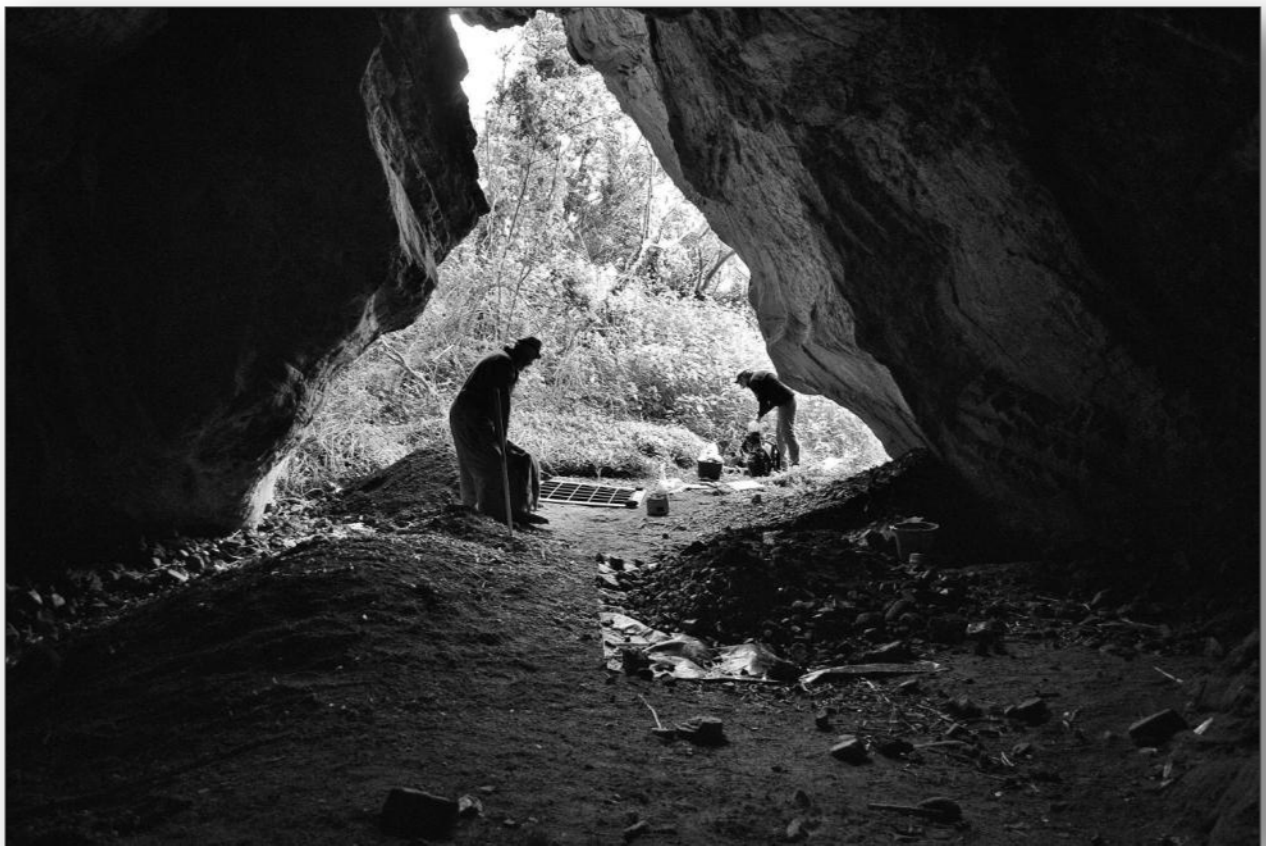


Rosemarkie Caves Project

Programme of Archaeological Survey and Test Pitting in 2011-2015



Rosemarkie Caves Project

Data Structure Report 2011-2015

Archaeological Survey and Test Pitting: Southeast Black Isle coastline between Rosemarkie and Cromarty

National Grid Reference	NH 756 608 (centred)
Site Code	RCP12, RCP13, RCP14, RCP15
Date	18 March 2016
Authors	Simon Gunn, Mary Peteranna With contributions from Eric Grant and Robert Jones
Illustrations	Simon Gunn

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Figure 1: Location of Rosemarkie Caves (aerial imagery copyright Microsoft Bing mapping ©)

1 Summary

- 1.1 The Rosemarkie Caves Project has been investigating the archaeology of 19 caves on the southeast side of the Black Isle, near Inverness since 2006. The programme of fieldwork undertaken included a limited archaeological evaluation of the Learnie 2B Cave in September 2006 (Wood and Gunn 2008), providing clear evidence of the archaeological potential of Learnie 2B. In 2010, a large excavation was undertaken at Caird's Cave (Anderson-Whymark 2011), revealing significant Iron Age deposits surviving below the layers excavated by Maclean and Hall in the early 1900s. Both caves contained evidence for the 19th-20th century occupation by travellers.
- 1.2 The information in this report contains the results of the programme of surveying and test pitting in the Rosemarkie Caves during 2011-2015. The aim of the programme of fieldwork was to provide a baseline record of the caves and to assess the archaeological potential of surviving deposits in the caves, supported by a programme of radiocarbon dating. The end result of this phase of work was to inform the need for future excavation. The results of the test pitting have provided consistent evidence for occupation during the 7th-9th centuries AD, with evidence for 2nd-4th century occupation in one cave and evidence for 11th-12th century occupation in another cave. Much later occupation during the late 19th-20th century occupation was shown in several of the caves.

2 Introduction

- 2.1 The Rosemarkie Caves Project (RCP) is an archaeological research project on 19 known caves on the southeast side of the Black Isle shoreline on the Moray Firth. It is believed that the caves have been dry, due to isostatic rebound since the last ice age, for 4,000 or 5,000 years. Antiquarian and modern excavations at Cairds' Cave, the most well-known and publicly accessible of the caves, have found it to be in use since the Iron Age. The project is run by local amateur archaeologist Simon Gunn and a team of voluntary professional and amateur archaeologists investigating the past human occupation of the Rosemarkie caves. The group is linked to the North of Scotland Archaeology Society (NOSAS). Previous fieldwork includes a small-scale excavation in 2006 in Learnie 2B cave (Wood and Gunn 2008) and a larger community excavation in 2010 in Caird's Cave (Anderson-Whymark 2011).
- 2.2 The phase of the Rosemarkie Caves Project reported on here was organised to provide baseline data of the caves and to establish the archaeological potential of the caves through a limited programme of investigation. At the outset of the fieldwork, each of the 19 caves was surveyed (Appendix 1; **2**). The first test pitting investigation took place in Ivy Cave in October 2012 (Appendix **3**). In 2013, test pit evaluation was undertaken in Learnie 1B, Learnie 2B, Learnie 3B and Learnie 3C, all of which are located on the coast below Learnie Farm (NH 755 610). In 2014-15 test pits were excavated in Through & Through Cave, towards the southwest end of the shoreline, and Broad Cave and Three Peaks Cave, towards the northeast end of the shoreline. The aim of the test-pitting was to assess the archaeological potential of the caves and to locate the earliest datable archaeological horizon.

3 Location and Background information

3.1 Location of the caves

The caves (Table 1) are spread out along 2 miles of the southeastern coastline of the Black Isle (Plate 1), with the most southerly cave situated approximately 9 mi northeast of Inverness (Figures 1; 2). These south- and east-facing caves are located between 3-10m above the present high water mark and would have been large enough to be occupied permanently or intermittently. The cliffs are composed of psammite, a brittle and easily fractured stone that has formed talus mounds at the entrances to many of the caves. The 2-mile stretch coastline runs northeast to southwest comprising rocky outcrops that would have been accessible to small boats. The section of coast is a Site of Special Scientific Interest (SSSI), under the protection of Scottish Natural Heritage.

Table 1: Location and initial description of the caves

Cave Name	NGR	Cave Description
Cairds' Cave	NH 745 595	The Travellers' Cave. Easily reached along the beach, or footpath, from Rosemarkie. Excavated by Dr William MacLean 1907-12 and by NOSAS in 2010. Stayed in by "Captain" William and Mrs Devine about years of WW1, for several summers.
The Second Cave	NH 746 596	Long, rather drippy cave with rocky entrance above beach, just around the headland (Skart Craig) from Cairds' Cave.
Through & Through Cave	NH 7495 599 - NH 7497 5994	Pleasant, dry cave with a walkable tunnel through the headland. Entrances somewhat hidden behind trees.
Crescent Cave	NH 750 600	Difficult to find, well above the beach behind trees. Entrance nearly filled with talus (rocky rubble), leaving a crescent-shaped hole at the top.
Ivy Cave	NH 751 601	This cave has a wide patio area outside. Floor of cave is uneven and deepest part sometimes has a small, muddy pool.
Gooseberry Cave	NH 752 602	Rocky floor, drippy in places. May have been bigger in the past, large rock fall at entrance and surrounding rock cracked. RCP members consider this cave unsafe.
Learnie 1A	NH 756 608	Accessed by the Hillockhead path; small adjunct to main cave, 1B.
Learnie 1B	NH 756 607	Biggest cave on this shoreline, close to the shore, cave entrance guarded by prickly blackthorn bushes.
Learnie 1C	NH 7565 6077	A few metres to the right of the main cave.
Learnie 2A	NH 7568 6075	Small crevice next to 2B.
Learnie 2B	NH 7566 6075	Another big cave, small archaeological evaluation undertaken in 2006.
Learnie 2C	NH 7569 6078	Dry cave next to 2B.
Learnie 3A	NH 7575 6089	Small, fairly open cave with limited floor area.
Learnie 3B	NH 7572 6090	The biggest of the 3, roughly T-shaped inside.
Learnie 3C	NH 7575 6090	Small entrance, but much bigger inside. Mostly dry, has tight, connecting passage to 3B.
Sea Cave	NH 7633 6137	Small cave too close to the sea to have been inhabited or used much.
Broad Cave	NH 7634 6138	A few metres further on from Sea Cave, the entrance is 8-10m above the shore.
Three Peaks Cave	NH 7650 6158	Behind elder tree, which is above a scree slope, ivy-covered stack on beach nearby. Cave named after 3 small stalagmites on a ledge at the back of the cave.
Cranesbill Cave	NH 7633 6131	Earth floor, signs that it had been wet inside. Possibly too close to shore to have been used for dwelling.

3.2 Archaeological and historical background

- 3.2.1 In 2006, a small archaeological evaluation of Learnie 2B was undertaken. Mainly the upper level floor layers inside the cave were investigated, revealing evidence of late 19th-early 20th century traveller occupation. However, in the entrance, a stone and lime mortar wall was identified (Wood and Gunn 2008).
- 3.2.2 In 2010, the Rosemarkie Caves Project undertook an excavation in Caird's Cave to establish the extent of excavations by Maclean and Hall (1907-1912), which had yielded an important assemblage of bone tools held by Groam House Museum. The excavation revealed the presence of in situ deposits, including bone pin and bone working debris similar to the Maclean and Hall assemblage. The sequences also provided radiocarbon dates obtained from bone and charcoal samples of 4th/3rd century BC date at the base of the deposits and of 2nd/3rd century AD date at the top of the sequence. As part of the 2010 project, additional radiocarbon dates were obtained from worked bone and antler artefacts from the Maclean and Hall assemblage (now in National Museums Scotland), providing evidence of activity in the 2nd/3rd century AD and the 7th/8th century AD. As part of this work, a small stone structure occupied by travellers during the late 19th to early 20th century was also investigated outside the cave (Anderson-Whymark 2011).



Figure 2: Location of known cave sites between Rosemarkie Bay and the Cromarty Firth

4 Aims and Objectives

- 4.1 The purpose of the archaeological project was to provide a baseline survey of the caves located along the southeastern coast of the Black Isle between Rosemarkie and Cromarty and to conduct a programme of test pitting to assess the archaeological potential of the caves to inform future fieldwork.
- 4.2 The project provided opportunities for volunteers and students to learn archaeological techniques in surveying and evaluation in the setting of the caves. The caves, situated in a relatively inaccessible coastal location, provided the chance to experience a unique environmental setting whilst undertaking new research.
- 4.3 The project objectives were:
- To determine and record the location, character and condition of the coastal cave sites between Rosemarkie and Cromarty on the Black Isle
 - To undertake a detailed programme of survey to establish baseline data (size, shape, location and visible archaeological remains) ahead of future research of the nineteen caves
 - To undertake a programme of test pitting to evaluate the preservation and extent of surviving archaeological deposits and features to inform the potential for future excavation
 - To collect samples of archaeological material to feed into a programme of post-excavation work
 - To identify suitable material for a programme of radiocarbon dating to identify the earliest levels of occupation
 - To understand the archaeology of the caves and assess their potential for new discoveries
 - To encourage the inclusion of local people in the discovery, discussion and outcome of the project, and to develop practical, research and educational benefits for the community as a whole

5 Methodology

5.1 Planning

Prior to all fieldwork, the landowners' permissions were obtained and Scottish Natural Heritage was consulted at the start of each season. Highland Ecology and Development Ltd conducted a bat survey and hibernacula assessment of the caves in 2012 in advance of the start of the test pit evaluations. As a result, the project team was restricted to carrying out investigations annually between the beginning of May until the end of October. Excavation and recording was carried out in accordance with *IfA (Institute for Archaeologists) Standards*.

5.2 Caves survey

- 5.2.1 The surveys were conducted using a tape-and-offset method. A measuring tape was laid on the floor along the length of each cave and distances to the walls were measured at one metre intervals along the length of the tape using a Leica Disto laser meter and hand tapes. Measurements were also taken of the ceiling height, using the laser meter. Plans, longitudinal sections and profile sections were drawn.

5.3 Test-Pitting

- 5.3.1 During 2012-2013, nine test pits were excavated in five caves: Ivy Cave in October 2012, Learnie 1B in June 2013, Learnie 2B in September 2013, Learnie 3B in October 2013 and Learnie 3C in October 2013. In 2014-2015, five test pits were excavated in three caves, Through & Through, Three

Peaks and Broad. The fieldwork was led by project director Simon Gunn and supervised by archaeologists Steven Birch, Mary Peteranna, Lynn Fraser and Dr Eric Grant.

5.3.2 The locations for test pits varied, but cave entrances were targeted when possible as the possible site of a central hearth. Other test pits targeted the site of possible archaeological features or where there appeared to be the potential for stratified floor deposits. To date, 9 test pits have been excavated down to bedrock. With the exception of one pit, the test pits measured 1m by 1m across, with some variance depending upon the trench location with respect to cave walls and bedrock. The deepest pit measured 1.5 m deep.

5.3.3 Due to the dark nature of caves, the project team made use of LED lights that could be carried in and out of these sites on a daily basis. Individual head torches were also used.

5.3.4 All trenches were backfilled and consolidated and all external materials were removed upon completion of the fieldwork.

5.4 Recording

5.4.1 Recording was undertaken using standard recording sheets, plan and section drawings (scales of 1:20 and 1:10), a Leica Distometer and high-resolution digital photography. Trench locations were plotted using offset measurements on to the survey plans.

5.5 Sampling and finds processing

5.5.1 All finds and samples were recorded by cave name and test pit number and a corresponding context number. There was considerable variance in the numbering system over the period of the evaluation. Small finds and samples were checked and stored in a controlled environment for future analysis at the end of each evaluation.

5.5.2 A programme of radiocarbon dating (discussed below) was undertaken in order to assess the earliest archaeological horizons in the caves. Prior to submission for analysis at SUERC, charcoal and bone samples were identified and selected with the assistance of Mike Cressey, Jennifer Thoms and Jackaline Robertson.



Plate 1: Looking SW over the shoreline towards Rosemarkie and Fortrose

6 Summary of Results

6.1 Survey of the caves

- 6.1.1 Many of the caves contained a ridge of talus at the entrance, often with the floor sloping upwards towards the back. While the floor near the entrance was often composed mostly of talus, rounded beach pebbles were at the back of the cave, presumably deposited there by the sea when the cave was formed. If there was a level area in the middle of the floor, it implied that the cave may have been cleared and then used in more recent centuries, either by people or animals. This was often covered with sand, guano or dried vegetable or plant matter.
- 6.1.2 A detailed report on the survey results is included in **Appendix 1** and contains an informative assessment of the condition of the caves and their contents during survey. Table 2 provides a summary of the nineteen caves.

Table 2: Description of the caves after survey

Cave Name	Survey Description
Cairds' Cave	The mouth of the cave is 9 metres wide, 9 metres deep and has a ceiling height of 5.5 metres. The floor of the cave slopes but the lowest point is 8 metres OD. The floor was found to be composed of rock, sand, charcoal and shells.
The Second Cave	This cave is 24 metres long. The floor of the cave is only 5 metres OD and close by the shore. For these reasons, and as nothing was found, it is thought that this cave is unlikely to have been used much in the recent past.
Through and Through Cave	At over 40 metres, this is the longest cave and has 2 entrances which are each side of a headland, making the cave a tunnel. The tunnel starts at the south entrance and continues almost due north for 40m, between 24 and 32 metres is the Graffiti Chamber, where there is another entrance, facing east. There are a number of graffiti signatures and dates on the walls, most about 100 years old. The floor at the southern end is sand down to about 5cm, the Graffiti Chamber and the northern passage is rocky.
Crescent Cave	An uncomfortable cave with a low ceiling and mostly talus floor. In several places water appears to drip all year. Situated at 8 metres OD at entrance.
Ivy Cave	One of the few caves in the group with definite evidence of use. The cave has an ivy-covered "patio" outside the cave entrance. The cave passage then slopes downwards for 9 metres after which the floor slopes gradually uphill. Situated at 8 metres OD at entrance.
Gooseberry Cave	One of the smallest caves of the group, it is only 4 metres in length. Entering this cave involves an uncomfortable crawl, with sharp talus on the floor. Outside the cave, the rock contains large cracks. Situated at 7.5 metres OD at entrance.
Learnie 1A	An adjunct to Learnie 1B, this cave is 9 metres deep and nearly 6.5 metres across. The floor is mostly rocky and contains 2 possible caches or middens which were found against the base of the north wall. Situated at 5 metres OD at entrance.
Learnie 1B	The biggest of the 19 caves with an entrance 7 metres across, the cave goes back for 21 metres and has a ceiling height of 5 metres, the floor is at 5 metres OD. At its widest, the interior is 10 metres across. The back of the cave splits into 2 tunnels.
Learnie 1C	Pleasant little cave, with a pillar of rock inside. Rocky floor slopes down into the cave and then up again. Situated at 6 metres OD at entrance.
Learnie 2A	Barely a cave, more of a rocky crevice. Accessible but too small to have been of much use.
Learnie 2B	A large cave with a fairly flat floor composed of sand and rocks. The cave has the remains of a thick wall at the entrance, with a passage. Situated at 5 metres OD at entrance.
Learnie 2C	Measures 11 meters long with a flat floor. Situated at 5.5 metres OD at entrance.
Learnie 3A	Dry cave with rocky floor. Walls of entrance smoothed by wave action, one area on north wall is polished, though passage is quite broad here. There is a steep rampart of talus in front of these 3 caves. Situated at 8 metres OD at entrance.
Learnie 3B	T-shaped cave with crumbly, compost-like floor. Short south passage 4-5 m long, northern

Cave Name	Survey Description
	passage climbs to a chock stone, below which there is a shaft down to Learnie 3C. Situated at 9 metres OD at entrance.
Learnie 3C	The clay floor is smooth (possibly flooded for a period in the past?) with drip holes. Has blind passage at north side and south side of cave has a tight shaft leading to Learnie 3B. Situated at 8 metres OD at entrance.
Sea Cave	Small, dry cave with a sandy floor. There is a niche in the roof of the cave and the length of a 3" angle iron has been placed across the niche at some time in the past. Situated at 1m OD at entrance.
Broad Cave	Situated just above the beach, this cave is different from the others, as it is really a rock shelter. Remains of a hearth in the centre of the floor, with a possible shell midden nearby. Situated at 7 metres OD at entrance; the floor is 5.5 metres OD.
Tree Peaks Cave	Named after 3 small stalagmites at the back of the cave, it is well hidden behind some trees. It has a smooth floor which looks as though it has been cleared in parts. Situated at 9m OD at entrance.
Cranesbill Cave	Cave is damp and drippy even in summer. Situated at 3m OD at entrance.

6.2 Test pit evaluation

6.2.1 Ivy Cave NH751 601

One of the few caves in the group with definite evidence of use, the cave has an ivy-covered "patio" outside of the entrance (8m OD). The cave passage then slopes south-westward for 9 metres, after which the floor slopes gradually uphill. This low point in the centre of the cave has a small pool of water in wet weather, otherwise the cave is mostly dry. A small engraved slab of sandstone (Plate 2) was found on the surface in this low point, close to the location of a midden containing several 19th century leather shoes. Two test pits were excavated in Ivy Cave (Plate 3; Figure 3).

Test Pit 1

Test Pit 1 was excavated over the location of the carved slab to the north wall of the cave. It was thought that the engraved slab might have been set as a marker for something buried underneath. This proved not to be the case, although 6 distinct layers were noted (Figure 4). 19th / 20th century midden material was recovered from the upper floor layers, including animal bone, leather shoe fragments, glass bottle sherds and clay pipes (Plate 4). Underlying horizons contained shells and possible earlier ground surfaces.

Perhaps the most interesting object found in Ivy Cave is an engraved sandstone slab with an enigmatic design of unknown origins. A second fragment of the slab was found on the surface in the interior of the cave. Initial comparative searches have yet to identify any parallels. The midden material in the upper floor layers is thought to be the remains of traveller occupation in the caves. This may be one possible explanation for the carved slab, although an earlier date cannot be ruled out for this easily portable item. The presence of cut leather shoe fragments indicated that shoe/boot making or repairing was taking place in the cave in these later periods. A detailed interim report on the finds from the evaluation in Ivy Cave is given in Appendix 3.

Test Pit 2

Test Pit 2 was excavated through a midden deposit built up against the north wall of the cave. During the survey of the caves, prior to test-pitting, this midden was discovered and some leather shoes and a piece of plaited bracken cord were noted. Further 19th / 20th century midden material was recovered from this pit in association with the leather fragments. The pit ran to natural bedrock below the underlying clean sand-stone layer.



Plate 2: Images of the carved stone recovered from Ivy Cave



Plate 3: Test pit evaluation in progress, Ivy Cave



Plate 4: Clay pipe from Ivy Cave

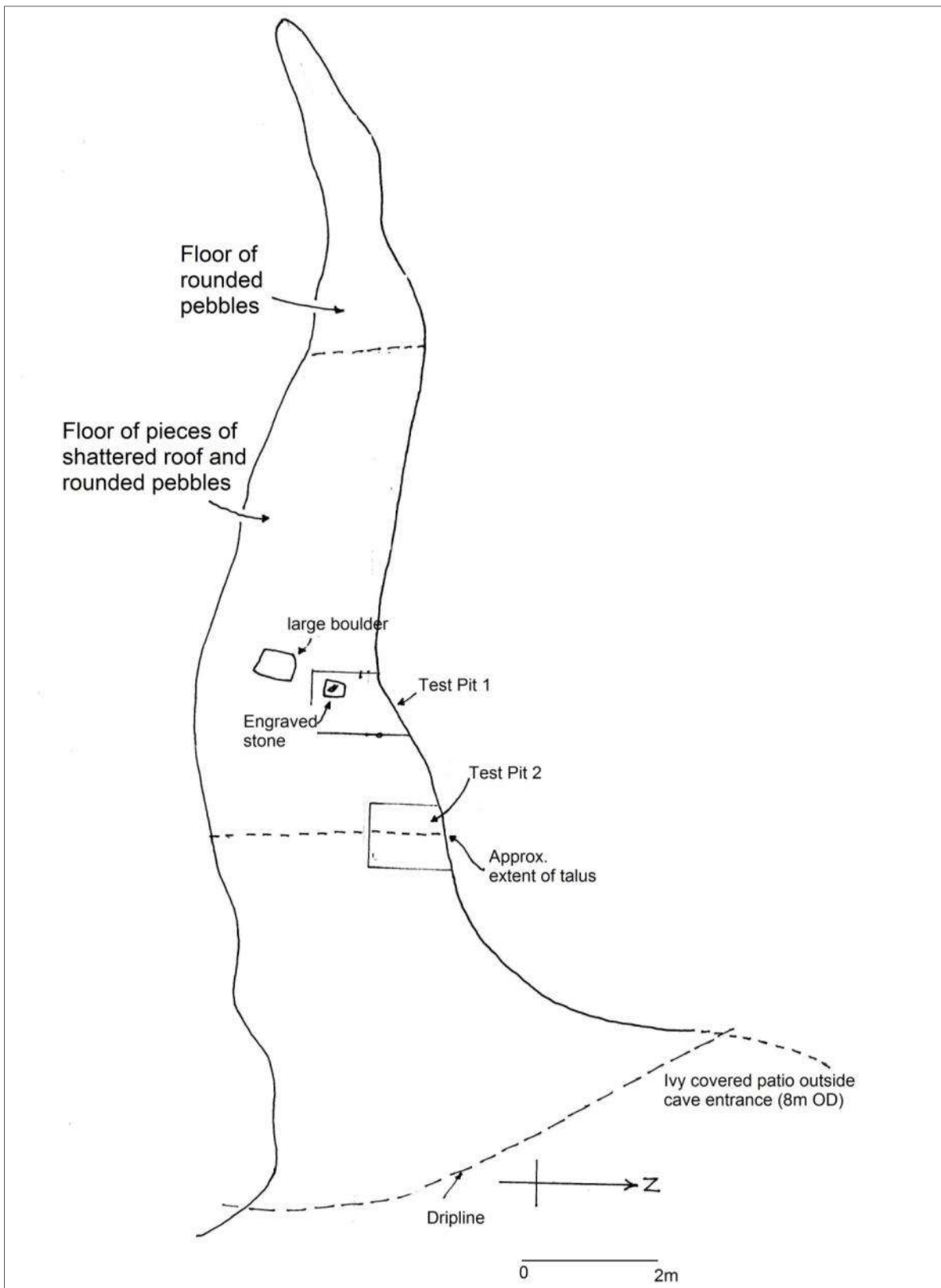


Figure 3: Plan of Ivy Cave showing test pit locations

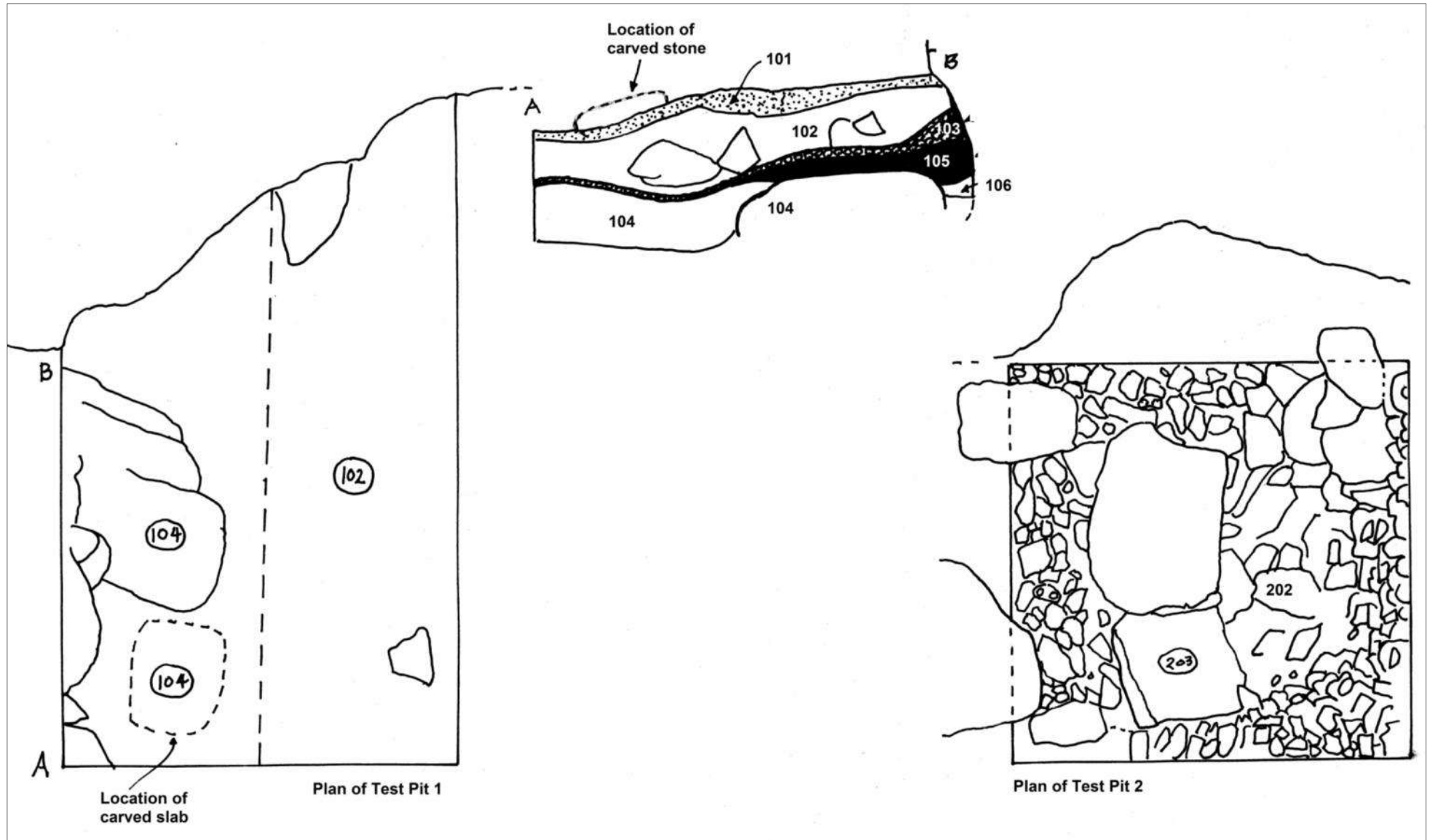


Figure 4: Ivy Cave test pit plans and section drawing

Table 3: List of Contexts Ivy Cave

Test Pit 1		
Context No.	Type	Description
101	Deposit	Loose, dark soil with round with 10% angular and round stones
102	Deposit	Loose, dark, blackish, sandy soil with 30-40% angular stones and some decayed bracken
103	Deposit	Loose, mid-brown, coarse sand with angular pebbles and limper and winkle shells
104	Deposit	Compact, light reddish brown, coarse sand with pebbles and boulder
105	Deposit	Loose, very dark brown sand with small pebbles
106	Deposit	Solid, but breaking-up, creamy-brown natural flowstone
Test Pit 2		
201	Deposit	Loose, reddish-brown angular pebbles (talus) mixed with Context 202 material
202	Deposit	Loose, reddish-brown angular pebbles (talus) with large (10cm) pieces of leather footwear
203	Structure?	Compact reddish-brown stone boulders and gravelly matrix. Possible wall of boulders

Table 4: List of Finds in Ivy Cave

Find No.	Context No.	Location	Wt.	Description
1	202	Test Pit 2	1680g	Glass bottle fragments
2	202	Test Pit 2		Clay pipe fragments (9)
3	102	Test Pit 1		Clay pipe fragments
4	102	Test Pit 1		1 black glass bead, 1 small button
5	102	Test Pit 1		Animal + bird bones
6	102	Test Pit 1	190g	Glass bottle fragments
7	102	Test Pit 1		Glazed pot shards
8	102	Test Pit 1	380g	Miscellaneous ferrous objects, nails, wire + can sheet
9	102	Test Pit 1	280g	Lumps of burnt coal?
10	102	Test Pit 1		Fragment of copper or brass decorated sheet
11	103	Test Pit 1	500g	Limpet shells
12	102	Test Pit 1		Shoe leather fragments
13	202	Test Pit 2	340g	Leather shoes + fragments
14	202	Test Pit 2	100g	Limpet shells
15	202	Test Pit 2	240g	Various ferrous objects
16	202	Test Pit 2	40g	Burnt coal
17	202	Test Pit 2	80g	Animal bone
18	202	Test Pit 2		Plaited cord (possibly bracken fibres)
19	-	Cave interior		Stoneware pot fragment
20	-	Cave interior	2200g	Large glass fragments (mostly bottle)
21	201	Test Pit 2	3600g	Leather shoes
22	103	Test Pit 1	2230g	Winkle shells
23	102	Test Pit 1		Fish bones
24	101	Test Pit 1	11kg	Sandstone slab, engraved *
25	-	Cave interior	3.5kg	Sandstone slab, part of Find no. 24

6.2.2 Learnie 1B NH756 607

The biggest of the 19 caves (5m OD), with an entrance 7 metres across, the cave extends for 21 metres and has a ceiling height of 5 metres. At its widest, the interior measures 10 metres across. The back of the cave splits into 2 tunnels and the floor is mostly flat. Against the south wall, just inside the entrance, is a tidy pile of stones which appeared to have a low rubble wall retaining the stone. Three test pits were excavated in Learnie 1B, at the cave entrance, over the stone pile and inside the cave on the floor area (Figure 5).

Test Pit 1

Located at the entrance to the cave, this pit was excavated to a depth of 1.4 metres and contained a sequence of 14 well-stratified occupation layers (Figure 6), including a possible stake-hole in the basal layer (Context 114). 19th / 20th century midden material (iron, glass, ceramics and leather) was confined to the upper layers. Below context 104, the sequence of deposits indicated a lengthy continuity of occupation, with animal bone and shellfish remains appearing alongside evidence for burning. In particular, a slabbed layer [110] within an ash/charcoal lens was interpreted as a possible hearth structure. A fragment of cattle bone from Context 111 and a single entity hazel charcoal sample from 112 were selected for radiocarbon dating.

Test Pit 2

TP2 (Figure 7) was excavated against the south wall, inside the cave, through what appeared to be a well-constructed pile of sharp stone sherds of similar size and type [201]. Removal of the spread of stone from the edges revealed a linear rubble-built wall [207] comprising 1-3 courses of large stone clasts and cobbles (Plate 5). The wall may have predated the formation of the stone pile, serving an earlier function in the cave. It may also have been constructed to retain spread of the stone pile. Either way, both the stone pile and stone wall were deliberately constructed. The layer associated with the wall construction [202] contained objects of probable 19th-20th century date to judge by the ceramics. The small finds included a penknife with a bone handle, a metal clasp, a clay pipe bowl, a child's leather shoe, an iron axe head, newspaper clippings and a copper coin. Thin underlying layers contained shell midden material with finds of a similar period. The lowest archaeological horizon [205] excavated in the pit was free of post-medieval material and contained animal bone.

Test Pit 3

Test Pit 3 was excavated inside the cave, to the north of a ridge of guano. The shallow sequence of archaeological deposits contained a possible hearth or burning deposit and 19th / 20th century material similar to the finds recovered from the other two test pits – including leather waste, ceramics, glass and clay pipe fragments. The pit was bottomed out on to bedrock.



Plate 5: Test Pit 2 in Learnie 1B (mid excavation), showing cross-section of rubble "cache" [201] behind stone wall [207]. Test Pit 1 in the cave entrance in back.

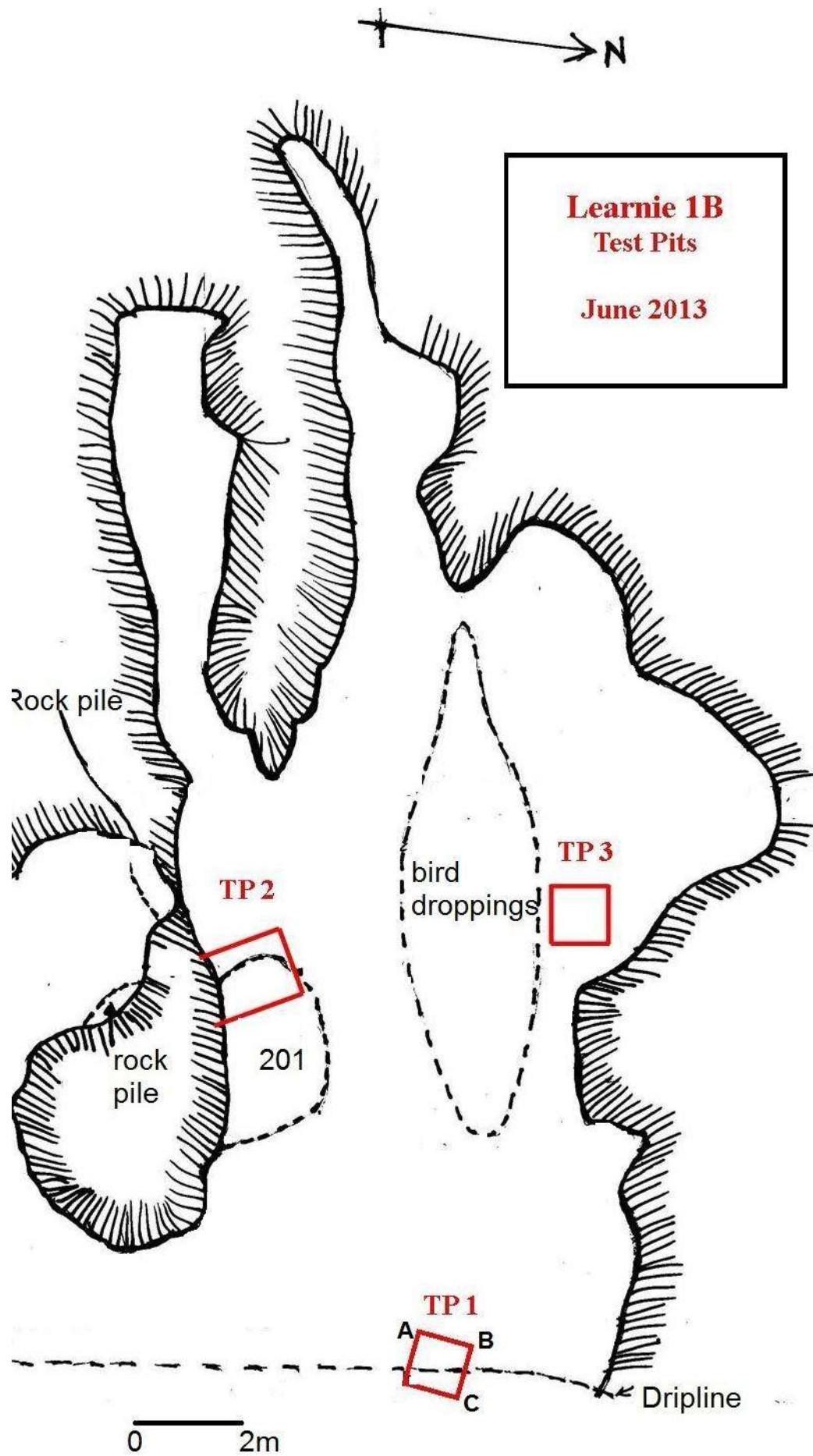


Figure 5: Plan of Learnie 1B showing location of test pits

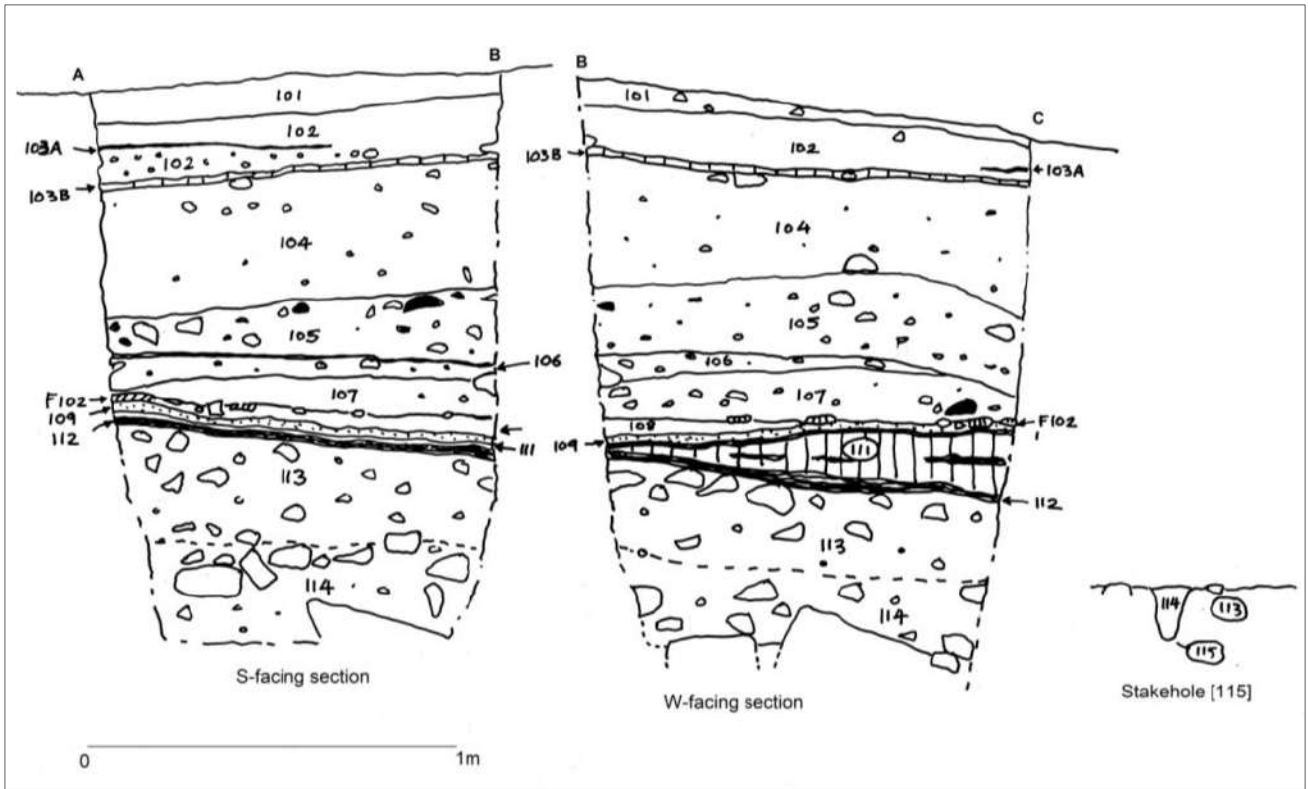


Figure 6: Section drawings of Test Pit 1 in Learnie 1B

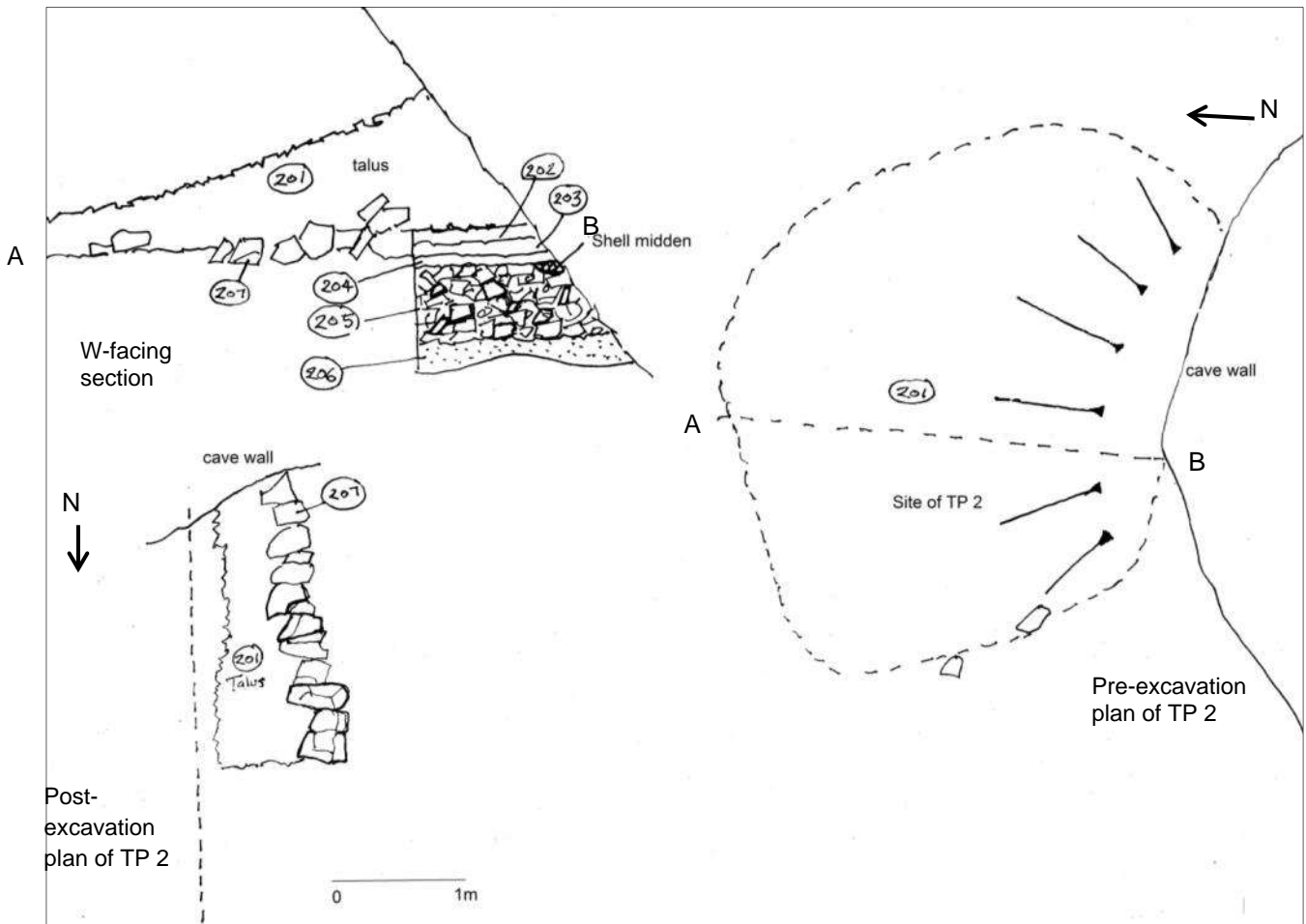


Figure 7: Plan and section drawings of Test pit 2

Table 5: Table of Contexts in Learnie 1B

Test Pit 1		
Context No.	Type	Description
101	Deposit	Upper soil horizon, formed by degraded dung and soil build-up
102	Deposit	Fine silty sediment, light brown with small stony inclusions
103a	Deposit	Dark, thin organic layer within 102
103b	Deposit	40mm thick layer organic material (decayed bracken?)
104	Deposit	Light to mid brown fine sediment with small stone inclusions and thin lenses of organic material
105	Deposit	Mid to light brown silty sediment with small to medium angular stone and round beach pebbles (some fire cracked) small charcoal flecks, some shellfish, some animal bone
106	Deposit	Dark brown to black silty sediment with shellfish fragments, some animal bone and charcoal flecks. 40-50mm thick. Stone, some angular, some rounded pebbles of which some were fire cracked
107	Deposit	Mid brown silty sediment, small angular stone, some shellfish + bone + charcoal flecks
108	Deposit	Mid brown-black ash and charcoal lens. Some shellfish remains, contains F102.
109	Deposit	20mm thick buff to grey lens of silty sediment (ash) containing charcoal flecks and crushed shellfish
110	Structure	Thin sandstone slabs, laid flat and forming a slabbed surface - remains of paving(?); heat affected; within context 108, same as F102; overlies 109
111	Deposit	Buff to yellow clay-like ash lens containing numerous charcoal flecks and fragments and animal bone
112	Deposit	Black silty lens up to 20mm thick containing numerous charcoal flecks, cracked shellfish and pockets of white to grey wood ash
113	Deposit	Coarse sand with numerous medium-large beach cobbles. Odd charcoal flecks, limpet and winkle
114	Deposit	Coarse beach sand with large beach cobbles and large stones (from roof collapse?); natural
114	Deposit	Dark brown silt with charcoal flecks and shellfish
115	Cut	Cut of stake hole
Test Pit 2		
201	Deposit	Small stone (psammite) fragments, pile of shattered stone at side of cave
202	Deposit	Upper soil level, loose mid-dark brown stony loam. Shoe fragments and pottery sherds within.
203	Deposit	Shell layer, layer of small stones with mostly limpets and crab claw pieces.
204	Deposit	Upper rubble layer, stone fragments + some larger stones in mid-dark brown gritty soil. Scattered animal bone and shell throughout.
205	Deposit	Lower rubble layer, similar contents as in 204.
206	Deposit	Coarse sand above base rock. Base rock here was 80mm below the cave floor and 60 mm from top of stone midden.
207	Structure	Rubble-built wall comprising 2-3 courses of large stone clasts
Test Pit 3		
301	Deposit	Mid-dark brown loam with large and small cobbles + stone fragments
302	Deposit	Midden layer in loosely compact dry loam with glass, ceramics, iron and animal bone.
303	Deposit	Ashy patches over dark brown silt; compacted with patches of dry clay & stones.
304	Deposit	Loose stones, some fire-cracked.
305	Deposit	Sand and cobbles.
306	Deposit	Compact layer of ash, in 302, above 303.

Table 6: List of Finds in Learnie 1B

Find No.	Context No.	Location	Wt.	Description
1	103	Test Pit 1	-	2 x , I copper or brass objects (plate), I cylindrical pipe end
2	103	Test Pit 1	340g	Shell, limpet & winkle
3	103	Test Pit 1	-	5 x misc iron objects, 1 X iron nail
4	103	Test Pit 1	-	5 x misc glass sherds
5	103	Test Pit 1	-	1 x small leather strap
6	103	Test Pit 1	-	Misc animal and some bird bones
7	104	Test Pit 1	-	1 x small clay pipe stem fragment
8	104	Test Pit 1	-	2 x small glazed pot sherds + 1 x small glass sherd
9	104	Test Pit 1	-	Misc shells and fragments, winkle & limpet
10	104	Test Pit 1	-	Misc small animal bone fragments
11	104	Test Pit 1	-	1 x large iron hook + misc iron fragments
12	112	Test Pit 1	-	Organic/shell/soil concretion
13	111	Test Pit 1	-	Misc shells, limpet & winkle
14	105	Test Pit 1	-	Misc shells, limpet & winkle
15	105	Test Pit 1	-	Bone
16	111	Test Pit 1	-	Cattle bone
17	202	Test Pit 2	210g	Child's leather shoe
18	202	Test Pit 2	920g	Iron axe head
19	204	Test Pit 2	-	Misc white glazed cup sherds + piece of green glass bottle neck
20	203	Test Pit 2	180g	Limpet and winkle shells
21	205	Test Pit 2	2010 g	Misc animal bones
22	204	Test Pit 2		1 whelk shell
23	204	Test Pit 2	80g	Bone fragments + tooth
24	204	Test Pit 2	-	1 broken iron hook, 1 leather fragment, 1 cream/brown pot sherd (red ware)
25	205	Test Pit 2	-	Misc animal bones
26	205	Test Pit 2	-	Winkle shells
27	206	Test Pit 2	-	1 small animal bone fragment
28	206	Test Pit 2	40g	Shells
29	202	Test Pit 2		Misc animal bone and vertebrae (rodent)
30	202	Test Pit 2		Misc shell, limpet, winkle, lobster claw
31	202	Test Pit 2	-	6 x White, glazed pot sherds, 5 x glass sherds
32	202	Test Pit 2	-	1 clay pipe bowl, newspaper fragments, 1 copper, circular fastening
33	202	Test Pit 2	-	2 halves of penknife bone handle
34	Cave floor	Cave Floor	-	Large mammal bone, possibly cow
35	301	Test Pit 3	780g	Leather, boot
36	305	Test Pit 3	-	1 small bone fragment
37	303	Test Pit 3	-	1 copper coin
38	303	Test Pit 3	580g	Stone tool
39	303	Test Pit 3	-	3 x clay pipe stem fragments + clay pipe bowl fragment
40	303	Test Pit 3	-	1 leather shoe (?) fragment
41	303	Test Pit 3	-	3 x white glazed pot sherds (burnt), 1 green glass sherd + 1 metal fragment
42	303	Test Pit 3	-	2 x animal bone fragments
43	303	Test Pit 3	-	Winkle shells and fragments
44	301	Test Pit 3	700g	Misc metal

Find No.	Context No.	Location	Wt.	Description
45	301	Test Pit 3	-	Misc animal bone
46	301	Test Pit 3	-	4 x white glazed cup sherds, 1 glass bottle base, 1 clear glass bottle neck + 1 misc glass sherd
47	301	Test Pit 3	-	2 x limpet shells
48	302	Test Pit 3	800g	White glazed jar sherds
49	302	Test Pit 3	-	3 x pipe stem fragments. One says "C. Forbes, Inverness", another says ".....ess"
50	302	Test Pit 3	-	1 x glass bottle base, misc clear glass (vase?) sherds
51	302	Test Pit 3	-	Misc iron objects (strap from cauldron?)
52	302	Test Pit 3	-	Misc animal bone (1 x rodent skull)

Table 7: List of Samples in Learnie 1B

Sample No.	Context No.	Location	Wt.	Description
1	109	Test Pit 1		Soil sample from charcoal- and shellfish-rich layer
2	110	Test Pit 1		Soil sample from possible hearth layer
3	112	Test Pit 1		Basal ash layer of possible hearth layer
4	110	Test Pit 1		Charcoal sample from possible hearth layer
5	111	Test Pit 1		Charcoal sample from possible hearth layer
6	109	Test Pit 1		Charcoal sample from possible hearth layer
7	112	Test Pit 1		Charcoal from base of ash layer and over top natural sand, 100cm deep
8	205	Test Pit 2		Soil sample from layer with animal bone
9	206	Test Pit 2		Charcoal sample from basal layer
10	205	Test Pit 2		Charcoal sample from layer with animal bone
11	305	Test Pit 3		Charcoal sample basal layer

6.2.3 Learnie 2B NH757 608

At 5 metres OD, Learnie 2B is a large cave where a limited excavation took place in August 2006. The exposed floor surface is mostly flat, consisting of sand and rocks with areas of manure below this. The top of two sections of wall are visible running across the cave entrance. In 2006, a small shell midden was found just outside this wall at a depth of 1 metre. In the floor of the cave were found various animal bones including the cranium of a common seal, periwinkle shells and pieces of cut leather and a small girl's shoe.

Two test pits were excavated in 2013 (Figure 8; Plate 6). Test Pit 1 was located inside the cave along the front of a rough wall built against the north side of the cave. Test Pit 2 was placed at the entrance, up against the northern wall section.

Test Pit 1

Test Pit 1 contained a sequence of 8 stratified contexts ending at a depth of 118cm (Figure 9). Below the remnants of a modern fire, the upper layers contained post-medieval midden material including ceramics, glass, leather and clay pipe fragments. This material was interpreted as being associated with the low remains of a rubble wall [104] (Plate 7). An intermediate layer [105], contained large stones, animal bone and shells and sherds of possible medieval pottery. Near the base of the pit, a charcoal-rich layer [107] with animal bone and shells may have been hearth material and contained sherds of possible medieval pottery. The lowest archaeological horizon excavated in the pit [108] also contained animal bone and shell. A fragment of animal bone from this layer was selected for submission for radiocarbon dating.

Test Pit 2

Test Pit 2 provided a chance to look at the construction of wall [204] and to assess the survival of underlying deposits (Figure 10). The wall was well-built of mortar and stone construction (Plate 8) and aligned NNE-SSW. It measures 36 cm wide. A layer of clean sand and stone [205] to the front and back of the wall was interpreted as backfill after the structure went out of use. The wall had cut through a charcoal-rich layer [206] containing a possible hearth layer and animal bone and shell. At the base of the pit was a final archaeological horizon [210] containing charcoal and animal bone, which overlay clean sand and bedrock.



Plate 6: *Learnie 2B: looking over Test Pit 2 (right centre) and Test Pit 1 (back centre), showing walling at cave entrance and interior*



Plate 7: *Test Pit 1, showing rough stone wall [104]*



Plate 8: *Test Pit 2 and wall [204]*

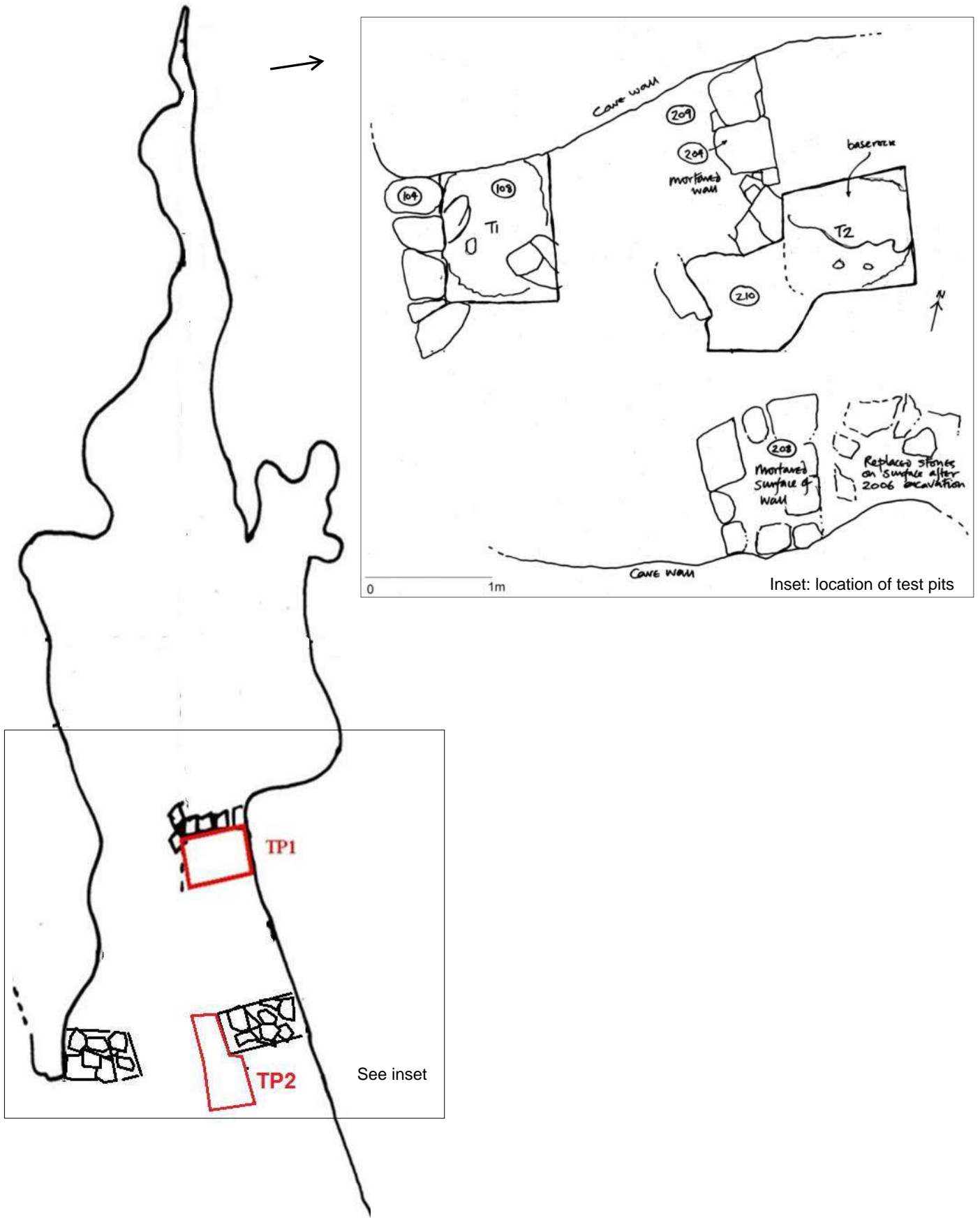


Figure 8: Sketch plan of test pit locations in Learnie 2B

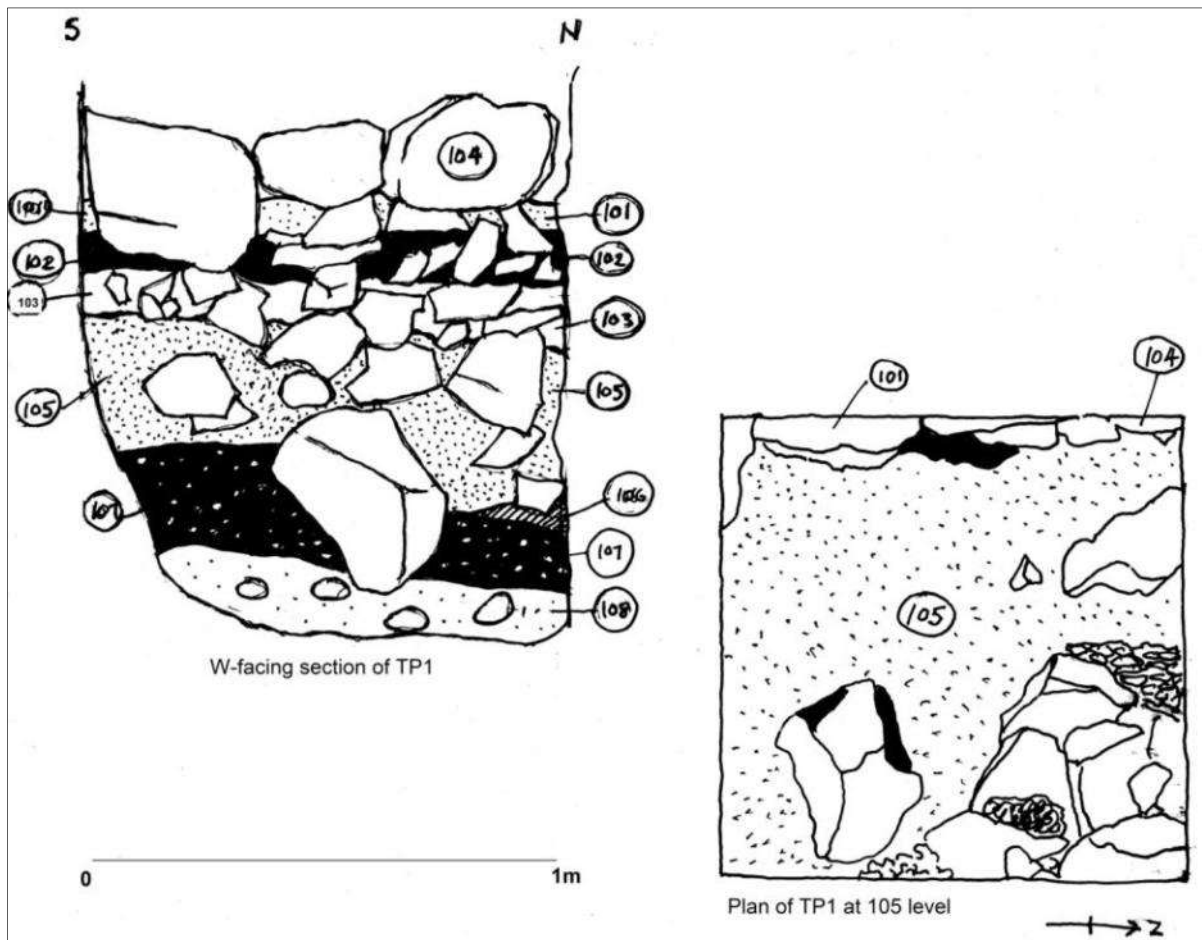


Figure 9: Section and plan drawings in Test Pit 1, Learnie 2B

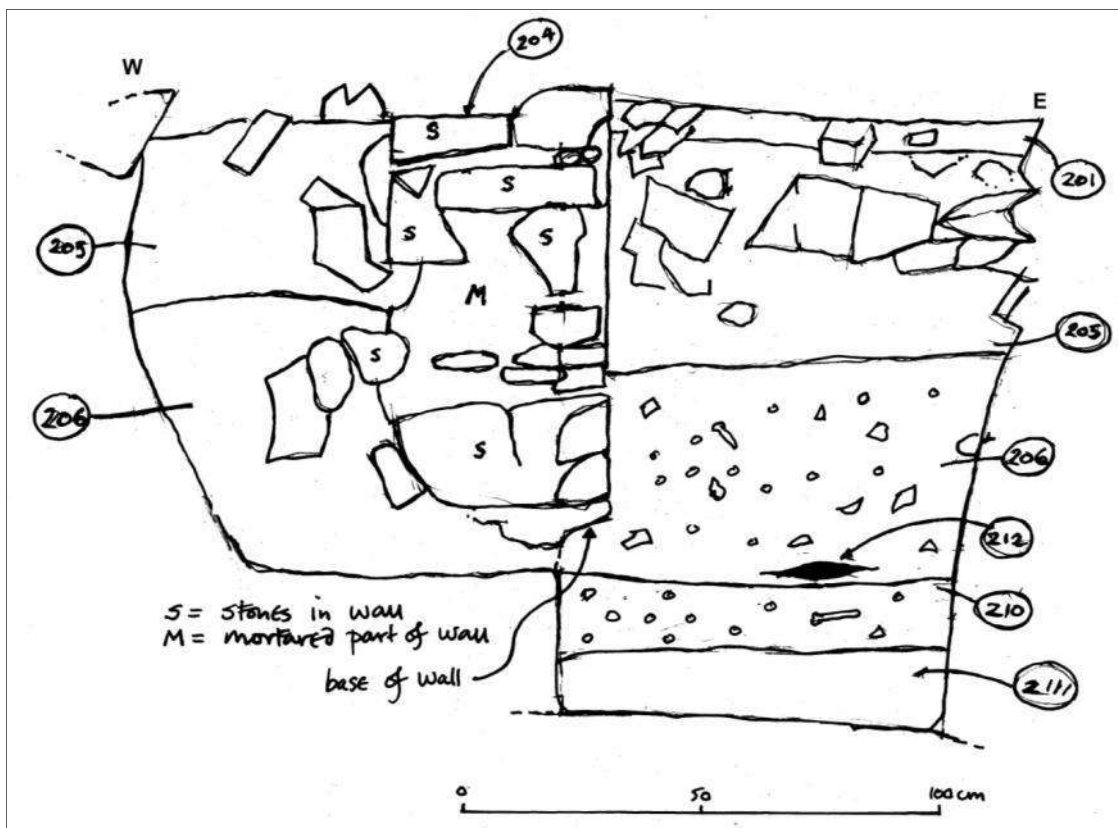


Figure 10: S-facing section drawing of Test Pit 2, Learnie 2B

Table 8: List of Contexts in Learnie 2B

Test Pit 1		
Context No.	Type	Description
101	Deposit	Topsoil
102	Deposit	Thin layer of burning abutting 101 plus recent hearth/fire.
103	Deposit	Mid-dark brown, loose, loamy soil, scattered with small/medium stones and midden material (c. 20 th c.) ~ shoe leather, shell, animal bone
104	Structure	Single faced boulder wall, 1-2 courses surviving, overlies angular stone & soil layer 103. 5 Stones long, end may line up with entrance passage, could have formed a division within cave.
105	Deposit	Mid-brown/orange soil/silt with compactly placed boulders & some sub-angular stones; animal bone
106	Deposit	Clay lens in NE corner of T1, 4cm thick. 68 cm from top of T1. Shell below. Rubble continues east, wall continues west
107	Deposit	Blackened soil layer containing frequent loose shells. Shells at 90-95 cm. Sample of charcoal & bone at 90cm
108	Deposit	Mid brown soily sand with some rocks, charcoal and animal bone. Charcoal pieces in sand, samples taken at 105 cm + 2 pieces of bone at 110 cm.
Test Pit 2		
201	Deposit	Topsoil: thin layer of loose, dark brown soil with scattered, small, angular stones. Vegetation and some evidence of recent campfire.
202	Deposit	Mid brown, silty soil with small to large, subangular stones. Rubble on east side (wall tumble) overlies stony layer similar to 205 but very compact
204	Structure	Well-built, mortared stone wall aligned NNE-SSW. 36 cm wide, on north side of cave entrance and under layer and wall
205	Deposit	Orange-brown soil with large stones over small subangular stones on west of wall 204 and 209 and overlying 206. No mortar in this layer, very clean ~ possibly a backfill layer behind wall? Appears to stretch beyond trench to below 201 topsoil
206	Deposit	Dark brown loose layer containing gravel, charcoal, shells and bone. Context layer 40 cm in depth and contains lens of ash and charcoal
209	Deposit	Comprises medium stone slabs and some small subangular cobbles. Overlies 204.
210	Deposit	Very loose, gritty sand. Dark grey, like 206. Charcoal, bone and antler found. Cow(?) femur found in NW corner at depth of 70cm
211	Deposit	Coarse sand with no finds. Base rock At 125 cm depth
212	Deposit	Lens of ash and charcoal within 206

Table 9: List of Finds in Learnie 2B

Find No.	Context No.	Location	Wt.	Description
53	108	Test Pit 1	-	Animal bone from 110 cm deep
54	210	Test Pit 2	70g	Sheep bone + antler(?) from basal layer
57	107	Test Pit 1	-	Animal bone @ 90 cm deep
58	105	Test Pit 1	-	Animal bone from deposit
59	105	Test Pit 1	60g	Shells from deposit
60	103	Test Pit 1	400g	Shells from deposit
61	105	Test Pit 1	-	Iron nail
62	105	Test Pit 1	-	Misc pot sherds
63	105	Test Pit 1	40g	Animal bone from context
64	107	Test Pit 1	80g	Misc. pot sherds – medieval?
65	108	Test Pit 1	90g	Shells from basal layer
66	108	Test Pit 1	-	Animal bone from basal layer
67	103	Test Pit 1	220g	Misc pottery and glass sherds, post-medieval

Find No.	Context No.	Location	Wt.	Description
68	103	Test Pit 1	-	Part of clay pipe bowl
69	103	Test Pit 1	410g	Animal bone from deposit
70	103	Test Pit 1	-	Leather fragments
71	103	Test Pit 1	-	Crab shell fragments
72	103	Test Pit 1	1kg	Possible pebble tools
73	206	Test Pit 2	-	Clinker (Fe?) from deposit
74	202	Test Pit 2	40g	Shells from deposit
75	202	Test Pit 2	-	Animal bone from deposit
76	202	Test Pit 2	600g	Stones – possible tools?
77	206	Test Pit 2	400g	Animal bone, including cow (?) femur
78	206	Test Pit 2	140g	Assorted shells from context
79	201	Test Pit 2	80g	Misc. finds from overlying wall soil
81	203	Test Pit 2	70g	Mortar sample from deposit
82	203	Test Pit 2	-	Animal bone from deposit
83	203	Test Pit 2	-	Piece of clay pipe bowl

Table 10: List of Samples in Learnie 2B

Sample No.	Context No.	Location	Wt.	Description
12	108	Test Pit 1	-	Charcoal sample @ 105 cm deep
13	210/211	Test Pit 2	-	Charcoal sample @ 105 cm deep
16	108	Test Pit 1	-	Charcoal sample @ 100 cm deep
17	107	Test Pit 1	-	Charcoal sample @ 90 cm deep
18	106	Test Pit 1	700g	Sample of clay-ash layer
19	107	Test Pit 1	220g	Sample of ash and charcoal layer
20	210	Test Pit 2	-	Charcoal sample @ 100 cm deep
21	206	Test Pit 2	-	Charcoal sample from context
22	206	Test Pit 2	90g	Sample of ash & burnt turf
23	206	Test Pit 2	40g	Charcoal sample from context

6.2.4 Learnie 3B NH757609

Learnie 3B is situated behind hazel trees and at the foot of a cliff at 9 metres OD. This cave is one of a group of three, Learnie 3A, B and C. The floor is T-shaped in plan and the northern part has a tight passage dropping down to the adjoining cave, Learnie 3C. The floor is composed of sandy rubble and slopes up to a talus rampart outside the entrance. One test pit was excavated near the entrance to the cave (Figure 12).

Test Pit 1

The test pit revealed a well-stratified sequence of archaeological layers in the lower half of the pit, separated by a clean sand horizon. A setting of heat-affected slabs, interpreted as a hearth [6] overlay a shell midden deposit [7]. The basal layers also contained shell and evidence for burning. A fragment of animal bone from context 7 and a sample of ash charcoal from context 10 were selected for radiocarbon dating.

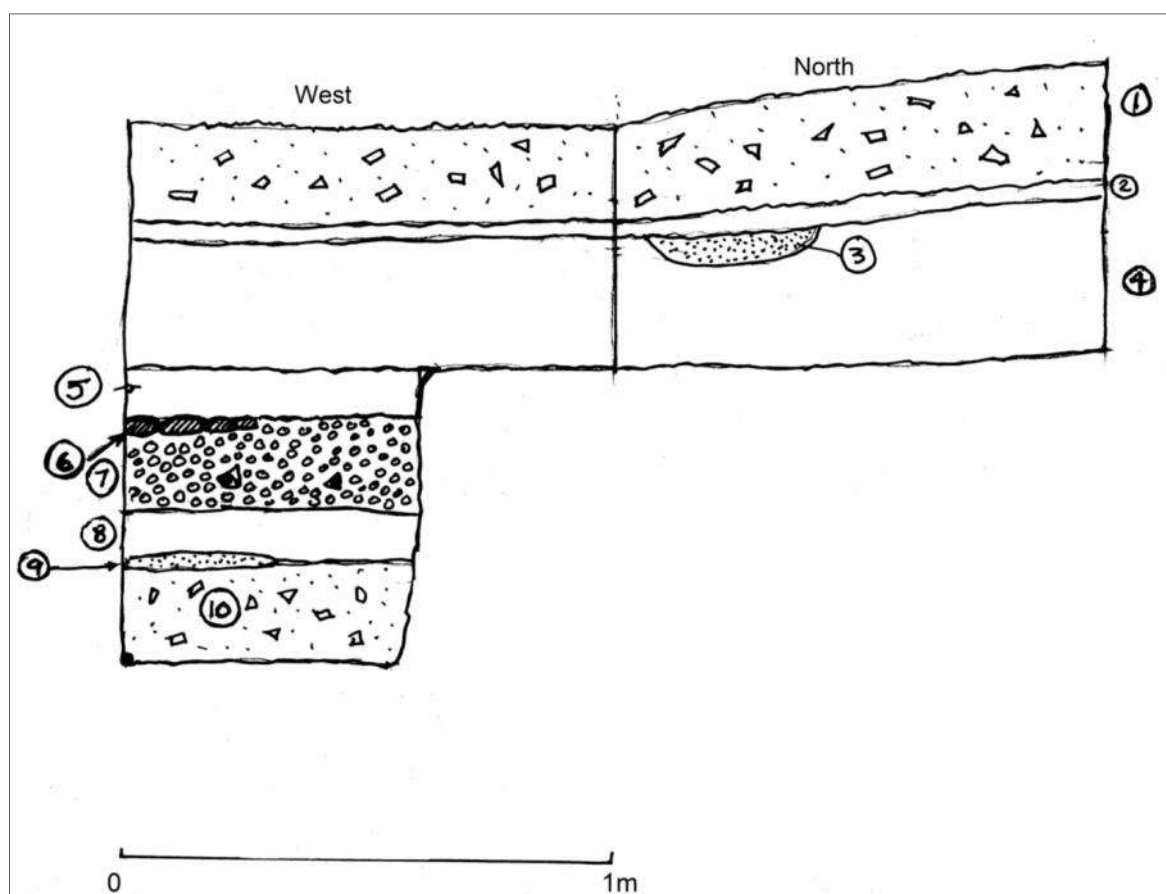


Figure 11: S- and E-facing section drawings of Test Pit 1, Learnie 3B

Table 11: List of Contexts in Learnie 3B

Test Pit 1		
Context No.	Type	Description
1	Deposit	Loose rubble on surface, talus and sand, depth 20-30cm
2	Deposit	Thin interface between rubble in Context 1 & charcoal and ash in Context 3
3	Deposit	Burnt sand, charcoal, wood ash. Charcoal is 5cm thick.
4	Deposit	Sand and fine talus. Depth 25+cm
5	Deposit	Shell, rubble, charcoal and sand, 12cm thick.
6	Structure	Closely packed, flat stones laid horizontally, blackened and cracked, forming a hearth. This context was at the deeper, southern end of the test pit.
7	Deposit	Layer of sand, talus, some animal bone and many shells: Limpets 2542, whelks 10, crab claw 9, mussel 3, winkles 1104, venus 1, crab claw fragment 1, cockle 2.
8	Deposit	Loose, sandy layer with charcoal, shell and burnt stone
9	Deposit	Lens 30 x 40cm, 2-5cm thick of fine, powdery black material (sampled)
10	Deposit	Very loose layer of stones and sand. No shell, charcoal in pocket at depth of 110cm

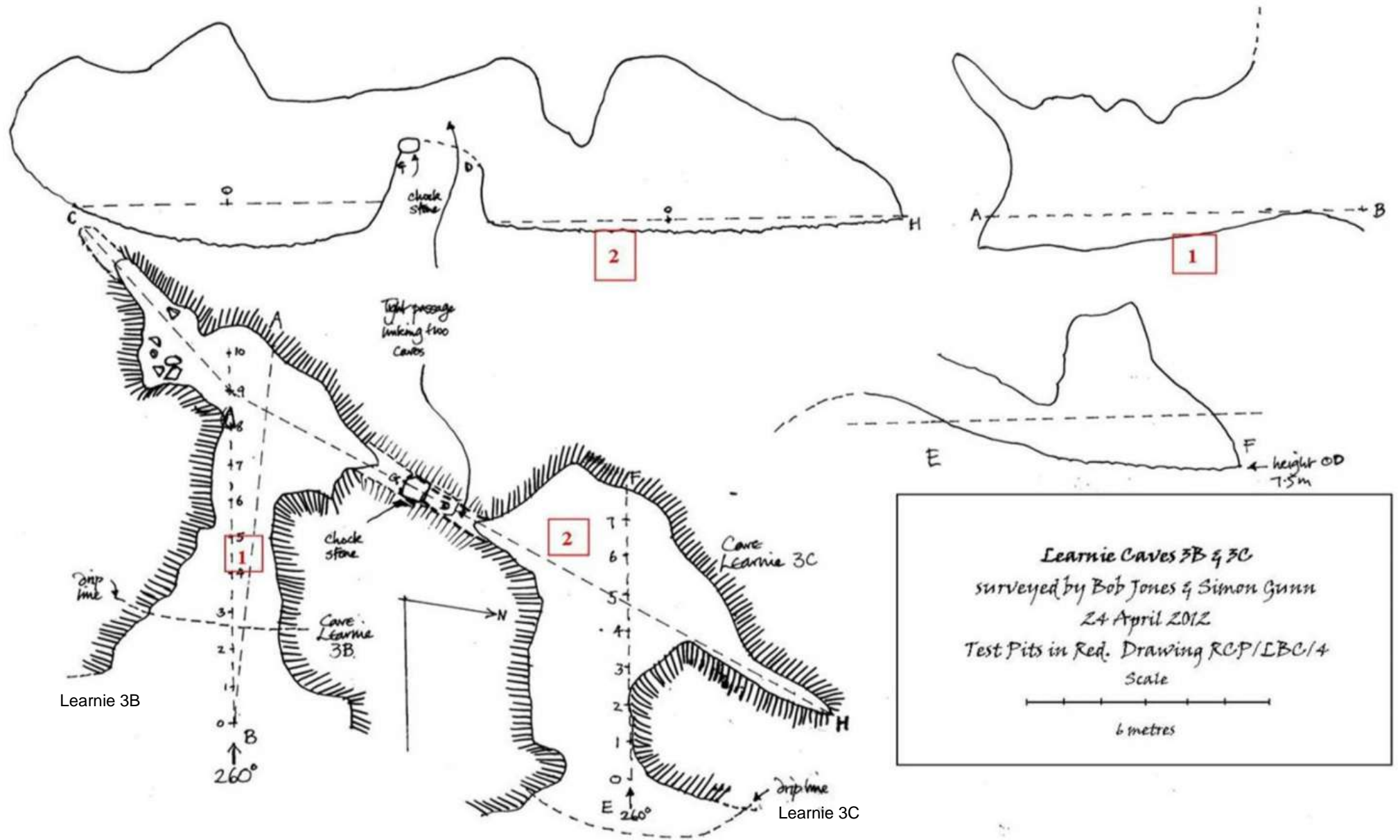


Figure 12: Plan and elevations of Learnie 3B (on the left) & 3C, showing position of test pits (in red)

Table 12: List of Finds in Learnie 3B

Find No.	Context No.	Location	Wt.	Description
55	8	Test Pit 1	-	Animal bones from layer 85cm deep
84	8	Test Pit 1	-	Assorted shells from lower context
85	3	Test Pit 1	-	Animal bone from context
86	5	Test Pit 1	-	Animal bone from context
87	5	Test Pit 1	-	Fish bone from context
88	5	Test Pit 1	680g	Winkle and limpet shells from context
89	6	Test Pit 1	740g	Hearth stone?
90	1	Test Pit 1	-	Sherd of slip-decorated redware (c. 19 th century)
91	1	Test Pit 1	-	Round, flat stone – possible tool?
92	1	Test Pit 1	-	2 small animal bones from context
94	7	Test Pit 1	20g	Animal bones from context
95	7	Test Pit 1	-	Crab claw fragments
96	2	Test Pit 1	310g	Hammerstone? (slightly burnt)
97	2	Test Pit 1	-	2 small animal bones
98	2	Test Pit 1	120g	Winkle shells from context
99	4	Test Pit 1	240g	Winkle and limpet shells from context
100	4	Test Pit 1	-	Animal bones from context
101	Cave floor	Test Pit 1	-	Horse/pony 3 rd phalanx bone (hoof)
102	Cave floor	Test Pit 1	-	Part of animal scapula

Table 13: List of Samples in Learnie 3B

Sample No.	Context No.	Location	Wt.	Description
14	10	Test Pit 1	-	Charcoal sample from 110cm deep in context
24	6	Test Pit 1	-	Charcoal sample from hearth deposit
25	7	Test Pit 1	-	Charcoal layer extending 75cm deep at back and 98cm deep at front
26	9	Test Pit 1	-	Very small charcoal fragments from lower context
27	7	Test Pit 1	-	Charcoal sample from 75cm deep
28	7	Test Pit 1	-	Charcoal sample from context

6.2.5 Learnie 3C NH759608

Adjacent to Learnie 3B and linked to it by a tight passage, Learnie 3C is situated at 8m OD. The floor, in contrast to the other Learnie caves, comprised smooth, sandy silt with small holes in the surface. The cave entrance is nearly blocked by a high rampart of sand covered talus, but the interior has a high rock ceiling. One test pit (Test Pit 2) was excavated inside the cave (Figure 12).

Test Pit 2

The test pit in Learnie 3C revealed a simple stratigraphic sequence of layers of midden material sealed below thick layers of sediment (Figure 13) that contained some animal bone. The primary midden [003] contained frequent limpet shells and some charcoal and animal bone. This overlay a darker horizon [004], a possible hearth or burnt spread that contained butchered mammal bone. A fragment of mammal bone from Context 3 and a sample of hazel charcoal from Context 4 were submitted from radiocarbon dating.

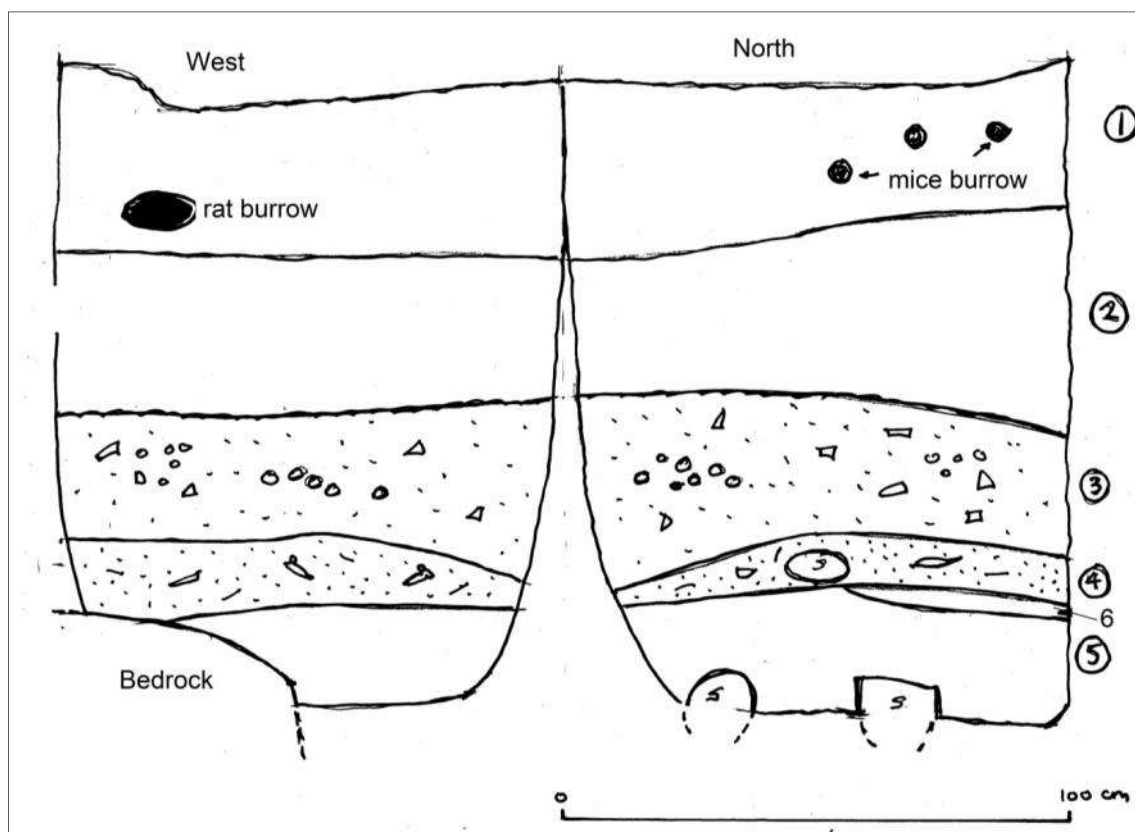


Figure 13: S- and E-facing section drawings of Test Pit 2, Learnie 3C

Table 14: List of Contexts in Learnie 3C

Test Pit 2		
Context No.	Type	Description
1	Deposit	Fine sand with small vertical holes, believed to have been made by mice (clusters of hazel nut shell were found at the bottom of some of these holes) 40cm deep
2	Deposit	Fine, silty sand with no burrows, 35cm deep
3	Deposit	Stoney, dark sand with compacted top. Lots of limpet shells, animal bones and charcoal, 25-30cm deep
4	Deposit	Dark stony layer with charcoal and a few bones, depth variable, up to 20cm
5	Deposit	Big rocks and coarse sand, no bone or shell but some charcoal. Believed to be beach sand at bottom of the cave. Possible base rock at SW corner. Also pieces of rock with calcite.
6	Deposit	Lens of pale ash & charcoal between Contexts 4 and 5

Table 15: List of Finds in Learnie 3C

Find No.	Context No.	Location	Wt.	Description
103	3	Test Pit 2	-	Small animal bones from context
104	3	Test Pit 2	-	Burnt bone fragments from context
105	5	Test Pit 2	760g	Shells (winkle and limpet) from lower context
106	2	Test Pit 2	80g	Hazel nut shells from 50cm deep
107	3	Test Pit 2	30g	Animal bone from context
108	3	Test Pit 2	700g	Animal bones from context
109	4	Test Pit 2	-	Bone artefact (?)

Find No.	Context No.	Location	Wt.	Description
110	3	Test Pit 2	-	Fish bones from context
111	4	Test Pit 2	-	Butchered bone from 100cm deep in context
112	3	Test Pit 2	320g	Flat stone or tile
113	2	Test Pit 2	-	Animal bone from context
114	2	Test Pit 2	-	Shells (winkle and limpet) from context
115	2	Test Pit 2	-	Calcite? from context
116	1	Test Pit 2	40g	Hazel nut shells from context
117	1	Test Pit 2	-	Shells (winkle and limpet) from context
118	1	Test Pit 2	-	Small animal bones
119	3	Test Pit 2	-	Shells (winkle and limpet) from context
120	3	Test Pit 2	-	Animal bones from context
121	Cave floor	Test Pit 2	220g	Large animal bones from cave floor
122	3	Test Pit 2	-	Shells (winkle and limpet) from context

Table 16: List of Samples in Learnie 3C

Sample No.	Context No.	Location	Wt.	Description
29	4	Test Pit 2	860g	Top of Context 4, wood ash and coarse sand sample
30	3	Test Pit 2	-	Charcoal sample from 75cm deep
31	3	Test Pit 2	-	Charcoal sample from 30cm deep
32	4	Test Pit 2	-	Charcoal sample from 100cm deep in context
33	4	Test Pit 2	40g	Soil sample from Context 4
34	3	Test Pit 2		Soil sample from Context 3
35	4	Test Pit 2	-	Charcoal sample from 90cm deep
36	3	Test Pit 2	-	Charcoal sample from 120cm deep
37	5	Test Pit 2	900g	Soil and rock from 120cm deep
38	2	Test Pit 2	-	Soil sample from Context 2at 35cm deep
39	4	Test Pit 2	-	Charcoal sample from 106cm deep
40	3	Test Pit 2	-	Charcoal sample from 80cm deep

6.2.6 Three Peaks Cave NH 7650 6158

Named after 3 small stalagmites at the back of the cave, Three Peaks Cave is well hidden behind a stand of trees. Situated at 9m OD, it has a smooth floor which looks as though it has been cleared in parts. There is a huge bank of talus running into the entrance of the cave. One test pit was excavated.

Test Pit 1

The bank of talus, which has probably built up over a considerable amount of time, limited the access to the cave, and Test Pit 1 was excavated at the back of the cave (Figure 14). Below mostly clean sediment, a stone setting [004] was uncovered. It comprised upright cobbles and small slabs enclosing a subrectangular area approximately 0.35m by 0.5m NE-SW. The fill contained some charcoal fragments but no other revealing finds. The structure was interpreted as a possible burial cist, given its appearance (Plate 2; Figure 15). There was no material recovered to substantiate this interpretation, but the placement of the structure at the back of the cave could be a likely location for the location of a burial. A sample of hazel roundwood charcoal from behind one of the slabs was submitted for radiocarbon dating.



Plate 9: The stone setting [005] under excavation

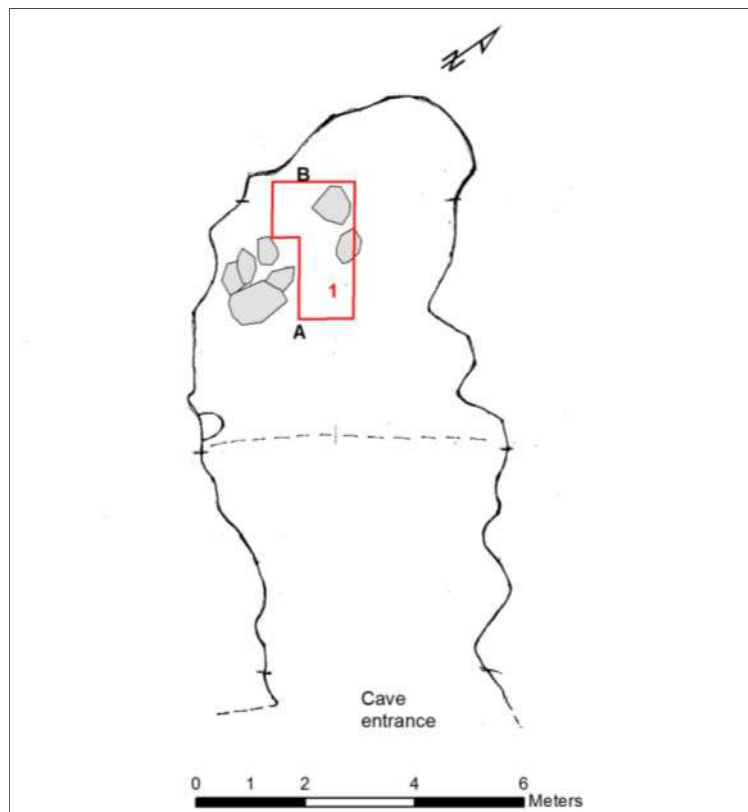


Figure 14: Location plan of Test Pit 1 in Three Peaks Cave (scale at A4: 1:100)

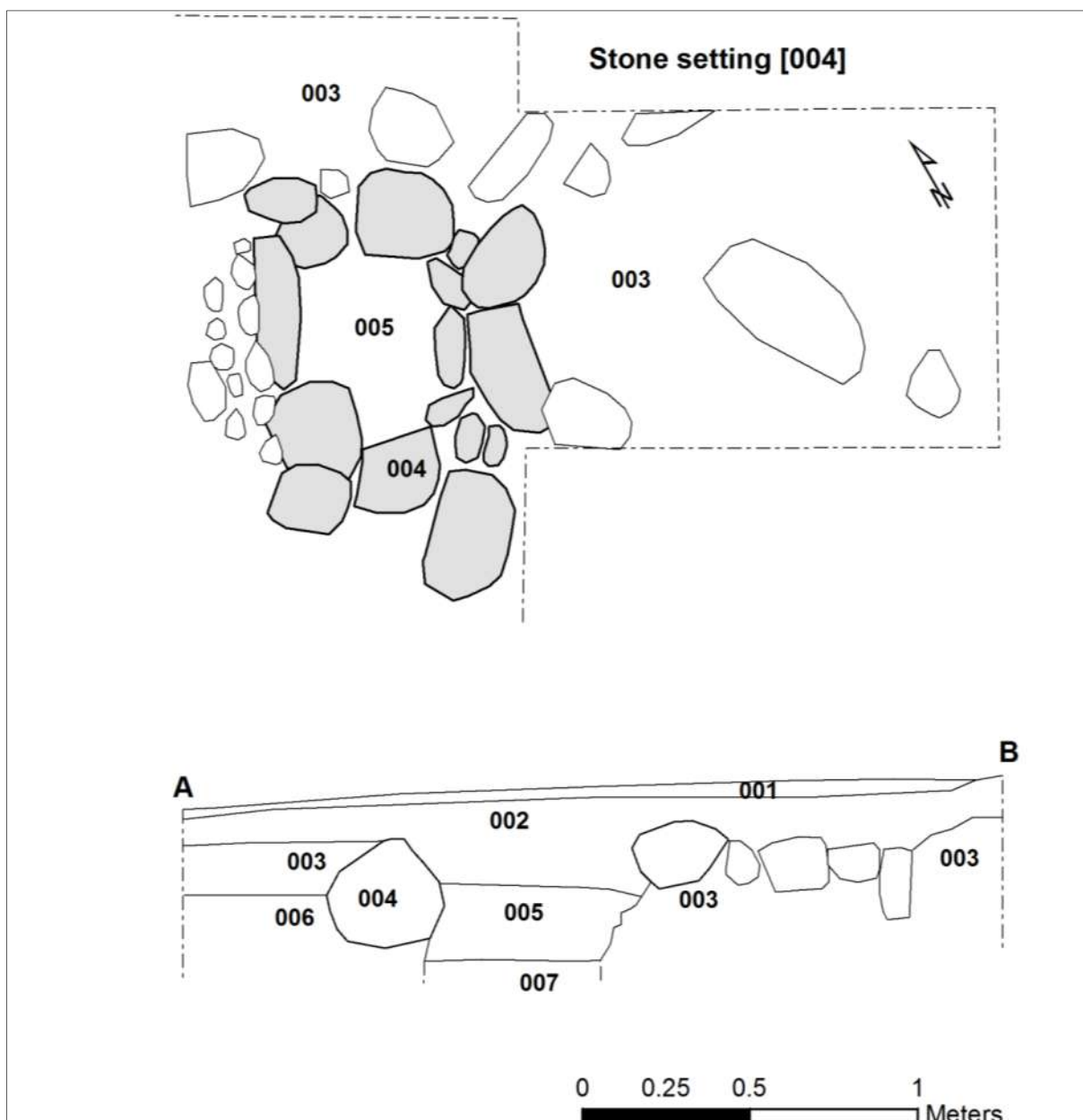


Figure 15: Plan drawing of stone setting [005] and NE-facing section drawing of Test Pit 1 in Three Peaks Cave (scale at A4: 1:20)

Table 17: List of Contexts in Three Peaks Cave

Context number	Type	Location	Description
001	Deposit	Test Pit 1	Mid-brown, grey, loose silty soil. Dry surface
002	Deposit	Test Pit 1	Mid-dark brown, moderately compact silty soil. Organic rich layer surrounding large cobbles with stone fragments and small boulders
003	Deposit	Test Pit 1	Coarse, pale yellow/orange sand with small pebbles
004	Structure?	Test Pit 1	Sub oval/sub erect setting of upright cobbles. Cuts through sand layer 003

Context number	Type	Location	Description
005	Fill	Test Pit 1	Dark brown, sandy soil with occasional flecks and fragments of charcoal. A few small pebbles
006	Fill	Test Pit 1	Mixed fill and charcoal behind an upright stone in the setting on E side. Similar to 002 with charcoal
007	Deposit	Test Pit 1	Fine sand with pebbles (10-30mm)

Table 18: List of Samples in Three Peaks Cave

Sample number	Context number	Location	Volume/Weight	Sample Justification	Initials	Date
001	002	Test Pit 1		Charcoal fragments from layer	RJ	23/05/2015
002	002	Test Pit 1	500g	Animal bone from layer	RJ	23/05/2015
003	001 (surface)	Test Pit 1	400g	Animal bones from surface	SG	23/05/2015
004	005	Test Pit 1		Sample of fill from stone setting	AB	23/05/2015
005	001	Test Pit 1	540g	Animal bone	MS	23/05/2015
006	006	Test Pit 1		Charcoal from behind slabbed structure 004	MS	24/05/2015
007	001	Test Pit 1		Cut animal bone	SG	03/10/2011

6.2.7 Broad Cave NH 7634 6138

Situated just above the beach, this cave is more open than the other caves, and appears more like a rock shelter. The cave floor is at 5.5 metres OD. One test pit was excavated along the WNW wall of the cave.

Test Pit 1

The test pit, measuring 2 x 1 metres was set against the back of the cave (Figure 16), facing the sea (SE). The trench displayed a well-stratified sequence of archaeological material (Figure 17). Several pebble tools were recovered from the upper layers [001] and [002], which also contained butchered animal bone, shells and evidence for burning. Context [003] separated the upper deposits from the lower levels, where increased evidence of burning and midden material were noted. At the southeast end of the trench, a wood ash layer [005] abutted a large slab, suggesting that a possible hearth structure or surface was present. This overlaid another charcoal-rich ash layer [006]. Below this, a thick midden layer [007] contained frequent animal bone, shell and charcoal fragments. Archaeological material may have continued below the base of the test pit, but excavation stopped due to depth and time constraints. A fragment of mammal bone from context [005], a sample of elm roundwood charcoal from context [006], a sample of elm charcoal from context [007] and a fragment of sheep/goat bone from context [007] were selected for radiocarbon dating.



Plate 10: Test Pit 1 in Broad Cave, showing first archaeological horizon encountered (005)

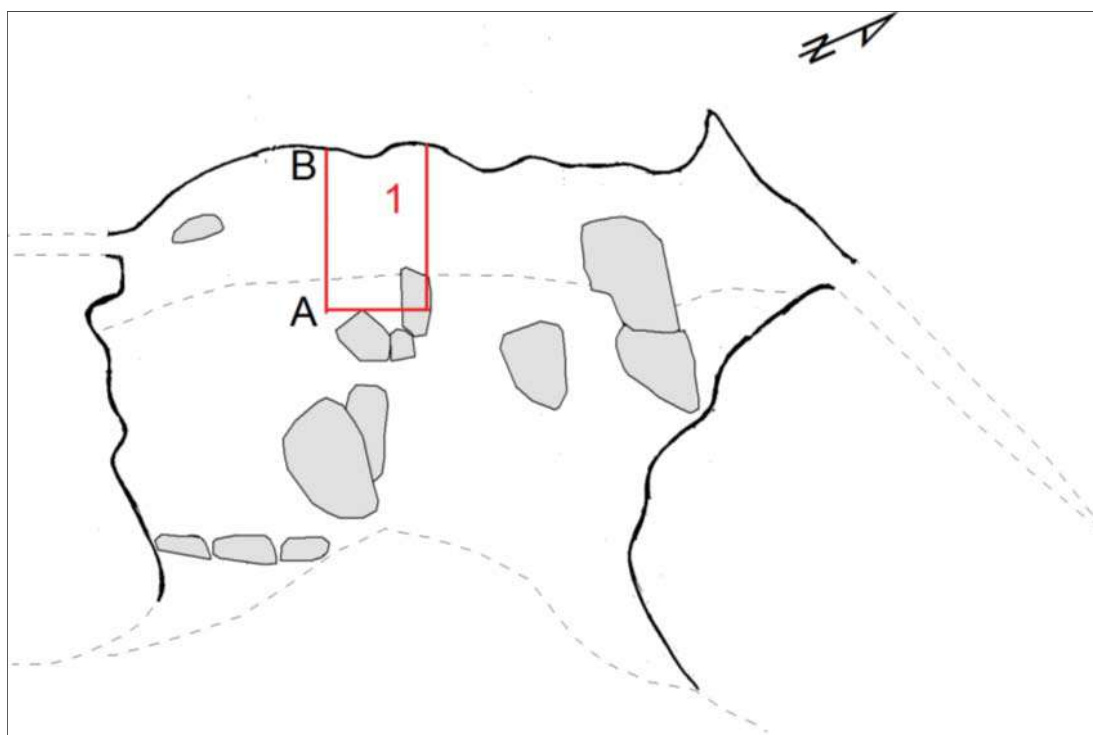


Figure 16: Location plan of Test Pit 1 in Broad Cave (scale at A4: 1:100)

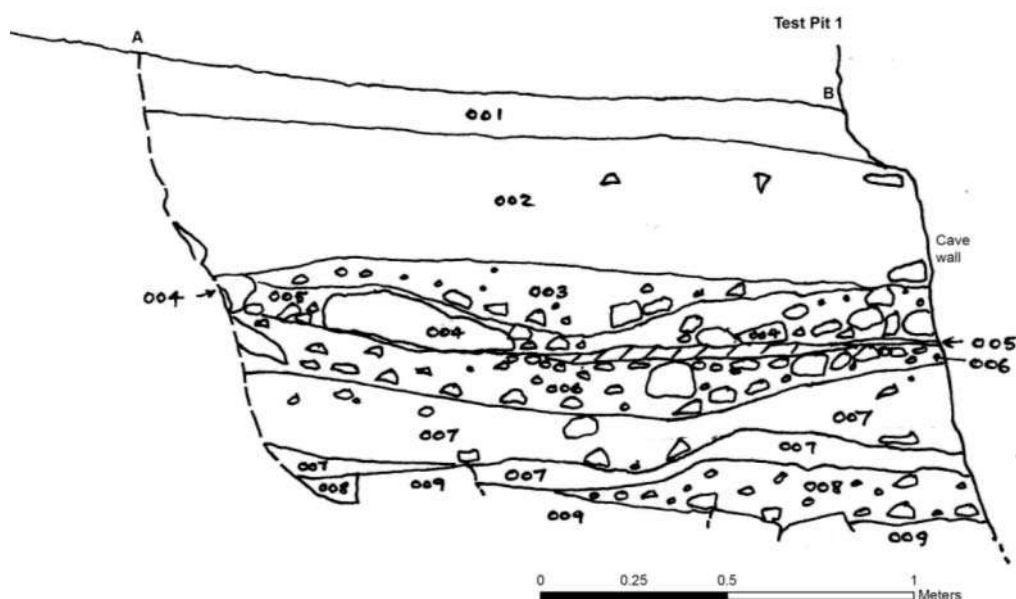


Figure 17: NE-facing section of Test Pit 1 in Broad Cave (scale at A4: 1:20)

Table 19: List of Contexts in Broad Cave

Context number	Location	Type	Description
001	Test Pit 1	Surface deposit	Dusty, light brown, sandy soil with small stones, some animal bones and a few shells (limpet, periwinkle, whelk)
002	Test Pit 1	Deposit	Firm, mid-brown, fine silty sand. Stones present, thought to be from roof fall. With depth more sand, less stone but flecks of charcoal and burnt bone apparent.
003	Test Pit 1	Deposit	Larger pieces of fallen rock, interwoven with smaller pieces, all thought to be from roof fall. Some holes from animal burrows. No charcoal, few shells (scallop), bones at NW end of trench. Deeper in context, colour of soil more red.
004	Test Pit 1	Deposit	Increasingly rocky, angular stones. Large slab at base of context sloping down to west.
005	Test Pit 1	Deposit/ lens	Thin charcoal and wood ash lens, within (004). At top of (005), 74cm from surface.
006	Test Pit 1	Deposit	Underlying charcoal and ash lens, rough and fairly level stony layer comprising fragments from 10-15cm in size, with larger pieces from roof fall. May be a roughly cobbled and trampled surface. Charcoal through cobbles with some animal bone.
007	Test Pit 1	Deposit/ lens	Dark brown to light black, organic soily sand layer, midden layer containing shells, animal bones and charcoal. Lens dips down from E to W at approx. 80 cm from surface (cave floor). Some roots present, as in layers above. Shell midden continuous throughout trench.
008	Test Pit 1	Deposit	Below midden (007), less shell, more stone fragments from cave roof, but some bone and charcoal. Some larger stone fragments at NW end of trench, adjacent to cave wall, which may be roof collapse or stone dumped at back of cave.
009	Test Pit 1	Deposit	Larger stones appearing below (008). Large stone clasts. Limit of excavation due to time constraints and depth of trench

Table 20: List of Samples in Broad Cave

Sample number	Context number	Location	Volume/Weight	Sample Justification	Initials	Date
001	001	Test Pit 1	700g	Shells and bone	RJ	23/05/2015
002	002	Test Pit 1	240g	Soil and charcoal	RJ	23/05/2015
003	002	Test Pit 1	980g	Bone, shells charcoal, including fire-cracked stones	RJ	23/05/2015
005	003	Test Pit 1	750g	Bone, scallop shell	RJ	23/05/2015
006	005	Test Pit 1	360g	Charcoal and wood ash lens at 72cm depth	SB	24/05/2015
007	005	Test Pit 1		Animal bone from 72cm depth	SB	24/05/2015
008	005	Test Pit 1		Charcoal sample from 72cm depth	SB	24/05/2015
009	004	Test Pit 1		Animal bone	SB	24/05/2015
010	004	Test Pit 1		Shell	SB	24/05/2015
011	006	Test Pit 1		Round wood charcoal	SB	24/05/2015
012	007	Test Pit 1		Charcoal from 80cm depth	SB	24/05/2015
013	007	Test Pit 1		Animal bone from 80cm depth	SB	24/05/2015
014	007	Test Pit 1	3400g	Organic midden with shells and bone	SB	24/05/2015
015	007	Test Pit 1	240g	Animal bone and shell from midden	SB	24/05/2015
016	007	Test Pit 1		Charcoal from 90cm depth	SB	24/05/2015
017	007	Test Pit 1		Bone from 90cm depth	SB	24/05/2015
018	007	Test Pit 1	170g	Fish bone from midden	SB	24/05/2015
019	007	Test Pit 1		Charcoal from 95cm depth	SB	24/05/2015
020	007	Test Pit 1	400g	Bone from 95cm depth	SB	24/05/2015

Table 21: List of Finds from Broad Cave

Sample no.	Context no.	Location	Material	Sample Justification	Initials	Date
BC001	001	Test Pit 1	Stone	Whetstone, 4kg	RJ	23/05/15
BC002	001	Test Pit 1	Stone	Hammer stone, 2.75kg	RJ	23/05/15
BC003	001	Test Pit 1	Wood	Wooden peg from close to back wall of cave	RJ	23/05/15
BC004	002	Test Pit	Stone	Sea-washed pebble, circular,	RJ	23/05/15

Sample no.	Context no.	Location	Material	Sample Justification	Initials	Date
		1		very smooth on one side		
BC005	002	Test Pit 1	Wood	Wooden peg from close to back wall of cave, for securing snare?	RJ	23/05/15
BC006	002	Test Pit 1	Iron	1 hook and an unidentified piece of iron	RJ	24/05/15
BC007	002	Test Pit 1	Stone	Quartz pebble, signs of having been used as hammer stone. 400g	RJ	24/05/15
BC008	002	Test Pit 1	Stone	Pebble. Anvil or stone tool	RJ	24/05/15
BC009	002	Test Pit 1	Bone	Butchered bone from bottom of BC002	RJ	24/05/15
BC010	004	Test Pit 1	Stone	Stone cobble flaked, possible cleaver	SB	24/05/15

6.2.8 Through & Through Cave NH 7495 5990 - NH 7497 5994

Through & Through Cave is the longest of the surveyed caves, running over 40m long N-S, and has 2 entrances at either end. At the north end, the passage opens into a wider chamber, given the name 'Graffiti Chamber' due to the number of signatures and dates on the walls, most about 100 years old. The floor at the southern end is sand-covered while the Graffiti Chamber floor is rock-covered. Three test pits were excavated in the cave (Figure 18)

Test Pit 1

Test Pit 1 was located in the Graffiti Chamber against the back west wall of the cave (Plate 11). It measured 1 x 2 metres, displayed well-stratified archaeological layers to a depth of 70cm at the bedrock (Figure 19). Below the upper layers of modern debris and talus material, a thick stone-filled soil layer [105] and a talus layer [106] sealed earlier horizons. The trench had a large boulder, against the east side of which several lenses of ash and charcoal had built up, some of which contained animal bone and shell. A fragment of sheep bone from context [109] and a sample of birch charcoal from context [112] were selected for radiocarbon dating.

Test Pit 2

Trench 2 was just outside the Graffiti Chamber, against the NE facing cliff wall (Plate 12). The trench contained scree and talus material and was abandoned at a depth of 70cm due to collapsing sides.

Test Pit 3

Test Pit 3 was laid across a clear spot at the centre of the cave, aimed to assess the nature of the cave floor at this point. Very minimal archaeological material was identified, other than a dish-shaped lens of compact soil [304] within a sand layer (Figure 19). The trench was abandoned at a depth of 50cm within a thick layer of coarse beach sand.



Plate 11: Location of Test Pit 1 in Graffiti chamber, Through & Through Cave



Plate 12: Location of Test Pit 2 in Graffiti chamber, Through & Through Cave

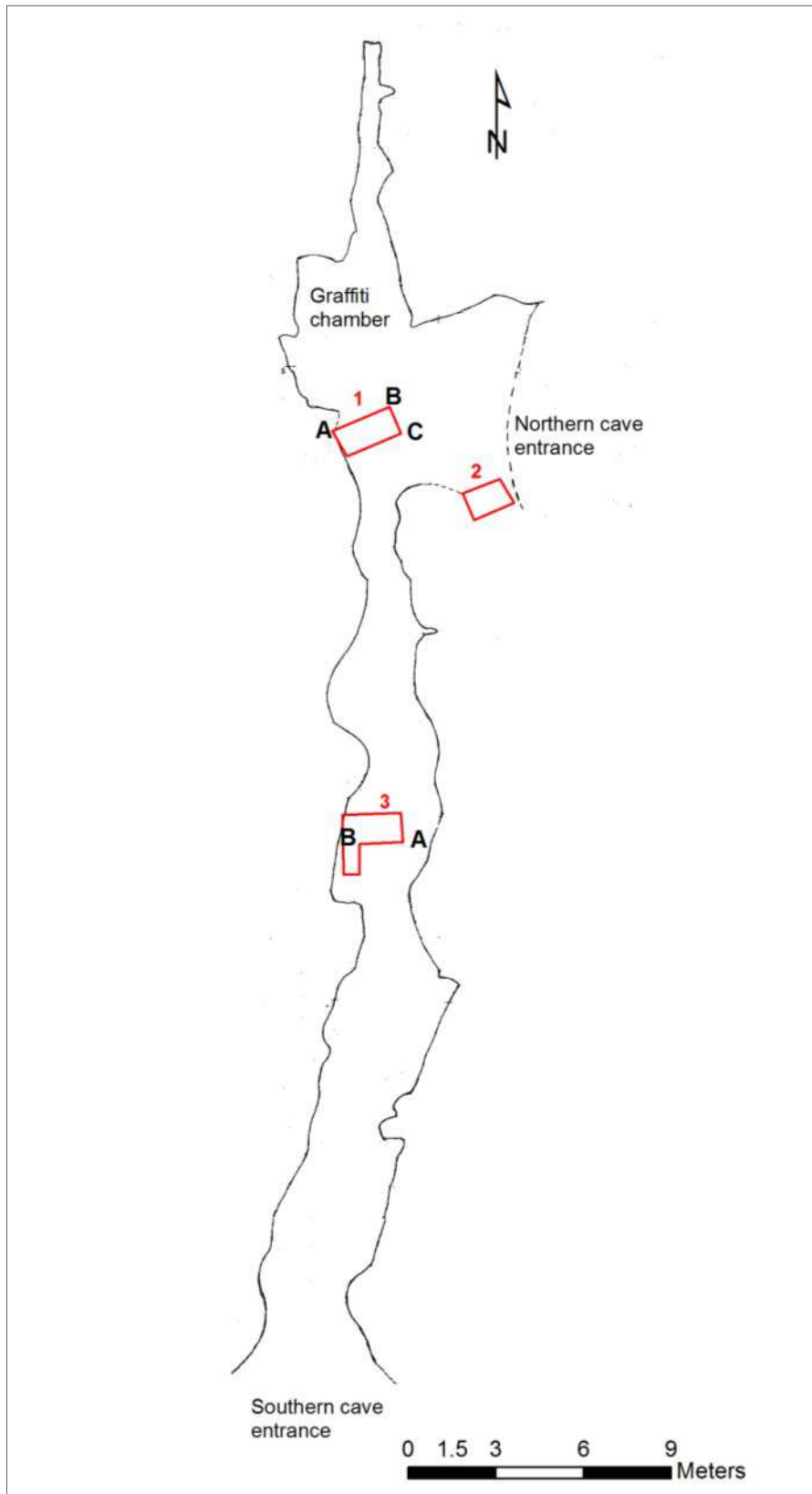


Figure 18: Location plan of Test Pits 1 - 3 in Through & Through Cave (scale at A4: 1:200)

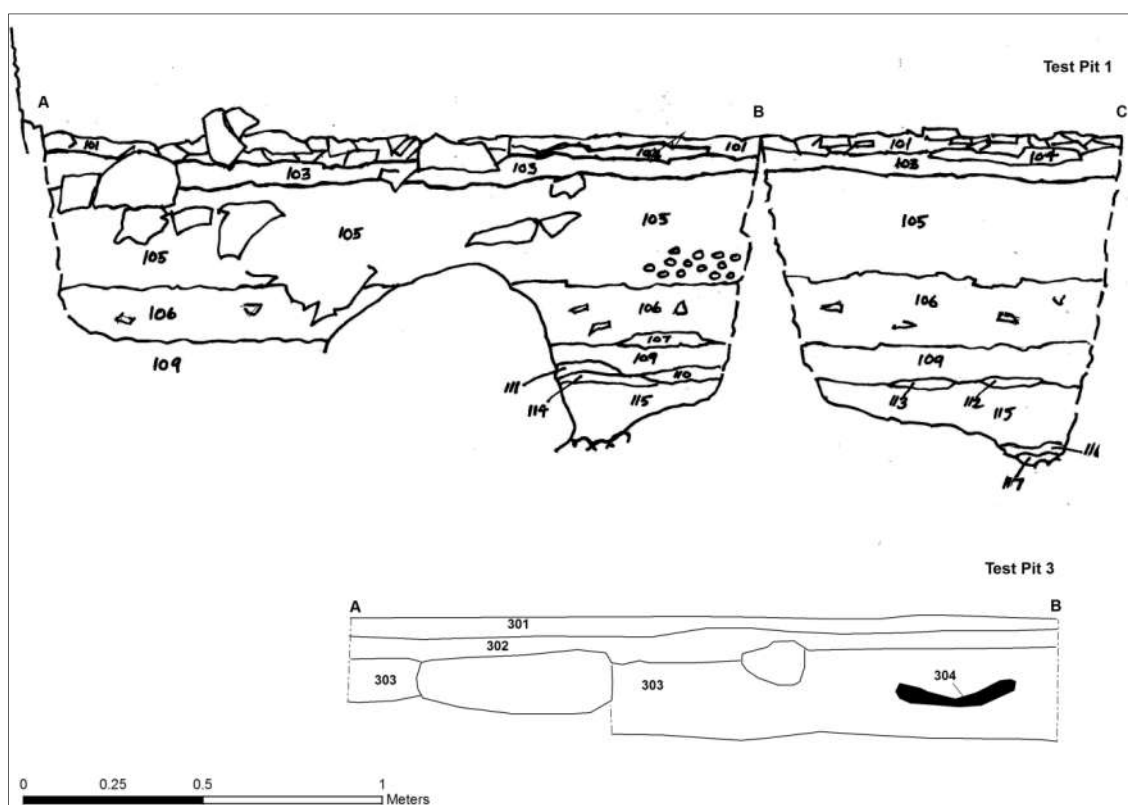


Figure 19: Test Pit 1 section (top) and Test Pit 3 section (bottom) from Through & Through Cave (scale at A4: 1:20)

Table 22: List of Contexts from Through & Through Cave

Context Number	Location	Type	Description
101	Test Pit 1	Surface deposit	Broken talus, pieces of psammite from 5mm-15mm, some reddish soil with organic material (as from fires) of recent activity
102	Test Pit 1	Lens	Compacted ash layer, 1 x 0.6 m, under 101, adjoining 103; modern campfire
103	Test Pit 1	Deposit	Compacted, red/brown sandy layer, no stones, few shells. 5 cm deep, at west end, close to wall of cave, almost like clay
104	Test Pit 1	Lens	Mid brown sandy soil with charcoal fragments, above 103, under 101
105	Test Pit 1	Deposit	Soils with roots and stones. 40cm deep
106	Test Pit 1	Deposit	Talus, very similar to (101) but more red/brown soil. Some shell, very few beach pebbles.
107	Test Pit 1	Lens	Thin soil lens between 106 and 109
109	Test Pit 1	Deposit	Coarse grained sand, some clay, shells
110	Test Pit 1	Lens	Charcoal, ash, animal bone and fish bones. 60cm form surface
111	Test Pit 1	Lens	Ash lens, containing burnt bone, charcoal, ash, 65cm form surface
112	Test Pit 1	Lens	Charcoal-rich silt deposit, 70cm from surface
113	Test Pit 1	Lens	Ash lens, 72cm from surface

Context Number	Location	Type	Description
114	Test Pit 1	Lens	Ash lens, 75cm from surface
115	Test Pit 1	Deposit	Pale brown clayey sediment, with frequent shells, mostly limpet
116	Test Pit 1	Deposit	Ash lens, 84-88cm from surface, within 115
117	Test Pit 1	Deposit	Ash lens, 90cm from surface
201	Test Pit 2	Surface deposit	Small pieces of talus and soil, with wood from nearby elder trees.
301	Test Pit 3	Deposit	Loose stones and grey sandy soil, 2cm depth
302	Test Pit 3	Deposit	Yellow/brown compacted sand in centre of passage, looser at sides
303	Test Pit 3	Deposit	Coarse, mid brown gritty sand with some shell
304	Test Pit 3	Deposit	Dark brown/black compacted loam – dish-shaped layer
305	Test Pit 3	Deposit	Within Context 303, a calcite layer at SW corner of trench. On top of 303, under 302
306	Test Pit 3	Lens	Dark, reddish brown patch within 303

Table 23: List of Samples from Through & Through Cave

Sample Number	Context Number	Location	Volume/weight	Sample Justification	Initials	Date
1	101	Test Pit 1	240g	Bones found in context	RJ	06/06/2015
2	104	Test Pit 1	3280g	Charcoal/burnt material	RJ	06/06/2015
3	302	Test Pit 3	80g	Bone and tooth	RJ	06/06/2015
4	201	Test Pit 2	50g	Bones	RJ	06/06/2015
5	104	Test Pit 1	370g	Mammal bones	RJ	06/06/2015
6	103	Test Pit 1		3 mammal bones	RJ	06/06/2015
7	304	Test Pit 3	660g	Organic layer	JG	06/06/2015
8	303	Test Pit 3	120g	Shells	RJ	06/06/2015
9	103	Test Pit 1		Charcoal from base of 101, top of 103	RJ	06/06/2015
10	305	Test Pit 3	440g	Calcite, projecting from cave wall	SG	07/06/2015
11	105	Test Pit 1		Shells	RJ	07/06/2015
12	106	Test Pit 1		Bones	RJ	07/06/2015

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Sample Number	Context Number	Location	Volume/weight	Sample Justification	Initials	Date
13	107	Test Pit 1		Black lens soil	RJ	07/06/2015
14	302	Test Pit 3	190g	Compacted sand	RW	07/06/2015
15	303	Test Pit 3	80g	Shells	RW	07/06/2015
16	301	Test Pit 3	20g	Organic remains	RW	07/06/2015
17	302	Test Pit 3		Charcoal	RW	07/06/2015
18	106	Test Pit 1		Bones at 55cm depth	RJ	07/06/2015
19	109	Test Pit 1	1460g	Darker section of 109	RJ	07/06/2015
20	109	Test Pit 1		Charcoal	RJ	07/06/2015
21	109	Test Pit 1		Bone (60cm depth)	JMcC	07/06/2015
22	110	Test Pit 1		Charcoal (60cm depth)	JMcC	07/06/2015
23	110	Test Pit 1	160g	Charcoal/bone partly burnt wood (60cm depth)	JMcC	07/06/2015
24	306	Test Pit 3	20g	Reddish brown lens (within 303)	JW	07/06/2015
25	110	Test Pit 1		Burnt bone (60cm depth)	JMcC	07/06/2015
26	110	Test Pit 1		Charcoal, 3 separate samples	JMcC	07/06/2015
27	111	Test Pit 1		Burnt bone	JMcC	07/06/2015
28	111	Test Pit 1		Charcoal	JMcC	07/06/2015
29	111	Test Pit 1	170g	Sample ash/charcoal/burnt bone from lens	JMcC	07/06/2015
30	111	Test Pit 1	170g	Burnt stone with charcoal attached	JMcC	07/06/2015
31	112	Test Pit 1	670g	Ash from possible hearth	JMcC	07/06/2015
32	112	Test Pit 1		Charcoal	JMcC	07/06/2015
33	112	Test Pit 1		Burnt bone	JMcC	07/06/2015
34	113	Test Pit 1	1860g	Ash/burnt shells/charcoal, (72 cm depth)	JMcC	07/06/2015
35	113	Test Pit 1		Charcoal (72 cm depth)	JMcC	07/06/2015
36	109	Test Pit 1		Charcoal (68 cm depth)	JMcC	07/06/2015
37	114	Test Pit 1		Charcoal and burnt material	JMcC	07/06/2015
38	116	Test Pit 1		Charcoal (depth 88cm depth)	JMcC	07/06/2015
39	116	Test Pit 1		Sample of lens 116	JMcC	07/06/2015
40	114	Test Pit 1	2100g	Sample of lens 114	JMcC	07/06/2015
41	106	Test Pit 1	200g	Shells	JMcC	07/06/2015
42	109	Test Pit 1	200g	Shells	RJ	07/06/2015

Sample Number	Context Number	Location	Volume/weight	Sample Justification	Initials	Date
43	115	Test Pit 1		Charcoal	JMcC	07/06/2015
44	109	Test Pit 1		Bone	RJ	07/06/2015
45	106	Test Pit 1	600g	2 beach pebbles	RJ	07/06/2015
46	106	Test Pit 1	20g	Bones	RJ	07/06/2015
47	303	Test Pit 3		Bones	JW	07/06/2015
48	304	Test Pit 3		Charcoal	JG	06/06/2015

Table 24: List of Finds from Through & Through Cave

SF No.	Context number	Material	Location	Description	Approx dating	Initials	Date
002	103	Ceramic	Test Pit 1	4 pieces of stoneware	Victorian	RJ	N/A
003	103	Stone	Test Pit 1	Large pebble, tool?	Unknown	RJ	N/A
005	106	Bone	Test Pit 1	Worked bone, possible hook?		JMcC	N/A
006	106	Stone	Test Pit 1	Possible tool		RJ	N/A
007	109	Bone	Test Pit 1	Pointed bone for piercing?		RJ	N/A
008	109	Bone	Test Pit 1	Pointed bone for piercing?		RJ	N/A

7 Discussion

7.1 The survey of the Rosemarkie caves was a valuable step in understanding the nature and condition of the caves. It provided an opportunity to create baseline records of the sites ahead of evaluation, while compiling field notes to assist with site selection. The survey results directly informed the selection of caves evaluated during test pitting.

7.2 The test pit evaluation phase took place in Ivy Cave, Learnie 1B, Learnie 2B, Learnie 3B, Learnie 3C, Broad Cave, Three Peaks Cave and Through & Through Cave. The results of the fieldwork showed how significantly the test pit results varied. There were several surprising results, whilst significantly consistent results also arose out of the evaluation. In particular, recovery of the carved stone from Ivy Cave has proven to be an enigmatic find. The project team has yet to find a comparative parallel for it.

7.3 Samples of animal bone and charcoal were selected from stratigraphically secure layers in seven of the caves. The results form part of a growing set of dates for the occupation and use of the caves (Table 25). The hugely important set of dates from the Learnie group of caves (1B, 2B and 3B) has established that occupation of these caves took place during the early medieval or Pictish period. Earlier Iron Age dates arose from material in Learnie 3C and Three Peaks Cave. Samples of possible Pictish period and medieval period dates were also found in Broad Cave and Through & Through Cave as well as a sample of a medieval date in Learnie 3C. Combined with the Iron Age and Pictish period results of the Caird's Cave excavation and probable medieval pottery from Learnie 3B, there is good evidence to show that these caves were being occupied consistently at least from the Iron Age through to the medieval period, based on the dating of the lower archaeological horizons encountered in test pits. Furthermore, Broad Cave and Through & Through Cave also produced material that provided late medieval dates.

7.4 The presence of 19th/20th century occupation associated with travellers or 'gypsies', was another consistent result that arose from the evaluation and survey of the caves. In particular, Ivy Cave and the Learnie Caves contained significant occupation material from this phase of use. The presence of leather off-cuts from shoe manufacture/repair was also found to be widespread. This information may still have a story to tell about the itinerant occupants.

7.5 Learnie 2B has proven to be a particularly interesting cave, with the presence of well-built mortared walls overlying earlier material. The walls were well-constructed at the cave entrance, indicating a purposeful use of the cave. The presence of probable medieval pottery combined with the Pictish period dates indicates that substantial archaeological remains may survive within this cave. There is a growing interest in these early inhabitants, with nearby Rosemarkie the probable site of a Pictish monastery and Portmahomack also established as an important Pictish centre. The results from the caves near Rosemarkie have added to the archaeological information of this period.

7.6 The 2015 season of the Rosemarkie Caves Project has highlighted the presence of good surviving archaeological deposits in all of the caves that were subject to test pitting, with scope for further excavation in many of the caves. Further analysis is also recommended on the samples and finds recovered during the evaluation, in order to provide a greater understanding of the fieldwork results and to assist in detailed analysis of the findings.

Table 25: Radiocarbon determinations from the 2012-2015 Test Pitting

Cave	Test Pit No.	Sample or Find No.	Context No.	Description	Uncal (BP)	Calibrated 1-sigma (68.2%)	Calibrated 2-sigma (95.4%)
Learnie 1B	T1	7	112	Charcoal from 100cm deep at base of charcoally ash layer over natural	1177±32	777-889 AD	769-965 AD
Learnie 1B	T1	16	111	Animal bone sample from deposit rich in animal bone, 90cm deep	1225±32	720-870 AD	689-886 AD
Learnie 2B	T1	53	108	Animal bone from base of deposit at 110cm deep	1372±32	640-672 AD	604-757 AD
Learnie 2B	T2	13	210	Charcoal at 105cm deep from base of context, transition to underlying Context 211	1299±32	669-764 AD	660-770 AD
Learnie 2B	T2	54	210	Animal bone from 100cm deep in context	1337±32	651-769 AD	645-767 AD
Learnie 3B	T1	14	110	Charcoal from 110cm deep in context	1419±32	611-652 AD	579-662 AD
Learnie 3B	T1	94	107	Animal bone from deposit underlying hearth C106	901±32	1046-1185 AD	1038-1210 AD
Learnie 3C	T2	32	204	Charcoal from 100cm deep in context	1810±32	139-242 AD	126-325 AD
Learnie 3C	T2	56	204	Butchered animal bone from 100cm deep in context	FAILED - INSUFFICIENT CARBON		
Learnie 3C	T2	107	203	Animal bone	1795±30	143-318 AD	132-328 AD
Three Peaks Cave	Test Pit 1	Sample no. 006	006	Hazel roundwood charcoal	1839±31	133-217 AD	85-243 AD
Broad Cave	Test Pit 1	Sample no. 007	005	Mammal mandible ramus	330±31	1495-1635 AD	1476-1643 AD
Broad Cave	Test Pit 1	Sample no. 011	006	Elm roundwood charcoal	302±31	1522-1646 AD	1488-1654 AD
Broad Cave	Test Pit 1	Sample no. 019	007	Elm charcoal (single entity)	1069±31	905-1017 AD	895-1022 AD

Cave	Test Pit No.	Sample or Find No.	Context No.	Description	Uncal (BP)	Calibrated 1-sigma (68.2%)	Calibrated 2-sigma (95.4%)
Broad Cave	Test Pit 1	Sample no. 020	007	Mammal mandible: sheep/goat	856±32	1159-1221 AD	1049-1259 AD
Through & Through Cave	Test Pit 1	Sample no. 032	112	Birch charcoal (single entity)	908±31	1045-1165 AD	1035-1205 AD
Through & Through Cave	Test Pit 1	Sample no. 044	109	Mammal mandible ramus: sheep	511±31	1409-1435 AD	1327-1445 AD

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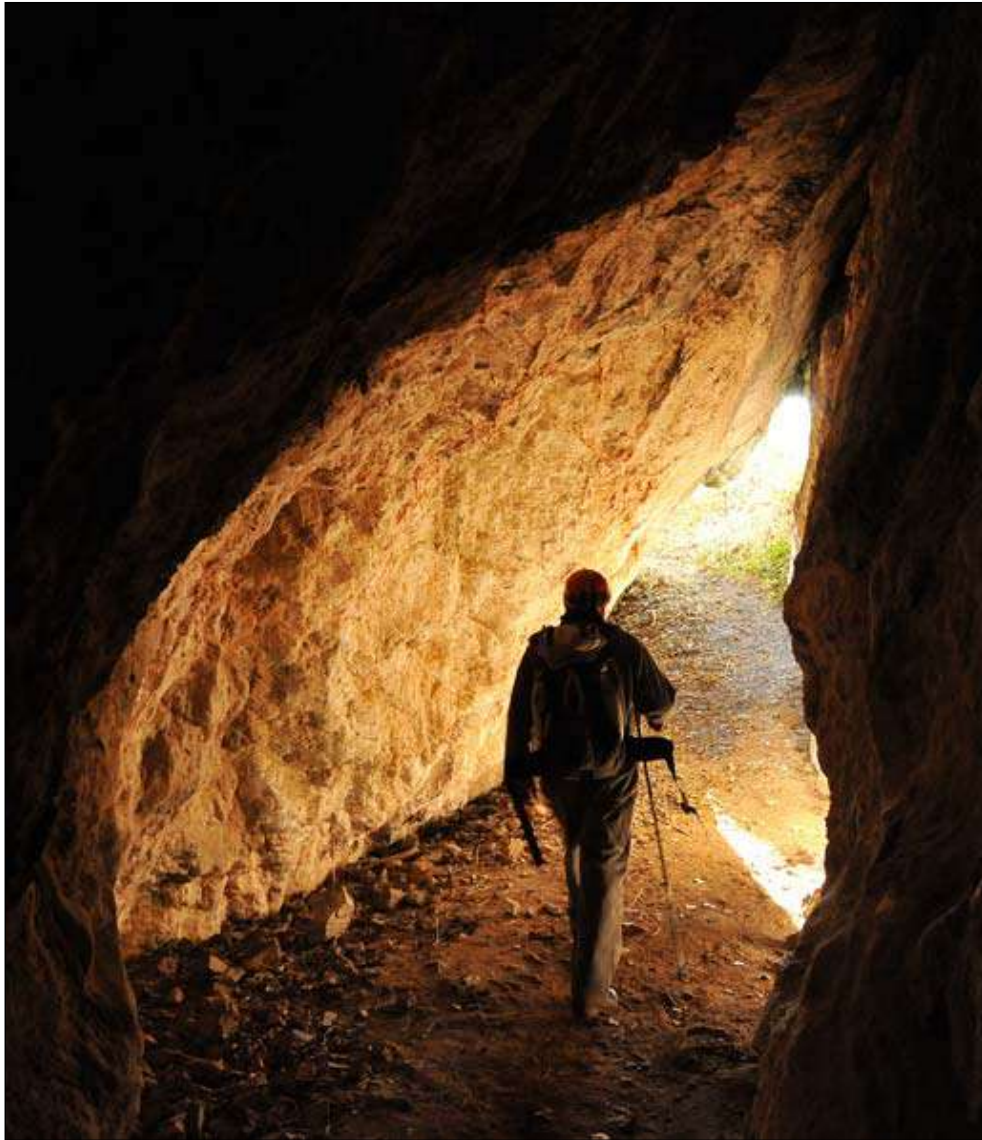


Plate 13: Leaving Through & Through Cave

Appendix 1 Rosemarkie Caves Survey 2011 - 2012

Rosemarkie Caves Survey 2011/12

Robert Jones and Simon Gunn

Following the excavation of Cairds' Cave in June 2010 by the Rosemarkie Caves Project and the North of Scotland Archaeological Society, the cliffs along the coast northwards from Rosemarkie have been explored and a total of nineteen caves (and one possible, filled cave) identified and surveyed. The primary purpose was to indicate which caves might be investigated further by digging test pits and having any finds analysed and dated, this could then lead on to more extensive excavation of selected caves in future. A secondary reason for the survey was to look at each cave closely, check for finds and get a feeling for which caves might have been used or inhabited in the past.

The following is a description from **John Merritt's *British Geological Survey***:

The cliffs are mainly cut into the 'Rosemarkie Metamorphic Complex', which as the name implies, is formed of a complex and enigmatic package of metamorphic and igneous rocks, including psammite and gneiss. The structure of the rocks is also complex, including tight folds and fault zones, which may have been exploited locally by the sea in forming the caves.

Sea reached its maximum post glacial level some 7,100- 5,775 years ago, when the main Post-glacial Raised Shoreline was formed together with its associated cliffs, sea stacks and caves. This shoreline falls gently north-eastwards from about 7.5 m OD at Rosemarkie to about 5.5 m OD at Eathie. The tilt is due to differential glacio-isostatic uplift that has occurred since the shoreline was formed. These quoted elevations for the raised shoreline represent averages, so at high tides and during storms the sea would have been several metres higher. Many of the caves may be associated with this prominent shoreline feature and the cliff line backing it. Those at lower elevations may have formed either during the earlier post-glacial rise in relative sea level, or during the subsequent fall to present level. However, many of the caves probably have a complex history spanning several sea-level high-stands. For example, relative sea level stood at about 25 m above OD for a time immediately following deglaciation of the region, about 15,000-14,700 years ago, before rapidly falling.

The caves are generally 5 to 8m above high water level (7- 10m OD) and, although conditions vary, many of them are sufficiently dry and of adequate dimensions to be attractive shelters or even temporary residences. Having been formed by sea action, they have floors which slope gently downwards from the rear of the cave to the entrance. The floors are covered in sea washed cobbles. Most of the caves have a talus mound which has resulted from rock fall from the psammite cliff face at the entrances. These mounds extend into the caves to produce the typical cross section shown in Three Peaks Cave, Figure 1.

The result is that there are potentially deposits 1 to 2m in depth which may be covering archaeological evidence. (In Cairds' Cave charcoal and bone deposits were found buried in a similar entrance talus mound)

The system used to survey the caves was the tape-and-offset method. A measuring tape was laid on the floor along the length of each cave and distances to the walls were measured at one metre intervals along the length of the tape. As well as a tape measure, a Leica Disto laser meter was employed. After a floor plan was measured, a longitudinal section of the cave was drawn, followed by one or two sections across the cave. The Disto was an invaluable tool for this, as the ceiling was up to 5 metres above the floor in some caves.

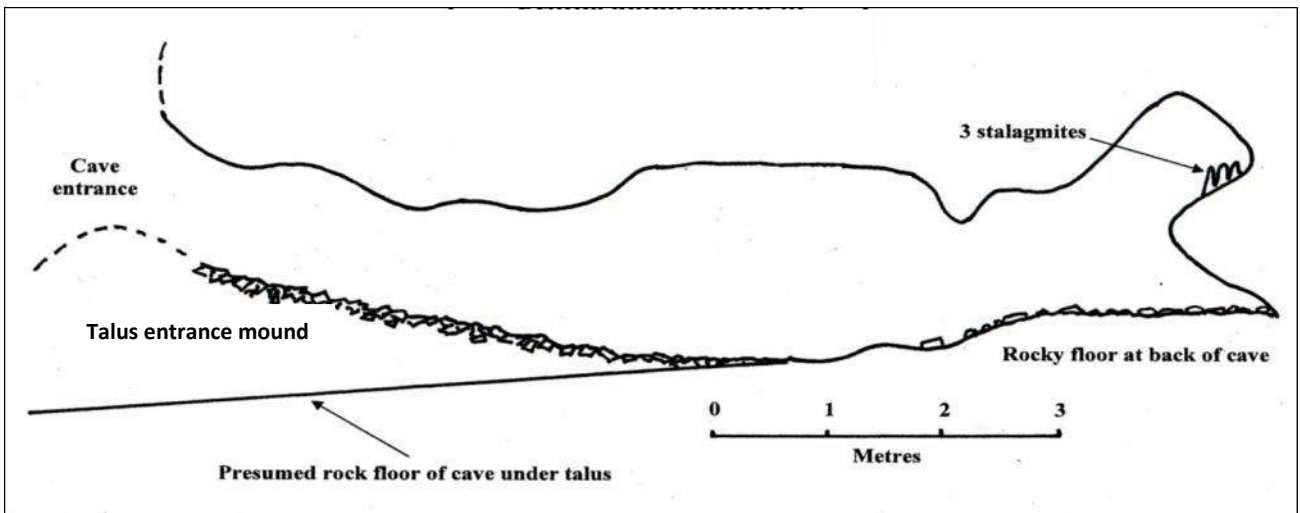


Figure 20: Profile along the length of 3 Peaks Cave

Where the floor of the cave sloped downwards from the entrance, the lengthways tape was secured to a horizontal string and the sections were measured above and below the string. Many of the caves have a rampart of talus at the entrance, which necessitates descending to the interior. It is then quite usual for the floor to slope upwards towards the back. We found that while the floor near the entrance was often composed mostly of talus, rounded beach pebbles were at the back of the cave, presumably deposited there by the sea when the cave was formed. If there was a level area in the middle of the floor, it implied that the cave may have been cleared and then used, either by people or animals. This was often covered with sand, guano or dried vegetable or plant matter.

The rise and fall of the tide in the Moray Firth is 4 metres. Halfway between high and low spring tides is Ordnance Datum (OD). The high tide mark, highest line of seaweed on the beach is approximately 2 metres above OD, so we set our altimeters at that to get heights within the caves. The exception to this is in Cairds' cave, the height of which was found by surveying back from a benchmark on the bridge in Rosemarkie.

Calcite formations are typically a feature of caves in limestone, whereas the cliffs and crags in which our caves have been formed is composed of psammite, a metamorphosed sandstone. However, rainwater descending through the rock above the caves has dissolved enough calcium to produce small amounts of flowstone, stalagmites and stalactites in some of the caves.



Plate 14: Inside Through & Through Cave



Plate 15: Location of Sea Cave

THE CAVES

Cairds' Cave NH745 595 Diagrams can be found in *Excavations at Caird's Cave, Rosemarkie, 2010: Data Structure Report* (Anderson-Whymark, 2011)

This shallow cave was excavated by the Rosemarkie Caves Project in June 2010. The mouth of the cave is 9 metres wide, 9 metres deep and has a ceiling height of 5.5 metres. The floor of the cave slopes but the lowest point is 8 metres OD. The floor was found to be composed of rock, sand, charcoal and shells. Samples of bone and charcoal were taken from a trench at the entrance of the cave and found to date back to the Iron Age. There are some shells stuck to the north wall inside the cave, which show that the floor has been lowered, probably in 1907-12 during Dr William MacLean's excavation.

The Second Cave NH746596 Drawings RCO/SC/1 and RCP/SC/2

This cave is 24 metres long. It is quite wet and drippy, and judging by the calcite flow on the walls, has been so for a while. The floor of the cave is also only 5 metres OD and by the shore. For these reasons, and as nothing was found, it is thought that this cave is unlikely to have been used much in the recent past.

Through and Through Cave NH7495 599 to NH7497 5994 Drawings RCP/TTC/1,2,4

At over 40 metres, this is the longest cave and has 2 entrances which are each side of a headland, making the cave a tunnel. The tunnel starts at the south entrance and continues almost due north for 40m. Between 24 and 32 metres is the Graffiti Chamber, where there is another entrance, facing east. There are a number of graffiti signatures and dates on the walls, most about 100 years old. The floor at the southern end is sand down about 5cm, the Graffiti Chamber and the northern passage is rocky. The cave has been formed in a fault line, which gives it a high ceiling in parts. The cave is dry and could well have been used in the past. Floor level in south tunnel, 6 metres OD, 7 metres on floor of Graffiti Chamber, east entrance.

Crescent Cave NH750 600 Drawings RCP/CRC/1,2

An uncomfortable cave with a low ceiling and mostly talus floor. In several places water appears to drip all year. Some animal bones found. Two objects found at the entrance, a possible hammer stone and a shard of red earthenware pottery. 8 metres OD at entrance.

Ivy Cave NH751 601 Drawings RCP/IC/1,2,3,4

One of the few caves in the group with definite evidence of use. The cave has an ivy-covered "patio" outside the cave entrance. The cave passage then slopes downwards for 9 metres after which the floor slopes gradually uphill. This low point has a small pool of water in wet weather, otherwise the cave is mostly dry. This is where an engraved slab of sandstone was found and nearby is a rocky midden with several 19th century leather shoes. There are also the shattered remains of old wine or beer bottles and a piece of a white stoneware jar was found. 8 metres OD at cave entrance.

Gooseberry Cave NH752 602 Drawings RCP/GC/1

One of the smallest caves of the group, it is only 4 metres in length. Entering this cave involves an uncomfortable crawl, with sharp talus on the floor. Outside the cave, the rock contains large cracks. As there are also large blocks of stone lying outside the entrance, the cave may have been much bigger in the past and subsequently collapsed. Rock appears unstable, a place to avoid. No evidence of human usage. 7.5 metres OD at entrance.

Learnie 1A NH756 608 Drawing RCP/1A,B

An adjunct to Learnie 1B, this cave is 9 metres deep and nearly 6.5 metres across. The floor is mostly rocky and contains 2 possible caches or middens which were found against the base of the north wall. The base of a white china bowl was found in the cave. Cave mouth 5 metres OD.

Learnie 1B NH756 607 Drawing RCP/1A,B

The biggest of the 19 caves with an entrance 7 metres across, the cave goes back for 21 metres and has a ceiling height of 5 metres, the floor is at 5 metres OD. At its widest, the interior is 10 metres across. The back of the cave splits into 2 tunnels. The floor is flat with a large ridge of pigeon guano, 9 by 2.5 metres and 0.5

metre high. Against the south wall, just inside the entrance, is a pile of stones. On close examination this has larger stones at the back made into a kind of wall, it is thought that this might be a cache or midden.

Learnie 1C NH757 608

Drawing RCP/1C/L

Pleasant little cave, with a pillar of rock inside. Rocky floor slopes down into the cave and then up again. One piece of white stoneware pottery found inside. Entrance 6 metres OD.

Learnie 2A NH 75666075

Drawing RCP/2ABC/L

Barely a cave, more of a rocky crevice. Accessible but too small to have been of much use.

Learnie 2B NH 75666075

Drawing RCP/2ABC/L

A large cave that was partially excavated in August 2006. Floor fairly flat, composed of sand and rocks. On digging a sondage in the centre of the floor, it was found to be composed of layers of cow dung. The cave has the remains of a thick wall at the entrance, with a doorway in the middle. A small shell midden was found just outside this wall at a depth of 1 metre. In the floor of the cave were found various animal bones including the cranium of a common seal, periwinkle shells and pieces of cut leather and a small girl's shoe (about 100 years old). 5 metres OD at entrance.

Learnie 2C NH 75666075

Drawing RCP/2ABC/L

11 meters long with a flat floor. There are signs of a large fire being made in the cave at some stage, probably modern. Small child's shoe found and removed for preservation. 5.5 metres OD at entrance.

Learnie 3A NH759609

Drawing RCP/3A/L

Dry cave with rocky floor. Walls of entrance smoothed by wave action, one area on north wall is polished, though passage is quite broad here. There is a steep rampart of talus in front of these 3 caves. Entrance 8 metres OD.

Learnie 3B NH757609

Drawing RCP/LBC/3

T-shaped cave with crumbly, compost-like floor. Two pieces of dry horse dung(?) on floor. Small horse foot bone (hoof) found as well as sawn bone, possibly scapular. Short south passage 4-5 m long, northern passage climbs to a chock stone, below which there is a shaft down to Learnie 3C. Entrance 9 metres OD

Learnie 3C NH759608

Drawing RCP/LBC/3

Cave dry, but looks as though it may have been wet at some time. The clay floor is smooth (possibly flooded for a period in the past?) with drip holes. Has blind passage at north side, several animal bones found, including part of cow mandible. South side of cave has a tight shaft leading to Learnie 3B. Entrance 8 metres OD.

Sea Cave NH764614

Drawing RCP/SC

Small, dry cave with a sandy floor. Cave would be usable in summer, but not winter, as it is just 1 metre above the beach. There is a niche in the roof of the cave with the remains of a bird's nest. A length of 3" angle iron has been placed across the niche at some time in the past.

Broad Cave NH764614

Drawings RCP/BC/1, RCP/BC/2

Situated just above the beach, this cave is different from the others, as it is really a rock shelter. However, it is well sheltered and has the remains of a hearth in the centre of the floor, with a possible shell midden nearby. Although close to the beach, the outer rampart is 5 metres above it, making it 7 metres OD. The floor is 5.5 metres OD.

Rat Hole NH764615

(No drawing).

At the base of a seaward-facing cliff, this is not a cave as such, but a hole that is filled with talus. Some stones were removed from the hole, which appeared to go back and downwards. There may be a cave here which is completely filled with talus (at the entrance anyway), but it would be a mining job to excavate properly, so this possibility was left as it was. Entrance faces NE, height at entrance 7.5 metres OD.

3 Peaks Cave NH765615

Drawing RCP/3PC/1

Named after 3 small stalagmites at the back of the cave, the entrance is 9 metres OD and is quite well hidden behind some trees. It has a smooth floor which looks as though it has been cleared in parts, one area on the south side has a leaf mould (bracken?) composition. Some uncut bones found on floor, also 2 whelks.

Cranesbill Cave NH766617

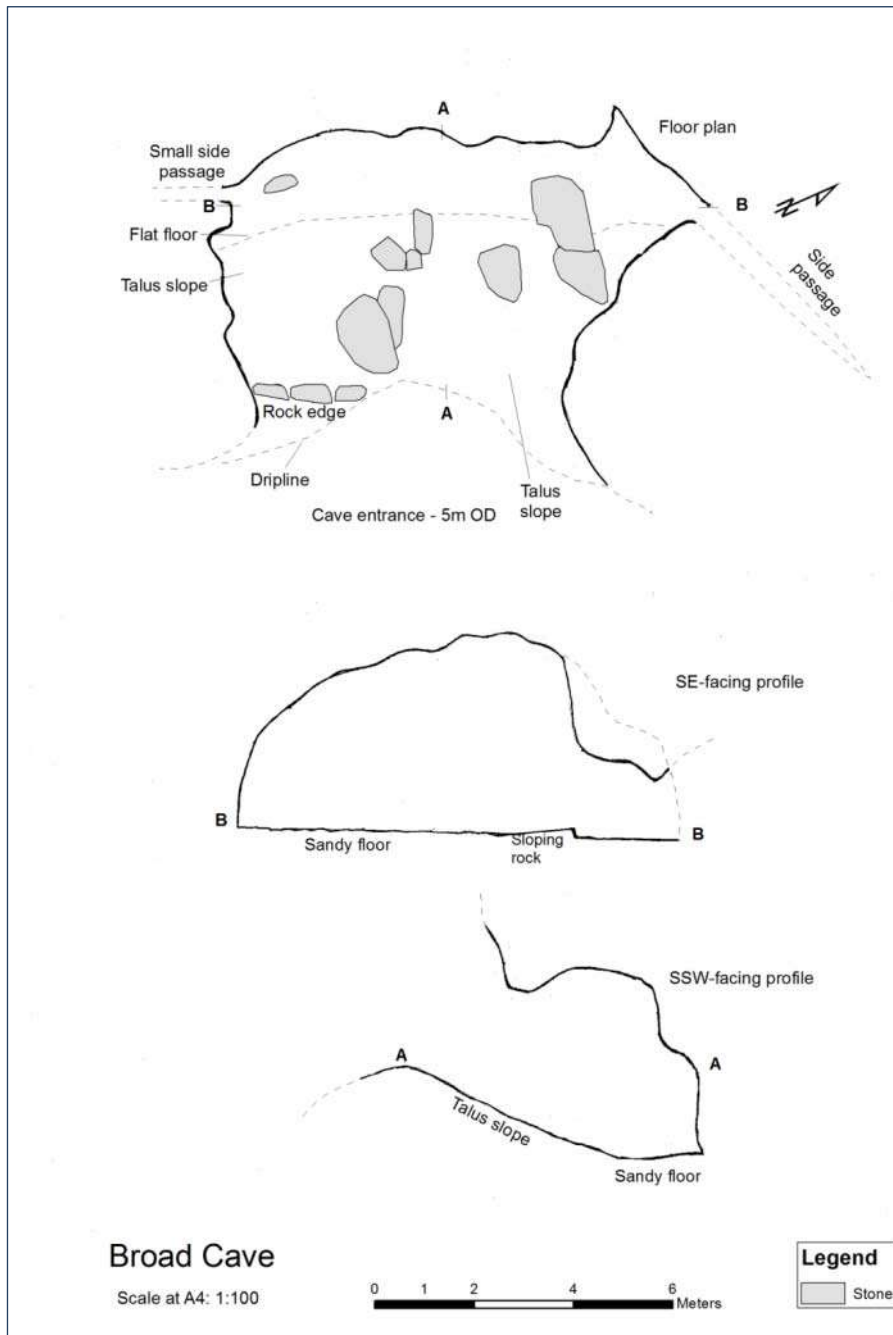
Drawings RCP/CBC/1, RCP/CBC/2

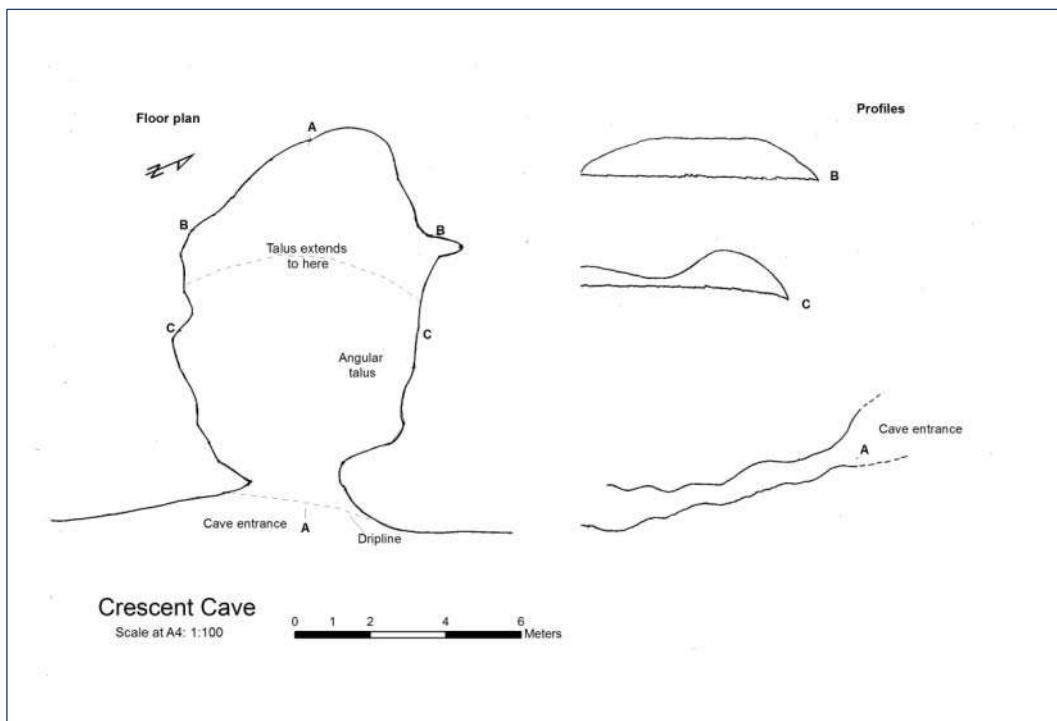
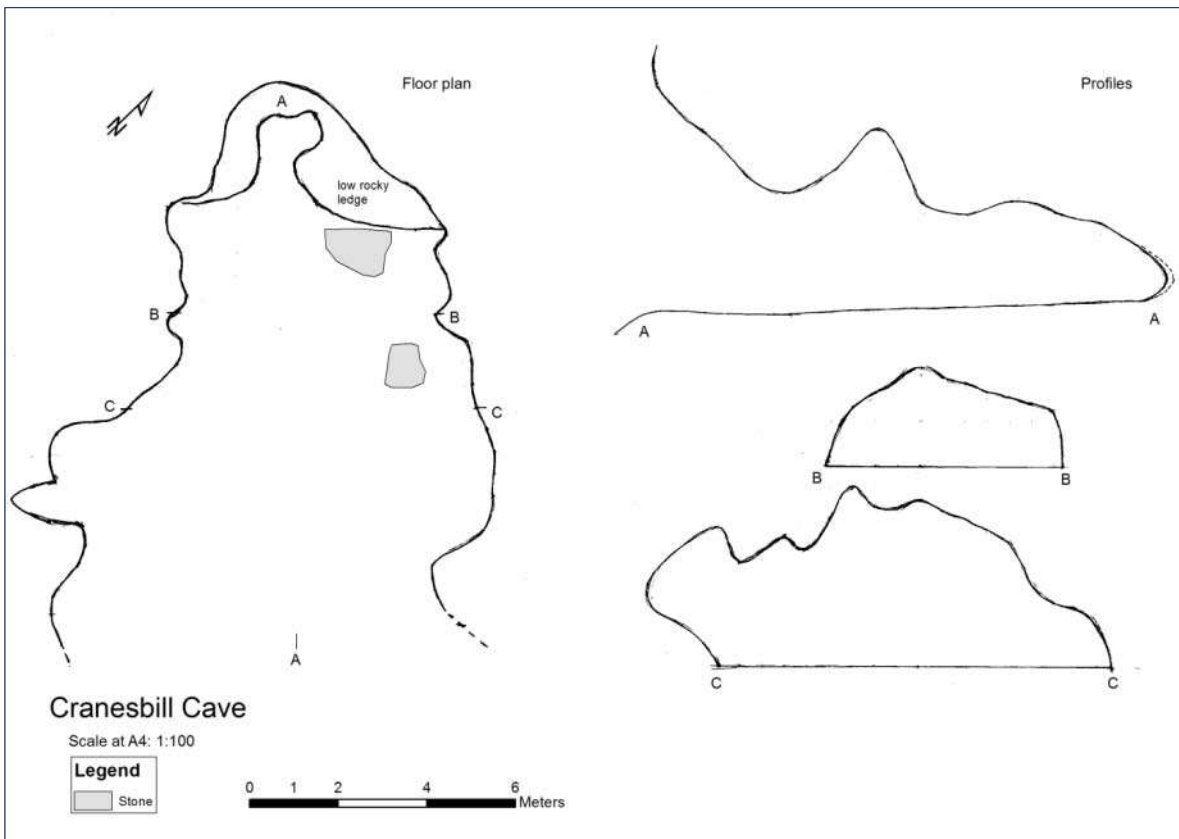
At 3 metres OD, this is only just above the beach. Cave is damp and drippy even in summer, but has some burnt wood, bones and shells on the floor.

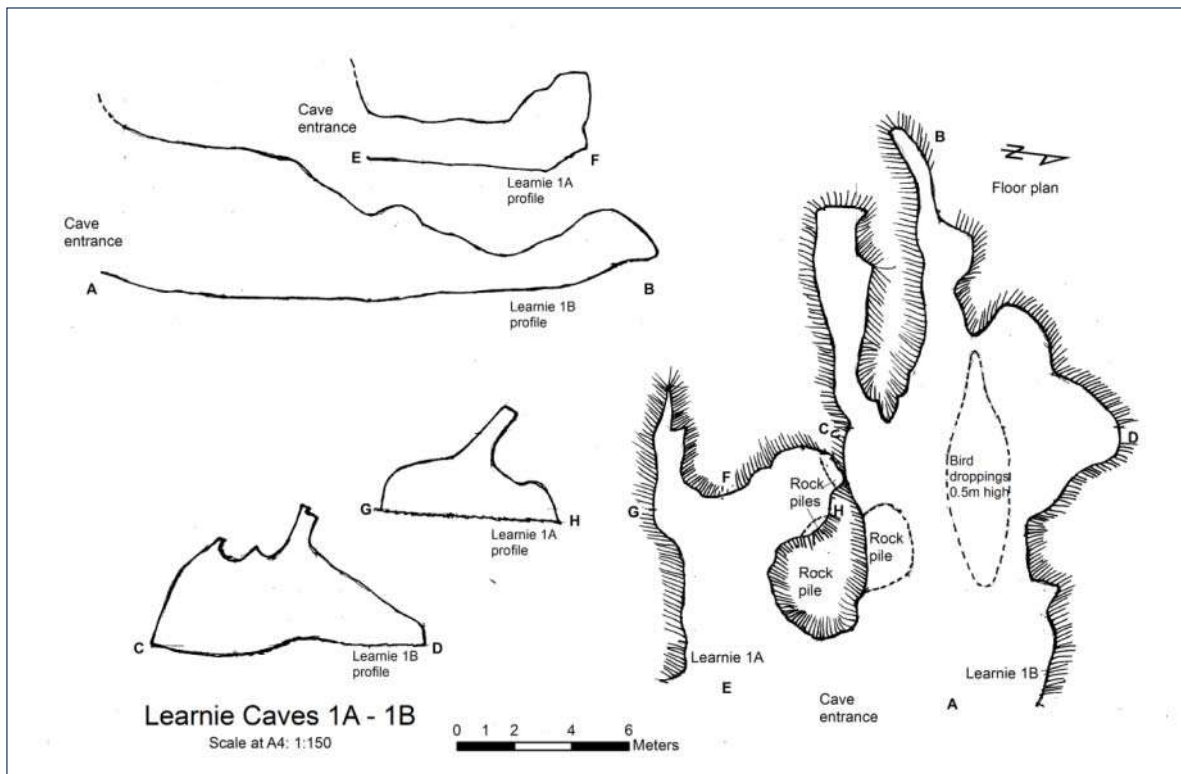
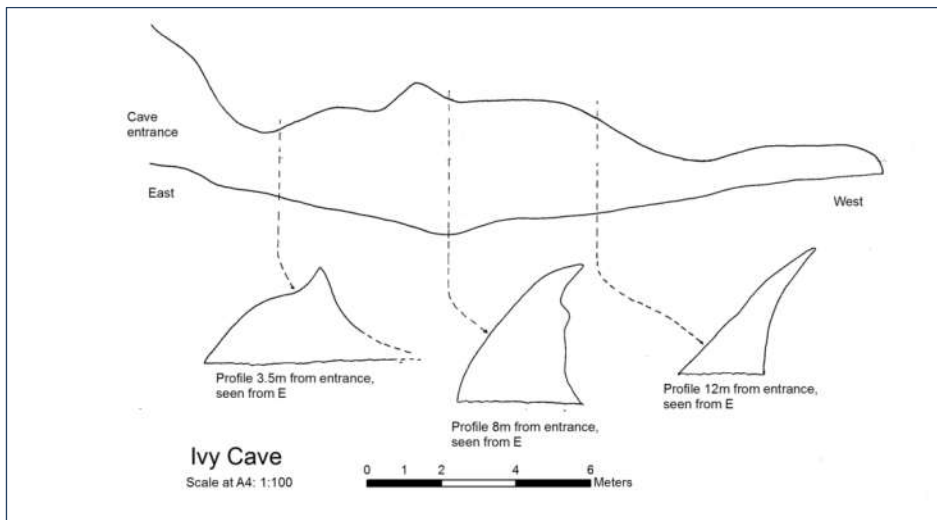
Table 26: Description of cave contents

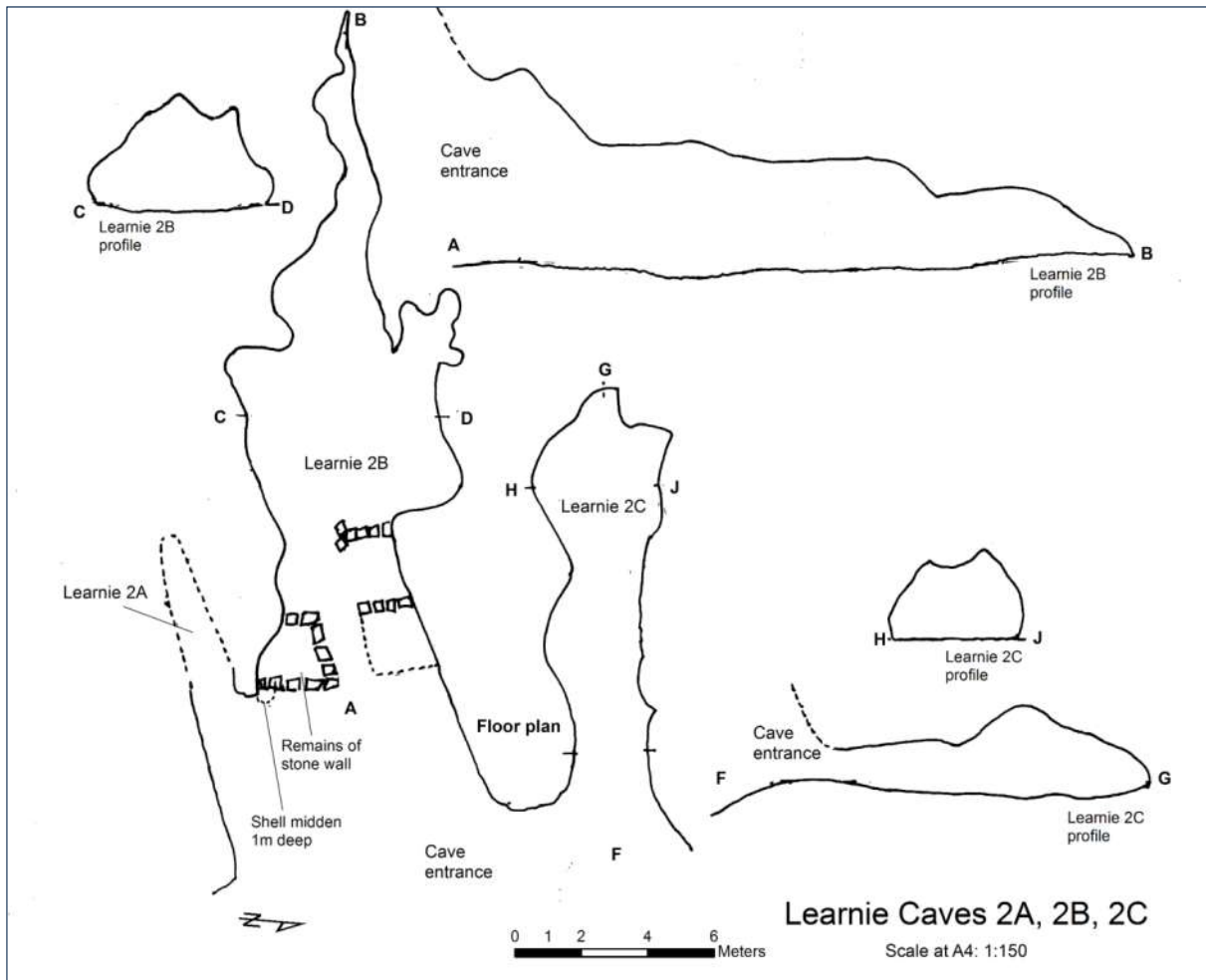
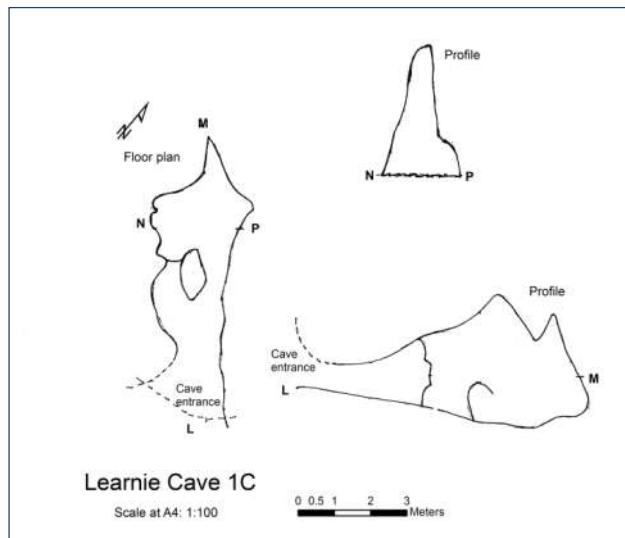
Cave	Height OD entrance (m)	Height OD floor (m)	Human Usage?	Surface Finds
Cairds' Cave	8	8	Yes	Worked bone, shells, charcoal
Second Cave	5	5	---	
Through & Through Cave	8@south entrance, 7 @ east entrance	South floor 6 east floor 7	Yes	
Crescent Cave	8	---	---	Victorian pottery, possible hammer stone
Ivy Cave	8	---	Yes	Leather shoes, Victorian pottery, engraved stone
Gooseberry	7.5	---	---	
Learnie 1A	5	5	Yes	Victorian pottery, possible middens
Learnie 1B	5	5	Yes	Victorian pottery, possible middens
Learnie 1C	6	5	Yes	Victorian pottery
Learnie 2A	5	---	---	
Learnie 2B	5	5	Yes	Bones, shells
Learnie 2C	5.5	5.5	Yes	Small leather shoe
Learnie 3A	8	7.5	Possible	
Learnie 3B	9	7.5	Yes	Cut bone
Learnie 3C	8	7.5	Yes	Large animal bones
Sea Cave	3	3	Yes	Placed angle iron
Broad Cave	7	5.5	Yes	Shells
Rat Hole	7.5	---	---	
3 Peaks Cave	9	---	Probable	Bones, shells
Cranesbill Cave	3	3	Yes	Bones, shells

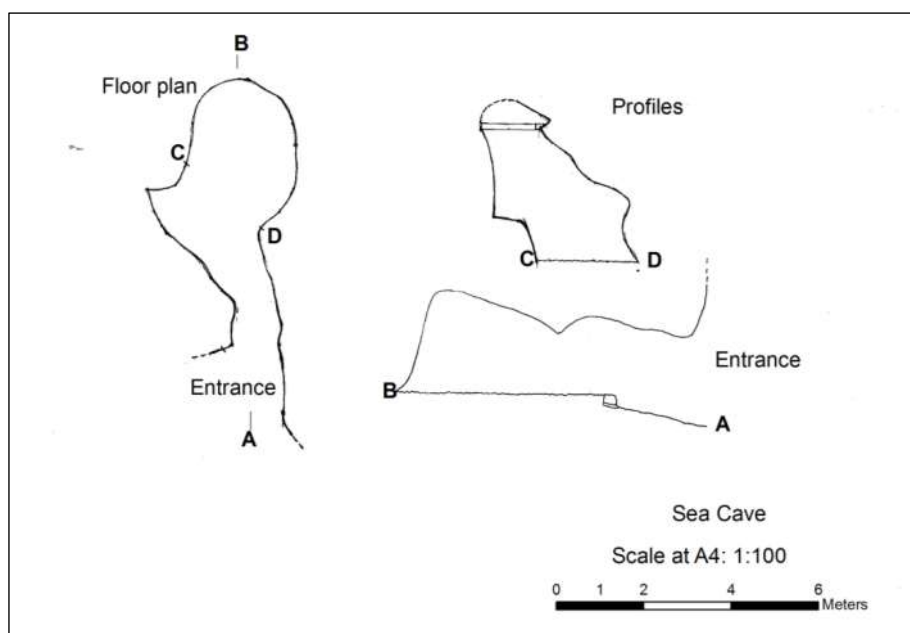
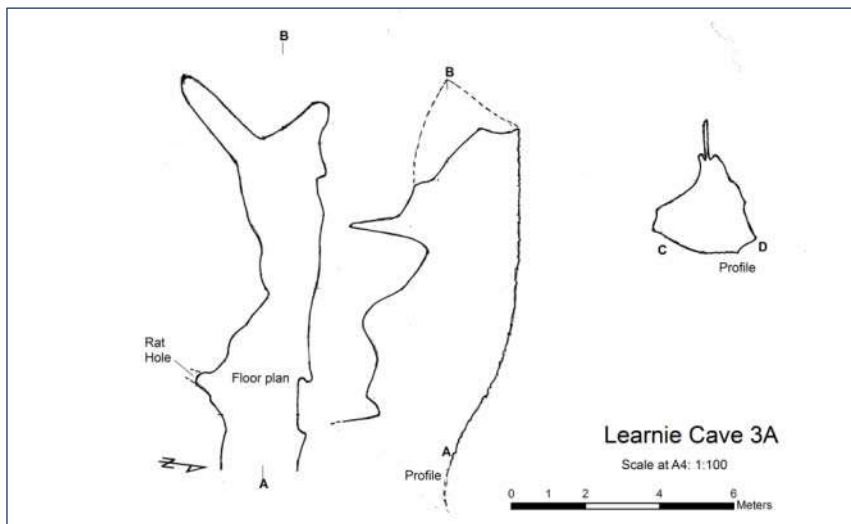
Appendix 2 Rosemarkie Caves: Survey Plans

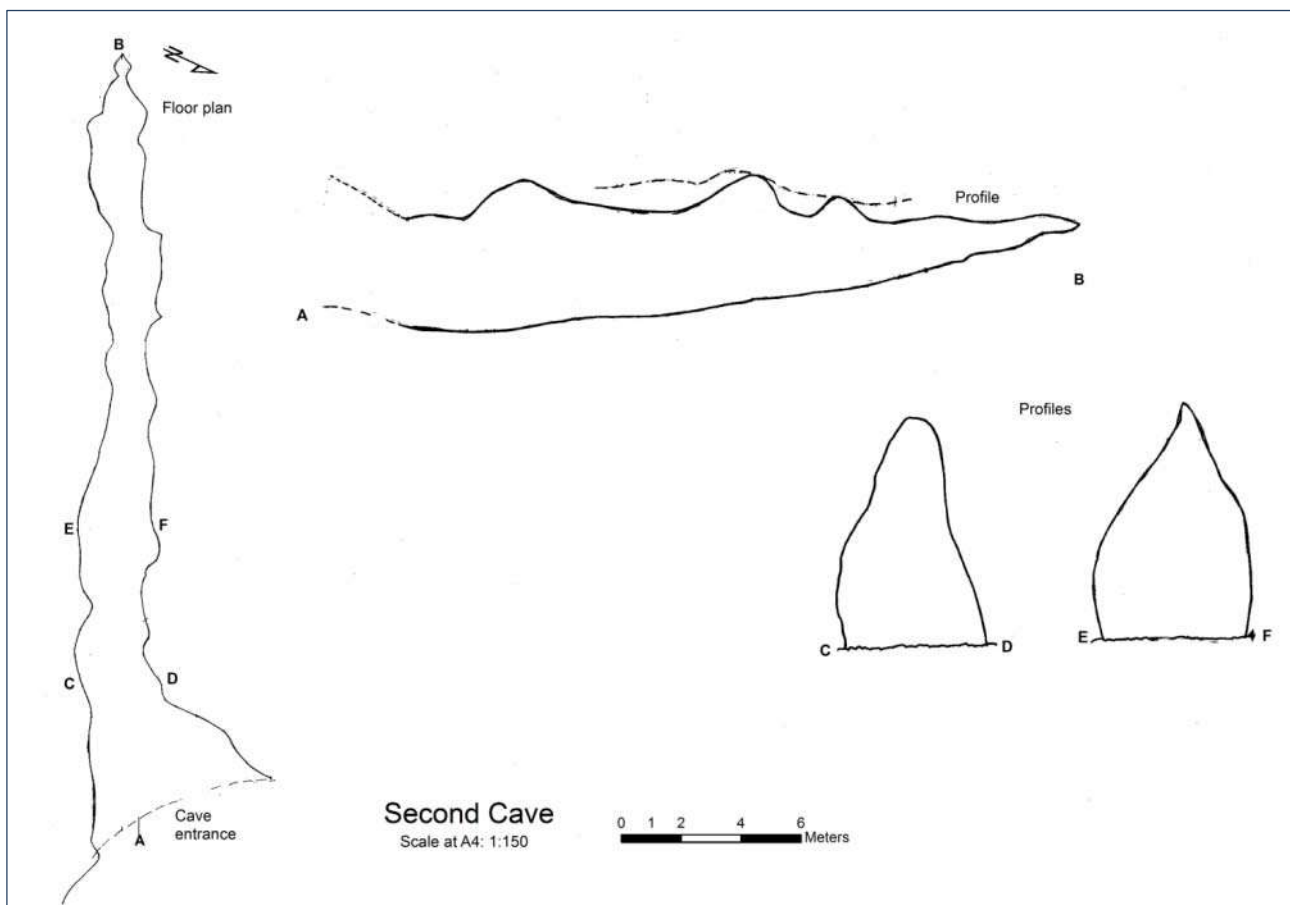


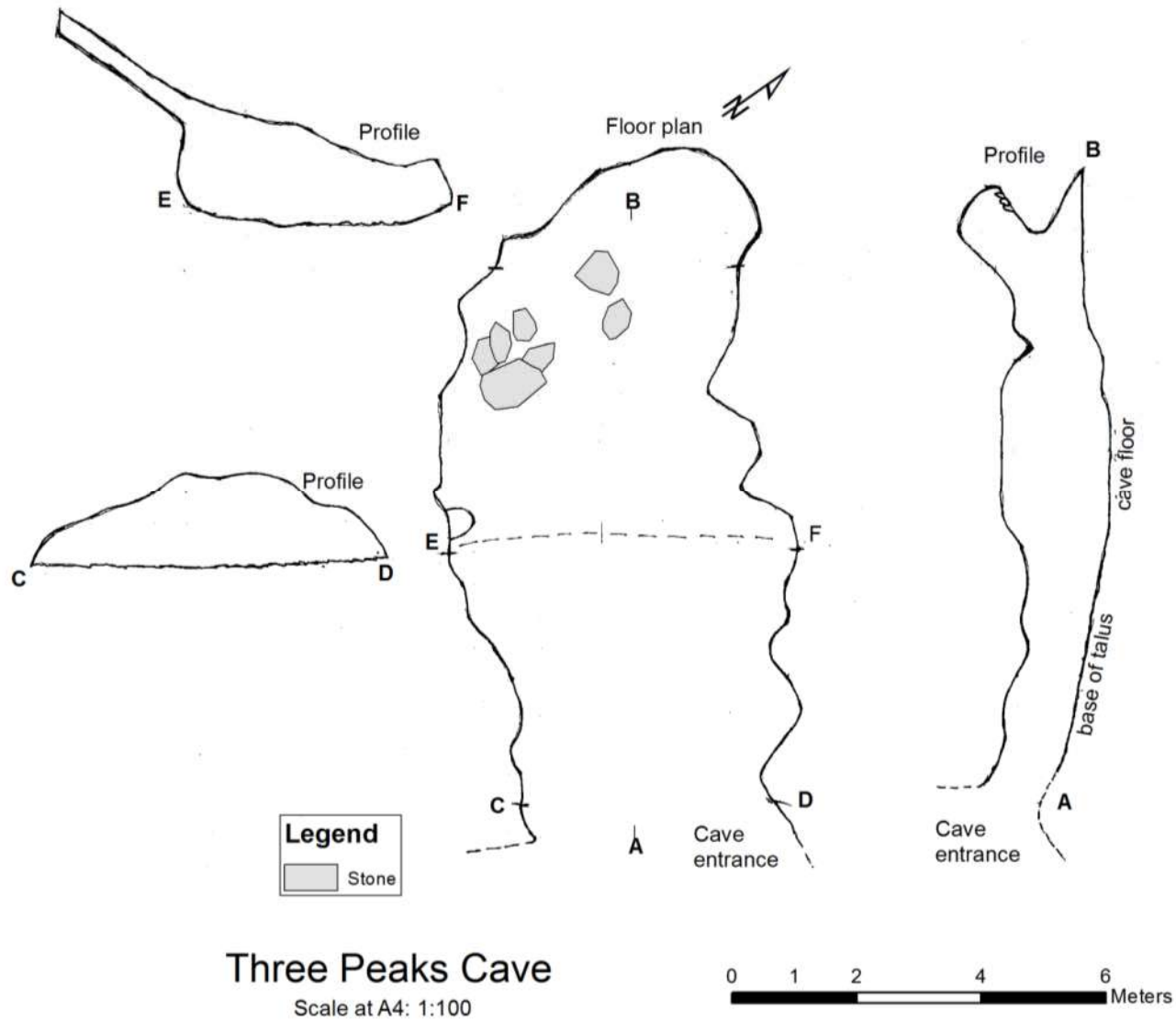


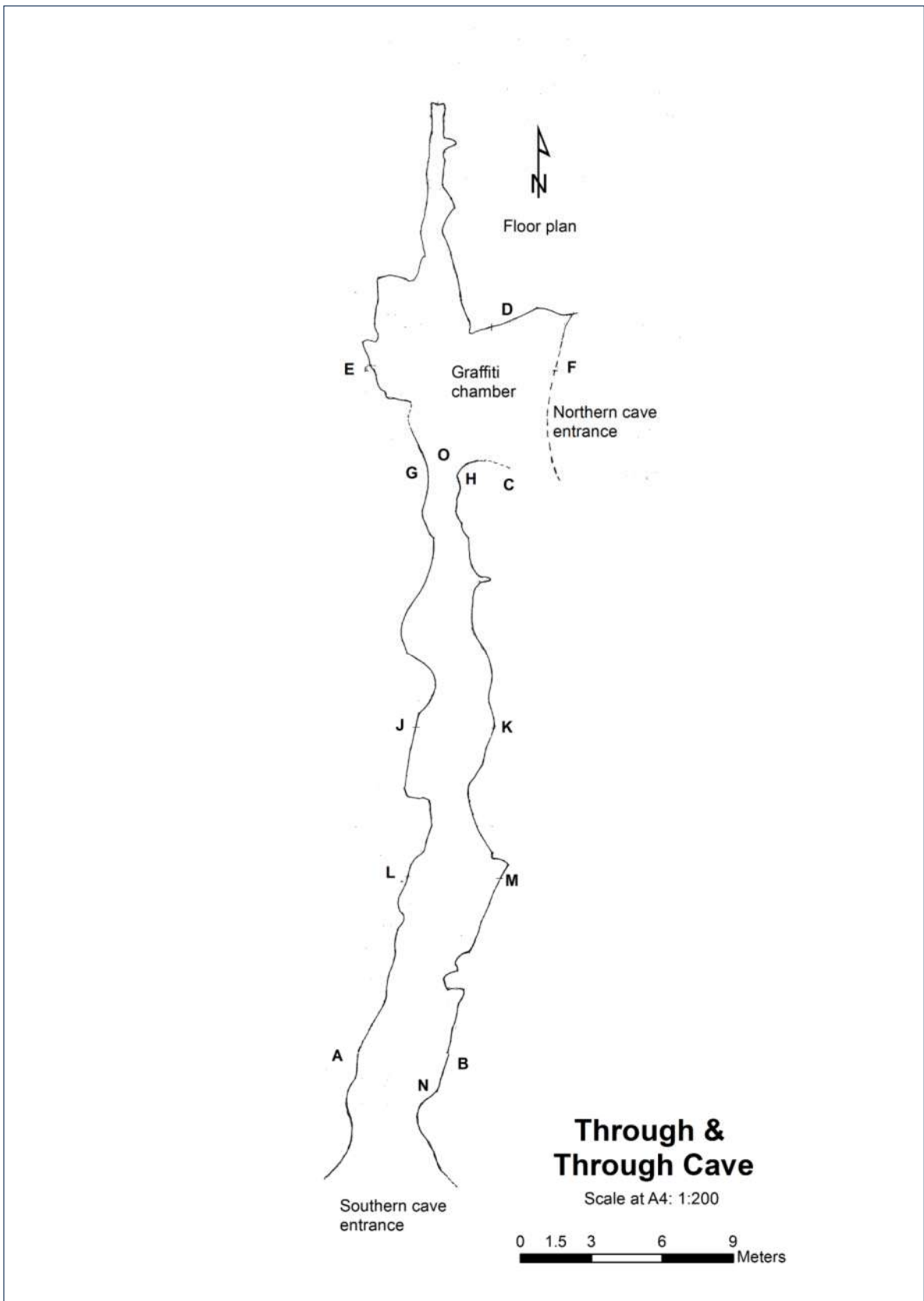


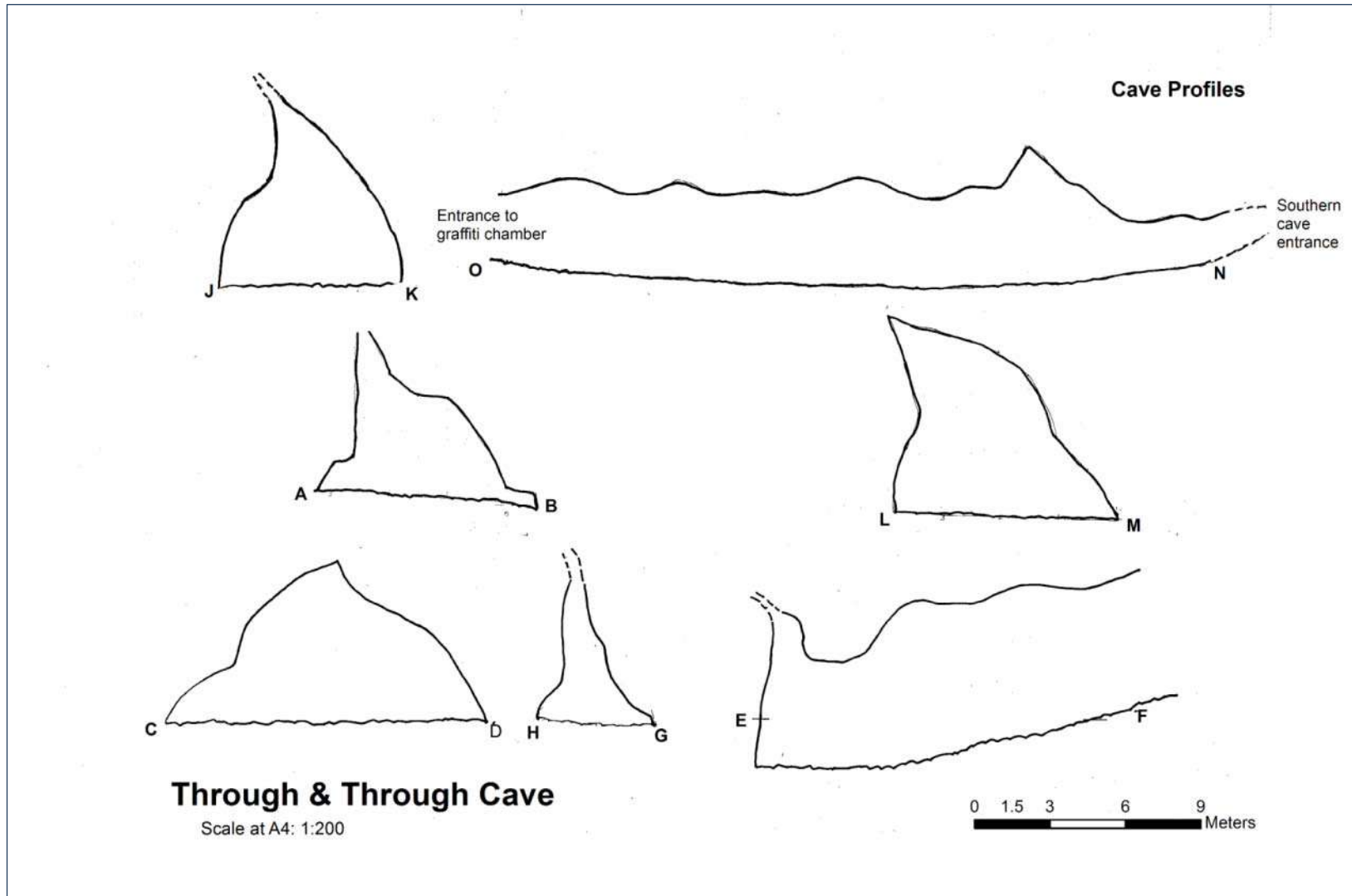












Appendix 3 Ivy Cave Assessment of Finds

PRELIMINARY REPORT ON CERTAIN FINDS FROM TEST PITS AT IVY CAVE, ROSEMARKIE, 6
OCTOBER 2012
Dr. Eric Grant

CLAY PIPES

Context 102

Thirteen bowl and 9 stem fragments of clay pipe were recovered from context 102. The bowl fragments are all quite small (circa 20 to 25 mm x 10 to 15 mm) and only one appears to have any decoration or inscriptions (what appears to be "SWI..." or "SIM..." inside an oval). Bowl diameters suggest that there is a minimum of 4 pipes. The stem fragments are also small (maximum length 25 mm). None of the bowls appears to have any decoration or inscriptions but one fragment has a spur. These fragments are generally too small to come to a firm conclusion on their age but generally they all appear to be consistent with a date from the 19th century through to the First World War.

Context 202

Five bowl fragments and two stem fragments were recovered along with an almost complete bowl and part stem of a clay pipe. The almost complete bowl has the word *London* impressed on the stem side of the bowl; the spur is broken off. One of the bowl fragments has a piece of applied or moulded decoration probably representing a claw; a common type of late 19th century pipe has the bowl decorated as if being supported by 3 claws. The variation in thickness and diameter of the broken bowls is consistent with at least 3 different pipes and when the almost complete pipe is included there are at least 4 pipes represented. All the pipes are generally consistent with a date from the 19th century through to the First World War.

Discussion

There is a clear difference in fragment size between the pipes from context 102 and those from 202. The fragments from 202 are generally larger and the proportion of stems smaller suggesting that these may represent a deposit where the pieces have been picked up by hand with smaller fragments being lost in the process. This is consistent with a suggestion that context 202 may represent a midden or pile of rubbish (including the leather boots) that has been deliberately placed in situ.

GLASS BEAD

A pierced bead found in context 102 measures 13 x 12 mm with a slightly oval shaped hole. Although it is not translucent when held up to light it does display a degree of iridescence and appears to be made of very dark glass. Beads are difficult to date but under the microscope this bead is quite scratched and looks old. I showed it to Alison Sheridan on 13 October, 2012, and she agreed it was a glass bead whatever style that could date from the Iron Age to the 19th century.

PLASTIC SHIRT BUTTON?

Context 102 also yielded part of a shirt button measuring 10 mm in diameter. The button has 4 holes and under the microscope it displays a shiny appearance with many minute scratches. It looks like plastic but would need analysis to show that. Alternatively it could be made of milk glass but I consider it unusual that a shirt button would be made of glass when it could be easily broken. Plastic was first used for shirt buttons in the 20th century and the general appearance of this button suggests that it is less than about 80 years old. This is inconsistent with the suggested age of other finds from context 102 and it may be that this shirt button fragment is intrusive.

BRONZE ITEM

A piece of sheet bronze from context 102 measures 54 x 22 mm and about 1.5 mm thick. On 2 sides the edge has been turned over about 3 mm. There is a pattern of leaves or flowers and parallel lines probably formed by press stamping. This may be part of a mount (possibly part of an escutcheon for a handle) from a piece of furniture that has been used for firewood.

MOLLUSC SHELLS FROM CONTEXT 103

A small shell midden was found against the North wall of the cave, although it had spread out towards the centre of the cave and some of the shells had become mixed into the bottom of context 102 and similarly a piece of wire and another piece of metal that appeared to come from context 103 were more likely to be intrusive from context 102. The shells were quite abraded, particularly the limpets, and a number were broken. We decided that all the shells would be assigned to context 103. The shells were separated from the matrix by trowelling and handpicking but also by sieving in a 5 mm sieve. The sieve retained nearly all the whole shells and some of the larger broken pieces, but an unquantified (although not a large proportion) of the broken shells went through the sieve and were not recovered. Post-excavation analysis of the shells shows that the following genera were represented: *Patella* (limpet), *Littorina* (periwinkle, at least two species), and *Nucella* (dog whelk,) and possibly common whelk (*Buccinum*) of which there was only one example a central column 40 mm long. Counting by hand give the following minimum number of individuals (MNI):

Genus	MNI	% of sample	Size range	Average size
<i>Littorina</i>	759	70.7	mm	mm
<i>Patella</i>	308	28.6	10-46mm	35mm
<i>Nucella</i>	5	0.5	20-25mm	23mm
<i>Buccinum?</i>	2	0.2	>40mm	-
Total	1074	100.0		

Compared with the number of shells retrieved from the excavations at Caird's cave, and the number of shells that occur in other known shell middens, the deposit of shells from Ivy cave is very small. However the shells were all recovered from a 1 m² test pit and there may well be other deposits of shells in the cave. The discrete context of the shells (albeit with a degree of spreading probably post-deposition) suggests that this was the food wastes from a meal for a few people or one person for a few days. Alternatively it could represent the leftovers from fishing bait. The percentage of limpet is higher than at Caird's cave and this may favour the fishing bait idea although it may only represent one of two fishing events. It is clear that whoever collected these molluscs was only really interested in periwinkles and limpets; the dog whelks look like and are the same size as periwinkles and were probably gathered along with periwinkles. Two columns of supposed common whelk (*Buccinum*) shows that the whelks were smashed in order to get at the meat suggesting that it is difficult to extract the meat from this mollusc by pulling it whole through the opening.

MOLLUSC SHELLS FROM CONTEXT 202

The following mollusc shells were retrieved from context 202:

Genus	MNI	% of sample	Size range	Average size
<i>Littorina</i>				
<i>Patella</i>	22	88	23-45mm	35mm
<i>Nucella</i>	1	4	32mm	32mm
<i>Buccinum</i>	2	8	46-78mm	62mm
Total	25	100.0		

These shells were well preserved, particularly the limpets, which looked very fresh, unlike the limpets from context 102 which were flaky, abraded and often broken. The two examples of common whelk (*Buccinum*) from context 202 were in poor condition and the larger was very abraded and had been damaged by boring animals. It was clearly dead when picked up and we therefore have no food value. There was no sign that the shells had ever been buried and appear to be part of the surface deposits of rubbish in context 202 which then became mixed up with talus material. These shells may indicate a very small meal or small amount of bait, or could just as easily be shells casually picked up on the beach and taken into the cave and left there.

ANIMAL BONES AND FISHBONES

Animal bones, fish bones and bird bones were recovered from context 102 a preliminary analysis shows that sheep rabbit large bird (such as seabirds, pigeons or domestic chicken) and large fish (such as salmon or cod) are represented. Context 202 also contains a variety of bones including sheep and large birds.

Appendix 4 List of Photographs from 2011-2015

Broad Cave

Photo no.	Direction Facing	Notes	Taken by	Date
1	W	Broad Cave	MP	23.5.2015
2	SW	Broad Cave	MP	23.5.2015
3	NE	Broad Cave	MP	23.5.2015
12	W	Showing top/hard surface 002	MP	23.5.2015
13	W	After removal of 001	MP	23.5.2015
14	W	Showing top of 003 after removal of 002	MP	23.5.2015
15	W	Showing top of 003 after removal of 002	MP	23.5.2015
16	W	Showing top of 003 after removal of 002	MP	23.5.2015
17	W	General shot looking down into Broad Cave	MP	23.5.2015
18	W	General shot looking down into Broad Cave	MP	23.5.2015
19	W	General shot looking down into Broad Cave	MP	23.5.2015
20	W	General shot looking down into Broad Cave	MP	23.5.2015
21	NE	Diggers at work	MP	23.5.2015
22	NE	Diggers at work	MP	23.5.2015
28	W	General working shots	SB	24.5.2015
29	W	General working shots	SB	24.5.2015
30	W	Top of BC005 & BC004	SB	24.5.2015
31	W	Top of BC005 & BC004	SB	24.5.2015
32	W	Top of BC005 & BC004	SB	24.5.2015
33	W	Top of BC005 & BC004	SB	24.5.2015
34	W	Top of BC005 & BC004	SB	24.5.2015
35	SW	Top of BC005 & BC004	SB	24.5.2015
36	SW	Top of BC005 & BC004	SB	24.5.2015
37	SW	Top of BC005 & BC004	SB	24.5.2015
38	SSW	NNE trench section in TP1	SB	24.5.2015
39	SSW	NNE trench section in TP1	SB	24.5.2015
40	SSW	NNE trench section in TP1	SB	24.5.2015
41	SSW	NNE trench section in TP1	SB	24.5.2015
42	SSW	NNE trench section in TP1	SB	24.5.2015

Ivy Cave

Photo No.	Direction Facing	Notes	Taken by	Date
1	SW	TP1 pre-ex (with Mary)	EG	6/10/10
2	WSW	TP1 pre-ex (Simon's legs)	EG	6/10/10
3	SW	TP1 cleaned to Context 103	EG	6/10/10
4	S	TP1 cleaned to Context 103	EG	6/10/10
5	S	Simon measuring	EG	6/10/10
6	N	TP2 post-ex	EG	6/10/10
7	NE	TP2 post-ex -wall	EG	6/10/10
8	W	TP2 post-ex	EG	6/10/10
9	W	TP2 post-ex	EG	6/10/10

Photo No.	Direction Facing	Notes	Taken by	Date
10	NE	SW-facing section of TP2	EG	6/10/10
11	NE	Stone with striations – natural?	EG	6/10/10
12	N	Stone on NW side of F2 by TP2	EG	6/10/10
13	NE	TP1 post- ex	EG	6/10/10
14	NW	TP1 post- ex	EG	6/10/10
15	SW	TP1 post- ex	EG	6/10/10
16	SW	Looking out of cave	EG	6/10/10

Learnie 1B

No.	Direction Facing	Notes	Taken by	Date
DSC-0003	E	Rock pile prior to TP2 being started	EG	16/17.6.2013
DSC-0012	E	TP2 started, TP1 in background with Steve	EG	16/17.6.2013
DSC-0014	NE	TP3 prior to start	EG	16/17.6.2013
DSC-0027	NE	TP3 started	EG	16/17.6.2013
DSC-0028	E	TP2 down to cave floor level, showing low wall	EG	16/17.6.2013
DSC-0031	SE	TP2 down to cave floor level, showing low wall	EG	16/17.6.2013
DSC-0037	SE	TP3 down to old beach stones level	EG	16/17.6.2013
DSC-0042	N	TP1, Steve and Simon thinking	EG	16/17.6.2013
DSC-0047	W	TP1 with Steve	EG	16/17.6.2013
DSCN3026	E	TP2 beside rock pile	RJ	16/17.6.2013
DSCN3031	S	TP2 looking south towards cave wall	RJ	16/17.6.2013
DSCN3034	N	Steve in Test Pit 1	RJ	16/17.6.2013
DSCN3036	N	Charcoal extraction from TP1 floor	RJ	16/17.6.2013
DSCN3047	E	Looking out of cave entrance, TP1 on ground	RJ	16/17.6.2013
DSCN3050	W	TP1 in progress	RJ	16/17.6.2013
DSCN3053	N	TP1 in progress	RJ	16/17.6.2013
DSCN3056	N	TP1 at full depth, 1.4m	RJ	16/17.6.2013

Learnie 2B

No.	Direction Facing	Notes	Taken by	Date
L2B Pits	SW	Looking towards interior, Jonie, Mary and Simon	EG	21-25.9.2013
L2B Pits 1	N	Test Pit 2	EG	21-25.9.2013
L2B Pits 2	SW	Start of TP2	EG	21-25.9.2013
L2B Pits 3	NE	Start of TP1 and TP2	EG	21-25.9.2013
L2B Pits 4	NE	Start of TP1 and TP2, TP1 in foreground	EG	21-25.9.2013
L2B Pits 5	NE	Start of TP1 and TP2, TP1 in foreground	EG	21-25.9.2013
L2B Pits 6	W	Start of TP1 and TP2	EG	21-25.9.2013
L2B T1A	NW	Full depth of test pit	SJG	21-25.9.2013
L2B T1B	NW	Full depth of test pit	SJG	21-25.9.2013
L2B T1C	N	Full depth of test pit	SJG	21-25.9.2013
L2B T1D	NW	Start of test pit	JG	21-25.9.2013
L2B T1E	NW	Site of TP1 prior to start	JG	21-25.9.2013
L2B T1F	SW	Rough stone wall on interior of Test pit	JG	21-25.9.2013

No.	Direction Facing	Notes	Taken by	Date
L2B T1G	W	Rough stone wall on interior of Test pit	JG	21-25.9.2013
L2B T1H	SW	Rough stone wall on interior of Test pit	JG	21-25.9.2013
L2B T1I	SW	Rough stone wall on interior of Test pit	JG	21-25.9.2013
L2B T1J	SW	SW face of pit	SJG	21-25.9.2013
L2B T1K	NW	Down to base rocks	SJG	21-25.9.2013
L2B T1L	SW	SW face and Context 103	SJG	21-25.9.2013
L2B T2A	NE	Test Pit 2	SJG	21-25.9.2013
L2B T2B	NE	Test Pit 2	SJG	21-25.9.2013
L2B T2C	NW	Showing corner of mortared wall	SJG	21-25.9.2013
L2B T2D	NW	Showing corner of mortared wall	SJG	21-25.9.2013
L2B T2E	S	Start of Test Pit 2	SJG	21-25.9.2013
L2B T2F	W	Recent replaced rocks from 2006 on ground NE of mortared wall, TP2 top right	SJG	21-25.9.2013
L2B T2G	S	Recent replaced rocks from 2006 on ground NE of mortared wall in background, TP2 foreground	SJG	21-25.9.2013
L2B T2H	S	Recent replaced rocks from 2006 on ground NE of mortared wall in background, TP2 foreground	SJG	21-25.9.2013
L2B T2I	S	Recent replaced rocks from 2006 on ground NE of mortared wall in background, TP2 foreground	SJG	21-25.9.2013
L2B T2J	NW	Entrance (?) edge of mortared wall	SJG	21-25.9.2013
L2B T2K	SW	Test pit down to base rock, rock tumble possible infill in entrance	SJG	21-25.9.2013
L2B T2L	NE	Base rock	SJG	21-25.9.2013
L2B T2M	NW	Test pit down 1m to base of mortared wall	SJG	21-25.9.2013
L2B T2N	NW	Test pit down 1m to base of mortared wall	SJG	21-25.9.2013
L2B T2O	NW	Test pit down to base rock	SJG	21-25.9.2013
L2B T2P	NE	Test pit down to base rock	SJG	21-25.9.2013
L2B T2Q	NNW	Base rock slab	SJG	21-25.9.2013

Learnie 3B

Photo no.	Direction Facing	Notes	Taken by	Date
1020365	W	Test pit in entrance, Robin and Eric	RJ	5-6,10.2013
1020366	W	Test pit in entrance, Robin and Eric	RJ	5-6,10.2013
0322	W	Test pit in entrance, Eric	RJ	5-6,10.2013
0323	W	Test pit in entrance, Eric	RJ	5-6,10.2013
0234	W	Test pit interior with small hearths	RJ	5-6,10.2013
0235	W	Test pit interior with small hearths	RJ	5-6,10.2013

Learnie 3C

Photo no.	Direction facing	Notes	Taken by	Date
L2 T2 D	NW	TP2 at full depth, showing base rocks	SJG	5-10.10.2013
L3C floor	SW	Sandy, silty floor inside cave before starting TP2	SJG	5-10.10.2013
L3C T2 A	SW	Janet at side, James at bottom of silty layer	SJG	5-10.10.2013

Photo no.	Direction facing	Notes	Taken by	Date
L3C T2 B	W	Janet at side, James at bottom of silty layer	SJG	5-10.10.2013
L3C T2 C	SW	Interior of cave showing TT2 in corner, Janet and James	SJG	5-10.10.2013
L3C T2 E	NW	Nearly at base rocks	SJG	5-10.10.2013
L3C T2 F	NW	Nearly at base rocks	SJG	5-10.10.2013
L3C T2 G	NW	Base rocks beginning to show	SJG	5-10.10.2013
P1020368	SW	Full depth of pit	SJG	5-10.10.2013
P1020369	NW	Full depth of pit	SJG	5-10.10.2013
P1020371	NW	Corner of cave with passage above to L3B	SJG	5-10.10.2013

Three Peaks Cave

Photo no.	Direction facing	Notes	Taken by	Date
4	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
5	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
6	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
7	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
8	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
9	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
10	WNW	3 Peaks Cave during excavation of TP1	MP	23.5.2015
11	ESE	3 Peaks Cave during excavation of TP1	MP	23.5.2015
23	SW	Working shot of 3 Peaks Cave	MP	23.5.2015
24	SW	Working shot of 3 Peaks Cave	MP	23.5.2015
25	SSW	Possible stone setting 3 Peaks Cave	MP	23.5.2015
26	SSW	Possible stone setting 3 Peaks Cave	MP	23.5.2015
27	SSW	Possible stone setting 3 Peaks Cave	MP	23.5.2015
7630	NW	TP1 looking NW, trench with possible hearth	RJ	23.5.2015
7631	NW	TP1 looking NW, trench with possible hearth	RJ	23.5.2015
7633	WW	Stone setting, post-excavation	RJ	23.5.2015
7634	E	Stone setting, post-excavation	RJ	23.5.2015
7635	S	Stone setting, post-excavation	RJ	23.5.2015
7637	W	Test pit, post-excavation	RJ	23.5.2015
7643	W	Stone setting, post-excavation	RJ	23.5.2015

Through & Through Cave

Photo No.	Test pit	Notes	Taken by	Date
7675	TP1	Prior to excavation	BJ	07/06/2015
7676	TP1	Prior to excavation with James	BJ	07/06/2015
7677	TP1	Prior to excavation with James, wider view	BJ	07/06/2015
7678	TP2	Start of excavation	BJ	07/06/2015
7679	TP1	Surface context(s) removed	BJ	07/06/2015
7680	TP1	Surface context(s) removed	BJ	07/06/2015
7681	-	Warning sign at entrance	BJ	07/06/2015

Photo No.	Test pit	Notes	Taken by	Date
7682	-	Warning sign at entrance	BJ	07/06/2015
7683	-	Warning sign at entrance	BJ	07/06/2015
7684	-	Warning sign at entrance	BJ	07/06/2015
7685	-	Warning sign at entrance	BJ	07/06/2015
7686	-	Cave entrance	BJ	07/06/2015
7687	TP1	Excavation proceeding	BJ	07/06/2015
7688	TP1	Excavation proceeding	BJ	07/06/2015
7689	TP2	Extent of excavation (then abandoned)	RJ	07/06/2015
7690	TP2	Extent of excavation (then abandoned)	RJ	07/06/2015
7691	TP2	Extent of excavation (then abandoned)	RJ	07/06/2015
7692	TP2	Extent of excavation (then abandoned)	RJ	07/06/2015
7693	TP3	Feature in sand	RJ	07/06/2015
7694	TP3	Feature in sand	RJ	07/06/2015
7695	TP3	Feature in sand	RJ	07/06/2015
7696	TP3	Feature in sand	RJ	07/06/2015
7697	TP3	Feature in sand	RJ	07/06/2015
7698	TP3	(blurred photo)	RJ	07/06/2015
7699	TP1	Excavation day 2	RJ	07/06/2015
7700	TP1	Excavation day 2 (depth = 450mm, note boulder)	RJ	07/06/2015
7701	TP1	Excavation day 2	RJ	07/06/2015
7702	TP1	Excavation day 2	RJ	07/06/2015
7703	TP1	Excavation day 2	RJ	07/06/2015
7704	TP1	Excavation day 2	RJ	07/06/2015
7705	TP3	Final extent of excavation	RJ	07/06/2015
7706	TP3	Final extent of excavation	RJ	07/06/2015
7707	TP3	Final extent of excavation	RJ	07/06/2015
7708	TP3	Final extent of excavation	RJ	07/06/2015
7709	TP1	Showing charcoal feature	RJ	07/06/2015
7710	TP1	Showing charcoal feature	RJ	07/06/2015
7711	TP3	Final extent of excavation	RJ	07/06/2015
7712	TP3	Final extent of excavation	RJ	07/06/2015
7713	TP3	Final extent of excavation, showing sand layers	RJ	07/06/2015
7714	TP1	Showing charcoal feature	RJ	07/06/2015
7715	TP1	Showing charcoal feature	RJ	07/06/2015
7716	TP1	Showing charcoal feature	RJ	07/06/2015
7717	TP1	Showing charcoal feature	RJ	07/06/2015
7718	TP1	James at work	RJ	07/06/2015
7719	TP1	James at work	RJ	07/06/2015
7720	TP1	James sampling charcoal	RJ	07/06/2015
7721	TP1	Final extent of excavation	RJ	07/06/2015
7722	TP1	Simon drawing (blurred)	RJ	07/06/2015
7723	TP1	Simon drawing (blurred)	RJ	07/06/2015
7724	TP1	Simon drawing (blurred)	RJ	07/06/2015
7725	TP1	Simon drawing (in focus)	RJ	07/06/2015
7726	TP1	At end of test pitting	RJ	07/06/2015

Photo No.	Test pit	Notes	Taken by	Date
7727	TP1	At end of test pitting	RJ	07/06/2015
7728	TP1	At end of test pitting, base of pit	RJ	07/06/2015