

## Appendix 5 – Site Backgrounds

<b>Cathole cave</b> Illston, Swansea	NGR: SS 5376 9001	Alt: 30.48m OD	Length: c.18.2m from cave mouth	Condition: Nearly intact
	Period: Middle Neolithic	MNI: 2+ (adults)	<sup>14</sup> C: 4675±39 BP (OxA-16605, cranium/adult)	Curation: National Museum Wales, Natural History Museum
Description:	<p>The cave is located on a dry limestone area, 2 km inland from the Gower. The mouth of the cave measures c. 3.6m and c. 6m high and extends for about 18.2m into the hill side. It comprises of 2 entrances and encapsulates a main large chamber, a few side-chambers and an antechamber. Both entrances are located 15 m above the valley floor and 10.48 m above sea level. The cave includes an undulating roof and several narrow rifts with rise several metres above roof level, underwent a series of excavations (possible backfilling and disturbances) and no stratigraphic information is available. The cave is near intact with a partially collapsed roof (smaller of the two) (Davies 1989a)</p> <p>Disarticulated human and animal remains were discovered in a shallow layer during the first phase of excavation (1887) close to the surface of the first cave entrance (no stratigraphic information available) by Col. E.R. Wood (Garrod 1926; Walker <i>et al.</i> 2014). These include two human skulls (no specifications for level of completeness however marked on a sketch plan by Vivian 1887), cranial and mandible fragments as well as a low number of postcranial remains. Vivian (<i>ibid.</i> 200) claimed that Wood was the first to mention the faunal and the human bones during the first excavation of the cave. Roberts (1888) and Garrod (1926) provided a further record of archaeological finds discovered in the cave: an abundance of Pleistocene mammal assemblages, domesticated animals, flint implements, pottery (Roberts 1888), Early-Middle Bronze Age technology (Garrod 1926: 65; McBurney 1959: 266) and tools (Garrod 1966: 65-66) that were later attributed to the earlier part of the Late Upper Palaeolithic period in Britain (Jacobi and Higham 2011b: 229; Walker <i>et al.</i> 2014).</p> <p>Following excavations in 1958/59 by C.B.M McBurney (McBurney 1959; Campbell 1977) and 1958 by John Campbell revealed more disarticulated remains. Trenches of 1.2m on a grid platform outside of the entrance revealed a later prehistoric horizon that encapsulated further human remains. McBurney unearthed and recorded a stratigraphy including the spoil-heap that Wood had removed from the cave in 1864, a later prehistoric horizon with some human remains, some Bronze-Age potsherds, lithic artefacts and faunal remains (RCHM 1976: 19; Walker <i>et al.</i> 2014: 132). Campbell on the other hand opened a trench outside of the south-western entrance and extended McBurney’s original trench to the south (Walker <i>et al.</i> 2014: 133). His contribution was major as he distinguished the layers (B and C), originally excavated by McBurney, that contained Mesolithic and Late Upper Palaeolithic artefacts. He further undertook pollen analysis of the sediments, produced a number of detailed reports that clarified previous work on the cave and published a plan of McBurney’s and his own locations of the excavation trenches (Campbell 1977; Walker <i>et al.</i> 2014: 133).</p> <p>Attention was given to the cave site in 2010 after Dr George Nash who discovered an engraved ‘deer-like’ motif in one of the recesses of the cave (Nash <i>et al.</i> 2012; Nash and Beardsley 2013). Samples that were extracted from the motif provided an Upper Palaeolithic date for the figure (ca. 12.500 BP) and led to a full detailed survey (3D digital survey) in 2011 that produced an accurate plan of the south-western section (Nash and Beardsley 2013; Walker <i>et al.</i> 2014: 133). The last excavation programme took place in 2012 (Walker <i>et al.</i> 2014) after the vandalism of the rock art figure in the cave to protect the engraving using a grille in order to avoid any disturbances. This latest programme led to an in-depth recording of surviving material and artefactual samples that could later be used of environmental dating and sedimentological purposes (Nash 2014: 138). After the series of these excavation, only a few human remains survive (cranial and a few post-cranial remains). One of the skulls was attributed to a younger adult males based on the degree of dental attrition (mandible and maxilla). Similarly, the second skull was attributed to an older adult (only mandible survived), was sampled and provided a Middle Neolithic date (Schulting 2020). Remaining available dates from the site derive from animal bones including a</p>			

	<p>bone? of a wild horse, three molars and a carpal from reindeers a fragment from a red fox mandible, a rib from an unidentified large mammal and a molar from an hyena (Burrow and Williams 2008).</p> <p><b>Other finds:</b> Beaker, socketed bronze axe, Upper Paleolithic flint artefacts (either Upper Augignacian or Magdalenian), mid-Devensian fauna, stone hammer, engraved ‘deer-like’ motif</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting 2020)</p> <p><b>Available radiocarbon dates:</b> on animal bones (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>
Basic bibliography:	Roberts 1887; Vivian 1887; Garrod 1926; Allen and Rutter 1948; McBurney 1959; RCAHMW 1976; Campbell 1977; Oldham 1986; Davies 1989a; Green and Walker 1991; Burrow and Williams 2008; Jacobi and Higham 2011a, 2011b; Nash <i>et al.</i> 2012; Chamberlain 2014; Nash and Beardsley 2013; Nash 2014; Walker <i>et al.</i> 2014; Schulting 2020; www9

<b>Spurge Hole</b>	NGR: SS 5468 8730	Alt: 27.50m AOD	Length: ?	Condition: Intact
Pennard, Swansea	Period: Early to Middle/Late Neolithic	MNI: c.3+ (two adults and one juvenile)	<sup>14</sup> C: 4830±100 BP (OxA-3815, femur/adult) 4648±26 BP (SUERC-97583, humerus/adult?) 4425±26 BP (SUERC-97584, cranial fragment)	Curation: National Museum Wales
Description:	<p>Spurge Hole is located in a steep cliff near Southgate Gower and forms a water-worn, low, south-facing arch 1.2m wide and 0.5 m high. A series of excavations started in 1985 by Melvyn Davies and J.R Rutter (Davies 1985; 1986a)m who backfilled the site until excavations by National Museum Wales followed in 1911. The cave is intact with signs of a built wall across the mouth of the cave (suggestion of intentional blocking according to one of the excavators, Melvyn Davies).</p> <p>A single trench was opened across the entrance of the cave, 1.1.m long and 0.5m wide, revealing one skeleton in its correct anatomical order, with some of the bones still articulated, about 5cm beneath the surface (Davies 1985). Cranial, post-cranial remains and loose teeth recovered near the surface were severely eroded and, according to the excavation report, disturbed by burrowing animals. The rest of the skeleton was partially buried as the rear of the cave runs deep and the roof decreases (in about 30cm of the space). Following excavation (c. 0.25cm deep) in 1911 at the entrance of the cave revealed more remains of the skeleton. Initial analysis after excavation revealed a 45 year old individual of medium height with evidence of periodontal disease based on the loose teeth. A plan/section of the cave indicates the east-west orientation of the skeleton with the head to the west across the cave entrance. Careful re-examination of the skeletal elements revealed more than one individual is present on the basis of morphology. The right pelvis and temporal and front bones were attributed to an adult male whereas the left pelvis and left and right femurs to an adult woman. Some of the loose teeth were attributed to an older adult (more than 40 years) whilst a single deciduous tooth (juvenile c. 4 years) was also recovered amongst the assemblage. One of the femurs (possible the left/no clear indication in the records) provided an Early Neolithic date whilst a probable adult humerus and a loose cranial fragment verified separate burial activity (this PhD) with Early/Middle (former) and Middle/Late (later) Neolithic.</p> <p><b>Other finds:</b> shell samples</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting and Richards 2002), histology (part of this PhD); stable isotope analysis from humerus/adult? and loose cranial fragment (see Appendix 1/Sheet 5/14C results– part of this PhD)</p>			
Basic bibliography:	Oldham 1986; Davies 1985, 1986a, 1989a, 1991; Schulting and Richards 2002; Burrow 2003; Burrow and Williams 2008; Chamberlain 2014; Peterson 2019; www9			

<b>Red fescue Hole</b> Rhossili, Swansea	NGR: SS 4266 8678	Alt: 30m OD	Length: c. 6m deep	Condition: Highly disturbed
	Period: Middle Neolithic	MNI: 1 (adult)	<sup>14</sup> C: 4634±29 BP (OxA-22993, fibula/adult)	Curation: National Museum Wales
Description:	<p>Low-roofed coastal cave found at 30m above sea level (OD) in a sheltered dry valley. The platform at the entrance is formed by a stepped bedrock that ends in a 50m vertical drop and becomes submerged in high tide. The cave/rock shelter is approx. 6m deep, c. 3m wide and 1.5m high and was first recognised as a rock shelter (has an entrance overhang) in 1983. It forms a narrow tunnel still unexplored. According to the excavator, Melvyn Davies (Davies 1986b, 1986c) the cave overhang possibly retreated due to rock collapse. The site opens into a chamber c. 2m wide and 5m long before being blocked by sediment containing limestone and it is highly disturbed from excavation and recent use of the cave as a shelter.</p> <p>Cave earth exposed from the floor (heap) against the east wall in 1984 revealed animal fragments and flint (considered the result of trampling and disturbances in the cave) (Davies 1986c). Following excavation in 1985 of a disturbed upper layer (1m wide to 30cm depth across the entrance) revealed human remains (low number of post-cranial remains) that had been very poorly preserved (Davies 1986b). Disturbed human remains were unearthed near the surface from a small trench that was opened from the overhanging east wall close to a block that has fallen from the ceiling in the centre of the cave. The excavation was stopped at the depth of 50cm and no stratigraphic information is available apart from the separation of the upper disturbed layer that contained animal bones and the lower brown cave earth with sub-angular limestone fragments. A human fibula provided a Middle Neolithic date (Schulting 2020).</p> <p><b>Other finds:</b> flint scraper and flake, animal bones and marine shells  <b>Other analysis:</b> stable isotope analysis (Schulting 2020)</p>			
Basic bibliography:	Davies 1986b, 1986c; Oldham 1986; Davies 1989a; Davies 1991; Burrow and Williams 2008; Chamberlain 2014; Peterson 2019; Schulting 2020; www4; www9			

<b>George Rock Shelter</b> Wenvoe, Vale of Glamorgan	NGR: ST 112 717	Alt: 56.20m OD	Length: 6m	Condition: Intact
	Period: Early Neolithic and post-Medieval	MNI: 6+ (three adults, one adolescent, one juvenile, one perinate)	<sup>14</sup> C: 4929±33 BP (OxA-20968, phalanx/adult) 4954±22 BP (OxA-41093, cranial frag.) 4969±22 BP (OxA-41106, cranial frag.) 5083± 38BP (OxA-X-2424-44, 1st upper incisor/adult?) 125±24 BP (OxA-20967, metatarsal/adult)	Curation: Rick Peterson, University of Lancaster (private collection)

Description:	<p>The site lies on the south-west side of Cwm George (56.20m OD) with a east-facing limestone outcrop that overhangs at two points and forms rock-shelters up to 1m deep. An area of 6m x 2m along the front of the rock-shelter was excavated between 2005 and 2007 by Rick Peterson. Five contexts were distinguished (1010 contained fill 1009). This site presents one of the few examples of careful monitoring and excavation (Aldhouse-Green and Peterson 2007).</p> <p>Human bone was excavated predominantly in contexts 1002 and 1004 (natural limestone scree) however context 1009 also contained fragments of disarticulated bone (ibid). Human remains mainly consisted of cranial fragments, a very low number of post-cranial remains, loose teeth and cremated bone. Tufa deposits covered contexts 1002, 1010 (later cut feature). 1010 pit was considered an artificial feature consisting of residual prehistoric and later material and whilst this site shows clear evidence of multi-period use, its Neolithic presence stands out (contexts 1002 and 1004).</p> <p>Two Early Neolithic dates (adult/phalange from context 1002/1007 near the base of the layer and adult?/upper incisor from context 1004 at the lower part of the deposit) and one post-Medieval date (adult/metatarsal from the intrusive deposits of layer 1009) are available. According to the excavator, the earliest date (OxA-X-2424-44) should be treated with slight caution owing to difficulties in extracting sufficient collagen (Bronk Ramsey <i>et al.</i> 2015). The site has been considered a place where multi-stage primary burials took place whilst two new radiocarbon dates from loose cranial fragments (separate contexts of Neolithic horizon 1002 and 1004) support concurrent depositions during the Early Neolithic as a result of a single-event.</p> <p><b>Other finds:</b> Roman-Iron Age pottery and artefacts (1009), large quantities of animal bone (1009 and 1004), Mesolithic worked flint, Neolithic pottery/flints, burned/cremated bone (1002/1007) , modern faunal remains/metal artefacts and pottery (1000)</p> <p><b>Other analysis:</b> histology (part of this PhD); stable isotope analysis from cranial fragments (see Appendix 1/Sheet 5/14C results – part of this PhD)</p>
Basic bibliography:	Aldhouse-Green and Peterson 2007; Aldhouse-Green and Peterson (n.d); Burrow and Williams 2008; Higham <i>et al.</i> 2011; Peterson 2012; Chamberlain 2014; Bronk Ramsey <i>et al.</i> 2015; Peterson 2019

<b>Pitton Cliff Caves</b> Rhossili, Swansea	NGR: SS 4251 8754	Alt: 64m	Length: 2m	Condition: Originally blocked by rubble, now possibly intact	
	Period: Early Neolithic	MNI: 1 (adult)	<sup>14</sup> C: 4837±38 BP (OxA-16570, calcaneus/adult)		Curation: National Museum Wales
Description:	<p>Located in a small private sycamore wood along a path that leads to Mewslade. The Mewslade Valley spring is 500m away. This site is part of a series of solution cavities on the cliff (six cavities over 30cm wide and four smaller in size), phreatic in nature. The cliff that encapsulates these openings is about 10m high. The main entrance of this rock shelter is 2m high and 2.5m wide and faces south with a passage at the back had been blocked by rubble and showed evidence of modern disturbances. Archaeological deposits were unearthed at 20cm depth after removal of the blocking in the cave. Removal of this blocking revealed mussel shells filled with clay and traces of stalagmite, a hacked animal fragment (small ox-size 63mm long) and one human calcaneus (79mm long) with patches of white stalagmite residues. The human calcaneus was radiocarbon dated to the early Neolithic.</p> <p><b>Other finds:</b> mussel shells, animal bone</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting 2020)</p>				
Basic bibliography:	Davies 1989b; Schulting 2020; www4				

<b>Ifton Quarry</b> Rogiet, Monmouthshire	NGR: ST 4642 8819	Alt: 40m OD	Length: unknown	Condition: Destroyed from quarrying
	Period: Middle to Late Neolithic	MNI: 7+ (five adults, two juveniles)	<sup>14</sup> C: 4640±29 BP (OxA-22995, femur/adult, M?) 4624±29 BP (OxA-22994, cranium/child) 4350±90 BP (OxA-X-1018-31, femur/adult, F?) 4178±28 BP (OxA-23139, cranium/adult, M?)	Curation: Newport Museum and Art gallery
Description:	<p>The old rock shelter or fissure is located at the south end of a limestone area that incorporates the Forest of Dean and the Wye Valley 40m OD. An eroded limestone area was exposed after quarrying started taking place in the early 1990s, subsequently revealing the rock shelter. The quarry lies in carboniferous limestone (Drybrook Limestone).</p> <p>Human remains were recovered from a narrow area underneath a projecting shelf of limestone near the summit of a steep slope. The shelf was about 2 meters long and less than a meter wide. This area possibly formed the bottom of an open recess/rock shelter in the side of the bank with a spring. After being discovered by ‘The Ifton Quarry Limestone Company’ around 1909, the skeletal remains were displayed in situ on a ledge. ‘The skulls were well hidden behind and the bones were all laid out in front’ (Knowles 1911: 9). Therefore apart from not being excavated by professional archaeologists, no stratigraphic information is available for this site. After remains were removed, they were first examined by Mr. John Ward (National Museum of Wales) and later by Francis Knowles who provided a complete report of the elements discovered. The human remains consist of incomplete craniums, a low number of cranial fragments, and some post-cranial remains (low number relative to the crania). Elements are overall highly fragmented and it has been suggested that the remains had already been disarticulated before being deposited in situ. This could explain the disproportional number of cranial vs post-cranial remains that were intentionally deposited into the recess of the limestone area. Two femurs (adult) and two crania (one adult, one juvenile) provided the Neolithic dates (three Middle Neolithic dates and one Middle/Late Neolithic).</p> <p><b>Other finds:</b> unknown/no finds <b>Other analysis:</b> stable isotope analysis (Schulting 2020), histology (part of this PhD)</p>			
Basic bibliography:	Anwyl 1909; Knowles 1911; Bowen 1997; Peterson and Pollard 2004; Schulting 2007; Chamberlain 2014; Schulting 2020			

<b>Little Hoyle Cave</b> Penally, Pembrokeshire	NGR: SS 11189997	Alt: 26m OD	Length: 7.6 m	Condition: Possibly disturbed after a series of excavations
	Period: Early to Middle Neolithic	MNI: c. 10-11+ [adults/young adults and one/two juvenile(s)]	<sup>14</sup> C: 4660±80 BP (OxA-3303, mandible) 4930±80 BP (OxA-3304, mandible) 4750±75 BP (OxA-3305, mandible) 4880±90 BP (OxA-3306, mandible) – mandibles sampled from 2 adults; 1 younger adult/adolescent; 1 unknown/adult? 4893±22 BP (OxA 41033, humerus/adult)	Curation: National Museum Wales, Tenby Museum and Art Gallery

Description:	<p>Small cave, which lies on the NE end of the ridge of a promontory (26m OD) within a limestone ridge known as Longbury Bank. The cave is formed by one large North facing entrance that leads to the main chamber, a large SE entrance that leads to the main chamber via a small passage and a southern entrance that is blocked.</p> <p>A series of excavations from 1866 to 1986 (most were non-scientific) led to disturbances and possible loss of some material. The first exploration was pursued by Rev. H. H. Winwood in 1866, followed by Rev. G. N. Smith in 1870, Wilmot Power and Edward Laws in 1877. The latter were the first excavators that accurately recorded the existence of relict breccia deposits on the cave walls and discovered remains of Roman and later age from a layer of possible Pleistocene deposit. During this excavation, Power and Laws noticed an amount of surface-water filtering through the roof and running down the walls (Laws 1878: 85). In 1878 a committee and Professor G. Rolleston examined the archaeological finds and published an official excavation report, including the exact location human remains were discovered scattered throughout this ('chimney') filling amongst finds of Roman and later periods, domestic animals and shellfish. Following scientific excavations from 1958 to 1986 by Professor McBurney and the National Museum of Wales (S. Green and A. Lane) revealed archaeological deposits of Late Upper Palaeolithic age (e.g. Creswellian type pen-knife blade), additional faunal remains and a scree sequence that spans almost throughout the whole Last Glaciation (Devensian).</p> <p>Human remains were unearthed from the outskirts of a heap (no indication on plan/drawing) during Power and Laws' excavation (Laws 1878), whilst in Rolleston's <i>et al.</i> report (1878), human remains were mentioned as discovered in different segments of the cave. Whilst Rolleston <i>et al.</i> (1878) mentioned that the North cave/entrance could have been used for habitation, most of the human remains were discovered in an infilled chimney or what he referred to as 'segment of depression' (<i>ibid.</i> 210). Elements included a high number of mandibles of different ages (younger to older adults), one (now reconstructed) cranium, cranial remains, a very low number of long bones and post-cranial fragments and a few loose teeth (including two deciduous teeth). Rolleston (<i>ibid.</i> 211) considered that remains were discovered in this in-between section of the cave (that connected the North to the South entrance with a small passage) as a result of disposal or unintentional rolling from the roof into the depression.</p> <p>No stratigraphic information is available (excluding six elements – trench number provided) however, a drawing of the cave clearly shows the infilled chimney where the human remains were discovered in between the North and the South entrances of the cave. The North entrance and the segment of depression could have been connected at some point, however it is not possible to confirm this hypothesis. A publication by Laws (1888: 15) mentions that human remains discovered by Power, Rolleston, Pitt Rivers and himself, included the remains of nine, if not eleven, individuals along with large quantities of faunal remains, shells, pottery, charcoal, stone and bone implements. These were mingled in black earth and angular stones in a 'hotchpotch' (<i>ibid.</i>). These finds were interpreted as the result of cave habitation, animal and/or use of the above 'segment of depression' as a burial location (<i>ibid.</i> 16). The depression therefore could have resulted from the fallen roof where the remains of the individuals were disposed and subsequently rolled back in the cave amongst animal remains through the infilled chimney with the large quantity of mandibles being accurately represented in the rest of the collection (<i>ibid.</i>) Recent publications (e.g. Darvill and Wainwright 2016: 95) mention the remains being (intentionally) buried in the infilled chimney that connected the cave to the surface and the Early to Middle Neolithic dates (all from mandibles/unstratified and/or from infilled shaft/chimney) suggest several burial episodes in a natural burial chamber. A newly dated adult humerus (this PhD) further confirmed Early Neolithic activity in the site. Two undisturbed layers of uncemented limestone breccia were found with a silty matrix containing fauna but no evidence of artefacts, some of which were radiocarbon dated. Elements that produced the radiocarbon dates (from faunal remains) include five ulnae, three tibiae and three humeri from brown bears (trench 5, no context and red sandy silt), two molars, a phalange and two metatarsal from reindeers (trench four and red sandy silt), an hyena tooth (trench 6), a barnacle goose humerus (trench 5) and an ungulate humerus (trench 6) (Green 1986b: 110; Aldhouse-Green <i>et al.</i> 1995: 68).</p>
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	<p><b>Other finds:</b> flint artefacts and a large Creswellian-type blade, Late Upper Palaeolithic bi-point flint, Neolithic pottery and flints (on adjacent open surface), Romano-British and Dark age artefacts, Aurignacian (Middle Devensian) animal bones</p> <p><b>Lab no(s) and bones sampled (human remains):</b> OxA-3303; OxA-3304; OxA-3305; OxA-3306 (mandibles/ 2 or 3 adults, 1 younger adult/adolescent)</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting and Richards 2002); stable isotope analysis from humerus/adult (see Appendix 1/Sheet 5/14C results – part of thi PhD), histology (part of thi PhD);</p> <p><b>Available radiocarbon dates:</b> on animal bones (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>
Basic bibliography:	Boyd Dawkins 1874; Laws 1878; Rolleston <i>et al.</i> 1878; Leach 1918; Green 1986a, 1986b, Laws 1888; Davies 1989a; Branigan and Dearne 1991; Green and Walker 1991; Campbell and Lane 1993; Aldhouse-Green <i>et al.</i> 1995; Schulting and Richards 2002; Burrow and Williams 2008; Chamberlain 2014; Darvill and Wainwright 2016; Walker 2016; Peterson 2019; www9

Nanna's Cave Caldey Island Pembrokeshire	NGR: SS 1458 9697	Alt: c.21m AOD	Length: 6m	Condition: Highly disturbed
	Period: Mesolithic; Middle Neolithic	MNI: c. 4+ (three adults and one juvenile)	<sup>14</sup> C: 4560±45 BP (OxA-7739, femur/adult) 4520±45 BP (OxA-7740, patella) 8037±27 BP (OxA-41037, calcaneus/adult)	Curation: National Museum Wales, Tenby Museum and Art Gallery
Description:	<p>East facing rectangular cave/rock shelter, 1m wide by 3.5m high and c. 5m deep. The site is naturally hollowed in carboniferous limestone and lies near the top of coastal cliffs (9m below the cliffs) across a level platform and c. 21m above sea level. It can also be found about 140m south-east of Den Point and the north coast of Caldey Island. Nanna's cave forms part of a series of caves discovered in the limestone cliffs of Caldey Island including Ogof-yr-Benlog (Middle Neolithic), Potter's Cave (Mesolithic and Romano British) and Ogof-yr-Ychen (mainly Mesolithic and Neolithic). The present cave floor is below 20.81m OD and the steep slope/platform in front of the cave (dating from the Last Interglacial) at 8.51m OD.</p> <p>The cave underwent a series of excavations starting from 1911 by J.C. Carter and W. Clarke (non-scientific) with following excavations c. 1913-15 by A.L. Leach (non-scientific) and 1950-86 led by J. van Nederveelde. A deep trench of c. 4m wide and 2.5m deep was opened irregularly in steps from the platform into the cave and it mostly entailed excavation debris that had not been properly sieved. The site has undergone separate episodes of disturbances and the exact period (in order of excavation) and stratigraphy the human remains were discovered is ambiguous (Davies 1989a: 84). Discovery of bones and other finds (no specification) began in the 1911 excavation which left evidence of previous accumulations that had been removed and thrown on a slope. A plan of the section of deposits of Nanna's Cave was produced during the 1913-15 excavations (6 contexts/a-f) however, careful monitoring of the human remains (lower part of layer b) was not pursued. Human remains derived from two individuals that according to one of the excavation reports (Leach 1919: 169) were embedded in lime/stalagmite, a third burial (no specification) and a fourth complete skeleton that had been excavated a few years earlier (<i>ibid.</i>).</p> <p>Further disarticulated post-cranial remains (limb bones, vertebrae fragments, a pubic bone) and an incomplete cranium were also embedded in stalagmite (<i>ibid.</i> 169). Excavations in 1976 from pockets at the rear of the cave and from spoil revealed fragments of human remains (Nederveelde and Davies 1976). In addition, animal remains, flint (Cresswellian or Gravettian), Romano-British pottery were also unearthed. A following excavation in 1977 inside the cave (from an 1m wide trench) exposed back-fill (64cm depth) that contained undisturbed midden in pockets against boulders that encapsulated human remains, faunal remains and a Romano-British potsherd. The human remains have since been</p>			

	<p>stored at different locations (Tenby Museum and NMW) and some have either been lost or mingled with collections from Perthi Chwarae cave. Therefore complete osteological examination of all human remains is not possible. Nonetheless, initial reports mention a MNI of about two to three adults and one juvenile, which in fact represented by the number of elements that have survived and can be examined (including age estimation from dental attrition from loose teeth). Two elements (a femur and a patella) provided Middle Neolithic dates for this site and a third new radiocarbon date confirmed earlier use of this site in the Mesolithic. One radiocarbon date from a hyena left premolar is further available (Burrow and Williams 2008).</p> <p><b>Other finds:</b> Upper Palaeolithic (Creswellian) flint tools, Mesolithic flint flakes and scrapers, charcoal/blocks of stalagmite and shells, clay, Neolithic, Bronze Age, Iron Age &amp; Romano-British (coins) artefacts/pottery and a kitchen midden, worked antler, shale armlet, glass bead, animal bones</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting and Richards 2002); ) stable isotope analysis from calcaneus/adult (see Appendix 1/Sheet 5/14C results – part of this PhD)</p> <p><b>Available radiocarbon dates:</b> on animal bones (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>
Basic bibliography:	Leach 1916, 1917; Smart 1971; Nederveelde and Davies 1976; Davies 1989a; Branigan and Dearne 1991; Bronk Ramsey <i>et al.</i> 2000; Schulting and Richards 2002; Burrow and Williams 2008; Chamberlain 2014; www9

<b>Hoyle's Mouth Cave</b> Penally Pembrokeshire	NGR: SN 1119 0033	Alt: c.21.3m OD	Length: c.45m	Condition: Unknown
	Period: Late Neolithic/Early BA	MNI: 2+ (adults)	<sup>14</sup> C: 4265 ± 65 BP (unknown lab no. and element sampled) 4225 ± 60 BP (unknown lab no. and element sampled)	Curation: National Museum Wales, Tenby Museum and Art Gallery
Description:	<p>Cave that lies in the outlier (younger rock formation amongst older) of carboniferous limestone in the parish of Penally c.21.3m above sea level (Laws 1888: 5) and extends approx. 45m into a rocky hillside. The site underwent a long series of excavations from 1840 to 1973 and was not recorded properly during earlier explorations; these include excavations led by Col. Jervis in 1840, G.N. Smith in 1863, H.H. Winwood in 1865, W. Boyd Dawkins in 1874, E.L. Jones in 1882 and finally, Dr H.N. Savory in 1973.</p> <p>According to Winwood's report (1865), specifications about the site and excavated area at the time include c.7 metres cave from cave mouth/entrance to the back of the hill, c.24m passage leads to first chamber of c.2.5m in length and a second narrow passage c.9.7m in length leads to a second chamber (dome-shaped) of c.3.3m in diameter with a funnel-shaped roof. The floors were covered with angular fragments of limestone and the passages with stalagmite. During excavation by G.N. Smith (1863) human remains were discovered c.12m from the mouth of the cave, below the level of stalagmite floor and under a broken shelf of stalagmite and included a portion of a mandible and a human calcaneus. More animal remains and artefacts were unearthed at the entrance of the cave from a black soil (potentially all disturbed).</p> <p>Further explorations (Winwood 1865) revealed a large quantity of animal remains were discovered underneath the level of the stalagmitic floor in the c.9.7m passage and second c. 3.3.m chamber. Excavations at the entrance (Smith 1863), revealed flint artefacts and more animal remains. Most of the post-Palaeolithic remains from Caldey Island (including Hoyle's Mouth) have disappeared (Leach 1918). The cave was then further investigated by Jones (1882) who divided the cave in sections A-E (Jones 1882: 286; Savory 1973: 21) and discovered faunal remains (chamber D), flint chips/flakes (A/mouth of the cave, chamber C) and a hearth (chamber C) containing charcoal fragments, burnt bones embedded in stalagmite similar to the hearth found in Little Hoyle cave. A complete list of the large quantity of stone implements and pottery has been provided by Savory (1973).</p> <p>During the latest exploration by H.N Savory (1973) a trench was opened into the cave and along the entrance platform outside it the cave had been highly disturbed. No stratigraphic information is available</p>			



	<p>for the human remains discovered, however, E.L. Jones's map of the cave (Green and Walker 1991: 59) indicates an overall plan of the cave and the excavated areas, including the areas where human remains were unearthed (A/cave mouth, C/chamber). Nonetheless, information on the state and preservation of the human remains is not available. Preserved remains stored at NMW and Tenby Museum include only post-cranial remains (mostly hand and food phalanges, ribs fragments and a low number of long bones). Two radiocarbon dates (unknown elements) indicate Late Neolithic to EBA activity and must be used with caution (pre-ultrafiltration), whilst two reindeer elements (antler and phalanx) and an unknown animal bone also provided three more radiocarbon dates (Burrow and Williams 2008).</p> <p><b>Other finds:</b> Later Upper Palaeolithic artefacts (Creswellian flint, Aurignacian busked burin), faunal remains, charcoal fragments, splinters of bone, sea shells, dark green stone (adinole) and incised graffiti on the wall at the furthest part of the cave (Reindeer Chamber) with a stalagmite floor of Last Interglacial age.</p> <p><b>Lab no(s) and bones sampled (human remains):</b> unknown</p> <p><b>Available radiocarbon dates:</b> on animal bones (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>
Basic bibliography:	Smith 1860, 1862, 1864; Winwood 1865; Boyd Dawkins 1874; Jones 1882; Laws 1888; Leach 1913, 1918, 1945; Savory 1973; Davies 1989a; Green and Walker 1991; Burrow and Williams 2008; Chamberlain 2014

<b>Ogof-yr-Benglog/New Cave</b> Caldey Island Pembrokeshire	NGR: SS 1470 9688	Alt: c.21m AOD	Length: ?	Condition: Unknown/ partly collapsed
	Period: Middle Neolithic	MNI: 1 (adult)	<sup>14</sup> C: 4660±45 BP (OxA-7743, vertebra)	Curation: National Museum Wales
Description:	<p>Small cave or rock shelter on the northeast corner of Caldey Island on carboniferous limestone about 183m. south-east of Nanna's Cave and approx. at the same sea level (c.21m above sea level) (Smart 1971: 12). The site (partly collapsed) was originally explored in 1953 and was revisited by J. van Nederveelde in 1969 who discovered a female human skull with the mandible missing, embedded in soil filling the back of the cave above breccia, that had entered the cave/rock shelter possibly by accident (rolling downslope) due to quarrying activity in the area. One well-patinated flint or chert leaf-shaped arrowhead was also found near the cranium. Moreover, a (possible) Creswellian backed blade was unearthed at c.1.5 m depth lower than the 'occupation' layer whilst no further excavations continued after the discovery of hard, cemented breccia.</p> <p>No other finds (e.g. faunal) were present and it has been suggested that Ogof-yr-Benlog and the nearby cave Ogof-yr-Ychen might have been connected at some point via empty solution hollows along the cliff face (Nederveelde 1969). One vertebra (only surviving element from the site stored at NMW) was sampled (not mentioned in the finds) and provided a Middle Neolithic date. The aforementioned cranium has either been lost or mingled with the assemblage from another cave.</p> <p><b>Other finds:</b> patinated flint or chert leaf-shaped arrowhead, (Creswellian) backed blade</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting and Richards 2002)</p>			
Basic bibliography:	Nederveelde 1969; Smart 1971; Davies 1989a; Bronk Ramsey <i>et al.</i> 2000; Schulting and Richards 2002; Chamberlain 2014			

<b>Priory Farm Cave</b> Monkton, Pembrokeshire	NGR: SM 9789 0184	Alt: 16m OD	Length: c.30m	Condition: Unknown
	Period: Middle Neolithic, Late BA and M/L Iron Age	MNI: 5+ (four adults, one juvenile)	<sup>14</sup> C: 4631±31 BP (OxA-22988, mandible/adult) 2814±29 BP (OxA-12746, mandible/canine)	Curation: National Museum Wales

			2133±26 BP (OxA-22089, mandible/adult)	
Description:	<p>Cave located on a valley-side above the Pembroke River (about 9 km from the coast) in a heavily quarried outcrop of Carboniferous Limestone. The line of cliff that encapsulates the cave is surrounded by large quarry cuttings and the cave forms an outer shelter/entrance about 6m wide and 2.5m high divided by a narrow raised ridge of limestone from the inner tunnel (c. 30.5m length). A built wall was constructed shutting the inner cave (Grimes and Cowley 1933: 89).</p> <p>The cave has been excavated by E.L. Dixon and A. Hurrell Style in 1906-07. Laws (1908), and R.N.E. Barton and C.R. Price in 1999 documented the excavation (poor records available/summaries of the excavation). Later exploration of the cave was described by Grimes and Cowley (1993). A plan and section of the cave (Grimes and Cowley 1993: 89; Green and Walker 1991: 64) indicates 5 layers and an adult human skull (no.8/?layer 2 see Figure 229/Chapter 7) unearthened against the rock-wall at the entrance of the cave very close to the surface (c. less than a meter in depth) with a juvenile maxilla about 4.5m away. More fragmentary human remains, a Middle or Late BA hoard (saw with a hoop, chisel and palstave) and faunal remains were recovered from the same layer towards the inner cave (?no.9/layer 2 see Figure 229/Chapter 7). More finds (faunal, Gravettian points, Late Mesolithic microliths) were unearthened from subsequent levels whilst excavations in 1999 at the entrance of cave further revealed four human teeth found in the correct anatomical position with the remaining body missing (Barton and Price 1999: 7). These latter remains were discovered at the bottom of a c.10cm thick shell midden (?no.7 see Figure 229/Chapter 7) that encapsulated oysters, cockles, limpets and scallops as well as unidentifiable fragments of burnt bone. According to Grimes and Cowley's report (1993: 99), human remains comprised of an almost complete (probably female) skull, several portions of the mandible, fragments of limbs, a proximal epiphysis that had been pierced through the centre (possibly used as a weight or ornament) and a juvenile maxilla of c.7 years old juvenile. Two mandibles discovered within the cave provided Middle Neolithic and Middle to Late Iron Age dates whilst a mandibular canine (from the loose teeth found at the bottom of the midden outside the cave during the last excavation) provided a late Bronze Age date (Schulting 2020). A spotted hyena tooth was also sampled providing a fourth radiocarbon date for the site (Burrow and Williams 2008). Human remains appear to have derived from two separate locations (nos. 7, 8 – cave entrance and 9- inner cave/Green and Walker 1991: 64 see Figure 229/Chapter 7) however correct context information on available human remains has not been provided. The Middle Neolithic and M/L Iron Age adult mandibles (inner cave) have no context information whilst the Late BA canine (from mandible) was discovered from the bottom of the midden outside the cave. Similarly, remaining human remains have no record/context information and cannot be associated with any radiocarbon date as they were found disarticulated and fragmented.</p> <p><b>Other finds:</b> faunal remains (layers 1,2,5), hyena den (layer 10), Middle or Late BA hoard (layer 2), Gravettian flints and two Late Mesolithic microliths (layer 3), stalagmite layer (4), laminated clay (5)  <b>Other analysis:</b> stable isotope analysis (Schulting 2020), histology (part of this PhD)  <b>Available radiocarbon dates:</b> on animal bone (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>			
Basic bibliography:	Laws 1908; Grimes and Cowley 1933; Davies 1989a; Green and Walker 1991; Burton and Price 1999; Schulting and Richards 2002; Burrow and Williams 2008; Chamberlain 2014; Schulting 2020			

<b>Ogof Garreg Hir</b> Stackpole, Pembrokeshire	NGR: SR 9428 9387	Alt: ?	Length: 4.5m	Condition: half disturbed/half intact
	Period: Early Neolithic	MNI: 1 (?juvenile/adol)	<sup>14</sup> C: 5056±39 BP (OxA-16612, ulna shaft)	Curation: National Museum Wales
Description:	The cave is situated c.21m down a sheer 46m high cliff on the Carboniferous Limestone outcrops of South Pembrokeshire. It is one of a series/group of caves along the Castlemartin Cliffs and access is			

	<p>only possible via a rope descent. The entrance of the cave is 1.2m high and only 0.5m wide, reaching c. 4.5m in length (Davies 1989a: 81).</p> <p>Excavations in 1972-77 by M. Davies were carried for 2.5m into the cave whilst the remaining 2m are undisturbed/not been excavated (ibid). Moist reddish-brown cave earth covered the excavated area and contained sub-angular stones and stalagmite fragments that were adherent to the east wall of the cave. According to the excavator, any stratification that might have existed has been destroyed by storm-wave action (Davies 1972, 1976). Human remains and other archaeological finds include: post-cranial remains of a 'small individual' (calcaneus, ulna, hand phalanx), a variety of faunal remains of different species (only represented by a few bones), a worked bone point, a patinated flint blade and a backed bladelet of possible later Mesolithic date (post-8500 BP) (Davies 1989a: 81; Jacobi 1980). The overall assemblage appears unusual and suggests occupation in a passage and/or chamber that disappeared into the sea due to coastal erosion. A kitchen midden, also discovered in situ (no specification) did not encapsulate marine molluscs (e.g. limpets and mussels) which suggests that during post-glacial times the cave was accessed via a scree slope formed by periglacial freeze-thaw processes (Last Glaciation) (Davies 1989a). Therefore the sea must have been quite distant, suggesting an early occupation of the cave no later than the Mesolithic. An ulna shaft provided an Early Neolithic date (Schulting 2020). The Castlemartin Cliffs are on the Ministry of Defence range and climbing/cave exploration is controlled.</p> <p><b>Other finds:</b> faunal remains, bone awl, flint blades (possibly late Mesolithic), kitchen midden  <b>Other analysis:</b> stable isotope analysis (Schulting 2020), histology (part of this PhD)</p>
Basic bibliography:	Davies 1972, 1975a; 1976a; 1989a; Jacobi 1980; Chamberlain 2014; Schulting 2020

<b>Ogof Brân</b> Goesgoch Stackpole, Pembrokeshire	NGR: SR 9432 9386	Alt: ?	Length: 4.20m	Condition: Disturbed and inaccessible
	Period: Late Neolithic/Beaker	MNI: 2 (one adult, one adolescent)	<sup>14</sup> C: 3939±35 BP (OxA-16532, MT1/adult)	Curation: National Museum Wales
Description:	<p>Cave located in the Castlemartin Cliff on the Carboniferous Limestone outcrops of South Pembrokeshire (not far from Ogof Garreg Hir). The entrance of the cave is 2.53m wide, reaches 1.40m in height and 4.20m in length (Davies 1975b). Whilst blocked at 4.20m, draughts indicate a continuation beyond this point (ibid). The cave was first explored in 1969, however, its archaeological importance was noted in 1977 by M. Davies and R.A Kennedy who discovered human remains in the cave as a result of rabbit burrowing activity (Davies 1975, 1976b, 1977, 1989a). These included hand and foot phalanges along with a low number of faunal remains. A microlith, additional human and faunal remains have potentially been unearthed, however records of the elements do not exist and the location of this material is unknown (Schulting 2020: 199). The site is currently inaccessible since a wire fence was erected across the cave in 1982 to stop further disturbances (Davies 1989a: 81). Similar to Ogof Garreg Hir, the Castlemartin Cliffs are on the Ministry of Defence range and climbing/cave exploration is controlled.</p> <p>One metatarsal discovered in the cave was sampled and provided a Late Neolithic/EBA date.</p> <p><b>Other finds:</b> faunal remains  <b>Other analysis:</b> stable isotope analysis (Schulting 2020)</p>			
Basic bibliography:	Davies 1975b, 1976b, 1977a, 1989a; Chamberlain 2014; Schulting 2020			

<b>Cae Gronw</b> Cave	NGR: SJ 015 711	Alt: 111m OD	Length: ?	Condition: ?
	Period: Early and Late Neolithic	MNI: 1+	<sup>14</sup> C: 3955±60 BP (OxA-5731, radius/adult)	Curation: National Museum Wales

Cefnmeiriadog, Denbighshire		4918±60BP (OxA41148, pelvis/adult)	
Description:	<p>The shelter-type cave, also known as Upper Pontnewydd Cave, is located on the north-east side of Elwy valley on Carboniferous Limestone about 300m north of Pontnewydd Cave at 111.00 m OD and 21m higher than the aforementioned cave (Aldhouse-Green and Peterson 2012a: 99). Excavations from a 2.50m x 2.40m area at the centre of the cave in 1979-80 and 1985 by Aldhouse-Green revealed Middle Pleistocene levels comprising of a basal fluvial unit resting on limestone, large stalagmite clasts and overlying fluvial mudstone gravel with stalagmite fragments (ibid. 98). During these limited excavations, the site was overall filled with sediment and the cave entrance resembled a small rock-shelter (ibid.99).</p> <p>The excavated area reached down to bedrock whilst deposits were unearthed from four different layers. Human (low number of post-cranial remains) and animal remains were recovered from hillwash deposits (layer 1/top layer), a unit heavily disturbed by scavengers and root action (ibid. 99). Faunal remains (bear, collard lemming, reindeer) were also recovered from breccia units (20a, 20b). Radiocarbon dates were obtained from a human radius (Late Neolithic) an adult pelvis (new date – Early Neolithic), a reindeer phalange (both from layer 1) and a bear canine (layer 20). Stalagmites clasts (layer 14 and 12) also provided evidence a Uranium series age of around 130,000 BP, 212,000BP and 139,000 BP (ibid. 99; Green 1986a; Aldhouse-Green <i>et al.</i> 1996: 446). The site was backfilled after excavation was completed and no other surface find have been discovered (Hankinson 2015: 31). Radiocarbon dates on human remains therefore support both Early and Late Neolithic activity.</p> <p><b>Other finds:</b> faunal remains (layers 20a/b and 1), clay units with stalagmite clasts (layers 14, 23) and stalagmite fragments (layers 19,12,10)</p> <p><b>Other analysis:</b> stable isotope analysis from pelvis/adult (see Appendix 1/Sheet 5/14C results – part of this PhD)</p> <p><b>Available radiocarbon dates:</b> on animal bone (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)</p>		
Basic bibliography:	Green 1986a; Aldhouse-Green <i>et al.</i> 1996; Burrow and Williams 2008; Aldhouse-Green and Peterson 2012a; Chamberlain 2014; Hankinson 2015		

<b>Pontnewydd Cave (Bont Newydd Cave)</b> Saint Asaph, Denbighshire	NGR: SJ 0152 7103	Alt: 89.5m OD	Length: 45m	Condition: Inaccessible (to the public)
	Period: Mesolithic and Middle Neolithic	MNI: ?5+ (two adults, three juveniles); (3+ including two adults and one juvenile based on available remains)	<sup>14</sup> C: 7420±90 BP (OxA-5819, mandible/juvenile) 4495±70 BP (OxA-5820, metatarsal/adult)	Curation: National Museum Wales
Description:	<p>Cave located at the Elwy Valley close to the western edge of the Vale of Clwyd where the main outcrop of Carboniferous Limestone in North Wales is situated (Green 1981; Davies 1989c). The site is recognized for its great archaeological importance as the most north-western earlier Palaeolithic site in Europe where the oldest human teeth have ever been discovered (in Britain) (Green and Walker 1991: 40). The main entrance of the cave is about 3m wide and 2m high and leads to a passage running east into the hill. The site is inaccessible to the public (securely gated) (Hankinson 2015).</p> <p>First recognized back in 1932 and subsequently excavated by W. Boyd Dawkins, Mrs William Wynn and the Rev D.R Thomas some time before 1874 (Walker and Hulse 2012: 17). The duration and finds were not properly recorded at the time according to Prof. McKenny Hughes (Hughes 1887) who described the finds of the original excavations (various mammal remains embedded in stiff re-arranged boulder clay) (Boyd Dawkins 1874: 286-287) along with stone implements and a human tooth he recovered during following excavations (in the 1870s). A sequence of deposits included material thrown out of the cave/debris (layer a), a yellow clay loam (layer b), a breccia deposit and a gravel</p>			

layer (d) on top of the limestone bedrock (e) (Hughes and Thomas 1874: 387-388). Excavations by S. Green of National Museum Wales (1978 to 1996) took place within and around the cave (second/new entrance discovered) providing a careful stratigraphic sequence of intact deposits (South Fissure, adjacent Deep Sounding, South Passage, East Passage) consisting of limestone bedrock, the Lower and Upper sands and Gravels, the Intermediate complex and the Lower Breccia which contained hominin remains (Green 1981: 186-187; Green *et al.* 1981: 707, 709; Aldhouse-Green and Peterson 2012). A new cave entrance was first identified in 1987 and subsequently led to more excavations in 1993 (sequence c. 5m deep from the roof of the new entrance). Eight separate areas (A-H) were re-evaluated – these included a part outside of the Main Entrance (Area A) with dump deposits from the 19<sup>th</sup> excavations and the disturbances after the use of the cave during WW II, the western portion of the main passage, the fissure and the deep sounding (Area B), the central portion of the main passage and the south passage (Area C), the western part of the main chamber, the North passage and north-east and south-east fissures (area E), the east passage and the cross-rift (Area F), the new passage (Area G) and the newly excavated area outside the New Entrance (Area H) (Aldhouse-Green and Peterson 2012: 69-70).

Loose teeth (main archaeological find), a jaw fragment, a maxilla fragment, one vertebra fragment, one possible nasal bone fragment and one metatarsal were recovered from the excavations (Areas A, D, F). Estimations of the number of individuals have varied as during the excavations more teeth were being discovered (MNI: 7 to 14). A minimum of five individuals (two adults, three juveniles) are represented (Compton and Stringer 2012: 118-120 123). Seventeen loose teeth, a tooth fragment, and a possible nasal bone were unearthed in stratified Middle Pleistocene deposits in a small area at the end of the cave close to the entrance of the East Passage (*ibid.* 119-120). A single loose tooth (PN20) was discovered at the New entrance and, during earlier excavations another single loose tooth was unearthed from current area F/east Passage (Intermediate complex) whereas remaining loose teeth (one still attached to an immature mandible fragment), one thoracic vertebra fragment and a third left metatarsal were recovered from unstratified contexts associated with the mouth of the cave (*ibid.* 119; Aldhouse-Green and Peterson 2012: 76). The human teeth have since been studied in detail (Stringer 1984; Compton and Stringer 2012) revealing evidence of taurodontism (condition of enlargement of the pulp cavity coalescence of the roots of molar teeth found amongst Neanderthal permanent molars but also modern populations) (Aldhouse-Green *et al.* 1996: 445). The metatarsal ('from small individual') was dated to the Middle Neolithic whilst the immature/mandible fragment to the Mesolithic (*ibid.* 446). Both elements were discovered in Area A (re-deposited material outside the Main Entrance) and are unstratified. Not all remains are available for analysis however an abundance of radiocarbon dates were obtained from the variety of faunal remains recovered in the site from stratified contexts (c. 4,882 identifiable bones from the Intermediate Complex, the Lower Breccia, the Main Cave and the New Entrance) (Currant and Eastham 2012). Macroscopic taphonomic analysis and stable isotope analysis were also conducted on the faunal remains (*ibid.* 104; Jay *et al.* 2012).

An extensive list of dated animal bones (all but one discovered in the Upper Breccia) includes bear femurs, humeri, ulnae, fibula, phalanges and maxillas; reindeer mandible, carpal, radii, ulna, phalanx, tibiae and humeri; a deer's calcaneum (from the New Entrance/ Upper Breccia debris flow); wolf vertebrae, a radius and one incisor; red fox radius, scapulas, metapodials, humeri and tibia; a collard lemming mandible; arctic and mount hare pelvis', calcanei, scapula and astragali; a wild horse phalanx; goose and mallard femurs and one humerus (Burrow and Williams 2008; Debenham *et al.* 2012).

The stratigraphical deposits were also carefully monitored and a stalagmite was sampled for Uranium series dating (Aldhouse-Green and Peterson 2012) whilst a variety of artefacts (Paleolithic stone tools and Mesolithic flint, waste flakes) made from different rock types (Green and Walker 1991: 40) were also recovered from different contexts/areas in the Main Cave and the New Entrance.

**Other finds:** faunal remains (Lower Breccia/ Area D, Areas A/B, Area F/Upper Breccia, Area G/Intermediate Complex, Area G/Lower Breccia, New Entrance/Mudstone Gravel units Mudstone Gravel and Limestone Breccia units), worked stone tools and Pleistocene artefacts (Area A, New

	Entrance/Mudstone Gravel and Limestone Breccia units), burnt flint (Area D), flint flakes (Area G/Lower Breccia) <b>Other analysis:</b> aDNA <b>Available radiocarbon dates:</b> on animal bone (Burrow and Williams 2008; see Appendix 1/Sheet 1/Further Non-Neolithic 14C dates)
Basic bibliography:	Stanley 1833; Boyd Dawkins 1874; Hughes and Thomas 1874; Hughes 1877; Green 1981; Green <i>et al.</i> 1981; Stringer 1984; Davies 1989c; Burrow and Williams 2008; Aldhouse-Green and Peterson 2012b; Aldhouse-Green <i>et al.</i> 2012; Compton and Stringer 2012; Carrant and Eastham 2012; Debenham <i>et al.</i> 2012; Jay <i>et al.</i> 2012; Walker and Hulse 2012; Chamberlain 2014; Hankinson 2015; www5; www9

<b>Ogof Colomendy</b> Gwernymynydd, Flintshire	NGR: SJ 2020 6277	Alt: c. 227.4m AOD	Length: c. 3m (originally c.5m – destroyed by quarrying)	Condition: ?Intact
	Period: Middle/Late Neolithic and E/M BA	MNI: c. 5+ (three adults, one EBA adolescent/adult, one Middle Neolithic younger adult/adolescent)	<sup>14</sup> C: 4408±33 BP (SUERC 66486, unknown element/adult-adolescent) 4081±26 BP (SUERC-97578, femur/adult) 3518±35 BP (OxA-16523, humerus/adult) 3314±26 BP (SUERC-97579, humerus/adolescent)	Curation: National Museum Wales, Cardiff; possible private collection (Chris Ebbs)
Description:	<p>Cave situated on a limestone outcrop (facing south), about 5km west of Mold with a triangular-shaped entrance, 1.4m high and 1m wide. The cave extends approx. 3m into a passage (at present), however, the levelled platform at the south entrance of the cave (measuring c. 5m north-west/shout-east by 3m wide) was formed after quarrying took place (unknown date); therefore the original length of the cave must have been about 5m and archaeological remains were discovered in the cave or to the extent where the roof of the cave existed outside the cave passage before quarrying (Hankinson 2016: 12, 15). The site forms one of a series of caves on the limestone outcrop (Hankinson 2018: 4).</p> <p>The site was first recognized in the mid-1970s (1975-1977) by T. Carr and excavations were carried by Mel Davies. A large amount of animal and human bone were unearthed from a small excavated area from a heavily disturbed ground (root action) in very loose brown earth (unstratified material but, as explained later on, could be from layer 45/2015 excavation) researching almost a 1.5m depth in a narrow, steeply-descending tunnel (Davies 1976c: 18, 1977d: 11). The excavation was confined to opening a route into the inner cave whilst the large slab across the entrance (no.47/2015 excavation) was left undisturbed (ibid; Davies 1977b: 74, 1989c: 99). Human remains of about three individuals were identified, including cranial and post-cranial remains, animal bones (predominance of domestic species), a rusty iron implement, a fragment of a clay pipe and two pieces of patinated flint, one of which was a waste flake, all unstratified (Davies 1976c: 19-23, 1977b: 75-79; Hankinson 2016: 16). Human remains were reported as ‘peculiarly fractured’ with the animal remains being similarly maltreated (Davies 1989c: 99). Davies (ibid; 1976: 23) considered this to be an act of deliberate processing (post-mortem ritual) at or near the cave before the individuals were brought to the cave.</p> <p>Further work in the cave was carried by the Clwyd Powys Archaeological Trust in 2015 (Hankinson 2016) excavation was limited to the removal of recent material, clearance of earlier disturbed deposits and further understanding of the stratigraphic sequence of the deposits. Two trenches were opened in the area of the (outside) platform adjoining the cave measuring 0.9m x 0.5m (Trench 1) and 0.8m by 0.3m (Trench 2) and six layers were distinguished (41-47). These included a yellow-brown silty clay subsoil (43) that continued into the cave underneath of a grey-brown silt (42) and a dark grey humid silt (41) (ibid. 13). Following sequences on top of layer 43 in the cave included a brown clay silt (46), a layer of grey-brown silt (44) heavily disturbed by roots and where initial skeletal remains might have been discovered during earlier excavations, and last, a loose grey-brown silt (45) where more</p>			

	<p>skeletal remains (both animal and human) were unearthed along with modern debris (ibid). More remains might be in-situ (spoil from the 1970s excavations - south-west of the entrance of the cave) (ibid. 14). A constructed wall (no.47 in sketch/plan) constitutes the border of the former extent of the cave before being destroyed by quarrying and could have represented an intentional blocking of the mouth of the cave for burials (ibid. 15). The blockage remains intact as discovered during the 2015 excavations whilst the removal of the roof during quarrying possibly exposed human and animal bone which was subsequently deposited back in the cave (hence disturbed) and later found by Mel Davies during the excavations in the 1970s (Hankinson 2016: 15). Radiocarbon dating has been obtained from four elements (including two news dates) – one unidentified human bone fragment from adult/adolescent was dated to the Middle Neolithic (Schulting 2020), an adult femur to the Late Neolithic (this PhD) and two humeri (one adult, one adolescent) to the Early (this PhD) and Middle Bronze Age (Schulting 2020).</p> <p><b>Other finds:</b> Neolithic leaf-shaped flint arrowhead, waste flake, clay pipe, Iron Age implement, faunal remains</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting 2020), stable isotope analysis from femur/adult and humerus/adolescent (see Appendix 1/Sheet 5/14C results – part of this PhD)</p>
Bibliography:	Davies 1975c, 1976c,d, 1977b,c,d, 1989c; Hankinson 2015, 2016, 2018; Schulting 2020; www5

<b>Orchid Cave</b> Llanferres, Denbighshire	NGR: SJ 2000 6051	Alt: ?	Length: 13m	Condition: Disturbed
	Period: Late Neolithic/Early BA	MNI: 4+ (two adults, one adolescent and one perinate)	<sup>14</sup> C: 4170±100 BP (OxA-3817, pelvis/adult) 4100±20 BP (OxA-41149, humerus/adolescent)	Curation: National Museum Wales
Description:	<p>West facing cave situated near Big Covert at the base of a Limestone cliff running approx. north-south. The entrance of the cave, originally choked with boulders and leaf mould, is about 1.3m wide and 1.1m high with a steep 13m passage (Hankinson 2015: 68). The cave was discovered and excavated by Tony King and members of the North Wales Caving Club in 1981 (www5). Archaeologists were not present during excavations which subsequently led to loss of stratigraphy and no proper documentation of the site.</p> <p>In November 2003, human remains, of about 3 individuals and animal bones, a rare bone toggle with incised decorated markings and a flint scraper were discovered (Hankinson 2015: 67). A further set of human and animal bones (were left within the cave in a plastic bag from earlier visits by cavers) was discovered by cavers/or members of the public a few years after 1981. There are no records available and no report published for the archaeological finds apart from a brief documentation from self-taught cave archaeologist Mel Davies (1981) therefore all available information about the site is fragmentary. Human remains (mainly) comprised of post-cranial remains (e.g. long bones, phalanges and vertebrae fragments) and two mandibles whilst rodent gnawing was observed on one element (ibid. 2). A few elements showed evidence of a yellowish colouration which could indicate burial in deeper levels that was later covered with stalagmite (ibid). Davies (ibid) also noted that cranial fragments were missing (which could be present in the unsieved spoil heap) however the overall appearance of the elements differs which could suggest different deposition episodes. A Late Neolithic radiocarbon date is available from a pelvic element discovered in the chamber fill (Aldhouse-Green <i>et al.</i> 1996: 446) whilst sampling of an adolescent/younger adult humerus was further confirmed Late Neolithic activity in the site (this PhD)</p> <p><b>Other finds:</b> faunal remains, bone peg and toggle, flint scraper</p>			

	<b>Other analysis:</b> stable isotope analysis from humerus/adol-younger adult (see Appendix 1/Sheet 5/14C results –part of this PhD)
Bibliography:	Davies 1981; Brassil and Guilbert 1982; Guilbert 1982; Aldhouse-Green <i>et al.</i> 1996; Burrow and Williams 2008; Chamberlain 2014; Hankinson 2015; www5

<b>Gop Cave</b> Trelawnyd & Gwaenysgor, Flintshire	NGR: SJ 08648008	Alt: c.250m OD	Length: c.40+m	Condition: Intact/Good
	Period: Middle (to Late) Neolithic	MNI: 4+ (3 adults, 1 juvenile)	<sup>14</sup> C: 4414±30 BP (OxA-22991, mandible/adult) 4381±29 BP (OxA-22992, mandible/adult) 4357±30 BP (OxA-22990/cranium adult)	Curation: National Museum Wales, Manchester Museum
Description:	<p>Natural limestone cave (interconnected rock-shelter and cave) with two entrances. The cave is located at the end of the line of hills and forms the east boundary of the Vale of Clwyd near Prestatyn c.50m to the south of the archaeological site of Gop cairn and extends c.40+ m in length (Hankinson 2015: 60; Schulting 2020: 194).</p> <p>The site underwent a series of excavations in 1886, when it was first discovered by Boyd Dawkins (excavator of one of the entrances/rock-shelter), in 1908-14 by Mr. John H. Morris and T.A. Glenn (Glenn 1911) (excavators of the North-West Cave and second entrance) and in 1920-21 by T.A. Glenn (NMW) (excavator of the platform in front of the cave). Boyd Dawkins (1901; 1912) excavated the rock-shelter by creating a shaft of c. 6m through the debris down to the bedrock and extended the excavation along the cavern (Boyd Dawkins 1901: 324-325; Davies 1949: 275). Clearance of the interior of the cavern which was filled with debris almost up to the roof revealed the full extent of the wide rock-shelter which continued into a narrow passage at the north-eastern and north-western corners (Boyd Dawkins 1901: 326). Four layers were identified (Plan and Section from Boyd Dawkins; Davies 1949: 276-77) including the floor of the cave interior which contained large blocks of limestone, stiff yellow clay, angular stones and pebbles (Pleistocene strata A/1), the ancient floor of the cave in prehistoric times on top of which (no.3) remains of Pleistocene animals, pieces of scattered charcoal, pot-boilers and pottery fragments were identified (Prehistoric layer B/2) and an upper layer where the sepulchral chamber B was discovered (no.4) (Boyd Dawkins 1901: 326, 328, 330). A thick layer of charcoal (A on the plan) covered slabs of limestone where an old fireplace had existed whilst a large amount of burnt broken bones of domestic animals and fragments of coarse pottery with herringbone designs (Late Neolithic/Early BA), two jet sliders and a ground flint knife were intermingled with a large quantity of human remains of various ages (upper layer/no.4) (ibid. 330; Burrow 2003: 88). These interments (C) were packed together in a limestone rectangular chamber (B) which was further revealed after slabs of limestone were removed (ibid). The chamber was constructed of rubble walls (fourth was the inner wall of the cave) and occupied an area of c.1.1m by 1.5m by 0.1m (Davies 1949: 278). A minimum of 14 individuals were discovered most in either crouched positions with their arms and legs drawn together and folded or in an oblique (vertical) position (Boyd Dawkins 1901: 330). The excavator considered that successive depositions took place (possible family vault?) that quickly filled the chamber (ibid). The cairn was considered a marker for the site (Davies 1949: 279). The archaeological finds from Boyd Dawkins excavations have been lost (dumped down a disused mine shaft in 1913 by the tenant farmer of Gop Farm), however, a 1937 letter from the keeper of Manchester Museum mentioned the presence of human and animal remains, Neolithic B pottery from Gop (Davies 1949: 280). Remaining elements include four complete/nearly complete adult crania, a juvenile mandible, two pairs of left and right humeri and a right tibia are held at Manchester Museum.</p> <p>Following excavations in during 1908-14 focused on the north-west cave which was accessed by a passage that connected the cave to the rock-shelter that had been blocked by clay and stalagmite during Boyd Dawkins' excavations (Davies 1949: 280). Excavations began with Mr. Morris opening and a</p>			



	<p>port-hole entrance (AA in Plan described by Davies 1949: Figure 105 by T.A. Glenn) beyond the burial chamber excavated by Boyd Dawkins, reaching 0.4m to 0.6m in floor depth (Davies 1949: 280). The floor was covered with cave-earth pieces of angular limestone, stalactite and wet soil (filtering through crevices in the roof) (ibid). The cave-earth was removed from all layers and passages (A/entrance from Boyd Dawkins' cave; B/entrance from cliff; C/terminus of exploration) and human remains of about six individuals (crania/incomplete skulls, post-cranial remains, loose teeth) were discovered in all passages (ibid). Elements had been disturbed by scavenges and more 'burials' (no specification) were further discovered in a recess in the south wall of passage C (X2 on plan), in an entry in the east wall of passage A (X4 on plan) (ibid 280-81). The X2 body appeared protected by a rubble wall across the recess, however the stones that surrounded the burial had been disturbed (ibid. 281). Remains of disturbed domestic and wild animals along with mussel shells were also unearthed amongst human remains (most of which were reported as fragmented (ibid). Davies (ibid) also noted that the bodies could have been placed in the cave passages for secondary burials (ibid). Remains are now been stored at National Museum Wales and Manchester Museum (including 5 long bones and four partial craniums).</p> <p>Further excavations in 1920-21 by T.A Glenn (supported and financed by NMW) were conducted at the undisturbed platform (extension of already excavated trenches) in front of the rock-shelter (Walker 1993: 3). A number of small microlithic implements (flint, chert), scattered and fragmentary human and domestic and wild animal remains in a continuation of the habitation floor (no.3?) described by Boyd Dawkins (Davies 1949: 284). Some of these finds are held at National Museum Wales whilst other finds (no specification) were subsequently donated in 1920 (anonymously) and 1961 (W.H. Stead) (Walker 1993: 3). Overall archaeological finds from Gop Cave have been widely scattered and many have been lost. Therefore the record from the remaining elements is fragmentary. Two adult mandibles and an adult cranium (held at NMW) were dated to the Middle/Late Neolithic (Schulting 2020) and were considered a single rather than successive depositional episodes.</p> <p><b>Other finds:</b> faunal remains (layers no.3 and no.4/Boyd Dawkins' excavation; North-West cave passages; outside cave platform/1920-21 excavations), BA ride hand-made pot, Peterborough pottery, two jet sliders and a ground flint knife (layer no.4/sepulchral chamber B/upper layer), pottery and charcoal (layers no.3 and no.4), mussel shells (North-West cave passages), implements (unused, unpolished chipped axe Graig Lwyd Group source VII and small scraper or flint in cliff entrance passage B/North-West cave; unpolished fabricator in passage C under X3 body/North-West cave; flints scattered in cave earth in all passages; flints discovered by Morris in and near the cave between 1911-1917); Creswellian implements (microlithic tools/flint, bone pin and chert in outside cave platform/1920-21 excavations).</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting 2020), aDNA (Brace <i>et al.</i> 2019), histology (part of this PhD)</p>
Bibliography:	Boyd Dawkins 1901, 1912; Glenn 1913; Jackson 1913; Glenn and Piggott 1935; Davies 1949; Grimes 1951; Cullingford 1962; McInnes 1968; Lynch 1969; Green 1980; Walker 1993; Burrow 2003; Chamberlain 2014; Hankinson 2015; Brace <i>et al.</i> 2019; Schulting 2020

<b>Ogof Pant-y-Wennol</b>	NGR: SH 8082 8161	Alt: ?	Length: c. 8.6m	Condition: Disturbed?
Llandudno, Conwy	Period: Early and Middle Neolithic	MNI: 5+ (two adults, one adolescent/younger adult, one juvenile and one perinate)	<sup>14</sup> C: 4982±36 BP (OxA-12810, cranium/adult) 4962±32 BP (OxA-12744, cranium/adult) 4657±32 BP (OxA-12745, cranium/adult)	Curation: National Museum Wales, Llandudno Museum

<p>Description:</p>	<p>Large coastal cave located at the Carboniferous Limestone outcrops of Lladudno with a wide entrance c.5.2m wide (c.3.6m during first excavation) by 8.6m long and 3m high (1.8m during first excavation) (Davies 1974b; 1989: 97). The well-hidden cave is protected by an overhanging rock was accidentally discovered in 1973 by D. James and D. Jones and subsequently excavated by M. Davies (inner cave) in 1974-77 and Stone and Smith in 1979, 1981 (underneath the projecting overhang at the entrance of the cave).</p> <p>During the first excavation, Davies reported that the roof lowered to a c.4.5m crawl, continuing to a tight tunnel filled with gravel or clay (Davies 1974b: 19). The cottage owner (nearby private property) had built a wall (of limestone with stalagmite pieces) across the cave, filling it with rubbish which was subsequently removed by Davies, who discovered a small amount of human bones (mandible with molars still attached, cranial and post-cranial remains) embedded in stalagmite (Davies 1974a: 8; b: 19). The excavator concluded that the remains must have been unearthed by the owner/landlord who used the tufaceous stalagmite (scrapped from the cave floor) as binding material for the wall and left the remains disturbed in the cave (many were covered with stalagmite patches) (Davies 1974b: 19). Davies continued excavations (in metre squares) within the cave (about 34m<sup>2</sup> were available for excavation) and near its entrance (twelve squares – no floor plan/section) (Davies 1989: 97). Finds included human remains (squares 0, 1, 3, 10, 14, 16/from disturbed cave earth and fissures near the cave entrance), animal remains in all but one square (2), pottery and bone tools (disturbed) (Davies 1974c). The main trench within the cave occupied an area of 2m<sup>2</sup> with modern and/or modern and prehistoric deposits cleared for further 10m<sup>2</sup> reaching the Neolithic levels to 8m<sup>2</sup> (ibid). Three subsidiary passages were filled with a large amount of deposits of faunal remains in a matrix of sticky red clay mixed with loose, stony, yellowish-brown clay (Davies 1989: 97). About 1m (thickness) was excavated under this latter layer where clay, silt or grey sand deposits were discovered (possibly Devensian in age) with a late Devensian silty clay covering this context (ibid). Three microliths (one slightly patinated) and a black chert were discovered in this layer whilst a stalagmite floor was found right above (ibid). More faunal remains, flint implements (patinated leaf-shaped arrowhead and convex scraper), waste flakes and Peterborough pottery were unearthed from a greish-brown layer (affected by water) that was sitting on top of the stalagmite floor (ibid). Disturbed human remains (in cave earth) were also recovered from the greish-brown layer (no specification of elements) possibly transported/washed into the cave (ibid). More human remains were discovered in two large areas outside the main trench (close to the entrance) between slabs or fissures (possible burial areas) (ibid). At least four individuals (adults and two infants/perinates) were identified by Davies. The most complete fissure/area was filled with rubble and stalagmite pieces subsequently covering the ‘adult bones’ with a slab of rock/capstone whilst more human remains (‘child bones’) had decomposed in air spaces/cemented in stalagmite in the second area/fissure (ibid. 97-98; 1974c: 23). More faunal remains (including post-glacial fauna), stone choppers and four notched stone ‘net sinkers’ were discovered in these areas (no specification/possibly within the fissures) (Davies 1977e; 1989: 98). Davies reported at least 39m<sup>2</sup> were still available for excavation (no specification in area inside or outside the cave) with the cave being inaccessible (fence across entrance) in a private property (Davies 1989: 98).</p> <p>Further excavations by Stone in 1979-81 beneath the overhang (rough plan of excavated areas provided/no indication of square numbers) outside the cave on the western side against the cliff wall at a depth of over 2.5m without hitting bedrock (Stone 1994: 4, 5). Flint, chert flakes and microliths were recovered just a few centimetres beneath the surface with more fossilized faunal remains discovered (ibid. 4). Loose human teeth were scattered in this area, beach stones (possibly used as tools similar to what Davies discovered at the back of the cave during earlier excavations), large quantities of mussels, a fine bone needle, a 4cm bone decorated with incised lines and Peterborough and Beaker pottery were also identified in this excavated area (ibid). Heat crazed beach stones (used as pot boilers) were further discovered. A final disturbed ‘human burial’ (no specification) was recovered at the end of the excavation whilst Stone was tidying the site with two more (human) elements found at the rear of the cave which were subsequently covering four pieces of slate that resembled blades and scrapers (ibid. 11). Three radiocarbon dates were obtained from three crania (one half complete and two crania fragments) confirming Early and Middle Neolithic activity in the site (Schulting 2020).</p>
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	<p><b>Other finds:</b> faunal remains (Davies excavations/squares 0, 3, 4, 9, 10, 14, 15, 16, 19, 21, 50; Stones' excavation/disturbed? outside overhang), pottery (including Peterborough and Beaker ) and bone tools (Davies excavations /26m below disturbed surface; Stones' excavations/disturbed? outside overhang /bone needle and 4cm bone decorated with incised lines), microlithis, black chert, leaf-shaped arrowhead and convex scraper, stone choppers, pieces of slate and more scrapers, net-sinkers (outside main cave an during Stones; excavation at 45cm depth in an alcove under the rock face of the western side of the outside overhang), charcoal (entrance and outside the cave), mussels and heat crazed beach stones (Stones' excavations/disturbed? 45cm depth in an alcove under the rock face of the western side of the outside overhang)</p> <p><b>Other analysis:</b> stable isotope analysis (Schulting 2020), histology (part of this PhD)</p>
Bibliography:	Davies 1974a,b,c, 1977e, 1975d, 1989c; Stone and Smith 1979; Stone <i>et al.</i> 1980; Stone and Jones 1981; Stone 1994; Chamberlain 2014; Schulting 2020

Little Orme's Head Quarry Llandudno, Conwy	NGR: SH 819 824	Alt: c.61+ m OD (top of the cliff)/c.46m OD (discovery of human remains)	Length: c. 28m	Condition: Inaccessible
	Period: Early to middle Neolithic	MNI: 1 (adult/female)	<sup>14</sup> C: 4720±50 BP (BETA-87306, femur/adult)	Curation: Llandudno Museum
Description:	<p>A natural fissure situated at Little Orme's Head, Llandudno, formed of Carboniferous Limestone (Middle White Limestone) reaching an elevation of c.122m. In or around 1980 the Little Orme's Head Limestone Company opened a large quarry on the north-eastern coast of the headland revealing a number of fissures which were considered to be widened joints in the rock (Morton 1898; Gregory <i>et al.</i> 2000: 3). The area was actively quarried at the time, which subsequently led to the discovery of a number of prehistoric and faunal remains and one bronze spear-head (c. 3.5cm in length) within one of these fissures (ibid). Remains were first investigated by G.H Morton (1898: 395-396) who reported (section of the fissure available) early mammalian remains possibly fallen or washed into the fissure at different times from pre-Glacial to recent (e.g. bones of bear, hyena, rhinoceros now lost) at c.33m OD (close to the bottom of the fissure/few feet above the quarry floor c. 30m OD) followed by human remains (skull) at c.46m OD and a bronze spear-head near the top of the cliff c. 61m OD (ibid; Roberts <i>et al.</i> 1996; Dibble 1997: 4; Gregory <i>et al.</i> 2000: 4)). The aforementioned animal bones were reported lost in Morton's report after being presented to the Liverpool Free Museum. Present amongst the human remains (current collection) are a pig tibia and two metapodials, aged less than 36 months at death (Roberts <i>et al.</i> 1996). The spear-head, having being discovered far above the human remains has not been associated with the skeleton (Gregory <i>et al.</i> 2000: 6-7).</p> <p>Human remains recovered from the fissure include cranial, post-cranial remains (small in size) and loose teeth of a 54-63 year old woman approx. 1.52cm tall with a fairly robust build (complete osteological report by Roberts <i>et al.</i> 1996) who possibly represents an accidental death from a fall in the fissure (Dibble 1997: 4-5). No skeletal elements were repeated with the right and left femora articulated with the acetabuli of the right and left pelvis (also articulated with the sacrum); cervical, thoracic and lumbar vertebrae (C2-C6/T5-T8/L1-L2) and also fitted together (Roberts <i>et al.</i> 1996). The woman appears to have suffered from severe degenerative joint disease of the spine, the cervical vertebrae and the right knee joint caused my repetitive stress or trauma (ibid). A possible metastatic carcinoma (cranium and pelvis) was also observed with the cranium X-rayed and showing multiple lesions on the right frontal and parietal (ibid). It is not clear whether the individual had primary cancer, however, small lytic lesions on the inner surface of the right ilium could suggest metastasis of the cancer. Lesions were also observed (X-rayed) on the inner surface of two upper ribs whilst the individual also suffered from possible periodontal disease and inflammation of the alveolar bone (poor hygiene) on the left side of the mandible (Pm2, M1, M2, M3) which subsequently led to teeth loss (ante-mortem) (ibid). The position that the individual must have fallen into must have saved the</p>			

	<p>elements from subsequently being disturbed by scavengers, with only a few remains showing signs of heavy erosion (Dibble 1997: 5).</p> <p>Radiocarbon dating was obtained from one of the two femurs (right) giving an Early to Middle Neolithic age for the skeleton (Roberts <i>et al.</i> 1996).</p> <p><b>Other remains:</b> faunal remains, bronze spear-head (not associated with the skeleton)  <b>Other analysis:</b> stable isotope analysis (Schulting n.d)</p>
Bibliography:	Morton 1898; Roberts <i>et al.</i> 1996; Burrow and Williams 2008; Dibble 1997; 2015; Gregory <i>et al.</i> 2000; Schulting (n.d)

<b>Backwell Cave</b> Backwell, North Somerset	NGR: ST 4925 6801	Alt: c.91.4m OD	Length: 4m	Condition: Intact
	Period: Early and Middle Neolithic	MNI: 18+ (15 adults, 3 juveniles?)	<sup>14</sup> C: 4885±29 BP (UBA-43872, humerus/?adult) 4510±40 BP (BM-3099, vertebra/?)	Curation: University of Bristol Speleological Society
Description:	<p>The small and almost rectangular in shape cave is situated in the parish of Backwell (east), approx. 91.4m OD and 10 miles to the north of Mendip (northern side of Broadfiled Down) and is formed along the line of a wide calcite spar or vein in the limestone ridge (Tratman and Jackson 1938). The vein on the limestone, over 60cm wide in places, connects with similar vein formations of varying widths and angles with a small stream flowing down above the main calcite vein (<i>ibid.</i> 59). The mouth of the cave faces on the west side with the north side of the cave receiving the least drainage (driest part of the cave) with a deeper 'pit' along the north wall (<i>ibid.</i>; Branigan and Dearne 1991: 118). The cave measures c.1.8m high (max) by 1.4 wide (max) and 4m long (2m deep). The cave was first discovered in 1936 by Mr. J. Coles of West Town Quarries and owner of the land, who employed a man (possibly from the quarrying company) to clear the small recess, and was later explored and excavated (soil sorting and excavation of remaining deposits by E.K. Tratman and J.W. Jackson in 1937 (UBSS) (Branigan and Dearne 1991: 118).</p> <p>During the first clearance, a large quantity of material (including finds?) was removed (no recording/monitoring) up to c.2.4m deep outside the cave; the mass was gradually tailed off to the original ground level c. 3 to 4.6m away from the cave mouth with the top deposits of this cleared floor inclining into the cave (Tratman and Jackson 1938: 58-59). It was later questioned whether the removed mass contained stones that were part of a once built wall across the entrance of the cave. Large quantities of human and 'other' (possibly faunal remains) bone were discovered at a depth of c.1.2m (possibly underneath the top soil deposits inside the cave) (<i>ibid.</i> 59). The finds were thrown out of the cave and/or were highly disturbed by the man Mr. Coles had hired for the clearance; no documentation and accurate recording exists. The clearance was then paused until excavations led by Tratman and Jackson of the University of Bristol Speleological Society (UBSS) took place in 1937.</p> <p>In an attempt to sort the mass that had been removed from the cave (unstratified), three deposits were recognised: the Old Spoil Heap (O.S.H), the Disturbed Bone Deposit (D.B.D) and the Deposits not disturbed by the quarryman (Tratman and Jackson 1938: 60). Sorting of the Old Spoil Heap, consisting of one main dump and a few accompanying ones, revealed a large quantity of fragmentary human and animal bones along with potsherds (one of possible Roman date) and flint implements (including two spindle whorls and a bone fork or double pong) (<i>ibid.</i>). These finds must have been removed from the only known bone level in the cave during the first clearance (<i>ibid.</i>). More finds were discovered in the cave in the Disturbed Bone Deposit; careful investigation of the cave walls and floor unveiled only bone deposit that extended c.1.2m below the surface and c. 23cm down to the uneven rock floor (<i>ibid.</i>).</p>			

The last undisturbed deposits derived from four different areas; a pit near the mouth/north side of cave ('Grave Pit'/letter D in plan) which yielded a plethora of human remains from a very small area/old badger hole that connected to a small rift situated between the main calcite vein and the rock wall outside the cave (letter E in plan) (ibid. 60-61). Animal bones (letters E and G in plan) were also recovered from the badger hole (e.g. a complete badger skull). A natural depression (A in plan, c. 30.5 by c.23 cm) in the north-eastern corner of the cave floor further contained a large quantity of human remains (both cranial and post-cranial remains), prehistoric pottery sherds and traces of charcoal (ibid. 61). According to the excavation report, a portion of a shaft of a right fractured femur was lying at c. 45° from the horizontal with the distal end positioned downwards (ibid). The last (natural) pit (letter C in plan and section) that yielded a low number of two small human bones and traces of charcoal was on the south side of the cave (ibid) whilst more human remains were discovered in between stones that were filling another small pit (A) under the south alcove (ibid). One or two bones (no specification) were unearthed outside the cave (last bone deposit) on the south side of the cave around 15cm deep from the original surface, however these had been deposited there by the quarryman during the first clearance of the cave, therefore their original position is uncertain (ibid).

Close examination of the human remains by Tratman (from remaining portions of mandibles) revealed an MNI of about 18+ individuals (including three children) (ibid. 71). The overall representation of human remains was incomplete; only two complete skulls were present in the assemblage, some were severely fragmented, long bones showed evidence of both dry and fresh fractures (according to the excavation reports) and some had been gnawed or had been impacted by root action. One or two bones (no specification) showed evidence of cutmarks whilst one of the skulls (M6.II) exhibited a healed fracture in the left front/parietal area (ibid. 62). The scarcity of right-side elements poses serious questions about possible disturbances in the cave by occasional visitors (recent visits), bodies being buried (after probable selection) on their left sides (mainly surviving amongst the assemblage of mandibles) and successive depositions of human remains that required clearance and disturbance of the already deposited elements to make room for more interments. These individuals were subsequently placed in the small burial areas either in contracted position or were dismembered prior to deposition, whilst the stones discovered on the cave floor during the first clearance might have blocked the cave entrance/sealed the burial areas (ibid 66). The small number of faunal remains (ibid. 69 for full catalogue) was in more fragmentary condition than the human remains and according to Tratman and Jackson (ibid. 68) animal bones must have been brought into the site disarticulated. This evidence along with the sparse fragments of charcoal might have been collected and brought from living sites, a custom reminiscing practices in chambered tombs and burrows (ibid).

Furthermore, Tratman and Jackson (1938: 68) consider that the small cave was used as a burial space for inhumations, positioned on their left side (neither as an ossuary nor occupation site). This hypothesis was based on the fact that the large quantity of human remains, deposited at different areas in the cave, might have exceeded forty people whilst the scarcity of pottery, artefacts and charcoal combined with the lack of a clear occupation level inside or outside the cave do not mirror occupation (ibid. 65). Two radiocarbon dates were obtained from a vertebrae (fragments) and a humerus revealing Early and Middle Neolithic activity in the site (Ambers and Bowman 2003; Bricking forthcoming) and not Iron Age or Romano-British as originally considered. Several episodes of disturbances and the lack of secure stratigraphy and documentation of the site still poses serious questions about the nature of the burials in this small site. The site is now cleared, however a lot of finds have been lost (probably destroyed in fires at the UBSS museum). Skeletal elements might have been originally removed from the cave by visitors or destroyed/lost during quarrying and no documentation/stratigraphic information exists about surviving elements (UBSS catalogue available).

**Other finds:** Faunal remain (from O.S.H. and disturbed bone deposit), molluscan remains and charcoal fragments (from O.S.H. and bone layer), artefacts (bone: Iron Age? double pointed prong or fork from metatarsal of carpal of a sheep/goat stone: and early Iron Age to Romano British patinated leaf-shaped arrowhead 2.4m deep from badger hole; a rough broken flint knife from O.S.H.; a small conical spindle whorl of liassic limestone from O.S.H), pottery: disc-shaped Roman spindle whorl from O.S.H., Iron

	<p>Age rim sherd (of lipped vessel in black fabric), more sherds representing two/three other vessels in similar fabrics</p> <p><b>Other analysis:</b> stable isotope value (Ambers and Bowman 2003); histology (part of this PhD)</p>
Bibliography:	<p>Tratman and Jackson 1938; Donovan 1951; Green 1980; Branigan and Dearne 1991; Ambers and Bowman 2003; Lewis 2011; Chamberlain 2014; Bricking (forthcoming)</p>