14 Molluscs *by Stephen Carter*

14.1 Marine molluscs

14.1.1 Methods

Marine shells were recovered by hand-retrieval and from sieved samples. The bulk samples were sieved through a 1 mm mesh and all apical and non-apical fragments were recovered. The apical fragments were identified to species using a reference collection and standard guides; and frequency was estimated by counting shell apices for gastropods and valve umbos for bivalve species (Campbell 1989; Carter 1992; Moreno-Nuno 1994a; Moreno-Nuno 1994b)

14.1.2 Results

In the hand-collected material only whole specimens were recovered, which indicates that they were refuse from foodstuff. The sieved materials contained remains of food debris and mortar-related shell fragments. The mortar-related shells were very fragmented, preventing precise quantification: instead a relative scale of abundance was adopted. Mortar-related shell fragments were also recognisable because they are usually burnt, thus acquiring a distinctive grey colour, and often have mortar lumps attached to them. The incidence of species in each period is given by Table 8.

14.1.3 Discussion

The material derives from domestic refuse and from mortar components. In the domestic material, the most common species are the common cockle (*Cerastoderma edule*) and the common mussel (*Mytilus edulis*). Most of the species present are sand burrowing species and would have been easily collected from the sandy beaches of the Solway Firth.

Table 8 Marine molluscs

Species	Retrieval	Period I	Period II	Period IV	Per. IV–V	Period V
Ostrea edulis (oyster)	by hand	1	2	38	5	15
	sieved	1		14	9	1
Littorina littorea (edible periwinkle)	by hand			17	6	139
	sieved	***		**** 24	4	1
Littorina littorinas (flat periwinkle)	by hand					
	sieved			*****		
Cerasto-derma edule (common cockle)	by hand		5	53	16	
	sieved	*** 2		**** 109	*** 11	** 5
Buccinum undatum (common whelk)	by hand	1		7	2	2
	sieved			6	2	
Mytilus edulis (common mussel)	by hand			8	18	24
	sieved	***		**** 13	31	2
Patella sp. (limpet)	by hand			1	1	2
	sieved				1	9
Turritella communis (tower shell)	by hand			1		1
	sieved	** 1		**** 7		
Spisula solida (trough shell)	by hand			1		1
	sieved			*** 1		
Eliminus modestus (barnacles)	by hand					1
	sieved					
Gari depressa (sunset shell)	by hand					
	sieved			2		

Key: * indicates relative abundance of fragments in one or more contexts per period

Table 9 Non-marine molluscs

Period (various contexts)	I	IV					IV–V	V
Taxa	floors	fills	middens	Drain	floors	demol.	floors	fills
Carychium spp.			2	10				
Gyralus albus				5		6		
Succinea/*Oxyloma* spp.				1				
Cochlicopa spp.			9	79	1	9		
Vertigo antivertigo			1					
Lauria cylindracaea	1		222	238		44		13
Vallonia pulcella				7		2		
Vallonia spp.			1	7		2		
Discus rotundatus	5	1	168	217	2	47	1	9
Vitrina pellucida			2	3				
Vitrea spp.	1		35	95		79	7	2
Aegopinella nitidula			22	16		6	1	
Oxychilus spp.	3		96	229		47	5	3
Clausilia bidentata			1	3		13		
Balea perversa	1		111	14		2		
Clausiliidae			4					
Trichia hispida			2	2				
Cepaea/*Arianta* spp.			1	1		1		
Sample vol. (litres) all contexts	10	2	161	133	25	8	23	12
Apices per litre all contexts	1.1	0.1	8.7	5.1	0.1	33.3	0.8	2.3

Mussels may have been collected from rocks in estuaries. Although a great variety of species were identified from Dundrennan Abbey, their low numbers may reflect a lack of preference for marine molluscs in the monks' diet.

Mortar-related shell fragments derived from most of the sieved samples. The marine shells used in the mortar component were from sand burrowing species which could easily have been dug out of sandy beaches. Marine shell left as food debris may also have been used for the mortar mixture as the most common species present in the mortar-related shell fragments, again, are common cockle and mussel.

14.2 Terrestrial and freshwater molluscs

Terrestrial and freshwater mollusca are generally studied in order to investigate the nature of the local environment in which the animals lived. In the case of Dundrennan Abbey the basic environment is clear: the snails were living in a large collection of mortared stone buildings which experienced periods of decay, refurbishment and demolition. The intention in studying this assemblage is therefore to attempt to add some detail to this broad picture, in particular the conditions in the great drain.

14.2.1 Methods

Shells of terrestrial and freshwater molluscs were retrieved from bulk sediment samples during sorting of flots and retents; flots were collected in a 300 μm mesh sieve and retents in a 1 mm mesh. A mesh size of 500 μm is recommended for the retrieval of terrestrial mollusc shells but, because the majority of shell apices floated, the recovery technique is judged to be adequate. In addition to the shells recovered from sediment samples, a very few shells of large species were hand-retrieved during excavation. All shell apices were identified to species, genus or family level (nomenclature follows Kerney 1976). In general specific identifications were not attempted for taxa where this would prove time-consuming or add little to the interpretation of the assemblage. Specimens of *Cochlicopa* are probably all *C. lubrica* and *Vitrea* appears to be all *V. contracta*. Of the three possible

species in the genera *Cepaea* and *Arianta*, only *C. nemoralis* was positively identified from hand-retrieved specimens.

14.2.2 Results

Shells were widely distributed through the excavated sediments and were recovered from 30 of the 42 bulk samples processed by AOC Archaeology Ltd. In most cases shells were present in very low concentrations; only 11 samples contained more than two apices per litre of sediment and this may account for the lack of shells from certain small samples. The incidence of species in the assemblage is given by Table 9.

14.2.3 Discussion

Taking the assemblage as a whole, it is dominated by taxa typical of disturbed but shaded habitats associated with stone buildings or rubble. Five taxa account for most of the shells: *Lauria cylindracea*, *Discus rotundatus*, *Vitrea* spp., *Oxychilus* spp. and *Balea perversa*. Comparison of those assemblages with more than 100 apices reveals two groups with distinct compositions. The Period IV midden deposits are dominated by *Lauria* with subordinate *Discus*, *Oxychilus* and *Balea perversa*. The Period IV and V drain fills are dominated by a mixture of *Lauria*, *Discus*, *Vitrea* and *Oxychilus*. *Lauria* and *Balea* exploit rock faces and stone walls (Kerney & Cameron 1979) and their relative abundance in the first group reflects the presence of stone wall faces around these deposits. The relative abundance of *Discus*, *Vitrea* and *Oxychilus* in the second group matches assemblages from either a rubble or more strictly subterranean environment (Evans & Jones 1973). As these are drain fills, this result is not unexpected.

The assemblages from the drain fills, although dominated by the characteristic subterranean taxa of local origin, also contain rarer examples of taxa that suggest water/marsh conditions or water transport of shells. The most obvious example is *Gyraulus albus*, a species of ramshorn snail that is widespread in all types of freshwater, flowing and still. This occurs in low numbers in four drain-fill assemblages and presumably inhabited the watercourse that supplied the drain. Three other taxa in the drain-fill assemblages, none of them strictly aquatic, may also reflect the presence of flowing water. There is a single shell of *Succinea/Oxyloma*, both genera typical of marsh or wet grassland. Four contexts contain shells of the genus *Vallonia* which is clearly *V. pulcella* in all examples identified to species level; this is also a species that inhabits wetland. Finally, all except one of the shells of *Carychium* were found in drain fills. These were not identified to species level but could be the marsh species *C. minimum* rather than the strictly terrestrial *C. bidentatum*. These three marsh species are unlikely to have lived in the covered drain but could easily have been washed into it from its banks, upstream of the abbey. A fourth marsh species, *Vertigo antivertigo*, is represented only by a single shell in a midden deposit; there is no obvious explanation for its presence.

The abundant fragments of lime mortar in many of the excavated sediments have created calcium-rich, high pH conditions suitable for the preservation of mollusc shells. Therefore the general rarity of shells must indicate that few became incorporated into the sediments. The most likely explanation of this is that the drain sediments and associated middens accumulated rapidly, and only in a few cases did these remain accessible long enough for snails to accumulate.

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