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Cairns, coneys and commoners on Llanelwedd Rocks, Radnorshire

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Rescue excavations were undertaken in advance of quarrying on Llanelwedd Rocks, the southern tip of the Carneddau hills in Radnorshire by the Clwyd-Powys Archaeological Trust between 2007–11. Sites investigated comprised two Bronze Age kerbed cairns of the earlier second millennium BC and a seventeenth- to eighteenth-century farmstead complex, which included a longhouse and a detached corn-drying kiln and bakehouse. Rescue excavations in the 1960s by C. J. Spurgeon of the Royal Commission on an adjacent post-medieval rabbit warren and a Neolithic occupation site are also described, together with earlier research excavations in the first decade of the twentieth century on these and other local sites by the Revd D. Edmondes Owen, former vicar of Llanelwedd. The history of land use, settlement and enclosure of this marginal, upland landscape overlooking the Wye valley in mid Wales is discussed in the light of these excavated sites and sites known from recent fieldwork surveys.

INTRODUCTION

Topography, geology and soils

The excavated sites described in this report lay on or just to the north of Llanelwedd Rocks, the craggy southern end of the Carneddau range in southern Radnorshire, overlooking Builth Wells and the Wye valley and bounded to the east by a distinctive ridge, now being actively quarried for road stone (Figs 1–2). This rugged range of hills, rising to a height of over 445m, run for about 10 kilometres southwards from Llandrindod Wells. They are formed of bands of igneous rocks which were extruded within Silurian shales and sandstones that outcrop along the lower slopes of the hill, within a few hundred metres of the excavated sites.[2] Bedrock exposed in the more recently excavated sites reported upon here was composed of basalt lava, the characteristics of which varied markedly from place to place.

Since their formation the bands of igneous rock have dipped by about 40º to the west, which in the vicinity of the excavated sites gave rise to a series of natural terraces running north-south at the southern end of the hill resulting from the exposure of harder bands of rock, with flatter areas between caused by the weathering of softer bands of rock. In places, erosion of these softer bands has resulted in the formation of colluvial deposits overlain by pockets of relatively fertile, light and well-drained soils rich in minerals such as iron, magnesium and calcium derived from the basalt lava. Drainage is impeded in places, resulting in permanently or seasonally waterlogged marshy areas.[3] Glacial activity is evidenced by occasional erratic boulders, including the large boulder next to the excavated Penygraig longhouse (Fig. 20b). During excavation it was noted that pebbles derived from glacial drift were more numerous on the lower terraces of the hill, at a height of about 275m. As noted below, the rock outcrops close to Cairn 1, at a height of 294m, show frost wedging, and glacial striations on the bedrock surface were noted next to Cairn 2, at a height of 276m.

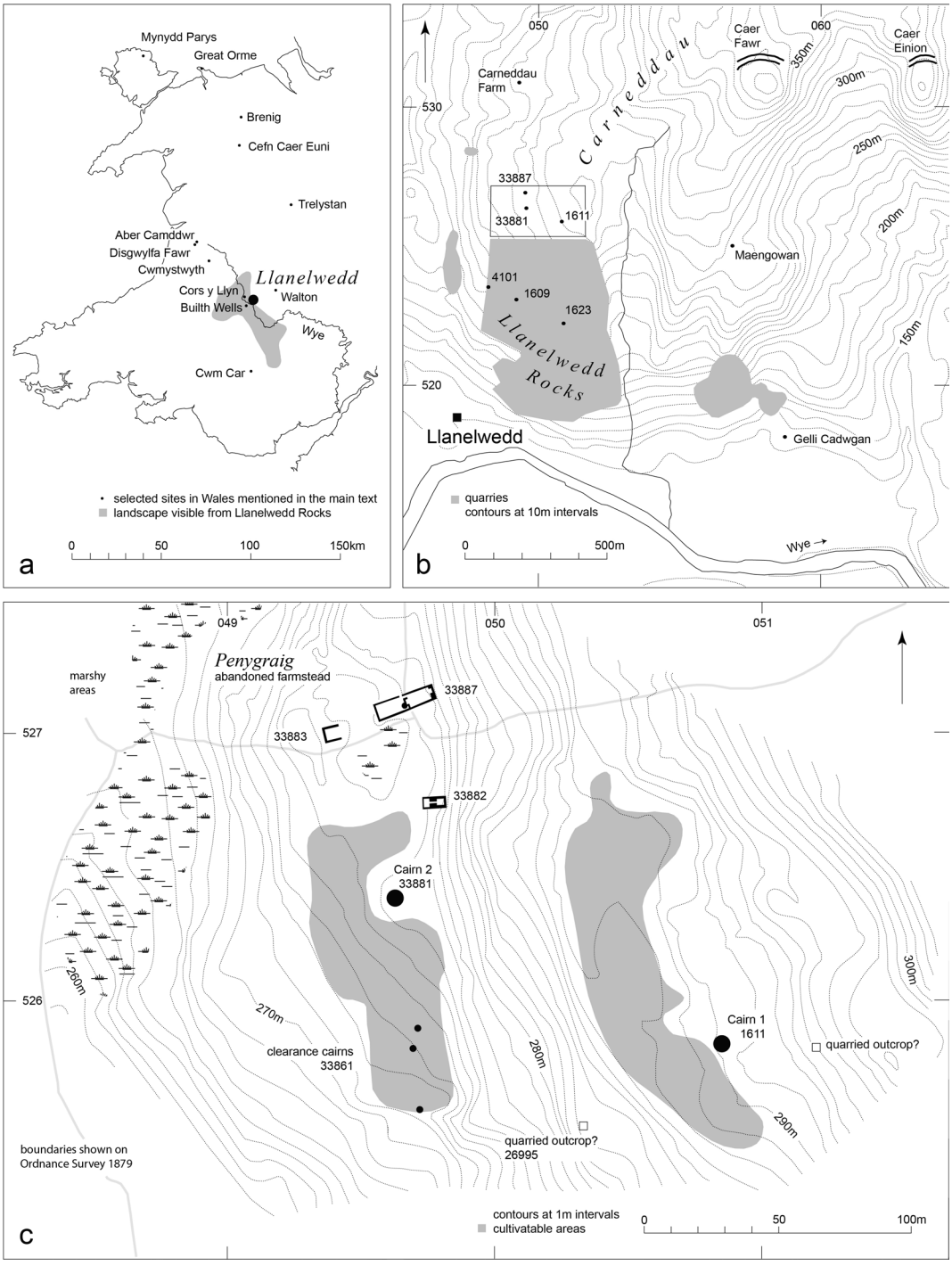


Fig. 1. Location of sites on Llanelwedd Rocks, Radnorshire.

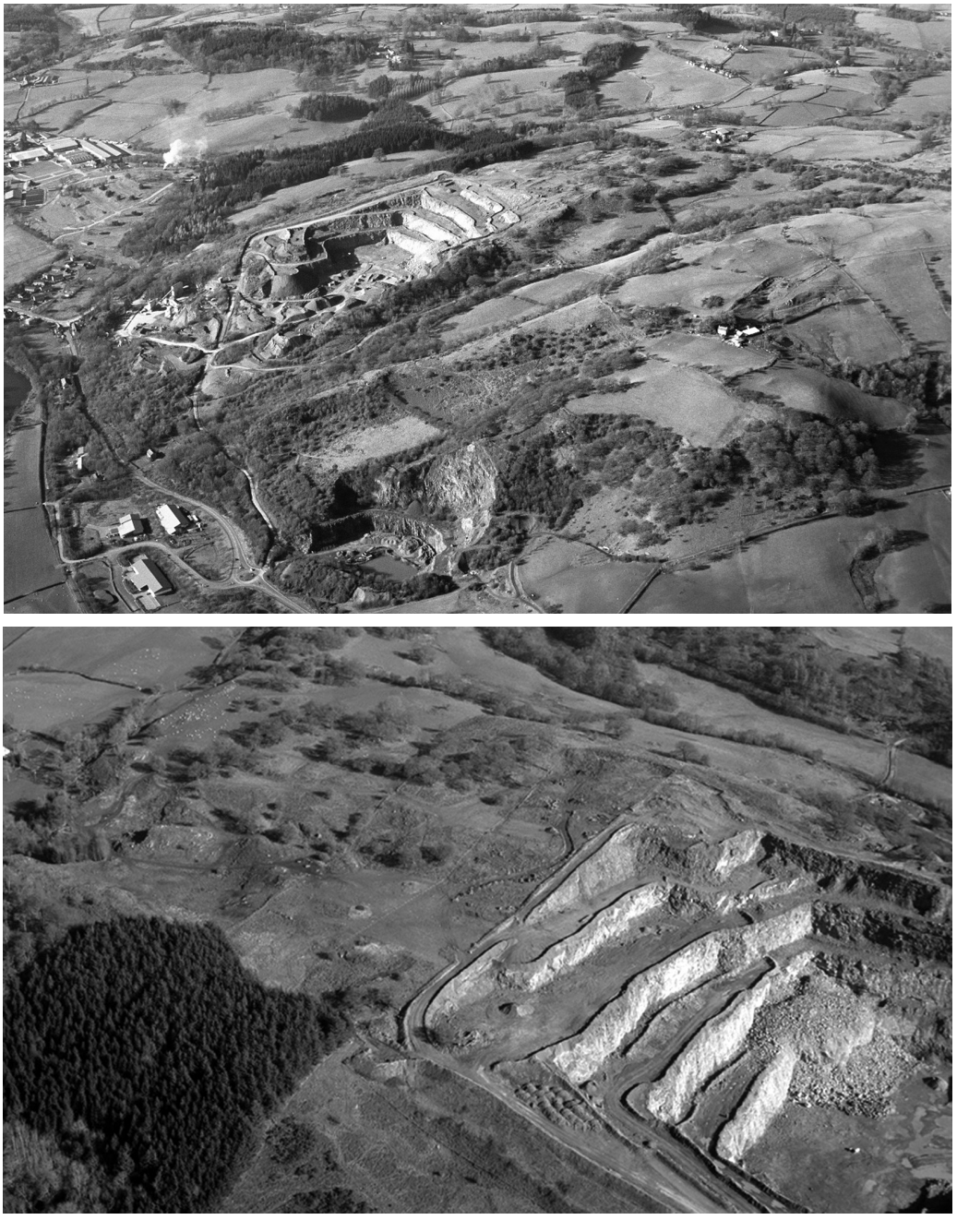


Fig. 2.
2a (*top*) Aerial view of Llanelwedd Rocks and Llanelwedd Quarry from the south-east in 2008. *Photograph: by Nigel Jones, CPAT 08-c-109*. **2b** (*bottom*). Aerial view of Llanelwedd Rocks and Llanelwedd Quarry from the south-west in 2008. *Photograph: by Nigel Jones, CPAT 08-c-0007*.

The pattern of flatter and more fertile tongues of land, bare rocky outcrops and marshy areas on Llanelwedd Rocks has had a marked impact upon the history of land use and settlement since the earliest times. It is evident that some of the flatter areas were cultivated in the past though today the land is largely used for stock rearing on permanent grassland and as good value rough grazing. Soils are classed as typical brown podzolic soils[4] and are generally acidic, as a consequence of which very little unburnt bone has survived. In recent times the rocky outcrops have been covered with bracken and scattered oak, ash, crab apple and hazel.

The two excavated cairns on Llanelwedd Rocks lay about 130m apart but were not intervisible; each occupied a different terrace, high up on the hillside, at about 150m above the floor of the Wye valley, the lower cairn occupying the same terrace as the small abandoned farmstead at Penygraig (Fig. 1c). The name Carneddau may refer to the presence of cairns but is more likely derived from the distinctive rocky outcrops along its summit.[5] Llanelwedd Rocks present a vantage point from which a great swathe of the upper Wye valley is visible (Fig. 1a), extending from Gwastedyn Hill and Drygarn Fawr to the north and north-west (15–20km), Abergwesyn, Crychnan Forest and Mynydd Epynt to the west and south-west (10–25km), and Mynydd Llangatwg and the Black Mountains and Hay Bluff to the south-east (25–40km). The dominant local view is towards the valley bottom to the south-west, in the direction of the village of Llanelwedd and the town of Builth Wells across the river Wye, about 1.5–2 kilometres away.

The picturesque landscape of Carneddau and Llanelwedd Rocks was depicted by a number of artists prior to quarrying, including Thomas Jones (1742–1803),[6] who inherited the neighbouring Pencerrig estate within Llanelwedd parish.

Previous archaeological research[7]

Geological interest in Llanelwedd Rocks and the Carneddau range began in the first few decades of the nineteenth century, starting with general observations by Gilby in 1820 and Murchison in 1839, followed by more detailed studies by Woods, published in 1894. Llanelwedd Rocks fell increasingly under the spotlight from the last decade of the nineteenth century onwards, with the rapid expansion of the local quarries around the southern fringes of the hill, notably the Gelli Cadwgan (or Manor) quarry alongside the main road at the southern end of the hill (Fig. 1b)[8] which supplied stone for the construction of the Elan Valley dams in western Radnorshire which were being built during the period 1893–1906.[9] Earlier quarries had been worked along the south-western fringes of the hill, alongside the pre-turnpike road to Llandrindod, from which it was said that 'Builth has chiefly been constructed'.[10]

Interest in the antiquities of Llanelwedd Rocks coincided with the advent of large-scale quarrying on the southern end of the hill from the last decade of the nineteenth century. Excavations were carried out on several sites in 1906 by the Revd David Edmondes Owen, rector of Llanelwedd between 1900–11 (Fig. 3a), as part of his researches into the history of the parish.[11] Sites investigated by Edmondes Owen included a Bronze Age round cairn (Cairn 1), an unlocated round hut, and an unlocated long mound which can now be seen have formed part of the post-medieval rabbit warren (see notes on all these sites below). Brief references to Edmondes Owen's excavations appeared in a publication accompanying the Builth Wells Pageant in 1909[12] and in posthumously published notes on the antiquities of Llanelwedd.[13] His excavations are also mentioned in the Radnorshire Inventory published in 1913, which noted 'several tumuli, one of which has been excavated' on the southern end of Carneddau.[14] The Inventory also records 'a number of long low mounds' which 'occur in groups of eight or ten together, and as a rule are arranged side by side'. They were interpreted either as 'sepulchral barrows' or as 'mounds thrown up for the shelter of rabbits' that were 'scattered over the lower folds of the hill', one of which had been 'uncovered some years ago'.[15] Edmondes Owen

Fig. 3.
3a (*left*) Revd David Edmondes Owen (rector of Llanelwedd 1900–11) who excavated Llanelwedd Rocks Cairn 1 in 1906. *Photograph: by P. B. Abery.* **3b** (*right*) Contemporary photograph of the cist of Llanelwedd Rocks Cairn 1, excavated in 1906 (reproduced from *Archaeologia Cambrensis* 11 (1911), 142).

records that one of the long mounds appeared to have been previously been excavated, which may possibly have been by the surveyor and antiquary Stephen Williams (1837–99), who is said to have visited the sites (see the section on pillow mounds below).

By the 1960s, quarrying was beginning to affect the known archaeological sites on Llanelwedd Rocks. Rescue excavations were undertaken on four long mounds (Fig. 1b, nos 1623, 1609, 4101, 33864, of which the last is unlocated) between 1965 and 1970 by the late C. J. Spurgeon of the Royal Commission on behalf of the Ministry of Public Buildings and Works, in advance of quarrying, the results of which are summarized below.

An archaeological survey of the quarrying concession on Llanelwedd Rocks was undertaken by the Clwyd-Powys Archaeological Trust (CPAT) in 1996, with funding from Cadw.[16] This identified a number of previously unrecorded sites including an additional Bronze Age round cairn (33881, Cairn 2, the excavation of which is reported here), the Penygraig post-medieval farm complex (Fig. 1c, 33882, 33883, 33887), and clusters of clearance cairns to the south and east (Fig. 1, 33861; Fig. 31, 33862).

The excavation of the two Llanelwedd Rocks Cairns 1 and 2 and parts of the Penygraig farm complex was carried out intermittently between 2007 and 2011 by CPAT in advance of extensions to the quarry, with the help of funding from Cadw and the Aggregates Levy Sustainability Fund for Wales.[17] Finds have been deposited in Llandrindod Wells Museum. The site archive is lodged with CPAT.

An archaeological field survey of the unenclosed upland sites on Carneddau, funded by the Royal Commission, was undertaken as part of the Welsh Uplands Initiative in 2010.[18]

LLANELWEDD ROCKS CAIRNS 1 AND 2

Llanelwedd Rocks Cairn 1[19]

As previously noted, this round cairn was partially excavated by Edmondes Owen in 1906, a brief account of which appeared in 1909:

> A circle of upright stones was discovered under the cairn. In the centre was a cist covered over by an enormous capstone. The floor of the space surrounding the cist was roughly pitched. The cist, capstone and a portion of the circle have been left exposed as object lessons for visitors interested in archaeology.[20]

A further note appeared in Owen's posthumously published notes on the antiquities of Llanelwedd.[21]

> One [cairn] … is in a perfect state of preservation. The circle measures twenty-seven feet six inches in diameter. Nine feet from the circumference is the cist measuring two feet nine inches in length and about fifteen inches in breadth. Over this cist until last year, when it was carefully removed, was a huge unchiselled stone lid six feet long, four feet three inches wide and averaging about ten inches in thickness. No vase has been discovered, but hitherto no systematic search has been made. A careful excavation under the guidance of an expert would undoubtedly lead to profitable results.

A photograph of the excavated cist (Fig. 3b) appeared in the volume of *Archaeologia Cambrensis* published in 1911 accompanying the report on the Cambrians' meeting at Llandrindod Wells in 1910.[22]

Prior to excavation in 2007 the cairn appeared as a pear-shaped mound about 11m by 8m across and up to 0.7m high, built of medium-sized stones, with traces of the 1906 excavation trenches forming three arms of a cross to the south-west, north-east and south-east. The cairn was sited at an altitude of 290m on a slightly sloping stone ridge, next to a flattish terrace with steeper rocky outcrops to the east and west (Fig. 1c). Bedrock was exposed within the site immediately below the modern turf and topsoil, just to the south and south-west of the cairn (Fig. 4).[23]

The cairn was virtually as it had been left in 1906, with the exposed cist at the centre, the large displaced capstone just to the north-west, together with a number of kerb stones (the 'circle of upright stones') left exposed. The cairn lay within an area of improved pasture, and was largely covered with turf and bracken. The site was fully excavated with the exception of a small area below the capstone.

Cist and capstone

The central cist was oblong in shape and aligned roughly north-east/south-west (Fig. 4). It was constructed of four edge-set quarried slabs of stone between 0.6–1.25m across, 0.1–0.2m thick, and 0.55–0.75m high. The slab on the southern side had slipped and the entire cist may have been rebuilt following the earlier excavations, but its internal dimensions appear to have been about 0.75m by 0.58m and 0.6m high. The stones were set in a slight hollow dug to a depth of about 0.13m into the subsoil. No evidence was found to clarify the note on the 1906 excavations (quoted above) which says that 'the floor of the space surrounding the cist was roughly pitched'.

No original deposits survived inside the cist, the floor of which had been excavated unevenly, in ancient or modern times, to the base of the side slabs. A Beaker sherd (Fig. 42, no. 4) was found in a superficial context just next to the south side of the cist when the surface of the cairn was being exposed (see location on Fig. 8). Although the absence of pottery from the central cist was specifically noted by the excavator, it seems likely from its context that the sherd represents the remains of vessel that was inadvertently

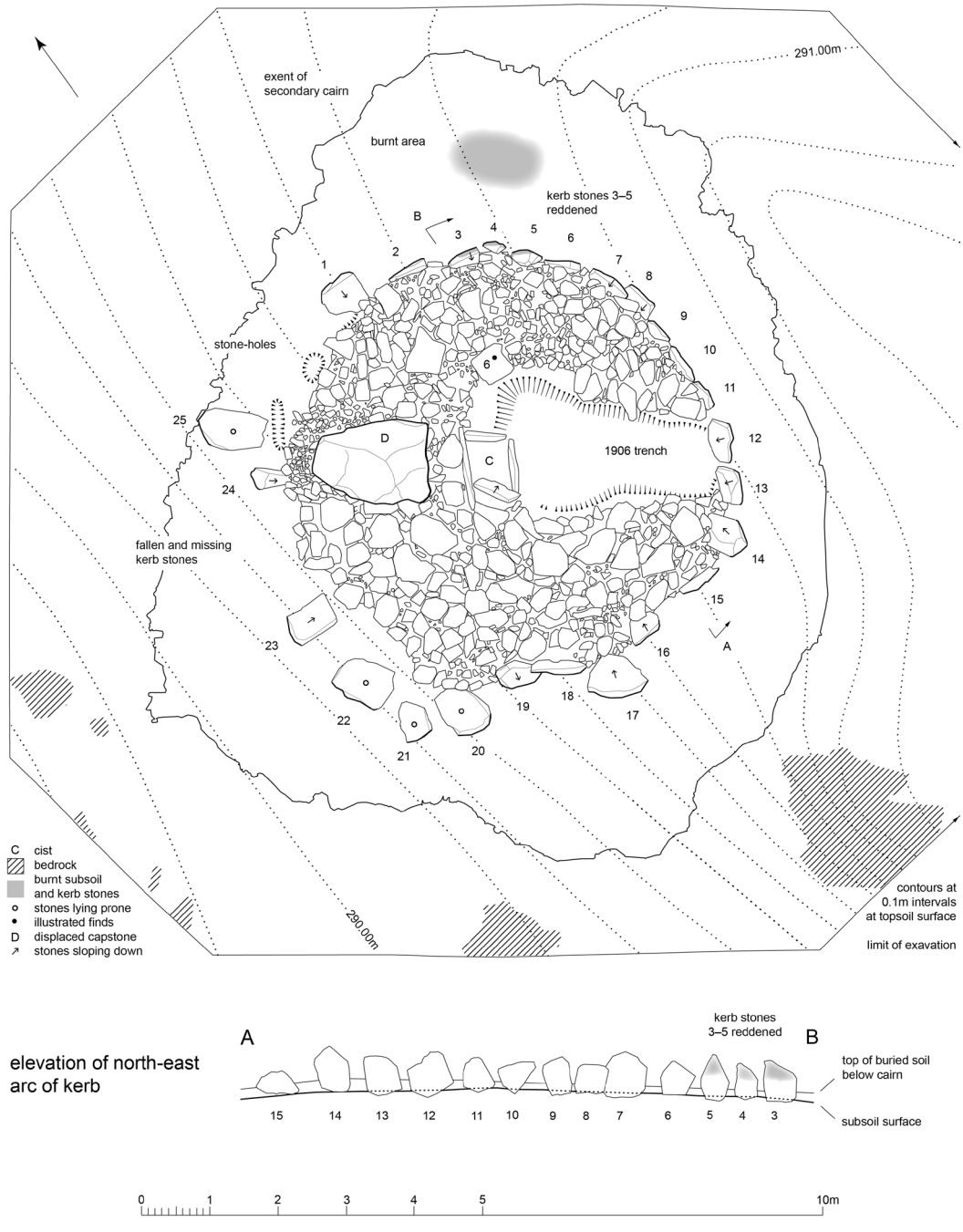


Fig. 4. Llanelwedd Rocks Cairn 1: plan of primary cairn and kerb. Kerb stones nos 20–25 had fallen flat and nos 1, 12–14, 16–17 were leaning steeply outwards. See Fig. 42 for find no. 6 (hammerstone) from buried soil below cairn.

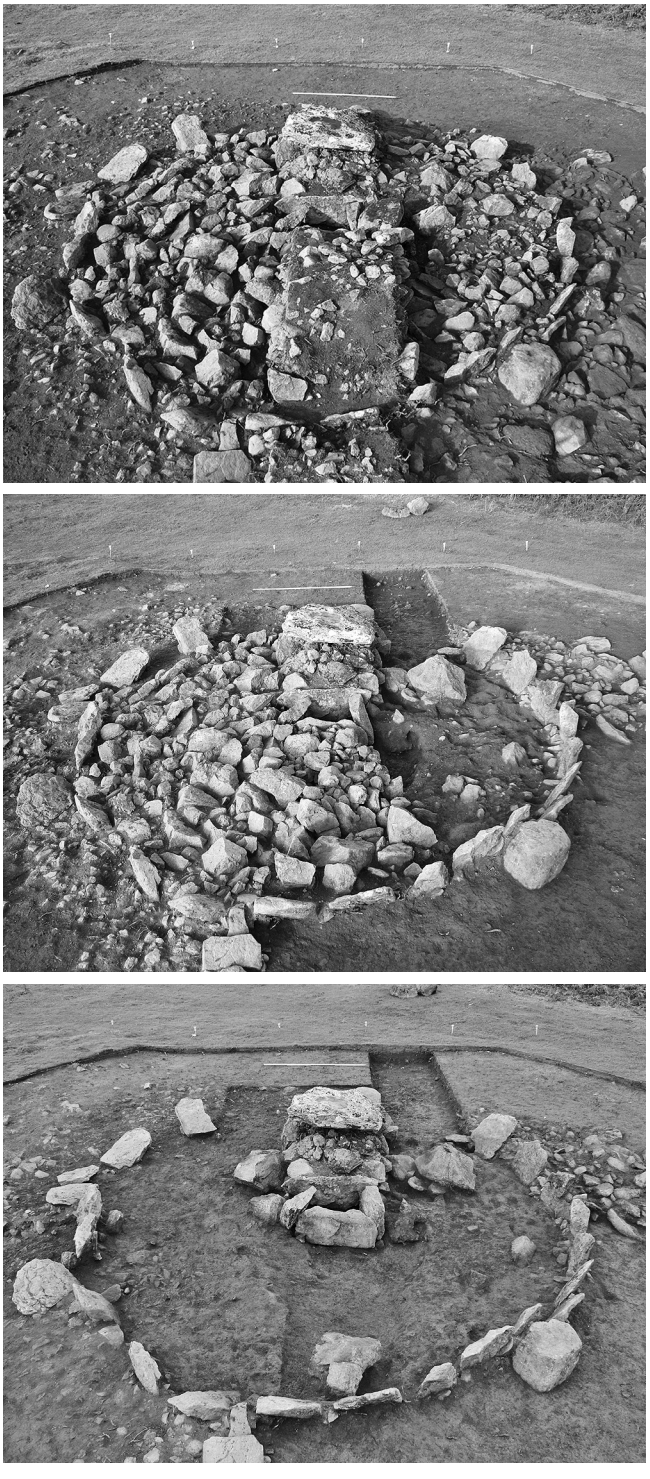


Fig. 5. Llanelwedd Rocks Cairn 1.

5a (*top*) Primary cairn viewed from the south-east. *Photograph: CPAT 2591-0333*.

5b (*middle*) Kerb of the primary cairn and cist viewed from the south-east with part of the primary cairn removed. *Photograph: CPAT 2591-0439*.

5c (*bottom*) Kerb of the primary cairn and cist viewed from the south-east, following the removal of the primary cairn. *Photograph: CPAT 2591-0451.*

discarded when the cist was excavated in 1906.[24] A fragmentary barbed and tanged arrowhead (Fig. 42, no. 5) found on the west side of the cairn close to the surface of the later clearance cairn (see location on Fig. 8) might also have been derived from a burial deposit within the cist.

The capstone was a large quarried slab of local rock, 1.75m by 1.3m across and between about 0.2–0.4m thick, weighing an estimated 1.6 tonnes.[25] In terms of the logistics of monument construction it is worth noting that the five members of the excavation team considered that it was far beyond their abilities to move the stone and it was consequently left *in situ*.

Cairn 1: primary cairn and kerb

The primary cairn was roughly circular, about 6.3m in diameter, with a kerb of upright slabs, parts of which had collapsed (Figs 4–6). An intermittent layer of reddish brown buried soil up to about 100mm thick survived below the cairn, broken by patches of bedrock especially below the south-west side. Some of the stones of the basal course of the cairn had evidently sunk through the buried soil due to the effects

Fig. 6. Llanelwedd Rocks Cairn 1: cross-section through the cairn, viewed from the north-east with the river Wye at Builth Wells in the middle distance and Mynydd Epynt in the background. *Photograph: CPAT 2591-0367.*

of gravity and earthworm activity. There was a distinct drop in pre-cairn ground level from east to west of about 0.47m. There was no visible charcoal or charred plant remains in the buried soil below the cairn. The only find recovered from a sealed context below the cairn was a fragmentary hammerstone (Fig. 42, no. 6; see location on Fig. 4). The only other finds possibly contemporary with the cairn were broken and burnt flint flakes from soils outside the primary cairn and sealed below the later clearance cairn.

The primary cairn consisted of two to three layers of stone, ranging in size from 0.1–0.7m across, including a significant proportion of large stones, especially in the basal layers, that would have required two or more people to move, even by rolling. The lower stones in particular had been set down beginning in the centre of the cairn (probably against the cist) and working outwards, giving rise to a concentric pattern which is more obvious in photographic images (Figs 5a–b) than on plan. The stones of the cairn were partly voided and partly set within a matrix of reddish brown loamy soil.

A total of 25 kerb stones survived, with the possibility of one or two stones missing on the north (between stones 1 and 25, at least one suggested by a stone-hole) and perhaps two stones missing on the west (between stones 23 and 24). There was no trace of the missing stones. The surviving stones were between 0.32–1.08m tall, 0.38–0.77m wide and 80–200mm thick, and like many of the stones of the cairn were sufficiently heavy to have needed more than one person to manoeuvre them into position. The kerb stones had generally been placed edge to edge and often with their longer axes set vertically. The stones appeared to have been set in a series of contiguous stone-holes, cut to a depth of between 50–100mm into the subsoil, rather than in a continuous foundation slot. The kerb stones were taller on the downhill (western) side, as though to keep the top of the kerb reasonably horizontal on sloping ground. Stone 25 on the downhill side, for example, was 1.04m high, whilst stone 12 on the uphill side was 0.7m high.

The kerb stones generally seem to have been intended to have flattish tops, to the extent that in places (notably on the south-west) they had been balanced somewhat precariously on their more pointed ends. A cluster of stones on the north-east side were more pillar-like in shape and appeared to have been deliberately set with their pointed ends at the top (kerb stones 3–5). The use of taller stones on the downhill side seems to explain why many of the stones on this side were either sloping outwards markedly (e.g. nos 1, 23–24) or had completely fallen over (e.g. nos 20–22, 25). With the exception of stone 25, no trace of the original stone-holes of the fallen stones had survived, probably due to later soil erosion.

The fact that some of the stones had fallen on to their outer face shows that the kerb had formed the outer visible margin of the cairn. In view of the suggested symbolic ‘portal’ on the north-west side of Cairn 2 (see below) it may be significant that the upper part of three adjacent kerb stones 3–5 on the north-west side of the cairn—the three most pronounced pillar-like stones around the circumference of the cairn—had been reddened by fire, together with some of the stones of the cairn inside them. This was almost certainly due to their proximity to a burnt area (10) represented by blackened soil about a metre away from the kerb, on the surface of buried topsoil outside the cairn and buried beneath later clearance cairn material (Fig. 4). The blackened area contained wood charcoal, cereal remains and calcined bone (see reports by Caseldine and Griffiths, and O’Brien below). A sample of young hazel from the burnt area has been dated to between about 1870–1600 cal. BC (SUERC-24765), which provides a *terminus ante quem* for the construction of the cairn.

A high proportion of the stone used for the construction of the primary monument had the appearance of material that had been quarried from nearby rock outcrops. In particular, the thin slabs of stone used for the construction of the cist and outer kerb and even the thicker slab used for the capstone had a fresh, unweathered appearance. The body of the cairn was likewise mostly composed of stone with a sharp and angular appearance though there were some blocks with more rounded and weathered faces probably derived from surface exposures, as well as a small number of rounded boulders probably representing glacial erratics collected from the surface.

Rock outcrops on the steeper slopes to the north and north-east of the cairn, composed of a particularly dense and resilient, fine-grained basaltic lava, were cracked and fissured, but generally had weathered and rounded surfaces (Fig. 7a). By contrast, a number of outcrops in reasonably close proximity to the east and south-west of the cairn (see location on Fig. 1c) had more marked fissuring, probably resulting from frost-wedging during the last glaciation, and showed clear evidence that slabs of rock up to about 0.1–0.15 thick and 0.5–0.8m across had been detached from the rock surface by either natural or human agency (Figs 7b–c). Although some of the slabs may have been removed by the process of 'glacial plucking', the absence of scree deposits in the vicinity suggested either that these naturally fractured outcrops had been further quarried to obtain the slab-like kerb stones or that scree deposits had been exploited as a source. Small-scale trial excavations were undertaken on a rock outcrop on a south-west facing slope about 30m to the east of Cairn 1 (Fig. 7b).[26] Although no obvious working debris was identified it seemed possible that wedges had been used to force open existing fissures to enable slabs and blocks of stone to be detached.[27]

Possible reconstructions of the original form of the monument are suggested by the relative absolute heights of its different components. The surface of the primary cairn towards the centre of the monument appears to have been fairly level (at a height of approximately 290.9m). The top of the outer kerb appears to have stood up to about 0.3m above the surface of the cairn at a height of about 291.2m.[28] The top of the side slabs of the cist was approximately 290.85m. The original surface of the capstone (which was between 0.2–0.4m thick) would therefore have been at between 291.05m and 291.25m, approximately 0.15–0.35m above the surface of the primary cairn but at about the same height as the top of the kerb. This suggests that either the capstone remained exposed at the surface of the original monument or that possibly the entire monument was capped with soil or turf which had largely eroded away or filtered down between the stones of the cairn.

Cairn 1: secondary cairn and the 1906 excavation trenches

Overlying the primary cairn was a well-defined, egg-shaped, secondary cairn, about 10m by 12m across and between about 0.2–0.6m thick (Figs 8–9), mostly composed of loose, voided and weathered stones. The base of the secondary cairn, especially on the uphill (eastern) side, included some larger blocks of stone, some of which rested more or less against the outer kerb of the primary cairn, but above this most of the stones were much smaller in size than the primary cairn and evidently represent a number of different episodes of land improvement associated with the cultivation of the adjacent terrace. On the downhill side this material buried some of the collapsed kerb stones encircling the primary cairn.

The clearance cairn is undated. Early activity close to the cairn, possibly related to later land use, is suggested by a single late Iron Age or Romano-British sherd (Fig. 42, no. 7), found 2.5m beyond the eastern side of the secondary cairn. Two sherds of seventeenth- to eighteenth-century pottery were found in topsoil beyond the margins of the clearance cairn.

The capstone had still been in place when the site was excavated in 1906. One excavation trench, about 1.5m wide, appeared to have been dug through the clearance cairn and more or less down onto the surface of the primary cairn on a north-east to south-west axis (Fig. 4). The trench had been partially backfilled and was difficult to define, but had probably exposed the tops of kerb stones 4–5 and 18–19, representing part of the 'circle of upright stones' noted by Edmondes Owen. A broader and deeper trench had been dug on a north-west to south-east axis, from the outside of the cairn up to the central cist. This trench, which was up about 2m wide had been dug through the primary cairn and then down to a depth of about 0.2m through the buried soil and into the underlying subsoil (Fig. 4), to the base of the stones of the cist and kerb stones 12–13, spoil from this trench having been piled up on the southern quadrant of the cairn. This trench had been subsequently backfilled, leaving the cist and the tops of kerb stones 12–13 exposed, no doubt as Edmondes Owen said, 'as object lessons for visitors interested in archaeology'.[29]

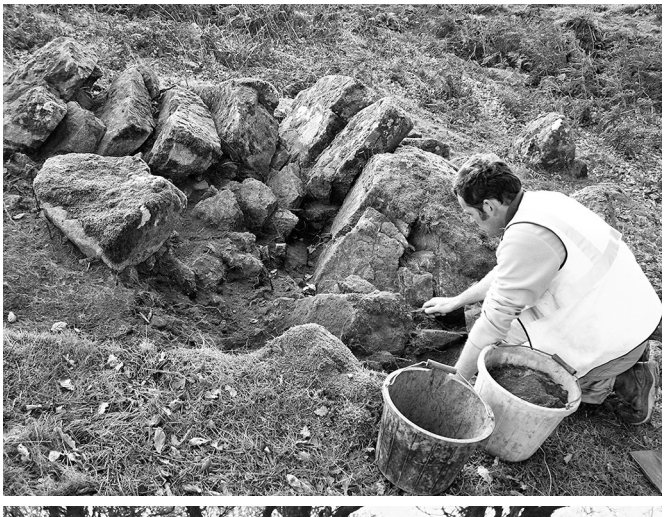


Fig. 7. Rock outcrops near Cairn 1.

7a (*top*) Natural stone outcrop with rounded and smoothed rock surfaces, on south-west facing slope, about 30m to the east of Cairn 1 (at approximately SO 05106 52628). *Photograph: CPAT 2591-0273*.

7b (*middle*) Rock outcrop with sharper, angular surfaces, on south-west facing slope about 30m to the east of Cairn 1 (at SO 05121 52585) during the course of trial excavation in 2007, showing gaps from which slabs have been detached either by natural or human agency (see location on Fig. 1c). *Photograph: CPAT 2591-0527.*

7c (*bottom*) Rock outcrop about 60m to the south-west of Cairn 1 (at approximately SO 0502 5250) from which slabs have been detached, recorded in 1996 (see location on Fig. 1c, 26995). *Photograph: Steve Lodge, CPAT 421.0004.*

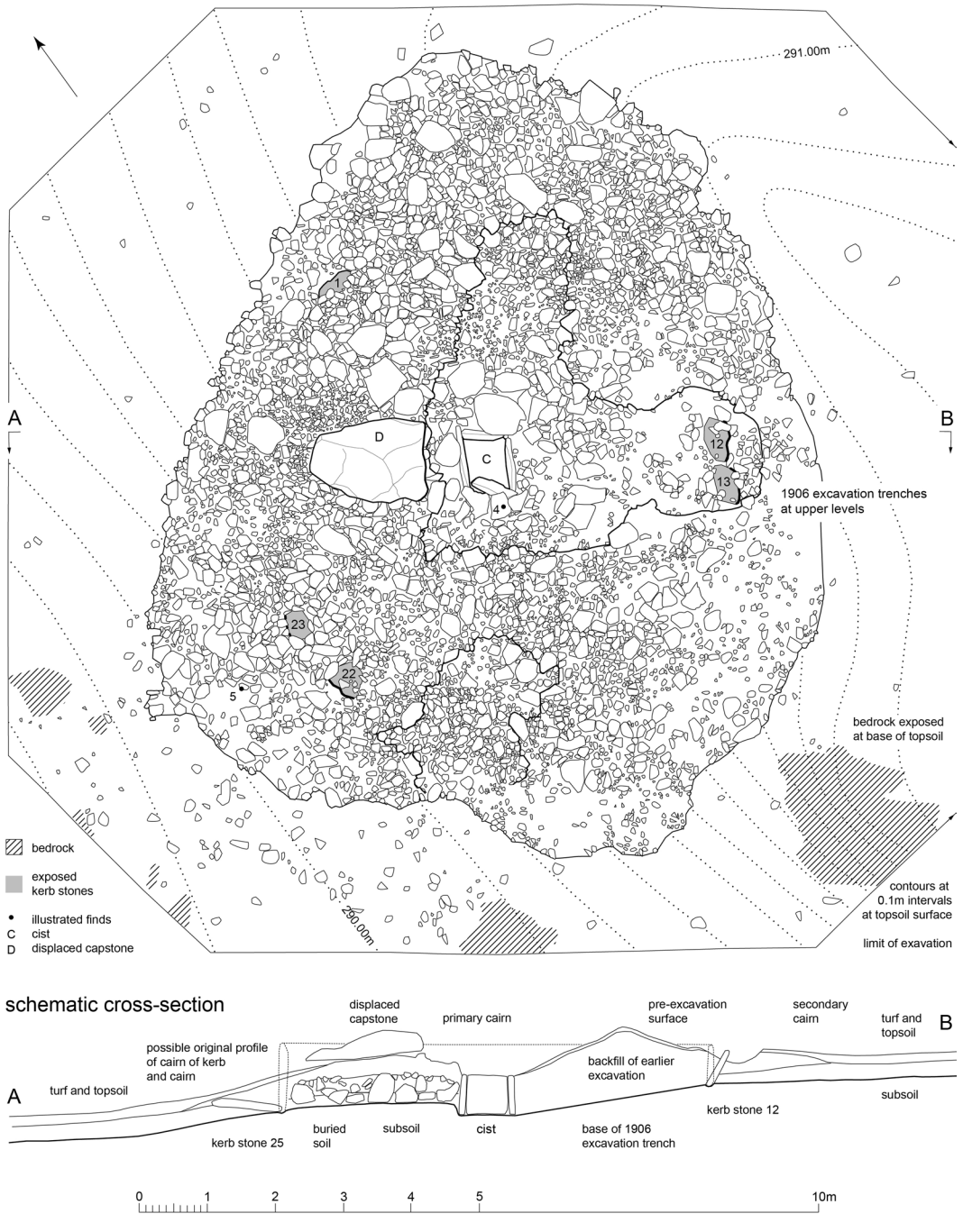


Fig. 8. Llanelwedd Rocks Cairn 1: plan of the secondary cairn in relation to the primary cairn, showing outline of the 1906 excavation trenches. See Fig. 42 for finds no. 4 (Beaker sherd) and no. 5 (arrowhead).

Fig. 9. Llanelwedd Rocks Cairn 1: secondary cairn overlying the primary cairn, viewed from the north-west during the course of excavation. *Photograph: CPAT 2591-0122.*

Llanelwedd Rocks Cairn 2

The site was first recorded in 1996 and was fully excavated in 2008.[30] Prior to excavation the site had the appearance of a stony, bracken-covered mound about 10m across and up to 0.8m high, with a hollow in the centre about 3m across and 0.5m deep where it had been dug into in the past, and with a fan of secondary material to the west and south-west (Figs 15a, 17). The cairn lay next to a narrow, flattish terrace of improved pasture between 30–60m wide, at an altitude of about 276m, the ground sloping steeply downwards to the west and rocky outcrops rising more steeply to the east (Fig. 1c). The smooth bedrock surface was exposed immediately below a thin topsoil layer only 60–120mm thick around the limits of excavation just to the north of the cairn, showing striations probably caused by glacial abrasion, running due north–south. On the western side of the site the bedrock surface was irregular and fragmented, suggesting that a natural spine of rock that had originally outcropped here had been partly quarried for cairn material. This formed a slight scarp, beyond which the ground level sloped away more steeply to the south-west.

Cairn 2: rock-cut grave

The rock-cut grave, slightly offset towards the western side of the primary cairn, was up to 3.2m long, 2.15m wide, and 1.0m deep, with its long axis aligned approximately north–south (Figs 10–13). The irregular shape of the grave pit seemed to be partly due to the nature of the underlying rock, which

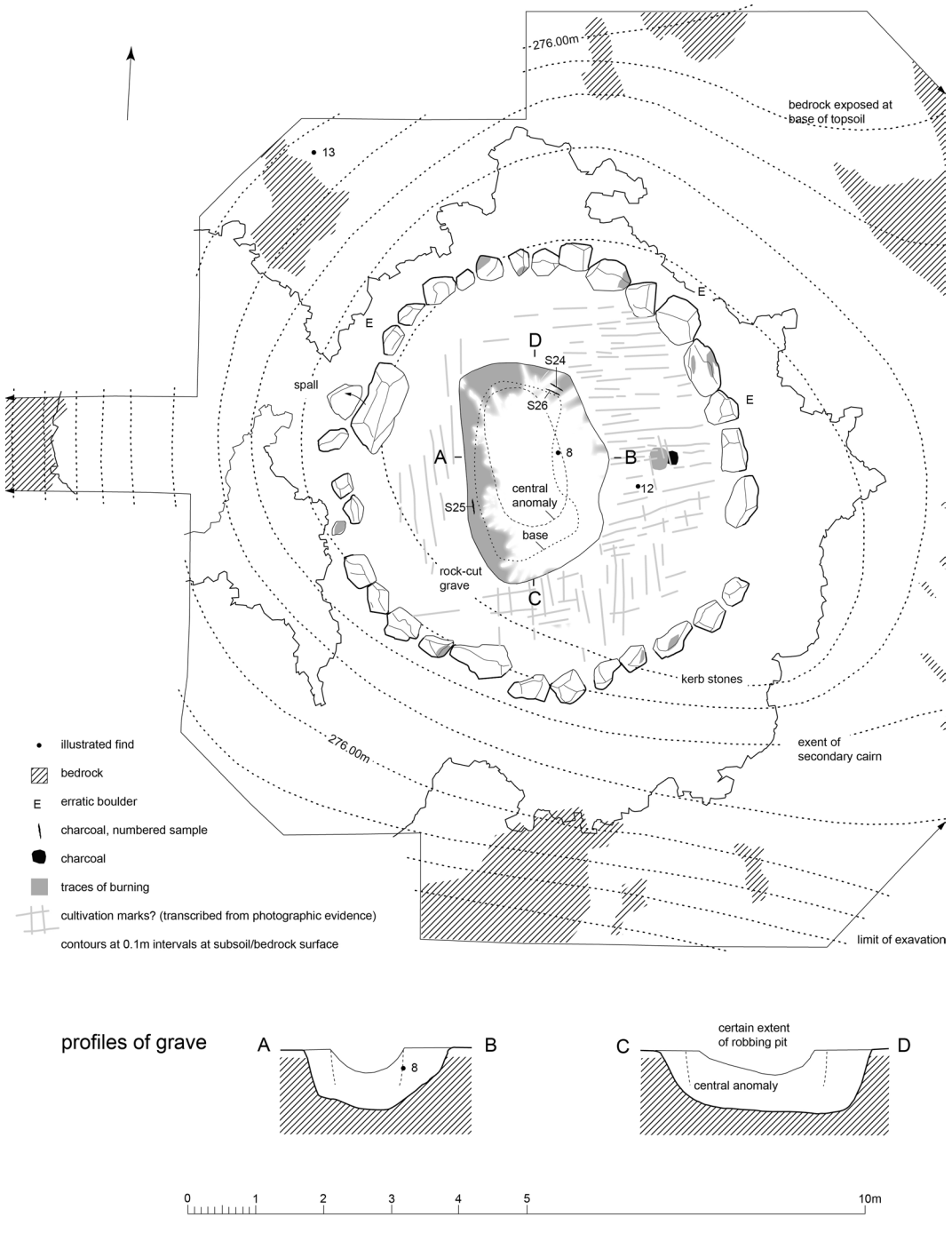


Fig. 10. Llanelwedd Rocks Cairn 2: plan and profiles of the central grave and possible cultivation marks visible in subsoil surface (transcribed from oblique photographs: see Fig. 11). See Fig. 42 for finds no. 8 (arrowhead), 12 (incised stone fragment) and 13 (whetstone).

consisted of a greyish-brown lava with some highly vesicular bands with a distinctive greenish and almost metallic sheen (Figs 13a–b). The rock surface sloped towards the east, outcropping very close to the western side of the grave pit and dipping to a depth of about 0.3m towards the eastern side of the pit. The stone appears to have been worked along bedding planes within the rock which dipped down to the west, ending up along the more vertical western face of the pit, where chunks of rock in different beds had been snapped off. The volume of the grave is estimated to be about $3m^3$, which suggests the removal of about 7 tonnes of rock.[31]

The sides of the grave pit clearly showed that it had been dug using the technique of firesetting known from contemporary early Bronze Age copper mining sites in Wales and elsewhere, used for the excavation of hard rocks in conjunction with hammers, picks and wedges. The sides of the pit were reddened or blackened and in places it was evident that chunks of rock had been broken away to expose a fresh rock surface after the burning had occurred. The fuel that had been used was represented by bands of charred plant material, predominantly of oak but including some hazel (see report by Caseldine and Griffiths, below) which survived *in situ* on slight rock ledges in several places around the sides of the grave (see Fig. 10, S24–26).

No certain human remains were identified within the grave. Small, indeterminate fragments of poorly preserved bone or antler were found deep down in a number of narrow rock crevices in the base of the grave pit (see report by O'Brien, below). It appeared unlikely that these had derived from an inhumation burial within the grave pit, the context of the fragments suggesting that they were more likely to represent

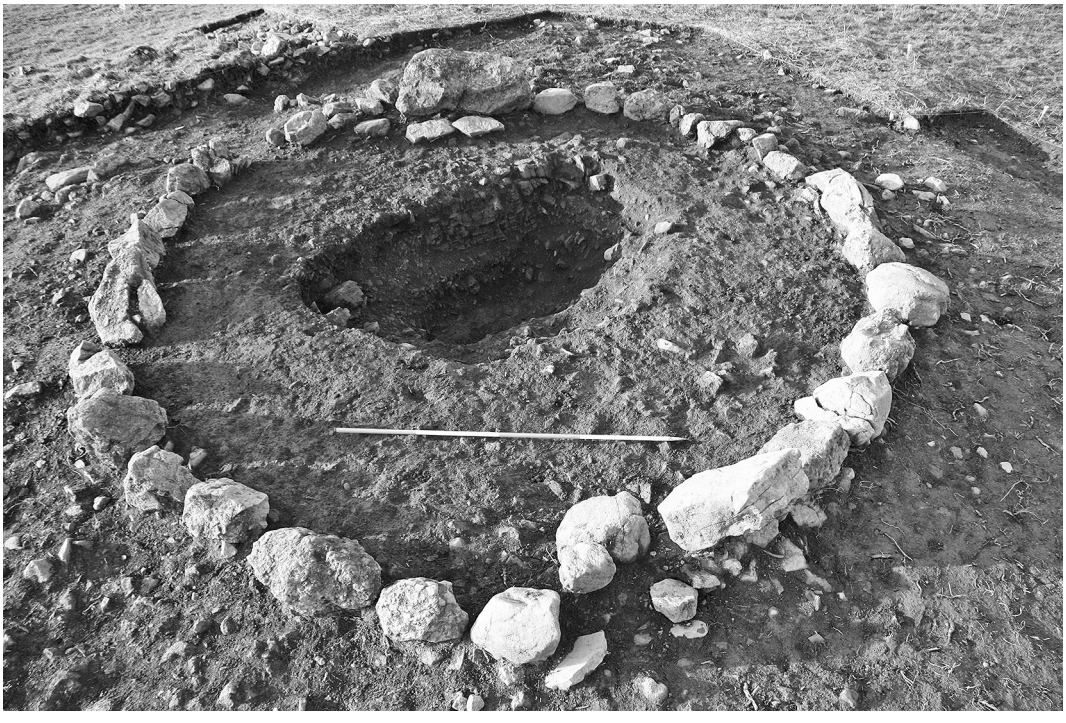


Fig. 11. Llanelwedd Rocks Cairn 2: kerb viewed from the south-east with the grave pit partially excavated. Note the stones propping up the inner face of the large kerb stone 1 and faint criss-cross marks in subsoil surface (transcribed on Fig. 10). Scale 2m. *Photograph: CPAT 2696-0894.*

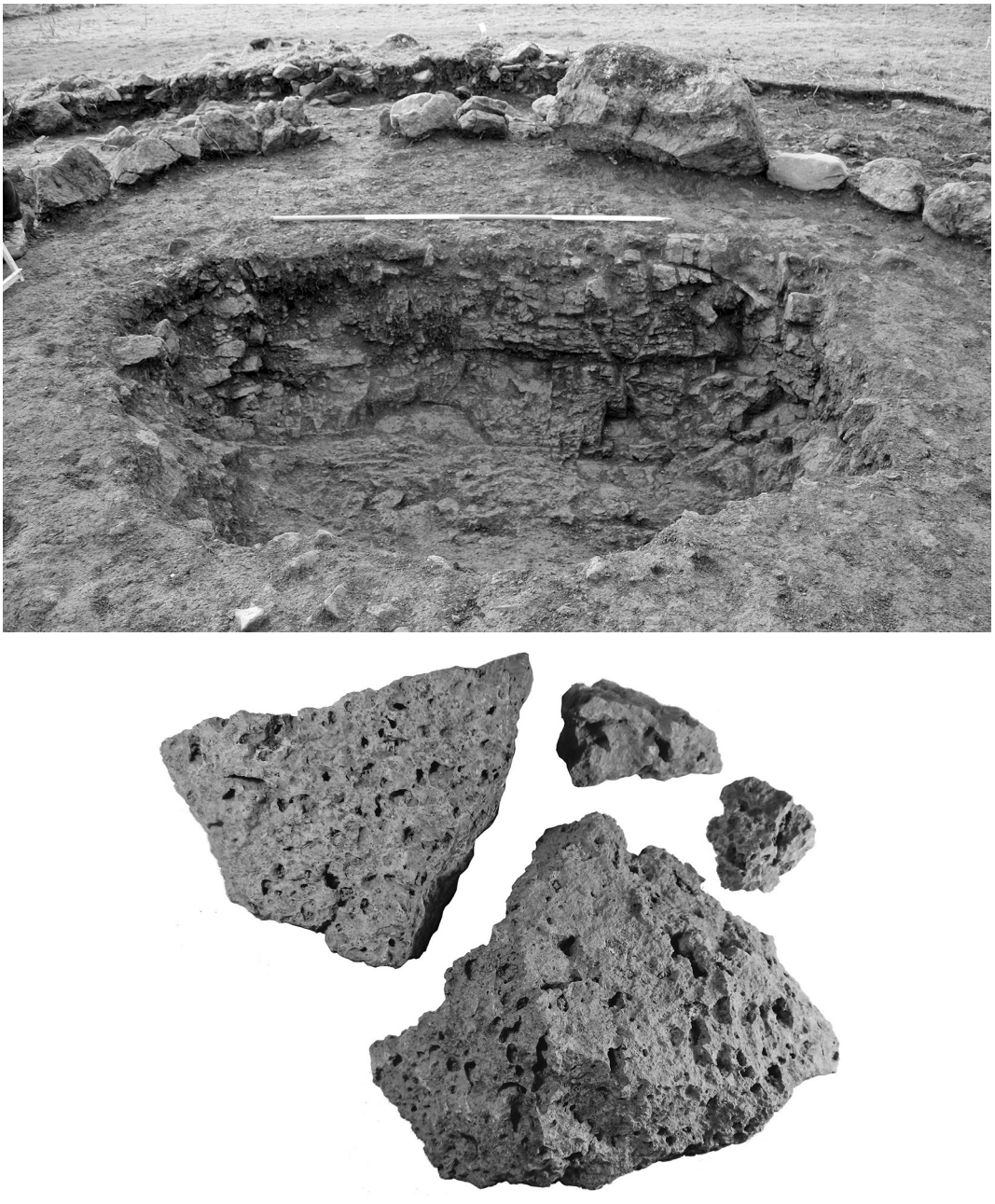


Fig. 12.
12a (*top*) Llanelwedd Rocks Cairn 2: north-west face of the rock-cut grave pit, viewed from the south-east. Scale 2m. *Photograph: CPAT 2696-0993.* **12b** (*bottom*) Fragments of greenish-grey vesicular larva quarried by fire-setting from the fill of the rock-cut grave pit of Llanelwedd Rocks Cairn 2. (The largest fragment is a maximum of 175mm across.) *Photograph: CPAT 2696-0968.*

chips from bone or antler tools, of a kind known from early copper mine sites, used during the excavation of the grave pit (see below).

The uppermost fill of the grave had been dug out by later robbing to a depth of about 0.4m below the subsoil level to either side (see schematic sections on Figs 10, 17). Below this level the grave filling included a high proportion of debris derived from firesetting, consisting of fragments of angular, freshly quarried rock, generally between 10–200mm across, many which had been burnt, mixed with soil blackened with ash and charcoal fragments together with reddish brown soil similar to the residual buried soil below the cairn. The filling was relatively compact and at the time of excavation was considered to be recently undisturbed. From the uppermost level down to more or less the base of the grave, however, a clear distinction could be drawn between a more reddish brown soil and stone around the margins of the grave pit which appeared to represent original packing material *in situ*, and a central grave fill, in an area up to about 2m long and 1m wide (Figs 10, 13), consisting of darker brown soil with some larger stones which extended more or less to the base of the grave. This was initially interpreted as replacement material that had slumped downwards from higher up in the grave filling following the gradual decay and collapse of a timber structure such as a chamber or dug-out coffin on the floor of the grave which had held an inhumation burial.[32]

Finds from the central grave fill consist of a complete flint barbed and tanged arrowhead (Fig. 42, no. 8), a core fragment, 5 flint flakes, a flint chip, and a chert flake; these were found scattered throughout the upper grave filling, the arrowhead coming from a position about 0.59m above the base of the grave towards its eastern edge (see location on Fig. 10). A possibly struck flake of clear quartz and four other

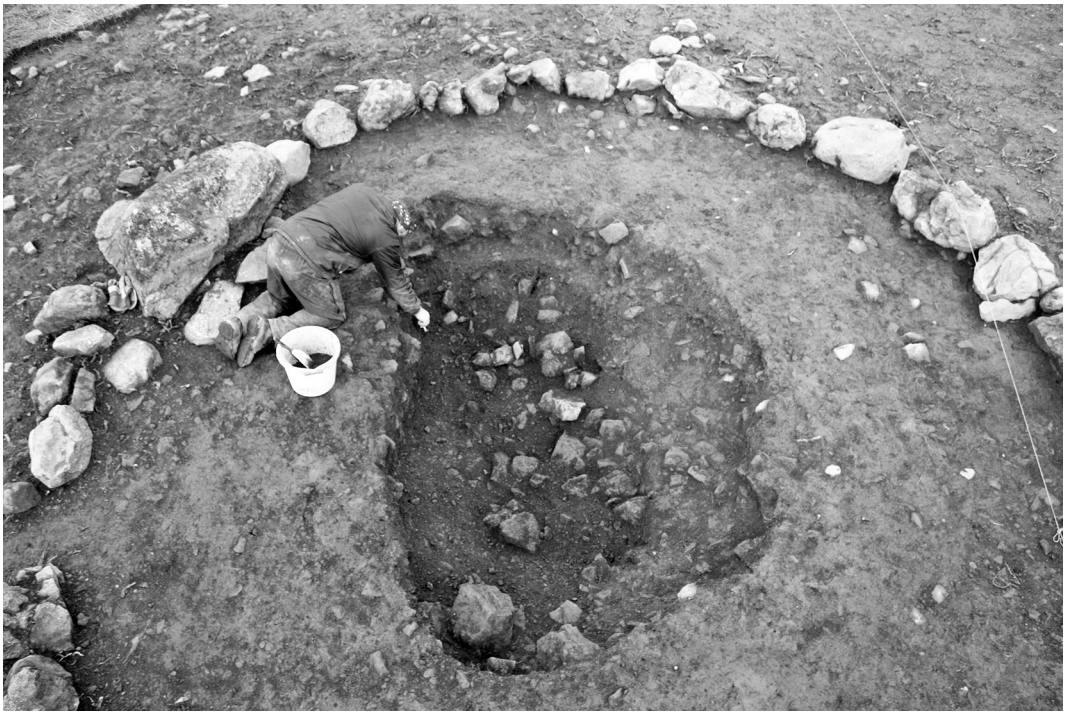


Fig. 13. Llanelwedd Rocks Cairn 2: rock-cut grave during the course of excavation. Note the darker and more stony anomaly towards the centre of the grave (see Fig. 10). *Photograph: CPAT 2696-0862*.

small quartz fragments were found in the grave filling, including a clear quartz tetrahedron crystal 20mm long. Two fragmentary barbed and tanged arrowheads (Fig. 42, nos 9–10), fragments of a probable copper-alloy bracelet (Fig. 42, no. 11), and a possible Beaker sherd, were found in the lower fill of the grave. These finds were recovered by dry sieving and although their precise locations within the grave are uncertain it is possible that they represent grave goods associated with an original burial deposit. The complete barbed and tanged arrowhead from higher in the grave (no. 8) is also considered to be fine enough to have been a deliberate deposition. The other two arrowheads (nos 9–10) are considered to have been broken in antiquity, possibly as a result of impact damage.

In retrospect, it seems probable that the central anomaly could represent later grave robbing which had disturbed the original burial deposit, close to the floor of the grave, which had been accompanied by at least three arrowheads, a probable copper alloy bracelet and possibly a ceramic vessel (see reports by Bradley, Needham and Gibson, below). The absence of any certain human bone in the grave pit is probably due to soil acidity which was found to range from pH4.9 in the upper filling to pH5.8 towards the base. The only partially identifiable bone fragments within the upper and lower grave filling consisted of a fragment of calcined animal bone of sheep/goat-size and a number of unburnt fragments of ungulate tooth enamel, possibly of pig (see report by O'Brien, below) though in the light of the reassessment of the central grave filling the dating of this material must now be considered to be uncertain. The lithic waste material found within the grave fill seems likely to represent material associated with firesetting or residual finds included in the soil stripped from below the cairn and subsequently redeposited within the grave fill (see below).

Charcoal samples from the grave filling (one of young hazel, one of young oak, and one of barley grains) have provided three radiocarbon dates which yield a combined result of 2140–1980 cal. BC (SUERC-24766, SUERC-247969, Beta-290090).

Cairn 2: primary cairn and kerb

The primary cairn was roughly circular, between 6m and 6.5m in diameter and with a reasonably well-defined outer kerb (Figs 14–15). No clearly defined buried turf line or buried topsoil was evident below the cairn. The subsoil surface below the cairn sloped down by about 0.3m from the north-east to the south-west. Like the outer kerb the cairn appeared to have been set down upon the subsoil surface from which the original topsoil had been stripped. Apart from a small area of burnt subsoil and a charcoal scatter just to the east of the pit grave (Fig. 10) there was no trace of burnt rock debris and charcoal similar to that found within the grave. This indicates that the firesetting debris had been meticulously scraped up and reinterred within the grave prior to the construction of the cairn.

Faint criss-cross linear marks were visible as shadow marks in the subsoil surface below the primary cairn (Figs 10–11). In places the marks are no more than about 50mm apart and perhaps as little as 10mm deep.[33] The marks appear similar to but more closely spaced than the cultivation marks resulting from ploughing recorded in prehistoric contexts elsewhere in Britain[34] and may possibly indicate the use of spades or mattocks.[35] The cleanliness of the surface upon which the cairn was built, as noted above, suggests that a methodical process of deturfing by mattock and/or shovel was used for the removal of material that was then carefully disposed of within the grave pit.

The primary cairn consisted of one or two courses of stones, between 50–400mm across. These were generally distinctly lighter than those of the core of Cairn 1 and most could be readily moved by one person (Fig. 15b). They were mostly of a similar composition though smaller in size to those of the kerb and they likewise appeared to represent a mixture of stones gathered from the surface and quarried from local rock outcrops. There were suggestions from the way that stones had been placed upon each other that the cairn had been built by starting at the middle and working outwards though there were less clear

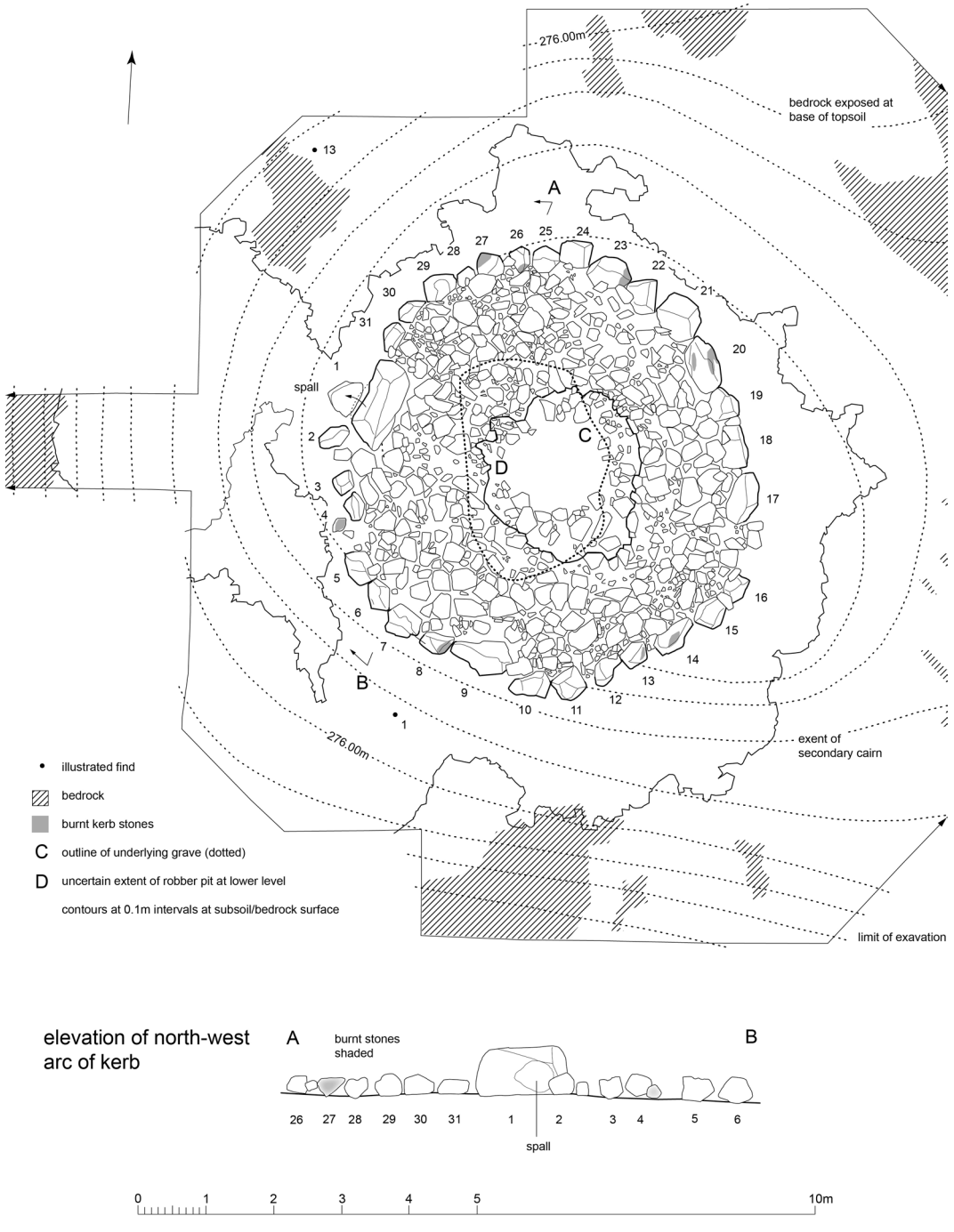


Fig. 14. Llanelwedd Rocks Cairn 2: plan of the primary cairn and kerb. See Fig. 42 for find no. 13 (whetstone) and Fig. 46 for find no. 1 (copper alloy ring) from buried soil below secondary cairn.

Fig. 15. Llanelwedd Rocks Cairn 2.

15a (*top*) View from the south-east during the course of excavation showing the kerb of the primary cairn revealed below the north-east quadrant of the later clearance cairn. Note the partial excavation of the central robbing pit. *Photograph: CPAT 2696-0420*.

15b (*middle*) Similar view showing the primary cairn and kerb following the removal of the later clearance cairn and the north-east quadrant of the primary cairn. *Photograph: CPAT 2696-0543.*

15c (*bottom*) Outer kerb following the removal of the primary cairn, viewed from the north-west. Note the unusually large kerb stone no. 1 in the foreground and the spall detached from its outer face. Note also the partially excavated stony deposits revealed in the upper filling of the grave pit. *Photograph: CPAT 2696-0762.*

indications of the concentric pattern evident in the case of Cairn 1. Although the centre of the cairn had been robbed there was an impression that the top of the primary cairn was flattened rather than rising towards the centre. Just inside the kerb the cairn stood to a height of about 0.2–0.3m, matching the general height at the kerb itself.

The stones of the cairn were set within a matrix of reddish brown loamy soil, devoid of charcoal or finds. The use of firesetting for the excavation of the pit grave suggests that this soil was derived from the surrounding area rather than from below the cairn itself. It is unclear how the soil had become intermixed with the stones of the cairn though it is conceivable that it had filtered down from a capping of soil or turf placed on top of the cairn.

About 31 original kerb stones could be identified (numbered on Fig. 14), which had all been set on the subsoil surface, rather than in clearly definable stone holes or a foundation trench. The kerb was slightly irregular in places, either by having been roughly built or as a result of later disturbance (Fig. 15c). With the exception of the much larger stone 1 on the north-west side, the kerb stones averaged about 0.54m in length (the range being 0.32–0.92m) and could again mostly have been moved by one person. In most cases the stones had been laid on their long axes. With the exception of stone 1, the kerb stones averaged 0.33m in height (the range being 0.21–0.53m). The average height of the kerb stones on the southern (downhill) side of the cairn was slightly greater than that on the north which, though less marked than in the case of Cairn 1, again suggests that an attempt was made to level up the top of the kerb. Most of the stones had been placed on their broader face though some had been set in a less stable position, on edge or propped against other stones in the kerb or in the body of the cairn, which suggests that the kerb had never been freestanding.

The large stone on the north-west side was 1.33m long and 0.69m high and considerably larger than any of the other stones in the kerb (Figs 15c, 16). The presence of this stone may be purely fortuitous, though is appeared to symbolize a blocked door facing to the north-west.[36] Several stones had been wedged against the inner face of the stone to keep it in an upright position (visible on Fig. 11). A large spall of stone had become detached from the outer face of the stone (Figs 10 and 16), and lay at an angle on the old ground surface outside the kerb, which suggests that the outer face of the entire kerb was left exposed when the monument was completed.

Most of the kerb stones were of stone types similar to the local bedrock. At least a quarter of these were discoloured by burning or had been fractured by heat, which had also left some of the stones in a friable condition (Fig. 10). The burning had not occurred *in situ* and, as noted below, these stones, had clearly been obtained from the firesetting of the rock-cut grave below the cairn. Three of the kerb stones were rounded boulders of a harder rock and probably represent glacial erratics collected from the surrounding area (Fig. 10).

The only finds potentially contemporary with the cairn other than those found within the pit grave were an incised stone (Fig. 42, no. 12), a whetstone (Fig. 42, no. 13), a single flint flake from the residual soil horizon below the cairn, and a flint core and a flint chip from unstratified contexts around the cairn.

Cairn 2: later activity

The primary cairn was partly overlain by a secondary cairn about 12m across and up to about 0.4m thick (Fig. 17). This was largely composed of loose and voided stone which was generally smaller in size than the stones of the primary cairn including weathered surface stone and rounded stones probably derived from glacial drift. Like the secondary cairn overlying Cairn 1 this is likely to represent a number of discrete episodes of land improvement associated with cultivation of the adjacent terrace, probably broadly contemporary with the Penygraig farmstead a close distance to the north (see below). Sherds from the base of a post-medieval vessel and an undated copper alloy ring (Fig. 46, no. 1) were found in

Fig. 16. Llanelwedd Rocks Cairn 2: kerb stone 1, in the foreground, with the spall replaced to its original position. Scale 2m. *Photograph: CPAT 2646-0947.*

the buried soil below the south-west side of the secondary cairn (location on Fig. 14). Other post-medieval finds came from above and around the secondary cairn. These included a sherd of sixteenth-century coarseware (Fig. 42, no. 1), sherds of seventeenth/eighteenth-century pottery including slipware, possible Mottled Ware dating to 1690–1760, North Devon Gravel-Tempered Ware, and local red earthenware, as well as a clay tobacco pipe bowl of *c.* 1640–70 (Fig. 44, no. 1).

Grave robbing seems likely to pre-date Edmondes Owen's campaign in the first decade of the twentieth century. Upcast from the later robbing appeared to have been largely placed around the rim of the robbing pit. A worn Charles II farthing of 1672 was found immediately below upcast cairn material on the southern rim of the robbing pit (location on Fig. 17) and seems likely to provide a *terminus ante quem* for this activity, which again seems likely to have been contemporary with the occupation of the Penygraig farmstead.

Discussion of Llanelwedd Rocks Cairns 1 and 2

Both monuments, outwardly at least, display some marked similarities and can be classed as either kerbed cairns or kerb circles.[37] Both were small, single-period, flat-topped cairns about 6m in diameter and up to about 1m high, with exposed outer kerbs.

The similarities of the two cairns and their siting on Llanelwedd Rocks suggest that they represent a single phase of landscape colonization and exploitation. Though not intervisible, each of the cairns had been sited with regard to taking in views of over a 40-kilometre expanse of the Wye valley, one of the major communications corridors between central Wales, the Welsh borderland and beyond. Each cairn

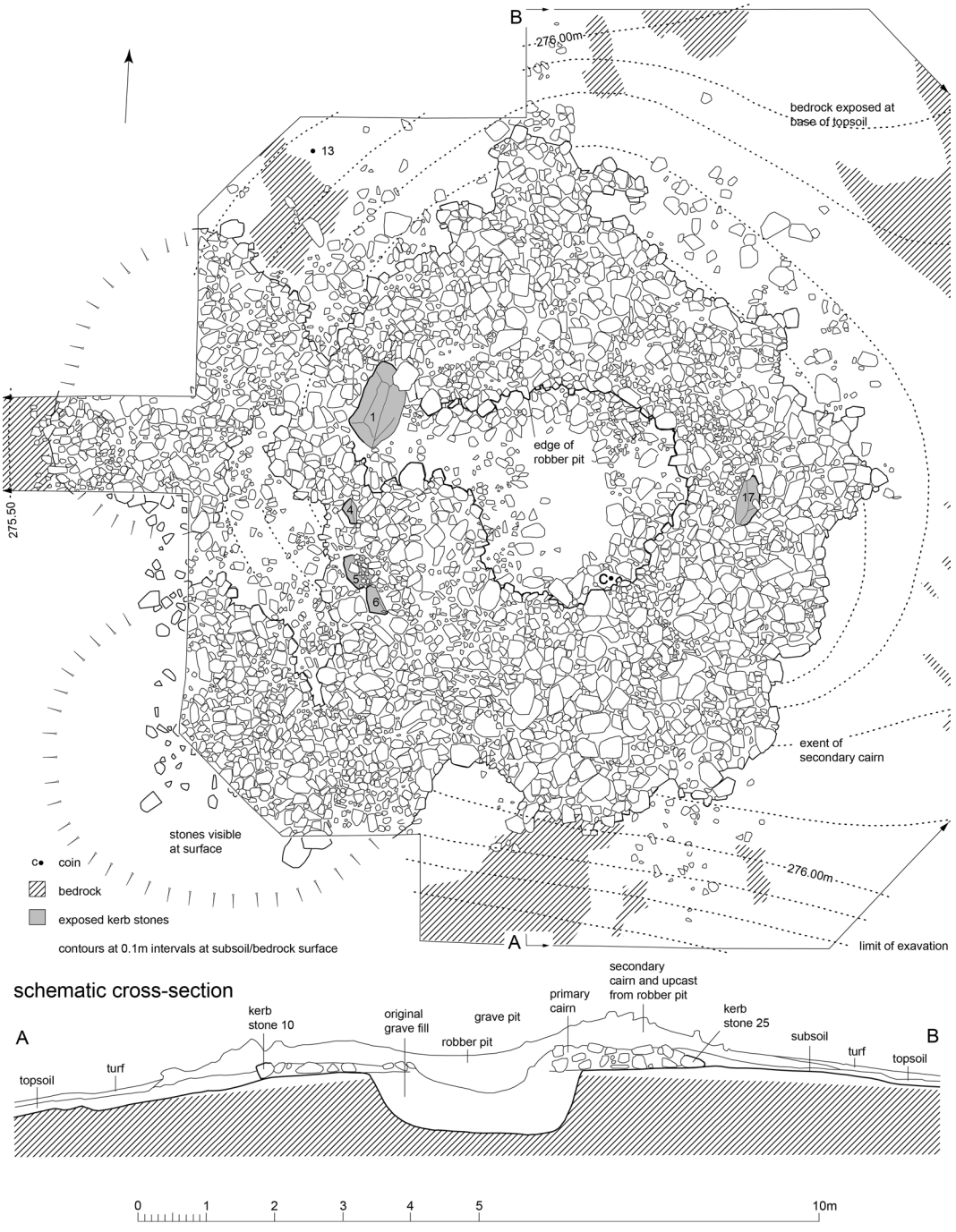


Fig. 17. Llanelwedd Rocks Cairn 2: plan of secondary cairn and later robbing pit. See Fig. 40 for find no. 13 (whetstone). Note location of 1672 coin on the edge of robbing pit.

occupied its own topographical domain, represented by distinct natural terraces of flatter land between 0.3–0.4 hectares in extent on the hillside, in each case with rocky outcrops rising steeply about 10m to the east. Each of the cairns avoided the most prominent locations available locally but they nonetheless appeared to have been deliberately sited on slight rocky outcrops at slight breaks in slope, perhaps to enhance their appearance from downhill to the south and to avoid taking up more productive land.

Other possible round cairns have been recorded on Llanelwedd Rocks from time to time though most of these have been dismissed by later fieldworkers.[38] However, in view of the fact that Cairns 1 and 2 were overlain by later clearance cairns it is possible that some of the other clearance cairns that have been recorded also disguise burial cairns (see Fig. 31).

Both cairns date to the Early Bronze Age and are probably broadly contemporary. Cairn 2, which may possibly be the earlier of the two, is dated by three more or less identical radiocarbon dates from short-lived plant remains which give a combined date of 2140–1980 cal. BC (SUERC-24766, 24769 and Beta-290090). Cairn 1 may have been built a century or more later: a *terminus ante quem* for its construction is provided by a radiocarbon date of between 1870–1600 cal. BC (SUERC-24765) from an area of burning just to the north of the cairn which resulted in the scorching of some of the adjacent kerb stones. Whilst there is no means of estimating how long after the cairn was built the burning took place there is no evidence that it was necessarily very much later.

Although no human remains have survived, probably because of acid soil conditions, both cairns are likely to have been originally associated with inhumation burials which had later been disturbed. The cist below Cairn 1 probably held a crouched inhumation burial which is likely to have originally been accompanied by a Beaker and at least one barbed and tanged arrowhead. The Beaker appears to be a typologically late vessel. Beakers are generally scarce on sites in mid Wales, this being the first recorded example from Radnorshire. The closest examples geographically are from Breconshire, one of the nearest both geographically and stylistically being a vessel possibly associated with a barbed and tanged arrowhead accompanying a cist burial at Cwm Car near Talybont-on-Usk,[39] about 40 kilometres to the south. The cist was built fairly close to the original ground surface and covered by an exceptionally large capstone which seems likely to either have been exposed in the surface of the original cairn or only buried to a shallow depth. The cist and capstone were made of slabs of stone obtainable from outcrops or screes adjacent to the cairn (see discussion of kerb stones, below).

The unusually large rock-cut grave below Cairn 2 suggests that it had probably held an extended inhumation burial, possibly originally contained within a wooden structure. Two surviving Early Bronze Age dug-out oak coffins from Disgwylfa Fawr, Ceredigion, were found below what may have been a turf barrow with an outer stone kerb.[40] The larger of the two dug-outs, probably originally about 2.4m × 0.9m (‘8ft × 3ft’) across and dated to between 2562–2136 cal. BC,[41] appeared to have been placed upon the buried ground surface. In the case of Aber Camddwr II, Ceredigion, about 2.5km to the north-east of Disgwylfa Fawr, there was evidence that the large grave pit had once held a wooden coffin 1.8m by 0.6m across.[42] Finds from the disturbed filling of the rock-cut grave below Llanelwedd Rocks Cairn 2 suggest that a burial was accompanied by a copper alloy bracelet, at least three barbed and tanged arrowheads, of which at least one illustrates ancient impact fractures, and possibly by a Beaker, represented by a single minute sherd. Other finds possibly associated with the cairn include an incised stone and whetstone.

It seems significant that both cairns show some elaboration facing west, either to face the adjacent cultivatable areas or the dominant views to the Wye valley. The kerb around Cairn 1 was mostly built of tall, thinner slabs often with their long axes set vertically. It appears that the heights of the stones were carefully graded by placing the taller slabs on the downhill side in order to make the surface of the cairn appear more horizontal. Missing stones on the northern side of the monument are represented by one or more stoneholes but it is uncertain whether a gap of 1.8m on the western side, between the two of the

tallest and most pillar-like stones (Fig 4, nos 23–24), is original or represents later robbing. There is no clear evidence of whether the kerb may have been freestanding at one stage during construction, though the size and weight of the basal stones within the cairn and their concentric arrangement (see Fig. 5b) suggest that the kerb was added at the end.

The area of burning close to the north side of the cairn appears to explain the reddening of a number of adjacent kerb stones and suggests that the kerb remained visible upon completion of the monument. This is also suggested by the fact that a number of the kerb stones on the western side of the monument had fallen flat on their outer face. Areas of burning have been recorded next to a number of Early Bronze Age burial monuments in Wales and further afield, sometimes in association with portal structures. At Aber Camddwr II, two unusually tall upright stones, set 1.4m apart, were considered to represent a temporary entrance through the kerb that was subsequently blocked with smaller upright stones.[43] Just outside this entrance was a pit in which charcoal had been burnt *in situ*, dated to 1668–1316 cal. BC (CAR-997). This had subsequently been enclosed and overlain by a rectangular setting of upright stones enclosing a paved area. At Cefn Caer Euni I, Merioneth, a setting of upright stones (filled with stones, some of which were burnt), was thought to represent a portal about 2m across abutting the outside of the kerb and had similarly been built to enclose and overlie a charcoal-filled pit, dated to 1878–1518 cal. BC (CAR-601).[44] At Chysauster, Cornwall, it was argued that the kerb of a round cairn originally formed a freestanding circle with an entrance gap about 2m wide on the south, possibly emulating a roundhouse entrance.[45] It has also been suggested that some barrows in the South West were constructed to face the midwinter sunrise and that a similar axis is often reflected by the orientation of graves and the entrances into ring cairns.[46] A portal structure is also suggested at Brenig 45, Denbighshire, a composite barrow with turf and stake circles. In an early phase, dated 2201–1667 cal. BC (HAR-657), the barrow had an outer ring of stones with rough walling between, with two higher stones to the north-west, 1.5m apart, which had the appearance of an entrance.[47] Outside and to one side of the entrance was a pit with evidence of burning *in situ*, which had possibly been the cause of the scorching of the adjacent 'portal' stone.

An exceptionally large boulder about 1.3m wide on the west side of Cairn 2 (Fig. 14, no. 1; Fig. 16), set just inside the line of the kerb to either side, had the appearance of a symbolic entrance, the kerb itself not being dissimilar in form and size to at least one of the round huts recorded on Llanelwedd Rocks (Fig. 18, see below). The kerb of Cairn 2 was less regular and constructed of much squatter stones than Cairn 1 and often laid horizontally. About a quarter of the stones showed signs of burning which had almost certainly taken place as a result of the firesetting of the central grave. A high proportion of the remaining stones showed no certain traces of burning but otherwise had a similar appearance to the burnt stones and seem likely to have been derived from the digging of the grave. A small number of the kerb stones were glacial erratics which had probably been gathered from the surface locally. It is possible, though by no means certain, that the kerb was constructed as the grave was being dug and may, at least for a time, have retained the rubble dug from the grave.

Some of the structural differences between the two cairns are attributable to abrupt changes in the local geology of Llanelwedd Rocks. The sophistication with which these resources were exploited in the early Bronze Age hints at a knowledge of mining and quarrying techniques being applied in a funerary context. The absence of local screes in the vicinity of Cairn 1 suggested that the tall, thin slabs used in the construction of cist and kerb had been prised away by levers and wedges from fissured exposures of basalt lava, already weakened by frost action during periglacial conditions, whose presence may have inspired the architectural form of the monument.

The distinct vesicular lava into which the rock-cut grave below Cairn 2 had been quarried was localized and though clearly not ore-bearing, its green metallic sheen has a Plutonic quality. These qualities must have been visible in surface exposures, and may again have inspired the way in which the monument was

built. Firesetting techniques, including the possible use of bone or antler tools, had been used to detach rock fragments from the bedrock. Oak was the predominant fuel but hazel, ash and alder were also present, probably to help in starting the fire.[48] Precisely the same methods were used in Early Bronze Age copper mines in Wales and elsewhere but have rarely, if ever been, evidenced in domestic or funerary contexts before.[49] Rock-cut graves as a whole are relatively scarce in Wales.[50] Similar mining techniques were employed, for example, at the Great Orme, Gwynedd,[51] Mynydd Parys, Anglesey,[52] and Cwmystwyth, Ceredigion (Fig. 1).[53] Cwmystwyth, lies about 30 kilometres to the north-west of Llanelwedd, and is one of a cluster of copper mines within the central Wales orefield which are known to have been worked during the Early Bronze Age, though apart from Cwmystwyth itself, the workings at a number of sites in the mid-Wales orefield during the Bronze Age appear to have been on a fairly small scale.[54]

There is little evidence for the social context of Early Bronze Age copper mining in Wales in the period after about 2500 BC. In the case of the mid Wales orefield it has been thought that early mining was probably undertaken as a seasonal activity by small family groups, linked to transhumance agriculture and pastoralism, the provenance of hammerstones at early mines here suggesting that they were exploited by communities living to the west, nearer the coast.[55] The use of metal-mining techniques in a sepulchral context at Llanelwedd raises the question of whether members of a mining community or of a community which undertook mining on a seasonal basis were buried here. Only in rare instances is it possible to identify the graves of Bronze Age craftsmen and smiths from their grave goods alone.[56] The siting of Llanelwedd may well be significant in view of the idea that major river valleys like the Wye provided important routes of communication and trade during the later third and early second millennium:[57] this would place Llanelwedd on a direct axis between Wessex and the copper mines of mid Wales during the Early Bronze Age. The trading of copper along this route is likely to have diminished by the middle of the second millennium, however. Radiocarbon dating suggests the cessation of copper mining activity at these sites, and possibly at all British copper mines other than at the Great Orme by 1500 BC, possibly due to the growth of the cross-channel copper trade.[58] There can be little doubt that the quest for copper contributed to the rapid and dynamic exploitation of mid Wales during the Early Bronze Age and as well as the introduction of new new technologies must also have had a significant impact upon social and cultural landscapes.[59]

Linear marks in the subsoil surface below Cairn 2 (Fig. 10) suggest the use of mattocks, spades or ploughing. The absence of a buried soil below the cairn and the fact that up to about 3 cubic metres of firesetting debris had been meticulously cleared up and repacked into the grave, suggests that the linear marks were caused by deturfing the area below the cairn as part of this process, in the manner of the widely recorded practice of preparing the ground beneath Neolithic and Bronze Age monuments prior to construction.[60] The replacement of the shattered rock fragments in the grave (with the exception of some selected as kerb stones), can be paralleled by the prehistoric mining practice of repacking spoil (known colloquially as 'deads') into exhausted mine workings.[61] In some instances this was carried out so meticulously that it is interpreted as having had a ritual purpose—of hiding the 'wound' that had been made in the ground.[62] Alternatively, it may be significant that the linear marks appear to share the same alignment as the grave pit: a similar relationship between traces of cultivation and graves noted on many northern European sites has been taken to express a meaningful association between the secular and sacred spheres of Bronze Age life.[63]

Despite the differences in construction and quarrying technique, the effort involved and the final appearance of the two cairns may not have been dissimilar. The stones of Cairn 2 were generally smaller and most could have been carried by a single individual, though digging the rock-cut pit with the use of firesetting may have been more labour intensive. Many of the stones of the cairn and kerb of Cairn 1 would have required a workforce of at least 2–3 people to move them, and the capstone is likely to have required at least 6–10 people to move.

The proximity of the cairns to contemporary settlement is unknown. A group of circular huts 'a hundred yards or so' to the south of Cairn 1 was first described by Edmondes Owen, as follows: 'The foundations of some of these are still to be seen on our hill top. One in particular, measuring twenty feet [6 metres] in diameter, is very distinct. The hearth is in the middle, the entrance on the south side facing the sun'.[64] These are referred to by Jack Spurgeon in 1966 as 'South along the ridge … are what seem the remains of a small group of three huts'; he placed them about 100m to the south of the cairn and at an altitude about 20m lower (see location on Fig. 31).[65] The sites were evidently quarried away before 1980.[66] It is likely that one of these huts is that which appears in a photograph published in 1912 (Fig. 18)[67] which shows a ring of about 25 low boulders, not dissimilar in size and appearance to the kerb around Llanelwedd Rocks Cairn 2. The sites are undated but might be Bronze Age.[68] Other round huts, similarly undated, are known close to Caer Fawr hillfort,[69] towards the north-east (Fig. 31). Neolithic settlement activity has been found below a post-medieval pillow mound excavated in the 1960s on a site just 20–30 metres lower down the hill, about 400 metres to the south (Fig. 31, Pillow Mound 1).

Evidence of other contemporary or later activity in the vicinity of the two cairns is relatively scant. The presence of charred cereal grain in the burnt area next to Cairn 1 and in the fill of the rock-cut grave below Cairn 2 is not explained and may have had ritual significance or represent contemporary agricultural activity being carried out in the vicinity.

Later finds include a single sherd of late Iron Age or Romano-British type found in topsoil to one side of Cairn 1, suggesting some kind of land use activity in the period between the first to fourth centuries AD. Post-medieval land use in the vicinity of the cairns is suggested by occasional finds scattered around them, including a single sherd of sixteenth-century pottery and more numerous sherds of pottery and clay tobacco pipe, of later seventeenth to earlier eighteenth date, which were possibly associated with a phase of arable or pasture improvement resulting in the gradual accretion of the field clearance cairns that masked both cairns. The absence of later eighteenth and nineteenth-century ceramic fabrics appears significant

Fig. 18. Prehistoric round hut on Llanelwedd Rocks. This site is unlocated but was probably one of the huts south of Cairn 1 (CPAT HER 3789). *Photograph: P. B. Abery, after Davies 1912, 68*.

and suggests a relatively short-lived phase of arable exploitation associated with the establishment of the Penygraig farmstead (Fig. 19) close to Cairn 2 during the seventeenth century.

THE PENYGRAIG FARMSTEAD

The Penygraig farmstead (SO 0495 5268)[70] lay at a height of 280m about 50m north of Llanelwedd Rocks Cairn 2 and about halfway up the hill north of Llanelwedd (Fig. 1). The principal structures examined in 2008–10 were a timber-framed longhouse, a small detached timber-framed building possibly representing stables, and a corn-drying kiln and bread oven (Fig. 19). Prior to excavation the longhouse appeared as an

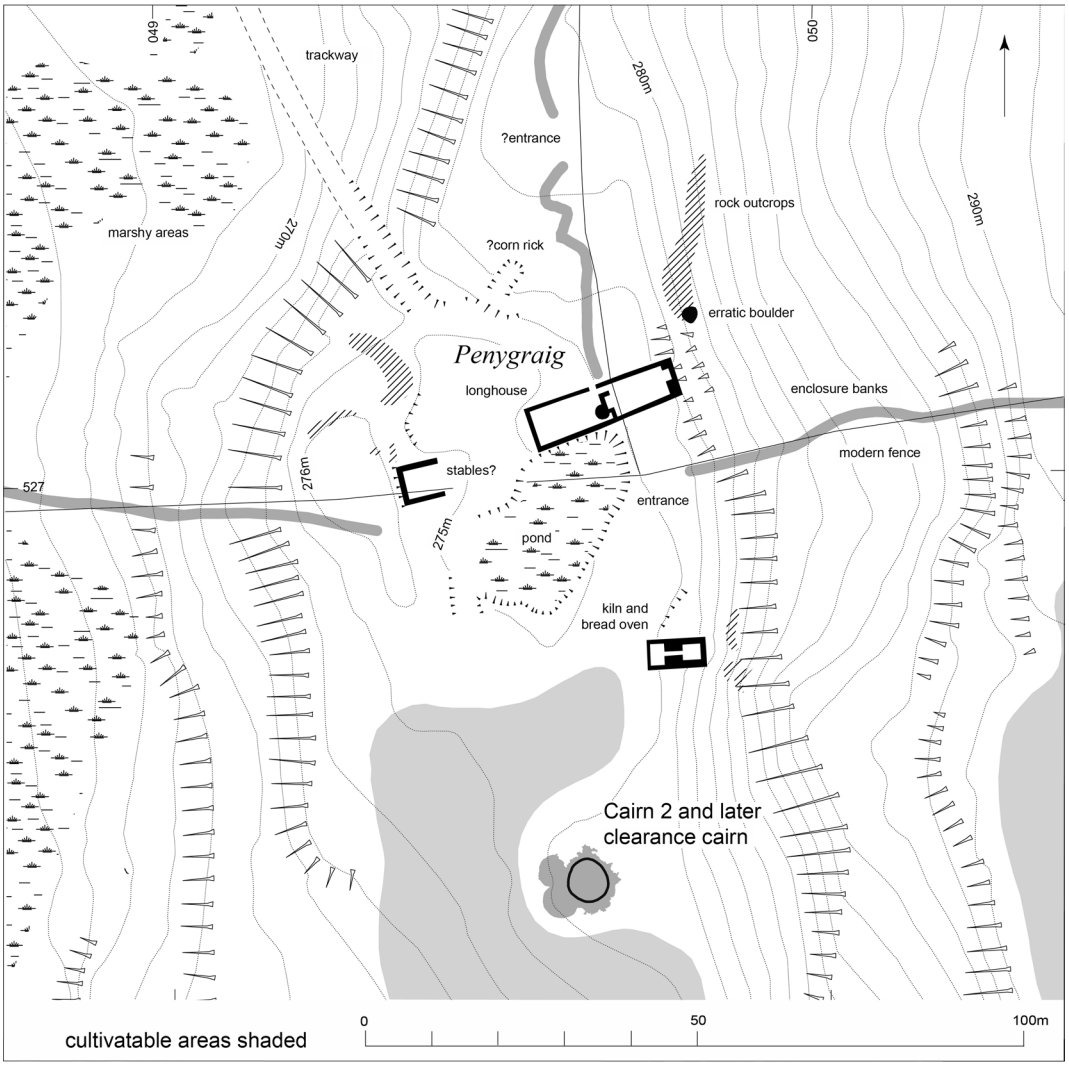


Fig. 19. Penygraig farmstead.

elongated hollow, with visible traces of drystone walling and fireplace at the eastern end. The corn-drying kiln likewise consisted of a hollowed area corresponding to the drying chamber, with traces of a wall-face on the north-side

A large, 2.5m-high glacial erratic (Fig. 20b), perched on a rock outcrop just to the north is likely to have been a well-known local landmark. The rock is illustrated in an early geography of Radnorshire published by Cambridge University Press,[71] and may well have had a bearing on the siting of the farmstead. Small rock-shelters to the north and east of the Penygraig farmstead (Fig. 31, 33885, 33886) may have formed part of the complex but were not examined in the field.

The farmstead was sited in a natural hollow about 40m across between rock outcrops on the otherwise exposed, western slopes of Carneddau. The longhouse lay across the slope and had been terraced into the steeply sloping ground on the eastern side of the hollow. The farmstead was approached from the north-west by a steep track leading off the trackway up the hill from Llanelwedd (Fig. 31).

Documentary evidence

The farmstead was built and occupied between the early seventeenth and early nineteenth centuries. Associated finds suggest that it had come into existence by about the 1630s, but the earliest documentary reference that has so far been traced dates to the second half of the seventeenth century. In 1672 the dwelling known as 'Pen y Graigge' formed part of the estate of the Gwynnes of Llanelwedd Hall.[72] It was still in the ownership of the Llanelwedd Hall estate a century later, when the 'Messuage Tenement and Lands' of 'Pen y Graig' were listed in the will of Marmaduke Gwynne, dated 1788, and said to be 'now or late in the holding of Jeremiah Price his undertenants or assigns'.[73] Jeremiah Price had in fact died in 1783, five years earlier,[74] and by 1785 it was in the tenancy of Rees Protheroe and family, but appears to have been finally abandoned soon afterwards.[75] The land on which the farmstead lay was subject to an enclosure act in 1812, though no enclosure award is known.[76] Unlike all the surrounding farms and cottages such as Carneddau, Gelli Cadwgan and Maengowan, Tan-y-graig and Rock Cottage (Fig. 31),[77] the farmstead is not shown on an Ordnance Survey surveyors' drawing of 1817,[78] and is again omitted from the Llanelwedd tithe map of 1842 and the first edition of the Ordnance Survey 25-inch of 1889.[79] The existence of the farmstead was unknown to the recent landowner but its name survived in the field names 'pen y graig great field' and 'pen y graig meadow' given in the Tithe apportionment schedule[80] to the two large enclosures lying next to it (Fig. 31).

Longhouse

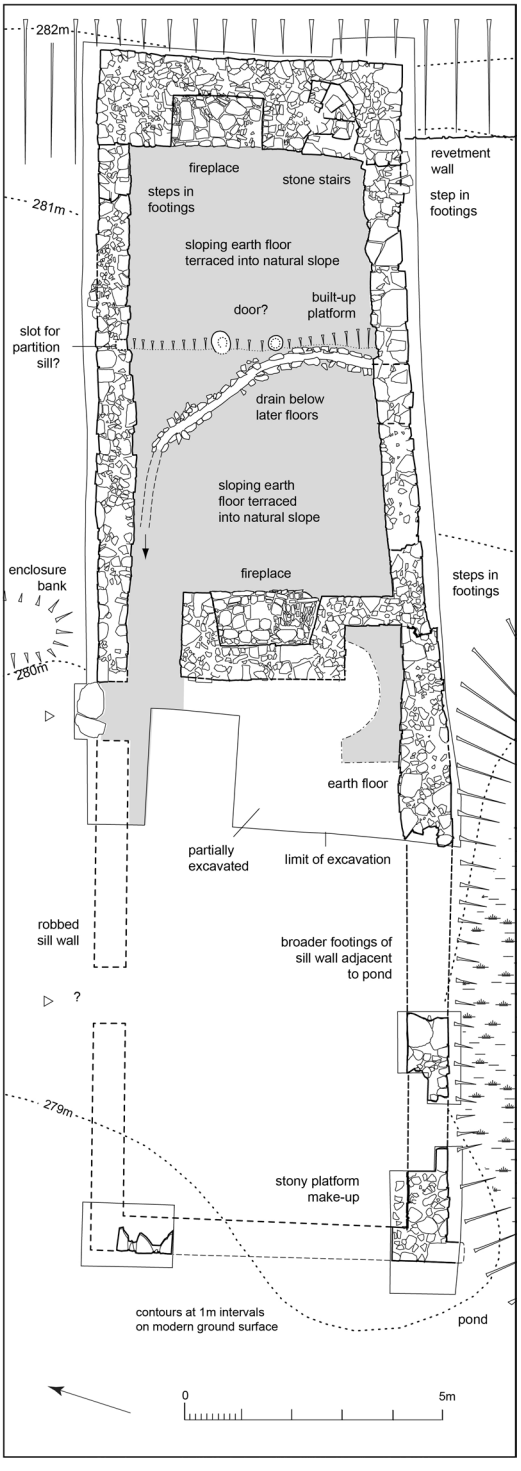
The longhouse was about 24m long and between 6–7m across externally, with a farmhouse about 11m long at the upper end and a cowhouse about 13m long at the lower end (Figs 21a–c). It was essentially a single-period construction but with some internal alterations. It lay on a slope which dropped by about 3m over the length of the building and which rose more steeply to the east but was fairly level to the west. The walls and floors at the upper end of the building had been constructed on a sloping terrace that had been dug into the slope, the base of which largely consisted of a yellowish-brown clay with some isolated patches of exposed bedrock (visible on Fig. 22).

The eastern wall of the farmhouse was about 1.8m thick and survived to a height of up to about 1.5m. It incorporated a rectangular fireplace, 1.8m wide and 1m deep and spiral stairs up to about 1.2m wide which gave access to an upper floor (Figs 21–22). About 6 rough stone steps were identified which had probably originally had wooden treads. The stairs, which are characteristic of south-east Wales,[81] can be paralled reasonably locally by sixteenth- and seventeenth-century examples at Nannerth-ganol (Cwmdeuddwr), and Llanerch-y-cawr (Llanwrthwl).[82] Having been dug into the slope, the eastern gable wall would only have been freestanding above a height of about 1.5m above the floor level inside the

Fig. 20. Penygraig.

20a (*top*) Penygraig farmhouse: view from west. *Photograph: CPAT 3111-0011.*

20b (*bottom*) Large glacial erratic boulder next to the Penygraig longhouse. *Photograph: CPAT 2968.0124.*


282m
281m
280m
279m
fireplace
stone stairs
steps in footings
revetment wall
step in footings
sloping earth floor terraced into natural slope
door?
built-up platform
slot for partition sill?
drain below later floors
sloping earth floor terraced into natural slope
fireplace
enclosure bank
steps in footings
earth floor
partially excavated
limit of excavation
robbed sill wall
broader footings of sill wall adjacent to pond
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stony platform make-up
contours at 1m intervals on modern ground surface
pond
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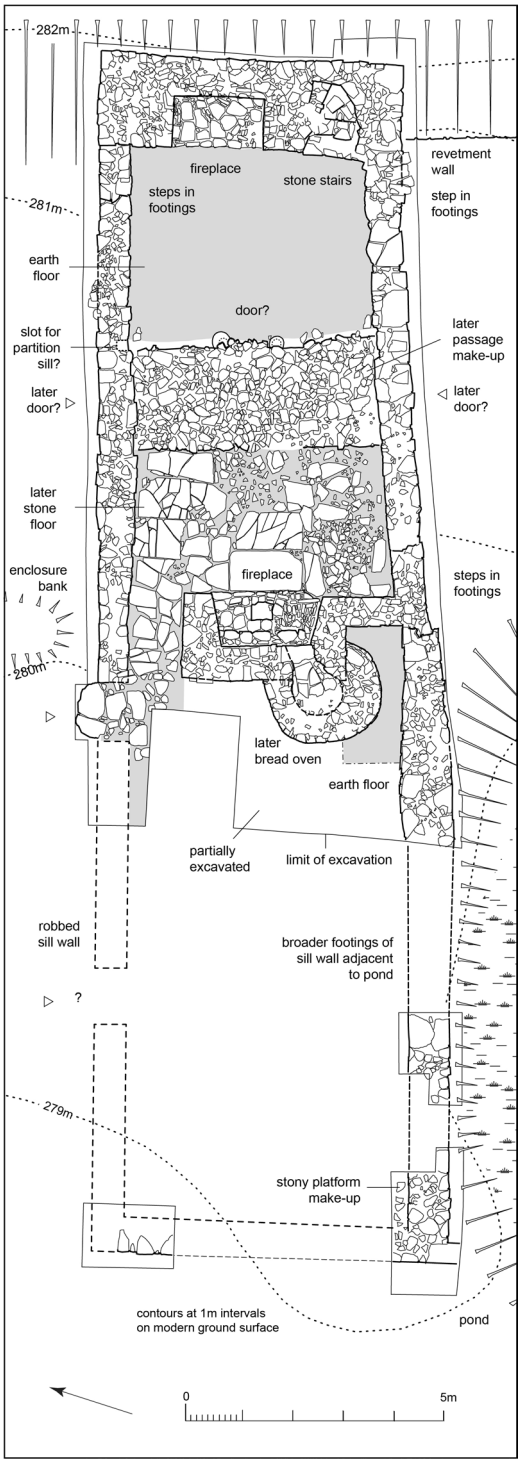
282m
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steps in footings
revetment wall
step in footings
earth floor
door?
slot for partition sill?
later passage make-up
later door?
later door?
later stone floor
fireplace
enclosure bank
steps in footings
later bread oven
earth floor
partially excavated
limit of excavation
robbed sill wall
broader footings of sill wall adjacent to pond
?
stony platform make-up
contours at 1m intervals on modern ground surface
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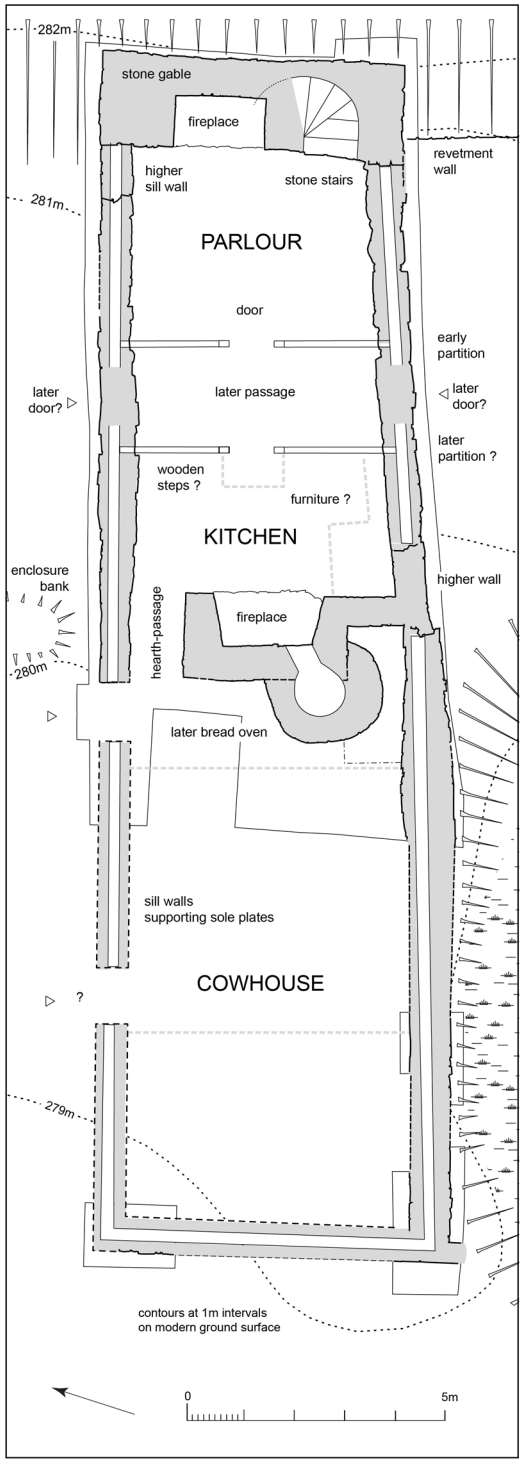

Fig. 21. Penygraig longhouse.

21a (*left*) Plan of the original building and later drain in farmhouse.

21b (*middle*) Plan showing later alterations, including cross-passage, stone floor in kitchen, and bread oven.

21c (*right*) Interpretative plan.

Fig. 22. Penygraig farmhouse: fireplace in parlour and base of the stone chimney stairs to the right. Note the original earth floor and the exposed bedrock below the right-hand side of the fireplace. Scales 2 metres. *Photograph: CPAT 3111-0061.*

house. A level terrace, about 2m wide, had been created outside the end wall with the help of stone rubble piled against the outer face of the wall.

At the lower end of the farmhouse was a second stone-built fireplace, tapering from 2.2m to 1.8m in width and surviving to a height of about 0.8m, attached by a stub wall, 0.6m thick, to the south wall (Figs 23–24). A 1m-wide passage to the north of the fireplace led to the single external door and the cowhouse further west. The entrance passage next to the chimney had been paved in stone like the kitchen floor. A rough edge in these stones in line with the back of the chimney suggested that there had probably been an internal door at this point. The threshold of the outside door was marked by a rough stone setting which continued into the interior (Figs 21a–b). Too little of the lower range was excavated to determine internal divisions and other entrances, though it is assumed to have accommodated a cowhouse, dairy and calf pens.

Heaps of tumbled stone at each end of the farmhouse showed that both chimneys had been carried to full height in stone. The side walls of the farmhouse and both the side and lower end wall of the cowhouse were by contrast accompanied by relatively little stone tumble and had clearly been of timber-framed form, characteristic of the region in the late medieval and early post-medieval periods.[83] Parts of the northern and southern end sill walls of the cowhouse had been robbed away but elsewhere the sill walls of the farmhouse and cowhouse were generally between 0.6–0.7m thick. The top of the sill wall in the farmhouse was fairly horizontal, though due to the slope in the ground it gradually increased in height between about 0.25–0.75m before stepping down slightly at the junction with the cowhouse, and probably

Fig. 23. Penygraig farmhouse: fireplace in kitchen. *Photograph: CPAT 3111-0034.*

increased in height again towards the lower end of the cowhouse. Walling at the junction of the farmhouse and cowhouse sill walls on the south side of the longhouse showed that the two were contemporary, the wider sill wall at this point relating to the broadening of the footings needed here on the edge of the pond to the south of the longhouse. Measures had been take to cope with the slope of the hill to either side of the house. A battered drystone revetment wall (Figs 21a–c) was partly exposed which butted against the thicker eastern gable on the south side of the farmhouse. In an equivalent position on the north side of the farmhouse a step in the northern sill wall, close to its junction with the eastern gable wall (Figs 21a–c), suggested that the timber framing here had been raised to a slightly higher level to protect it from the slope of the hill. The walls and footings of the longhouse were largely constructed of quarried and split Silurian shale, a rock type obtainable in quarries about 300–400m to the north-west, bonded with a yellowish-brown silty clay. There was no hint of the use of lime mortar,[84] lime plaster or whitewash on any of the wall faces or displaced stones. The clay used for bonding the walls had a similar appearance to the natural clay in the base of the house platform and in the adjacent pond. The material that must have been used for the wattle and daub panels of the timber framing had probably also been obtained close to the site.

The footings at the upper end of the farmhouse house had been dug into the hill-slope. The walls and floor of the lower end of the farmhouse by contrast were built at about the base of the original topsoil; in the absence of a foundation trench dug into the subsoil, the position of the robbed-out sill wall on the northern side of the cowhouse was consequently identified from negative evidence, on the basis of the internal and external surfaces that had existed to either side of the original sill wall. The footings of the western end of the cowhouse had been set on the subsoil surface but internally the floor here had been built up on a stony platform at least 0.35m high (Figs 21a–c).

The original ground floor of the farmhouse had been divided into two principal units, a parlour 3.8m by 4.8m across internally at the uphill end, and a kitchen about 4.8m square at the downhill end (Fig. 21c). The farmhouse originally had sloping earth floors throughout: the eastern end of the parlour floor had been terraced into the slope and was formed of the truncated subsoil surface, which had exposed bedrock below the footings of the eastern fireplace. The slope in the parlour floor had been partly levelled up by a built-up earthen platform probably dug from the upper end of the room, but this still left a drop of just over 0.4m from the north-east to the south-west corners of the room. There was a step of about 0.2m down from the surface of the built up platform at the western end of the parlour down to the level of the original earth floor of the kitchen, which sloped downwards about a further 0.2m from east to west, giving an overall drop in the original floor level over the entire length of the farmhouse from east to west of about 0.8m.

An original timber partition set on the edge of the platform make-up between the parlour and the kitchen, and presumably tied to a principal roof truss, was suggested by a pair of possible postholes on the central axis of the building and by a slot on the inner face of the northern sill wall. The two possible postholes, between 0.3–0.35m across and 0.18m deep, indicated an opening about 0.9m wide. There were hints of a slot in the edge of the platform here suggesting the base of a doorframe or a wooden step in the opening. The slot in the north wall was about 0.2m wide and deep (Figs 21a–b) and appeared to have held a timber stud or haunch at the foot of a screen. The line of the partition also appeared to be marked by small slabs of stone set on the floor of the parlour close to the north and south sills walls of the farmhouse (Fig. 21b) though their precise purpose is uncertain.

Various alterations had been made to the kitchen, unlike the parlour which appears to have remained virtually unchanged throughout the life of the building. A curving, stone-edged drain, 0.18m wide and 0.15m deep, had been dug to carry seeping groundwater from the middle of the south side of the farmhouse out in the direction of the cowhouse (Figs 21a, 24a).[85] This was directly overlain by a later stone floor made of flaggy, dark grey silty sandstone slabs[86] set on a layer of clay and small stones used to level up the earlier earth. The slabs were up to 1.5 by 0.8m across and 50mm thick; although some were roughly rectangular it appeared that many irregularly shaped stones had been used, with smaller stones roughly filling the spaces in between. The floor had evidently been disturbed by small rodents, into whose burrows stones had either sunk or been pushed.

The eastern side of the slab floor butted up against a stony deposit about 2m wide and 0.25m thick which overlay the earlier earth floor and formed the foundations for a later raised passage about 2m wide running across the farmhouse (Figs 21a–c). Traces of an earth floor, up to about 20mm thick survived on the surface of the passage foundations at about the same level as the earth floor in the parlour and just below the tops of the sill walls on the north and south sides of the farmhouse. The passage seems likely to relate to the insertion of doors in the north and south walls of the farmhouse, with thresholds above the level of the sill wall. Although no evidence had survived, it seems probable that a second partition set on a sill beam was built on top of the western edge of the passage foundations to form the other side of a cross-passage. The passage had been built over the drain below the kitchen floor, and the presence of some stone slab fragments within the make-up of the stone foundation deposit below the passage suggested that the construction of the passage, the digging of the drain and the laying of the slab floor in the kitchen represent alterations and improvements that were made at more or less the same time. Pottery from the construction of the drain, from the foundation of the passage, and from the earlier floor surface in the kitchen suggest[87] that these alterations were made relatively late in the life of the farmhouse, after about 1775. A cross-passage linking doors in the middle of the north and south walls of the farmhouse resulted in a plan which emulates the centrally-planned Radnorshire farmhouses that became fashionable in the eighteenth and nineteenth centuries.[88]

Although it is possible that some of the kitchen floor slabs had been robbed, there was a hint that the later kitchen flooring may in places have been laid around permanent or semi-permanent furniture or fittings, notably at a point opposite the assumed door into the cross-passage. This suggested that there may have been one or more wooden steps here, leading up to the level of the passage (Fig. 21c), though otherwise the location of a door into the assumed passage is uncertain. There were similar gaps in the flooring along the south wall of the kitchen possibly indicating the position of a built-in bench or cupboard.

The fireplaces in both the parlour and the kitchen were roughly paved with stones (Figs 22–23), the degree of reddening and fracturing of stones showing that the fireplace in the kitchen had been much more heavily used than that in the parlour. The hearth in the eastern fireplace stood about 0.1m above the earth floor in the parlour, the hearth in the western fireplace was almost flush with the later slab floor in the kitchen. A line of large stones had been placed along the back of the fireplace in the kitchen, to create a shelf or *pentan* ('fireback') for the storage of pots and utensils[89] and probably also to inhibit smoke escaping through the back of the chimney. In the middle of the kitchen fireplace was a shallow hollow, devoid of stone, which had the appearance of an ash pit or the setting for a cooking pot, with a large unburnt fragment of bovine pelvis forming the base.

A circular bread oven, built of thin slabs of reddened metamorphosed mudstone[90] bonded with clay, was attached to the back of the kitchen fireplace. The oven had an overall external diameter of about 2.2m with an opening about 0.44m wide about 0.76m above the surface of the hearth, which was probably sealed when in use with a moveable board or slab.[91] The roof of the oven had collapsed westwards into a heap of rubble and although only traces of the oven walls and opening had survived, the flat, fire-cracked slabs that had formed its base (which included one slab up to 0.68m across) indicated that it had been up to about 0.9m across internally. The outer walls of the bread oven butted up against the outer face of the kitchen chimney, indicating that it was a later addition. This was confirmed by the fact that its basal courses had clearly been laid down upon a smooth and compact earth floor in the chimney passage. The stone used to line the oven is similar if not identical to that used for the bread oven associated with the corn-drying kiln from which it may have been derived (see below).

Corn-drying kiln and bread oven

This large structure, about 5m by 10m across (Fig. 25), lay at the base of the same steep rocky slope as the longhouse, about 30m to the south (Fig. 19). Like the longhouse it was orientated approximately east–west and lay on sloping ground, and had similarly been built into a terrace dug into a yellowish-brown clay deposit at the base of the slope. The ground was fairly level to the west but rose steeply by about 2m over the length of the structure to the east. Like the sill and end walls of the longhouse, the stonework of the structure was bonded with a yellowish-brown clay.

At the lower (western) end was a rectangular stokehole, 2.4m by 2.8m across, with a flat base and with sides revetted with rough walling of two to three courses of stone on the north, south and west sides, standing to a height of between 0.25–0.7m (diminishing in height from east to west in relation to the slope in the ground). The upper part of the stokehole was filled with a tumble of soil and stone which sealed a fairly homogenous basal layer of black ashy soil up to 0.1m thick, which became thicker towards the northern side of the stokehole.

On the eastern side, the revetment walls of the stokehole butted up against a rectangular stone-built structure, 3m by 2.5m across and surviving to a height of 1.4m, which incorporated both the flue and a bread oven. The flue was about 0.55m high and wide, with a floor which gradually rose in height by about 0.1m towards the east along its length of 3m. The sides of the flue were constructed of large upright and horizontally-coursed shale slabs up to about 0.85m across and 0.3m thick. The side slabs at the lower end of the flue had been set on top of a horizontal slab laid in a slightly deeper hollow. The stones of the outer

Fig. 24.

24a (*top*) Penygraig farmhouse: later flooring and drain in western end of farmhouse. Scale 2m. *Photograph: CPAT 3111-0122*. **24b** (*bottom*). Penygraig farmstead: possible rick-base north of the longhouse, represented by hollow 3m wide and 5–7m long with blocks of stone possibly representing staddle stones. *Photograph: CPAT 2968.0135.*

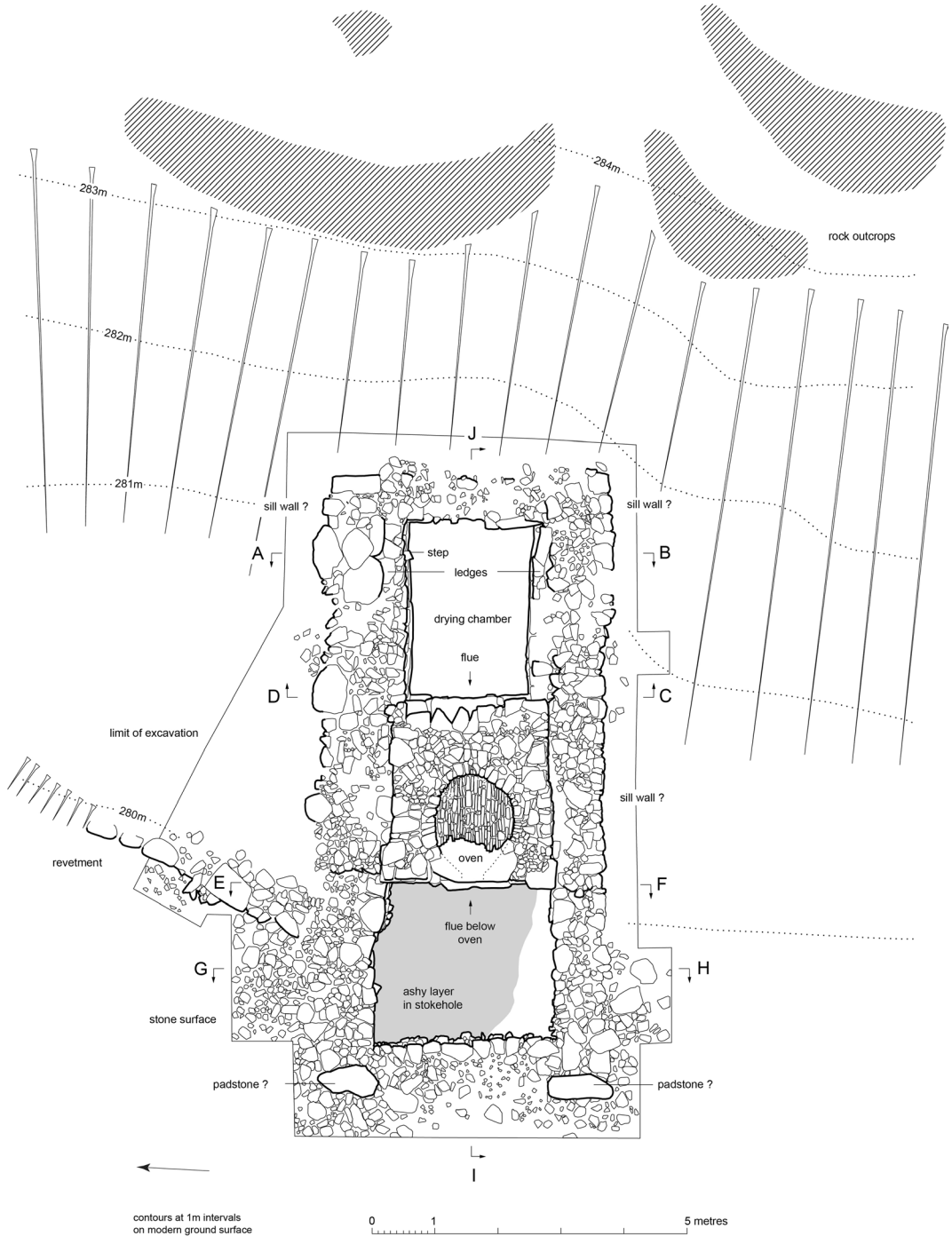

Fig. 25. Penygraig corn-drying kiln and bread oven plan.

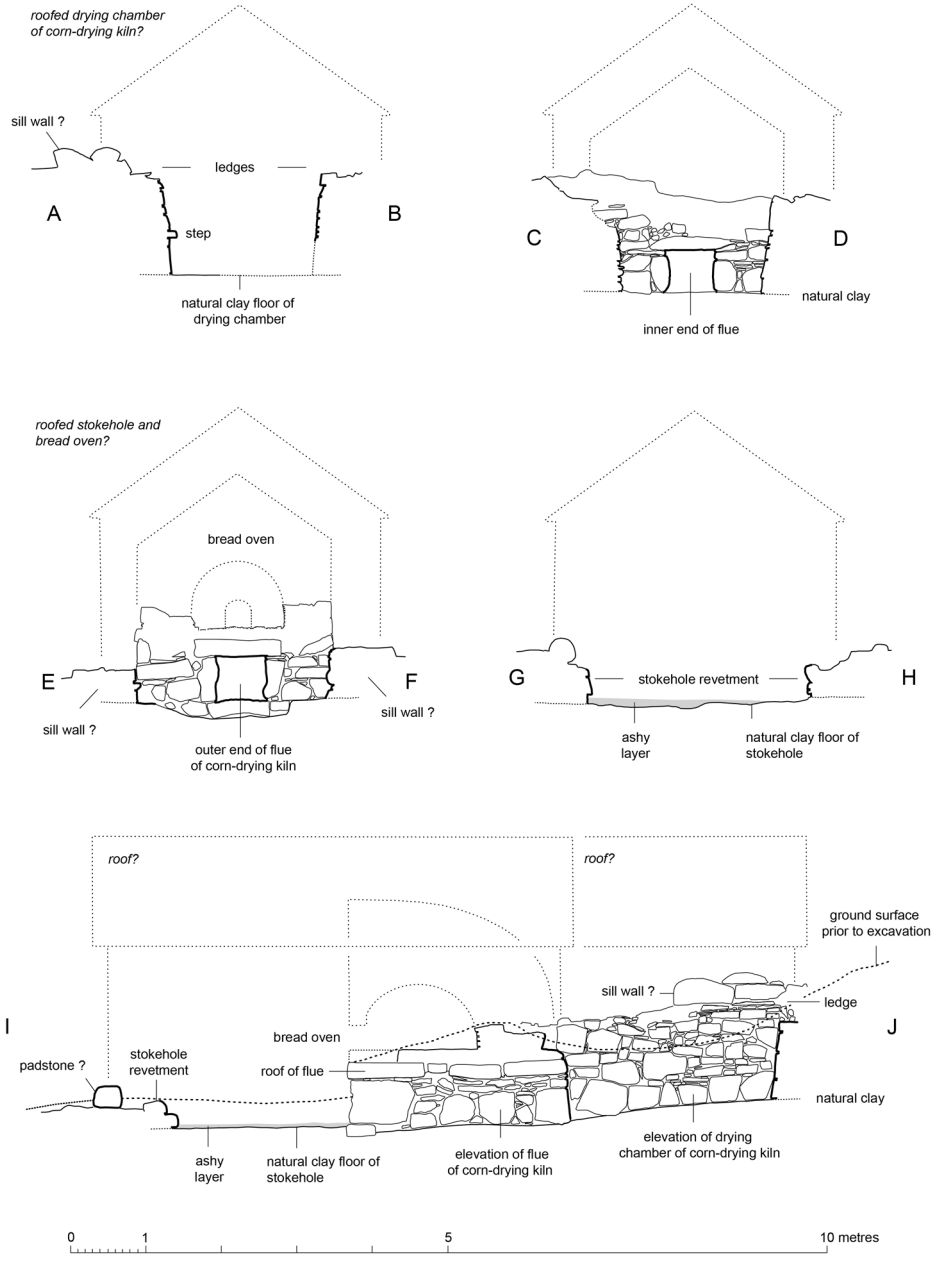

Fig. 26. Penygraig corn-drying kiln and bread oven: profiles and elevations.

end of the flue in particular showed signs of intense burning. The roof of the flue was made of large shale slabs, up to 1m across and 0.2m thick, set edge to edge.

Immediately above the outermost roof slabs of the flue was the base of an oval bread oven (Figs 25–28), which had every appearance of being integral to the original construction. The oven was about 1.2m across internally and survived to a height of 0.3m. Although no sign of the original opening survived this had clearly been accessible from the stokehole of the corn-drying kiln. The walls and floor of the oven were made of thin, reddened slabs of metamorphosed mudstone bonded with yellowish-brown clay. The floor of the bread oven was formed of vertically-bedded slabs standing about 0.15m high, contained by larger blocks of stone.

The drying chamber at the inner end of the flue was 2.8m long and 2.0m wide. It had slightly battered revetment walls surviving to a height of 1.3m which, like the revetment walls of the stokehole, butted on to the block of masonry housing the flue and bread oven. A stone jutting out from the eastern end of the north wall and 0.5m above the base (Fig. 25), seemed likely to represent a rough step for getting in and out of the drying chamber. The floor of the drying chamber sloped up slightly to the east, giving an overall drop in height from the eastern end of the drying chamber to the western end of the stokehole of about 0.4m. The best evidence of the original form of the drying chamber came from the north-east corner, which had survived in a more complete state than elsewhere. Here the coarser build of the lower part of the wall was capped by a bed of thinner, flatter, shale slabs, which judging from similar traces elsewhere, had formed a narrow and fairly horizontal ledge, about 0.3m wide and 1.3m above the floor of the drying chamber (Figs 25–26, 29b). This appeared to have held timbers which either ran along the sides of the drying chamber or across it. At the north-east corner of the drying chamber the width of this ledge was clearly defined by a group of large boulders which had the appearance of having formed a rough sill wall, about 1m wide and standing to a height of 0.35m high above the ledge along the top of the drying chamber wall. A similar though less distinct pattern was repeated on the south side of the drying chamber.

It seemed possible that the stones to either side of the block of masonry housing the bread oven and flue might be the remains of sill walls (at a height of about 0.7m above the level of the revetment walls of the stokehole) designed to support a timber-framed building housing the oven and that this may also have extended over the drying chamber. Two large, flat-topped boulders, about 1m by 0.4m across and set 2.6m apart just to the east of the stokehole had the distinct appearance of padstones, which suggests that the stokehole and oven may have been covered by an open-sided bakehouse, possibly with a pitched roof. If the stokehole and oven had been roofed in this way, this is likely to have been thatched, since there was no trace of other roofing materials.

The possible padstones appear to have been set in a rough stone surface extending to the north and west of the stokehole and butting up against a shallow revetment wall (Fig. 25) to the west side of a trackway which curved away for over 4m in the direction of the longhouse.

The structure was built in stages (the central block with the flue and oven first, followed by the stokehole and drying chamber) but appears to have been essentially single-period. The only dating evidence is provided by three small sherds of seventeenth- to early eighteenth-century pottery, one from stone tumble in the stokehole and two from the ashy layer on its floor.[92] The absence of any of the wares of later eighteenth- and early nineteeth-century date of the kind associated with the longhouse may be significant, and suggests that the kiln and bread oven had gone out of use by about the middle of the eighteenth century. In comparison with the bread oven later added to the farmhouse, there was relatively slight evidence of the collapse of the detached bread oven denoted by a spread of reddened stone. This perhaps suggests that the bread oven attached to the corn-drying kiln was deliberately taken down and used to construct the one in the farmhouse.

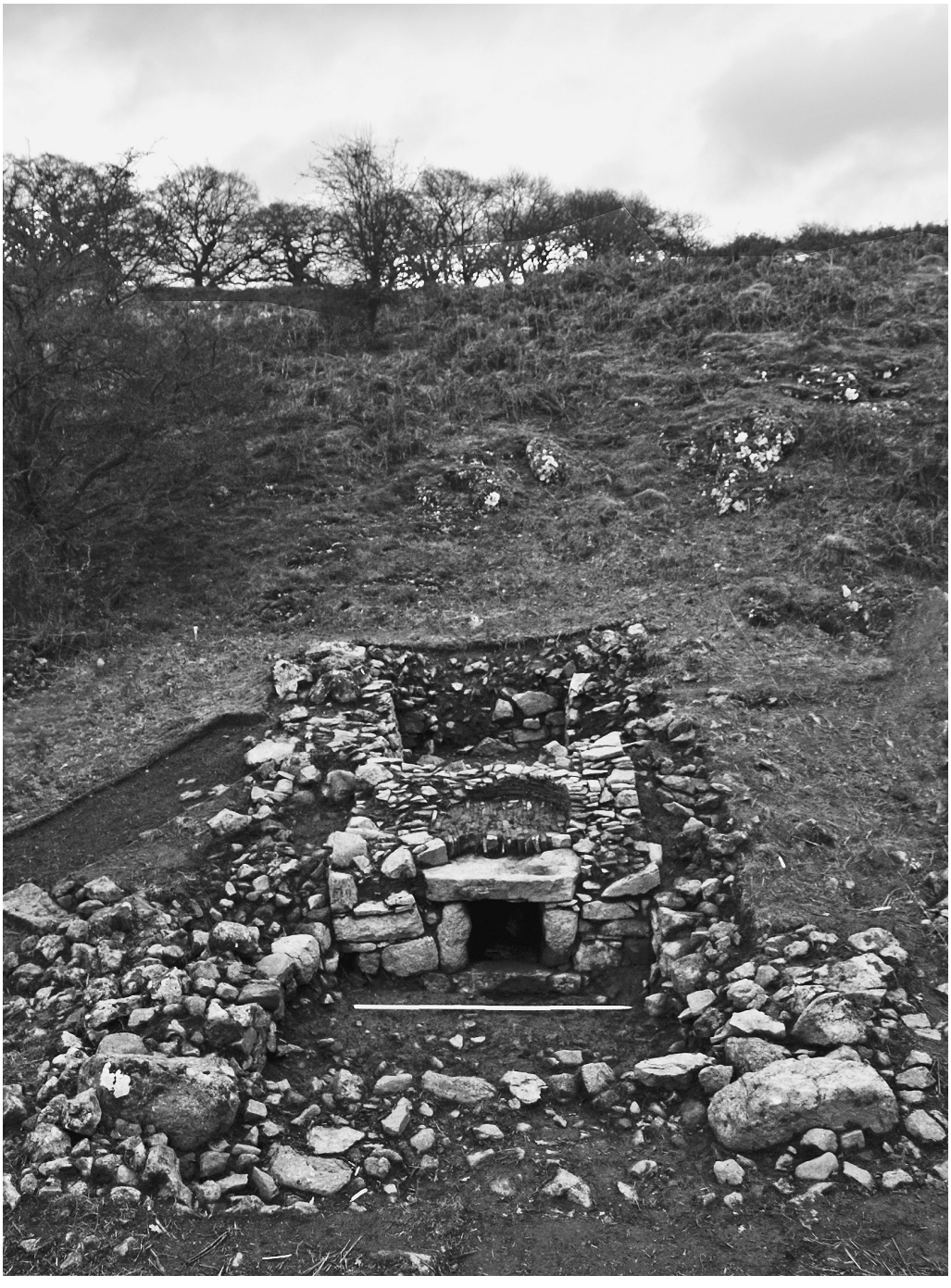

Fig. 27. Penygraig corn-drying kiln and bread oven: view from the west. Scale 2m.
Photograph: CPAT 2696-788.

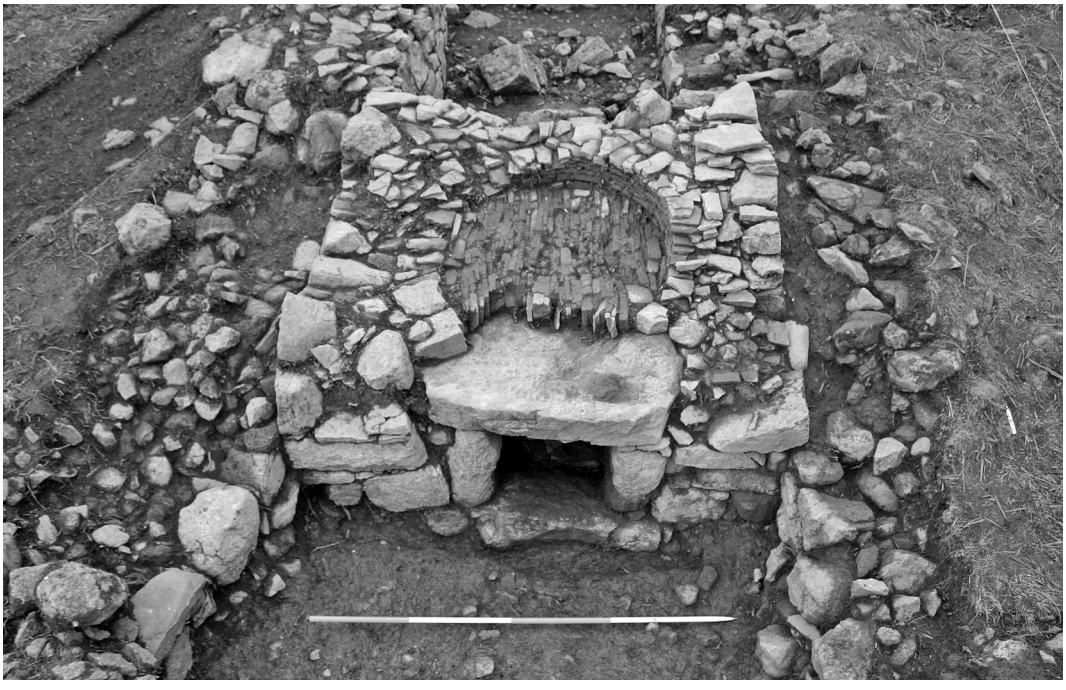

Fig. 28. Penygraig corn-drying kiln and bread oven: view from the west. Scale 2m.
Photograph: CPAT 2696-790.

Analysis of plant remains from the stokehole and flue of the corn-drying kiln and oven suggests that oats, barley, rye, wheat and possibly also peas and brassicas were cultivated by the farmstead (see report by Caseldine *et al*., below).

Possible stables[93]

The footings of a detached outbuilding had been identified about 15m from the west end of the longhouse, on a slight rise and in the lee of a slight rocky outcrop rising to about a metre above the level of the farmyard area (Fig. 19). Only the northern and southern walls of the structure could be identified from surface traces, suggesting a building about 4.4m by 5.5m across, with no visible indications of walls to the west or east. A small trial trench excavated across the north wall revealed a low drystone wall about 0.8m across and 0.3m high, similar to the sill walls of the longhouse and probably representing a timber-framed building. The structure is undated but assumed to represent stables, a cartshed, or a small barn contemporary with the farmstead.

Possible rick-base

The possible site of a corn rick on a slight rise about 15m to the north of the longhouse is suggested by a roughly rectangular shallow depression about 3m wide and 5–7m long (Figs 19, 24b). The base of the depression sloped slightly and due to the steepness of the slope would not have been readily accessible to wheeled vehicles. A number of large angular blocks of shaley rock (not local to the immediate area), though not forming a regular pattern, appeared to have been deliberately set around the margins of the depression possibly as staddle stones.

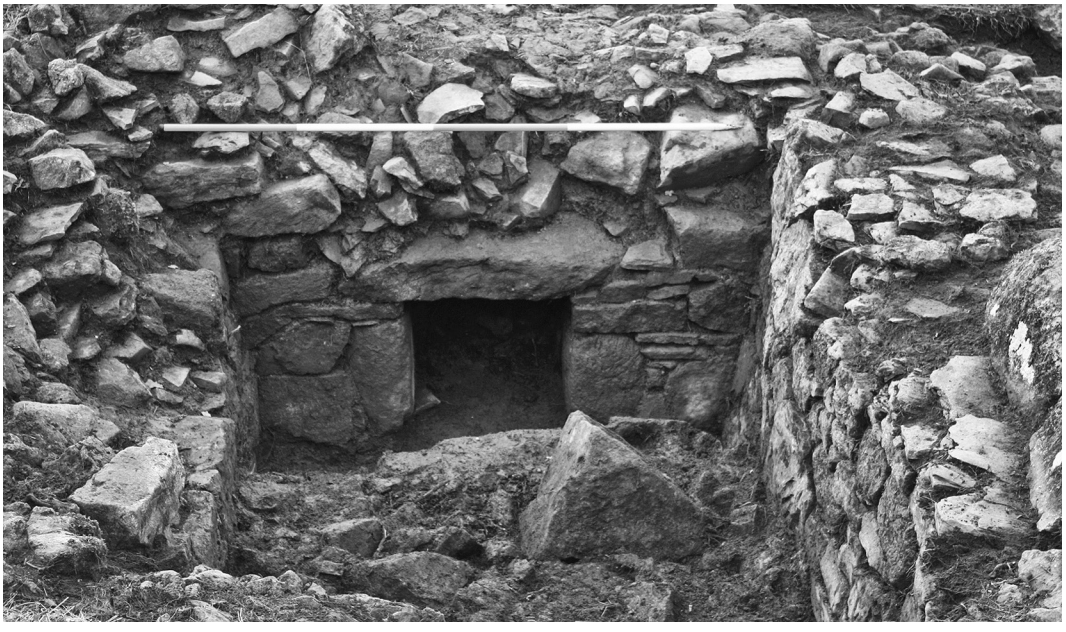

Fig. 29. Penygraig corn-drying kiln.

29a (*top*) Drying chamber and flue, viewed from east. Scale 2m. *Photograph: CPAT 2696-227.*

29b (*bottom*) Ledge on north side of drying chamber. Scale 0.5m. *Photograph: CPAT 2696-300.*

Pond

A natural reed-covered hollow about 27m by 15m across just to the south of the longhouse periodically held up to about 0.3m of water before slowly draining away (Fig. 19). The northern side and eastern end of the pond were steeply scarped indicating that the pond here at least had been artificially lowered, perhaps by as much as a metre next to the longhouse. Scarps on the southern and eastern edges of the pond appeared to represent a built-up trackway or terrace giving access to the corn-drying kiln and the southern side of the longhouse.

Probing indicated that the pond had accumulated little sediment. The base of the pond next to the farmhouse was formed of the same band of yellowish-brown clay identified in the base of the terraces in which the longhouse and the corn-drying kiln were set. Similar clay had been used to bond the longhouse walling, which suggests that the pond may have been a source of building material (possibly also used to infill the timber framing) as well as providing a possibly intermittent water supply.

Enclosure boundaries and clearance cairns[94]

The Penygraig farmstead straddles and was clearly contemporary with a bank belonging to one of three irregular enclosures (Fig. 31) first depicted by the Ordnance Survey in 1817[95] which are reminiscent of the bounded sheep-walks known elsewhere in Radnorshire. The boundaries of these three enclosures are represented on the ground by low and discontinuous banks, often no more than about 1m wide and 0.3m high, composed of earth and stone below existing hedges and sometimes accompanied by a shallow ditch dug to form the bank. (In places the banks are more irregular than the more modern boundaries that have replaced them.) A gap was left between the Penygraig longhouse and the bank abutting it to the north and there was also a gap which may or may not be original to the south. Elsewhere, original entrance gaps in these boundaries are difficult to determine though there is a further gap in the bank and a zig-zag in the boundary partly made of upright slabs about 30m to the north of the Penygraig farmhouse which seem likely to relate to ancilliary structures here (Fig. 19).

The plan of the enclosures suggests that the enclosure appended to the eastern side of the Penygraig farmhouse is the earliest field, to which the eastern and southern enclosures had been abutted in succession. This enclosure is named as ‘pen y graig great field’ in the Tithe apportionment schedule, where its size is given as just over 14 acres (5.6 hectares). The enclosure further to the east is named as ‘pen y graig great meadow’, and was just over 16 acres (6.4 hectares). The much larger enclosure of about 50 acres (20 hectares) to the south is unnamed in the schedule. It included a much higher proportion of steeper and more rocky ground, and is probably to be counted with the larger ‘Sheep Walk’ to its south and west.[97]

The general form of the boundary banks recalls the traditional Radnorshire field boundaries sometimes known as ‘staggard fencing’, and described as being ‘made by grubbing up such quicks [staggards] as they can get most conveniently in woods and coppices … . A bank of two or three feet is raised around the quicks, when set in the ground. The ditches are … from one to two feet only’.[98] The irregular, wandering form of the banks, set out in relation to the local topography, have the appearance of pre-enclosure boundaries that hark back to the ‘old agriculture’—frowned upon by the agricultural writers of the later eighteenth and early nineteenth centuries—but commonly justified by the maxim ‘that a crooked hedge affords more shelter to the cattle than a straight one’,[99] and in all probability represent a subdivision of former common land on Llanelwedd Rocks, perhaps corresponding to customary grazing areas of a kind often defined by natural features, including boulders.[100]

It is significant that the farmhouse at Penygraig lay inside the enclosure and the cowhouse outside it, a pattern possibly repeated at the two adjacent enclosures on Llanelwedd Rocks. The southern enclosure, unnamed in the Tithe, is associated with a rectangular building (Fig. 31, 33860) lying partly across the enclosure bank, shown on early Ordnance Survey maps, but about which little more is known. The eastern

enclosure is associated with the remains of a further building (Fig. 31, 33888), possibly with opposed doors, again incorporated into the boundary bank. The three enclosures thus have the appearance of three holdings taken out of the common in succession, each having a longhouse placed to give ready access to the adjacent hill land. Of these holdings, however, only Penygraig was to survive into the later eighteenth and early nineteenth century.

Much of the southernmost enclosure has already been quarried away, but it appears that up to about 90 per cent of the total area within these three enclosures was composed of steep grassy slopes, rocky outcrops clothed in trees and scrub, areas of thin soils overlying bedrock, or boggy areas in natural basins and along stream courses which until the advent of quarrying would have had little other economic value other than as rough grazing. The remaining 10 per cent, however, representing an area of up to 6.5 hectares (16 acres) was composed of patches of relatively flat land with deeper soils that would have been potentially suitable for cultivation for cereals or fodder crops.

It is also significant that the 21 clearance cairns recorded within the surveyed area (Fig. 31) corresponded with the areas more conducive to cultivation. The clearance cairns varied in size and composition, ranging from between about 2–10m across and 0.5–0.75m in height and including large boulders up to 0.5m or more across down to stones and pebbles no more than 50mm across. The cairns generally appeared to have been sited on rocky outcrops on the edge of the flatter land. In places it became difficult to distinguish between deliberate stone clearance and natural rocky screes and it is probable that some clearance cairns remain unrecorded.

As noted above, the two excavated earlier Bronze Age round cairns (Fig. 1b, Cairns 1 and 2) were overlain by clearance cairns. The clearance cairn above Cairn 1 provided no dating evidence (other than the fact that it pre-dated Edmondes Owen's 1906 excavations), but stratified finds from Cairn 2 suggest that the cairn dates to the late seventeenth to eighteenth centuries and was therefore contemporary with the Penygraig farmstead. This, combined with evidence for the cultivation implied by the presence of the corn-drying kiln described above, suggests that some if not all of this group of clearance cairns are contemporary with the Penygraig farmstead, occupied between the seventeenth century and the beginning of the nineteenth century.

Discussion of Penygraig farmstead

Penygraig farmstead was probably established in the first few decades of the seventeenth century and abandoned during the first decade of the nineteenth century. All the elements of the farm complex—which also comprises a combined corn-drying kiln and bread oven, possible stable and possible rick-base—appear to be broadly contemporary and, apart from some later alterations to the farmhouse, have the appearance of being essentially single period.

The siting of the farmstead was probably due to a combination of factors. Its name, Penygraig ('the summit of the rock'), lays claim to the summit of Llanelwedd Rocks, the craggy southern end of the Carneddau hills overlooking the town of Builth in the Wye valley below. The large natural boulder perched on a rock outcrop within a few metres of the farmhouse (Fig. 20b), illustrated in an early twentieth-century geography of Radnorshire,[101] is likely to have held some ancient significance as a landmark, like a number of other rocks and boulders on Carneddau, such as the prominent rocky outcrop from which the neighbouring farm of Maengowan takes its name.[102] Like Maengowan, Penygraig lay close to one of the trackways running from the Wye valley up to the common land on the summit of Carneddau (Fig. 31). Just as significantly, the farmstead occupies a slight hollow almost encircled by rocky outcrops, forming a natural farmyard about 45m by 60m across around which the buildings were disposed, which provided some shelter on the otherwise exposed western face of the hill and where surface water collects, at least seasonally (Fig. 19). Immediately next to the Penygraig farmstead was one of a number of distinctive

natural terraces of flatter land, about a third of a hectare in extent, with stimulating views of the Wye valley. Access was poor, however, especially for wheeled vehicles, and would have necessitated negotiating the steep trackway chiseled through a rock outcrop at the top and then crossing a boggy area downhill, on a built-up causeway before joining the mountain track a hundred metres to the north.

The longhouse form is characteristic of upland farms in this region of Wales[103] and appears to have evolved from late medieval peasant hallhouses during the sixteenth century[104] which like that at Penygraig were typically sited across the contour.[105] Whilst it is quite typical in many ways of what is known of the local farmhouses that were in occupation during this period, it is perhaps unusual in a number of respects. Richard Suggett's study of Radnorshire houses, *Houses & History in the March of Wales. Radnorshire 1400–1800*, has shown that the known farmhouses in occupation during the seventeenth century represent, more or less without exception, adaptations to buildings first erected in the fifteenth and sixteenth centuries,[106] and that most if not all other known longhouses were converted hallhouses.[107] Longhouses newly built in the seventeenth century would probably, like Penygraig, tend to be sited in more marginal locations. They would consequently also be more likely to have been abandoned and now only survive as archaeological sites. The Penygraig longhouse has more in common both in terms of size and form with the later medieval longhouses than with smaller seventeenth-century Radnorshire 'house-and-byre' farmhouses,[108] however, and is most readily interpreted by reference to standing buildings (Table 1). Practically all of the surviving Radnorshire longhouses were extensively remodelled and repaired in the nineteenth and twentieth centuries and Penygraig therefore provides a rare opportunity to examine the ground plan of a building largely unencumbered by later alterations.

Many of the distinctive features of the first phase of Penygraig longhouses can thus be most closely paralleled by sixteenth- to seventeenth-century alterations to a number of late medieval hallhouses in the Radnorshire area. The plan of the farmhouse is of 'hearth-passage' type, characteristic of Radnorshire farmhouses of the sixteenth and seventeenth centuries[109] except that in this instance this did not constitute a cross passage because of the natural pond just to the south. The only original entrance to the farmhouse was thus via the outside door at the back of the kitchen chimney which gave access to both the farmhouse and the lower range. The hearth-passage form is paralleled at Upper Llaneon (Glascwm)[110] and Nannerth-ganol (Cwmdeuddwr).[111] The provision of separate chimneys in the kitchen and parlour is paralleled at Black House Farm (Bryngwyn)[112] and Pen-rhos (Llanstephan).[113] Similar stone fireplace stairs were added to both the Llannerch-y-cawr (Llanwrthwl, Breckn.)[114] and Nannerth-ganol[115] hallhouses. The suggested timber partition between the kitchen and parlour at Penygraig (a feature ultimately derived from medieval dais partitions), is perhaps paralleled by the seventeenth-century post and panel screen at Upper Llaneon.[116]

Other elements of the form and construction of Penygraig can be reasonably inferred. Timber-framing was the dominant local building technique until perhaps the latter half of the eighteenth century and there is no hint of the replacement of wattle and daub panels by brick, which perhaps became increasingly common in Radnorshire in the second half of the eighteenth century.[117] The lack of surviving traces of roofing material suggests that the longhouse was thatched, which evidently remained the customary roofing material in Radnorshire in the seventeenth and eighteenth centuries.[118] Window glazing was becoming widespread across all social classes during the second half of the seventeenth century,[119] but even though two small fragments of window leading were found (see below), the general absence of window glass from the site suggests the use of timber mullioned windows with internal shutters of the kind known at Nannerth-ganol.[120] Like the first-floor rooms added to former open hallhouses, such as Llannerch-y-cawr,[121] these were probably confined to the roof-space and most probably lit by dormer widows. There was no hint in the collapsed debris of either the upper or lower chimneys, that rooms on the upper floor at Penygraig had been heated.

The ground floor of the farmhouse was divided into two principal rooms, a kitchen with fireplace at the lower end and a parlour with fireplace and stone fireplace stairs at the upper end, both fireplaces having been constructed from the start. The fireplace in the parlour, however, unlike that in the kitchen, showed relatively modest indications of use, which implies a certain austerity. There was no indication of a crane or range having been fitted to the kitchen fireplace and it is likely that up until abandonment cooking was carried out in the pot.[122]

The construction of a cross-passage between kitchen and parlour in the later eighteenth century was probably linked to the insertion of additional outer doors and was no doubt influenced by the fashion for centrally-planned house styles during the eighteenth century. These changes reflect increasing concerns for convenience, privacy and gentility and a greater emphasis on the parlour as a reception room for visitors.[123] A central passage may also have enabled a second set of stairs to be inserted at this date, to give a greater degree of privacy in the bedrooms on the upper floor.[124] Other significant changes were concerned with drainage problems that were no doubt exacerbated by the lack of external guttering and the reflooring of the kitchen in stone. The addition of the bread oven opening into the kitchen fireplace may also have been largely for the sake of domestic convenience, and although it is not precisely dated it may have coincided with the suggested abandonment of the corn-drying kiln by the mid eighteenth century. There are suggestions that the outdoor bread oven had been deliberately taken down and its stonework used to construct the oven inserted into the longhouse. As late as the early nineteenth century 'Firestones for Ovens, &c.' were evidently still a sought-after commodity, even though firebricks were then becoming more readily available.[125] Various of these alterations can be paralled elsewhere, such as the placing of stairs against an earlier timber partition at Glanyrafon (Betws Diserth),[126] and the insertion of bread ovens into former hearth passages at Upper Llaneon[127] and Gilfach (St Harmon), for example.[128]

Only a small proportion of the lower end of the longhouse was excavated, but it is clear that, like the farmhouse, it had been of timber-frame construction with earth floors and a thatched roof. In this instance, the end gable of the building had probably also been timber-framed. The lower end of the longhouse probably served a number of functions in addition to acting as a cowhouse. The smooth earth floor identified next to the chimney and oven might have doubled up as a threshing floor, an essential activity which normally took place between about November and January[129] and for which no other indoor space has been identified. In some counties of Wales, according to Walter Davies 'loam floors are used for thrashing … when well made they are better than either flag or mortar floors …. A loam floor, properly tempered, will last many years, is very cheaply made'.[130] Alternatively, the practice of threshing out of doors in fine weather was not unknown.[131] The suggested abandonment of the corn-drying kiln by the mid eighteenth century may signal an end to cereal growing and the release of space formerly used for threshing.[132]

The detached structure to the west of the longhouse is likely to have been broadly contemporary with the rest of the complex. Like the longhouse, it appears to have been timber-framed and thatched. Its siting, more or less in line with the western end of the longhouse, emulates the linear, timber-built farmstead form so characteristic of Radnorshire,[133] though here rendered impractical due to the proximity to the pond, and the need to keep open a way through to the south. Its function is unknown, though its dimensions suggest a stable or cartshed.

It is possible that the unexcavated hollow and rough setting of stones to the north of the longhouse represent the setting for a rick-base of the kind described by Walter Davies, with staddle stones 'connected by wooden beams; on which corn stacks are laid to preserve them from vermin',[134] the depression either being designed to reduce the height of the staddles or to improve ventilation.[135] Stacks are described in some detail by Walter Davies, rectangular ones being traditionally used for unthreshed barley (as opposed to circular ricks for wheat and rye).[136]

The corn-drying kiln and bread oven set into the hillslope to the south of the longhouse appears to have formed an integral element of the farmstead complex. The structure is not closely dated but the general similarities in building technology with the longhouse suggest that it was built at the same time, in the earlier seventeenth century. The absence of associated pottery other than of seventeenth- to early eighteenth-century in date suggests that it had gone out of use during the first half of the eighteenth century, perhaps half a century before the abandonment of the farmstead as a whole.

Corn-drying kilns like bakehouses were notorious for catching fire and their siting 30m to the south of the longhouse was no doubt primarily for reasons of fire safety. The juxtaposition of the pond and the corn-drying kiln also recalls the stipulation in the medieval Welsh laws that there should be a water pit close to a corn-drying kiln.[137] The location of the structure outside the enclosure appended to the longhouse perhaps implies that it was built on what was then still in effect common land (see below), which may conceivably preserve a remembrance of the ancient property rights conferred by the possession of a corn-drying kiln.[138] Whilst the communal use of both bread ovens[139] and corn-drying kilns[140] is known elsewhere in Britain it seems less likely in a remote setting such as this.[141]

Though no doubt once a common feature of the Welsh countryside, corn-drying kilns have now almost entirely vanished from the archaeological record. The Penygraig structure is one of the few detatched rural corn-drying kiln to have been recorded in detail Radnorshire, other kilns either being structures attached to mills or within towns. Few rural kilns evidently survived into the nineteenth century, becoming replaced by roofed kilns attached to corn mills.[142] The suggested abandonment of the Penygraig kiln by perhaps the middle of the eighteenth century may therefore have been due to the provision of corn-drying facilities at the local mills, though it may also have been due to changes to the farm's economy (see below). Though few Welsh farmsteads are known to have had purpose-built corn-drying kilns, they appear to be relatively common in the neighbouring county of Breconshire. It has been suggested, perhaps largely on the basis of field-name evidence, that kilns would more frequently have been sited on edge of fields at some distance from the farmstead,[143] though why this might be the case is unclear: the other stages of processing which the corn would have gone though before drying—temporary stacking in sheafs, threshing and winnowing—would all have taken place close to the farmstead. It is possible that kilns were more frequently attached to farmsteads than has been supposed but have been lost during the course of the alterations and improvements that were commonly made to farmsteads during the nineteenth century and later.

The general form of the Penygraig kiln is readily recognizable in the following description given in Walter Davies's *General View of the Agriculture and Domestic Economy of South Wales* published by the Board of Agriculture in 1815, which also helps to explain some elements of its construction:[144]

> Appendages to mills, and even to farm houses … are the open kilns for drying corn before it undergoes the operation of shelling or grinding.
>
> The tunnel or flue, to convey the heat, of an easy inclination or ascent, is about 12 feet [3.6m] long; about 30 inches [0.76m] square at the outer aperture, where the fire is kindled; and about 9 inches [0.23m] deep and 30 [0.76m] broad at the upper extremity. This funnel is well covered over with flag stones, and earth closely laid over them, 9 inches [0.23m] thick.
>
> The bed of the kiln at the inner entrance of the funnel, is about four feet wide, curving to 9 [2.74m] or 10 feet [3.05m] at the upper extremity; and about 12 [3.66m] or 14 [4.27] feet in length, forming the frustrum or base of a parabola of those dimensions. The outer walls, at a height of 14 inches [0.36m], form a bench or shelf from 10 inches [0.25m] to a foot [0.3m] wide : on this bench are laid spars, (*llinwydd*) from 8 [0.2m] to 10 inches [0.25m] asunder: on these are placed reeds or straw covered with a mat, whereon the corn is laid to dry. The outer walls, above the bench

> supporting the spars, are about a foot deep; making the whole about 26 inches [0.66m] above the ground. The bed continues nearly of the same ascent or declivity as the funnel; as it is found more convenient in putting on grain at one end, and taking it off at the other end, as it dries.
>
> Barley for meal is dried on these kilns as well as oats. Twenty-two quarters of grain, being ten of oats and twelve of barley, are dried thoroughly in 21 hours: oats require twice the time of barley. Farmers, &c. dry and grind or shell whole loads of grain at a time; which is preserved, and bolted with hand-sieves in their own houses, as occasion may require.

The Penygraig kiln is smaller than that described by Davies[145] and there are some differences in form, such as the absence of a markedly tapering flue and a flaring drying chamber, but otherwise there are clear parallels. The narrow ledge around the top of the drying chamber clearly represents the 'bench or shelf' which held the timber beams supporting a bed of rushes or straw covered with the mat on which the corn was laid, and the outer boulders represent the low 'outer walls' surrounding it.

There is every indication that the bread oven formed an integral part of the original structure. The scarcity of reddened slabs from the missing dome of the bread oven in the rubble surrounding the kiln suggests that it may have been deliberately demolished, possibly for the construction of the oven that was later added to the lower fireplace in the longhouse, which as mentioned above may have been for convenience or because the kiln itself had become dilapidated and gone out of use. No precise parallels have been found for a structure which combines a corn-drying kiln and bread oven, though such structures were perhaps not unusual.[146]

The drying chamber of the kiln described by Walter Davies was clearly 'open' or unroofed, though it is not inconceivable that the traces of possible sill walls around the drying chamber at Penygraig may have supported a timber-framed superstructure. There was a long tradition of roofed buildings (*odyndy, odyn-ty*) known from Welsh medieval sources.[147] Kilns with thatched roofs continued in use into the early nineteenth century, as in the case of the 'small oat kiln, a stone building with straw cover' attached to a mill near Gogerddan, Cardiganshire in 1805,[148] as well as the kilns attached to farms described in the Board of Agriculture report for Stirlingshire in 1812:[149]

> Formerly kilns for drying victual were miserable hovels covered with thatch; every farmer had his own kiln; the grain was placed upon rafters covered with straw, and innumerable accidents happened by fire.

Two possible padstones to the west of the stokehole suggest that the stokehole and bread oven were roofed with a partly open-sided timber structure and thatched roof, perhaps taking the form of a detached bakehouse similar to extant French examples (e.g. Fig. 30a), though outdoor bread ovens with domed stone roofs were also common (e.g. Fig. 30b).[150] A detached bread oven or bakehouse, like the longhouse itself, is redolent, perhaps even in the seventeenth century, of a higher social status.[151] Baking in the lesser households of Wales had traditionally been carried out in an iron cooking pot or on an open hearth rather than in an oven, but between the seventeenth and nineteenth centuries bread ovens were being gradually introduced, either in detached bakehouses (*ty popty, ty-ffwrn*), or added to existing kitchen chimneys, or as a feature of kitchen chimneys in newly-built houses.[152] Bakers had become established in larger towns during the medieval period but were only beginning to appear in villages in southern Britain in the middle of the eighteenth century.[153]

Finds associated with the Penygraig farmstead

A relatively small assemblage of finds was recovered from the farmstead. The floors of the longhouse appear to have been kept fairly clean and many of the finds retrieved from the interior were mostly small

Fig. 30.
30a (*left*) Detached, half-timbered bakehouse (*fournil*) at Belen-combé (Seine-Maritime) with the domed oven to the left. **30b** (right) Freestanding bread oven (*four à pain*) at Kerfres Ergué-Gabéric (Finistère).

fragments that had become lodged in crevices between stones or next to walls.

The finds predominantly represent consumer goods purchased in the local market town of Builth, whose trade in the first decade of the nineteenth century was said to extend 'no further than supplying necessaries to the neighbouring farmers and peasantry, who flock thither on the market days'.[154]

Ceramics were available from a wide range of sources between the early decades of the seventeenth and the early decades of the nineteenth century. These included blackwares, Bristol/Staffordshire slipwares and red wares, lead-glazed earthenwares from western Herefordshire, earthenwares from the Barnstable and Bideford area of north Devon (probably via the ports of south-west Wales), as well as creamwares, and industrial pearlwares, with hand-painted or Chinese garden transfer patterns or mocha decoration. The final phase of occupation between about 1740 and the first decade of the nineteenth century is marked by industrial ceramics which show a preponderance of table and particularly tea wares—notably sherds of teabowls, teacups and a teapot—which point to the adoption of the manners and customs of eighteenth-century polite society. Other drinking vessels of this period include fragments of tankards, posset pots and mugs, whilst plates and dishes are generally poorly represented. The types of excavated context, which were dominated by floor and hearth surfaces, has undoubtedly favoured the retention of small sherds from smaller vessels, and helps to explain the small average sherd weight. The general scarcity of larger and thicker ceramics such as bowls and jars for use in the dairy or kitchen appears to be explained by cultural factors rather than disposal patterns, however, and may point to the kind of preference for wood, pewter or leather vessels that has been noted elsewhere in Wales during the medieval and earlier post-medieval periods.

Identifiable fragments of clay tobacco pipe were possibly all made in Broseley, Shropshire, in the period 1630–1730, and showed an interesting concentration on the northern side of the parlour floor. This seems to confirm a suspicion that the ceramic finds were generally lost where they were broken within the farmhouse but does not explain the absence of later eighteenth or early nineteenth-century tobacco pipe forms, though this may have been due to religious conviction: during the second half of the eighteenth century all the major landowners in the parish of Llanelwedd had strong dissenting sympathies.[155] This may help to explain the relative scarcity of bottle glass: only a single sherd from a wine bottle was found, though a number of small sherds of pharmaceutical glass from both round and rectilinear phials were present. The only identifiable child's toy is a single ceramic marble.

Social and economic aspects of Penygraig

The earliest documentary evidence of the economy of the farmstead which has been traced dates to the later seventeenth century. Its social and economic status when newly built in the earlier seventeenth century can be gauged by comparison with a number of late medieval Radnorshire hallhouses that had been converted into longhouses. Penygraig falls at about the middle of the range in terms of the size of the ground-floor accommodation for humans and beasts in the seventeenth century (Table 1). If the upper floor is taken into account, the sleeping accommodation at Penygraig would have exceeded that available in large hallhouses such as Nannerth-ganol and Llannerch-y-cawr as first built in the fifteenth or sixteenth centuries.

The evolution of the longhouse from peasant hallhouse in parts of Wales in the sixteenth and seventeenth centuries has been interpreted as a direct response to an upland cattle ranching economy—the provision of accommodation for farmers and animals below the same roof providing vital breeding stock with protection both from the weather and from theft during the winter months. Their construction clearly represents a significant investment in capital at a time when the production of cattle ready for market was highly profitable.[156]

Although nothing is known of the internal layout of the cowhouse at Penygraig, comparison between its floor area (*c.* 62m^2) with well-documented examples at a number of eighteenth-century Radnorshire farms[157] suggests that the Penygraig cowhouse could have accommodated up to 20 cattle, a figure comparable with the herd sizes associated with some of the larger Radnorshire peasant hallhouses or longhouses in the sixteenth and seventeenth centuries.[158] Probate inventories indicate that most Radnorshire farms in the seventeenth century also held flocks of sheep, in the ratio of between about 1:5 and 1:10,[159] which would have been housed outdoors throughout the year. Thus, in terms of building size alone, it is reasonable to suggest that the livestock belonging to the farmstead at this date might have numbered up to 20 head of cattle and several hundred sheep.

In 1672 Penygraig was in the ownership of the Gwynnes of Llanelwedd Hall.[160] No earlier occupants have so far been identified. The hearth tax returns for Llanelwedd in 1666 suggest that in possessing two hearths the farmhouse was one of the largest in the parish of Llanelwedd and was probably occupied by either Lettice Prothrough or Thomas Powell.[161] Its first certain tenants are over a century later, when it

Table 1. Comparative ground-floor areas and altitudes of some Radnorshire longhouses

	Farmhouse size (m^2)	Cowhouse size (m^2)	Total size (m^2)	Altitude
Nannerth-ganol[1]	63	88	151	250
Llannerch-y-cawr[2]	62	62	124	268
Penygraig	**56**	**62**	**118**	**280**
Upper Cwmrhingyll[3]	56	54	110	345
Upper Llaneon[4]	53	50	103	237

Notes

Comparative dimensions, sometimes from reconstructed plans, are after Suggett 2005, as follows: 1 – fig. 197; 2 – fig. 204; 3 – fig. 205; 4 – fig. 215. Farmhouse size is an estimate of the domestic occupation on the ground-floor, including chimneys etc.; Cowhouse size is an estimate of the ground-floor of the remainder of the longhouse, including hearth passages, walkways etc.

was still in the ownership of the Gwynnes. The will of Marmaduke Gwynne, heir to the Gwynne estates of Llanelwedd and Garth (Breconshire) dated 1788,[162] refers to the 'Messuage Tenement and Lands with the appurtenances commonly called and known by the name of Pen y Graig' then 'in the holding of Jeremiah Price his undertenants or assigns', though Jeremiah Price had in fact died five years previously, in 1783.[163] The precise nature of the tenancy is unknown, but given that the farmhouse probably lay on common land in the late eighteenth century (see below), its lease is likely to have been subject to rent, labour services, share-cropping or lifeleasehold agreements, for example.[164]

Jeremiah Price was a farmer of some substance. He styles himself 'yeoman' in his will and on his death his personal wealth was £561,[165] which places him in that relatively numerous class of well-to-do Radnorshire farmers that existed towards the end of the eighteenth century.[166] He had financial dealings with a number of Radnorshire gentlemen and was thus able to bequeath in his will bonds to the value of £150 with interest owing from his landlord, Marmaduke Gwynne, esquire, of Llanelwedd Hall, and a bond of £100 owing from Richard Stephens, gentleman, of Garth in Nantmel. The nature of these bonds has not been identified but it is conceivable that the one with Marmaduke Gwynne may have been in connection with a tenancy agreement for the Penygraig holding. The bonds were presumably included in the high sum of £482 held in cash listed in his probate inventory. His will also shows that his family comprised a wife, five sons and six daughters (four of whom were married). It was one of the larger households in the parish at this period: the 1801 census gives the population of Llanelwedd as 146, made up of 25 families occupying 23 houses, which represents an average household size of just over 6 individuals. The family is said to have been related to the Prices of Carneddau Farm,[167] about 300m to the north (Fig. 1b).

Jeremiah Price's will gives no clear indication, perhaps because of the nature of the tenancy, that his heirs would continue farming at Penygraig following his death: his wife was specifically bequeathed the ewes, but these were possibly to be moved elsewhere. The farm was subsequently tenanted by a Rees Protheroe 'for a short time. After his day Pengraig [sic] was allowed to fall into decay'.[168] Other neighbouring farms and crofts such as Tirmynydd (Fig. 31) were also abandoned at this date.[169]

The probate inventory of Jeremiah Price's goods and effects following his death in March 1783 provides some insight into the farm's economy at that date:[170] livestock consisted of 3 cows, 2 heifers and a calf, 2 mares and a colt, and 70 sheep, pigs and poultry. Only a relatively small sum is given for 'implements of husbandry' and there is no mention of harness, saddles or vehicles. Nor is there any mention of grain or hay in the inventory, but this may have been because few human or animal foodstuffs were being stored at the farm at this time, perhaps because of the time of year when the will was proved, or possibly because such goods were to be amongst the unvalued goods and chattels about which there was no dispute and which were to be divided equally amongst his wife and children.[171]

This suggests that by the late eighteenth century Penygraig had become a relatively modestly-sized sheep farm perhaps combined with small-scale dairying. No mention is made of beef cattle, which might either again be a reflection of the time of year or that weaned calves were sold for fattening elsewhere. Two horses were kept possibly for transport and occasional tillage.[172]

Plant remains from the substantial corn-drying kiln and bread oven suggest the production of oats, barley, rye and bread wheat, and possibly also peas and brassicas at the farm and that earlier in its existence the farmstead had had a relatively mixed farming economy, but there are hints (see above) that cereal production had dwindled in importance by about the middle of the eighteenth century.

It is evident from Walter Davies's Board of Agriculture reports that barley and oats and some rye were the predominant cereals consumed in the region during the eighteenth and earlier nineteenth centuries.[173] Grain production in Radnorshire as a whole at the beginning of the nineteenth century was said to be 'barely sufficient for the subsistence of the inhabitants'.[174] This would have been even more true of upland farms such as Penygraig, but there are hints from commentators such as the Radnorshire historian

Jonathan Williams, writing in the first decades of the nineteenth century, that at that time the growing of corn in the uplands was something carried out long in the past:[175]

> Parts of these open commons have evidently been heretofore in a state of aration, lying in open ridges and furrows, with generally the remains of hedge banks, and with faint traces of buildings. Some think that these lands, having been in a state of permanent enclosure, were thrown up again to a state of commonage through a decrease in the population of the county … . Others suppose that the lands were let by the ancient … lords to their respective tenants for the purpose of taking one or more crops of corn, after they had cleared the wood and adjusted the surface; and their suffering the land to revert to a state of grass and commonage.

Despite the absence of clearly defined arable fields or cultivation ridges associated with Penygraig it is clear that cultivation of hill land had taken place where circumstances permitted. As noted above, fieldwork has shown that up to about 6.5 hectares (16 acres) of flatter land within the three embanked enclosures attached to the farmstead, are associated with clearance cairns which provide evidence of episodes of cultivation (Fig. 31).

Eighteenth- and nineteenth-century average yields and consumption rates suggest that cultivation was on a subsistence basis. Assuming that cultivation was on a periodic or rotational basis, possibly only 5.3 acres, a third of the cultivatable land, would have been planted for cereal in any one year. Walter Davies quotes yields of between 9–20 bushels per acre for spring sown barley at the beginning of the nineteenth century, 80 pounds being the required weight per bushel at the Builth mills.[176] Working on the assumption that yields at Penygraig would have fallen at the lower end of this scale (the yield quoted for upland farms on the Epynt often being very low)[177] suggests that the yield in any one year might have been about 3,800 pounds of unmilled barley,[178] which would have given about 2,960 pounds of flour.[179] National average consumption rates of cereals by agricultural workers at the beginning of the twentieth century were 308 pounds.[180] On this rough basis, the areas of cultivation at Penygraig may, at most, have supported a family of 9.6 individuals.

The estimate of cereal yields quoted above are also helpful in giving an indication of the extent to which the Penygraig corn-drying kiln would have been put to use in any one year. In the case of the slightly larger corn-drying kiln described by Walter Davies (see above) it was said that ‘twenty-two quarters of grain … are dried thoroughly in 21 hours’. Working again on the assumption that 5.3 acres yielded 9 bushels of barley per acre annually, this suggests that the corn-drying kiln would have been in use for 6 days or more in the year.[181] Grain is likely to have been milled at the Llanelwedd watermill on the river Wye, a kilometre to the south, which was in operation from the early seventeenth century,[182] or at one of the several mills at Builth.[183]

Evidence from Penygraig helps to define more closely what must have been a common though poorly documented economic farming unit in mid Wales in the seventeenth and eighteenth centuries—that of the small upland farm established by mutual consent on the upland commons prior to enclosure. This was a period which saw an acceleration in the enclosure of hill land.[184] This process was particularly marked in Radnorshire, which until the beginning of the nineteenth century had a greater proportion of open wastes than any other county in South Wales: these were said to occupy nearly two-thirds of the entire county and amount to nearly twice the area of enclosed land.[185] It seems likely that the three embanked enclosures together define an area of 80 acres of the former Carneddau upland common that became reserved for the exclusive use of the farmstead by the end of the eighteenth century. This is comparable with the size of the neighbouring freehold and leasehold farms such as Carneddau, Maengowan, Newmead and Gelli Cadwgan as given in the Tithe apportionment schedule: these average about 90 acres each, though these

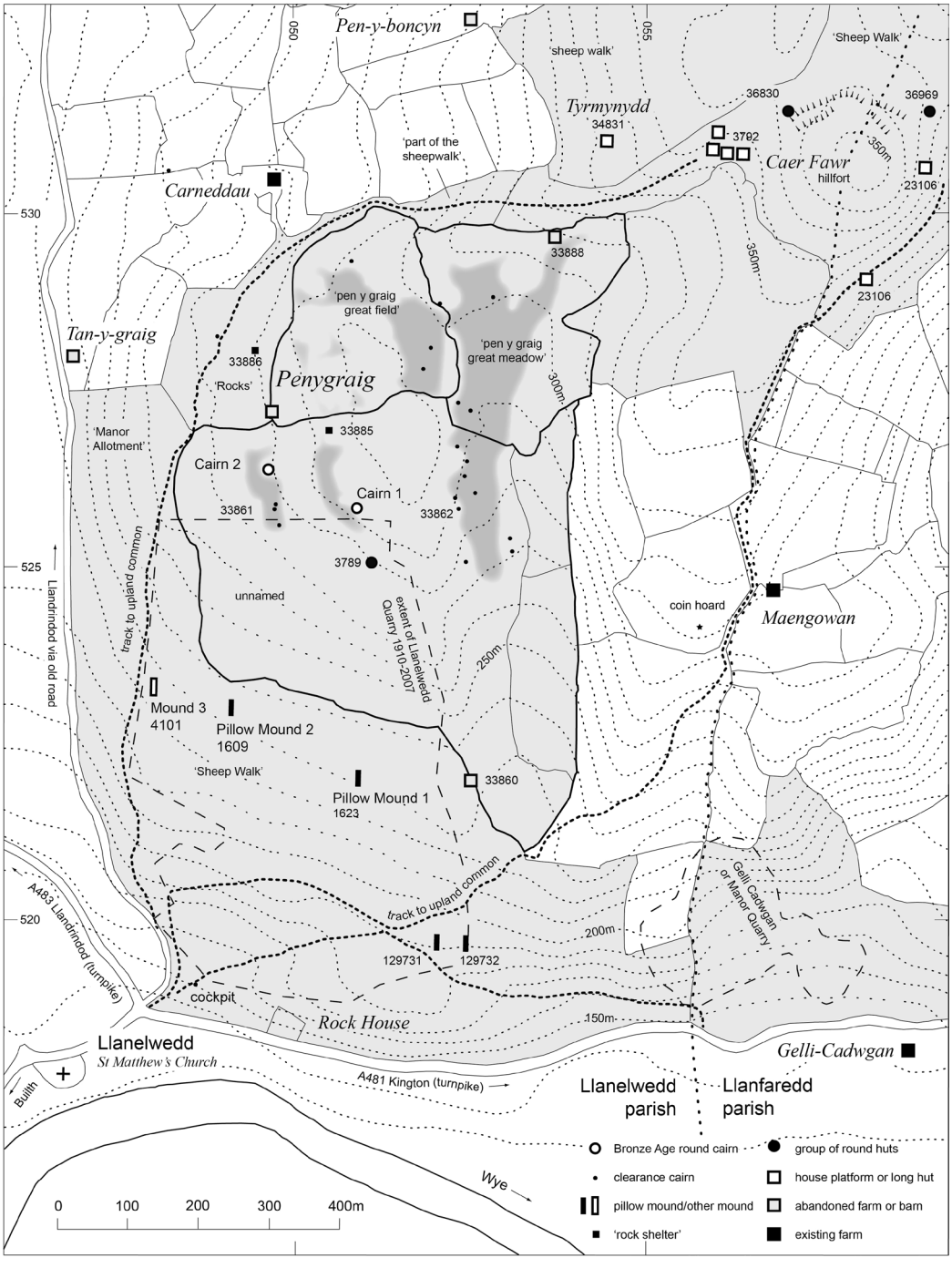

Fig. 31. Sites on Llanelwedd Rocks: assumed extent of former common (lighter shading); potentially cultivatable land (darker shading); boundaries from OS (1879); field names from Tithe (1843).

farms generally held a lower proportion of hill land. It is also consistent with the observation in Walter Davies's Board of Agriculture report on South Wales that 'the general run of the smaller farms is from 30 to 100 acres: and the average of the whole district may be between 50 and 60 acres'.[186] Enclosure of hill land would have enabled farms such as Penygraig to protect cereal or hay crops and firewood; but it was probably only at the very end of the farm's existence that other benefits of enclosure being promoted by the advocates of the 'New Husbandry'—such as of soil fertility and controlled breeding[187]—would have become widely appreciated.

Cultivation on the upland margins was often a short-lived phenomenon, however, as appears to have been the case at Penygraig. Many agricultural commentators of the eighteenth century were sceptical about the efforts made to increase productivity. Walter Davies talked of resources wasted in trying to improve the unimprovable: 'and their farms, too hastily reported to be permanently improved, have reverted to the state of nature'.[188]

Sheep were becoming a dominant element in the pastoral economy during the course of the eighteenth-century,[189] but the presence of the longhouse form at Penygraig, as elsewhere around the Radnorshire uplands, show that many farms were established as cattle farms, the form of the building enabling farmers to maximize the number of cattle they could maintain throughout the year: cattle grazed on the upland commons in the spring and summer were brought down to the shelter of the farmstead in the autumn and winter. Walter Davies in 1815 remarked that 'frequently a sheep-walk upon the mountains, attached to a farm, is of more value to the farmer than the farm itself'.[190] Similar views were expressed by John Clark, the author of the Board of Agriculture Report for Radnorshire published in 1794 and by Benjamin Malkin in the record of his excursions in south Wales in 1803:

> Cattle and sheep are such staple articles, that the rate at which farms are let is very much governed by their possessing or not possessing right of mountain: and as the best land for tillage in general is not that which lies contiguous to these black and barren mountains, this circumstance occasions the apparent absurdity, that some of the best land in the county is let at a lower rent than some of the worst.[191]

Access to upland pastures, extending above and beyond the enclosed lands, was unquestionably the vital element that enabled farmers such as Jeremiah Price in the 1780s and his forebears at Penygraig to derive modest status and wealth from relatively small upland holdings. The Penygraig longhouse, corn-drying kiln and bread oven represent a significant investment, which can only have been made with some assurance of security of tenure and a good economic return, and no doubt at a time when rearing of 'prime cattle'—cattle ready for market—was at its most profitable. Although in early nineteenth-century Radnorshire there were said to be 'no markets near', the cattle were 'taken out of the county by drovers, at no expense to the farmers; but if these chuse to drive the cattle to England, the beasts carry themselves'.[192] A hint of the profitability of upland farming in the area in the last decade of the seventeenth century is given by the hoard of 672 silver coins probably hidden by the occupants of the neighbouring upland farm at Maengowan (Figs 1, 31).[193]

Enclosure of land associated with Penygraig

The history of the enclosure of marginal hill land is often poorly documented. However, by combining documentary evidence with that from field survey and excavation at Llanelwedd Rocks[194] it is now possible to identify some of the processes at work in what is likely to have been a relatively short but intensive period of exploitation of the upland edge of mid Wales in the seventeenth and eighteenth centuries.

Seasonal exploitation of the upland pastures of Carneddau during the medieval and early post-medieval periods is indicated by a cluster of house platforms and long-huts near Caer Fawr, towards the summit of the ridge (Fig. 31). Sites of this kind are relatively numerous in Radnorshire and Breconshire[195] and were probably *hafodydd/hafodau* ('summer dwellings'), seasonally occupied upland dwellings attached to lowland farms (*hendrefydd/hendrefi*). It is significant that they lie close to ancient trackways crossing Llanelwedd Rocks from the Wye valley near Llanelwedd (Fig. 31).[196] The origins of transhumance may well be even earlier and represented by the cluster of round huts that are also found here (Fig. 31), which are likely to be of prehistoric to early medieval date, and by the hillfort of Craig Fawr itself,[197] which is one of a number of strikingly similar smaller defended enclosures that crown various summits along Carneddau.[198] Even earlier evidence for settlement and land use is represented by the Neolithic occupation site below Pillow Mound 1 dating to about the first half of the fourth millennium BC (see below), the Llanelwedd Rocks Cairns 1 and 2, dating to the period *c*. 2100–1600 BC, and by a single pottery sherd (Fig 42, no. 7) dating to perhaps the last century BC or the first century AD found close to Llanelwedd Rocks Cairn 1.

The Carneddau hills were the subject of 'An Act for inclosing lands in the parishes of Disserth and Llanelweth' of 1812,[199] relating to an estimated area of 920 acres of commons and wastes. Although no award is recorded,[200] it is evident that enclosure must have proceeded by the agreement of the principal landowners involved, who included Thomas Thomas (Pencerrig), David Thomas (Wellfield), Marmaduke Howell Thomas Gwynne (Llanelwedd Hall), and 'several other persons'.[201] Walter Davies in *A General View of the Agriculture and Domestic Economy of South Wales* published in 1815,[202] in fact tabulates 1600 acres as having been enclosed in the two parishes in 1811, of which 500 acres were said to lie within the parish of Llanelwedd and the remainder the neighbouring parish of Disserth. Before enclosure the common grazing rights on Carneddau were shared between the neighbouring parishes of Llanelwedd, Disserth, Llansantffraed-in-Elvel and Llanfaredd.[203] The extent of this former upland common is suggested by the extant common land in Llansantffraed and Llanfaredd to the east (which were not subject to enclosure acts) and by what appear to be relatively late intakes of upland pasture in the Llanelwedd and Disserth to the west, which together amount to about 550 acres (Fig. 32). (There is little other mountain land below 250 metres within Llanelwedd parish to which the enclosure act of 1812 might allude.) The pattern of ownership given in the Llanelwedd Tithe apportionment schedule of 1842 confirms that the Carneddau upland common falling within the parish of Llanelwedd was allotted to neighbouring freeholders in proportion to their existing holdings, the greater portion of the land, which includes the Penygraig farmstead, being owned by Llanelwedd Farm, the estate farm of the Gwynnes of Llanelwedd Hall and Garth[204] and leased to James Price, owner of the neighbouring Carneddau Farm.

Penygraig and possibly two contiguous holdings (see above) represent a relatively short-lived phase of enclosure that had evidently come and gone before the enclosure act of 1812 had been drafted, and no doubt represent one of the novel forms of land tenure that had evolved in the later sixteenth to early seventeeth centuries, by agreement with major landowners, from earlier transhumance systems. This involved the creation of small tenanted farms, associated longhouses and banked enclosures on the margins of the upland commons. These farms permitted land improvement and small-scale arable farming and possibly also haymaking and the management of winter grazing inside the enclosed ground, combined with the continued exploitation of the adjacent upland commons in summer. The siting of the longhouse on the boundary between unenclosed and enclosed ground is similar to that of medieval and early post-medieval hallhouse-longhouses in Radnorshire[205] but here the enclosed ground lies above rather than below the longhouse.

The three banked enclosures respect the trackways leading to the top of the upland common from Llanelwedd (Fig. 31) and also appear to have been set out in relation to the rabbit warren (see below)

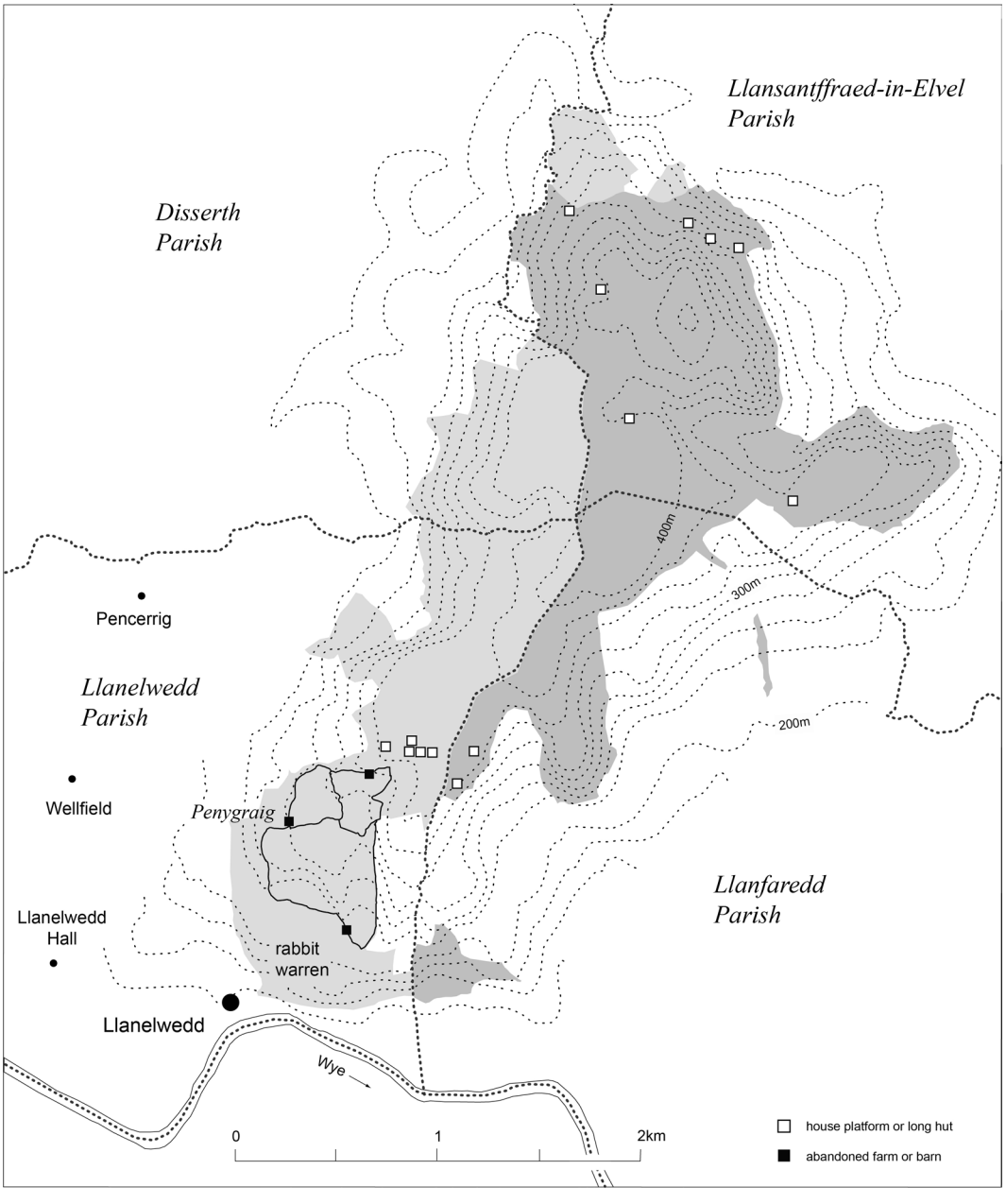

Fig. 32. Reconstruction of the former extent of Carneddau commons. Darker shading represents existing common land; lighter shading represents assumed extent of common land prior to enclosure act of 1812.

established on the common land at the southern end of the hill between perhaps the later seventeenth and mid eighteenth century by the Glynnes of Llanelwedd Hall who appear to have already assumed manorial rights and rights of ownership over the southern portion of Carneddau well before the passing of the enclosure act.

This form of land holding is likely to have followed the decline, or precipitated the end of, the customary *hendre*/*hafod* land-use system, but was probably itself fairly short-lived. Marginal farms such as Penygraig would inevitably have been the most vulnerable to the various pressures that were leading to the disappearance of many smaller farms across Britain during the later eighteenth and nineteenth centuries.[206]

THE LLANELWEDD ROCKS RABBIT WARREN

Background history

The earliest published reference to the long mounds belonging to the Llanelwedd Rocks rabbit warren[207] appears in the introduction to the published script for the Builth Wells Pageant of 1909. The pageant was performed in the grounds of Llanelwedd Hall belonging to Marmaduke G. Howell, on the site now occupied by the Royal Welsh Showground. The section on 'Episode I' of the town's history (beginning with the arrival of trilobites and ending with the departure of the Romans) states that during one period of prehistory people were 'buried in long mounds' of which 'at least thirty' can be seen 'close to the town of Builth'.[208] A similar description, relating to the 'extreme south spur of the Carneddau chain', appears in the Revd Edmondes Owen's posthumously published notes on antiquities of the parish of Llanelwedd, probably written during the period of his incumbency between 1900–11. Here, Edmondes Owen took the view that the mounds represented 'what was probably the great Necropolis of our rude and remote ancestors', and records that 'no fewer than 30 long tumuli are still visible within a radius of half-a-mile from Llanelwedd Church'.[209] He continues by saying:

> They vary in length and width and height. They are quite uniform in shape. They observe no orientation but are all placed in the full light of the mid-day sun. Some are 95ft. long, 3ft. high and about 18ft wide. Others are only 20ft. long 8 or 9ft. wide and not quite 2ft. high. A few are almost entirely obliterated and can be seen only from certain points of vantage in the winter when unscreened by ferns.

The longest of the mounds, which has not been located, was said to show 'signs of careful excavation at some distant date' which he speculated may have been undertaken by the cleric and author Edward Davies ('Celtic Davies', 1756–1831) who was born and educated a short distance away.[210] Edmondes Owen also noted that the sites were visited by the Radnorshire antiquary, architect and engineer Stephen Williams (1837–99), who is said to have 'carefully examined these mounds more than once and sent graphic descriptions of them to well-known antiquarians'; Williams wisely, however, 'never volunteered his own opinion beyond that they were old burial places'.[211] Williams probably took an interest in the mounds whilst he was engaged as a surveyor for the Elan Valley reservoir scheme (1893–1906) which used stone from the Gelli Cadwgan (or Manor) quarry,[212] the earlier large-scale quarry just to the south-east of the modern Llanelwedd Quarry.

Edmondes Owen records various folk tales about the mounds, saying that they were 'by some of the old people called Druid's graves' and that others had considered them to be the graves of those who had died in battle between the Welsh and the Normans. He states that 'no parishioner remembers anything

done to or written about them' but proceeds to record (though unaccountably only to dismiss), what was undoubtedly his most reliable source:[213]

> One theory however is disconcerting. A farmer, whose family has lived at the foot of these rocks for the last 60 years, declares on the testimony of his father, long since dead, that these mounds were made by the Squire of Llanelwedd Hall to provide burrowing ground for the many hundreds of rabbits that he introduced into this parish some 70 years ago. These mounds, he says, at that time were covered with huge piles of wood to provide shelter for the rabbits. Against that theory is the testimony of several parishioners who distinctly remember the first introduction of rabbits into this district and who had played about those mounds years before that even. They all maintain that the mounds looked exactly the same 75 years ago as they do to-day. They are willing to admit that the mounds may have been covered in the way stated to home the rabbits, but they are sure they were not made for that purpose.

Edmondes Owen 'opened' one of the mounds in June 1903, in excavations he described as 'neither thorough nor extensive'. The excavations were not published, and only slight details are given by him in his posthumously published notes on the antiquities of Llanelwedd:[214]

> The total absence of human remains, and the presence of charred wood and small bits of burnt bone spoke of burials in a much more remote past than the middle ages and under conditions very different from those then in vogue.

Further details, presumably based on correspondence with Edmondes Owen, are given in a discussion of 'The Neolithic Period' in the Introduction to the Montgomeryshire Inventory published by the Royal Commission in 1911, which perpetuated uncertainties about their dating:

> In the course of the Commissioners' visit to the county of Radnor, which occurred at a date [August 1911][215] prior to that upon which the Montgomeryshire mounds were inspected for the Commission … their attention was directed to a number of mounds … in the parish of Llanelwedd. A few years previously one of them was opened transversely, disclosing a trough-like cavity which was believed to run through the mound from end to end. The bottom layer of stones forming the cavity was said to have been covered with a dark greasy deposit which on being subjected to microscopic examination was found to contain minute pieces of bone.[216]

Some further information about the long mounds and their context can be gleaned from documentation relating to what was called 'the Battle of the Rocks',[217] waged between 1909–11, which initially saw Edmondes Owen, Marmaduke G. Howell (the owner of the Llanelwedd Estate) and the Royal Commission—who all still considered the mounds to be ancient graves—pitted against the Small Holdings Committee of the neighbouring Breconshire County Council and the Board of Agriculture and Fisheries. A compulsory purchase order for the establishment of smallholdings on an area of Llanelwedd Rocks had been served on Marmaduke Howell in 1909. In mustering support against this proposal Marmaduke Howell wrote to Sir John Rees, chairman of the Royal Commission, in November 1909.[218]

> There are no less than ten long mounds (graves). One Cairn and an old well defined Cockpit situated in the area. There is in fact no agricultural land capable of cultivation on these Rocks. No Plough or spade could be used on it. With its superficial soil its numerous boulders & outcropping strata they are the least suitable site for Small Holdings in the neighbourhood. The very <u>existence</u> of these old

> mounds & graves is entirely due to the fact that this land has always been regarded as quite unfit for cultivation. . . I respectfully crave the aid & support of your Commission in preserving in-tact the Llanelwedd Rocks with its old mounds and graves (which have escaped the levelling effects of the plough & harrow for these last 2000 years) for future generations.

The secretary of the Commission, Edward Owen visited the mounds in the company of Edmondes Owen later in the same month, noting:

> On the plot of ground in question are 10 or 12 long low mounds which it is difficult to conceive can be anything but sepulchral.[219]

Public inquiries into the proposed smallholdings were held in 1910 and 1911 at which the Royal Commission's views regarding the preservation of the mounds were expressed.[220] Following a site visit it was agreed that a 'line would be so drawn as to leave all they were interested in perfectly intact'.[221] A sketch plan of the proposed smallholdings drawn by the Board of Agriculture shows the position of two otherwise unrecorded pillow mounds (annotated as 'graves') about 30–40m apart (Fig. 31, nos 129731, 129732).[222]

Marmaduke Howell had other motives for opposing the creation of smallholdings: by December 1909, the month following his plea to Sir John Rees, he had leased Llanelwedd Rocks for quarrying 'with a right of any part of the rocks' for a period of 21 years to a Mr T. Lant of Newcastle-upon-Tyne.[223]

A further description of the mounds, again classed as 'Long Barrows', based on a visit on 6 August 1911, appeared in the Radnorshire Inventory published in 1913, together with further speculations about their function and dating:

> At the southern termination of the hilly district called 'Carneddau,' upon the sunny side of the hill sloping to the river Wye, and almost directly opposite to the town of Builth, are a number of long low mounds which have been reputed to be sepulchral barrows. They occur in groups of eight or ten together, and as a rule are ranged side by side. Their average length is 14 feet, and with a breadth of from 3 to 4 feet. Many of the mounds have a stone at each end, as though it was intended for a terminal, and from the evidence afforded by one that was uncovered some years ago, it would seem that a rudely formed stone trench runs through the centre from one end-stone to the other. The trough was not roofed over with flag stones, but the earth is said to have been intermixed with what appeared to be burnt bones. The groups of mounds are not orientated, but have their direction arranged according to the lie of the ground. They are not known by a specific name, nor is there any tradition connected with them, except that they are spoken of as graves; it is, indeed also suggested that they are mounds thrown up for the shelter of rabbits about a century ago, when considerable attention was devoted to the breeding of those animals.[224]

Elsewhere, the Commission recorded that the mounds were 'scattered over the lower folds of the hill'[225] but again their precise number and distribution was not recorded[226] and some details, such as their average dimensions, conflict with Edmondes Owen's account. As elsewhere in Britain, a sepulchral origin evidently continued to be preferred for many of these long mounds well into the twentieth century.[227]

The area of Llanelwedd Rocks was leased for quarrying by the landowner 'with conditions safeguarding the mounds' in 1910, though it was 'feared that such work … may lead to their disturbance'.[228] The mounds were noted but without further detail in the 1930s by Bryan H. St J. O'Neil, Chief Inspector of Ancient Monuments.[229]

Rescue excavations between 1965–70[230]

By the mid 1960s most of the Llanelwedd long mounds had been quarried away, a fate shared by a number of other Welsh groups of pillow mounds.[231] By that time only four mounds survived (Fig. 31, nos 4101, 1609, 1623 and 33864, the last unlocated). These were the subject of a rescue campaign mounted by the late Jack Spurgeon, Royal Commission Investigator, on behalf of the Ministry of Public Buildings and Works, in advance of further quarrying, and undertaken with the help and assistance of the quarry staff.[232]

Pillow Mounds 1 and 2, which were just over 200m apart, both proved to have internal stone settings (undoubtedly similar to the setting identified within the unlocated mound excavated by the Edmondes Owen in 1903) of a kind now recognized as a diagnostic feature of pillow mounds, though the interpretation of Mounds 3 and 4 is less certain. Ironically, the south-western terminal of Pillow Mound 1—just below the point at which the stone alignments were elaborately splaying outwards—directly overlay features associated with a significant assemblage of Neolithic pottery and lithics. This also happened to be the very time when British archaeology was abuzz with the discovery of axial and linear settings of stakes within the Neolithic long barrows at Beckhampton Road and South Street, Wiltshire, which superficially resembled the plan of the stone settings found in Llanelwedd pillow mounds. These coincidences, combined with a dearth of literature on the subject of pillow mounds, encouraged Spurgeon, to entertain the view that Pillow Mound 1 at least might represent or incorporate a Neolithic long barrow, possibly superimposed upon and respecting a former habitation site.[233]

These lingering uncertainties in the mind of the excavator, combined with his other commitments, contributed to delay in publication, despite the preparation of publication plans and sections.[234]

Pillow Mound 1

Rescue excavation and recording of this mound[235] in advance of quarrying were carried out in 1965–68 (Fig. 33).[236] The mound was 90ft long by 16ft wide and 3ft high (27.4m × 4.8m × 0.9m) with quarry ditches about 2.6m wide along each side. It was aligned approximately south-west to north-east and lay on a flat shelf on the hillside overlooking the Wye and Builth Wells, at a height of about 230m.

Artificial burrows were represented by lines of stones beneath the mounds and slightly larger stones which capped the burrow entrances around the edge of the mound, some of which were visible in the sides of the mound prior to excavation (Figs 34–36). Along the axis of the mound were three lines of stones spaced about 2ft (0.6m) apart. On the southern side of the mound were 10 or 11 transverse lines of stones about 4ft (1.3m) in length and spaced at intervals of about 9ft (3m) which ran from the outer edge of the mound up to and seemingly in some instances beyond the southernmost axial line. At either end of the mound the transverse lines of stones were aligned upon the corners rather than the side of the mound. The northern side of the mound was partly cleared by machine but is likely to have had a similar arrangement of burrows, as suggested by a number of slabs probably marking burrow entrances recorded in this side of the mound prior to excavation. Alternatively, the transverse settings may represent L-shaped burrows, to either side of a single axial line. This is perhaps confirmed by Pillow Mound 2 which lacks a central spine but where several L-shaped burrows appear to be indicated.

There is some uncertainty about the stratification of the lower part of the mound. It is usual for the artificial burrows to have been dug into the pre-existing ground surface then capped by stone and superimposed by the mound. In this instance, however, it is said that the mound consisted of ‘an upper and lower layer of gravel between which were laid a complex pattern of stones’,[237] the lower layer being described on section drawings as a layer of ‘gravelly earth’, between 0.1m and 0.3m thick, overlying the buried ground surface.[238]

The central axial line of stones was broken by a steep-sided pit, 6ft by 4ft (1.8m × 1.2m) across. This had been cut through the mound and ‘into the natural clay’ and had been subsequently filled with layers of soil.

Fig. 33. Llanelwedd Rocks Pillow Mound 1: view from south-west prior to excavation. *Photograph: © Crown copyright, RCAHMW: Llanelwedd Pillow Mound Excavation Archive.*

The only potential dating evidence from the mound itself was the bowl of a clay tobacco pipe, dated to *c*. 1670–80 (Fig. 44, no. 6), which came from a position within the body of the mound just above the level of the central spine of stone at the north-west end of the mound at a depth of 1ft (0.3m)[239] (see location on Figs 34, 36).

Below the south-western end of the mound was what is described as a circular depression or circular occupation area about 10ft [3m] in diameter, filled with a layer of 'black gravel and earth' said to be 'thick with charcoal flecks' in places.[240] This was overlain by what is described as a low mound of 'brown gravel and small stones'. Section drawings show the occupation layer was about 0.2m thick and that the low mound above it was about 3.5m by 4m across (Figs 36–37). Although no certain structural evidence was identified, a series of what are called 'burrows?' or 'postholes?', up to 6in (0.15m) deep, were recorded in the subsoil surface below the circular depression, the surface of which was said to have been dished (Figs 35b, 37).[241] The soil layer was associated with spreads of stone, one group of which, towards the western side, it was suggested, might indicate the 'rough line of hut wall'.[242] The evidence suggests a possible building structure in an area about 3m by 4.5m across. Though no hearths are mentioned specifically in the site archive, the section drawings show a 'reddened patch' on the eastern side of the occupation layer (Fig. 36).

About 100 sherds of coarse pottery, mostly very small, were recovered from the occupation layer, including a number of rim sherds (Fig. 42, 1–3, see location on Fig. 37), a small number of pieces of flint[243] and a pebble said to 'show signs of use as a rubber'.[244] The pottery can be paralleled at other earlier Neolithic sites in Wales of about the first half of the fourth millennium BC (see report by Lynch and Darvill, below). The distribution of pottery and flint, as recorded in the site notebook, is concentrated towards the southern side of the occupation layer (see Fig. 37), and includes a single flake of flint below

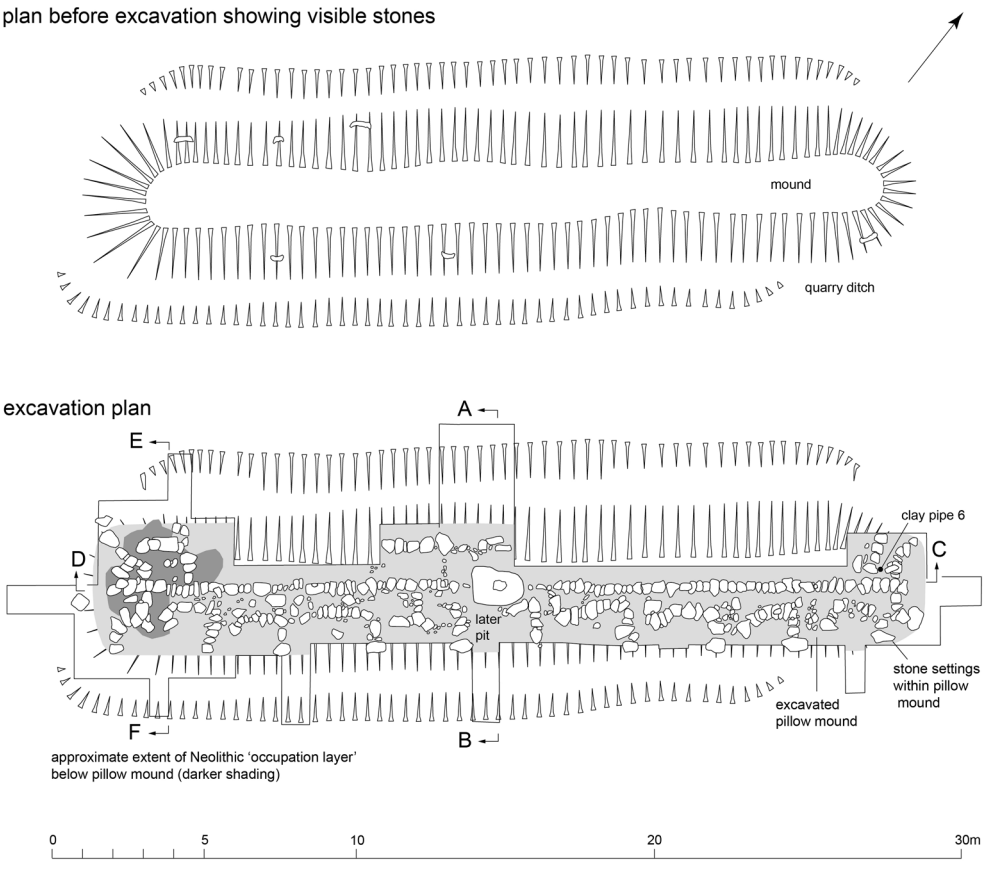

Fig. 34. Llanelwedd Rocks Pillow Mound 1: plan before and after excavation. See Fig. 36 for sections A–B and C–D and Fig. 37 for section E–F. See Fig. 44 for clay pipe no. 6. Based on archive and unpublished drawings by C. J. Spurgeon.

the north-eastern end of the mound. Charcoal is said to have been 'common on old ground surface under the mound and particularly on hut floor' and a possible carbonized nutshell and a fragment of burnt bone are also recorded as having been found in this layer.[245]

Pollen analysis of the buried soil below Pillow Mound 1 was undertaken by Dr C. B. Crampton of the Soil Survey of England and Wales in 1966. The profile showed 'about 50 per cent heather, about 30 per cent birch, alder, ash, and oak, about 10 per cent cultivated grasses, and about 10 per cent plantain' and was considered to constitute 'the first evidence of cereal-growing by Neolithic peoples in Wales'.[246] The precise location of the sampled deposit is not given by Crampton in his published note, however, and is not recorded in the site archive. Cultivation on the hillside implied by cereal pollen and weeds of cultivation (plantain) might therefore be of much more recent date.

Pillow Mound 2

Rescue excavation and recording in advance of quarrying were carried out between 1967 and 1970 on a second long mound[247] at a height of about 235m, recorded as having been 90ft long, 20ft wide and

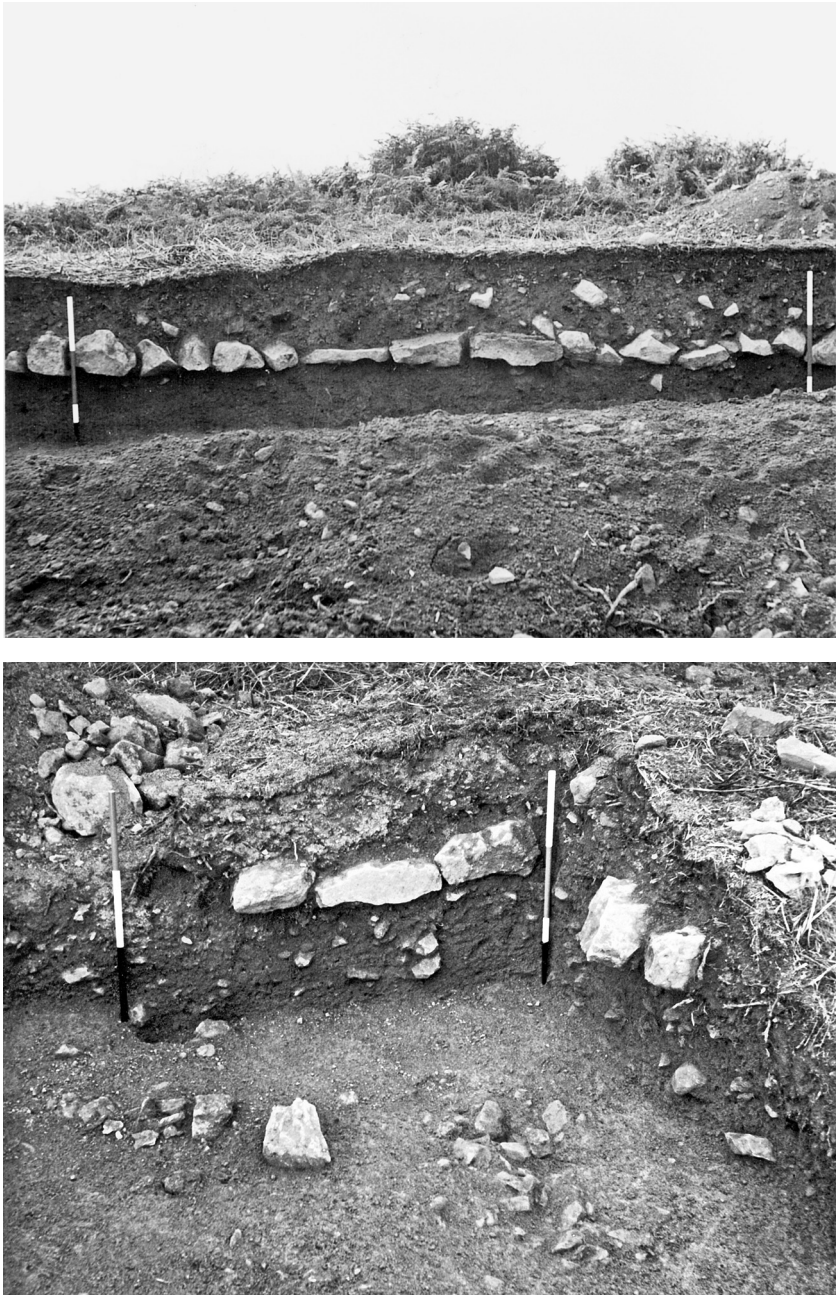

Fig. 35. Llanelwedd Rocks Pillow Mound 1.
35a (*top*) Part of section showing central spine of stones (scales with 1ft divisions). *Photograph: © Crown copyright, RCAHMW.* **35b** (*bottom*) Section of south-west end, viewed from the south-east, showing the end of the of the axial line overlying Neolithic occupation layer (scales with 1ft divisions). *Photograph: © Crown copyright, RCAHMW: Llanelwedd Pillow Mound Excavation Archive.*

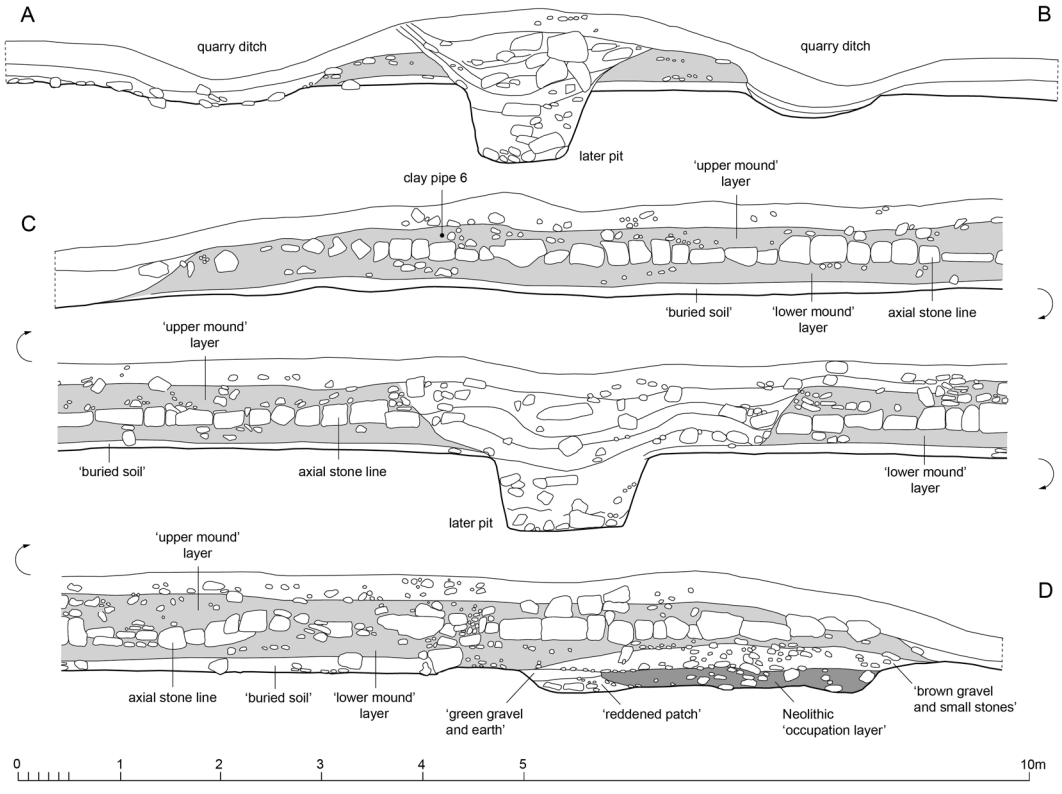

Fig. 36. Llanelwedd Rocks Pillow Mound 1: sections A–B and C–D (see location on Fig. 34). See Fig. 44 for clay pipe no. 6. Based on archive and unpublished drawings by C. J. Spurgeon.

3½ft high (27.4m × 6.0m × 1.0m).[248] It was aligned approximately north–south up and down the slope, with side ditches up to 9ft (2.7m) across (depth unstated). The general form of the mound is similar to Pillow Mound 1, but with many fewer stone settings (Fig. 38). Large stones around the margins of the mound, several of which had evidently weathered into the quarry ditches, indicated that there had been eight burrows on each side of the mound, again spaced at intervals of about 3m, with perhaps two further burrows angled towards each end (Fig. 38). As in the case of Pillow Mound 1, some of the burrows appear to have been L-shaped and capped in stone, though most of the burrows were probably of turf or timber which had left no trace. No finds are recorded.

Mound 3

This was a long, low mound 35ft × 11ft × 1½ft (10.6m × 3.3m × 0.4m), at a height of about 225m, orientated north-northwest–south-southeast, with a shallow ditch 1.5m wide and 0.2m deep surrounding it on all sides. [249] Spurgeon described it as lying 'along the gently-sloping floor of a rocky re-entrant hollow into the steeper south-facing slope of Carneddau Hill'. Partial excavation and recording of the mound in 1970 showed that it was almost entirely built of small stones. No finds are recorded. Ordnance Survey investigators in 1980 considered that 'the ditch, and the regular shape and unvarying height of the mound give it the appearance of a pillow mound but its stone construction effectively precludes

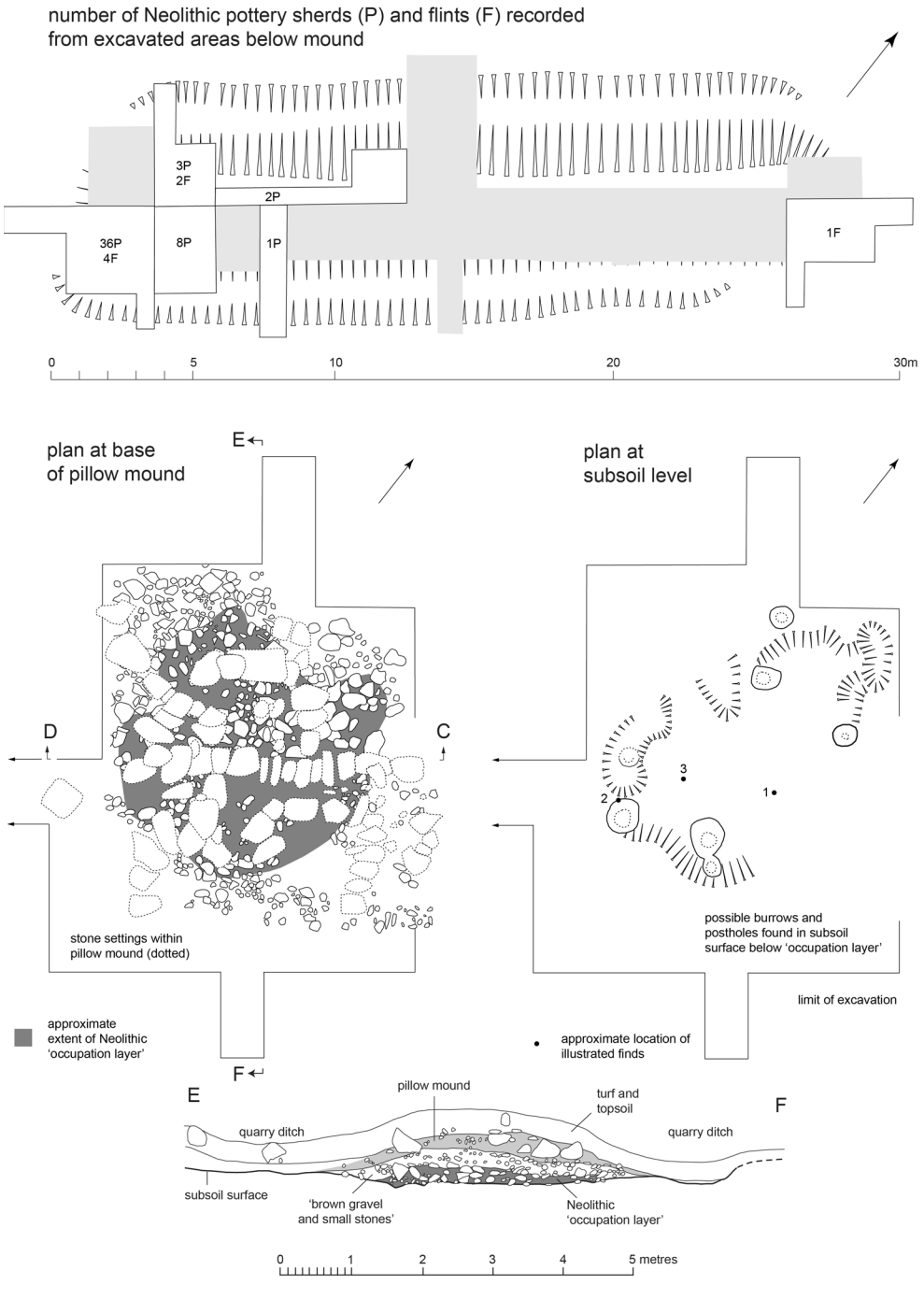

Fig. 37. Llanelwedd Rocks Pillow Mound 1: plan of Neolithic 'occupation layer' and possible structure below Llanelwedd Rocks Pillow Mound 1 (see Fig. 34 for location of plan and transverse section E–F in relationship to the pillow mound; see Fig. 36 for longitudinal section C–D). See Fig. 42 for find nos 1–3 (Neolithic pottery sherds). Based on archive and unpublished drawings by C. J. Spurgeon.

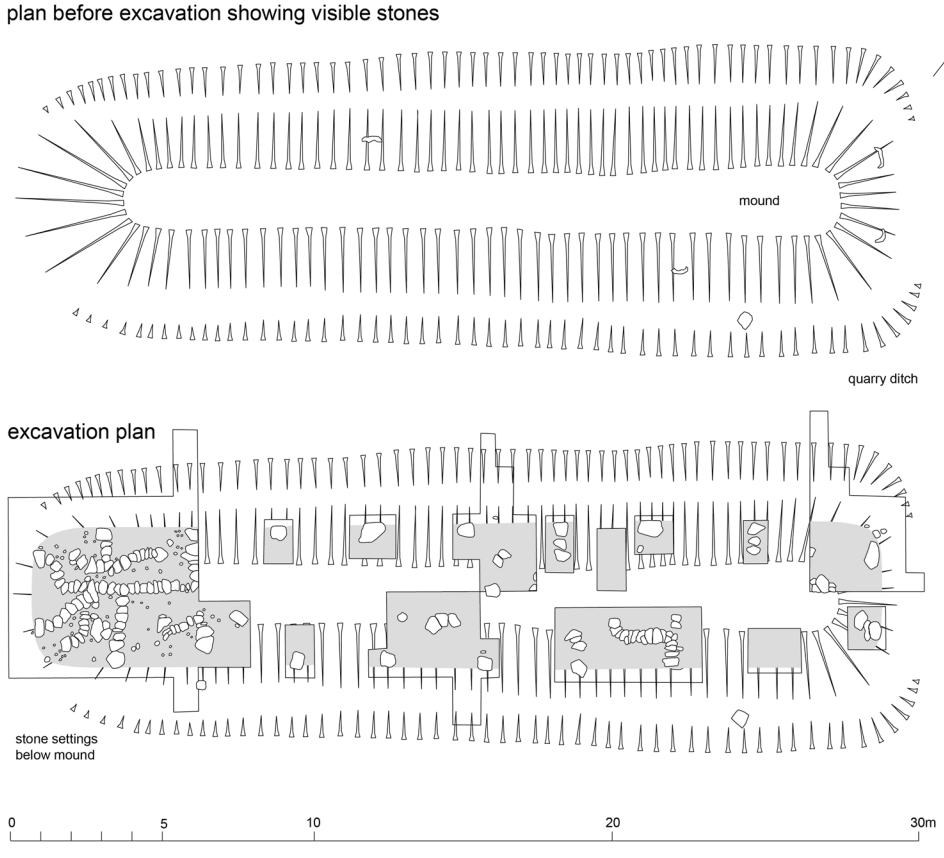

Fig. 38. Llanelwedd Rocks Pillow Mound 2: plan before and after excavation. Based on archive and artwork by C. J. Spurgeon.

this attribution. The date and purpose were not determined'. Though much shorter than the other two excavated pillow mounds, the presence of stone mounds used or reused as pillow mounds is recorded elsewhere in Britain[250] and may support the identification of this site as a further pillow mound.

Mound 4

Some work was undertaken on a fourth mound, 10.6m long, in the late 1960s but few details and no precise grid reference for the site are known.[251]

Discussion of the Neolithic activity below Llanelwedd Rocks Pillow Mound 1

The relationship between the Pillow Mound 1 and the underlying evidence for Neolithic activity must be considered to be coincidental. The earlier activity may have been overlain by a low mound which may have been visible prior to the construction of the pillow mound but seems likely to have been no more than about 0.1m high.

A circular area of dark soil containing charcoal, a possible hazelnut shell, burnt bone, pottery and flint, suggests a small occupation site. The occupation area may have been truncated when the pillow mound

Fig. 39. Llanelwedd Rocks Pillow Mound 2: stone settings below the south-western end of the mound viewed from the south-west (scales with 1ft divisions). *Photograph: © Crown copyright, RCAHMW: Llanelwedd Pillow Mound Excavation Archive.*

was constructed and its apparent circularity may therefore be illusory. Other evidence about the nature of the site is slight, but its location on the hillside and the presence of a number of different pottery fabrics, none of which are local to the site, suggests seasonal occupation by a nomadic group.

Structural evidence is also slight but is not dissimilar to Neolithic structural remains recorded at Clegyr Boia (Pembs.) and Cefn Cilsanws (Glam.), for example, where irregular patterns of postholes were associated with roughly circular areas of occupation layers suggesting buildings between about 3m and 4.5m across.[252] The low mound overlying the occupation layer might conceivably represent the collapse of a superstructure composed of turf or cob.[253] Ceramic evidence suggests that occupation probably dates to the first half of the fourth millennium BC.

The suggested association with cereal cultivation must now be considered to be unsound though it is interesting to note that pollen analysis at Cors y Llyn, in a natural depression above the Wye valley, at a height of about 190m, just over 4 kilometres to the north-west of Llanelwedd Rocks, has been interpreted as representing a cyclical pattern of clearance and cultivation in the Neolithic period, possibly by a single family group, though this evidence is not precisely dated.[254] Though Llanelwedd and Cors y Llyn were

once isolated dots on the map of Neolithic Wales, significant evidence of settlement and ritual activity throughout the Neolithic period is emerging in the Walton Basin, about 20 kilometres to the north-east.[255]

Discussion of the Llanelwedd Rocks rabbit warren

The Llanelwedd Rocks rabbit warren falls within the notable concentration of pillow mounds on the hill and mountain land of central Wales.[256] The testimony of the farming family living at the foot of Llanelwedd Rocks that the rabbit warren had been 'made by the Squire of Llanelwedd Hall' is undoubtedly correct: the first certain evidence of its existence being a reference in the will of Marmaduke Gwynne of Llanelwedd Hall, dated 1788, which refers to 'the Rabbit Warren commonly called and known by the name of Llanelwith Rock'.[257] There are hints that the warren may have been first established about a century earlier, however. Records of a dispute in the lordship of Builth in 1704 records the following advice on tenants' rights obtained by the plaintiffs, Walter Vaughan and others, and the defendant, Marmaduke Gwynne:

> That lord cannot now set up a warren in any of the commons & wastes without a particular charter or grant from the King. The lord has not the power of taking from the tenants their herbage or making the common useless to them, and if the rabbits of the warren come upon any of his tenants grounds anyone may kill them and the lord has no remedy. It is not probably that he will prescribe to a warren there, and if he should, yet if he cannot prove an ancient warren in that place he cannot maintain the prescription.[258]

Although the precise location of the warren referred to here has not been traced, it is perhaps significant that the bowl of a clay tobacco pipe dating to *c.* 1670–80 was recovered from what appears to be a primary context at one end of Pillow Mound 1, suggesting that the warren may have been in existence at the same period.

Until recent years few warrens in mid Wales had been closely dated, and on the testimony of agricultural commentators of the early nineteenth century which stated that 'there are but few rabbits'[259] it had been argued that many of the warrens of mid Wales were likely to be relatively late in date.[260] An increasing number of references to eighteenth-century warrens are coming to light, however. A large warren at Y Foel, Llanllugan, Montgomeryshire, appears to have been a going concern by 1772.[261] Reference is made to an unauthorized warren on common land in 1760 at Llanddewi Ystradenni about 18 kilometres north of Llanelwedd.[262] And the restocking of the Radnor Forest warren and the building of a warren house is mentioned in about 1793.[263] In view of the history of the former Llanelwedd Hall[264] and the early warrens associated with a number of Glamorganshire great houses,[265] an origin for the Llanelwedd warren as early as the sixteenth or early seventeenth centuries is possible, but in default of other evidence a later seventeenth- to mid eighteenth-century date is more certain. The fact that the warren lay beyond living memory at the beginning of the nineteenth century suggests that it had gone out of use during the 1820s though it was evidently still a going concern in 1823, at a time when the Llanelwedd Estate was the subject of a suit in the Court of Chancery. The accounts of the receiver appointed by the court, Thomas Maybery, list the names of farms on the estate which included Thomas Pritchard as the tenant of the 'Rabbit Warren' on the estate at an annual rent of £4 0s 0d.[266] There are indications that the warren at Y Foel had likewise been abandoned by early in the nineteenth century.[267]

The original size and extent of the Llanelwedd rabbit warren is uncertain. Edmondes Owen's reference to 'a little cottage still standing not a hundred yards distant' from one of the mounds (unidentified but presumably a roadside cottage in Llanelwedd) suggests that its lower edge lay fairly close to the main road to Kington. The siting of the four mounds whose location is known (see Fig. 31) together with

the reference in the Radnorshire Inventory of 1913 to the mounds occurring in 'groups of eight or ten', suggests that there may originally have been about three groups of pillow mounds on the lower slopes of Llanelwedd Rocks covering an area of about 15 hectares of the less steeply sloping ground on the southern end of the hill. Comparable densities of pillow mounds are evident at the Y Foel and Cwm Ednant warrens in Montgomeryshire, for example, where the mounds are generally spaced at intervals of between 50–100m. The recorded grouping of the Llanelwedd mounds may reflect subdivisions within the warren of a kind noted elsewhere that were due to management considerations,[268] but may equally reflect the topography of the hill, lines of sight from a warrener's house,[269] or indeed the desire to provide a more impressive visual impact when viewed from further afield.[270]

The form and construction of the excavated pillow mounds is characteristic of evidence recorded elsewhere. The side ditches will have acted as quarries for the mounds as well as providing drainage.[271] The Radnorshire Inventory records that the Llanelwedd mounds were in general, like Mound 2, orientated up and down the slope. This orientation, which is the most commonly recorded elsewhere, was no doubt for the purpose of drainage. The stone settings capped a grid of artificial burrows most probably dug into the pre-existing ground surface, providing an instant haven for newly introduced stock and perhaps also to inhibit burrowing up to the surface of the mound.[272] This is almost certainly also the explanation of the 'trough-like cavity' formed of stones recorded in Edmondes Owen's excavations of one of the mounds in 1903. The more intermittent pattern of stone settings below Mound 2 is probably to be explained by the use of organic material such as turf, brushwood or timber to cap the artificial burrows.[273] Evidence of burning below the mound excavated by Edmondes Owen in 1903 including charcoal and burnt bone (see above), suggests vegetation clearance prior to construction.[274]

The recollection recorded by Edmondes Owen that the mounds were 'covered with huge piles of wood to provide shelter for the rabbits' is interesting in the light of sixteenth- and seventeenth-century leases for warrens in Wiltshire and Hertfordshire which made provision for the covering of warrens with bracken and brushwood to provide additional protection in harsh weather.[275] It seems likely that this practice was also part of a deliberate policy of continuous scrub management to provide better grazing for rabbits and to inhibit them from creating their own burrows in areas of dense vegetation.

The later pit dug into the centre of Mound 1 at Llanelwedd (Figs 34, 36) seems quite purposeful and unless it represents an unrecorded antiquarian excavation trench, it may conceivably have related to a pit trap either for vermin or for rabbits,[276] though structures of this kind elsewhere have normally been recorded close to rather than within the mounds.

It is evident from Marmaduke Gwynne's will of 1788[277] that the warren was held as part of the Llanelwedd estate. It seems likely that as in many other instances elsewhere[278] the warren was set up on common land, probably by the Gwynnes asserting manorial rights by virtue of being one of the larger landowners in the parish.[279] The land was not formally enclosed until about 1812 when this part of the hill was apportioned to the Gwynnes' estate. Two much smaller warrens, composed of six and three pillow mounds respectively, are known on what still remains common land in the neighbouring community of Aberedw, for example.[280] The extent of the warren might also define the tract of land over which there were customary manorial rights for taking game.[281]

Some warrens, including those set up on common land, are known to have been enclosed by walls, banks or fences which helped to define the legal area of the warren, control poaching of game and prevent damage to crops. There is no direct evidence of this at Llanelwedd, but this may have been difficult or unnecessary in such rugged terrain. The plan, however, suggests that the wandering boundary between about 40–90m north and east of the Pillow Mounds 1–2 (Fig. 31) may have been set out to respect or exclude the warren. This boundary defines an area of about 50 hectares of upland sheepwalk and appears to be one of a series of pre-enclosure boundaries loosely associated with the Penygraig farmstead (see

above). This boundary would have lain at about the mean foraging range of wild rabbits which is often less than about 80m from their burrow, [282] and may have helped to lessen potential conflict with other commoners over grazing or crop damage of a kind that is known to have arisen elsewhere.[283]

No record has so far been traced of the warrener's house which typically, as well as housing the warrener, would also have provided accommodation for carcasses and skins and for dogs, ferrets and traps. A possible contender is the former dwelling known as Rock House (Fig. 31) on the roadside at the foot of Llanelwedd Rocks and formerly in the ownership of the Llanelwedd Hall estate. The cottage was set on the hillside, about 40m back from and 10m above the edge of the road and therefore with relatively good access to the warren.[284]

The relatively large number of pillow mounds on Llanelwedd Rocks implies that the warren was a commercial venture by the Gwynnes, established in response to the agricultural depression of the later seventeenth and earlier eighteenth century,[285] to turn an otherwise barren hillside to more productive use.[286] The siting of the warren may also have been influenced by aesthetic considerations as well as convenience. Llanelwedd Rocks would have dominated the view looking along the eastern approach to Llanelwedd Hall (dating from the sixteenth and seventeenth centuries), which was aligned upon the highway leading eastwards to Kington, and may have acted as a status symbol, particularly at a time when rabbits were evidently relatively rare in mid Wales and before the creation of picturesque parkland settings came more into vogue, from about the mid eighteenth century.[287] Its location close to Builth and at the intersection of important lines of communication running both north–south and east–west would have placed it in easy reach of markets for both the meat and fur.[288]

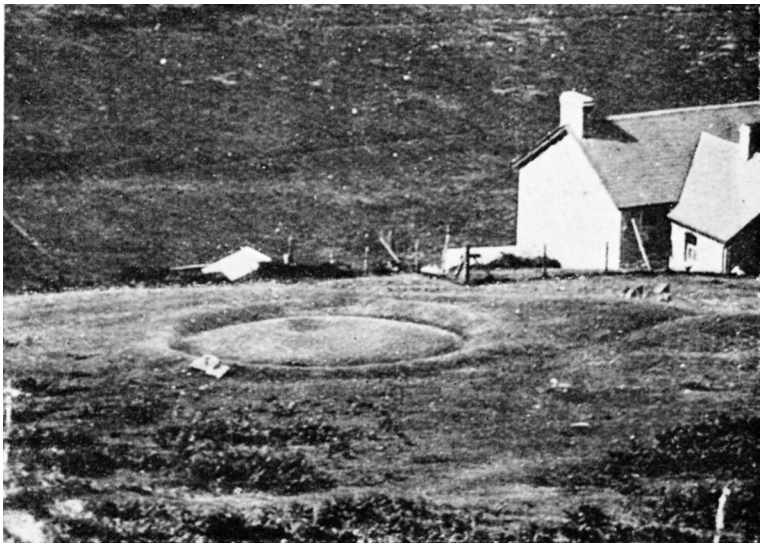

Fig. 40. Eighteenth-century cockpit on Llanelwedd Rocks.
Photograph: P. B. Abery, after Davies 1912, 147.

OTHER SITES ON LLANELWEDD ROCKS

For the sake of completeness it is worth noting the former cockpit which lay close to the Kington road and was presumably set up on the edge of the common (location on Fig. 31).[289] It is described by Edmondes Owen as being 33ft (10m) in diameter and said to be in active use until the last decade of the eighteenth century.[290] A photograph published in 1912 (Fig. 40)[291] shows a circular domed area with a depression at its centre, encircled by a ditch and bank. A description of 1909 says 'There is also a very perfect ancient cockpit upon the site, said to have been the last ground upon which the peculiar form of the sport known as a Welsh main was fought'.[292] Cockfighting in Britain was prohibited by the Cruelty to Animals Act of 1835, by which date the cockpit is assumed to have gone out of use.

RADIOCARBON DATING

The following AMS radiocarbon dates have been obtained. Calibrated dates given in this report have been calculated by OxCal 4.2.3 (Bronk Ramsey 2013) using the IntCal13 atmospheric calibration curve and are quoted at the overall range at 95.4% probability (Fig. 41). The calibrated date ranges cited are quoted in the form recommended by Mook (1986), with the end points rounded outward to 10 years for errors greater than 25 years. Samples for dating were prepared and identified by Astrid Caseldine, Department of Archaeology and Anthropology, University of Wales, Lampeter. The single date from Cairn 1 provides a *terminus ante quem* for the construction of the monument. The three dates from Cairn 2 date the firesetting of the rock-cut grave and give a combined date of 2140–1980 cal. BC at 95.4% probability.

SUERC-24765 (GU-19104)
Context: Cairn 1, context 10, sample 2. Burnt area north of the primary cairn.
Sample: *Corylus avellana* (hazel), 8+ rings, 0.4101g
Radiocarbon date: 3395±35 BP
Calibrated date: 1870–1600 cal. BC

SUERC-24766 (GU-19105)
Context: Cairn 2, context 12, sample 26. Upper filling of grave pit.
Sample: *Corylus avellana* (hazel), 1 ring, 0.0497g
Radiocarbon date: 3680±35 BP
Calibrated date: 2200–1950 cal. BC

SUERC-24769 (GU-19106)
Context: Cairn 2, context 13, sample 39. General lower filling of grave pit.
Sample: *Quercus* sp. (oak), 5 rings, 0.1148g
Radiocarbon date: 3670±35 BP
Calibrated date: 2190–1940 cal. BC

Beta-290090
Context: Cairn 2, context 13, sample 37. Central filling of grave pit.
Sample: *Hordeum* sp., 4 barley grains
Radiocarbon age: 3670±40 BP
Calibrated date: 2200–1940 cal. BC

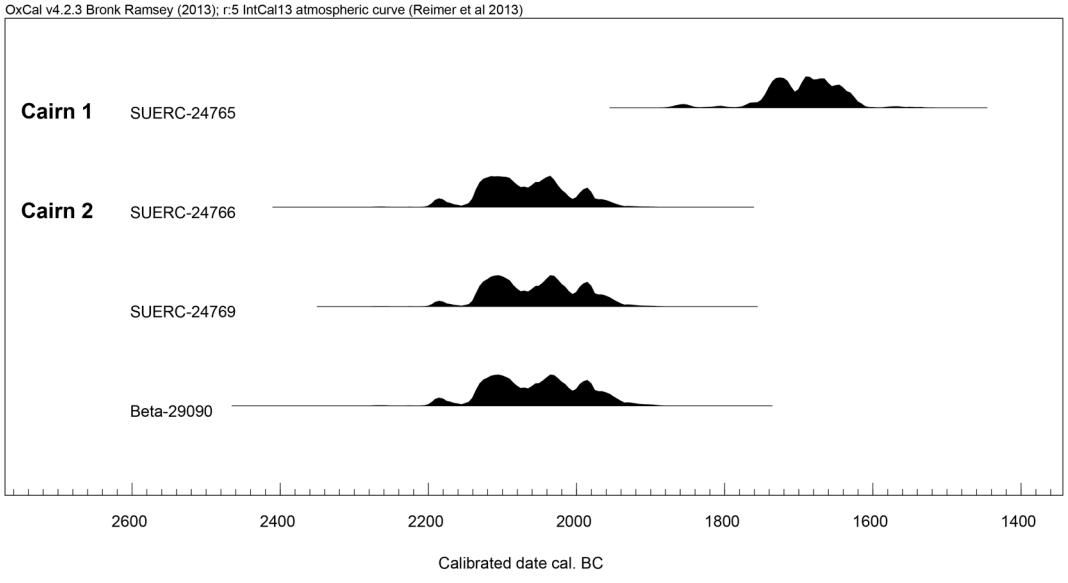

Fig. 41. Calibrated radiocarbon dates from Cairns 1 and 2 at Llanelwedd. *Calibrations calculated by OxCal 4.2.3 (Bronk Ramsey 2013).*

CHARRED PLANT REMAINS AND CHARCOAL IDENTIFICATIONS

By Astrid E. Caseldine, Catherine J. Griffiths and Roderick J. Bale[293]

Samples were examined from Bronze Age contexts associated with the Llanelwedd Rocks Cairns 1 and 2 and from post-medieval contexts associated with the Penygraig farmstead. The samples were processed using flotation followed by sieving of the residues. The finest mesh used to recover the remains was 250 microns for the flot and 500 microns for the residues.

The charred plant remains samples were sorted and identified using a Wild M5 stereomicroscope. Identification was by comparison with modern reference material and by reference to standard texts (e.g. Berggren 1969; 1981; Schoch *et al.* 1988; Anderberg 1994; Cappers 2006; Jacomet 2006). Nomenclature and most of the ecological information is based on Stace (1995).

The wood anatomy of the charcoal was examined by fracturing the charcoal to produce clean sections in three dimensions (transverse, transverse longitudinal and radial longitudinal). A Leica DMR microscope with incident light source was used to identify the charcoal. Identification was by reference to Schweingruber (1978) and Schoch *et al.* (2004). Nomenclature follows Stace (1995).

LLANELWEDD ROCKS CAIRNS 1 AND 2

Charred plant remains

The results from the samples that produced plant remains in addition to wood charcoal are presented in Table 2.

Llanelwedd Rocks Cairn 1

In the case of Cairn 1 only one sample (3) from the burnt area to the north of the original cairn and buried below the secondary cairn (Fig. 4) produced any charred plant macrofossils. They included hazelnut (*Corylus avellana*) shell fragments, a cereal grain of barley (*Hordeum* sp.) and seeds of cleavers (*Galium aparine*). The presence of reddened stones at this point on the circumference of Cairn 1 indicates the burning activity occurred after the construction of the cairn. A date range of 1870–1600 cal. BC (SUERC-24765) from hazel charcoal from the burnt area is later than that from the grave pit at Cairn 2 where cereal grains were also recovered and dated, assuming that the cereal from the burnt area is not residual, the later date suggests the continued cultivation of barley in the area.

Llanelwedd Rocks Cairn 2

Hazelnut (*Corylus avellana*) shell fragments were present in several samples. These included a charcoal concentration on the northern edge of the grave pit (sample 26) and the general upper fill of the grave pit (sample 27). They also occurred in two samples (35 and 37) from different depths within the central fill (13) of the grave pit as well as a sample (39) from the general lower fill (13). The two samples (35 and 37), as well as a third sample (38), from the central filling contained other charred plant remains as well, including barley grains, seeds of cleavers (*Galium aparine*) and fruitstones of bramble (*Rubus fruticosus*). Brambles are found in a variety of habitats including hedgerows and woodland, heaths and grassland and other open places, while cleavers also occurs in hedgerows and scrub as well as where there is arable cultivation or open ground. The barley included hulled and twisted grain indicating the presence of hulled six row barley, but the possibility of naked barley being present cannot be excluded.

A calibrated date range of 2200–1940 cal. BC (Beta-290090) obtained on four of the barley grains from sample 37 is in agreement with date ranges of 2200–1950 cal. BC (SUERC-24766) and 2190–1940 cal. BC (SUERC-24769) obtained on hazel and oak charcoal, respectively, and confirms that the grain is

Table 2. Charred plant remains from Llanelwedd Rocks Cairns 1 and 2

	Cairn 1	Cairn 2					
Sample	3	26	27	35	37	38	39
Context	10	12	12	13	13	13	13
Corylus avellana L. (hazel) shell frags	3	4	15	18	3	–	6
Rubus fruticosus L. agg. (bramble)	–	–	–	–	1	–	–
Rubus sp. (bramble)	–	–	–	1	1	–	–
Galium aparine L. (cleavers)	2	–	–	–	2	–	–
Hordeum sp. hulled – twisted (barley)	–	–	–	–	–	1	–
Hordeum sp. hulled	–	–	–	–	2*	–	–
Hordeum sp.	1	–	–	–	4*	1	–
cf. *Hordeum* sp.	–	–	–	1	1	–	–
Cereal indeterminate	1	–	–	–	3	–	–
cf. Cereal indeterminate	–	–	–	–	1	–	–
Organic indeterminate	–	–	–	–	–	1	–
Seeds unidentified	–	–	–	1	2	–	–

contemporary with the cairn rather than later intrusive material from post-medieval activity at the site. The presence of the cereal in the grave pit suggests that the cereal might possibly be the remains of a food offering. Similarly, the fruitstones and hazelnuts may have been collected for the same purpose, although their presence could be purely incidental and derive from wood collected for fuel used for firesetting (see below). Their presence does, however, suggest a late summer–autumn date for activity at the cairn. The absence of charred grass stems or straw fragments, which might have been used as tinder to light a fire, might reflect their poor survival rather than the lack of use of such material. Although it is possible the cereal could be related to ritual activity directly associated with the cairn, there is the possibility that it may relate to cultivation in the area immediately prior to the construction of the cairn and therefore be incidental. A series of criss-cross linear marks in the subsoil below the primary cairn were recorded (Figs 10–11), but it is thought they were probably made by spades or mattocks during deturfing prior to cairn construction, rather than cultivation marks.

Barley, both naked and hulled, is recorded from a number of Bronze Age sites in Wales, suggesting it was widely cultivated during this period. However, cereal evidence from funerary and ritual sites is comparatively limited which makes the evidence from Llanelwedd of particular interest.

Charcoal identifications

A small charcoal assemblage was identified from two samples from Cairn 1 while a larger assemblage was obtained from seven samples from Cairn 2. The charcoal was identified with the aim of gaining information about the woodland exploited in the area, as well as providing identifications for the samples sent for dating. The results are given in Table 3.

Llanelwedd Rocks Cairn 1

The assemblage from the burnt area lying outside Cairn 1 but buried below clearance material, is different to that from Cairn 2. Fragments of charcoal of hazel (*Corylus avellana*), cherry (*Prunus* sp.) and Maloideae-type, which includes crab apple, rowan, whitebeam and hawthorn, were recorded, suggesting the presence of scrub woodland in the area. A calibrated date range of 1870–1600 cal. BC (SUERC-24765) obtained on hazel charcoal from the burnt area indicates a later date than that obtained from the grave pit of Cairn 2. Although the assemblage is small the evidence is consistent with the clearance of oak and ash woodland, which was used at Cairn 2, followed by the growth of secondary scrub woodland in the area. Equally, some oak and ash might still have persisted in the wider area but not been immediately to hand, or oak and ash might have been considered too valuable to use in the fire. It is interesting to note that oak, ash, hazel and crab apple currently grow on the hillside.

Llanelwedd Rocks Cairn 2

The assemblage is considered to be associated with firesetting of the rock-cut grave and indicates that primarily oak (*Quercus* sp.) and ash (*Fraxinus excelsior*) woodland with an understorey of hazel (*Corylus avellana*) was exploited, although alder (*Alnus glutinosa*) is also recorded and was presumably growing on wetter ground in the area. Three of the samples (24, 25 and 26) were taken from the sides of the grave (see Fig. 10) and were considered to represent single pieces of wood. Two of the samples, 24 and 25, produced only oak, which lends some support to this interpretation, although the number of fragments identified is relatively small. However, overall, the mix of species used suggests that there was not a preference for the use of a single species and, at least to some extent, whatever was readily available was used as fuel.

Table 3. Charcoal identifications from Llanelwedd Rocks Cairns 1 and 2

	Cairn 1		Cairn 2							Total
Sample	2	3	24	25	26	27	37	38	39	
Context	10	10	12	12	12	12	13	13	13	
Quercus spp. (oak)	–	–	10	10	5	7	12	7	6*	57
Alnus glutinosa (L.) Gaertner (alder)	–	–	–	–	–	–	–	1	–	1
Corylus avellana L. (hazel)	8*	4	–	–	5*	3	4	5	4	33
Prunus sp. (cherries)	–	5	–	–	–	–	–	–	–	5
Maloideae type (crab apple, rowan, whitebeam, hawthorn)	2	1	–	–	–	–	–	–	–	3
Fraxinus excelsior L. (ash)	–	–	–	–	–	–	4	7	–	11
Total	10	10	10	10	10	10	20	20	10	110

* includes samples used for dating

PENYGRAIG LONGHOUSE

Samples for the analysis of charred plant remains were recovered from the floor of the bread oven (35), upper (25) and lower (33) layers of ash in the kitchen fireplace, and from a hollow in the centre of the hearth (60, representing an ash pit or setting for a cooking pot), and from the floor surface in the south-east corner of the cowhouse (35). The samples are likely to date broadly to the eighteenth-century occupation of the longhouse. The results are given in Table 4.

Charred plant remains from the longhouse

Of the three samples from the kitchen fireplace the upper ashy deposit failed to produce any plant remains other than wood charcoal while the hollow in the centre of the hearth produced only a few and the lower ashy deposit produced the most. Hulled barley (*Hordeum* sp.) and bread wheat (*Triticum aestivum*) were recovered from both the hollow and the lower ashy deposit. They were more plentiful in the latter which also yielded oats (*Avena* sp.). A number of grains in the lower ashy deposit were poorly preserved and were allocated either to a wheat/barley or indeterminate cereal category. The remains suggest all three cereals were being consumed at the longhouse, whether or not they were all grown in the immediate vicinity.

Hazelnut (*Corylus avellana*) shell fragments were also present in both the hollow in the centre of the hearth and the lower ashy deposit and again they were most frequent in the latter. Few other remains were recorded from the hollow in the centre of the hearth but additional remains from the lower ashy deposit included acorn (*Quercus* sp.) and rowan (*Sorbus aucuparia*) remains and several seeds, including those of sheep's sorrel (*Rumex acetosella*), dock (*Rumex* sp.), grasses (Poaceae), sedges (*Carex* sp.) and rushes (*Juncus* sp.). Tree buds were also present and it is possible that the hazelnuts, acorns and rowan remains were simply collected along with wood for fuel, although the hazelnuts, in particular, might have been collected for human consumption. The weed seeds might be from crop-processing waste but, as the seeds could equally be from grassland, they might simply represent tinder used to start the fire. Two of the three samples from the fireplace produced indeterminable charred material which might represent the remains of burnt food.

Table 4. Charred plant remains from Penygraig longhouse

Feature	Bread Oven 8	Kitchen Fireplace 9	Cow-house	Ecological preferences
Sample	10	15/39/79	42	
Context	19	25/33/60	35	
Sample size (litres)	14	14.5	5	
Quercus sp. (oak) – shell frags	–	1	–	W
Quercus sp. – kernel	–	1	–	
Corylus avellana L. (hazel) – shell frags	1	35	–	W
Chenopodium sp. (goosefoots)	1	–	–	A, C, D, n
Spergula arvensis L. (corn spurrey)	–	–	1	A, C, R, a, o, s
Rumex acetosella L. (sheep's sorrel)	1	3	–	A, G, H, a s, o
Rumex sp. (docks)	–	1	–	A, B, C, G, W, w
Sorbus aucuparia L. – fruits (rowan)	–	1	–	H, W
Sorbus aucuparia L. – seeds	–	2	–	
Juncus sp.(Rushes)	–	4	–	B, C, G, H, M, W, w
Carex sp. – biconvex (sedges)	–	2	–	B, C, D, G (w), M, W (w), s
Avena sp.(Oats)	1	4	2	A, D
Hordeum sp. hulled – straight (barley)	–	5	1	A
Hordeum sp. hulled – twisted	–	–	1	A
Triticum aestivum L (bread wheat)	–	3	1	
Triticum aestivum L (semi-charred)	–	1	–	
Triticum/*Hordeum*	–	1	–	
Cerealia indeterminate frags	6	29	–	
Poaceae	2	1	–	C, D, G, H, M, R, W, d, o, w
Poaceae – small (grass)	–	3	–	
Stem	–	1	–	
Bud	–	1	–	
Tree buds	7	7	–	
Organic indeterminate – food waste	3	3	–	
Pteridium aquilinum (L.) Kuhn (bracken) – leaf frags	1	–	–	G, H, M, W, a, d
Wood charcoal	+	+	+	

Ecological preferences: A = arable and cultivated; B = bank side, pond margins; C = coastal; D = disturbed ground, wasteland; G = grassland; H = heaths, moors; M = marshes, fens, bogs; R = road sides; W = woods, hedgerows, scrub; a = acid soils, calcifuge; d = dry; n = nitrogen enriched; o = open ground; s = sandy soils; w = wet.
+ = present

The only identifiable cereal from the oven attached to the back of the fireplace was an oat grain but there was also some indeterminate charred material which might be charred food, perhaps the result of a cooking accident. The other remains from the oven sample included weed seeds of sheep's sorrel and goosefoot (*Chenopodium* sp.), the last a weed of cultivation and disturbed ground, and a fragment of bracken (*Pteridium aquilinum*) leaf.

A few grains of barley, wheat and oat and a weed seed of corn spurrey (*Spergula arvensis*) were the only remains, apart from wood charcoal, from a thin reddish brown layer on the surface of the clay floor next to the bread oven in the cowhouse and represent material deliberately or accidentally burnt. Corn spurrey is a calcifuge and its presence suggests cultivation on acid soils.

PENYGRAIG CORN-DRYING KILN AND BREAD OVEN

Samples of charred plant remains and charcoal were recovered from the stokehole and flue of the corn-drying kiln and bread oven, considered to date to the seventeenth to earlier eighteenth century. The aim was to gain information about crop husbandry and crop processing activities at Penygraig. In addition any evidence obtained would add to the very limited post-medieval archaeobotanical record for Wales. The results are given in Tables 5 and 6.

Charred plant remains

Three of the samples examined from the corn-drying kiln were from the stokehole while the fourth was from the flue. No samples could be identified which related solely to the bread oven and the samples from the stokehole and flue might therefore relate to the use of the corn-drying kiln or the oven. Of the samples from the stokehole, sample 3 was from a concentration of charcoal (12) opposite the flue while the other two samples, 5 and 7, were from charcoal concentrations in an ashy soil (18) on the north side and in the north-east corner of the stokehole, respectively. The samples from the stokehole produced a greater range and greater quantity of charred plant remains than that from the flue.

All the samples from the stokehole contained large quantities of wood charcoal, tree buds and gorse spines as well as cereal remains and weed seeds. The assemblages from samples 5 and 7 were very similar, suggesting the charcoal concentrations within the ashy soil related to the same event, but they differed to that from sample 3, suggesting the latter represented a different event. Oat dominated in all three samples but barley grain and rachis and rye rachis were more frequent in sample 3 than samples 5 and 7 and rye grain was more frequent in the latter two samples. Wheat grain was also slightly more frequent in samples 5 and 7 than sample 3. Other differences between sample 3 and samples 5 and 7 included greater numbers of fat hen (*Chenopodium album*) and corn cockle (*Agrostemma githago*) seeds and straw nodes in sample 3, while hairy tare (*Vicia hirsuta*) and corn marigold (*Chrysanthemum segetum*) were most frequent in sample 7. Weed seeds were generally less frequent in sample 5, which may indicate the sample related to a slightly different part of the same event as sample 7.

The charred remains from the three samples may simply represent plant material, including cereal waste, used as fuel or a mixture of fuel, including crop-processing waste, and cleaned or partially cleaned cereal grain accidentally charred whilst being dried. Although oat grains dominate in the samples, the type of oat present can only be determined with any degree of certainty by the presence of chaff. The limited evidence available indicates the presence of both wild and cultivated oat. The presence of wild oat (*Avena fatua*) is confirmed by the presence of a distinctive suckermouth attachment scar, which occurs where the floret separates from the pedicel, in sample 3. The other floret bases suggest the presence of common oat (*Avena sativa*) or bristle oat (*Avena strigosa*), or both, as they could only be assigned to an *Avena sativa*/*A. strigosa* category.

As well as oats, hulled barley is represented in the samples and the occurrence of twisted as well as straight grains indicates 6-rowed barley. This is confirmed by the presence of barley rachis internodes. Rye grain and rachis also occur in the samples while the presence of bread wheat is confirmed by bread wheat rachis, although wheat assigned to a free-threshing wheat category could include rivet wheat (*Triticum*

turgidum). Rivet wheat was much more widely grown by the post-medieval period. The remains suggest that all four crops, oats, barley, rye and wheat, were cultivated in the area. There is also some possible evidence for the cultivation of peas (*Pisum sativum*). A *Brassica* seed might be from a wild species such as wild cabbage or black mustard but could be from a cultivar.

As well as cereal chaff, the samples also contain a range of weed seeds, most of which were probably gathered incidentally along with the cereal. These include species such as fat hen, corn cockle, corn spurrey, ribwort plantain (*Plantago lanceolata*), sheep's sorrel, nipplewort (*Lapsana communis*) and corn marigold. Taxa typical of arable cultivation occurring in smaller amounts include species such as annual knawel (*Scleranthus annuus*), narrow-fruited cornsalad (*Valerianella dentata*) and scentless mayweed (*Tripleurospermum inodorum*).

An indication of the nature of the soils where the cereal was grown is provided by some of the seeds. Corn marigold, along with corn spurrey, is intolerant of non-acidic soils. They are characteristically found on sands and light loams and generally on free–draining soils, although they can occur on moister soils. Annual knawel similarly grows on dry, sandy soils while sheep's sorrel commonly appears on sandy, acid soils, including heathland. Other species indicating acid soils in the area include tormentil (*Potentilla erecta*), heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*). Local soils in the area today are generally acidic, well-drained and loamy.

Although the majority of seeds indicate well-drained soils a few seeds indicate damper conditions. They were largely present in sample 3 and included sedges, water-pepper (*Persicaria hydropiper*) and small-pepper (*Persicaria minor*), suggesting the cereal associated with these seeds was cultivated in an area which included wetter ground.

Generally plant species are not exclusive to only one habitat and some of the seeds could derive from other habitats around the farmstead; for example fat hen, orache and knapweeds could be from disturbed ground while ribwort plantain and docks might be from grassland. The gorse seeds and pods were clearly brought in with the other gorse remains as fuel and some of the other seeds may similarly have been brought in with this material. Gorse occurs in grassland and heathland as well as open woodland. Apart from wood charcoal, evidence for trees and shrubs include hazelnut (*Corylus avellana*) shell, thorns and a fragment of blackthorn (*Prunus spinosa*) fruitstone, a crab apple (*Malus sylvestris*) seed and hawthorn (*Crataegus* sp.) fruitstones. This is in agreement with the charcoal evidence (see below).

The charred plant remains from sample 9 from the flue are much scarcer than from the stokehole but again oats, barley, wheat and rye are represented, as well as a few weed seeds, including corn marigold and sheep's sorrel, and gorse remains.

Of the cereals represented at Penygraig those most suitable for cultivation at the upland farmstead are oats, rye and barley. Oats will grow on poor, acid soils in the uplands and bristle oats, in particular, will survive in upland areas where winter conditions are harsh. Hence it has been widely grown in upland Wales, often where conditions are unfavourable for common oat, and is known as '*Ceirch Llwyd*' and '*Blewgeirch*' (Hubbard 1968). It can also be a weed of other crops. The predominance of oat, whether wild or cultivated, in the samples is in keeping with the weed seed evidence for cultivation on acid soils. Rye will similarly tolerate poor soil conditions and a colder climate while barley is also more tolerant of climate than wheat. Six-row barley, which is indicated at Penygraig, is especially hardy though generally of lower quality than two-row barley (Woodward and Luff 1983). Barley, oats and some rye were the main cereals in the region during the eighteenth and early nineteenth centuries according to Walter Davies's Board of Agriculture report (Davies 1815) and, as discussed above, yields would have been relatively low. Spring corn, barley and oats would have been spring sown while winter corn, rye and wheat would have been autumn sown.

There are three main reasons for grain-drying, especially in an area such as Wales where the summers can be relatively cool and damp. The first is as part of the malting process, the second is the drying of

seed for storage for the following year's harvest and the third is prior to shelling or grinding. It is likely that the kiln at Penygraig would have been used to dry the grain prior to shelling or grinding for meal, or possibly prior to storage.

As previously mentioned, the charred remains could simply represent fuel, including cereal waste, particularly as they are from the stokehole and flue, but it is possible the remains could represent cereal grain and other material that was accidentally burnt, as kilns did on occasion catch fire, and became mixed with fuel. There are various descriptions of drying kilns (Price 1898; Wiliam 1986). A description of a drying kiln at Llansawel, Carmarthenshire, refers to a platform of planks and sticks covered by straw or a mat on which the corn was placed and the use of 'furze' (gorse) and brushwood to make the fire (Price 1898), while Walter Davies (1815) gives an account of a kiln broadly resembling that at Penygraig (see discussion of the Penygraig farmstead, above). Again there is reference to the use of straw, but covered by a mat, in the drying platform. Straw is likely to burn to nothing so it is possible that the few straw nodes in the samples, particularly sample 3, could be from such a structure that caught fire but there is no evidence of charred textile, so either a mat was not used or the straw is just crop-processing waste.

In general the plant macrofossil evidence from other kilns in Wales is earlier in date but, as at Penygraig, the dominant cereal is usually oats. At Collfryn, Montgomeryshire, oat was the dominant cereal recorded from a fifteenth-century corn-drying kiln, mainly from the stokehole, but again there was some uncertainty as to whether it was part of a crop being dried or being used as fuel (Jones and Milles 1984; 1989). Charred grain from a corn-drying kiln at New Radnor, most probably dating to the fifteenth century, was again dominated by oat grain and charred textile was possibly from the drying platform (Caseldine and Barrow 1999). Charred assemblages suggesting fuel were recovered from two ovens and included frequent oat chaff and weed seeds from one oven, possibly sixteenth century in date, while gorse spines as well as wood charcoal were recovered from both. Rye, barley and bread wheat, as well as possibly peas, also occurred in the New Radnor medieval and post-medieval assemblages. Again, whilst barley, naked wheat and rye were present in the assemblage from a medieval corn-drying kiln at Parc Bryn Cegin, Gwynedd, oat predominated (Kenney and Smith 2008; Schmidl *et al.* 2008) and similar results were also obtained from corn-drying kilns at Wiston, Carmarthenshire (Caseldine 1995) and Carmarthen Greyfriars (Caseldine and Johnson 1998).

Finally, cereal would also have been used as animal fodder as well as for human consumption and, similarly, gorse may also have been used as animal fodder as well as fuel for the drying-kiln. It is reported to have been fed together with potatoes in Llangïan parish in Llŷn around 1810 and with hay as the main winter and spring fodder in Bangor parish (Wiliam 1986). Gorse was particularly used as a winter feed for horses but also for cattle. The occurrence of bracken in samples from both the kiln and longhouse may also indicate that it was being used for animal bedding at the farm and it would have made good manure. In upland farms in the nineteenth century there were three harvests, hay, corn and bracken, the latter being of importance for the wintering of animals indoors (Wiliam 1986).

Charcoal identifications

Charcoal was identified from the kiln and bread oven to determine which species had been used to provide fuel and to enable comparisons to be drawn with charcoal evidence from the Bronze Age cairns. A small amount of charcoal was identified from each of the three stokehole samples and the flue sample.

The assemblages from the samples are broadly similar with only minor differences. The latter may be at least partly attributable to the size of sample examined. Gorse (*Ulex* spp.) remains, including wood charcoal, were frequent in all the samples but gorse charcoal was only specifically identified from the flue where there were a number of large pieces. Ash (*Fraxinus excelsior*), blackthorn (*Prunus spinosa*) and Maloideae type, which includes crab apple (*Malus sylvestris*), hawthorn (*Crataegus* spp.), rowan

Table 5. Charred plant remains from Penygraig corn-drying kiln and oven

Feature	opposite flue	Stokehole north side	north-east corner	Flue	Ecological preference
Sample	3	5	7	9	
Context	12	18	18	23	
Sample size (litres)	25.5	25	28	7	
Ranunculus sp. (buttercups)	–	–	1	–	A, B, C, G, M, W, w
Corylus avellana L. (hazel) – shell frags	3	3	2	–	W
Chenopodium album L. (fat-hen)	44	1	9	4	A, D, n
Chenopodium sp. (goosefoots)	–	–	4	–	A, C, D
Atriplex sp. (oraches)	4	–	–	–	A, C, D, s
Chenopodiaceae/Caryophyllaceae	–	–	1	–	
Stellaria cf. *graminea* L. (lesser stitchwort).	–	1	–	–	G (d)
Stellaria type (stitchworts)	1	–	–	–	A, B, C, G, M, W, d, n, s, w
cf. Cerastium sp. (mouse-ears)	–	–	1	2	A, C, D, G, a s, c, d, o, w
Scleranthus annuus L. (annual knawel)	1	–	–	–	A, D, d, o, s
Spergula arvensis L. (corn spurrey)	7	–	3	–	A, C, R, a, o, s
Agrostemma githago L. (corncockle)	13	1	–	–	A, D
Caryophyllaceae	–	–	2	–	
Persicaria maculosa Gray (redshank)	–	–	3	–	A, D, o
Persicaria hydropiper (L.) Spach(water-pepper)	1	–	–	–	Aq, B, a, w
Persicaria minor (Hudson) Opiz (small water-pepper)	–	–	1	–	B, Gw
Polygonum aviculare L. (knotgrass)	2	–	1	–	A, C, D, o
Fallopia convolvulus (L.) A. Love (black-bindweed)	–	–	1	–	A, D
Rumex acetosella L. (sheep's sorrel)	36	14	36	3	A, G, H, a, s, o
cf. *Rumex acetosella* L.	1	–	–	–	
Rumex sp. (docks)	11	10	5	1	A, B, C, G, W, w
Brassica sp. (cabbages) – frag.	–	–	1	–	A, B, C, D
Calluna vulgaris (L.) Hull (heather) – flower heads	–	–	1	–	H, M, Wo, a, p, s,
Erica tetralix L. (Cross-leaved heath) – leaf	1	–	–	–	H (w), M
Rubus fruticosus L. agg. (brambles)	–	1	–	–	D, G, W, o
Rubus sp. frags	–	–	3	–	
Potentilla erecta (L.) Raeusch (tormentil)	–	–	1	–	G, H, M, R, a, l
Prunus spinosa L. (blackthorn) – frags	–	1	–	–	W
Prunus spinosa type – thorns	3	1	1	–	
Malus sylvestris (L.) Miller (crab apple)	1	–	–	–	W
Crataegus sp.(hawthorns)	–	-	3	–	W
Rosaceae – thorns	1	3	1	–	
Vicia hirsuta (L.) Gray (hairy tare)	2	–	17	–	D, G
Vicia sp.	2	–	–	–	
Vicia/*Lathyrus*	2	4	4	1	A, C, D, G, H, M, W (o)
cf. *Pisum sativum* L. (garden pea)	1	–	–	–	A, D
Trifolium type (clovers)	1	1	1	–	C, D, G, o, s
Ulex sp. (gorse)	38	28	34	1	G, H, Wo, p, s
Ulex sp. – sprouted	–	1	–	–	
Ulex sp. – seeds + pod frag.	1	2	1	–	
cf. *Ulex*. sp.	–	2	–	–	
Ulex sp. – pod frag.	–	1	–	–	
Ulex sp. – hilum scar	–	1	1	–	
Ulex sp. – spines	+	+	+	+	
Ulex sp. – stems	+	+	+	+	
cf. *Apium graveolens* L. (wild celery)	1	–	1	–	C
Apiaceae	1	–	–	–	
Stachys sylvatica L./ *Stachys arvensis* (L.) L. (hedge woundwort/field woundwort)	1	–	1	–	D, W/A
Galeopsis segetum Necker (downy hemp-nettle)	1	–	–	–	A, D
Prunella vulgaris L. (selfheal)	2	–	2	–	D, G, Wo, w
Thymus sp. (thyme)	–	1	–	–	G
Mentha arvensis L/M. *aquatica* L. (corn/water mint)	2	–	–	–	A, B, G (w), M, Wow,
Lamiaceae	–	–	3	–	
Plantago lanceolata L. (ribwort plantain)	13	12	8	–	G
Euphrasia sp./ *Odontites vernus* (Bellardi) Dumort. (eyebrights/red bartsia)	–	1	–	–	B, C, G, w,A, D, G, R
Galium saxatile L. (heath bedstraw)	3	–	–	–	G d, Wo, a
Galium saxatile type (bedstraws)	–	–	5	–	G d, Wo, a

Table 5. Charred plant remains from Penygraig corn-drying kiln and oven *continued*

Feature	opposite flue	Stokehole north side	north-east corner	Flue	Ecological preference
Sample	3	5	7	9	
Context	12	18	18	23	
Sample size (litres)	25.5	25	28	7	
Galium aparine L. (cleavers)	–	1	2	–	A, D, o
Valerianella dentata (L.) Pollich (narrow-fruited cornsalad)	–	–	1	–	A, D
Centaurea cyanus L./*Centaurea nigra* L. (cornflower/common knapweed)	4	1	9	–	A, D/D, G, R
Centaurea sp. (knapweeds)	–	2	–	–	A, D, G, R
Lapsana communis L. (nipplewort)	7	3	12	3	D, Wo
Chrysanthemum segetum L. (corn marigold)	14	5	62	4	A, D, R, a, s
cf. *Chrysanthemum segetum* L.	–	–	–	1	
Tripleurospermum inodorum (L.) Schultz-Bip. (scentless mayweed)	–	–	3	–	A, D
Luzula sylvatica (Hudson) Gaudin (great wood-rush)	–	–	1	–	B, H, W
Carex sp. – biconvex (sedges)	4	1	–	1	B, C, D, G (w), M, W (w), a, s
Carex sp. – trigonous	7	–	2	–	
Cyperaceae	–	–	1	–	
Avena strigosa/*A. sativa* (bristle oat/oat) – floret bases	1	–	2	–	A
Avena fatua L. (wild-oat) – attachment scar	1	–	–	–	
Avena sp. – floret	1	–	1	–	A, D
Avena sp. (oats)	228	245	450	18	
cf. *Avena* sp.	–	–	–	1	
Avena/Poaceae	1	1	2	–	
Hordeum sp. hulled – straight (barley)	1	4	4	2	A
Hordeum sp. hulled – twisted	10	1	4	–	
Hordeum sp. hulled – indet.	3	–	3	–	
Hordeum sp. six- row rachis	37	–	–	–	
Hordeum/*Secale* rachis	–	1	–	–	
Secale cereale L. (rye)	4	35	32	1	A
cf. *Secale cereale* L.	1	–	–	–	
Secale cereale L. – rachis	24	1	4	–	
Secale/*Triticum*	5	4	4	–	
Triticum aestivum L. (bread wheat)	2	21	12	–	A
Triticum aestivum L. – rachis	1	–	–	–	
Triticum cf. *aestivum* L.	–	–	–	1	
Triticum cf. *aestivum* L. – rachis	–	–	1	–	
Free-threshing wheat	3	–	–	–	A
Triticum sp.	–	3	–	–	
Triticum/*Hordeum*	1	–	–	–	
Cerealia indeteterminate	45	84	89	20	
Cereal indeterminate frags	–	–	14	11	
Cerealia/Poaceae	–	–	–	1	
Cerealia indeterminate – basal rachis	1	1	–	–	
Straw nodes	25	1	1	–	
Bromus sp. (bromes)	4	–	–	–	A, C, D, G (w)
Poaceae (grasses)	1	–	1	–	C, D, G, H, M, R, W, d, o, w
Poaceae – small	4	1	9	–	
Tree buds	3	–	–	–	
Buds	–	–	3	–	
Flower heads	1	–	–	–	
Leaf	1	–	–	–	
Organic indeterminate	2	–	–	–	
Pteridium aquilinum (L.) Kuhn (bracken) – leaf frags	2	–	–	–	G, H, M, W, a, d
Seeds unidentified	4	7	8	2	
Fungal sclerotia	4	11	27	1	
Wood charcoal	+	+	+	+	

Ecological preferences: A = arable and cultivated; Aq = aquatic; B = bank side, pond margins; C = coastal, salt marshes; D = disturbed ground, wasteland, rough ground; G = grassland; H = heaths; M = marshes, fens, bogs; R = roadsides; W = woods, hedgerows, scrub; a = acid soils, calcifuge; d = dry; l = limestone, calcareous soils; n = nitrogen enriched; o = open ground, clearings; p = peaty soils; s = sandy soils; w = wet. + = present

(*Sorbus aucuparia*) and whitebeam (*Sorbus aria*) also commonly occurred in the samples. Other species represented included oak (*Quercus* spp.), hazel (*Corylus avellana*), birch (*Betula* spp.), alder (*Alnus glutinosa*) and beech (*Fagus sylvatica*).

The assemblage suggests that wood was mainly collected from local scrub and woodland, or possibly hedges, comprising gorse, blackthorn and ash and one or more of hawthorn, rowan, crab apple and whitebeam. The occurrence of oak, hazel, birch, alder and beech in low amounts suggests that these species were also growing in the local area and that perhaps their branches were also gathered for fuel. Plant macrofossil evidence (see above) from the kiln confirms the presence of gorse, blackthorn, crab apple and hawthorn while oak, hazel and rowan were recorded from the longhouse. The abundance of gorse in the kiln samples is in agreement with written records for its use as a fuel in corn-drying kilns. It is referred to in an account of corn-drying in Carmarthenshire (Price 1898) where 'furze' is said to have been used along with brushwood to provide the fire.

The range of species from the corn-drying kiln and bread oven is greater than that from the cairns and the assemblage also differs in the lower incidence of oak and hazel and the greater frequency of scrubby species. This is consistent with the evidence for the clearance of oak and hazel woodland during the Bronze Age and development of a more open landscape with scrub, although the possibility of regeneration episodes involving oak and hazel in the intervening period cannot be totally discounted. Ash is basically a light-demanding tree and therefore would have been favoured by an open scrub environment. The presence of beech in the assemblage may reflect planting during the seventeenth and eighteenth centuries, although it could have been present naturally in the area prior to this.

Table 6. Charcoal identifications from Penygraig corn-drying kiln and oven

Feature	Stokehole			Flue	Total
	opposite flue	north side	north-east corner		
Sample	3	5	7	9	
Context	12	18	18	23	
Fagus sylvatica L. (beech).	–	–	1	–	1
Quercus spp. (oak)	1	–	3	1	5
Betula spp. (birch)	1	–	–	–	1
Alnus glutinosa (L.) Gaertner (alder)	–	1	–	–	1
Corylus avellana L. (hazel)	1	1	–	4	6
Prunus spinosa L. (blackthorn)	2	8	3	-	13
Maloideae type (crab apple, rowan, whitebeam, hawthorn)	1	2	3	2	8
Ulex spp. (gorse)	+	+	+	2	2 (+)
Fraxinus excelsior L. (ash)	9	3	5	11	28
Total	15	15	15	20	65

+ = present

BONE IDENTIFICATIONS

By Charlotte E. O'Brien[294]

The bone was assessed by Dr Charlotte Henderson (human bone) and Ms Louisa Gidney (faunal remains).

Llanelwedd Rocks Cairns 1 and 2

The objective was to confirm whether all of the material was bone, and to make species identifications, where possible. Each of the samples weighed only a few grams, most of the fragments being less than 5mm across. Some of the fragments were washed gently over a 125μm sieve to remove adhering soil. The samples were examined visually and up to ×60 magnification using a Leica MZ7.5 stereomicroscope. Bone/antler or tooth enamel was present in all of the samples. Many of the fragments could not be identified to species, due to their small size and poor condition. Animal bone was positively identified in context (12), find number 51, and animal tooth enamel was present in context (13), find number 32. No human remains were identified. The results are listed below.

Cairn 1: burnt area to north of primary cairn (context 10, find no. 13). Calcined bone/antler – indeterminate fragments.

Cairn 2: upper fill of grave pit (context 12, find nos 30, 51). 1 fragment of calcined animal bone – sheep/goat-size; calcined bone/antler – indeterminate fragments.

Cairn 2: lower fill of grave pit (context 13, find nos 32, 43). Unburnt animal tooth enamel fragments – ungulate and possible pig; unburnt bone/antler – indeterminate fragments.

Cairn 2: crevices in base of grave pit (context 13, find nos 46, 47). Unburnt bone/antler – indeterminate fragments.

Penygraig longhouse

A small number of animal bone samples were recovered from the post-medieval longhouse, as follows:

Kitchen fireplace (context 33, find no. 37). Indeterminate bone fragments.

Fill of hollow in center of kitchen fireplace (context 60, find no 81). Cattle ilium with repeated chop marks.

Cowhouse floor (context 35, find no. 44)
Cattle mandible with sockets for premolars 2–4 and molars 1–3.

Rubble above cowhouse floor between bread oven and south wall (context 34, find no. 85). Indeterminate bone fragments, calcined.

NEOLITHIC POTTERY FROM BELOW LLANELWEDD PILLOW MOUND 1[295]

By Frances Lynch[296] and Timothy Darvill[297]

All the pottery came from the darker layer filling a circular hollow beneath the western end of Pillow Mound 1 (Fig. 37). Five different fabrics can be recognized amongst the 100 sherds recovered which represent about seven vessels, of which three rim sherds are illustrated (Fig. 42, nos 1–3).

General description (FL)

The predominant fabric (A) is a smooth, hard, apparently gritless ware, black throughout, with smooth inner and outer surfaces with a number of small holes. Fresh breaks show the clay to be compact but vesicular. The average thickness is about 5mm and the sherds have often broken at a coil edge. One large rim sherd survives (Fig. 42, no. 1: find no. 30) suggesting a substantial bowl about 300mm in diameter with a heavy out-turned rim neatly keeled and produced by folding inwards the topmost coil of clay. There is a single hole drilled after firing beneath this rim. The body sherds suggest that the bowl had no shoulder.

Another apparently gritless, vesicular fabric (B) is present, a paler grey and looser in texture than A. Although the outer surface is quite well smoothed and hard, the inner surface is less smooth and has a softer feel. Rim sherds (e.g. Fig. 42, no. 2: find no. 3) suggest a smaller bowl with a rounded out-turned rim. There is again a drilled hole immediately below the rim. Body sherds have quite a marked curvature, suggesting a relatively small pot.

A third fabric (C) is quite heavily gritted with small to medium quartz grains which break the surface on the rim, but on the outer wall create a smooth but lumpy surface. The inner surface has been lost; the core is brown in colour, but the outer surface is black. A rim sherd (Fig. 42, no. 3: find no. 14) shows a flattened out-turned rim and four body sherds suggest a simple shape. A variant of this gritted fabric (C1) is much blacker with rather smaller quartz grits and a smoother surface. Few sherds are present and there is little indication of shape.

A fifth fabric (D) is a hard and compact ware with very well crushed stone grit creating a smooth but abrasive surface. The outer surface is buff/red but the inner one is black with evidence of careful wiping. It is thin and competently made, but the shape of the vessel is unknown.

The large, unshouldered bowl with heavy rolled rim in fabric A can be closely matched in both shape and fabric at the Cotswold-Severn tombs of Ty-isaf[298] and Gwernvale,[299] both in Breconshire, some 25 miles to the south-east of Llanelwedd, as well as at Parc le Breos Cwm[300] and Tinkinswood in Glamorgan. The compact vesicular fabric seems to be characteristic of south-east Wales and contrasts with the looser 'corky' wares of north-west Wales where the shouldered bowl, not found at Llanelwedd, is the predominant shape. The parallels at Gwernvale lie amongst the pre-cairn pottery, material which is associated with a radiocarbon date of 3980–3664 cal. BC.[301] Fabric B, a less distinctive ware, can also be found at Gwernvale, though less commonly, and fabric C is best matched at Ty-isaf where the flattened rim and straight wall are also found.[302] Fabric D is rather more unusual and not typical of the normal run of Neolithic wares. However, it is firmly associated with the other pieces here and at Gwernvale there is a hard, grey, compact ware with abrasive surfaces with which it can be closely compared.[303] Unfortunately, the stratigraphic position of this pot at Gwernvale is less certain.

The pottery from Llanelwedd, therefore, compares well with that from further south in Breconshire and Glamorgan and interestingly appears in both domestic and non-domestic contexts at Parc Bryn Cegin, Gwynedd.[304]

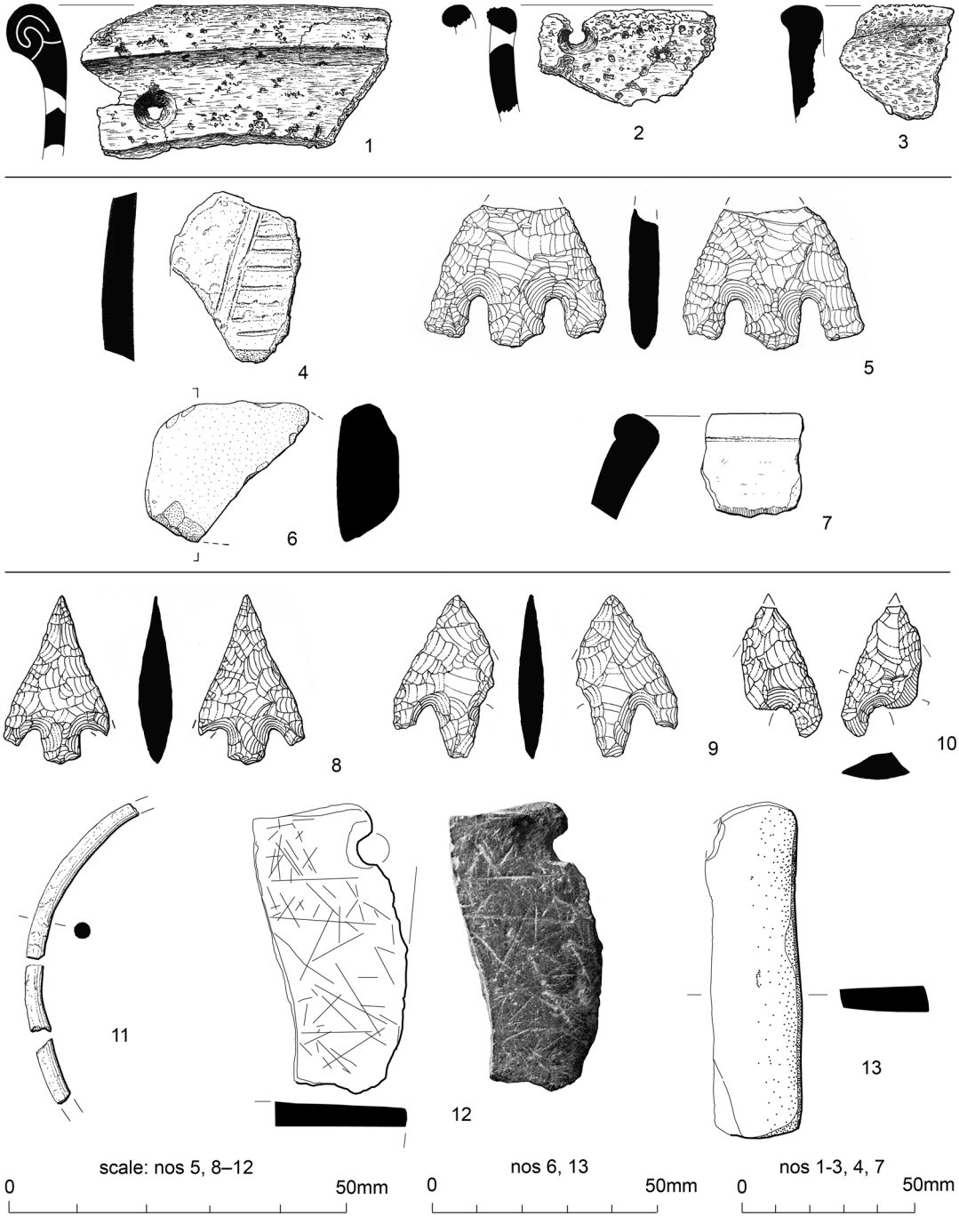

Fig. 42. Llanelwedd Rocks Pillow Mound 1, Neolithic pottery (nos 1–3). Llanelwedd Rocks Cairn 1: Beaker sherd (4), flint arrowhead (5), hammerstone (6), and Iron Age or Romano-British rim sherd (7). Llanelwedd Rocks Cairn 2: flint arrowheads (8–10), probable copper alloy bracelet fragments (11), incised stone fragment (12), and whetstone (13). Scales: 1–3, 4, 7 (1:2); 5, 8–12 (1:1); 6, 13 (1:3).

Petrology of the Neolithic pottery (TD)[305]

Using criteria of fabric, texture, density of inclusions, firing circumstances and to a lesser extent wall thickness, the assemblage was divided into 7 putative vessels. This represents a 'minimum number' but because there are so few sherds it is unlikely that the true number was significantly greater. After macroscopic examination four sherds were selected for detailed analysis. After being bisected half was used for the preparation of a thin section thus allowing detailed inspection of the matrix and non-plastic inclusions under a conventional petrological microscope (see Tite 1972, 215).

Fabric A (66 sherds, representing possibly 3 vessels; thin section N 284)

Heavy vesicular ware. The fabric is predominantly reduced throughout and is relatively hard. In thin section the very fine-grained anisotropic groundmass contains a light scatter (*c.* 3%; see Terry and Chilinger 1955 for method) of sub-angular quartz grains up to 0.2mm in diameter. In addition there are numerous fine flecks of muscovite mica up to 0.06mm long and a few dried clay pellets not fully homogenized with the rest of the matrix. The most striking feature of the fabric is the abundance (*c*. 15%) of angular, often rhomboid-shaped, voids which range in size from 0.25mm to 1.5mm across which appear throughout the thickness of the sherd. Calcite or some other soft easily eroded calcareous rock is one possibility, and the acid soil at Llanelwedd would certainly explain why it is no longer present. Within the voids there was no trace of decomposed rock, however, and the possibility that it was organic material such as chopped straw, chaff or dung which was used as tempering must be considered.

Fabric B (3 sherds, representing 1 vessel; thin section N 285)

Light vesicular ware. The fabric was fired in a predominantly reducing atmosphere and is relatively hard. Under the microscope the groundmass is fine grained and anisotropic. It is highly micaceous with numerous flecks of fine muscovite mica up to 0.03mm long visible throughout. There is a light scatter (*c.* 2%) of small rounded quartz grains up to 0.08mm across. The overall texture is much finer than Fabric A, and the mica density higher. The principal tempering, like Fabric A, is no longer present, being visible as a series of voids which are less regular in shape and rarely exceed 1mm across. There is some linear cracking and staining indicative of poor mixing during the preparation of the clay. Overall, the voids in the fabric seem more likely to represent cavities once containing calcareous rock fragments, and indeed there is some slight traces of decomposed rock in some voids. This contrasts with Fabric A and it is almost certain that they originated in separate clay sources.

Fabric C (23 sherds, representing 1 vessel; thin section N 286) and *Fabric C1* (2 sherds, representing 1 vessel)

Metamorphosed quartz and grog tempered. These two fabrics seem to differ only in firing condition and slight variations in the densities of the quartzitic inclusions which is to be expected with hand-made pottery. A reducing atmosphere was predominantly used in firing these vessels although not quite such a hard fabric was achieved as other vessels in the assemblage. In thin section the groundmass is exceptionally fine grained, anisotropic, and is highly micaceous giving a golden yellow colour to it under crossed nicols. There are occasional large pieces of muscovite mica up to 0.25mm across and rare sub-angular quartz grains up to 0.8mm in diameter. Also present are occasional altered felspars which have become rather decomposed. The clay seems to have been tempered with grog, in a similar fabric to the matrix and is in sub-angular to rounded pieces up to 1.5mm across. In addition to the grog there are fragments of metamorphosed quartzite rocks which may have started life as quartzite sandstone. These are up to 1.4mm across and like the grog can be seen quite easily in the hand specimen. Overall, the fabric is well prepared and the additives well mixed and evenly distributed throughout the matrix.

Fabric D (6 sherds, representing 1 vessel; thin section N 287)
Quartz sand tempered. The fabric was fired in reducing conditions and has a fine hard surface. Under the microscope it shows a fine-grained anisotropic groundmass very similar to Fabric A. Angular quartz grains up to 0.2mm in diameter are relatively common (*c.* 5–8%) and there is a little muscovite mica and iron ore flecks. Mixed into the matrix is a heavy scatter (*c.* 10–15%) of large rounded quartz and quartzite grains up to 1.5mm across which contrast with the natural quartz in outline, size and weathering which is suggestive of sand being added to the clay. A single fragment of grog was noted and some splits and linear voids are also present. Overall, however, the clay seems well prepared and fully homogenised.

The presence of a range of fabric types even in small assemblages of early and middle Neolithic pottery is common throughout the west of England and Wales. In this case four groups can be isolated, of which the largest section comprised Fabrics A and B which might be called 'soft tempered wares' since either calcareous rock or organic material once constituted a significant proportion of fabric by volume. Again, assemblages dominated by such fabrics are common, and it can be suggested that such vessels were for storing liquids, so allowing slow evaporation through the vessel wall and thus prolonging storage of liquids likely to go off.[306] The harder and denser fabrics tempered with hard rocks, Fabrics C and D, would have had other uses and thus it can be suggested that the fabric range is partly determined by the functional prerequisite of the vessels themselves.

All four fabrics are most likely to derive from separate sources, or at least separate clay resources. Unfortunately, none of the mineral or non-plastic inclusions point to exclusive sources identifiable from existing geological data. In view of the proximity of the site to the igneous outcrops in the immediate area it is noteworthy that no such rock fragments occur in the pottery. The metamorphosed quartz and quartzite and the weathered quartz sands of Fabric C and D are more likely to derive from the Devonian age rocks to the south of the site and possibly brought to the site by peripatetic social groups.

BRONZE AGE POTTERY FROM LLANELWEDD CAIRNS 1 AND 2

By Alex Gibson[307]

Beaker sherd from Cairn 1 (Fig. 42, no. 4)
A single sherd of Beaker pottery (15g) came from the surface of the cairn close to the central cist (see location on Fig. 8), suggesting that it may have accompanied an original burial deposit disturbed during the excavation in 1906.

The sherd was examined macroscopically, with the aid of a ×10 hand lens, and the fabric description may, therefore, be liable to change and/or refinement should microscopic fabric analysis be carried out in the future. The sherd has a brown outer surface, dark brown inner surface and black core. The fabric is quite hard and well-fired but the outer surface and breaks are abraded. The fabric averages 7mm thick and appears to contain finely crushed sand and grog inclusions.

The outer surface is decorated with part of a filled triangle motif (Clarke 1970, no. 29). The triangle has been bordered by two parallel lines while traces of 8 horizontal lines constitute the infilling. The curvature of the sherd, its slightly varying thickness and the size of the motif, suggest that it comes from the belly of a necked vessel. Filled triangles belong to Clarke's Southern British motif group 4, a motif which stylistically he would place late in the Beaker decorative repertoire (Clarke 1970). Filled triangles also appear on early European (E) and Wessex/Mid Rhine (W/MR) Beakers, so that the motif alone cannot be taken as an indication of date. While it is possible that the lines are abraded toothed comb impressions, it is more likely that they have been incised with a fine sharp point which again suggests a typologically late

specimen. It is not improbable that chronologically the vessel falls within the range of the radiocarbon date of 1870–1600 cal. BC (SUERC-24765) from the area of burning just to the north of the cairn, which provides a *terminus ante quem* for Cairn 1.

In Savory's guide to the Bronze Age material in the National Museum Wales (Savory 1980a), Beakers with just this motif are illustrated from St Fagans, Merthyr Mawr Warren (2 vessels) and Llanmadoc, all in Glamorgan (Savory 1980a, 201). All of these vessels have been reconstructed from sherds and all are comb decorated rather than incised; at this stage in Beaker development, however, the difference in technique is more aesthetic than chronologically significant.

Possible Beaker sherd Cairn 2 grave (not illustrated)
Small, plain sherd of prehistoric pottery (8 × 15mm across and 5mm thick) from a thin-walled vessel with brownish external surface and black internal surface with possible grog inclusions. The thinness of the sherd suggests that it is either from a pigmy cup or more probably from a Beaker. The sherd was recovered by sieving a sample taken from the lowest fill of the central grave (context 13).

NEOLITHIC AND BRONZE AGE LITHIC FINDS FROM LLANELWEDD

By Philippa Bradley[308]

Lithics from Llanelwedd Rocks Pillow Mound 1
The material from this site was not examined by the author but is included here for the sake of completeness. Seven pieces of flint are reported as having been found below post-medieval Pillow Mound 1,[309] mostly from the occupation deposit sealed below the south-western end of the mound which produced the sherds of Neolithic pottery discussed above (Fig. 37). These are said to have included waste flint flakes and chips, some of high quality material and others much poorer, but not including any implements.[310]

Lithics from Cairn 1
The excavation of Cairn 1 produced a broken barbed and tanged arrowhead (Fig. 42, no. 5) found on the west side of the cairn close to the surface of the later clearance cairn (see location on Fig. 8), and a broken and burnt flake from soils outside the primary cairn and sealed below the later clearance cairn.

The arrowhead is quite large and has been neatly retouched over much of both faces. A fairly good quality dark brown flint has been used for its manufacture. It is comparable to Green's Sutton B type (1980, 122, fig. 45, cf. g). The right-hand edge has been left slightly 'wavy', which may be fortuitous or could be a deliberate attempt to serrate the edge as seen rarely on some very fine barbed and tanged arrowheads, as for example at Breach Farm, Glamorgan (Clarke *et al*. 1985, 161, fig. 4.98, 297) and Kings Low and Queens Low, Staffordshire (Bradley 2013), echoing the extremely fine examples from Brittany (Clarke *et al.* 1985, 136). The break looks relatively fresh; it is too low down for an impact fracture and there is no evidence to indicate that it was caused during manufacture. On stratigraphical grounds it might, like the sherd of Beaker pottery from this cairn, have been amongst the grave goods originally placed within the central cist. It is certainly fine enough to have been deposited with a burial.

Lithics from Cairn 2
The excavation of Cairn 2 produced 14 pieces of worked flint and a single chert flake. Unstratified finds from topsoil comprised a small multi-platform core and a flint chip. The buried soil horizon below the primary cairn produced a single flint flake. The central grave pit produced three barbed and tanged arrowheads (Fig. 42, nos 8–10), a core fragment, five flint flakes, two flint chips, and a chert flake.

The flint is generally quite poor quality with inclusions and is brown or grey in colour with very little original cortex remaining. The debitage is not very diagnostic. The flakes do not seem to have been particularly carefully knapped. The core is a small multi-platform type (12g) which had been very well reduced, perhaps indicating that the raw materials were at a premium.

All three arrowheads have been very finely worked over both faces. The complete arrowhead (no. 8) came from high up in the grave fill but Is of such quality that it would be surprising if it were not a deliberate inclusion in the grave (see location on Fig. 10). It is a small, slightly asymmetrical example with an elongated point, a Sutton C type, although much smaller than the nearest comparable example (Green 1980, 122, fig. 45, n). A possible area of polish can be noted on its dorsal face, perhaps to remove slightly higher flake scars. The two fragmentary arrowheads (nos 9–10) were recovered by sieving of deposits low in the grave filling and thus cannot be precisely located in the grave; however, it would also seem likely that they were originally deliberately deposited within the grave. No. 9 has one barb missing, which is an old break, but it is probably a Sutton B type (Green 1980, 122, fig. 45). No. 10, a small but neatly retouched arrowhead, is also broken, with one barb and the tang missing. The tip is also damaged. It is also probably a Sutton type. These breaks are all old as there is no difference in the condition of the flint around the breaks and the rest of the arrowhead. At the tip a large flake has been removed. This is interpreted as an impact fracture, the force of which has broken the barb and tang. The smaller flint fragments from the same context were examined but the missing flake from arrowhead no. 10 was not identified.

The occurrence of damaged arrowheads in grave contexts is relatively common (Green 1983, 19). Indeed, in several cases impact fractures have been identified, for example, barbed and tanged arrowheads from cremation burials at Sarn-y-bryn-caled, Powys and Clocaenog, Denbighshire (Burrow 2011, 148–9). Occasional examples have been recovered from skeletons, which have been interpreted as the cause of death of the individual (Green 1980, 178), as for example at Barrow Hills, Radley, Oxfordshire (Bradley 1999, 139–40), Stonehenge (O'Connor 1983, 17), and the aurochs burial at Hillingdon, west London (Cotton *et al.* 2006, 157, 160). The breaks in the arrowheads from Llanelwedd occurred in antiquity and thus at least one of these arrowheads was fired at some stage. However, given the lack of human remains and the fact that the uncertain location of two of the arrowheads, it is difficult to be certain how they were deposited in the grave. Nos 8–9 are certainly finely worked and would therefore not be out of place as grave goods. No. 10 is arguably a little cruder, but not significantly so.[311]

The presence of the flint debitage from the central burial pit is unexplained. It appears to represent purely domestic activity though it may represent preparation for the burial or may result from earlier use of the site unconnected with the funerary rites. A fragment of clear quartz (approximately 11 by 14mm across) from the fill of the central grave may also have been flaked. Worked quartz is known from a number of sites in Wales, as for example at Parc Bryn Cegin (Kenney 2008, 25); its use in Scotland and Ireland is well documented (e.g. Ballin 2009) and it may have had some special significance.

PROBABLE COPPER ALLOY BRACELET FROM CAIRN 2

By Stuart Needham

Description

Three similar fragments of rod (Fig. 42, no. 11) were recovered in sieving soil from the basal layer in the central grave (context 13), but otherwise not closely located. The longest is 27.5mm long, the other two much shorter (10.2 and 10.7mm); none appear to join, but the object appears to have corroded right through the cross-section, so the edges of any breaks would have been very vulnerable. A matt surface

is of varied dull green colours. The rod is close to circular in section and between 2.6 and 3.2mm in diameter, the variation probably due again to irregular, but minor surface flaking. The fragments show a consistent curvature with a radius estimated at about 30mm and, while some distortion cannot be ruled out, the rod was undoubtedly well curved.[312]

The fragments were X-rayed by Phil Parkes at the Conservation Laboratory, School of History, Archaeology & Religion, Cardiff University. Despite the pervasive corrosion there are subtle indications of the rod having a series of tight rope-like twists. There is no sign of these in the surface morphology which could be due to surface loss or the careful working out of the helical ridges by hammering or grinding. It is unlikely that the twists resulted from drawing the rod through a draw-plate: firstly, it is rather thick for drawn wire; secondly, the twists typical of this process are more likely to be loose and irregular coils since it is not the intention of the metalworker to create an aesthetic twist, just progressively to thin the wire. Nevertheless, the apparent twisting is enigmatic for it is not clear it was ever left visible at the surface, nor is it obvious why it would arise incidentally during production unless the rod was formed by initially twisting a ribbon of copper/alloy tightly and then forging it. It may be noted that neat twisting is known on a few pins and a unique double-pronged object all dating a little later, to the earlier second millennium BC.

Identification and discussion

It is assumed that this ornament is contemporary with the first use of the grave and that the combined radiocarbon date of 2140–1980 cal. BC (SUERC-24766, 24769 and Beta-290090) applies to this use. With a moderate curvature and no systematic tapering to one end this rod is very unlikely to come from the shank of a pin. Instead the curvature matches well the typical dimensions of bracelets. This would in fact fit better with known ornament accompaniments to graves of this period. Although pins have been found very occasionally in early Beaker graves, they then disappear from the funerary repertoire only to reappear some time during Period 3 (*c.* 1950 – 1750/1700 BC). On the other hand, bracelets or armlets, though not especially common, are a recurrent accompaniment in graves of Period 2 (*c.* 2200/2150–1950 BC) and continuing into Period 3 (Needham 2000, 29–38). The radiocarbon date for the Llanelwedd grave is therefore entirely consistent with the main phase of bracelet/armlet use in Britain.

Early Bronze Age armlets/bracelets take a number of forms, but one prevailing series, Group 2, is based on thick butt-jointed bars/rods for which the Llanelwedd example would be a rather slighter variant. In fact, an unclassified pair of armlets probably from an Early Bronze Age cist burial at Luggacurran, Co. Laios, may give a more specific match (Ó Ríordáin and Waddell 1993, 118, no. 301, 218 fig.). They are plain circular-section rods with tapered terminals that overlap for 35–40% of the circumference; the rod diameter is thicker (*c.* 4.5mm), but the diameter is very similar to that reconstructed for Llanelwedd.

There are examples of other ornaments of very similar form but very small in diameter. One from Monkton-Mount Pleasant grave 6371, Kent, with a maximum internal diameter of 37mm, was actually found around the wrist of a child; the grave also contained a Beaker (Harrison in Bennett *et al.* 2008, 82–5). A second, slightly larger bracelet (internal diameter 47mm) from that site complex was found in the fill of grave 3035, in which an inhumation is presumed to have decayed; it too contained a Beaker (Bennett *et al.* 2008, 18–19, 22, fig. 1/11). Another similar ornament of small size (internal diameter 36mm) was found at the hips of an adult skeleton at Hunmanby, East Yorkshire (Greenwell barrow 250; Kinnes and Longworth 1985, 119); twenty jet conical buttons were arrayed in a row from neck to waist. The ornaments from both Monkton-Mount Pleasant 6371 and Hunmanby have overlapped terminals similar to those on the larger Luggacurran bracelets. The terminals of this Monkton-Mount Pleasant piece are flattened into elongate spatulate ends and it is possible that this is a conscious imitation of the 'oar-shaped' ends of many Scandinavian and central European *Noppenringe*. Significantly, a terminal fragment

of a gold oar-shaped ornament was found nearby at Minnis Bay on the north coast of Thanet (Taylor 1980, Kt 29, pl. 6c).

It may also be worth mentioning in the context of this Welsh find the possible occurrence of other metal bracelets in graves at Pen y Bonc, Anglesey, and Pen yr Orsedd, Morfa Nefyn, Gwynedd (Needham 2000, 113, appendix 1B); both finds are though lost and nothing is known of their form.

STONE ARTEFACTS FROM CAIRNS 1 AND 2

Hammerstone (Fig. 42, no. 6)
Fragmentary hammerstone made from a smooth, hard, rounded pebble, originally perhaps 70 × 90mm across and up to 30mm thick, of which perhaps two-thirds survives. The hammerstone is battered on one side from which some flakes have become detached. Surviving weight 205g. Found within the buried soil below Cairn 1: context 12, find no. 10 (see location on Fig. 4).

Incised stone fragment (Fig 42, no. 12)
Flake of fine-grained black stone, 40 × 18mm across and 4–5mm thick with notch or possible broken perforation 5mm across on one side, and with seemingly artificial striations on the single surviving smoothed face. Part of one edge survives but all the other faces and edges are broken. The object appears to be too irregular to be a fragment from a stone wrist-guard or bracer of a kind known in Beaker and Bronze Age contexts (cf. Fokkens *et al.* 2008), even though the front or rear faces of these objects frequently exhibit similar longitudinal, transverse and diagonal striations (cf. Woodward *et al.* 2006, 536–7). From residual buried soil below Cairn 2: context 5, find no. 14 (see location on Fig. 10).

Whetstone (Fig. 42, no. 13)
Long, thin whetstone 142 × 36mm across and up to 15mm thick, made from greyish micaceous siltstone, smoothed on both faces and on one edge. Unstratified, but there are known parallels of Bronze Age date (cf. Savory 1980a, fig. 50, 347.14–15). Found close to the north-west side of Cairn 2: context 1, find no. 16 (see location on Fig. 10).

IRON AGE OR ROMAN-BRITISH SHERD FROM LLANELWEDD CAIRN 1

Rim sherd of bead-rim bowl (Fig. 42, no. 7) in a hard, micaceous, dark brown to black fabric burnished on the outer surface. Iron Age to Roman date and possibly of Malvernian origin (Peacock 1963; Tomber and Dore 1998). The sherd was found in topsoil, just to the east of Cairn 1 and may either relate to later activity associated with the cairn or to a later period of land use in the vicinity.

COIN FROM LLANELWEDD CAIRN 2

A Charles II copper farthing of 1672 with a very worn surface which came from immediately below stones removed from the centre of the cairn (see location on Fig. 17).[313]

POST-MEDIEVAL FINDS FROM LLANELWEDD

By Paul Courtney[314]

This report considers the post-medieval ceramics, glass and metalwork from the excavation of the Llanelwedd Rocks Bronze Age Cairns 1 and 2, the Penygraig farmhouse and corn-drying kiln, and Llanelwedd Rocks Pillow Mound 1. Some of the material from the Penygraig longhouse came from stratified contexts. Other finds came from layers outside the farmhouse but are considered to be contemporary with its period of use. Some poorly stratified material came from later stone tumble (context 1) but seems likely to be derived from contexts originally on the upper floor of the building.

No medieval sherds were recovered but one Malvernian jar rim sherd of sixteenth-century date (Fig. 43, no. 1) came from topsoil near Cairn 2. It is perhaps an indicator of land use at this period but in view of the absence of similar material from the Penygraig farmstead, about 50m to the north, seems likely to have been carried by a worker some distance from home. An aceramic phase reflecting a mixture of poor market accessibility and cultural preference cannot be ruled out but is probably unlikely; as pottery was clearly readily available at Capel Maelog near Llandrindnod Wells, only 10km away, and at New Radnor in the thirteenth and fourteenth centuries (Courtney and Jones 1989 and 1990; Courtney 1998).

The bulk of the pottery dates to the seventeenth to early nineteenth centuries, but without a very precise beginning or end date. Overall the ceramic contexts at Penygraig appear to be highly mixed and it is not possible to see any sequence of ceramics within them. It is possible that the few sherds of North Devon ware could pre-date 1600 but their penetration into the Brecon region is almost certainly a seventeenth- or eighteenth-century phenomenon (Courtney *et al.* 1995–96) and it is looking increasingly likely that these vessels arrived by an overland route perhaps from Carmarthen rather than by the Wye.[315] By contrast, the redwares are likely to be from the Herefordshire border region and the industry seems to have seventeenth-century origins (Vince 1985, 43–5). As in other border farm sites, for example Tŷ-mawr, Montgomeryshire (Alvey *et al*. 2001), there seems to have been a marked rise in the use of pottery in the seventeenth to early eighteenth century marked especially by the penetration of Coal Measure products from Staffordshire and/or Bristol. This almost certainly reflects the growth of inland marketing networks for the main regional production centres. It is worth noting that John Morton in his *Natural History of Northamptonshire* published in 1712 remarked that Staffordshire and Derbyshire potters with their horses or asses were undercutting the local Potterspury potteries (Brears 1971, 196). However, it is at present difficult to date the growth of this trade in the Welsh borders due to a lack of clear stratigraphic and ceramic sequences.

The phase of industrial ceramics (*c*. 1740–1830) marks the final phase of occupation. The ceramics from this phase point to an increased use of tea wares and presumably an adoption of aspects of eighteenth-century polite behaviour. This is all the more marked given the earlier paucity of salt-glazed stoneware or tin-glazed earthenware. The average size of the creamware and pearlware sherds which dominate the final years of occupation is about 1.5g, which makes analysis of forms and decoration more difficult. A single small sherd from a hollow-ware vessel, externally painted with green and light blue bands on either side of manganese purple dots (context 1), suggests occupation into the period *c*. 1795–1815. However, the late eighteenth- to early nineteenth-century part of the assemblage also seems incomplete with no stonewares, industrial yellow wares or shell-edged plates, and there is a notable paucity of dairy or kitchen pots. This may reflect differential disposal of waste as well as the small size of the assemblage (especially by weight), though wooden or pewter substitutes were available. It is difficult to judge social status without more comparative material from rural sites which are notoriously conservative in their use of material culture. The increasing integration of such rural farmsteads into the consumer culture of the eighteenth century and later is an important indicator of economic growth and an increasingly national economy in Britain.

The clay pipes also indicate seventeenth- and eighteenth-century occupation. However, the only firm indictor of early seventeenth-century occupation is the pipe bowl of *c*. 1630–40 from the floor in the parlour of the Penygraig farmhouse (context 15).

As usual in non-alkaline conditions, much of the ironwork is in too poor a condition to be diagnostic even from a late post-medieval site, and even the copper alloy assemblage is not rich. This may simply reflect the house was kept clean and objects deposited on middens or recycled, though the lack of wire pins, for example, may be due to corrosion. Most of the dateable items of metalwork belong to the second half of the eighteenth century.

Domestic items are not particularly well represented. There is a fragment of an iron cooking pot, a class of object which was ubiquitous on domestic sites into the eighteenth century. In addition part of an iron scissors and fragments of iron knives were found. A decorated copper alloy rowel spur and a possible fragment from a second non-matching spur indicate horse riding. The decorated spur though indicates that even a tenant farmer in remote Wales could aspire to own consumer goods in the eighteenth century and it should probably not be regarded as evidence of affluence in this period. A horseshoe fragment came from collapsed rubble close to the floor surface on the southern side of the Penygraig farmhouse parlour (context 1, find no 4). The lack of a bolster on a bone handled knife (Fig. 45, no. 6) argues for a work rather than a domestic function. A further iron object (no. 5) also appears to be a blade-like knife or tool but insufficient survives to be diagnostic. A copper-alloy sheet object (Fig. 46, no. 8) with pierced holes is of uncertain function.

Six metal disk buttons (Fig. 46, 2–7) were recovered from the site in two main size groups, 15–18mm (4 buttons) and 29–30mm (2 buttons), though none matched each other. Five of these (nos 2–3, 5–7) appear to have been made of copper alloys, most probably from tombac, a copper zinc alloy, which resembles pewter. It is uncertain if these were also plated. All had soldered copper alloy wire attachment loops. One in the smaller size range (no. 5) has engraved geometric decoration, probably done by machine, while the rest were plain. These were of types dated to the period *c*. 1760 and 1785 by their shank types (White 2005, 63–5). The sixth button was a composite button (no. 4) made from 'white metal' (an alloy) and possessed a Saunders-type attachment for its wire loop dating it to the early nineteenth century. In addition three simple iron buckles were found, the largest probably used on harness. However, an iron tongue (Fig. 45, no. 4) from a composite shoe buckle can be dated to *c*. 1750–1800. This may suggest, as with the rococo spur, that these objects were old and unfashionable at the site's abandonment which might account for their deposition.

POTTERY

A total of 568 sherds of post-medieval pottery weighing 1.57kg was recovered during the excavations reported upon here, of which 553 sherds came from Penygraig farmhouse, 3 came from the Penygraig corn-drying kiln, 2 came from Cairn 1 and 10 came from Cairn 2.

Fabric types

Many of the fabrics from the site are ceramics derived from Coal Measures red and/or white clays. The types have been chosen to give an idea of the range of manufacturing and decorative techniques whilst allowing comparison to other assemblages.

Blackwares

Vessels with all-over black glaze on red or occasionally reduced grey fabrics. These evolved out of the earlier Cistercian wares of the sixteenth century and can be difficult to distinguish in this region especially

when fragmentary. All the vessels from Llanelwedd though are probably seventeenth-century or later (e.g. Fig. 43, no. 3). The forms at Llanelwedd are difficult to reconstruct but are probably all drink-related and mainly globular mugs. A sherd from the drain below the kitchen floor of the farmhouse (context 51) appears to come from the shoulder of an eighteenth-century teapot. Large partially brown or black-glazed coarsewares (bowls, large jars etc.) are classified as Creamware. 12 sherds, 56g.

Bristol/Staffordshire Yellow Slipwares
Fineware vessels made from white firing Coal Measures clays with yellow glazes and red slip decoration. This ware was used to make such forms as cups, mugs and posset pots (e.g. Fig. 43, nos 4–5). An unstratified chamber pot sherd is recognizable (context 1). The ware can be dated to *c*. 1680–1760 and is likely to be of Bristol and/or Staffordshire origin. 88 sherds, 230g.

Coal Measures Red Ware
Vessels made from (iron-rich) red-firing Coal Measures clays usually with partial brown to black lead glazes. This was commonly used for large kitchen and dairy vessels such as bowls and jars. Bristol and/or the Staffordshire area the most likely sources. Probably dating to the seventeenth to eighteenth centuries. 3 sherds, 7g.

Coal Measures Press Moulded Dishes
Dishes made by press moulding white firing (iron poor) Coal Measures clays. This was largely used for dishes which often have crimped rims. Usually yellow-glazed and slip decorated (using red or red and white slips). All the vessels had simple slip trailed decoration (e.g. Fig. 43, no. 2). Probably Bristol or the Staffordshire region in origin, *c*. 1675–1800. 11 sherds, 109g.

Coal Measures Red Slipped
White-firing Coal Measures fabric with a brown lead-glaze over a red slip. The vessels include one internally glazed bowl and the rest appear to be fine hollow wares, mostly globular with handles, probably mugs and/or posset pots: basically a variant of the Bristol/Staffordshire Yellow Slipwares, *c*. 1680–1760. 43 sherds, 150g.

Creamware
Fine, industrially produced white wares with a cream coloured glaze (often with yellowish tint) used for table and tea wares, *c*. 1740–90 (e.g. Fig. 43, nos 6–7). (See also Polychrome-decorated Creamware for decorated vessels.) This ware can be difficult to distinguish from pearlware as change was evolutionary and the two types overlap. The average weight of sherds was 1.64g. 111 sherds, 182g.

English Tin Glazed Earthenware
A single, unstratified, white-glazed sherd from the Penygraig farmstead (context 1), possibly from a small jar, and five sherds from an externally blue-mottled, small, hollow-ware form from the parlour floor in the farmhouse (context 15). Late seventeenth to mid eighteenth century. 6 sherds, 5g.

English White Salt Glazed Ware
A single base sherd probably from a tankard or similar drinking vessel in a white-glazed ware, *c*. 1695–1800. 1 sherd, 1g.

Lead Glazed Red Earthenware
Finely micaceous, red-firing earthenwares with brown lead-glazes. These are probably products of the western Herefordshire potteries (Vince 1985, 43–5). The vessels comprise internally glazed bowls and two small strap handles also probably come from bowls or similar forms of seventeenth to early eighteenth century. 40 sherds, 271g.

Malvernian Oxidised Ware
A single sherd from a jar rim in a hard and high-fired, orange (oxidised) fabric with a few Malvernian rock inclusions and an internal purplish-brown glaze (Fig. 43, no. 1). It has a thumbed depression but no applied strip on the rim exterior. This is a sixteenth-century type from the Malvern Hills area of Worcestershire (cf. Vince 1985, fig. 43, nos 9 and 13). 1 sherd, 15g.

Mottled Ware
White Coal Measures fabric covered with all-over mottled brown glaze over a red slip wash. Recognizable forms include reeded tankards and globular hollow-wares, probably mugs and/or posset pots. A barley-twist piece (longhouse, context 30) is possibly a handle fragment. Bristol or Staffordshire products, *c*. 1670–1760. 67 sherds, 218g.

North Devon Gravel Tempered Ware
Seven sherds all from internally glazed vessels, probably bowls in gravel-tempered fabric with characteristic angular quartz and biotite flakes. This fabric is occasionally found in sixteenth-century contexts in the Bristol Channel area but is likely to be of seventeenth- or early eighteenth-century date in this inland area. It was produced in Barnstaple and Bideford. 7 sherds, 175g.

Polychrome-decorated Creamware
Creamware hollow-ware vessels (teawares including cups) with decoration in polychrome colours (green, brown, blue) used often in combination as plain or mottled grounds, or with combing (see also Creamware for undecorated vessels). 11 sherds, 16g.

Pearlware
Fine industrial white-ware used for table and teawares, with a blue-tinged glaze, produced *c.* 1775–1830. Decoration includes blue-painted and transfer patterns notably Chinese garden scenes with hatched borders, blue-painted lines on the interior of cup/tea bowl rims, uncertain use of blue ground and a single example of mocha on a brown ground (e.g. Fig. 43, nos 8–11). These types suggest occupation of Penygraig into at least the 1780s. The mocha decorated globular hollow-ware vessel (no. 8) can be dated to after 1790 and in the case of a green, pale blue and purple-painted teabowl or cup (not illustrated) to *c.* 1795 or later (Rickard 2006, 46–62; Miller and Earls 2008, 94). Both sherds came from poorly stratified contexts at Penygraig (context 1). The average sherd size of this ware was about 1.56g perhaps suggesting heavy trampling during or after abandonment. 159 sherds, 102g.

Slip-Coated Red Earthenware
A variant of Lead Glazed Red Earthenware, probably all bowls, with a yellow internal lead-glaze on a white slip over the red finely micaceous fabric. Probably a Herefordshire-area product, of seventeenth- to early eighteenth-century date. 8 sherds, 33g.

Illustrated pottery (Fig. 43)

1. Jar rim, high-fired, with purplish-brown glaze on interior and thumb mark on exterior. Malvernian Oxidised ware. From topsoil, Llanelwedd Rocks Cairn 2: context 1, find no. 15.
2. Dish rim, crimped, slip-trailed. Coal Measures Press Moulded Dishes. From slab floor in hearth-passage of Penygraig farmhouse: context 31, find no. 32.
3. Globular mug handle. Blackwares. From occupation layer immediately to north of Penygraig farmhouse: context 18, find no. 7.
4. Cup, slip trailed on exterior. Bristol/Staffordshire Yellow Slipwares. From layer of rubble between oven and south wall of Penygraig cowhouse: context 34, find no. 40.
5. Porringer with crude slip trails on interior and exterior. Bristol/Staffordshire Yellow Slipwares. From occupation layer immediately to north of Penygraig farmhouse: context 18, find no. 7.
6. Teabowl. Creamware. From stone-filled rodent burrows in early earth floor in Penygraig farmhouse kitchen: context 52, find no. 74.
7. Tankard. Creamware. From occupation layer immediately to north of Penygraig farmhouse: context 18, find no. 7.
8. Globular hollow-ware vessel, blue-painted mocha on brown ground. Pearlware. Unstratified, Penygraig farmhouse, context 1, find no. 1.
9. Teabowl or cup base, blue-painted water scene. Pearlware. From make-up for later passage between kitchen and parlour of Penygraig farmhouse: context 41, find no. 65.
10. Possible jug or tankard base, blue transfer, possibly with Chinese design. Pearlware. From fill of curving drain below slab floor in Penygraig farmhouse kitchen: context 51, find no. 66.
11. Possible teabowl foot, with blue transfer Chinese garden design inside abstract border on interior. Pearlware. From layer of rubble between oven and south wall of Penygraig cowhouse: context 34, find no. 40.

CERAMIC MARBLE

A fragment of single ceramic marble, *c*. 20mm in diameter, made of predominately white-firing clay with red swirls. Poorly stratified within the Penygraig longhouse (context 1). Not illustrated.

CLAY TOBACCO PIPES

13 bowl or spur fragments (20g) and 22 stem fragments (72g) were recovered. The bowls and spurs all seem to be of Broseley type and thus probably Shropshire products. The more diagnostic fragments were as follows:

1. Bowl of Atkinson Broseley Type 1b, *c.* 1640–70 (Oswald 1975, 50 and fig. 7). From topsoil, Llanelwedd Rocks Cairn 2: context 1, find no. 13.
2. Bowl of Atkinson Broseley Type 1a of *c.* 1630–40. From earth floor in parlour of Penygraig farmhouse: context 15, find no. 23.
3. Two spurs of Type 5 of *c*. 1680–1730. The illustrated spur is marked ET in a square frame. ET is possibly Edward Taylor recorded as a pipe maker at Much Wenlock in *c*. 1715 (apprentice) and 1736.[316] From earth floor in parlour of Penygraig farmhouse: context 15, find no. 23.

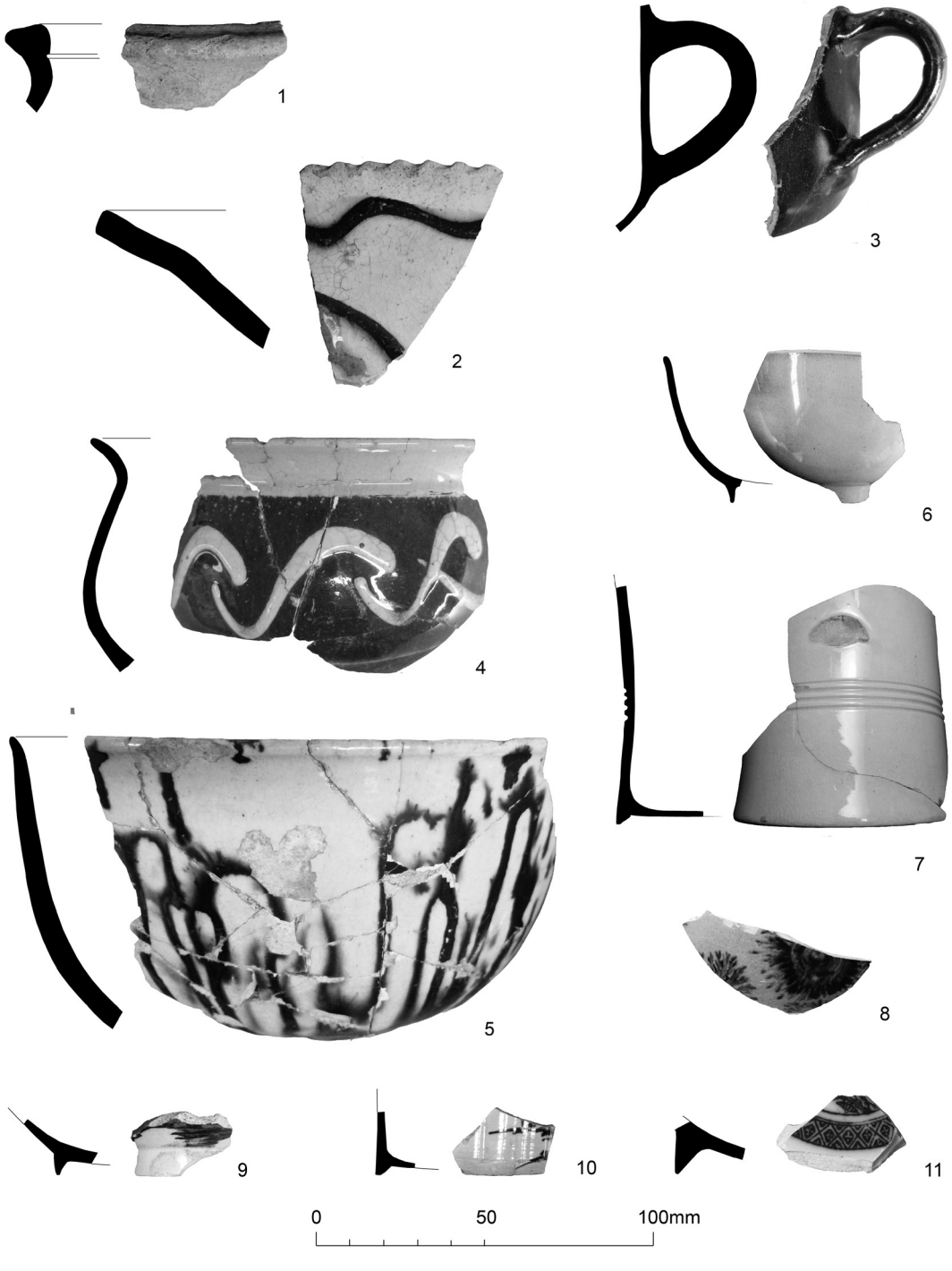

Fig. 43. Post-medieval pottery from Penygraig longhouse. Scale 1:2.

4. Fragment of bowl Atkinson Broseley Type 1b or 1c, *c*. 1640–80. From earth floor in parlour of Penygraig farmhouse: context 15, find no. 23 (not illustrated).
5. Bowl fragment of type 5 of *c*. 1680–1730. Unstratified, Penygraig farmhouse: context 1, find no. 6 (not illustrated).
6. Bowl of Atkinson Broseley Type 1c, *c.* 1670–80 (Oswald 1975, 47 and fig. 7). From the mound of Llanelwedd Rocks Pillow Mound 1 (see location on Figs 34, 36).

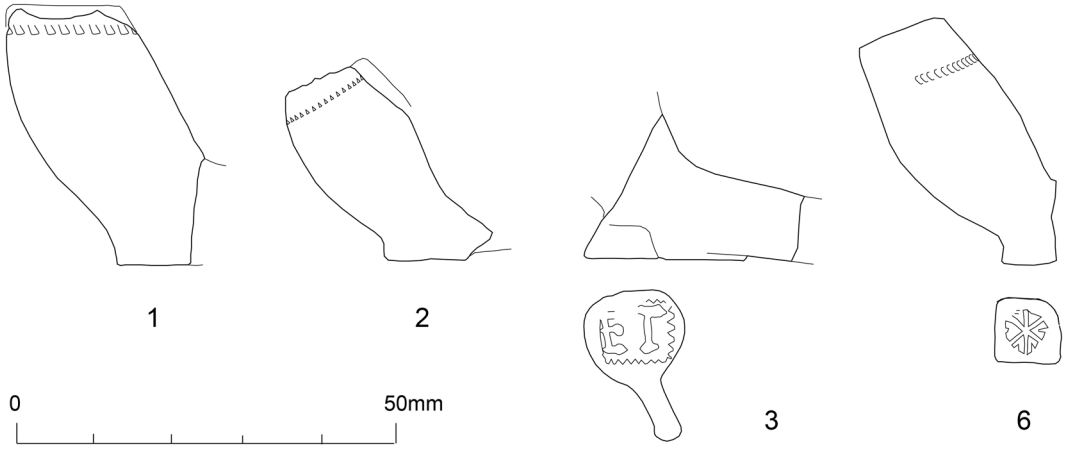

Fig. 44. Post-medieval clay tobacco pipes from Llanelwedd Rocks Cairn 2 (1), Penygraig longhouse (2–5), and Llanelwedd Rocks Pillow Mound 1 (6). Scale 1:1. No. 6 based on drawing by C. J. Spurgeon.

TILE

A single sherd (20g) of a flattish unglazed (?ridge) tile in a Coal Measures Red Ware fabric. Unstratified, Penygraig farmhouse: context 1.

GLASS

Eight sherds (71g) of free-blown, green bottle glass of early eighteenth- to early nineteenth-century date were recovered from the Penygraig farmhouse (not illustrated). In addition there were 20 sherds (*c*. 4g) of thin green pharmaceutical glass from both round and rectangular phials, probably also of eighteenth to early nineteenth-century date also from the farmhouse, but there was a lack of dateable diagnostic fragments in both wine bottles and phials. A green wine-bottle rim with a cracked and fire-polished rim above a down-tooled string rim of *c*. 1740–70 (cf. Jones and Smith 1985, fig. 5, right, and Jones 1986, fig. 14) came from an unstratified context within the farmhouse (context 1).

IRONWORK

46 fragments of post-medieval ironwork were recovered from the Penygraig longhouse, mostly comprising nails and unidentifiable fragments. The following items are illustrated (Fig. 45). Other catalogued material, not illustrated, includes nails, fragments of iron sheet and plate, and a horseshoe fragment.

1. Iron trapezoid buckle, heavily corroded. Rectangular cross-section. 48 × 44 × 6mm. Post-medieval, possibly from horse harness. From collapsed rubble of Penygraig longhouse: context 1, find no. 4a.
2. Trapezoid iron buckle with remains of roller, pin missing. This is a common post-medieval form, not closely dateable. 37 × 33 × 5mm. From floor surface in Penygraig farmhouse parlour: context 15, find no. 9.
3. Fragment of rectangular iron buckle with remains of roller, heavily corroded. 33 × 25 × 6mm. Post-medieval. From surface of later slab floor in Penygraig farmhouse kitchen: context 30, find no. 26a.
4. Iron or steel buckle chape of rectangular cross-section from a composite shoe buckle with two internal prongs. It appears to have tinned decorative lines running on either side of the buckle parallel with the spindle which would have rotated within the missing buckle frame. This type of buckle dates to *c*. 1750–1800 (Abbitt 1973; 48–52; Whitehead 2003, 103–5; White 2005, 31–50). Max. dimensions 62 × 31 × 3mm. From stone floor surface just inside north entrance to Penygraig longhouse: context 40, find no. 48.
5. Iron bar with roughly circular cross-section turning into flaring and flattened terminal. It is too incomplete to identify but possibly a knife or tool handle. Max. dimensions 55 × 21 ×12mm. From edging of stone-lined drain below later slab floor in Penygraig farmhouse kitchen: context 50, find no. 63b.
6. Iron handle with fragment of blade. It has two mineralized bone scales held by an iron rivet (or two opposing rivets) midway between the blade and solid iron handle. Probably post-medieval though the lack of a bolster (a thickening of the metal between the blade and handle) suggests that it was possibly a working or defensive knife rather than a cutlery item. Max. measurements 63 × 20 × 12mm. From early earthen floor surface in Penygraig farmhouse kitchen: context 48, find no. 72.
7. One half of pair of scissors with incomplete handle, drawn from X-ray. Max. dimensions 113 × 18 × 5mm (minus corrosion). Probably of mid seventeenth-century to beginning of nineteenth-century date (Noël Hume 1969, 267–9 and fig. 87; Beaudry 2005 115–36). The scissors fall within the category of 'general utility' scissors as defined by Beaudry (2005, 125) and are probably not closely dateable. Moulded handle stems appear to have been fashionable, though not universal, in the late eighteenth century, as indicated by finds from American military sites such as Fort Stanwix in New York State (Hanson and Ping Hsu 1975, 138–9 and fig. 178, k) and Fort Mackinac island, Michigan (Martin 1985, 208 and fig. 25: a–e). However, the Llanelwedd scissors are too corroded to tell if the stem was plain or moulded. From edging of stone-lined drain in Penygraig farmhouse kitchen: context 50, find no. 63a.
8. Iron tool with whittle tang for a wooden or bone handle, terminating in a triangular-sectioned point. This is possibly an awl (for wood or leather working) or given the agrarian context, possibly a hoof pick for removing stones from horse hooves. A similar tool is illustrated as an 'awl' from the late eighteenth- to early nineteenth-century occupation at Mill Creek, Mackinack Island, Michigan (Martin 1985, fig. 28:g). Max. dimensions 100 × 15 × 1mm. From collapsed rubble of Penygraig farmhouse, close to floor surface on southern side of parlour: context 1, find no 4.
9. Fragment of cast iron from the wall of a post-medieval cooking vessel, almost certainly a cauldron, with two horizontal ridges on the exterior surface, 98 × 75mm and *c*. 5mm in thickness. This type of

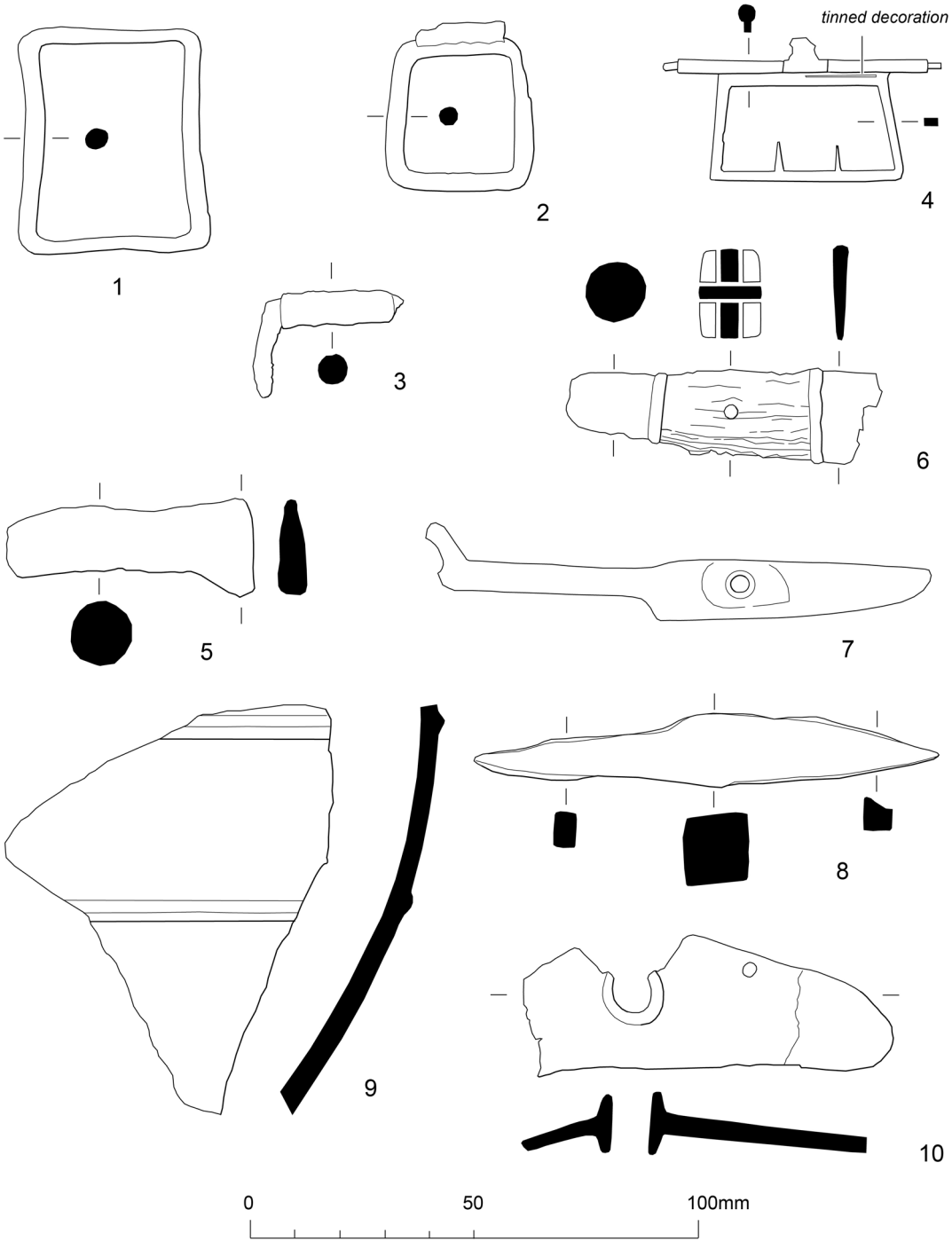

Fig. 45. Post-medieval ironwork from Penygraig longhouse. Scale 2:3.

vessel would have been ubiquitous in farmhouses and cottages into the nineteenth century (Brears 1979, 7 and nos 317–24 and 1998, nos 916–210). From stone floor surface just inside north entrance to Penygraig longhouse: context 48, find no. 56.

10. Iron lock ward of post-medieval date, in two joining fragments with collar around ward projecting from both sides. The X-ray indicates a rivet hole which would have attached it to the front lock plate while the rear would have been open (Noël Hume 1969, 243–52 and fig. 13a: 6 and 11). Max. dimensions 80 × 28 × 12mm. From collapsed rubble of Penygraig longhouse, close to floor surface on southern side of parlour: context 1, find no. 4.

COPPER ALLOY

Ten fragments of post-medieval copper-alloy were recovered from the excavations, of which one came from Llanelwedd Rocks Cairn 2 (Fig. 46, no. 1) and nine came from the Penygraig longhouse (Fig. 46, nos 2–10).

1. Ring-like object. This seems to be largely a bubbled light corrosion mass with green corrosion flecks indicting a copper-alloy base but it is unclear how much the oval profile (2–4mm) reflects the original metal object. It is enlarged on one side and measures 22–27mm in external diameter. Found at or near the buried soil surface below post-medieval clearance cairn to the south-west of Llanelwedd Rocks Cairn 2: context 8, find no. 18 (see location on Fig. 14).
2. Circular button, flat with broken copper-alloy wire loop set in cone of metal on back (White 2005, 64 and fig. 13.9: type D). Diam. 15mm. White dates this type of shank attachment to *c*. 1765–85. From floor surface in Penygraig farmhouse parlour: context 15, find no. 21.
3. Button, circular, slightly domed with broken copper-alloy loop set into daub of metal on back (White 2005, 64 and fig. 13.9: type E). Probably made of tombac (copper-zinc alloy). Diam. 18mm. White dates this type of shank attachment to *c*. 1765–85. From floor surface in Penygraig farmhouse parlour: context 15, find no. 22.
4. Circular 'white metal' button (note white corrosion products) made from two pieces with the front surface crimped over back piece. It has a Saunders-type shank pin (only a brown corrosion mass remains which may indicate an iron wire) in which the pin was inserted into a recess and held by resin. This is an early nineteenth-century type (White 2005, 64 and fig. 3.19: type H). Diam. 16mm. From Penygraig farmhouse kitchen fireplace: context 33, find no. 54.
5. Circular, copper alloy (probably tombac, giving a pewter-like appearance), flat-faced button, with broken copper-alloy wire loop set into a 'daub' of metal on back (White 2005, 63 and fig. 13.9: type E). White dates this type of shank attachment to *c*. 1765–85. It has a finely incised, machine-turned, geometric decoration on the front partly obscured by corrosion. Diam. 17mm. From collapsed rubble of Penygraig farmhouse, close to floor surface on southern side of parlour: context 1, find no. 3a.
6. Button (probably tombac), plain circular and domed with broken copper-alloy attachment loop set into a daub of metal on the back (White 2005, fig.3.19: type E). White dates this type of shank attachment to *c*. 1765–85. Diam. 29mm. From collapsed rubble of Penygraig farmhouse, close to floor surface on southern side of parlour: context 1, find no. 3b.
7. Button (probably tombac). It is plain, circular and slightly domed with a copper-alloy wire attachment loop set into a 'daub' of metal on the back (White 2005, fig.3.19: type E). White dates this type of shank attachment to *c*. 1765–85. Diam. 30mm. From collapsed rubble of Penygraig farmhouse, close to floor surface on southern side of parlour: context 1, find no. 3c.

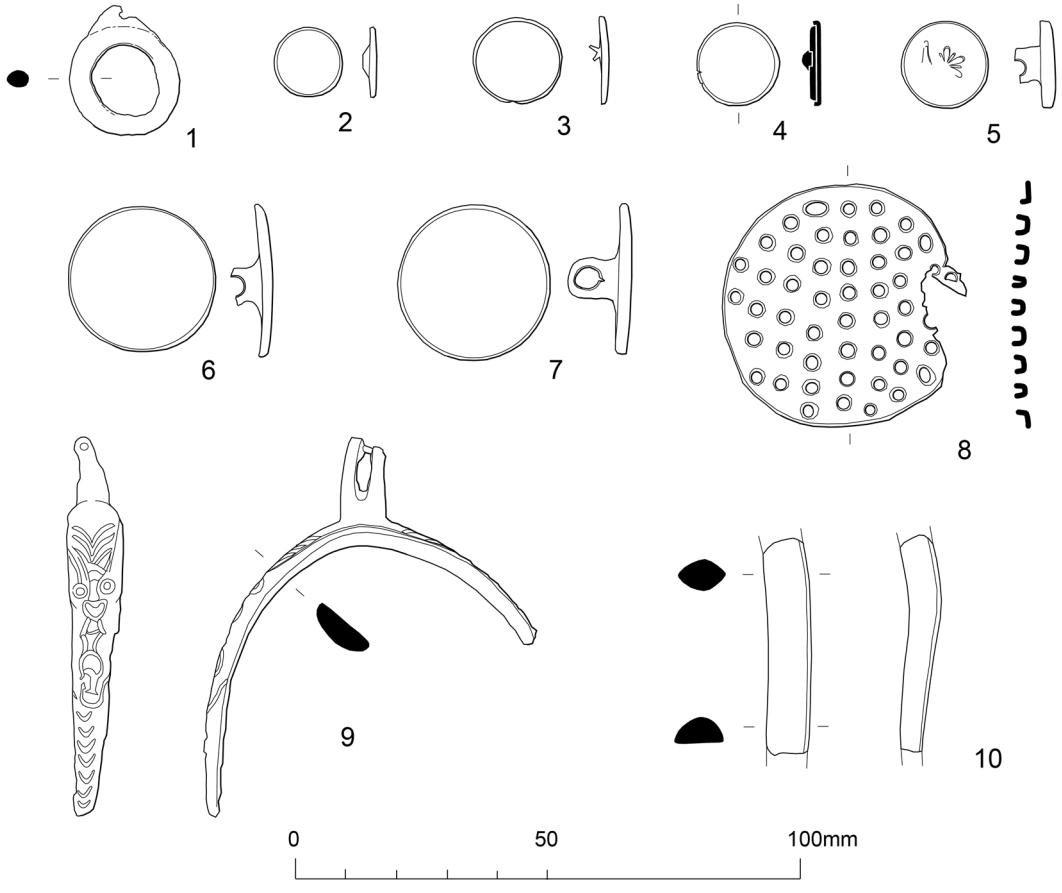

Fig. 46. Post-medieval copper alloy objects from Llanelwedd Rocks Cairn 2 (1) and Penygraig longhouse (2–10). Scale 2:3.

8. Sheet disc with perforations, 47mm in diameter, encased in corrosion/soil deposits, partly damaged along one edge. This object appears to be too small for a skimmer, a tool used to skim fat from stews (Brears 1998, nos 957–64; Goodall 1981, 64–5 and fig. 63:5). Excavated skimmer plates from Jordan's Journey in Virginia (early seventeenth-century context) and Bourtrange in the Netherlands (eighteenth–nineteenth century) measure 180mm and 132mm respectively (Bly Staube, Jamestown Discovery, pers. comm., and Calisch 1993, fig. 78). Its function thus remains uncertain and it may even have been a one-off object made to order by a local craftsman or itinerant tinker. Possible functions include being fitted into a container and used as a tea strainer, powder dispenser, or pounce pot or sprinkler used to dry ink.[317] From collapsed rubble of Penygraig farmhouse, context 1, find no. 3d.
9. Rowel spur with rowel box but no rowel and missing both arm terminals. It has cast decoration in a simple rococo style suggesting a date of *c.* 1730–70. Conservation produced no trace of tinning. This general form of copper-alloy spur is not uncommon in the Portable Antiquities Scheme database but firmly stratified examples of this period are rare. Max. dimensions 70 × 63 × 11mm. From floor surface in Penygraig farmhouse parlour: context 15, find. no. 18.

10. Rod-like object, curved with cross-section changing from D to diamond-shaped, corroded and encrusted. Probably part of a post-medieval spur arm. Max. dimensions 42 × 8 × 6mm. From fill of stone-lined drain in Penygraig farmhouse kitchen: context 51, find no. 69.

LEAD

1. Strip of heavily corroded lead, 48 × 9 × 6mm. From fill of stone-lined drain in Penygraig farmhouse kitchen: context 51, find no. 67 (not illustrated).
2. Two small came fragments from leaded window, 24mm and 13mm in length, with H-shaped cross section, 4–5mm across and 3mm thick, to hold glass 2mm thick. From above north sill wall of Penygraig farmhouse adjacent to late cross-passage: context 17, find no. 11 (not illustrated).

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NOTES

1. Research Associate, Clwyd-Powys Archaeological Trust (CPAT), 41 Broad Street, Welshpool, Powys, SY21 7RR.

2. Bevins and Metcalfe 1993; Woodhall undated.
3. The bedrock in the area of the excavated cairns and farmstead are of spillite and lapilli tuffs of varying hardness and texture: pers. comm. Dr Gareth Owen, Dr Jacqui Malpas and Ray Humphreys.
4. Soil Survey 1983.
5. Morgan 1998, 39.
6. Pariss 1973, 54; Sumner and Smith 2003, 79; a general view of the unenclosed range of Carneddau is prominent in his painting 'Pencerrig', 1772 (Sumner and Smith 2003, no. 40), whilst an exaggerated depiction of the southern end of the range appears in his 'The Southern Extremity of the Carnedde Mountain in Radnorshire', 1794 (ibid., no. 157). Thomas's poem 'Petraeia', with the line 'And high *Carnedda's* top reflects the ling'ring rays' was published in his friend James Baker's *Picturesque Guide through Wales and the Marches* published in 1795 together with aquatints after works by Jones (Baker 1795, 217).
7. Site record numbers are given as listed in the Clwyd-Powys Archaeological Trust (CPAT) Historic Environment Record (HER), available online at <www.archwilio.org.uk>.
8. Only a small roadside quarry is shown here on the 1st edn of the 25-inch Ordnance Survey map of 1889.
9. Davies 1912, 85; Morton 1997.
10. Murchison 1839, 331.
11. Obituary, *Archaeologia Cambrensis* 77 (1922), 420–1.
12. Graham and Owen 1909, iii.
13. Owen 1948, 6. Little further information is included in Owen's papers, National Library of Wales (NLW), D. Edmondes Owen Papers.
14. RCAHM 1913, 85, no. 333.
15. Ibid. 83, no. 327.
16. Silvester 1996.
17. Following the excavation of Cairns 1 and 2 in 2007–08 unsuccessful attempts were made to reconstruct the two cairns either elsewhere in Llanelwedd Quarry or within the grounds of the Royal Welsh Showground at Llanelwedd. The suggestion in 2008–09 that the corn-drying kiln might be reconstructed at St Fagans National History Museum was likewise unsuccessful.
18. Hayman and Horton 2010.
19. CPAT HER 1611, at SO 05085 52583.
20. Graham and Owen 1909, iii.
21. Owen 1948, 6.
22. Anon 1911.
23. The site is listed in Jerman 1936, 45. It was relocated by Spurgeon in 1966 (1966a) and further described and illustrated by him in 1968: a note in the RCAHMW, Llanelwedd Pillow Mound Excavation Archive, records that the tenant farmer said that he had heard that four horses had been used to remove the capstone when it was excavated by the rector of Llanelwedd. In this note Spurgeon records a second cairn to the south but this was subsequently dismissed as being natural by a Royal Commission investigator (note in NMR by W. E. Griffiths, 20 October 1972).
24. Savory (1963, 38 and n. 5) mentions Beaker sherds of unknown provenance decorated with horizontal rows of punched decoration suggestive of finger-printing, in a box in Brecknock Museum with a label indicating that it was derived from 'the late D. Edmondes Owen, Vicar of Llandovery'. In correspondence (RCAHMW, Llanelwedd Pillow Mound Excavation Archive: letter to C. J. Spurgeon dated 27 June 1966) Savory suggested that the sherds were likely to have

come from Edmondes Owen's excavations at Llanelwedd. The finds could not be located at the museum in 2012 (pers. comm. Nigel Blackamore, Senior Curator).

25. Calculated from an estimated volume of 0.56m3 and mass of 2,870kg/m3 measured from a sample of local rock.
26. At SO 05121 52585, at a height of 294m.
27. Cosmological isotope dating of the quarrying was not considered to be feasible, on the basis of advice kindly provided by Dr Derek Fabel (University of Glasgow), Professor Mike Walker (University of Wales Trinity St David) and Dr Ingrid Ward (English Heritage).
28. The top of stone 12, for example, on the uphill, south-eastern side having been at 291.20m, and the top of stone 25 on the downhill, north-western side, having been at 291.23m.
29. Graham and Owen 1909, iii.
30. CPAT HER 33881, SO 04961 52637.
31. Calculated from the mass of a sample of local rock which was measured as 2,370kg/m^3.
32. Cf. Britnell 1982, 136–7.
33. The circumstances of excavation were quite unusual but seemed unlikely to have been the cause of the markings. The surface had been cleaned up for photography in conditions close to freezing in late November, following a frost the previous night. The subsoil surface below the cairn was unusually fine and gritty and lacking any clayey component and for this reason had been largely cleaned by brushing rather than by trowelling. The criss-cross markings only existed as slight corrugations in the subsoil which were only visible at high-level and in low-light conditions: no colour changes were apparent and the markings were undetectable at ground level or in dull light. The plan of the marks on Fig. 10 is drawn from a rectified image traced from oblique photographs.
34. Cf. the evidence from Stackpole Warren, Dyfed: Benson *et al.* 1990, 202.
35. See references in Rees 1978, 112–13.
36. A line subtended through the centre of the cairn and the large kerb stone lies on an angle of approximately 70° west of Ordnance Survey grid north and points roughly in the direction of Drygarn Fawr (SN 862 583).
37. Cf. Lynch 1980.
38. RCAHMW record card by C. J. Spurgeon dated 10/6/66 (RCAHMW, Llanelwedd Pillow Mound Excavation Archive) records with reference to Cairn 1 'a stony mound immediately S. may be an unopened cairn. At least two other possible cairns lie less than 100 yards to the N.W.'. The first cairn appears to have been dismissed by later fieldworkers but the possible cairns to the NW may refer to Cairn 2 (CPAT HER 33881) and the three small clearance cairns (CPAT HER 33861) recorded in 1996 (Fig. 1c).
39. Ward 1902, 25–8; Lynch *et al.* 2000, fig. 3.13.
40. Green 1987.
41. Green 1987, 45, 48. The radiocarbon dates are 3860±70 BP (HAR-2677) and 3300±80 BP (HAR-2677) which calibrate (with OxCal 4.1 using IntCal04 atmospheric curve) to between 2562–2163 cal. BC and 1767–1416 cal. BC at 95.4% confidence. Two launders from Cwmystwyth have been dated to between 2400–1750 cal. BC and 2140–1820 cal. BC at 95.4% confidence (see Ambers 2003, 56).
42. Hogg 1977, 26; Marshall and Murphy 1991, 62.
43. Marshall and Murphy 1991, 62; cf. comments in Burrow 2011, 154.
44. Lynch 1986, 92.
45. Smith 1996, 184, 209.
46. Owoc 2001.

47. Lynch 1993, 74.
48. Cf. Timberlake 1990b.
49. Cf. Timberlake 1990a.
50. Two of the few recorded parallels are the substantial central grave below Brenig 41 round barrow, representing perhaps the only inhumation burial recorded in the Brenig cemetery complex (Waddell 1993), and the shallower grave below Brenig 8 (Lynch 1993, 87–8). The grave below Brenig 41 was associated with charcoal but there is no recorded evidence of firesetting. The grave below Brenig 8 is described as having been dug 'by prising out the easily broken bedrock and adopting its natural planes and fissures. Consequently the pit was rather amorphous and ill-defined'. A late Neolithic pit grave at Trelystan was also rock-cut: Britnell 1982, 136–7.
51. Dutton and Fasham 1994.
52. Jenkins 2003.
53. Timberlake 2003.
54. e.g. Llancynfelin (Timberlake 1995a, 43); Nantyrarian (Timberlake 1995b, 45); Nantyreira (Timberlake 1988; 1989); Ogof Wyddon (Timberlake and Mason 1997; Timberlake 1998); Tyn-y-fron (Timberlake 1996).
55. Timberlake 2003, 112–4.
56. Kristiansen and Larsson 2005, 57.
57. Cf. Sherratt 1996.
58. Roberts 2008, 50.
59. Cf. Johnston 2008.
60. Cf. Barclay 1997, 142.
61. Cf. Timberlake 2003, 39; Dutton and Fasham 1994, 256.
62. Weisberber and Pernicka 1995, 163.
63. Cf. Bradley 2005, 25–8.
64. Owen 1948, 6. The huts are also described in a field visit report in *Transactions of the Woolhope Field Club* 1937, 93.
65. RCAHMW record card by C. J. Spurgeon dated 10/6/66 (RCAHMW, Llanelwedd Pillow Mound Excavation Archive) places the huts at SO 0509 5248. The huts appear to have been subsequently (and mistakenly) dismissed by Royal Commission investigators.
66. CPAT HER 3789.
67. Davies 1912, 68. It seems likely that one of these round huts is the one that is reported as being excavated in 1906 (Graham and Owen 1909, iii).
68. Surprisingly few round huts are recorded in Radnorshire of which none have been excavated recently (Silvester 1999b) but these include a small cluster of sites further north on the Carneddau hills (CPAT HER 17636, 23105, 36969, 36972). A greater number of sites are known in Breconshire (Hankinson *et al.* 2008), but the form and dating of these is likewise uncertain.
69. CPAT HER 36969.
70. CPAT HER 33887.
71. Davies 1912, 50.
72. NLW, Penpont 655. The tenement of 'Pen y Graigge' in the parish of Llanelwedd is mentioned in a settlement agreement in favour of Rowland Gwynne and George Gwynne, January 1672, following the death of Sybill Gwynne, wife of George Gwynne deceased.
73. The National Archives (TNA), PROB 11/1163, fos 322–9, will of Marmaduke Gwynne of Llanelwedd, 1 March 1788. Holdings in the parish of Llanelwedd are listed on 324^{r-v}. There is potential for confusion with the property known as 'Pen-graig' (SO 036532) in the parish of

Llanelwedd, about 1.4km to the north-west. However, this property is listed as an unnamed cottage forming part of the Wellfield estate in the tithe apportionment schedule of 1845 and the earliest occurrence of the name that has been traced so far is on the first edition of the Ordnance Survey 25-inch of 1889, which suggests that the name post-dates the abandonment of the Penygraig farmstead.

74. NLW, Llanelwedd Parish Records.
75. Mary, the daughter of Rees Prothero of 'Penygraige' was christened in 1785 (NLW, Llanelwedd Parish Records), which is the latest certain record of occupation that has been traced; a son, James, was born in the parish in 1799 and died the following year but the address is not stated. References to a 'Pen y graig' suddenly reappear in the parish records 1820s and 1830s when it was in occupation by a rapid succession of labourers: these are likely to refer to the later dwelling mentioned in note 73.
76. Enclosure act for Disserth and Llanelwedd, 52 Geo. III c. 64, 1812.
77. A charming photograph of Gelli Cadwgan in *c*. 1910, by the Builth Wells photographer P. B. Abery, is given in Suggett 2005, fig. 8, which also gives a rare view of Llanelwedd Rocks just to the north of the farm prior to extensive quarrying.
78. NLW, Ordnance Survey Surveyors' Drawing 197, 1817.
79. The neighbouring farms and tenements at Carneddau, Gelli Cadwgan and Tan-y-graig are all shown on the Ordnance Survey Surveyors' Drawing.
80. NLW, Tithe apportionment of Llanelwedd (parish), Radnorshire, 1845.
81. Smith 1988, 473, Map 33.
82. Suggett 2005, figs 197 and 204.
83. Smith 1988, 380, Map 10.
84. Only one very small fragment of lime mortar was found in collapsed tumble.
85. The later slab floor was not fully excavated and the full extent of the drain is therefore uncertain.
86. Probably not derived from the immediate locality.
87. Contexts 50, 41 and 48 respectively.
88. Suggett 2005, 212–19. Prior to the construction of the passage foundations the step from the earlier earth floor to the top of the surviving sill walls to the north and south would have been 0.4–0.5m high, which demonstrates the absence of original doors at this point.
89. Cf. Wiliam 2010, 213.
90. Pers. comm. Dr Gareth Owen. The rock type splits into thin slabs and was evidently chosen for its refractory properties and was probably obtained locally.
91. Cf. Wiliam 2010, 215, 217.
92. Contexts 11 and 18 respectively.
93. CPAT HER 3883
94. A survey of the landscape in the vicinity of the Penygraig farmstead was undertaken as part of the survey carried out in 1996 as well as during the course of excavations reported upon here.
95. See note 78.
96. Cf. Treheslog, Cwmteuddwr, illustrated in Suggett 2005, fig. 262.
97. Two smaller fields on the eastern side of this enclosure, belonging to Maengowan Farm in tithe schedule of 1845, appear to post-date the Ordnance Surveyors' drawing of 1817 and pre-date the tithe map of 1842.
98. Clark 1794, 21.
99. Walter Davies 1815, vol. 1, 248–9.
100. Cf. Suggett 2005, 254.

101. Lewis Davies 1912, 50. The boulder is most probably the 'huge poised stone' described by Edmondes Owen in his notes on the history of the parish: Owen 1948, 4.
102. The name is probably derived from *maen* ('stone') and *cywyn* ('a rising up'): Boon 1985, 216.
103. Smith 1988, 448, Map 29b; Smith 1989, 103; Suggett 2005, fig. 192.
104. Suggett 2005, 187.
105. Cf. Ibid. 89–90.
106. Ibid. 10.
107. Ibid. 181.
108. Cf. Gilfach (St Harmon) and Cwmberllan (Rheulen): Suggett 2005, 207, 210.
109. Cf. Suggett 2005, 189, 196.
110. Ibid. 2005, 203.
111. Ibid. fig. 197.
112. Ibid. fig. 189.
113. Ibid. fig. 207.
114. Ibid. fig. 204.
115. Ibid. fig. 197.
116. Ibid. 205.
117. Brooksby 1973, 64–77.
118. Camdem 1701, vol. 2, 619.
119. Cf. Smith 1988, 266.
120. Suggett 2005, fig. 107.
121. Ibid. fig. 202.
122. Cf. Wiliam 1978; 2010, 213.
123. Cf. Suggett 2005, 212–4, 239.
124. The passage may also have acted as a central service room between the kitchen/hall and parlour (Richard Suggett pers. comm.).
125. Walter Davies 1815, vol. 1, 149, 151.
126. Suggett 2005, fig. 212.
127. Ibid. fig. 215.
128. Ibid. fig. 220.
129. Wiliam 1986, 157.
130. Davies 1815, vol. 1, 443. Earth floors were also recommended in the eighteenth century (SEAMC 1767, *infra* 'Barn'); see also Wiliam 1986, 159.
131. Davies 1815, vol. 1, 159.
132. Alternatively, the hearth passage opposite the principal door may originally have acted as a service room and/or dairy, which was displaced when the oven was built (Richard Suggett pers. comm.).
133. Suggett 2005, 240.
134. Walter Davies 1815, vol. 1, xi. See also Wiliam 1986, 79–80.
135. Walter Davies 1815, vol. 1, 439.
136. Walter Davies 1815, vol. 1, 435–9. A similar rectangular stack (or possibly a hay-rick) at Pencerrig in 1784 is illustrated in the painting 'A Barn at Pencerrig' by Thomas Jones (Sumner and Smith 2003, fig. 36).
137. Butler 1987, 53, 55.
138. Cf. Ibid. 51.
139. Wiliam 2010, 274, note 15.
140. Feachem 1956–57, 50, note 6.

141. It is assumed that both of the Penygraig ovens were for purely domestic use and privately owned, but is this necessarily the case? If the external oven had operated commercially, baking bread for sale at local markets, it may have become liable for Hearth Tax. Exemptions from hearth tax in the 1662 Act are expressed as any hearth in a 'Blowing House and Stampe Furnace or Kiln … nor any private oven within …those already charged' (Parkinson 2008). Forges and common ovens used for commercial baking were not exempt, however, though admittedly this seems to be more likely to have applied to a kiln in an urban location than one in a remote rural setting such as this and therefore seems unlikely to have significance in the suggested transfer of the oven from the kiln to the farmhouse.
142. Wiliam 1986, 180–1.
143. Ibid. 181.
144. Walter Davies 1815, vol. 1, 469–70. For other first-hand accounts of the use of corn-drying kilns in Wales see Wiliam 1986, 180–2, though the Penygraig structure seems closest to that described by Walter Davies.
145. The flue of the Penygraig kiln is 3m long with a cross section about 0.55m square throughout its length, which compares with the length of 12 feet (3.66m) and cross section at the outer end of 30 inches (0.76m) lowering to 9 inches (0.23m) at the inner end given by Davies. The length of the drying chamber at Penygraig is approximately 2.8m which compares with the 12 or 14 feet (3.66m or 4.26m) given by Davies. The Penygraig drying chamber is about 2m wide at the base and only slightly widening towards the top, whereas Davies describes a chamber that is 4 feet (1.2m) wide at the base and broadening to 9 or 10 feet (2.7m or 3m) wide at the top.
146. Richard Suggett has drawn my attention to the following reference to freestanding structure possibly similar to that at Penygraig. In 1622, Henry Rosser Richard, yeoman, was ordered by arbitrators to repair 'the [stone]-tiled bake house, killne, or oven house' standing on the premises at Tir a Thai John Probert, Glasbury, Radnorshire (NLW, Court of Great Sessions in Wales 26/151/m.29).
147. Butler 1987, 53–4; the word might have various meanings, including 'kiln-house', 'bakehouse' or 'malt kiln'.
148. Cf. the early nineteeth-century 'small oat kiln, a stone building with straw cover' recorded as being near Lodge Mill, Gogerddan, Ceredigion: NLW, Gogerddan Estate: Valuations, AA1, E38, 1805.
149. Graham 1812, 117.
150. Freestanding traditional Breton bakehouses (*fournils*) and bread ovens (*fours à pain*) have been described by Gwyn Meirion-Jones (1982, 134–40). They were built of stone or cob (*terre battue*) and were either communal—serving a number of dwellings—or privately owned. Freestanding ovens were generally drum-like, 4–5m across, but flat at the front, often with a gable and short ridge up to 3–4m high. They sometimes had a narrow flue above the mouth of the oven, supported by corbels, and there was often a small keeping-place at ground level, below the opening, in the position occupied by the flue of the corn-drying kiln at Penygraig. Ovens in bakehouses were protected from the weather by the main roof of the building or by a lean-to roof, but freestanding ovens often simply had a domed or pitched roof made of stone, daub (*pisé*) or turf.
151. Cf. Suggett 2005, 237.
152. Fox and Raglan 1953, 37–8; Smith 1990, 193; Tibbott 2002, 95; Wiliam 2010, 215–7.
153. Collins 1975, 109.
154. Malkin 1807, 404.
155. The tenant's landlord in the 1740s, Marmaduke Gwynne of Garth and Llaneldwedd was a fervent Methodist (converted by Howell Harris) whose daughter married Charles Wesley (*Dictionary of*

Welsh Biography Down to 1940 (London, Honourable Society of Cymmrodorion, 1959), 331–2) and is likely to have been influenced by both Charles Wesley's (e.g. Tyson 2007, 79–80) and John Wesley's (e.g. Wesley 1813, vol. 16, 81) well-known strictures against tobacco and alcohol. The Joneses of Pencerrig, one of the other Llanelwedd estates, were also a longstanding Dissenting family (Sumner and Smith 2003, 23).

156. Suggett 2005, 183, 187–8.
157. e.g. Ty'n-y-cwm (Newchurch) and Upper Cwm Brith (Cefnllys): see Brooksby 1973, 69–76; Wiliam 1986, 98, 100.
158. Suggett 2005, 183.
159. Ibid.
160. NLW, Penpont 655: see note 72.
161. The Radnorshire Hearth Tax returns for 1666 (pers. comm. Elizabeth Parkinson, but dated to 1670 in Faraday 1989–91) lists only two dwellings in Llanelwedd with two chargeable hearths, one for Lettice Prothrough and one for Thomas Powell (Faraday 1989, 54). Both names also appear in the 'Not Chargeable' list, for respectively one and two hearths, so either one might have owned a kiln or bakehouse or its hearth and thus occupied Penygraig. NLW, BR/1675/81, Thomas Powell: bond, 1675 (available online at http://hdl.handle.net/10107/995292) places Thomas Powell at Penykerrig (Pencerrig),
162. See note 73.
163. NLW, BR/1783/40, Will of Jeremiah Price, yeoman, dated 24 February 1783, proved 24 March 1783 (available online at http://hdl.handle.net/10107/655168).
164. Cf. Suggett 2005, 182–3.
165. This represents an equivalent contemporary value of about £33,000: 'Equivalent Contemporary Values of the Pound: A Historical Series 1270–2000' (London: Bank of England, 2000).
166. Cf. Suggett 2005, 9, fig. 7.
167. Owen 1948, 20. The source of this information is not stated but presumably derives from parish records, which have not been located.
168. Ibid.
169. Described by Edmondes Owen (Owen 1948, 20) as 'little croft occupied by Thomas Morgan who died in 1792 and 'probably the last to live there'.
170. The following is a transcript of the will (NLW, BR/1783/40):

> First I give & bequeath to my loving Wife Mary Price forty Pounds. I give & bequeath to my Son Lewis Price y. Sum of forty Pounds. I give and bequeath to my Daughter Mary Price the Sum of forty Pounds. I give & bequeath to my Daughter Anne Price the Sum of forty Pounds. I give to my Daughter Magdalen Cartwright the Sum of twenty Pounds. I give to my Son Hugh Price nineteen Pounds. I give the two Bonds which are due on Marmaduke Gwynne Esquire of Garth in Breckn Shire one of £100 the other £50 with their Interest, if they can be recovered between my four sons (that is) Thomas Price John Price Lewis Price/ before mentioned / and Hugh Price to each Share like. I give a Bond of £100. being due on Mr. Richard Stephens of Garth in Nantmel Parish equally between all my children if it can be recovered (viz) Thomas Price John Price Lewis Price Hugh Price David Price Margaret Lloyd Elizabeth Morgans Magdalen Cartwright Jane Davies Mary Price & Anne Price to be equally divided between them if recovered. I give my Household Stuff between my s[ai] d Wife and two Daughters / viz / Mary Price and Anne Price I likewise give all the rest of my Money in Bonds or otherwise due to me and all my Goods, Chattels and personal Effects

whatsoever I shall enjoy at my Decease / except for Ewes which I give my aforesaid Wife / between my s[ai]d Wife and all my children before mentioned to be equally divided amongst them. I nominate my two eldest Sons Thos. Price and John Price to be joynt Executors of this my last Will and Testament and … without … charges revoking all other Wills I declare this to be my last.

Sign'd Seal'd & delivered in presence of

Thos. Morris The Mark of Jeremiah Price
Thos. Bowen

A true Inventory of the Goods and Effects of Jeremiah Price of the Parish of Llanelweth in the County of Radnor and Diocese of St. Davids lately died being possess'd of as follows.

Horned Cattle.	£	s	d
3 Cows	7	10	0
2 Heifers and a Calf.	4	10	0
Horses			
2 Mares & a Colt	6	0	0
70 Sheep of all Sorts	7	0	0
Pigs & Poultree	1	0	0
Household Stuff and wearing Apparel	7	0	0
Implements of Husbandry	1	0	0
Cash	482	0	0
Tot	516	0	0

Thos. Morris
Thos. Bowen
Appraizers

171. The legal requirement for a probate inventory to be prepared had ceased in 1782 in cases where there was no dispute.
172. Cf. the multiple functions of horses in the early nineteenth century given in Davies 1815, vol. 1, 289–91.
173. Davies 1815, vol. 1, 479; vol. 2, 291–2; Collins 1975, 100.
174. Davies 1815, vol. 1, 480.
175. Williams 1905, 160, published posthumously.
176. Davies 1815, vol. 1, 460.
177. Ibid. 446.
178. Assuming a yield of 9 bushels per acre × 5.3 acres × 80 pounds.
179. A conversion rate of 78% flour for barley is given by Clark 1975, 108, note 1.
180. Representing a sixth of the total national average weekly consumption of cereals by agricultural labourers' families of six persons multiplied by 52.
181. 5.3 × 9 = 47.7 bushels; 47.7 bushels at 80 pound per bushel = 3,186 pounds; 22 quarters = 616 pounds dried per day (21 hours); 3,186 divided by 616 = 6.1 days.

182. Ridyard 1995, 37–8.
183. Davies 1815, vol. 1, 466.
184. Howell 1985, 278.
185. Davies 1815, vol. 2, 70, gives a figure of 200,000 acres of common out of total of 326,000 acres.
186. Davies 1815, vo1. 1, 162.
187. Clark 1794, 38; Davies 1815, vol. 1, 222–3.
188. Ibid. 164. Similar views are expressed by Jonathan Williams, writing in the early nineteenth century (1906, 160).
189. Cf. Cowell 1984, 71.
190. Davies 1815, vol. 1, 164.
191. Malkin 1807, vol. 1, 414.
192. Davies 1815, vol. 1, 480.
193. Boon 1985, 218. A tenement called Maynegowen said to lie in Llanelwedd (though it actually lies in Llanfaredd parish), was in the ownership of Sir Gelli Meyrick before his execution for treason in 1601: Banks 1864, 24. The face value of the coins is £28 5s which represents an equivalent contemporary value of about £2,300: 'Equivalent Contemporary Values of the Pound: A Historical Series 1270–2000' (London: Bank of England, 2000).
194. The following recent field surveys have been funded by either Cadw or RCAHMW: Silvester 1996; Silvester 1999a; Silvester 1999b; Jones 2003; Jones 2004; Silvester and Hankinson 2006; Hayman and Horton 2010.
195. Silvester 2006, 19–20.
196. Cf. Davies 1985.
197. CPAT HER 1618.
198. Caer Einion, and Cwm Berwyn, respectively CPAT HER 1617 and 1625.
199. Williams 1905, 323–4. A rare glimpse of the minimal extent of enclosure on the Carneddau hills in 1772 is given in Thomas Jones's painting 'Pencerrig': Sumner and Smith 2003, 150.
200. Chapman 1992, 143–4.
201. Act 52 Geo. III c. 64, 1812.
202. Walter Davies 1815, vol. 2, 92.
203. Williams 1905, 325.
204. Thus, in 1842, of the parcels of land in the immediate vicinity of the Penygraig farmstead thought to have been enclosed at this time (see names given on Fig. 31) nos 229 ('Rocks'), 248 ('part of the sheepwalk'), 250 ('Sheep Walk') belonged to James Price of Carneddau Farm, nos 260 ('Sheep Walk'), 261 ('pen y graig great meadow'), 262 ('pen y graig great field'), 263 (unnamed), 272 ('Sheep Walk') belonged to David Marmaduke Gwynne, heir to the Llanelwedd Hall estate.
205. Cf. Suggett 2005, 89–90.
206. Cf. Beckett 1982.
207. CPAT HER 2002.
208. Graham and Owen 1909, v. It is unclear whether this refers to a single warren or to several warrens in the vicinity of Builth Wells.
209. Owen 1948, 4.
210. Author of *Celtic Researches on the Origin, Traditions and Languages of the Ancient Britons* (London, 1804) and *The Mythology and Rites of the British Druids* (London, 1809) who was born at Hendre-Einion, Llanfaredd, to the east of Llanelwedd and whose elementary education was obtained at 'the cage', Llanelwedd (see note 284). The site showing signs of 'careful excavation at

some distant date' might conceivably be Mound 1, described below, which had had a pit dug into the top of it.

211. Owen 1948, 5. The two collections of Stephen Williams's papers in the National Library of Wales (the Penralley Papers and Birmingham Waterworks Corporation Papers) make no mention of the Llanelwedd pillow mounds (pers. comm. Revd Dr David H. Williams).
212. SO 058517: Davies 1912, 85; Morton 1997.
213. Owen 1948, 5.
214. CPAT HER 1610; Owen 1948, 5. The site is not closely located.
215. Llanelwedd had been visited by the Cambrians during the course of their summer meeting at Llandrindod Wells held in the previous year, and although the long mounds and various other antiquities could not be visited due to 'the late hour of arrival' the 'long barrows' were visited by the Revd Canon Rupert Morris, the editor of *Archaeologia Cambrensis* in the company of Edmondes Owen (Anon 1911, 143).
216. RCAHM 1911, xiv. A footnote states that 'A record of the excavation and miscroscopical examination was forwarded to the then editor of *Archaeologia Cambrensis* (Mr. J. Romilly Allen, F.S.A., since deceased), but was never printed, and the account was not found amongst that gentleman's papers after his death'.
217. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: handwritten letter dated 8 March 1911 from Marmaduke G. Howell to Edward Owen, secretary of the Royal Commission.
218. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: handwritten letter dated 9 November 1909.
219. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: typed memorandum entitled 'Llanelwedd', attributed to Edward Owen, undated (1909).
220. *Western Mail,* 1 February 1910; *Brecon County Times*, 3 March 1911.
221. *Western Mail*, 1 February 1910.
222. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: letter and accompanying map from the Board of Agriculture and Fisheries dated 29 May 1911 to the secretary of the Royal Commission, where the pillow mounds are indicated as 'graves'. Transcription of the sketch, which is based on OS mapping, indicates that Mound 129731 is located at SO 305191 251969, and Mound 129732 at 305230 251967.
223. *Brecon County Times*, 3 March 1911, p. 7.
224. RCAHM 1913, 83, no. 327; this is repeated by R. C. Bosanquet of the Royal Commission in a note published in *Antiquity* in 1928 which mentions Edmondes Owen's excavations (Bosanquet 1928).
225. RCAHM 1913, 85.
226. The geographical location given in the inventory is converted to SO 0552 by the Ordnance Survey investigators (record SO 05 SE 14).
227. Cf. Williamson 2007, 127–53.
228. *Second Report of the Royal Commission appointed to inventory the Ancient and Historical Monuments and Constructions of Wales and Monmouthshire* (London: HMSO, 1911), 2.
229. O'Neil 1937, 91.
230. CPAT HER 1623. The description of the sites presented here is based upon an interpretation of Spurgeon 1965; 1966b; 1967; 1968; 1969a–c; 1970; RCAHMW 1982, 319; and notes and drawings in the project archive.
231. Cf. Silvester 1990.
232. Spurgeon 1965; 1966a; 1966b; 1969a; 1969b; 1970: more precise locations of these three sites are given by Ordnance Survey investigators on the basis of vertical aerial photography. The

Commission had been alerted by the quarry manager to the imminent destruction of Mound 1. Site records and correspondence indicate that assistance during the excavation was given at various times by J. Weare, C. Hamer, R. Pye, H. Brooksby, C. H. Houlder and A. H. A. Hogg. Site visits were made during excavation by Professor R. J. C. Atkinson, Leslie Alcock, and Dr Hubert Savory (Spurgeon, pers. comm.).

233. This interpretation appeared in Spurgeon's first interim report (Spurgeon 1965). In correspondence with the author, dated 7 July 1978, Spurgeon wrote: 'It would seem the lower mound, below the stone lines is probably a neo long mound & the stones & upper earth of the mound a post-medieval pillow mound'. In volume 3 of the Glamorgan Inventory published in 1982, the text evidently written by Spurgeon noted that 'it is possible that the entire mound is accidentally placed over the Neolithic occupation, but it seems more probable that the whole mound (or perhaps the lower part of it, below the stone pattern) is of Neolithic date, particularly in view of Edmondes Owen's reputed findings' (RCAHMW 1982, 319).
234. Publication plans and sections prepared by Jack Spurgeon have been published in Williamson 2006 and Williamson 2007, fig. 12.
235. CPAT HER 1623 at SO 05095222.
236. Spurgeon gave the grid reference as SO 051523. The mound was subsequently identified on RAF aerial photographs by Ordnance Survey investigators in 1971–72 who corrected the grid reference to the one quoted here (record SO 05 SE 7).
237. RCHAMW 1982, 319.
238. Spurgeon considered that the lower layer represented an earlier mound (see note 233) but it might simply represent a soil layer that had accumulated before the mound was built.
239. Site notebook (from which the illustration is taken), find no. 1.
240. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: site notebook 28 October 1965.
241. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: site drawings and site notebook, 12 October 1965.
242. Site notebook, 28 October 1965.
243. 7 pieces of flint are listed in the site notebook.
244. Noted in site notebook, October 26 1965.
245. Site notebook, find nos 15 and 21.
246. Crampton 1967.
247. CPAT HER 1609 at SO 04925230; Spurgeon 1966; 1968; RCAHMW 1982, 319.
248. See note 236 (record SO 05 SE 9).
249. CPAT HER 4101 at SO 04805233; Spurgeon 1968; additional details recorded by Ordnance Survey investigators in 1980 (record SO 05 SE 12); RCAHMW 1982, 319. The mound is depicted on the published OS 25-inch map about 30m to the north of an explosives magazine.
250. Williamson 2007, fig. 26.
251. CPAT HER 33864, at SO 0552. Description based on information from C. J. Spurgeon given in Silvester 1996.
252. Lynch *et al.* 2000, 49, fig. 2.2; Williams 1952, 27–8; Savory 1980b, 227–8; Webley 1958.
253. See Loveday 2006.
254. Moore and Beckett 1971; Moore 1978; Moore 1981.
255. Gibson 1999; Jones 2009; Britnell and Jones 2012.
256. Williamson 2007, 34–6, fig. 9; RCAHMW 1982, fig. 159.
257. TNA, PROB 11/1163, fo. 324^{r}.
258. Lloyd 1903, vol. 1, 45, no. 9.

259. Davies 1810, 347.
260. Williamson 2007, 51.
261. Silvester 1995, 87.
262. Silvester 2004, 64; Williamson 2007, 123–4.
263. Silvester 2004.
264. NMR, NPRN 81325.
265. RCAHMW 1982, 321.
266. Ibid. 101, where it is also noted that the Garth and Llanelwedd Estate, which comprised the manor of Builth and about 110,000 acres of 'waste-land and hills etc.) was put up for auction in 1823.
267. Silvester 1995, 87.
268. Cf. Williamson 2007, 71–3.
269. Cf. Silvester 1995, 89.
270. Cf. Williamson 2007, 170.
271. Cf. Williamson 2007, 53.
272. Austin 1988; Silvester 1995, 83; Williamson 2007, 40–2, 54. The interpretation given in Glamorgan Inventory (RCAHMW 1982, 315) that 'the stone structures recorded beneath mounds served the simple purpose of elevating and draining the earth of the mounds above them' is now considered to be incorrect.
273. Silvester 1995, 84; Williamson 45–6.
274. Cf. Williamson 2007, 40.
275. Bettey 2004, 385–6; Williamson 2007, 54.
276. Williamson 2007, 77–80.
277. TNA, PROB 11/1163, fo. 324^{r}.
278. Williamson 2007, 36.
279. The enclosure act for Disserth and Llanelwedd of 1812 identifies Thomas Thomas (Pencerrig) as lord of the manor of Llechryd, though few if any records for the manor of are known (Watt 2000).
280. CPAT HER 43162 and 347.
281. Cf. Williamson 2007, 17.
282. Cf. Cowan 1987.
283. Cf. Williamson 2007, 161–3.
284. The cottage is first shown but unnamed on an Ordnance Survey surveyors' drawing of 1817 (see note 78); it appears in the tithe apportionment schedule of 1845 simply as 'Cottage and Garden' attached to Llanelwedd Farm, forming part of the Gwynne's estate, and appears to be first named on the 1st edition of the Ordnance Survey 25-inch map of 1889. Was this cottage subsequently used as the Llanelwedd Endowed School which Edmondes Owen describes as 'the cage' (Owen 1948, 5), said to lie 'not a hundred yards distant' from one of the pillow mounds? The dayschool was inspected in 1846 and described as 'a low, narrow, and dark cottage, not set apart for teaching … . A dead rabbit suspended from the roof was repeatedly knocked by my head and by the children's. … The schoolroom is a disgrace to the charity' (*Reports of the Commissioners of Inquiry into the State of Education in Wales. Part II. Brecknock, Cardigan, Radnor, and Monmouth* (London: HMSO, 1847), 178). The 'cage' is also referred to in Oliver 1975, 43. The fortified character of warren lodges (possibly implied by the name 'the cage') has recently been reviewed by Caroline Stanford (2014, 63–5).
285. Cf. Williamson 2007, 17.
286. Ibid. 19.

287. Ibid. 169–72. In 1803, Malkin (1807, vol. 1, 464) described the local landscape in the following terms: 'Lanelweth House forms a well-dressed object, in a district, whose general characteristic is wildness'.
288. Cf. the arguments about siting of the warren at Y Foel, Llanllugan, in Silvester 1995, 87.
289. CPAT HER 3787. It is uncertain whether the cockpit has been destroyed by quarrying or whether it still survives in scrub vegetation.
290. Owen 1948, 18–19.
291. Davies 1912, 147.
292. RCAHMW, Llanelwedd Pillow Mound Excavation Archive: undated (1909), typed memorandum entitled 'Llanelwedd' attributed to Edward Owen, Secretary of the Royal Commission.
293. School of Archaeology, History and Anthropology, University of Wales Trinity St David, Lampeter, Ceredigion SA48 7ED.
294. Archaeological Services, Durham University, South Road, Durham DH1 3LE.
295. This is a synopsis of the report, 'Pottery from Llanelwedd, near Builth Wells, Breconshire' by Frances Lynch, dated August 1980, with later annotations and comments from the author. Previous comments on the pottery also appeared in Lynch 1984.
296. Halfway House, Halfway Bridge, Bangor, Gwynedd, LL57 3DG.
297. Department of Archaeology & Anthropology, Faculty of Science and Technology, Bournemouth University, Fern Barrow, Poole, Dorset, BH12 5BB.
298. Grimes 1939.
299. Britnell and Savory 1984.
300. Whittle and Wysocki 1998, fig. 28.
301. Dresser 1984, 152: 5050±75 BP (CAR-113). Calibration, quoted at 95.4% probability, derived from Oxcal v4.1.7 Bronk Ramsey (2010); r5, using atmospheric data from Reimer *et al.* (2009).
302. Grimes 1939, fig. 6, no. 11.
303. Britnell and Savory 103, no. 18.
304. Kenney 2008, fig. 8, SF167.
305. This is a synopsis of the 'Report on the petrology of the Neolithic pottery recovered from below Pillow Mound I at Llanelwedd, near Builth Wells, Powys' by Timothy Darvill, dated December 1981. The thin sections are held in the thin section library of the Department of Archaeology, University of Southampton.
306. Darvill 2004.
307. Division of Archaeological, Geographical and Environmental Sciences, University of Bradford, Bradford, BD7 1DP.
308. Wessex Archaeology, Portway House, Old Sarum Park, Salisbury, SP4 6EB.
309. Details are taken from the site notebook which records flint find nos 4, 10, 15, 24, 26, 27. The finds themselves have not been located and have therefore not been re-examined more recently.
310. This description of the assemblage is from MS notes made by Frances Lynch in 1980.
311. PB is grateful to Phil Harding for discussing the broken arrowheads.
312. There proved to be no uncorroded surviving metal suitable for analysis, pers. comm. Dr J. Peter Northover, Department of Materials, Oxford University Begbroke Science Park, Sandy Lane, Yarnton, Oxford, OX5 1PF.
313. Identified with the assistance of Mark Walters.
314. The final draft of this report was not checked by Paul Courtney before his death in May 2013. A fuller catalogue of the finds is available in the site archive.
315. In light of recent unpublished work on the Brecon-Tirley pipeline.

316. Information from Portable Antiquities Scheme website.
317. The last suggestion is made by WJB.

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