the retents of samples taken from basal (026), secondary (022) and final (023) accumulation layers forming a midden. The midden was located beneath a 1.5m thick deposit of imported topsoil and preserved within a depression on a pebble beach on the seaward slope of Castlehill, Banff. Marine shell was also recovered from the fills (30 and 003) of an Isolated Pit [029]. Both apical and non-apical shell fragments were recovered from the retents. The apical fragments were identified to species or genus using standard keys and guides (e.g. Tebble 1976). Frequency was estimated by counting shell apices for gastropods and valve umboes for bivalve species. Fragments of shell without apices were not counted.

Results

A deposit (026) of dark grey silty clay containing frequent fishbone and shell formed the primary midden accumulation. It contained a substantial lens of fairly clean sand suggesting that its formation was not a single event. Shells recovered from the deposit included 2 medium sized limpet shells (*Patella vulgata*) with low crowns and 10 periwinkles (*Littorina littorea*) (Table 1).

The greatest number and diversity of shells was recorded in the secondary phase of activity, formation of the mound (022). A mound (022) of dark brown compact silt with lenses of light grey silt and beach pebbles formed over primary deposit (026). The deposit also contained unabraded sherds of pottery, several iron knives and iron fishhooks and a high proportion of fishbone and marine shell. Four hundred and fifty four limpet shells were recovered together with 187 periwinkle shells, 8 flat winkle shells (*Littorina littoralis*) and 2 rough winkle shells (*Littorina saxatilis*). The limpet shells ranged in size from small to large, both high and low crowns were observed.

A deposit (023) comprising light to mid brown silty sand developed around the edges of the mound and was interpreted as the final midden accumulation. Only four heavily fragmented, limpet shells, 2 periwinkle shells and 5 mussel fragments were recovered from this deposit.

Twenty-nine large, well preserved periwinkles were recovered from the fill (029) of isolated pit [030] together with three limpets.

Although heavily fragmented shell was present in the fill (003) of linear feature [004] no apical fragments were present.

Discussion

The shell assemblage derives from sieved samples so the proportions of the various species in the assemblage are likely to reflect the relative quantities of different taxa originally discarded.

Limpet (*Patella* sp.) shells constitute the most frequently encountered species. Limpets are a common element of archaeological shell assemblages of all periods (e.g. Sloan 1984) and were utilized either as food or bait for fishing. Limpet is common on all rocky shores between high and low water mark. Small, medium and large shells with high and low crowns were present in the secondary midden accumulation (022). The shape of the limpet is directly related to the degree of wave action around its habitat as it dictates the size of muscle required to hold the limpet in place (Sharples 2005). Low-crowns are the result of a sheltered environment, and can be taken to indicate shells from low in the tidal zone (Fowler 1974) whereas high crowns come from near the high-water mark. The presence of both high and low crowns suggests that areas close to both the lower and higher tidal zones were exploited.

A wide variety of limpet sizes were recovered and this suggests either that there was a stress on the limpet population or that shell size was not important to the collectors. This latter observation might suggest that limpets were used for baiting rather than consumption.

Edible or common periwinkle was the second most frequently encountered shell, in Context (022) and the dominant species in Context (029). Perwinkles are commonly found on rocks and weeds on the middle shore. Periwinkles were used for both food and bait, but must either be cooked, by boiling or roasting, or smashed in order to extract the animal from the shell. The overwhelming presence of whole periwinkle shells over fragmented shells suggests that they were not usually smashed. Smashing shells in order to extract the animal, would be less time consuming and more energy efficient. Although boiling the shells has culinary connotations, it is possible that the periwinkles may have been boiled to extract the animal for use as bait. Fenton (1997) notes that limpets were parboiled and mashed to use as bait for angling.

Small numbers of flat winkles, rough winkles and mussels were also present. Flat winkle is found on seaweeds, especially *Fucus vesiculosus* and *Ascophllum nodosum*, on the lower, middle and upper parts of the shore. Only eight flat winkles were recovered from the assemblage, suggesting that they were incidentally incorporated in the assemblage, perhaps brought from the shore on other materials such as seaweed or driftwood. Rough winkle is commonly found on the upper and top of middle shore in cracks, crevices or under stones and feeds on seaweed, and may also have been incidentally incorporated into the assemblage. Mussel is commonly found

from upper shore into the shallow sublittoral zones in beds on rocky or stony shores but also on muddy shores with stones (Hayward et al 1995). However, Grant (1836; 14) states that mussel 'is not a native of this coast. Immense numbers of them, however, are annually brought by fishermen from the shores of the Cromarty Frith (sic), and are deposited among the rocks here, for the purpose of being afterwards used for bait (NSA 1836; 14).' The fragmentation of the shells can be explained by their lamellar nature which makes them prone to physical and chemical decay. It is possible that mussel shells may have been part of the beach matrix, moved by wave action and wind.

The dominance of limpet and periwinkle indicates that a rocky shore, not unlike the modern shoreline, was being exploited.

Shellfish as food

Both limpets and periwinkles are used for food and fish bait. As a food for humans both limpets and periwinkles are significant species (Howard & Ballin-Smith 1994). In post-medieval Northern Isles, for example, winkles and limpets were seen as food for the poor (Fenton 1997). However, their wide presence in a variety of shell middens from sites of different ages suggests that they were not solely the product of bait or famine food.

Shellfish as bait

It is possible that the limpet shells were the waste from the baiting of lines armed with the type of hooks recovered from site. Similar assemblages of sea-shell and gadid bone, indicative of Medieval fishing industry were recovered at Freshwick links, Caithness (Jones 1981) and Eyemouth (Sloan 1986). It is therefore possible that the limpets and periwinkle were used as bait to catch the gadid species (e.g. Cod, Ling, Haddock) as gadidae were the main group of fish identified at Castle hill.

The flat periwinkle and many of the limpet shells were too small to have been considered as a food source. Although the size of shell recovered suggests that the shells were used for bait rather than consumption no conclusive evidence, from the shell assemblage alone, was recovered for either use.

Conclusion

It is not possible to establish whether the shells present in the midden are the result of discarded food debris, or waste material from fishing. The small size of many of the shells, limpets in particular, suggests that they were not collected for consumption and the presence of fish hooks would indicate that their use for bait is a possibility. However, the presence of food debris in the form of fish and animal bone suggests that the shellfish may also have been food waste.

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