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Darkness Visible

The Sculptor's Cave, Covesea, from the Bronze Age to the Picts

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Chapter 1

THE SCULPTOR'S CAVE: A PLACE APART

1.1 Cannibals, demons and monsters

Sometime in the sixteenth or seventeenth century, a native of East Lothian called Sawney Bean moved westwards with his wife to the Ayrshire coast. Setting up home in a deep, remote sea cave, cut off at high tide, the pair spawned and raised an incestuous clan of around fifty children and grandchildren. For the next 20 years or so, they lived by robbing and killing unwary coastal travellers and eating their flesh. The corpses of their unlucky victims were taken back to the cave to be eaten, with some body parts being preserved for later consumption. Eventually, the cannibal clan were discovered, captured and taken to Edinburgh for execution.

There is of course no independent historical evidence to corroborate the existence of Sawney Bean. Indeed, it seems that his story was first formalised in the early eighteenth century, when it appears in various popular publications (Hobbs and Cornwell 1997). Nonetheless, it is likely that this early modern myth originated in folk tradition at a rather earlier date.

The Sawney Bean tale is resonant with themes of liminality: the 'in-between' state that separates one world from the next. In the story, the cave-dwelling cannibals occupy a conceptual space somewhere between the domestic and wild worlds. Consuming human flesh renders Bean's clan bestial and less than fully human. This is especially true for the anonymous hordes of children and grandchildren: unnamed, savage and animalistic. Uncertainties over the veracity of the story only add to the uneasy status of the cannibals. Neither domestic nor wild, human nor animal, real nor imaginary, they remain elusive. It is probably no coincidence that 'Sawney' is an old Scots name for the Devil (Hobbs 2011: 201).

As a sea cave, Sawney Bean's lair is the perfect backdrop for the tale. Situated between the above-ground realm of the living and the underworld of the dead, it also lies on the very edge of the inhabited world, between land and sea. Cut off by each rising tide, the cave seems to oscillate between worlds.

Sawney Bean's story is by no means an isolated one. From the earliest times, caves have exerted a special hold on the human imagination. As liminal places between the above-ground world of daily experience and the underworld realm of gods, spirits and ancestors, they have formed a persistent focus for human engagement with the supernatural. The sensory deprivation that comes from immersion in the darkness, stillness and silence of caves creates a powerful, numinous arena for ritual performance. It is little surprise then that caves the world over have been repeatedly visited for the performance of rites associated with religion, magic, divination and death.

The earliest surviving human art, dating to the Upper Palaeolithic, is found deep underground; caves are home to dangerous supernatural beings in Greek myth, like the nymph Calypso and the Cyclops Polyphemus in Homer's *Odyssey*; and caves are the lairs of monsters and demons in north European folklore. As late as the twelfth century AD, Norse adventurers such as Rognvald Kali Kolsson, Earl of Orkney, believed that certain caves housed spirits or goblins, writing 'Here have I built in darksome cave of Doll a beacon high to goblin grim of sternest mood' (Vigfússen 1887: 100). Among numerous myths based around caves, many Mesoamerican peoples believed that their ancestors and their gods had first emerged from a seven-chambered cave at a mythical location known as Chicomoztoc (eg Boone 2000: 54, 249). In all these cases, caves are places of darkness and uncertainty, where the world of everyday experience blurs into the underworld of gods, demons and spirits.

1.2 The Sculptor's Cave, Covesea

This volume concerns the Sculptor's Cave, a secluded and inaccessible sea cave lying at the foot of high sandstone cliffs on the south coast of the Moray Firth in north-east Scotland (illus 1.1, 1.2; Canmore ID 16278). Although there is nothing to suggest that this cave was a cannibal den, it nonetheless shares many features with Sawney Bean's mythical adopted home. Both are sea caves, hard to reach and remote from the mundane world of day-to-day life. Both are cut off at each high tide. And both are places of the dead.

The Sculptor's Cave takes its name from a series of enigmatic Pictish symbols carved around its distinctive twin entrance passages. Two programmes of excavation, however, in the 1920s and 1970s, have shown that human activity began much earlier. During the Late Bronze Age, from around 1100 BC, the cave was a mortuary site, where the dead were laid out with personal objects, including ornaments of bronze and gold. People continued to visit the cave throughout the Iron Age, though the nature of activity is more elusive. In the early centuries AD, however, rich artefactual material suggests a renewed intensity of ritual activity. Most remarkable of all, human remains from the Roman Iron Age attest to the execution by decapitation of at least six people inside the cave; an extraordinary event whose impact was surely magnified by the deep spiritual associations of the site.

The chapters that follow present a comprehensive report on the Sculptor's Cave excavations, drawing on the work of the 1970s site directors, Ian and Alexandra (Lekky) Shepherd, and their team of excavators and post-excavation researchers.

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Illustration 1.1
Location map

THE SCULPTOR'S CAVE: A PLACE APART



Illustration 1.2
The Sculptor's Cave

Following a wholesale programme of post-excavation analysis at the University of Bradford from 2014–18 under the aegis of the Sculptor's Cave Project, it integrates the Shepherds' findings with those of the earlier excavations by Sylvia Benton.

1.3 Location, topography and geology

The Sculptor's Cave lies between the villages of Covesea and Hopeman on the south shore of the Moray Firth, 64km east of Inverness (NGR NJ 1750 7072). It is one of a series of sea caves along a 10km stretch of coastline between Burghead and Lossiemouth (Clemmensen 1987). Set around 6m above the high-tide mark, the cave occupies the south-west corner of a small bay, below cliffs which rise to almost 30m (illus 1.3). These belong to the Hopeman Sandstone Formation, which is thought to have formed through aeolian action in the Permian or Early Triassic periods, although

there remains some debate about its precise geological origins (Maithel et al 2015).

The cave itself is a large and imposing space, some 20m deep by around 13.5m wide, with a roof rising to 5.5m high (illus 1.4). The entrance is extremely distinctive, being formed by two parallel passages some 11m long by 2–3m wide separated by a solid spine of rock (illus 1.5). Although remarkably regular in form, the entrance passages appear to be entirely natural. The passages are both sufficiently tall and wide that it is nowadays possible to walk unimpeded into the cave. This striking entrance marks the cave out from the many others along this stretch of coast.

There is no easy direct access to the bay from the landward side. Today, the quickest way to reach the cave is to climb down an artificially enhanced vertical channel (the 'lummie') cut into the cliffs of the next bay to the east; the lummie formerly had steps cut into the rock (Allen and Anderson 1903: 130), but these were mostly blasted away after the 1920s excavations. Similarly, there are footholds cut into the cliff face leading to Covesea Cave 1 in the next bay to the west (illus 1.1, 1.3), though these are highly precarious. Otherwise, access from the land involves a lengthy walk along a beach covered, in many places, by dense concentrations of large, angular, slippery boulders. Whatever the approach, the bay is inaccessible for prolonged periods either side of high tide; an obstacle to access that would have been significantly more marked during the first millennia BC/AD, when relative sea levels in this area were

perhaps around 1.5–2m higher than they are now (Smith et al 2012). The cave is not, therefore, an easy place to approach by land. Similarly, it does not present straightforward access by sea, since the bay is fringed by dense, sharp, angular rocks that would present a serious danger to vessels of any draft (illus 1.6): it would, however, probably be possible (though not advisable!), in calm conditions at high tide, to pull up a small canoe or coracle, by disembarking beyond the rocks and manually hauling the boat ashore.

The inaccessibility of the cave would have been exacerbated in prehistory by the environmental conditions of the hinterland. The area behind the coastal strip was dominated until the Middle Ages by a large sea loch known as Loch Spynie. Although surviving only as a relatively small body of open water today, this loch originally occupied a substantial area between Burghead and Lossiemouth (illus 1.7, 1.8; see section 7.2). Together with the

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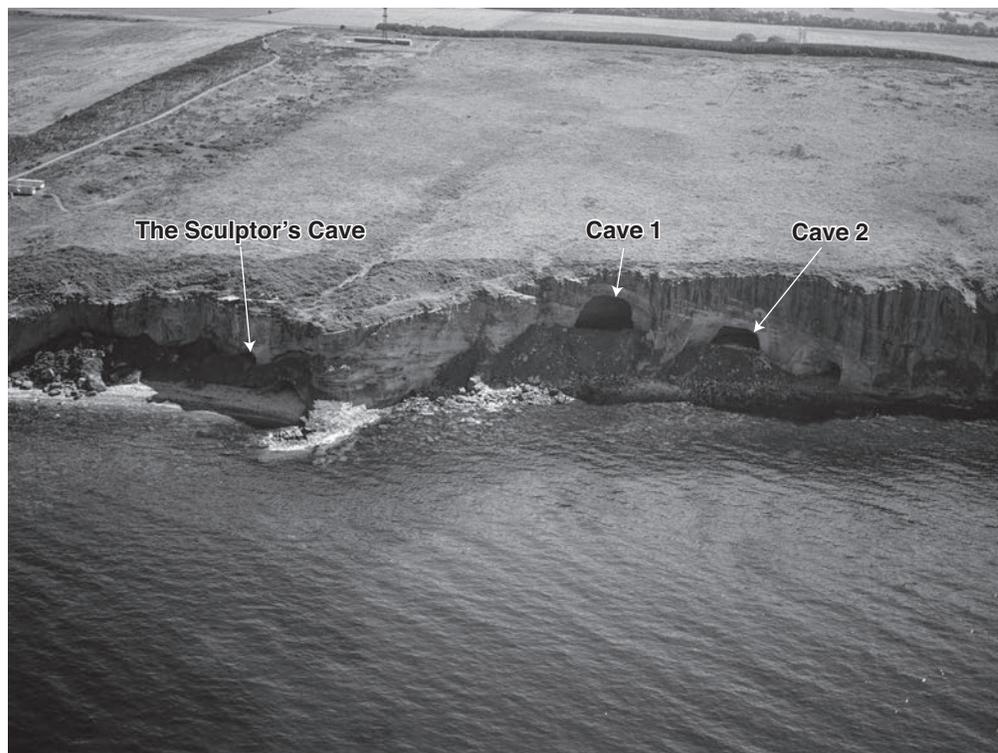


Illustration 1.3

The Sculptor's Cave from the air at high tide. Covesea Caves 1 and 2 are indicated to the west
(© Aberdeen Archaeological Surveys / Ian Ralston, reprinted by permission of Historic Environment Scotland, SC 1012386)

marshy wetlands that surrounded it, the loch would have formed a significant barrier to movement on foot, creating effectively an island of the narrow coastal strip where the Covesea Caves are sited.

This complex environmental history may be reflected in the name Covesea itself (pronounced 'Cow-sea'), which is first attested, as 'Coiffey', in a charter dated 1561 (Innes 1837: 404, no. 369). Similar forms appear on a succession of later documents, including 'Coys'ie' on Pont's map (c 1583–96), 'Coif'ie' on Blaeu's Atlas (1654), and 'Causie' on Ainslie's chart of 1785 (illus 1.7). The slightly different, perhaps anglicized, form 'Cave-Sea' first appears in the *History of the Province of Moray* (Shaw 1775), while both forms, 'Causea or Cave-sea', are recorded in the entry for the parish of Drainie in the Statistical Account (Gordon 1799: 85). One reading of these variants might be that the name means something approximating to 'Cave Island', but another possibility is that it derives from 'causeway'. Either suggests a perception of marginality.

1.4 The recent history of the Covesea Caves

The Covesea Caves have been well known local landmarks since at least the late eighteenth century. The Reverend Lachlan Shaw (1775: 163), for example, notes in his *History of the Province of Moray*, that 'in the Parishes of Kinnedar and Duffus, there are several Caves; some are ten or twelve feet high, and it is uncertain how far they extend; they open to the sea, in a Hill of Free Stone, and were probably formed by the impetuous waves, washing away the Sand and Gravel between the Strata of stone'.

Perhaps the earliest recorded human use of the caves is described by the Reverends John Grant and William Leslie (1798: 122), who note that one 'was occupied as a stable to conceal the horses of the family of Gordonstown (sic) from the rebels, in the year 1745, and has the entrance built up into a neat door'. The same story is reflected a century later by James Brown (1873: 326–7) who says of 'the Laird's Stable' that it 'was a hermit's cell, and that Sir Robert Gordon of Gordonstown (sic) degraded it into a stable in 1745, to conceal his horses, as people say, from the rebels, or from the royalists, or from both'. The 'Laird's Stable' (named 'Sir Robert's Stables' on the First Edition 6" OS map; illus 1.7D) is still accessible today, in a bay to the east of the Sculptor's Cave (illus 1.9).

By the end of the eighteenth century, certain of the caves were frequented by workmen engaged in the extensive quarrying operations that were carried out along this coast. Grant and Leslie (1798: 122) record, for example, that 'some of the lightest are used as shelters by the stone-cutters, both from the heat and rain, and are in part filled by the chips and fragments'. Their description is borne out by modern inspection, for example, of one large cave adjacent to Covesea Quarry (Canmore ID 318072; illus 1.10). Other caves described by Grant and Leslie are harder to pinpoint, including 'another behind the village of Lossiemouth [which] had, in ancient times, been formed into a small hermitage, not exceeding 12 feet square: it was completed by a handsome Gothic door and window, and commanded a long but solitary view along the eastern shore. These artificial decorations were torn down about 30 years ago, by a rude shipmaster; and in the course of working the quarries the whole cave has been destroyed' (1798: 130). Brown (1873: 290)

THE SCULPTOR'S CAVE: A PLACE APART

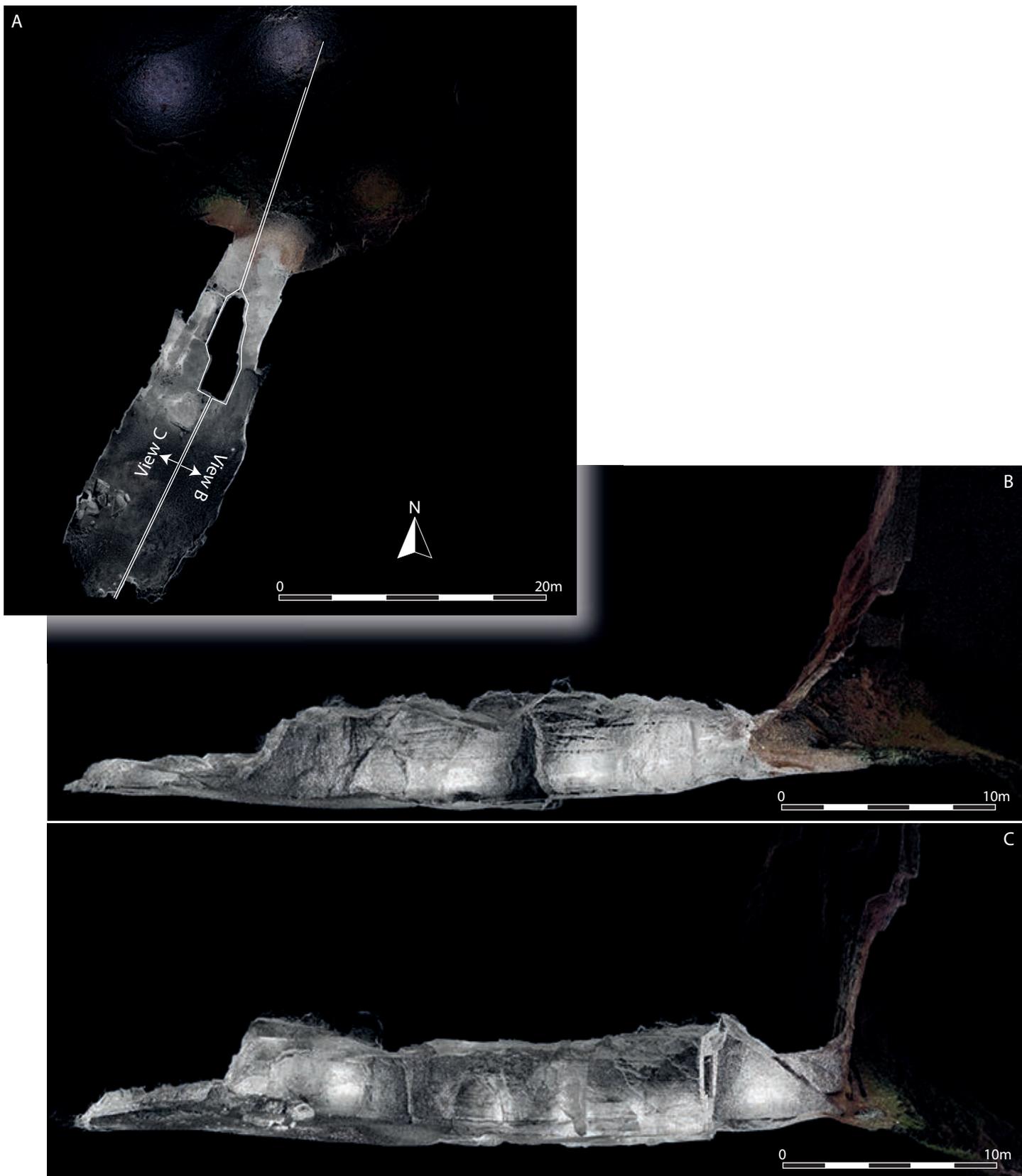


Illustration 1.4

Digital scans showing (A) a plan view of the Sculptor's Cave, (B) a section through the East Passage to the rear of the cave and (C) a section through the West Passage to the rear of the cave. The scans give some sense of the ease of access into the cave as it is now and as it would have been prior to the beginnings of human activity (courtesy Visualising Heritage, University of Bradford)

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Illustration 1.5

The Sculptor's Cave (A) from the outside showing the distinctive twin entrance passages and (B) from the inside indicating the scale of the interior space

mentions human activity in other caves which are also now difficult to identify, including 'another cave, near Hopeman [where] have been found a flint arrow-head, bones of the beaver and the crane, and other traces of prehistoric occupancy'. Brown also mentions the Sculptor's Cave itself (though not by name), reporting that 'the roof . . . is sculptured with figures of the half-moon, sceptre, fish and suchlike symbols of ancient Celtic art' (ibid).

By the mid-nineteenth century, the spectacular coastal geology of the Moray Firth was a magnet for tourists, attracted by its 'caves, fissures, arches, stacks, and fantastic forms of rock, various and romantic as the ruins of a vast city' (Groome 1884: 290). As the Reverend Dr Rose describes in the *New Statistical Account*, 'to visit these [caves], gentlemen and ladies, pleased with the scenery, and more pleased with each other, scramble hand in hand over slippery rocks, and rounded boulders, at the risk of

THE SCULPTOR'S CAVE: A PLACE APART



Illustration 1.6
View from the entrance to the Sculptor's Cave

breaking their necks and limbs' (1845: 150). Evidence of these Victorian visits is plentiful at the Sculptor's Cave, where numerous visitors carved their names into the walls, both alongside the Pictish carvings at the entrance, and extending into the interior; a phenomenon which has continued into more recent times (illus 1.11). The caves were also used as expedient shelters by the homeless and itinerant ('bands of wandering gypsies'; Stuart 1867: xciv) during the nineteenth century, as had probably been the case in earlier centuries. Nowadays the caves are more rarely visited, although the careful placement of bones, feathers and other found objects on a large boulder towards the rear of the Sculptor's Cave suggests that it continues to exert some residual spiritual pull (illus 1.12).

1.5 Discovery and excavation

There seems to have been no antiquarian recognition of the Sculptor's Cave prior to the mid-nineteenth century. It is not mentioned, for example, in the Old or New Statistical Accounts (Gordon 1799; Rose 1845), despite detailed descriptions of the general coastal landscape around Covesea that includes references to other caves in the vicinity. The first written record of the carvings at the Sculptor's Cave appears to be contained in a letter written by Sir James Young Simpson (1865), the distinguished physician and antiquarian, who was then studying the Pictish symbols at the Wemyss Caves in Fife. Simpson's letter, to the Reverend Dr George Gordon of Birnie, an amateur geologist, antiquarian and founder of Elgin Museum, had been prompted by information received from the factor of a local estate, suggesting that there was at least some local knowledge of the Sculptor's Cave carvings by this time. Gordon's reply (1865), however,

professes no knowledge of them, confirming that they had not yet been drawn to the attention of local antiquarians.

The first known attempt to record the carvings, seemingly prompted by this exchange, was conducted in 1866 by Lady Sophia Dunbar, a noted watercolourist with antiquarian interests, and resident at nearby Duffus. In a letter to Simpson, she recounts that 'I was lately so fortunate as to discover some small remains of ancient sculptures in a cave at Covesea which I was pleased to hear from Mr [John] Stuart had interested you. I have no doubt their antiquity is authentic altho' the sculptures are trifling in themselves' (Dunbar 1866). Dunbar's sketches convinced John Stuart to send Aberdeen-based artist Andrew Gibb 'to make the necessary drawings' for inclusion in the second edition of his *Sculptured Stones of Scotland*, published the following year (1867).

The first known excavations came just a few years later, when an article in the *Elgin Courant*, dated 25th September 1868, states that 'deep excavations were made in the cave by some scientific gentlemen of the neighbourhood, and one, we believe from Edinburgh' (Anon 1868a: 5). The same article goes on to report the finding of a 'human lower jaw-bone and part of a human skull' among the debris of occupation (ibid). Although these 'gentlemen' are anonymous, Lady Dunbar seems once again to have been closely involved, since it was she who, later that year, donated 'bones, etc' which had been 'found in excavating debris on the floor of the 'Sculptured Cave' at Covesea' to Elgin Museum (Anon 1868b). These accession records also represent the first occasion on which the cave was identified by name. Several decades later, describing the carvings in their magisterial *Early Christian Monuments of Scotland*, Allen and Anderson note that the floor of cave was covered by a coarse gravel 'which appeared to have been disturbed by explorers' (1903: 130). Whether this referred to the still-visible traces of the 1868 excavations, or later unrecorded antiquarian interventions, is uncertain.

The turning point in the history of research on the Sculptor's Cave came in 1928, when Sylvia Benton, at that time a student of classical archaeology at the British School at Athens, visited the cave (Trythall 2012). Although the purpose of her visit was to examine the Pictish carvings, Benton reports that 'my companion, Miss Mollie Hair, called my attention to the fact that the floor was strewn with human bones' (1931: 177). Trial trenching later the same year confirmed the presence of rich archaeological deposits and further excavations in the summers of 1929 and 1930 were supported by the local landowners, the Gordon Cumming family, who supplied a team of four workmen to assist with the project. Over the course of the project, almost all of the anthropogenic deposits were removed from the cave interior, though Benton left strips of in situ material along each of the two entrance passages as a resource for future excavators (illus 1.13). Benton's work revealed

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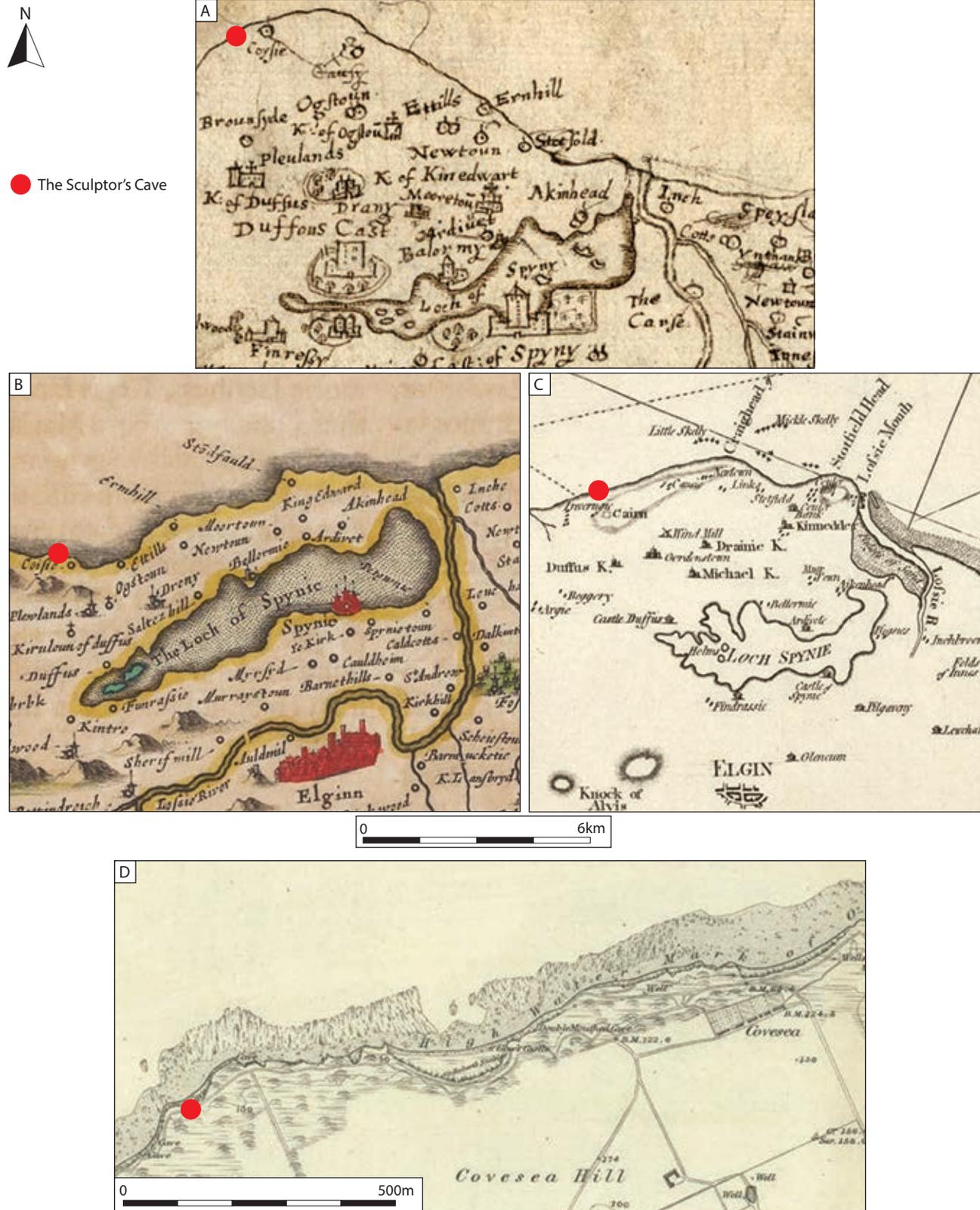


Illustration 1.7

(A) Pont's map of Elgin and north-east Moray (c 1583-96), (B) Blaeu's Atlas of Scotland (1654), (C) Ainslie's chart of part of the north of Scotland, from Banff to Duncansby Head (1785), (D) the First Edition 6" Ordnance Survey (1843-82) (maps reproduced with the permission of the National Library of Scotland)

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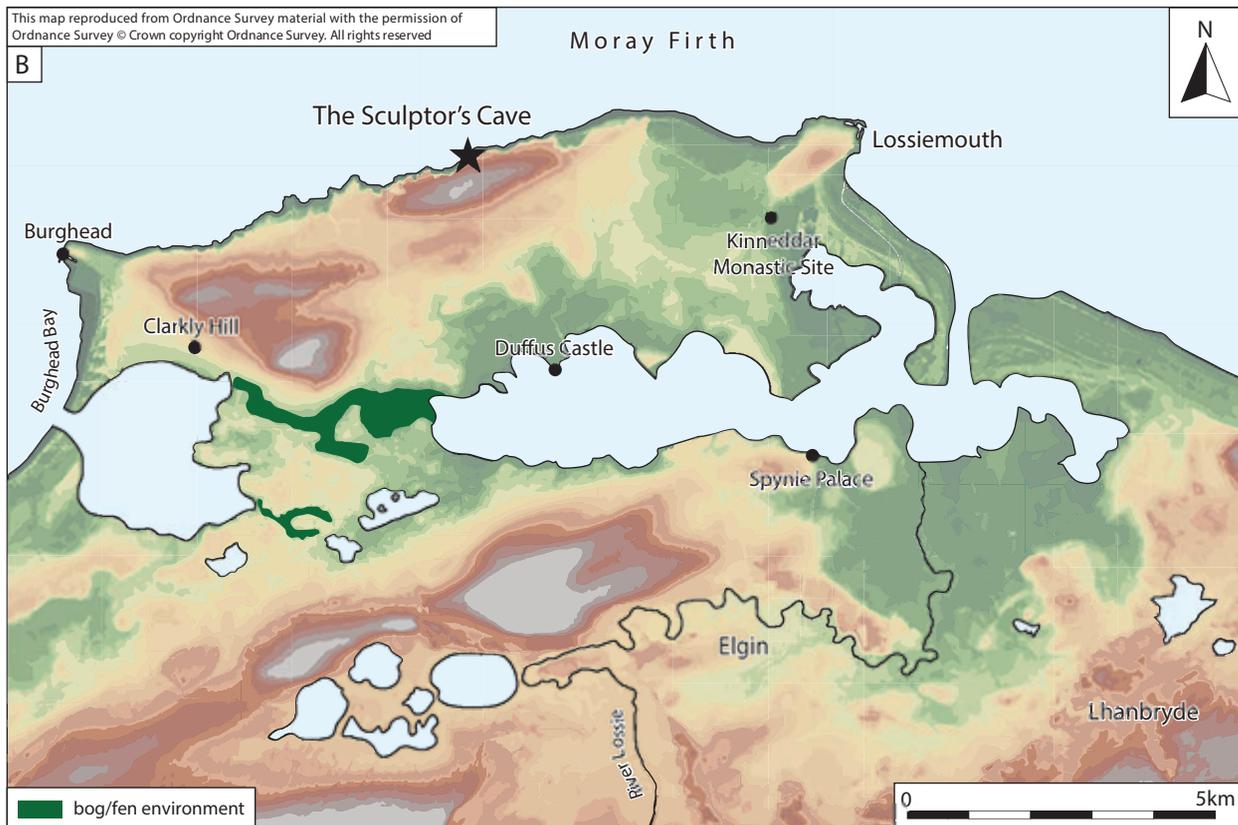
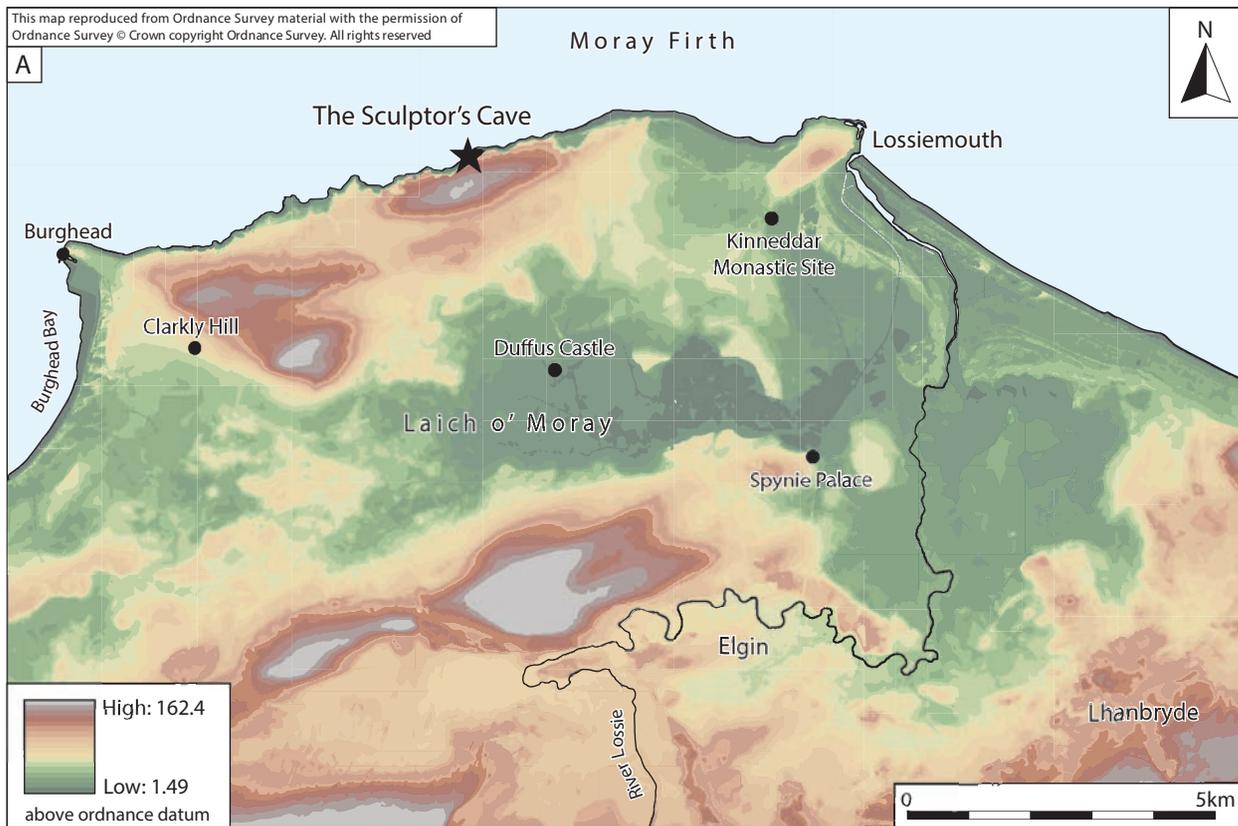


Illustration 1.8

The landscape context of the Sculptor's Cave: (A) as it appears today, (B) as it might have been during later prehistory (data courtesy Michael Stratigos; for full details on the landscape reconstruction see section 7.2)

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Illustration 1.9

The 'Laird's Stable', popularly supposed to have been used as stables during the 1745 Rising and perhaps, prior to this, the home of a hermit



Illustration 1.10

Cave adjacent to Covesea Quarry, used by quarrymen during the eighteenth and nineteenth centuries

large quantities of artefactual material, including an unusually high-quality assemblage of metalwork from the Late Bronze Age and an array of personal ornaments and coins dating to the Roman Iron Age. Of even greater significance perhaps was a remarkable assemblage of disarticulated human remains, although virtually all of these were discarded during or after the excavations (see box sections 2 and 4).

Although Sylvia Benton went on to work extensively in the Greek Islands, including leading fieldwork on caves in Ithaca (Benton 1939), the Sculptor's Cave was her first real experience of excavation. Despite the problems she encountered in this hugely difficult working environment (see chapter 2) and in the face of scepticism from the Scottish archaeological establishment, the work was well-conducted for its time and resulted in remarkably prompt publication (Benton 1931). The latter seems to have owed much to V Gordon Childe, Abercromby Professor at the University of Edinburgh, who engineered an invitation for Sylvia

Benton to lecture to the Society of Antiquaries of Scotland and to publish the site in their journal (Ralston 2009: 66). Though, typically for the period, much of her interpretation concerned questions of typology and cultural history (including the supposed arrival of cultural influences from Switzerland), Benton's work established the Sculptor's Cave as a mortuary site with clear episodes of votive deposition in the Late Bronze Age and Roman Iron Age. Inevitably, the utility of Benton's report is limited by the relatively crude recovery techniques available at the time, an issue exacerbated by the difficult conditions associated with working in the cave. Stratigraphic information was thus rather rudimentary.

Following Benton's work, the site remained prominent in Scottish archaeological literature. Childe, for example, discussed the pottery from the cave in the context of the 'Late Bronze Age Invasion' of Britain (1935: 172), while Piggott cited the cave in his discussion of Late Urnfield migrations from the Rhine or the Low Countries (1962: 116–17). Interestingly, Piggott seems to have regarded the Late Bronze Age activity within the Sculptor's Cave as representing settlement, wondering if his 'would-be settlers [had] become fugitives', 'obliged to lurk in caves' (ibid: 117). Most notably perhaps, the Sculptor's Cave became the type-site for Coles' 'Covesea Phase' of the Scottish Late Bronze Age (Coles 1960), which broadly equated to the Dowris Phase in Ireland and the Ewart Park Phase in England.

Despite the recognition of its importance, however, the cave itself remained remote and vulnerable to unauthorised disturbance. Following repeated episodes of illicit digging, a renewed programme of excavation was initiated in 1979 to remove the surviving archaeological deposits that Benton had intentionally left in the two entrance passages (illus 1.14). The work was led by Ian and Alexandra Shepherd and funded by the Ancient Monuments Branch of the Scottish Development Department (now Historic Environment Scotland) and the former Grampian Regional Council. Following the excavations, the cave was scheduled on 24th October 1979, primarily to protect the Pictish carvings, since all anthropogenic deposits within the cave and its entrance passages were thought to have been removed.

Due to pressure from various work commitments, the 1979 excavations remained unpublished, although some preliminary post-excavation analysis was completed in the early 1980s and several interim statements were published (Shepherd 1983; 1993; 1995; 2007; Shepherd and Shepherd 1979; 1980). Following a lengthy hiatus, renewed post-excavation work, including the first radiocarbon dating programme for the site, began in 2006/7 as part of a reanalysis of the human remains led by Ian Armit and Rick Schulting, in collaboration with Ian Shepherd and Chris Knüsel (Armit et al 2011). Following Ian Shepherd's untimely death in 2009, however, work on the archive ceased once again.

1.6 Excavating the archives

In 2013, following discussions between Historic Environment Scotland, Alexandra Shepherd and the University of Bradford, a new programme of work was initiated with the aim of achieving full publication and archiving of the Sculptor's Cave excavations. The Sculptor's Cave Project was directed by Ian Armit and managed by Lindsey Büster. Its aims were essentially to design and

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Illustration 1.11
Modern graffiti inside the Sculptor's Cave

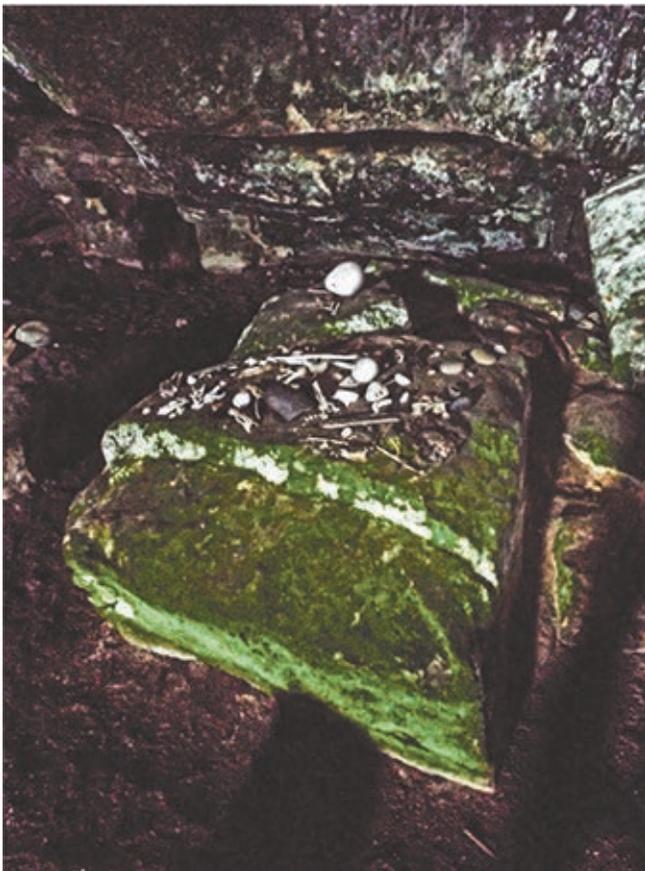


Illustration 1.12
The informal modern 'altar' taking advantage of a large rockfall at the rear of the cave. The offerings vary but tend to include bones, unusual stones and feathers

implement a post-excavation strategy that would both bring the Shepherds' work at the Sculptor's Cave to final publication and realise the research potential of the site in relation to broader themes in British and European Late Bronze Age and Iron Age archaeology.

Underpinning the work was the archive from the 1979 excavations, which comprised principally field-drawn and inked-up plans, sections, slides, black and white photographs, colour slides, contour surveys, finds distribution plots, casts and rubbings of the Pictish carvings, site notebooks, artefact record cards, and records and reports relating to the excavation and initial post-excavation programme.

All of the artefacts, human remains and faunal bone from the 1979 excavations are held by National Museums Scotland (NMS) in Edinburgh, who also curate the casts of the Pictish and other carvings taken during the 1979 work. Finds and a handful of surviving human remains from Sylvia Benton's excavations are split between NMS and Elgin Museum: these were brought together at NMS to enable reanalysis alongside the Shepherd material. A significant number of soil (and other) samples from the Shepherd excavations were also held at NMS, comprising both processed and unprocessed soil samples, column samples and boxes of miscellaneous material. During preliminary work on the project it transpired that significantly more palaeoenvironmental material survived than had initially been thought. This included charred grains that had been reported on in the early 1980s but had been thought lost. Although increasing the scale of the post-excavation programme, the survival of this material was greatly beneficial in examining the palaeoenvironmental dimensions of human activity in the cave and providing samples for a Bayesian-led AMS dating strategy.

Both NMS and Elgin Museum also hold smaller amounts of material from the Covesea Caves, which almost certainly includes material from the Sculptor's Cave, collected illicitly during the 50 years that passed between the two excavation campaigns. These were examined where appropriate as part of the present project.

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Illustration 1.13
Sylvia Benton with Alexandra (Lekky) Shepherd in the West Passage

Although the Sculptor's Cave Project was largely desk- and laboratory-based, some fieldwork was undertaken in 2014 to conduct the digital recording of the cave and its carvings (see box sections 1 and 3) and to enable soil micromorphological sampling of the natural deposits underneath the excavated layers in order to explore the palaeoenvironmental context of the cave (see section 7.3). The opportunity was also taken to conduct small-scale excavation of Sylvia Benton's spoil heap, primarily to retrieve human remains known to have been discarded during her excavations (see box sections 2 and 4).

Problems encountered during the project were those that might generally be expected when publishing someone else's excavation. The stratigraphy uncovered by the Shepherds within the cave entrances was exceptionally fine-grained and complex. This was hard enough to disentangle at the time, particularly since individual blocks of preserved stratigraphy had been vertically and horizontally truncated by excavation in the 1920s and further disturbed by later erosion and informal, illicit excavations. The lack of first-hand experience of the actual excavation was an additional handicap. Nonetheless, the quality of the drawn and written records was extremely good and made it possible to effectively reinterpret the site from first principles using plans, sections, photographs, context descriptions and site notebooks. That full publication is possible 40 years on from excavation is a tribute to the abilities of the excavators.

The Sculptor's Cave was excavated before the general uptake in Scotland of single-context recording. The context assignment and numbering system was thus site-specific and rather complex: nonetheless, it has been retained here to ensure continuity between



Illustration 1.14
The Shepherds' excavations in 1979, showing work underway in the West Passage

Box section 1

LASER SCANNING THE CAVE

LINDSEY BÜSTER, ADRIAN EVANS, TOM SPARROW, RACHAEL KERSHAW, ANDREW S WILSON AND IAN ARMIT

Unlike most archaeological sites, caves survive as complex three-dimensional spaces. As a result, they are hard to capture using traditional archaeological recording methods such as conventional plans and sections. With this in mind, a terrestrial laser scan of the Sculptor's Cave interior was created in 2014. The principal aims were to record the cave in much greater detail than had previously been possible, as a basis for archaeological interpretation, and to help preserve this fragile space (at least digitally) against the threats posed by erosion and rockfall. The resulting digital model also provides the potential for a much wider audience to experience this remarkable but inaccessible site through museum display and online dissemination (Büster et al 2019a).

Terrestrial laser scanning was undertaken using a FARO (Lake Mary, FL) *Focus^{3D} S 120* laser scanner running FARO *Scene* software (illus B1.1). The scanner weighs 5kg and fits neatly into a hard case which could be carried 'rucksack style' down the cliff and across the beach to the Sculptor's Cave. Each laser scan comprised an average of 174.8 mega-points, with an average point distance at 10m of 3.068mm, and an average file size of 568Mb. In total, twenty-eight scans captured the entire cave interior, in around eight hours, over a two-day period. Scan positions were located using a Trimble *S6* robotic total station.



Illustration B1.1

Terrestrial laser scanner in operation in the Sculptor's Cave

Off site, the individual scans were combined initially into a 3D digital model in Trimble (Sunnyvale, CA) *Realworks*. For the creation of more sophisticated models, point clouds were converted into meshes in Autodesk (San Rafael, CA) *ReCap 360*, and subsequently cleaned up using open source *Cloud Compare* software. This process took approximately 48 hours. The resultant model (illus 1.4, B1.2) is nearly 2GB in size, and can be opened in open source *Cloud Compare* or *Meshlab* software, both of which are freely available online.

Finally, a walk-through animation was created using a combination of FEI (Hillsboro, OR) *Avizo* and Adobe (San Jose, CA) *After Effects* software (Büster et al 2019a: https://link-springer-com.ezproxy.is.ed.ac.uk/chapter/10.1007%2F978-3-319-99022-4_10#SupplementaryMaterial); these were outputted as '.avi' files, and can be played using open source multimedia *VLC* software. The

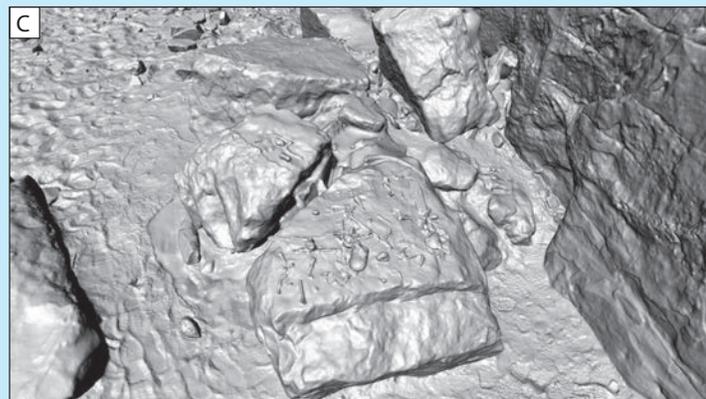


Illustration B1.2

Still images taken from walk-through animation generated from the terrestrial scan models, showing (A) the cave looking in from outside, (B) the twin entrance passages from the cave interior, (C) rockfall, now adopted as 'altar' at the rear of the cave (courtesy Fragmented Heritage and Visualising Heritage, University of Bradford)

animation combines terrestrial laser scan data with high resolution structured light scan data of the Pictish carvings (see box section 3) into one integrated model, which allows the viewer to experience the Sculptor's Cave simultaneously at a number of scales. In the future, the walk-through animation has the potential for augmentation with further sets of experiential data; for example it would be possible to add ambient sound from the cave, or digitally refill the archaeological deposits to recreate the micro-topography of the interior during the various phases of the site's use. It would also be possible to digitally reinstate the pool thought to have occupied the interior during the Late Bronze Age and Early/Middle Iron Age (see chapter 2).

the published report and the site archive. The complex nature of context recording did, however, lead to some irreconcilable confusion in labelling within the archive that could not be disentangled at 40 years remove from the excavation. Fortunately, the instances of confusion were sufficiently few as not to prejudice overall understanding of the stratigraphic sequence and location of the bulk of the artefactual and ecofactual assemblages.

As in the case of other backlog projects, the delay between excavation and publication has had the benefit of introducing some new opportunities for analysis and interpretation. As well as significant advances in the understanding and interpretation of artefactual, faunal and palaeoenvironmental datasets (chapters 5 and 7), methodological developments in osteoarchaeological analysis have enabled us to say more about the human remains from the Sculptor's Cave than would have been possible at the time of excavation (chapter 6). Most important, however, is the development of AMS (accelerator mass spectrometry) dating and, particularly, techniques of Bayesian modelling. New AMS dates have filled out the sequence of activity in the cave to span the whole period from the Late Bronze Age to the Roman Iron Age, while Bayesian analysis has enabled us to address specific questions of chronology (see chapter 4).

1.7 Structure of the volume

The present volume aims to provide a definitive report on the archaeological work undertaken at the Sculptor's Cave from the 1920s to the present. Post-excavation analyses, and particularly the radiocarbon chronology, have transformed earlier understandings of the site and greatly alter the picture adduced in earlier reports, although many interpretive ideas put forward by the original excavators remain important.

Chapter 2 details the results of excavations at the cave. The overwhelming majority of this evidence derives from the Shepherd excavations, though the limited stratigraphic evidence from the Benton archive is also examined. Activity within the cave is divided into three phases:

- Phase 1: Late Bronze Age (*c* 1100–750 BC)
- Phase 2: Iron Age (*c* 750 BC – AD 100)
- Phase 3: Roman Iron Age (*c* AD 100–400)

Phases 1 and 3 reflect the major episodes of activity recognised by both Benton and the Shepherds in their successive excavations. Phase 2, however, has been revealed by the recent programme of radiocarbon dating, which has demonstrated that many of the deposits within the cave relate to ongoing activity between the two more obvious episodes of archaeological visibility. This is especially important, since it changes the character of the cave from a place that witnessed two essentially isolated periods of activity to one that may have been visited and venerated more or less continuously for around 1500 years.

The Pictish symbols and other carvings that first drew the attention of archaeologists to the Sculptor's Cave form the focus of chapter 3. Although the conventional chronology for the symbols would place them in the early medieval period, recent re-evaluation of the dating evidence suggests that they need not be significantly later than the Roman Iron Age activity in the

cave. This chapter contextualises the Sculptor's Cave symbols in relation to the wider Pictish corpus.

Chapter 4 examines the chronology of human activity in the cave, primarily on the basis of the 51 radiocarbon dates that have been obtained during the post-excavation programme. It develops a series of Bayesian analyses intended to answer questions concerning the duration and tempo of activity within the cave and the relationship between activities in each of the two entrance passages. Bayesian analysis is also employed to assess the dating of unstratified human remains excavated by Sylvia Benton and to place them within the wider chronology of the cave.

The rich and extensive finds assemblage from both the Benton and Shepherd excavations is examined in chapter 5. The problematic lack of clear stratigraphic understanding in Sylvia Benton's excavations (from which the majority of the finds derive) is a pervasive issue, but it is nonetheless possible to draw out some important observations about the changing nature of activity in the cave throughout its lengthy period of use.

Central to the importance of the cave is the large and complex assemblage of human remains, many of them (from Benton's excavations) now lost and known only through scant written descriptions (see box section 4). These form the basis of chapter 6, which considers the role of the cave in Late Bronze Age mortuary rites, as well as the extraordinary evidence for a mass execution event within the cave during the Roman Iron Age.

In chapter 7, the economic and palaeoenvironmental evidence is examined, much of it based on rediscovered palaeoenvironmental samples found during the recent post-excavation programme. These analyses have much to add to our understanding of the nature of activity in the cave, including the persistent evidence for the preparation, cooking and consumption of food in the entrance area, even at times when the cave was clearly active as a mortuary site.

Chapter 8 draws together the various threads of the project, considering the biography of the Sculptor's Cave over more than 1500 years of human activity. This period, of course, saw huge social, political and economic changes, and it is important to consider the shifting context of the cave's use against this backdrop. The apparent continuity of the cave as a special place in the landscape over this immense span of time raises interesting questions in relation to the maintenance of social memory in periods of major cultural change. Beyond the region, the detailed evidence from the Sculptor's Cave has important implications for the ways in which we interpret prehistoric cave use elsewhere in Scotland and Europe. In particular, we examine what the Sculptor's Cave can tell us about complex treatments of the dead in later prehistory, a period when funerary evidence is at best elusive and frequently entirely absent across most parts of Britain. We also return to some of the broader themes outlined at the beginning of this chapter. The Sculptor's Cave was a liminal place in every sense; a sea cave, set between above and below, between land and sea, between this world and the next. Nothing was ever done in the cave that could not more easily have been done somewhere else. It was a place that people visited very deliberately and for reasons that had much more to do with the liminal and numinous qualities of the place itself than with any sort of mundane practicality. The Sculptor's Cave was, above all else, a place of encounters with the underworld.