SNAIL CAVE ROCK SHELTER, GREAT ORME, LLANDUDNO, CONWY: EVALUATION EXCAVATION 2011 (GAT PROJECT G2179) PRELIMINARY REPORT

GAT Project No. 2179
Report No. 1002
December 2011

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

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Prepared for
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By
George Smith

Cover: General view of the rock shelter from the south

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ILLUSTRATIONS

1. SUMMARY

A small evaluation excavation was carried out on deposits within a newly discovered rock shelter on the east side of the Great Orme at NGR: SH 7807 8370. The deposits were exposed and subject to some erosion and animal burrowing. Several worked flints had been collected from the surface of the deposits as well as a pierced shell bead of a type known from Upper Palaeolithic, Mesolithic and Neolithic sites. The excavation revealed the presence of occupation deposits from the surface down to a depth of -070m above stony scree. The lower levels produced an assemblage of waste flint and retouched points of Later Mesolithic type. Charcoal, including nutshell, marine shells and bone fragments occurred at all levels.

2. INTRODUCTION

In 2010, David Chapman of Ancient Arts, Deganwy discovered surface deposits eroding from the base of a cliff close to Pentrwyn headland, Great Orme (Fig. 1). The erosion was due to sheep/goat trampling and surface water run-off from the cliff face above. In the eroded surface were exposed some small flint blades and a layer of snail shells (Fig. 6). The deposits were visited by Elizabeth Walker, prehistorian with the National Museum of Wales and she arranged for the snail shells to be studied at the museum (see below). Although most were local terrestrial or marine intertidal snails they included a cowrie shell. The latter had been pierced in two places for use as a bead (Fig. 9). This type of shell is often found as a personal decorative object in Upper Palaeolithic and later Mesolithic deposits. The name Snail Cave was based on the unusual natural erosion pattern of the cliff face, suggestive of a snail, rather than because of the discovery snail shells in the deposits.

The shells collected during the first visit were identified at the National Museum as follows:

Trivia arctica, the northern or Arctic cowrie. This is a species that has been present for some considerable time and is consistent with other cowrie beads found across the UK from Late Upper Palaeolithic and Mesolithic sites.

Patella vulgata, common limpet.
Littorina littorea, edible winkle.
Pomatius elegans, a land winkle.

The limpet and edible winkle are common in intertidal areas of the Welsh coast and the land winkle is known to be a common snail on the Great Orme. The species collected might be recent as they are all common to the area today.

The exposed deposit in the rock shelter was dark and suggested the presence of charcoal, although being at the surface could be the remains of recent activity. General observation of the topography suggested that there could be about a metre depth of deposit in the shelter overall and the lithic material collected might be a surface residue from the general deposits as they eroded.

It was agreed that the rock shelter demonstrated the presence of prehistoric occupation and that it had some archaeological potential. Considering that prehistoric objects and occupation deposits were present on the eroding surface of the rock shelter an application was made to Cadw for funds to carry out an evaluation excavation in partnership with the National Museum, Cardiff; this was granted and the work was carried out in June 2011.

Acknowledgements

The work was carried out by the author with Elizabeth Walker, David Chapman, Cliff (Beaver) Hughes and Jeff Marples. Thanks are due to the Mostyn Estate and the Estate manager, Mr Richard Thomas for allowing the excavation and to Sally Pidcock, manager of the Great Orme Country Park and to John Osley, Countryside Council for Wales for permission to excavate in a Site of Special Scientific Interest. Thanks are also due to Conwy County Borough Council for allowing access along the Marine Drive.

3. OBJECTIVES

The deposits in the Snail Cave rock shelter are certainly of some depth, but it was unclear whether the exposed deposits were a shallow surface residue over sterile scree or whether there was a greater depth of occupation deposits, or possibly even further layers of occupation interspersed by natural accumulations. The site has great potential value and is evidently currently eroding at the surface due to animal trampling and to water run-off from the cliff above. There is also one area of erosion at greater depth caused by rabbit burrowing. The intention was to carry out a measured survey of the rock shelter and to excavate a small but representative area to evaluate the deposits, to record the presence and depth of occupation material and to provide dating and environmental evidence.

4. METHODS

A trench 3m by 1m was excavated by hand across the approx centre of the rock shelter at the point where the surface spread of marine shells was identified. The trench extended from the back wall of the shelter, against the rock face, to the forward scarp edge where the external (grassed-over) scree slope began.

A plan and profile of the shelter were also produced.

The deposits were excavated by hand and all material recorded by metre square and wet sieved through 12.5mm and 5mm mesh on site with artefacts hand picked. Separate bulk soil samples were taken for floatation for palaeo-environmental analysis.

After excavation and recording the trench was lined with geotextile and backfilled with soil and stone residues and consolidated to its original level. The exposed surface will later be protected with a layer of inert limestone chippings.

5. TOPOGRAPHIC AND HISTORICAL BACKGROUND

The shelter lies at a height of *c*.100m OD and consists of a long cavity in a vertical cliff face about 2m deep and about 25m long, its floor sloping gently down to the north. From the fairly level floor of the rock shelter the ground becomes a steep scree slope which is now grassed-over and stable. The cavity may be a result of differential weathering of the cliff face under extreme glacial or peri-glacial conditions. Smaller but similar longitudinal cavities occur higher up the cliff face where they provide well-used nesting places for sea-birds.

The Great Orme is a prominent limestone headland with a maximum height of 220m OD with steep cliffs on all sides. It is joined to the mainland by a narrow isthmus only just above sea-level which, before modern drainage and improvement was just marshland. It has been suggested that the post-glacial sea-level rose to a maximum, somewhat above that of the present, in the Neolithic period, before receding again and that the Great Orme was an island at that time (Whittow 1965). The limestone is part of an extensive geological tract extending from Anglesey in the west to the Clwydian Hills in the east. Within it are a number of natural caves that provided shelters for some of the earliest inhabitants of the area and which were used as burial sites during the Neolithic and Bronze Ages. They are notable in North Wales as residues of human activity with good preservation of human and mammal skeletal material as well as stone tools. The limestone also produces fertile and well-drained soils attractive for early settlement. The Orme itself also lies in the rain-shadow of the Snowdonia mountains, providing an equable climate, and next to major river estuary.

The cave sites known on the Orme comprise Upper Kendrick's cave, Ogof Tudno (St. Tudno's Cave) and Lloches yr Afr (Lair of the Goat). Kendrick's cave is situated in the southern scarp and has produced Neolithic, Beaker, Romano-British and most significantly Later Palaeolithic artefacts (Sieveking, 1960). Ogof Tudno, also known as Badger Cave, lies further north on the east side of the Orme and has produced bones of domestic and wild animals as well as marine shells, indicative of human activity but nothing clearly prehistoric. Lloches yr Afr lies close to Snail Cave, on the north side of the nearby Pentrwyn headland and was truncated when the Marine Drive road was constructed about 1877. Excavations of deep deposits exposed there showed a Late Glacial horizon with hyena bones at the base, with higher up a Mesolithic flint tool and higher still a series of hearths with bones of wild and domestic mammals associated with a piece of pottery of possible Neolithic type (Davies 1989, 95-9). Two other caves, on the Little Orme, have also produced prehistoric evidence, at Ogof Tan y Bryn and Ogof Pant y Wennol. Davies and others in the Great Orme Exploration Society were very active and it is surprising that the Snail Cave shelter has not been investigated or surface finds made before. It has escaped frequent attention because it is invisible when viewed from the road below.

6. RESULTS OF THE EXCAVATION (Fig. 3)

The deposits were complex and because of the unconsolidated nature of some and the presence of animal burrows were not securely stratified. However, they can be put into five horizons.

1. The exposed layer of marine shells was found to be a thin surface deposit (7) and stratigraphically equivalent to the general exposed recent trampled surface. However, the shell layer sealed a thin layer of charcoal-rich soil (9) and the close relationship between the two suggested they were part of the same activity.

2. At the west end of the trench and about 10cm below the shell layer was a shallow hollow containing humic soil and on its base another lens of charcoal and from these layers came a small piece of pottery and a retouched flint flake (SF120). Below these was another thin humic layer (10), again with a lens of charcoal and a large flat beach cobble (SF128) lying horizontally (Fig. 3) and a flint retouched tool fragment (SF6). The beach cobble was imported and of hard rock. Its position suggests it was used an anvil or working slab although it had no obvious use-wear marks.

At the east end of the trench, on the outer edge of the rock shelter at an equivalent level to layer (10) was a layer of stony silt (6) that tipped downwards in the direction

of the scree slope. This layer was penetrated by an animal burrow filled with dark humic material and the burrow continued through the layer below (13).

3. The layers of horizons 1 and 2 overlay a large slab of limestone (23). This lay horizontally and may have fallen from the shelter roof, but could have been deliberately laid as its surface appeared to be burnt and so it may have been a hearth-stone associated with the underlying layer (Contexts 16, 17 and 18). This was up to 0.15m deep and consisted of very loose fine mid-grey silt, which was similar to ash and this produced one flint blade (SF28).

4. The layer below (Contexts 20, 22 and 24) was similar in appearance to that above at the east end of the trench but with a greater proportion of broken limestone fragments. These were probably natural shatter fallen from the cliff face. At the outer edge of the trench the equivalent layer was lighter-coloured silt that looked like sterile silty scree. However, although these layers were not obviously humic they contained the largest number of pieces of worked flint. It is possible that the silts had simply infiltrated the cavities between the stones. Similarly the artefacts within the scree-like silts may have eroded from a surface higher up. However, beneath these layers was another more silty horizon (28, 31), which contained some charcoal and a few non-diagnostic pieces of worked flint and which partly filled a slight but definite hollow [29].

5. The lowest layers excavated (26, 32) were predominantly of limestone fragments and appeared to be natural accumulations although they still produced some charcoal and worked flint. The unconsolidated nature of the stony and the presence of cavities between the stones made it uncertain as to whether objects from these layers were in situ or infiltrated from layers above. Excavation ceased at a maximum depth of *c.* -0.70m.

7. ARTEFACTS (Fig. 4)

The occurrence of artefacts is summarised in Table 1. Marine shell and bone fragments occurred in most contexts. Bone fragments were most frequent in the fine silty layers at the rear of the rock shelter, in Context 10 of Horizon 2, Context 18 of Horizon 3 and Contexts 20 and 22 of Horizon 4. Many of the bones were small mammals which could have been intrusive but there were also some fragments of larger mammals and probably fish and birds. Charcoal was also found in most contexts, of which several produced hazel nutshell.

Table 1 Snail Cave, Site G2179: Finds summary by context

Context	*Bone bags*	*Flint No.*	*Mollusc Shell Bags*	*Charcoal bags*	*Comment*
1	0	1	0		Surface layer
2	0	0	1		Surface layer
3	1	3	1		Surface layer
4	1	1	1	3	Surface layer. Nutshell.
5	1	3	1	3	Surface layer
6	1	1	1		Surface layer
7	1	2	1	1	Surface layer. Exposed shell layer. Nutshell
8	1	1	1	2	Flint and pot frag. Possible Late

					Neolithic horizon
9	0	0	0	2	
10	1	11	1	8	Large number of bone frags. Retouched flint blade
11	1	1	1	7	Nutshell
12	1	0	0		
13	1	0	1	1	
14	1	2	1	2	Nutshell. (Burrow fill)
15	0	5	0		Surface finds
16	1	3	1		
17	1	2	1	3	Serrated blade. Nutshell
18	1	1	1	2	Large number of bone frags. Nutshell
19	1	1	0		
20	1	28	1	3	Large number of bone frags. Late Meso microliths. Nutshell
21	0	0	0		
22	1	11	1	2	Large number of bone frags plus shells. No other finds
23	0	0	0		
24	1	15	1	2	Late Meso microliths. Nutshell
25	1	3	1	2	Late Meso microlith frag. Nutshell
26	1	4	0	1	
27	0	0	0		
28	1	7	1	2	Sealed beneath limestone slabs
29	0	0	0		
30	0	0	0		
31	1	8	1	1	Utilized flake
32	1	10	1	2	

Horizon 1 produced only a few waste flint pieces although one flint blade with a micro-burin fracture at one end had been found during previous surface collection.

Horizon 2 produced a small plain piece of coarse pottery, of prehistoric appearance but not otherwise diagnostic and a fragment of an invasively unifacially retouched tool that may be a small plano-convex knife (SF6). If the latter identification is correct it suggests an Early Bronze Age date. The pottery fragment was observed to be of similar fabric to another fragment found at the nearby Pentrwyn site and thought to be of Beaker type (F. Lynch pers. com.).

Horizon 3 produced only a few flint pieces but one was a fine serrated blade (SF28).

Horizon 4 produced about 100 pieces of worked flint including about a dozen retouched pieces which included a piercer on a large blade of black chert (SF36) but comprised mainly small geometric points of Later Mesolithic type including scalene triangles, obliquely backed and convex backed types of microlith (Fig. 4). Although there were numerous waste pieces there was a notable absence of cores or microburins. There were both complete and broken microliths including one with an impact fracture (SF73).

Horizon 5 produced only a few pieces of non-diagnostic waste flint.

8. ASSESSMENT FOR ANALYSIS

The depth of deposits was substantial but because of the loose nature of much of the material and the presence of small mammal burrowing the stratigraphy was not very secure. However, there was a fairly clear separation between the topmost deposits (Horizons 1 and 2), and those below. There was good material for radiocarbon dating in the form of hazel nut shell, which should provide clarification of the periods present.

The general interpretation indicates several short periods of occupation with little formation of occupation surfaces or deposits. This occupation was probably seasonal and associated with exploitation of the sea-shore. The peak season for intertidal resources is the late summer and autumn and this accords with the presence of charred hazel-nut shells. However, hazel-nuts are an inland resource so occupation here may have been part of a quite mobile exploitation economy. Exploitation of other resources must await identification of the bones and palaeo-botanical remains from the soil samples.

The marine shells seem to be almost entirely winkle. This contrasts with finds from west Wales and Cornwall where limpets, mussels, cockles and oysters are most common (Jacobi 1979, 76-86). This most likely just reflects the local availability, depending on the type of shore, although mussels and cockles are both plentiful in the areas around today. It is interesting that although the horizons seem to represent at least two widely separated periods of occupation that hazelnut shell and winkle shell occurs in both.

In the lower layers the variety of microlith types present is notable and this may indicate a corresponding variety of activities. This is paralleled by the presence of marine, intertidal and inland food waste. During the Later Mesolithic the post-Glacial sea rise had still not reached that of the present day. The estimated shore line would therefore have been some way further out than today, and with the shallow coastal sea-floor, leaving much more extensive intertidal areas in Llandudno Bay, around the mouth of the Conwy Estuary and on the Lavan Sands (Fig. 1b). A peat bed with forest remains lies beneath the sand in Llandudno Bay and a radiocarbon date has been obtained from an alder stump there of 5930-5740 +/- 45 Cal BC (SRR-5266) (Williams 1995). A Bronze Age palstave and a spear have also been found on this buried peat surface, although these could have derived from an ancient ship wreck. The Llandudno isthmus was peaty marshland during the Later Mesolithic period, as demonstrated by a bore-hole, revealing peat at a depth of -8.5m with a radiocarbon date of 6600-6390 Cal BC (SRR-61) (Taylor 1980, 370). The food resources at Snail cave would therefore have included those from wetlands.

The shelter is well used by sheep and goats and a recognised rock-climbing route begins at the north side of the shelter where there is also some rabbit burrowing. The excavation showed that the uppermost, exposed layers within the rock shelter were prehistoric and vulnerable to surface erosion and so protection was desirable. The depth of deposits is not great but a considerable amount was recovered from one small area so the shelter has considerable potential. For the sake of comparison, if the remainder of the rock shelter has a similar quantity of flint objects to that excavated then the remaining deposits could contain some 1,700 pieces, as well as bone, shell and other artefacts. That makes it a major repository of archaeological information, especially important because of the preservation of bones and because such sites of the Later Mesolithic that are known in North Wales are mainly surface flint scatters with no associated evidence (Jacobi 1980).

Table 2 provides a summary of the products from the excavation. Two fragments of nut-shell have already been sent for radiocarbon dating. Other samples, possibly bone will later be selected for dating. The flint and chert, mollusca and bones have already been sent to the relevant specialists. The bone material consists of many small pieces. A preliminary look by Dr Madgwick suggests that there are some mammal fragments as well as bird and fish bones. Dr Madgwick will analyse the mammal bones but the bird and fish bones will need to go to other specialists.

Some illustrations suitable for publication have been produced as part of this preliminary report. Flint and chert artefacts will be illustrated at the National Museum. Those shown here are just approximate scale sketch drawings from the finds record. It is expected that all the post-excavation work will be completed within the current financial year, by the end of March 2012.

Table 2 Snail Cave, Site G2179: Archive summary

Contexts: 35
Recorded finds: 128
Environmental samples: 18
Photographs: 69
Drawings: 4 sheets, 15 drawings

Table 3 Snail Cave, Site G2179: Specialist study

Worked flint and chert: Elizabeth Walker, National Museum, Cardiff
Mollusca: Dr Ben Rowson, National Museum, Cardiff
Bones: Richard Madgwick, University of Bournemouth
Stone: George Smith
Petrology: Dr. David Jenkins
Charcoal: Pat Denne, European Plant Laboratory, Bangor
Palaeo-botanical analysis: Palaeoecology Research Services Ltd

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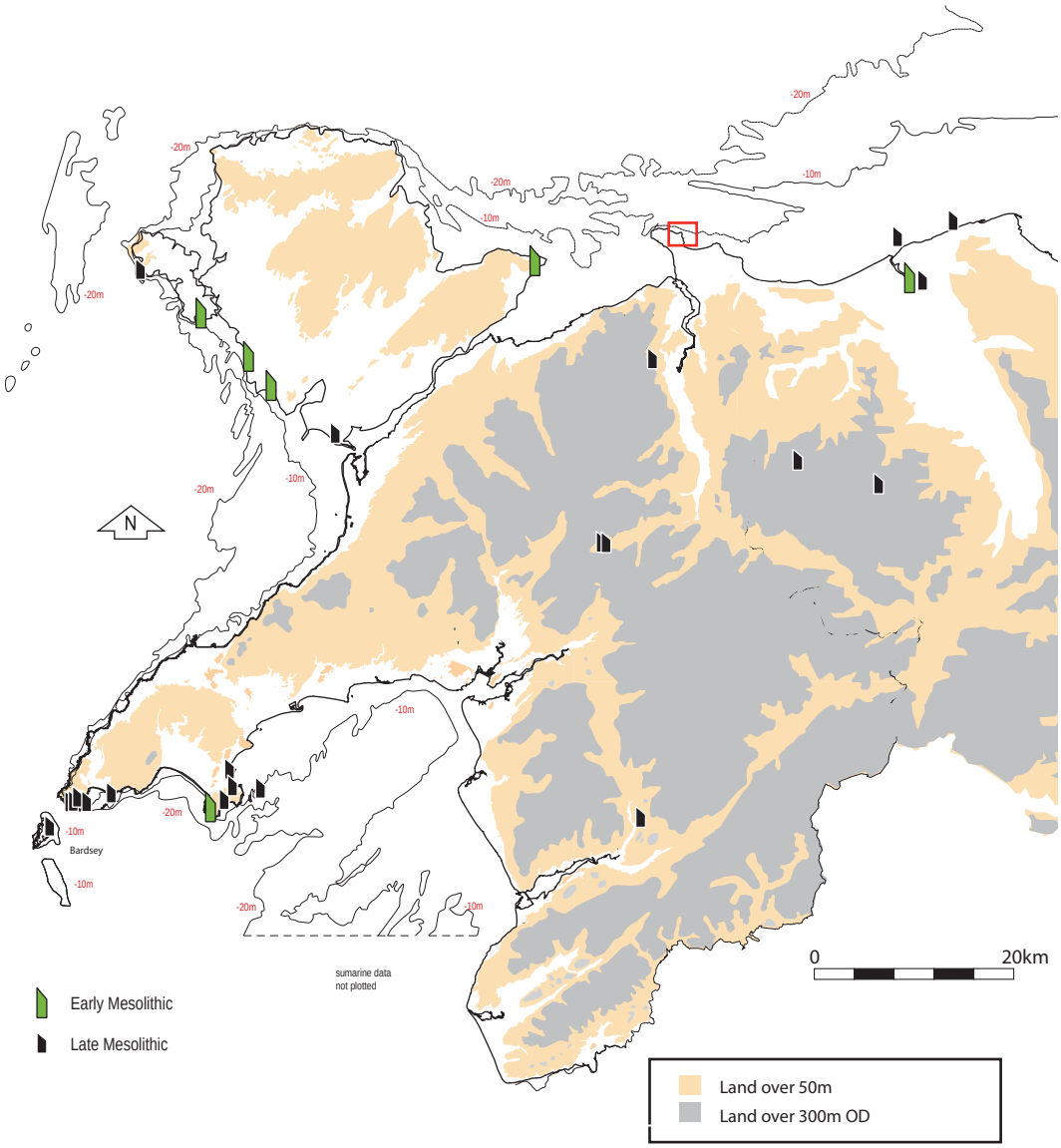
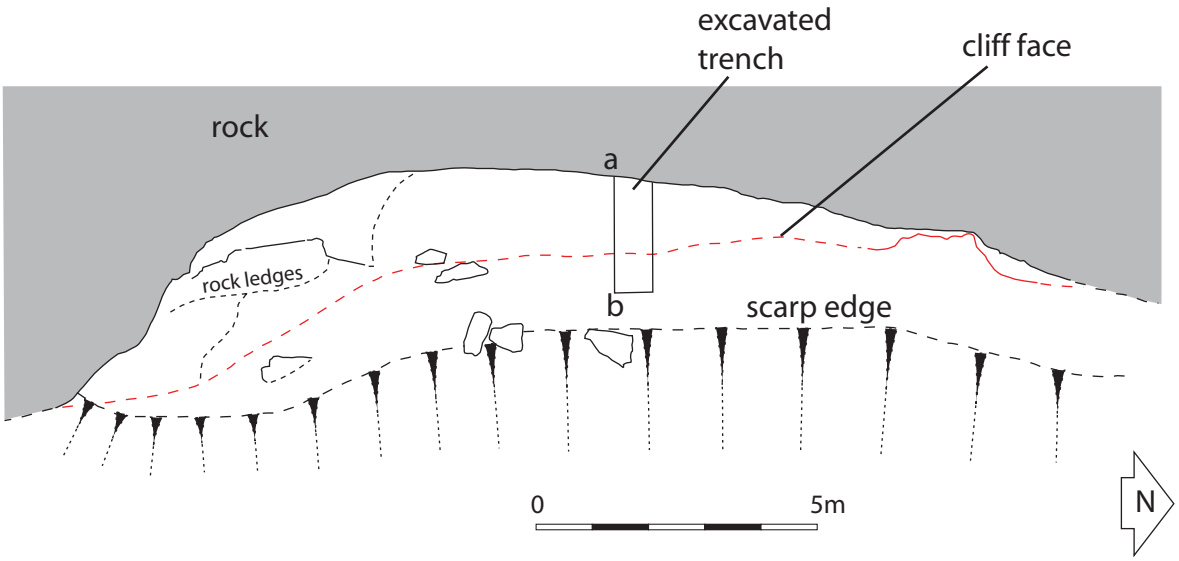


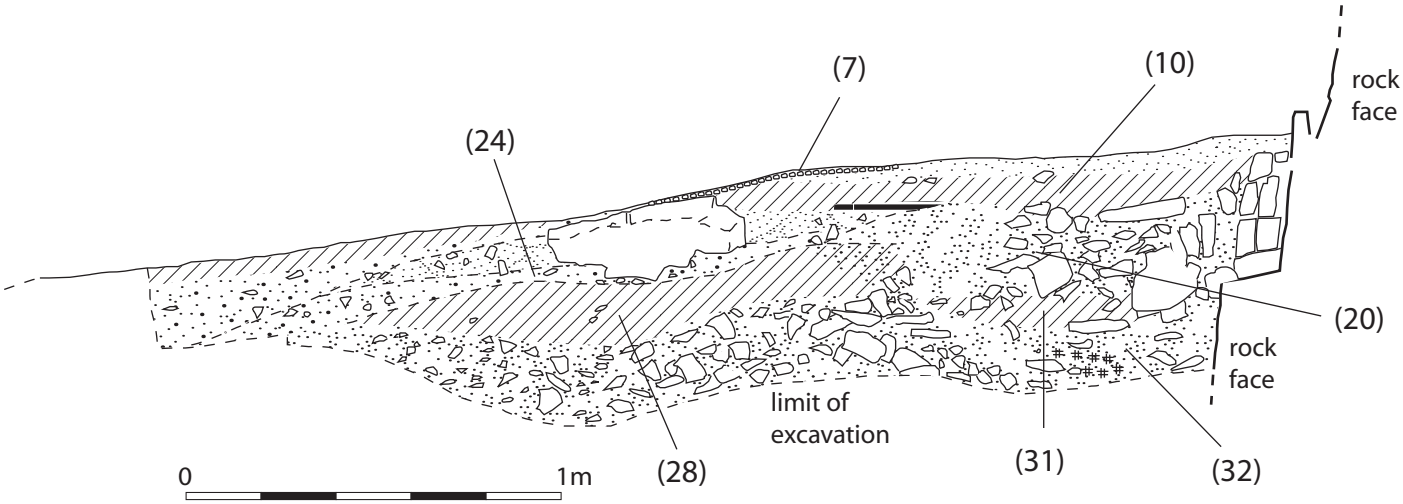
G2179 Snail Cave Fig 1a : Mesolithic flint and chert finds in North Wales.
Submarine contours at -20 and -10m indicate
approximate Early and Late Mesolithic coastlines respectively

G2179 Snail Cave Fig. 1b : Location of the rock shelter

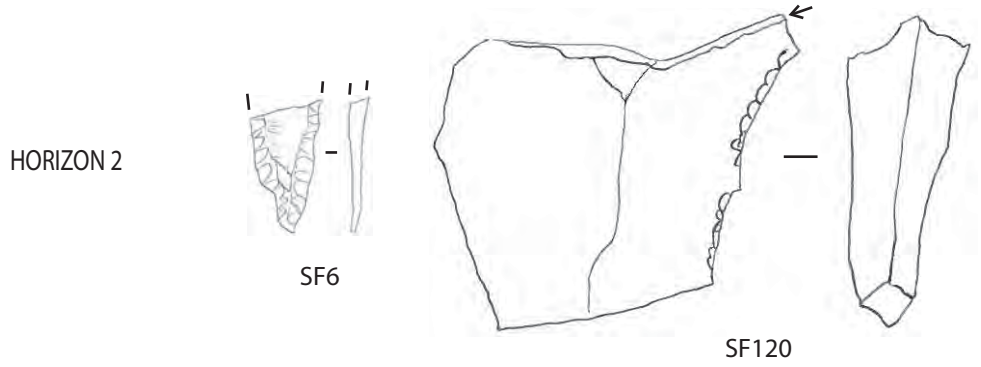


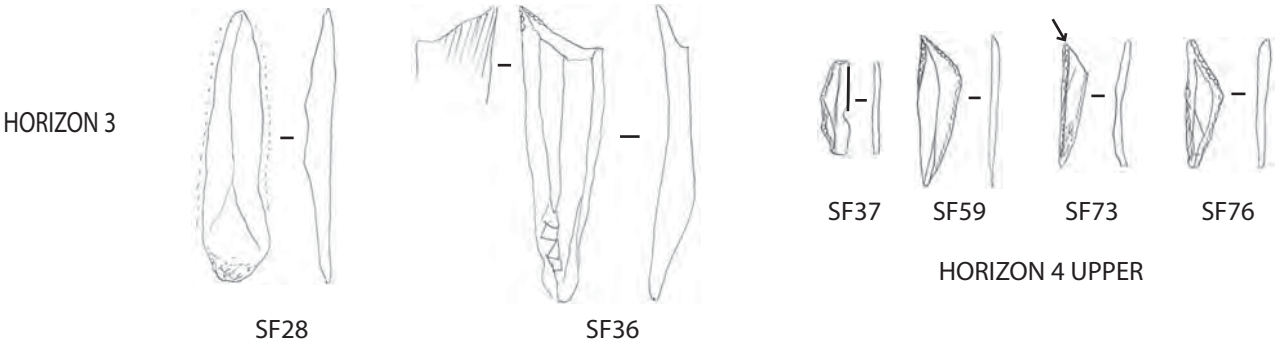
G2179 Snail Cave Fig. 2a : Plan of rock shelter showing location of excavation

G2179 Snail Cave Fig. 2b : profile of rock shelter in relation to the excavated trench



G2179 Snail Cave Fig. 3 : North-facing section of the excavated trench showing the main contexts with cultural material





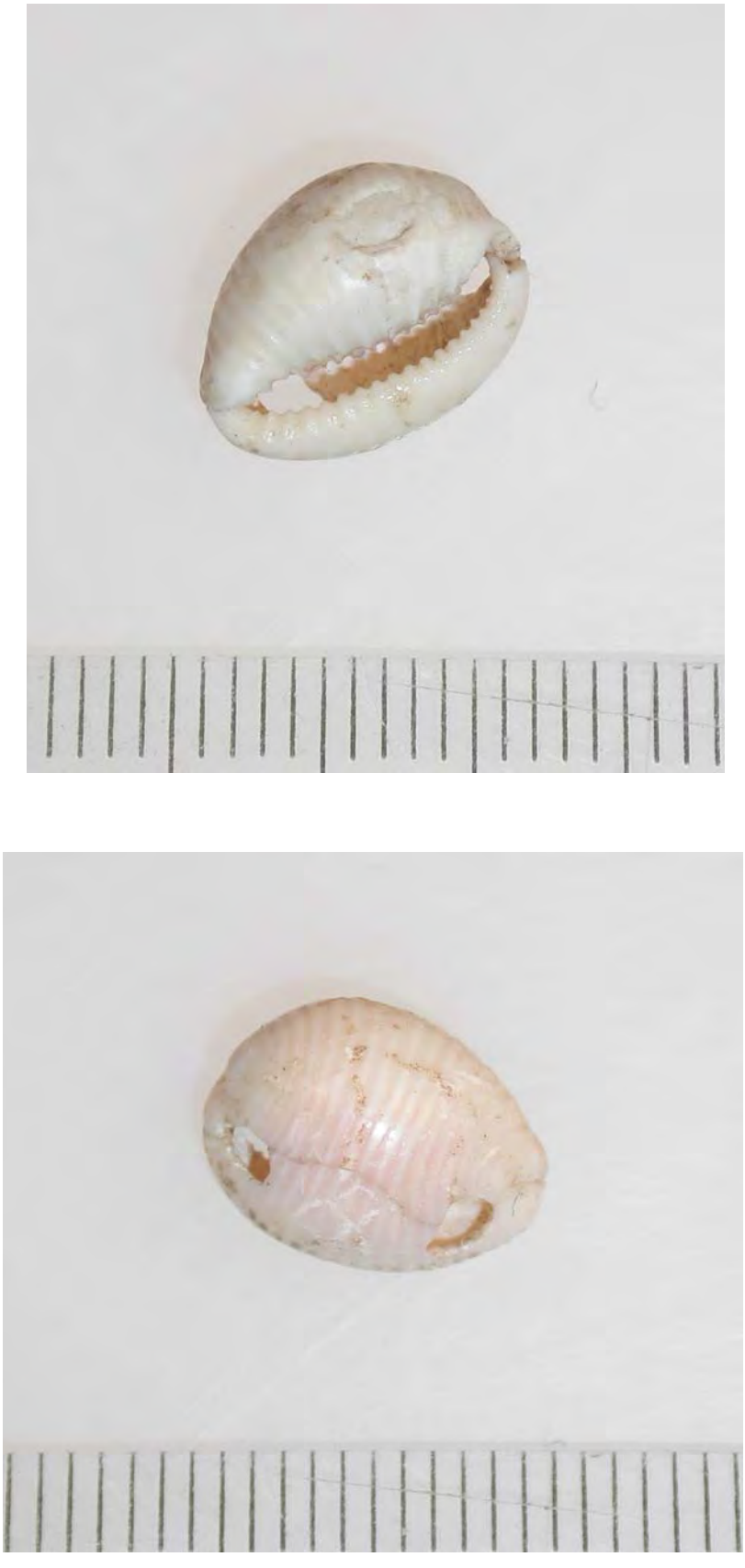
G2179 Snail Cave Fig. 4 : Sketch record of retouched flint and chert. Approx. scale 1:1

G2179 Snail Cave: Fig. 5 Rock shelter, general view, from the south. 1m scales

G2179 Snail Cave: Fig. 6 Floor of rock shelter, showing the shell midden surface before excavation, from the east. 1m scale

G2179 Snail Cave Fig. 7 : Trench section, north facing. 1m scale

G2179 Snail Cave Fig. 8 : The excavation team (except David Chapman), Left to right - Elizabeth Walker, Jeff Marples, George Smith, Cliff 'Beaver' Hughes



G2179 Snail Cave Fig. 9 Pierced cowrie shell, from surface collection (D. Chapman). Scale with 1mm divisions. Photo: National Museum, Wales

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Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT Ffon/Tel 01248 352535 Ffacs/Fax 01248 370925
e-mail: gat@heneb.co.uk web site: www.heneb.co.uk