IMK99

The Archaeology of Inchmarnock: Report 10

Excavation at Cave Site 16B, Inchmarnock:

Interim Report

Prepared on behalf of Sir Robert Smith

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CONTENTS

Summary

Cave site 16B was excavated during the 2002 fieldwork season. Evaluation of the cave had revealed deposits of Iron Age and Early Christian date. Excavation revealed that the Iron Age deposits represented the earliest occupation of the cave. No datable finds were recovered although marine shell and small mammal bones were present. A period of abandonment was followed by a series of hearths and associated deposits relating to the Early Christian period. Charred animal bones within the hearths suggested that meals were being taken in the cave at this time. Carbonised animal droppings from the hearths suggest that this was a source of fuel. High phosphate levels within the cave indicate large quantities of animal dung, which suggests that animals used the cave as shelter. The cave seems to have been occupied for short periods at a time. Later deposits were dated from the medieval period onwards, reflecting occasional occupation of the site. A small collection of iron objects may relate to the use of the cave for storage by fishermen in relatively recent times.

the more detailed descriptions of deposits that form Phases 1, 3 and 4. A full list of context descriptions can be found in Appendix 1.

Table 1: Concordance of evaluation and excavation context numbers.

Evaluation Context number	Excavation Context number	Phase	Radiocarbon date
1655	16026	1: Iron Age	355-59 BC
1653	16017	3: Early Christian	-
1652	16022	3: Early Christian	-
1650	16016	3: Early Christian	-
1651	16009	3: Early Christian	AD 679-888
1649	16005	3: Early Christian	-

4.2 NATURAL DEPOSITS

The earliest deposit encountered was shattered bedrock (16027) exposed in a metre wide section excavated along the A-B-C axis of the cave in order to illustrate a section through the deposits (Figure 4). This was overlain to the very rear of the cave by fine silt (16036) and further south by a deposit of crushed bedrock and gravely silt (16037). Both these deposits derived from natural weathering processes and silting up of the cave prior to any occupation.

4.3 PHASE 1: IRON AGE DEPOSITS

Overview

The Iron Age deposits represent the earliest occupation of the cave. The first deposit contains animal bone, shell and charcoal, indicating domestic occupation of the site. This layer was radiocarbon dated in the evaluation to the Iron Age. Above this a layer containing small amounts of domestic waste suggests less frequent occupation and abandonment of the cave. A rough stone and cobbled surface at the mouth of the cave contained no dateable finds but produced similar material to the occupation deposits and appears to be associated with the Iron Age layers beneath.

Detail

Overlying the natural deposits was black charcoal rich sandy silt with frequent stone inclusions (16026; Figure 3). This deposit was neither fully exposed nor fully excavated. It extended approximately 3.50m from the rear wall of the cave and is clearly the same as deposit 1655, previously recorded (*Inchmarnock Report 3*) and radiocarbon dated to the Iron Age (Table 1). Above 16026 was dark purplish brown sandy silt (16025). This deposit contained inclusions of broken slate and shell and became stonier towards the interface with 16026 (Figure 3). Deposit 16025 was confined to the rear of the cave and appeared to be associated with 16026 below, perhaps representing the abandonment of occupation. The sample from 16026 contained fragments of large mammal bone, shell, fish bone and charcoal. The sample from 16025 contained smaller amounts of domestic waste, frequent small mammal bones and low amounts of phosphate concretions. At the front of the cave

and partly overlying 16026 was a deposit of round cobbles and angular stone fragments within a silt matrix (16033; Figure 4). This formed a rough surface with 16032, a deposit of large broken and angular stones. These sloped away towards the east and became more irregular and loose. These deposits appear to be associated with the Iron Age layer beneath them but have not been otherwise dated. The sample from deposit 16033 contained similar material to that within 16025 and 16026. A small copper alloy object (SF 1618) and a nail/hook (SF 1616) were also found in the samples from the Phase 1 deposits.

4.4 PHASE 2: ABANDONMENT

Overlying the Iron Age deposits was a thin lens of pale yellow clayey sand (16024), itself overlain by a thicker deposit of fairly compact light yellowish brown sandy silt with occasional broken shell inclusions (16023). Small mammal bones were present in the samples. This deposit contained no charcoal and appeared to represent the building up of material during a period of abandonment.

4.5 PHASE 3: EARLY CHRISTIAN DEPOSITS

Overview

The Early Christian deposits comprised layers of ash and charcoal rich silt deriving from fires or hearths within the cave. A number of these hearths were *in situ*, although most had been disturbed or raked out. The charcoal rich deposits contained shell, fish bone and animal bone fragments indicating the hearths may have been used for cooking. One of the upper layers of rake out was radiocarbon dated in the evaluation to the 7th- 9th centuries. The absence of build-up of material between the deposits shows deposition occurred over a relatively short space of time. On this basis the deposits are assigned to the same phase.

Detail

Above the abandonment deposits were alternating layers of charcoal and ash, indicating a series of hearths (Figure 3; Plate 3). Overlying layer 16023 was dark brownish black silt, rich in charcoal (16022 = 1652). This was interpreted as rake out from a hearth.

The first *in situ* hearth consisted of a layer of compacted ash (16021) overlain by a layer of charcoal (16020, 16006 & 16007). The second *in situ* hearth again consisted of a layer of ash (16019 & 16004) overlain by a thicker deposit of charcoal rich silt with marine shell, partly raked out and spread over a wider area (16018). Above this was a layer of firm burnt orange brown clayey silt containing broken shell inclusions (16016 = 1650). This was overlain by a layer of flat stones to the west (16017), which appeared to delimit the area of the hearth (Figure 2). Overlying 16016 was a slightly darker deposit (16011) associated with the hearth, and dark brownish grey silt with charcoal lenses (16009), interpreted as rake out. Layer 16009 is the same as deposit 1651 in the evaluation, which has been radiocarbon dated to the 7th- 9th centuries. Overlying this was 16005 (= 1649), another layer of rake out (Figure 2).

Heavily disturbed hearth remains, a mixture of ash and charcoal (1630) were also found in the eastern part of the cave overlying stony layer 16032.

Samples taken from the Early Christian period deposits mainly contained marine shell, animal bone fragments, occasional fish bone and charcoal. Occasional charred cereal grains and weed seeds were found. A number of samples produced animal droppings and high concentrations of phosphate concretions were also present. A number of iron and copper alloy objects were retrieved from Phase 3 deposits (SF 1604, SF 1612 & SF 1615) and a possible hammer stone was recovered from samples processing (SF 1611).

4.6 PHASE 4: MEDIEVAL DEPOSITS

Overview

The earliest medieval deposit was rich in marine shell and dated to the 13th- 15th centuries, indicating the use of shellfish as a food source during this period of occupation. A number of large stones had fallen from the roof of the cave and others may have been cleared from the inside towards the cave mouth. Small amounts of pottery and charcoal from the later medieval deposits suggest that the cave was occupied less frequently but was still in use on a temporary basis.

Detail

Partly overlying hearth 16016 on the western edge of the site was dark brown clayey silt with inclusions of shattered stone and pebbles (16031). This deposit was associated with 16015, which contained very frequent marine shells, 13th- 15th century pottery and 19th- 20th century clay pipe fragments, which appear to be intrusive. There was no clear boundary between the deposits, with the presence of shell and finds the only means of differentiation. Layer 16015 was loose and heavily disturbed by burrowing. Samples from this deposit were dominated by marine shell, with small amounts of animal bone fragments. It was overlain by stone tumble (16014), some of which appeared to have fallen from the roof of the cave. These large stones may also have been cleared from inside the cave (Figure 2). Near the centre of the cave, layer 16031 was overlain by some large flat, angular stones (16012), which appeared to derive from a roof fall. A line of stones (16013) across the mouth of the cave (Figure 2) also overlay layer 16031. These were at first thought to represent the remains of a wall but there is no clear evidence of activity associated with them and they may be a fortuitous alignment following the slope of the hill.

Overlying 16013 in the front of the cave was light brown clayey silt with frequent slate fragments and gravel (16035). Towards the centre of the cave dark brown humic silt with stones and roots (16002) overlay stones 16012 and 16014. Pottery dated to the 13th-15th centuries was recovered from this layer. A deposit of dark orange brown clayey silt (16003) with shell, charcoal and 13th- 15th century pottery overlay the deposits to the rear of the cave (Plate 2). Samples from this deposit produced small quantities of bone fragments and charcoal.

4.7 PHASE 5: POST MEDIEVAL/MODERN DEPOSITS

Turf and topsoil (16001), containing 19th- 20th century pottery, sealed the medieval deposits.

5 DISCUSSION

There are a number of caves throughout Scotland exhibiting evidence of human use or occupation. This is attested to either through excavation or local lore and place-name evidence. A number of caves are found in relict cliff lines at the head of the Main Rock Platform, and at the time of the Main Post-glacial Transgression (*c.*6500 BP) were washed by the sea. The cave at site 16B falls into this category.

The high sea levels during the fifth millennium BC would have made occupation of caves difficult at this time, and any deposits unlikely to survive. Archaeological excavation of caves demonstrates this, in that the oldest deposits are Mesolithic. Numerous caves and rock shelters have been identified at the back of the recent transgression beaches on the west coast of Scotland (Coles 1983). The most well known are the caves at Oban, which demonstrate human activity ranging from the Mesolithic through to the 17th century AD. In some caves initial activity begins in the Neolithic or Bronze Age and there are also many sites with evidence of funerary activity (Tolan-Smith 2001).

Many caves and rock shelters do not appear to have been used until relatively late in prehistory. The earliest dates for Site 16B are Iron Age, with this deposit lying directly above shattered bedrock. This was not fully excavated, although the presence of charcoal indicates the use of fires in the area. Above this deposit in the front of the cave a layer of stones and beach pebbles was used to form a rough surface, perhaps to level out the floor of the cave. Small fragments of red deer bone may indicate that they were being hunted during the Iron Age (Henderson, below).

Tolan-Smith (2001) has divided cave use into two categories: economic and ritual. Economic sites commonly comprise middens and some are described with walling and entrances. Ritual sites contain funerary elements, incised crosses and burials. Incised crosses and both Christian and Pictish symbols are common on the walls of caves associated with particular saints or used as hermitages. Scoor Cave and The Nun's Cave on Mull both contain incised crosses on the cave walls. This is thought to reflect occupation in the Early Christian period, from the 6th- 9th centuries (RCAHMS 1980). St Ninian's cave at Glasserton is traditionally associated with St Ninian and the church at Whithorn. The retreat associated with a monastery is common in the Celtic church (Radford 1957). As well as incised crosses on the walls, traces of fires were also uncovered at all levels, indicating the temporary use of the cavern in later periods (Radford 1957).

The cave at Site 16B may be associated with St Marnock's chapel at Midpark. The upper hearth layers, dated to the 7th- 9th centuries, fall into the Early Christian period. The assemblage of motif-pieces from the chapel may also be dated to the 7th or 8th centuries, indicating that the two sites were in use at the same time. The place name 'Dysart' at Site 15, indicating a hermitage, also suggests a link between the caves on

the south side of the island and the chapel. No incised crosses or Christian graffiti were found at the cave site, as may be expected in the case of a hermitage or retreat. However this may be partly due to the nature of the geology, consisting of schist and slate with quartzite lenses, with few smooth surfaces. The location of the cave might suggest a spiritual focus as it looks southwards towards Holy Island, traditionally associated with St Molaise. St Molaise's cave is a rock shelter situated on the southwest coast of the island and contains a revetment wall as well as many crosses and other inscriptions. The cave is thought to have originated as a hermitage and later become a focus of pilgrimage (Fisher 2001).

The two caves at the southern end of Inchmarnock fall into the category of rock shelters. These are described as natural overhangs with a greater width than depth (Tolan-Smith 2001). Excavations at the Ellary rock shelter revealed relatively small-scale activity, with the use of a hearth and the preparation of shellfish (Tolan-Smith 2001). This can be compared in size with the cave at Site 16B, too small to be used on anything but an occasional basis, but offering an open aspect and a degree of shelter in the landscape. The absence of structures, which would have provided a greater degree of shelter, also suggests the lack of longer occupation.

Other excavations of rock shelters in Argyll (Coles 1983) commonly reveal middens or occupation deposits consisting of charcoal lenses with animal bone and marine shell. This is consistent with the finds from Site 16B. This material is typical of domestic waste and marine shells are commonly used as a food source on coastal sites. The relatively small amount of fish bone may have been brought to the cave by gulls.

The presence of hearths at the site probably implies overnight stays (Tolan-Smith 2001). The intensity of use of the site can be related to the presence of other materials and features such as hearths and pits. The small amount of mammal bone recovered also suggests the site was not intensively occupied (Henderson, below). The absence of pottery in all but the very upper levels of the site also suggests a temporary occupation. The layer of flat stones on the western edge of the hearth and the series of fires are more indicative of a number of visits over a period of time rather than continual occupation. This series of fires, with very little soil build-up in between, may be an indication of visits of longer duration. The burnt pig bones from the lowest hearth layer are probably the remains of a meal (Henderson, below).

The presence of charred cereal grains in hearth deposits indicates that small scale cereal processing was done at the site (Hastie, below). This suggests more long-term use of the site in the Early Christian period. The presence of burnt sheep/goat droppings suggest that animal dung was being used as fuel on the hearths (Hastie, below). The evidence for high levels of animal dung in the caves suggests that sheep or goats were using the cave for shelter, or were sheltered there by shepherds.

The upper layers of the cave are dated to the medieval period. The presence of clay pipes from context 16015 is probably the result of rabbit burrowing. The absence of hearths or any surfaces during this period also suggests that the cave was used on a temporary basis. There may have been a clearing away of stone from the front of the cave at this time and the stone structure 16013 may represent paving leading to the cave. The collection of iron finds from deposit 16015 may derive from the area being

used for storage by fishermen. The deposits dated to this period lay towards the front of the cave, which is more open, rather than to the rear which although damper offered more shelter. Medieval pottery sherds from St Marnock's Chapel suggest that there was domestic occupation there in the medieval period, possibly in connection with pilgrimage activity (*Inchmarnock Report 8*). However there is no evidence from the excavation of the cave that it was used for any ritual purpose at this time.

6 ACKNOWLEDGEMENTS

Liz Jones and Kirsty Dingwall carried out the fieldwork. Magnar Dalland and Chris Lowe carried out the survey of the cave. Thanks must go to Jock Turner and Fram for all their help during the excavation. The illustrations were drawn by Laura Speed.

APPENDIX 1: FINDS ASSESSMENT
POTTERY & CLAY PIPE
Julie Franklin

Nine sherds of White Gritty ware, datable to the period 13th-15th century, were recovered from Phase 4 deposits (contexts 16002 & 16003). Thirteen sherds of 19th-20th century ceramic were recovered from turf and topsoil (context 16001). A mixed assemblage of medieval pottery and late 19th or early 20th century clay pipe fragments was recovered from context 16015, a medieval deposit much disturbed by burrowing animals.

Table 2: Site 16B Ceramics Catalogue

Context	SF	Fabric	Qty	Ri	H	Ba	Bo	Notes	Spot Date
16001	1609	Porcelain	7	2		1	4	sherds from same tea-cup with moulded ribbed decoration and remains of painted gold rim	19th/20th
16001	1610	White Earthenware	6	2			4	small sherds from same saucer, pale blue transfer printed	19th/20th
16002	1606	White Gritty	3				3	buff sherds, two slightly sooted, conjoining with SF1602	13th/15th
16002	1602	White Gritty	1				1	Buff sherd, conjoining with other body sherds from context	13th/15th
16002	1601	White Gritty	1	1				small cooking pot rim, probably same vessel as body sherds, buff, slightly sooted, thin, triangular rim	13th/15th
16003	1603	White Gritty	1				1	pale pink gritty sherd	13th/15th
16015	1607	White Gritty	3				3	small sherds, buff, unglazed	13th/15th
16015	1608	Clay pipe	3					Two bowls and a small stem sherd, all narrow-bore, bowls both large bell shaped, with no spur or makers mark, both sooted on interior form use.	Late 19th-early 20th

METALWORK

Fraser Hunter & Andrew Heald

The assemblage from the cave is small and contains no chronologically diagnostic items. Of the copper alloy items, two are of antiquity: a small decorative rivet and a badly broken piece of spiral rod (SF 1618) from context 16025 within Phase 1. The small iron assemblage (from 16015, a disturbed deposit within Phase 4) comprises one very large and two small nails, a perforated plate perhaps from a chest, and a staple. Their relatively good condition suggests they are not of any great age, although they are hand-wrought.

OTHER FINDS

A natural water worn pebble with evidence for wear predominantly on the narrow end was recovered from Phase 3 context 16007 (Small find no. 1611) and may be a possible hammer stone. Two small fragments of glass measuring 100 mm in diameter (Small find no. 1613) were recovered from context 16015 and are believed to be 18th - 19th century in date.

APPENDIX 2: SAMPLES ASSESSMENT

Mhairi Hastie

METHOD

Bulk soil samples ranging in size from 10 - 30 litres were taken from all contexts that appeared to be relatively undisturbed and to have good potential for recovery of datable artefacts and palaeoenvironmental remains. In total 18 samples were collected.

Each sample was processed through a system of flotation in a Siraf style flotation tank. The floating debris (flot) was collected in a 250 μm sieve and, once dry, scanned using a binocular microscope. Any material remaining in the flotation tank (retent) was wet sieved through a 1 mm mesh and air-dried. This was then sorted by eye and any material of significance removed.

All bone recovered from the retent was added to material retrieved by hand for further assessment (Henderson, below).

RESULTS

The results are summarised in Tables 3 and 4. For the purpose of the assessment the samples have been grouped by phase and placed in stratigraphic order.

Iron Age deposits

Three samples were taken from deposits identified as being Iron Age in date. The occupation layer (Context 16026) and rough surface (Context 16033) contained a mix of domestic debris including fragmentary large mammal bone, marine shell, fish bone, charcoal and charred hazelnut shell.

Similar material was recovered from Context 16025 though only in small quantities. The sample was primarily dominated by small mammal bone, including rodent, amphibian and occasional fish bones. White concretions, probably resulting from the high levels of phosphates present, were also present in low concentrations.

Early Christian deposits

Thirteen samples were taken from a variety of hearth and occupation deposits dating to the Early Christian Period.

The majority of retents contained a mix of charcoal, fragmentary mammal bone, occasional fish bone and marine shell. Bone preservation was generally good and seven samples produced charred or calcined bone. Fish bone recovered included herring, haddock, small gadoids, gurnards and flatfish. Large concentrations of small rodent and shrew bone were also recovered from many of the samples (Henderson, below).

Limpets and periwinkles with lesser quantities of mussel shells dominated the marine shell.

Low concentrations of carbonised plant remains were recovered from each flot. In most cases this only amounted to small quantities of charcoal. Contexts 16016, 16009 and 16008 (hearth rake-out deposits) contained occasional charred cereal grain; hulled barley (*Hordeum vulgare*), rye (*Secale cereale*) and oat (*Avena* sp.) were identified. Small quantities of charred weed seeds were also recovered from Contexts 16021, 16007 and 16018. Species present included bramble/raspberry (*Rubus* sp.), goose grass (*Galium aparine*), knotgrass (*Polygonum* sp.) and sedge (*Carex* sp.). A small number of carbonised hazelnut shell fragments were also recovered from a variety of deposits.

Most of the samples contain low concentrations of land snails. The assemblages from 16003 and 16015 include modern shells but the remainder are sub-fossil and probably contemporary with the deposition of the sediments they derive from. A limited range of species is present, dominated by *Discus rotundatas* and *Oxychilus* spp. Occasional examples of *Clausilia* spp., *Vitrea contracta* and *Aegopinella nitida* are also present. The assemblages are typical of cave/rock crevice environments and therefore do not contribute to a better understanding of the environment of the site.

Of note is the presence of large concentrations of phosphatic concretions in contexts 16022, 16034, 16021, 16018 and 16016. These concretions are thought to be the result of high levels of phosphates and the large quantity present in the Early Christian deposits may have been due to the presence of animal dung or bird droppings.

In addition the remains of several carbonised animal droppings were recovered from contexts 16007, 16018, 16005 and 16008. The animal droppings were generally ovoid in shape and roughly tapered at one end, ranging in size from 8.5 - 12 mm in length and 5 - 6 mm in diameter. The size and shape are compatible with droppings from goat or sheep (*Capri* or *Ovis* sp.).

Medieval deposits

Two samples were taken from occupation layers dated to the medieval period.

A variety of environmental remains were recovered. These were very similar in quantity and composition to the Early Christian samples.

Context 16015 was dominated by marine shell with lesser quantities of fragmentary large mammal bone, rodent bone and fish bone. The flot from this sample contained occasional seeds of goose grass and a large quantity of charcoal.

Context 16003 contained low quantities of mammal bone, fish bone and charcoal.

Similar phosphate concretions to those found in some of the Early Christian samples were also present in each of the medieval samples. Again these concentrations are thought to have resulted from the presence of large quantities of animal dung.

DISCUSSION

The mix of material from each phase is typical of domestic waste, including fragments of large mammal bone, fish bone and marine shell and the finds support the evidence recovered from the excavation for habitation of the cave. Similar material was recovered from the site during the evaluation stage in 2000 (*Inchmarnock Report 3*, 11-12). There appears to be little change in the use of the cave site throughout the three main phases of activity.

Small-scale Food Processing

Carbonised cereal grains were recovered from samples believed to relate to Early Christian use of the cave. The presence of cereal grains within hearth deposits suggests that small-scale corn drying or cereal processing was being carried out on the site. The cereal grain assemblage included hulled barley, oat and rye, and is typical of this period and later.

Occasional fragments of charred hazelnut shell were also present throughout each phase. The quantity present is, however, low and it is most likely that this material was brought to the site with wood fuel rather than being collected deliberately for consumption.

Burnt mammal bone and fish bone were recovered from a number of the hearth deposits and indicate small-scale meat processing/cooking being carried out. The marine shell assemblage was dominated by species commonly found on coastal settlement sites. All species have been exploited for human consumption and their presence at the cave suggests that this marine food source was being utilised.

Animal dung as fuel

High concentrations of burnt animal droppings were recovered from six samples. Their presence may reflect the use of animal dung as a source of fuel. A large concentration of phosphate concretions was also recovered from some contexts, particularly from Early Christian and medieval deposits. The presence of large quantities of animal dung or possibly bird droppings within the cave is the likely cause of this process (Stephen Carter, pers *comm*.).

Immediate cave environment

Low concentrations of charred weed seeds were recovered from a small number of samples dated to the Early Christian and medieval periods. All species present are native to this area of Scotland and are commonly found on waste ground. The presence of one bramble/raspberry seed from Context 16021 could possibly indicate the collection of these fruit for consumption though the single instance recorded is more likely to indicate that this was brought to the site accidentally on clothing or even carried to the site by birds.

Occupation of the cave by birds

High concentrations of small mammal bone were recovered from many of the samples, the largest concentration being recovered from Context 16025. This context is interpreted as an occupation and abandonment deposit defining the end of the use of the cave during the Iron Age period. The majority of the small mammal bone was identified as small vole, shrew and mouse species (Henderson, below), and they were most likely brought to the site by birds.

APPENDIX 3: FAUNAL REMAINS

Dave Henderson

INTRODUCTION

Faunal remains were recovered from nineteen contexts on site, dating from Iron Age, Early Christian and Medieval periods (Jones, above). Only two contexts (16015 and 16020) produced bone hand-gathered during excavation, the rest of the assemblage deriving from sieved soil samples. Bone preservation was generally good. Seven of the contexts produced large proportions of charred or fully calcined bone (contexts 16005, 16018, 16022, 16026, 16030, 16033 and 16034). These contexts were associated with hearths and possible occupation layers.

METHODS

Most of the assemblage comprised the bones of rodents and insectivores. It was decided that species identification would be carried out only on mandibles of this class of species, using the charts in Hillson (1986, 25, 61, 67 and 68) and Corbet (1989). Fish remains were identified by vertebrae only, and species were only recorded as present. The domesticated mammals were sorted and identified to the level of species, bone and side as far as possible. Any taphonomic factors such as burning and carnivore tooth-marks were recorded.

SPECIES PRESENT

Large Mammals

A total of eight large mammal bones were identified. One cattle and three sheep/goat bones were identified from Medieval context 16015, a dog-chewed sheep metacarpal came from context 16007, a Phase 3 deposit and the joining, burnt left radius and ulna of a pig came from the broadly contemporary ash and charcoal layers 16020 and 16021. The pig was under 3.5 years old at death, and from the size (radius proximal breadth = 27.1 mm) appears to be a domesticated breed. The other large mammal specimen was the upper left second molar of a red deer from context 16025, Phase 1 deposit. Non-identifiable fragments of bone deriving from large mammals, mostly burnt or calcined, were also recovered from Early Christian hearth and rake-out deposits (contexts 16005, 16009, 16022, 16030 & 16034), as well as Iron Age contexts 16025 and 16033. Three bones and teeth of rabbit were also recovered from contexts 16005, 16007 and 16015. Given the pre-Norman dates of the first two contexts, and the clearly disturbed nature of the last, these bones are almost certainly intrusive.

Small Mammals

The presence of small rodent and shrew species is recorded in Table 5. Figures represent the minimum number of individuals present (based on left or right mandibles). Where a figure is not given (+), only individual teeth of a species, or in the case of RAV, SOR and MUR only post-cranial bones of appropriate size, were recorded.

Table 5: Minimum numbers and presence of small mammal species by context and period.

Phase	Context	ART	RAV	MAG	CLG	APO	MUR	SOA	SOM	NEO	SOR
1	16025	1		14	1	13		27	6	1	
1	16026			2		1		2			
1	16033			1			+				
2	16023	7		10		3		9	1		
2	16024	+		+		1		1			
3	16005			1							
3	16007	2					+	1			
3	16011					1					
3	16016	3		2	1			2			
3	16018	+	+					1			
3	16021	1		2				2			
3	16022			3		1		2			
3	16034						+				
4	16003	1		1			+				+
4	16015		+	1		3	+				+

Abbreviations: 1: Iron Age, 2: Abandonment, 3: Early Christian, 4: Medieval. ART = *Arvicola terrestris* (Water Vole), RAV= Rat/Water vole-sized species, MAG = *Microtus agrestris* (Field Vole), CLG = *Clethionymus glareolus* (Bank Vole), APO = *Apodemus sylvaticus* (Wood Mouse), MUR = Mouse-sized species, SOA = *Sorex araneus* (Common Shrew), SOM = *Sorex minutus* (Pygmy Shrew), NEO = *Neomys fodiens* (Water Shrew), SOR = Shrew-sized species.

Most of the small mammal remains came from two contexts, 16023 and 16025, the former stratigraphically immediately overlying the latter. Context 16025 has been interpreted as an Iron Age occupation and abandonment layer, and context 16023 as a build-up of material before the re-use of the site in the Early Christian period. Between the two contexts there is a distinct increase in the size of the species represented, with more water voles (*Arvicola terrestris*) and many fewer shrews (*Sorex* spp), there is also an increase of field voles (*Microtus agrestris*) relative to wood mice (*Apodemus sylvaticus*).

Fish

Remains of fish were found in half the contexts, usually in very small numbers. Only sea fish were identified. Species present include herring (*Clupea harengus*), small haddock (*Melanogramus aeglfinnus*), small gadoids (of the cod family), gurnards (family *Triglidae*) and flatfish (including plaice, *Pleuronectes platessa*).

DISCUSSION

The small amount of large mammal bone recovered, even in association with hearths, suggests that the site was not intensively occupied, although the scorched pig forelimb from the Early Christian context 16020 may well be the remains of a meal taken in the cave. Possible deer hunting in the Iron Age period (context 16025) may have been of deer indigenous to the island; certainly Inchmarnock is within the swimming range of red deer from Bute.

Of the small mammals, it is most likely that they were deposited on site by raptors. It is unclear whether the change in species distribution between the Iron Age and Early

Christian periods is more likely to have been caused by a change in the local environment, perhaps with more open, well drained fields being replaced by more wooded and boggy ground, or whether the change reflects the use of the cave by different birds of prey with different prey preferences. If raptors are responsible for the deposition of the small mammal remains on the cave floor, the distance offshore of Inchmarnock would not prevent resident birds from hunting on mainland Bute and returning with prey to the island, so the presence of water vole remains would not necessarily imply the presence of running streams on Inchmarnock itself. Similarly the fish remains may have been deposited by gulls (a large colony still exists close to the site) or by occasional use of the cave by otters. Human fishing cannot be ruled out, especially in context 16018, where over 80% of the fish bone recovered was burnt.

APPENDIX 4: SITE REGISTERS

CONTEXT REGISTER

No	Description
16001	Mid brown silty loam, slightly clayey with frequent roots & occasional shell. Depth 0.11m. Turf & topsoil.
16002	Dark brown clayey silt with frequent roots, occasional stone <0.10m and shell, rare pebbles <0.04m. Depth 0.10m.
16003	Mid brownish orange clayey silt, compact, with rabbit disturbance, occasional charcoal, shell, large stones <0.30m. L: 2.30m, W: 2.15m, D: 0.06m.
16004	Light orange brown clayey sand, frequent rabbit disturbance. L: 1.10m, W: 0.50m, D: 0.03m. Layer of ash from hearth.
16005	Mid-dark brown clayey silt with concentrated patches of charcoal and frequent charcoal flecks, occasional clay patches and broken slate and shell fragments. L: 3.40m, W: 3.00m, D: 0.10m. Rake out from hearth. Same as 1649 in evaluation.
16006	Black charcoal rich silt, loose due to rabbit disturbance, occasional small stones and gravel. L: 0.80m, W: 0.60m, D: 0.05m. Hearth layer. Associated with 16021 below.
16007	Blackish brown compact charcoal rich silt with frequent shell fragments. L: 0.70m, W: 0.40m, D: 0.02m. Associated with 16021 below.
16008	Charcoal rich clayey silt, moderately compact. D: 0.05m. Within 16005.
16009	Dark brownish grey silt, moderately compact, with frequent charcoal lenses and occasional stones and gravel. L: 0.40m+, W: 0.20m+, D; 0.20m. Same as 1651 in evaluation.
16010	*Context discarded*
16011	Dark orange brown firm clayey silt with patches of reddish orange gritty silt, frequent marine shell, moderate charcoal. L: 0.60m, W: 0.25m, D: 0.10m. Hearth.
16012	Deposit of large flat, angular stones <0.40m, some fractured, possibly deriving from roof fall.
16013	E-W alignment of flat stones <0.40m, single course, sloping southwards. L: 2.60m, W: 0.80m. Possibly paving delimiting the edge of the cave.
16014	Medium-large stones 0.20m-0.40m with occasional larger boulders <0.70m, no coursing, occasional edge set stones, voids and stones fallen from the roof. L: 2.4m, W: 1.4m. Stone tumble/rock fall.
16015	Dark grey brown slightly clayey silt, loose, with animal disturbance and frequent marine shell, occasional bone fragments, metal fittings and clay pipe. L: 3.0m, W: 2.8m, D: 0.14m. Post-medieval deposit.
16016	Burnt orange brown clayey silt, moderate to firm compaction, moderate marine shell and charcoal. L: 2.0m, W: 1.80m, D: 0.10m. Hearth. Same as 1650 in evaluation.
16017	Flat stones <0.20m and 0.03m thick, partly overlying 16016. L: 0.80m, W: 0.45m. Stones delimiting the area of hearth 16016. Same as 1653 in evaluation.
16018	Dark blackish brown friable silty loam with concentrations of charcoal, occasional charcoal flecks and marine shell. L: 2.0m, W: 1.60m, D: 0.05m.

	Rake out from hearth.
16019	Partially concreted dark orange brown burnt deposit with occasional charcoal and shell. D: 0.02m. Compacted ash layer of hearth, associated with 1620.
16020	Dark blackish brown charcoal rich silt, moderately compact with occasional shell fragments. D: 0.03m. Charcoal deposit beneath hearth 16019.
16021	Concreted dark orange brown-pale yellow burnt deposit with moderate charcoal and shell. D: 0.05m. Compacted ash layer of hearth.
16022	Dark blackish brown silty loam with frequent charcoal, marine shell and occasional fragments of slate. L: 3.0m, W: 0.80m, D: 0.08m. Rake out from hearth at base of series of hearths. Same as 1652 in evaluation.
16023	Light yellow brown sandy silt, moderately compact with moderate shell fragments, frequent animal disturbance. L: 2.0m, W: 0.6m, D: 0.05m. Undisturbed surface beneath hearths. Same as 1654 in evaluation.
16024	Pale yellow clayey sand, no inclusions, friable. L: 0.70m, W: 0.60m, D: 0.02m. Located in NE area of cave only.
16025	Mid-dark purplish brown sandy silt, moderate compaction, with frequent slate fragments, shell fragments and gravel. Stonier towards base of deposit. L: 1.40m, W: 1.20m, D: 0.10m.
16026	Black charcoal rich sandy silt, friable with frequent small-medium sub-angular and angular stones, occasional shell fragments and concentrations of shell. L: 3.50m, W: 2.0m, D: 0.10m. Not fully excavated. Same as 1655 in evaluation. Occupation layer.
16027	Shattered bedrock.
16028	*Context discarded*
16029	*Context discarded*
16030	Heavily disturbed/truncated deposit consisting of orange brown ash and dark blackish brown silt with charcoal flecks. L: 0.20m, W: 0.10m, D: 0.06m. Remains of hearth.
16031	Dark brown slightly clayey silt, friable with occasional shattered stone fragments <0.10m and pebbles <0.03m, rare large stones <0.20m. Similar in texture to 16015. No finds. L: 2.4m, W: 1.9m, D: 0.05m.
16032	Large broken angular stones 0.30m-0.40m with occasional smaller stones and large cobbles <0.10m. L: 3.0m, W: 1.80m. Not excavated. Lies to the east of 16033.
16033	Rounded cobbles <0.07m and fractured and angular stone fragments <0.10m forming a rough surface with 16032. Within dark brown silty matrix. L: 1.90m, W: 1.40m, D: 0.28m. Rough surface at the front of the cave.
16034	Concreted charcoal rich silt with frequent shell and shell fragments, slate fragments and small stones <0.03m. L: 0.30m, W: 0.30m, D: 0.08m. Same as 16022.
16035	Loose light brown clayey silt with frequent gravel and slate fragments < 0.04m and occasional large stones <0.30m. D: 0.30m. Not fully excavated. Deposit beneath topsoil at mouth of cave.
16036	Mid slightly orange brown fine silt with occasional medium-large stones <0.20m. D: 0.30m+. Not fully excavated, runs beneath bedrock shelf.
16037	Light yellow-grey crushed bedrock and gravely silt. D: 0.15m. Subsoil/interface with bedrock.

DRAWING REGISTER

No	Scale	Description
1	1:20	Pre-ex plan of cave
2	1:20	Plan of 16012, 16013, 16014 & 16015 after removal of 16002
3	1:20	North facing section of 16014, 16015 & 16031
4	1:20	Pre-ex plan of 16021 after removal of 16018, 16019 & 16020
5	1:10	Southwest facing section of evaluation trench
6	1:20	Pre-ex plan of 16016
7	1:20	Pre-ex plan of 16018
8	1:20	Pre-ex plan of 16009, 16010 & 16011
9	1:20	Pre-ex plan of charcoal deposits 16005, 16006 & 16007
10	1:20	Pre-ex plan of 16004
11	1:20	Pre-ex plan of 16003
12	1:20	Pre-ex plan of 16008
13	1:20	Pre-ex plan of 16022 & 16034
14	1:20	Pre-ex plan of 16030
15	1:20	Pre-ex plan of 16032 & 16033
16	1:20	East facing section through cave deposits
17	1:20	Final plan at North end of cave showing 16023, 16026& 16027

SAMPLE REGISTER

No	Context	Description
1601	16003	Compact orange brown clay silt with shell and charcoal
1602	16008	Charcoal deposit
1603	16007	Charcoal rich hearth layer
1604	16005	Charcoal rich layer
1605	16009	Dark brown grey silt with charcoal
1606	16011	Dark orange brown clayey silt with charcoal and shell
1607	-	*Sample discarded*
1608	16016	Orange brown clayey silt
1609	16018	Dark blackish brown charcoal rich silt, rake out from hearth
1610	16015	Dark brown clayey silt with frequent shell
1611	16021	Burnt yellow-orange ash deposit
1612	16022	Dark brown silt with charcoal
1613	16030	Orange brown silt with charcoal
1614	16033	Dark brown clayey silt matrix with cobbles and stone
1615	16023	Light yellow brown fine silt
1616	16024	Pale yellow clayey sand lens
1617	16025	Purplish grey brown sandy silt with shell and stones
1618	16026	Charcoal rich sandy silt with shell
1619	16034	Concreted charcoal rich silt with shell

SMALL FINDS REGSITER

No	Context	Description
1601	16002	Medieval pottery
1602	16002	Medieval pottery
1603	16003	Medieval pottery
1604	16007	Fe object
1605	16020	Bone fragment
1606	16002	3 Medieval potsherds
1607	16015	3 Medieval potsherds
1608	16015	Clay pipe fragments
1609	16001	Post medieval/modern pottery
1610	16001	Post medieval/modern pottery
1611	16007	Hammer stone?
1612	16007	Cu alloy nail
1613	16015	2 Glass fragments
1614	16015	7 Fe & cu alloy nails & pins
1615	16021	Fe object
1616	16033	Nail/hook & fragment
1617	16024	Fe circular fragment
1618	16025	Cu spiral, broken
1619	16015	Fe Perforated plate
1620	16015	Fe staple
1621	16015	Clay pipe stem

PHOTOGRAPHIC REGISTER

No	Colour Slide	Colour Print	Facing	Description
487	*	*	N	Pre-ex shot of cave
488	*	*	E	General shot after cleaning
489	*	*	E	General shot after cleaning
490	*	*	N	General shot after cleaning
491	*	*	N	Pre-ex 16003
492	*	*	NE	Pre-ex 16004
493	*	*	N	Charcoal layers 16005, 16006 & 16007
494	*	*	N	16005 after removal 16008
495	*	*	E	Deposits 16013, 16014 & 16015
496	*	*	NW	Stone tumble 16014
497	*	*	N	? Wall collapse 16013
498	*	*	S	Looking towards Holy Island and Arran from cave
499	*	*	NE	SW facing section of evaluation trench
500	*	*	NE	Charcoal layer 16018
501	*	*	SE	Towards Bute
502	*	*	S	Towards Holy Island and Arran
503	*	*	N	Towards cave
504	*	*	NW	Towards cave 16A

505	*	*	SE	Stones 16014 in section
506	*	*	E	Stones 16014
507	*	*	SE	Stones 16014 in section
508	*	*	E	Stones 16014
509	*	*	N	S facing section through stones 16014
510	*	*	E	Hearth 16021
511	*	*	E	Stones 16033 & 16032
512	*	*	W	E facing section
513	*	*	W	E facing section
514	*	*	W	E facing section
515	*	*	W	E facing section
516	*	*	W	E facing section
517	*	*	W	E facing section
518	*	*	W	E facing section
519	*	*	W	E facing section
520	*	*	W	E facing section
521	*	*	N	North part of cave showing 1m slot
522	*	*	NE	Deposits 16023, 16026 & 16027
523	*	*	NW	Deposits 16023, 16026 & 16027 and 1m slot
524	*	*	-	Working shots

APPENDIX 4: BIBLIOGRAPHY
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1 INTRODUCTION

This report presents the results of an archaeological excavation in a cave (Site 16B) on the island of Inchmarnock. It is located in the cliff face above the raised beach on the south side of the island (Figure 1; Plate 1). Two caves in this area (Sites 16A and 16B) were investigated as part of an earlier evaluation (*Inchmarnock Report 3*). The environmental samples from the two caves produced clear evidence of occupation and radiocarbon dating has identified Iron Age occupation levels in both caves. A sample of carbonised oats from the upper levels of Site 16B has been radiocarbon dated to AD 679-888, suggesting perhaps eremitical occupation of the site in the Early Christian period. This would also be the natural interpretation of the place name 'Dysart', recorded at Site 15 (*Inchmarnock Report 2.2*).

2 OBJECTIVES

Based on the information gained from the previous evaluation of the site, the excavation aimed to address four main objectives:

- To clarify the chronology of the cave occupation; do these relate to an Early Christian or medieval practice of eremiticism?
- Are there incised crosses or other Christian graffiti present in the rock faces?
- Was occupation temporary or seasonal?
- How do the cave sites relate to other, contemporary settlements on the island?

3 METHOD

The cave was initially surveyed and the profile and cross-section of the cave recorded using a Total Station. A site grid and a temporary benchmark were established. An area measuring 6m by 5.50m was set out with survey line A-B-C marking the western limit of the excavation (Figure 2). A trench 1m wide was extended south towards survey point A in order to record the cave deposits in section.

The deposits in the cave were then excavated in order to determine their nature, depth and possible date, and recorded appropriately. Colour print and colour slide photographs were taken. A number of deposits were environmentally sampled. Finds were recorded in three dimensions. The site was backfilled on completion of the excavation.

4 RESULTS

4.1 INTRODUCTION

The preliminary phasing scheme is based principally on radiocarbon dates from the evaluation, dating of specific artefacts and with reference to the nature of deposits. Five phases have been identified (Figure 5). Table 1 shows the concordance of evaluation and excavation context numbers. Summary overviews are provided for

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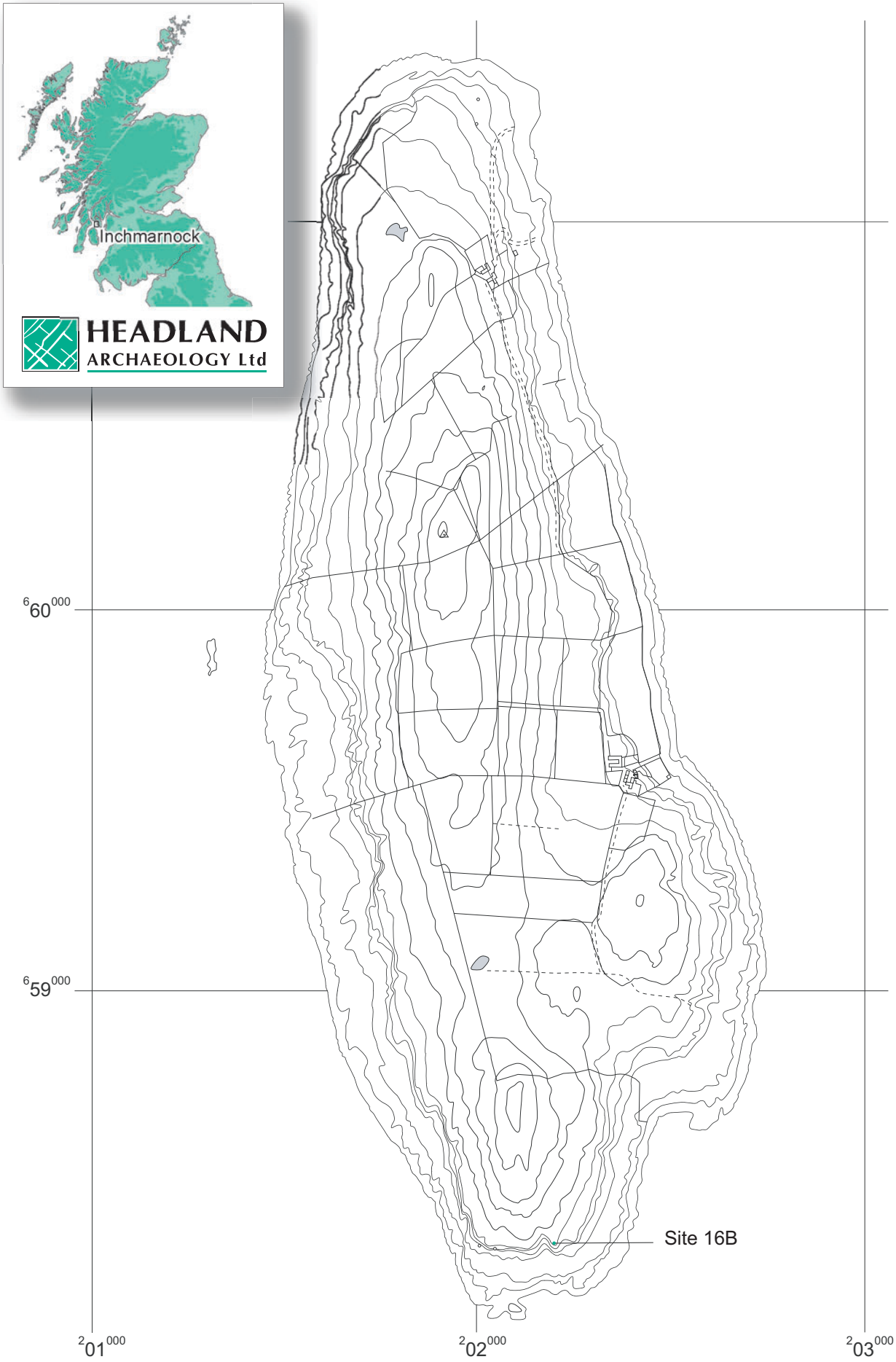

Figure 1. Inchmarnock, Site 16B: Location of Site

LR5 08.07.02

Figure 2. Inchmarnock, Site 16B: Plan of Site

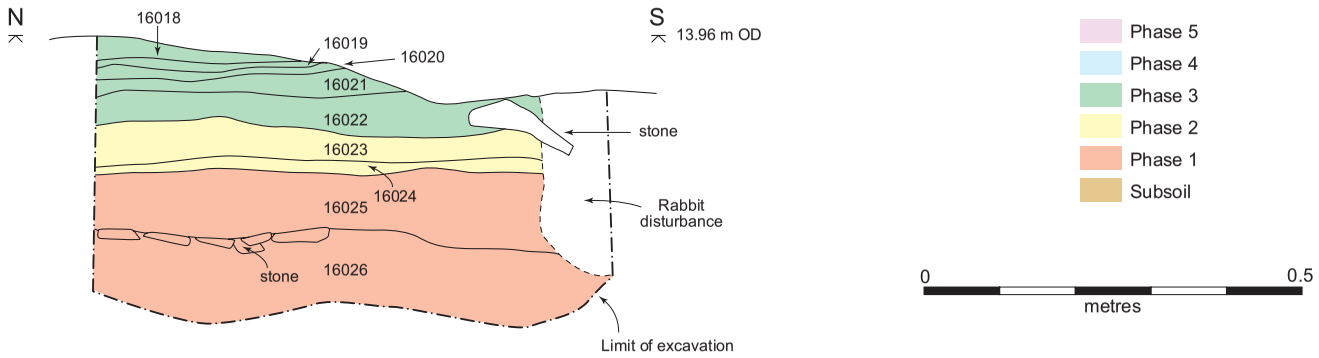

Figure 3. Inchmarnock, Site 16B: West facing section through evaluation trench

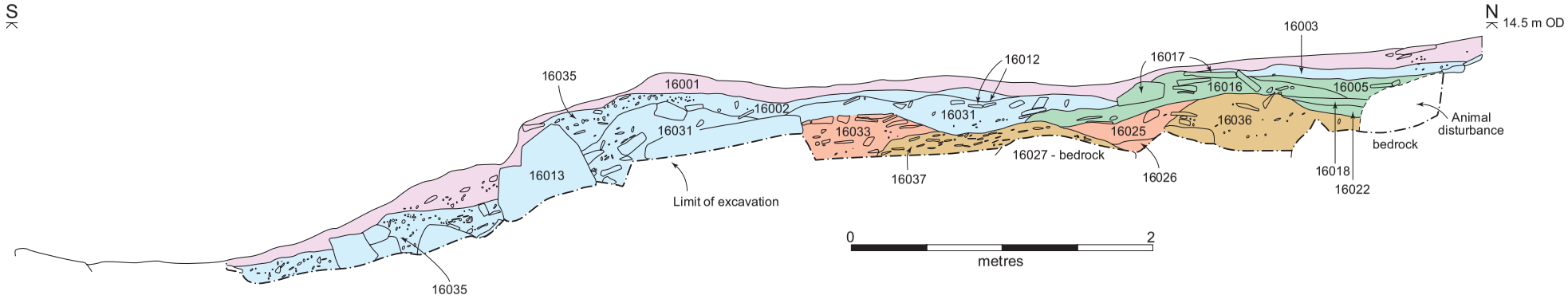

Figure 4. Inchmarnock, Site 16B: South-east facing section through cave

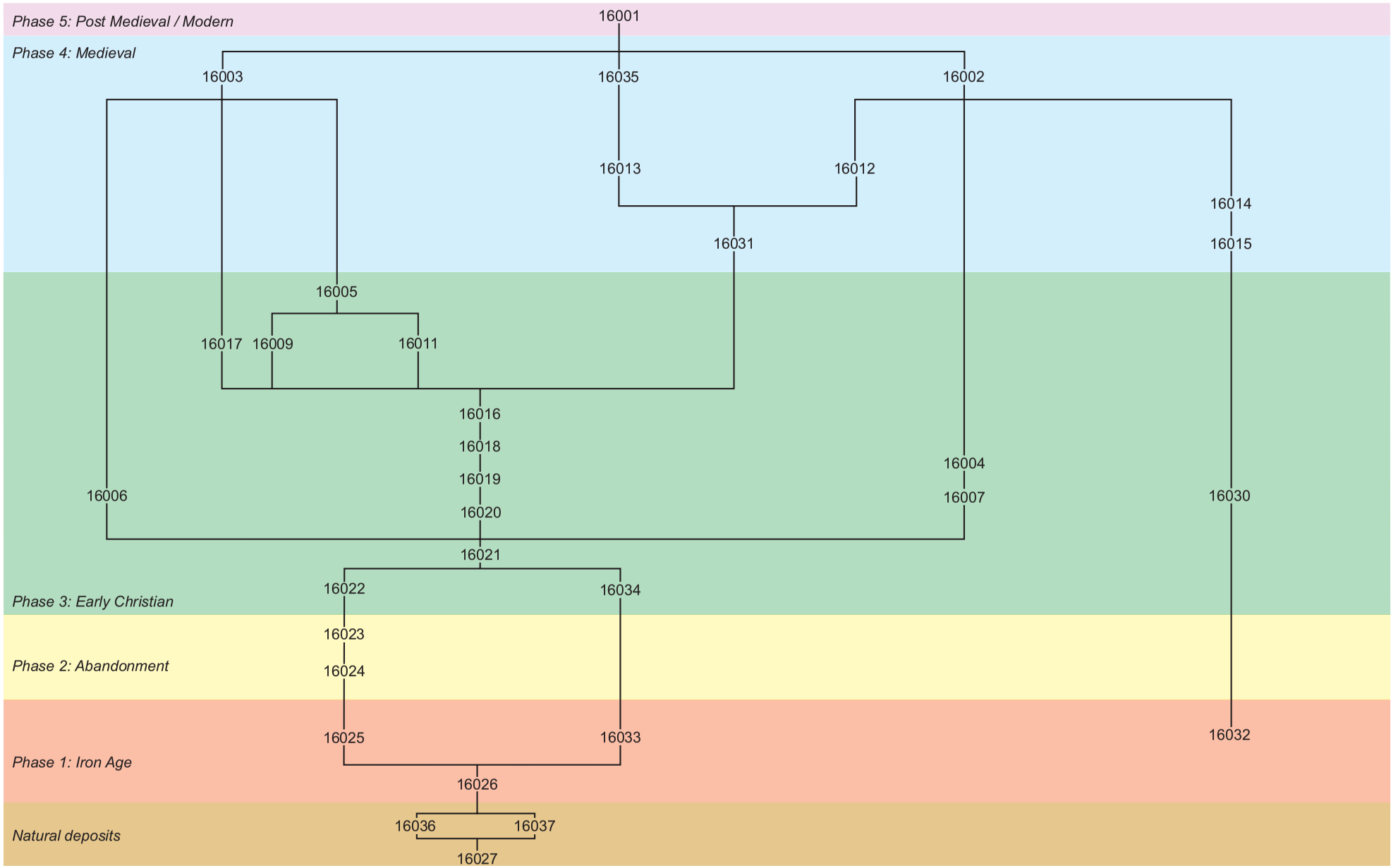

Figure 5. Inchmarnock: Matrix of deposits, Site 16B

Plate 1.
View towards cave, from the south

Plate 2.
Deposits at rear of cave with evaluation trench in foreground, from the south

Plate 3.
Section through evaluation trench, from the south-west