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Fan Foel round barrow, Mynydd Du, South Wales: archaeological excavation and palaeoenvironmental analysis, 2002–04

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Fan Foel round barrow is located in a prominent position at 781m above sea level. The barrow was suffering from significant natural and visitor erosion and therefore in 2002–04 small-scale archaeological investigations with the objective of recording surviving surface elements were undertaken in advance of conservation and protection. The barrow had been constructed in a grass-heath environment. Human activity in the form of trampling and burning took place on the site several years prior to construction. The primary barrow consisted of a cist containing a cremation burial, accompanied by a Food Vessel, a chert plano-convex knife, other lithic artefacts and a bone pin, around which a round earth mound made from local turves and surrounded by a stone kerb had been built. Two radiocarbon dates with a combined total range of 2135–1925 cal. BC were obtained from this burial. A secondary kerb was later built on the primary mound, and the mound may have been capped or heightened at this stage by the addition of a cairn. The remains of a cremation burial accompanied by a Collared Urn and a bone belt hook were found in stones close to this secondary kerb. Two radiocarbon dates with a total range of 1935–1760 cal. BC were obtained from this cremation burial. A floral tribute of meadowsweet accompanied both cremation burials.

INTRODUCTION

This report describes the results of the partial excavation and palaeoenvironmental analyses of a Bronze Age round barrow on Fan Foel, Mynydd Du (SN 8215 2234), on the county boundary between Carmarthen and Powys (Fig. 1).[9] The site was designated a Scheduled Ancient Monument in May 2000. In June 2002, during a site visit (Cook 2003), it was noted that the barrow was suffering from a considerable amount of erosion on its western and south-western sides and this appeared to have been responsible for the exposure of a curvilinear arc of large sandstone blocks, part of a kerb. Later in the same year, Peter Dorling of the Brecon Beacons National Park recorded an almost continuous kerb on the west side of the barrow and a discontinuous kerb on the east side. Weathering was of concern and threatened to continue to damage the remaining fabric of the monument. In addition, loose stones had been piled up to form a modern walkers' cairn over what was later found to be a Bronze Age cist. There was a clear on-going threat that the stones from the surrounding kerb would continue to be used to add to this modern cairn. Following discussions with the Brecon Beacons National Park and Cadw, it was agreed that it would be very difficult to protect the monument fully from further erosion and that excavation should be considered as an option. Following an initial field assessment during the winter of 2002–03 (Hughes 2003), the National Park and Cadw agreed to jointly fund the partial excavation of the monument followed by the implementation of measures to protect the remaining elements *in situ*. The excavation was undertaken by Dyfed Archaeological Trust in June 2004.

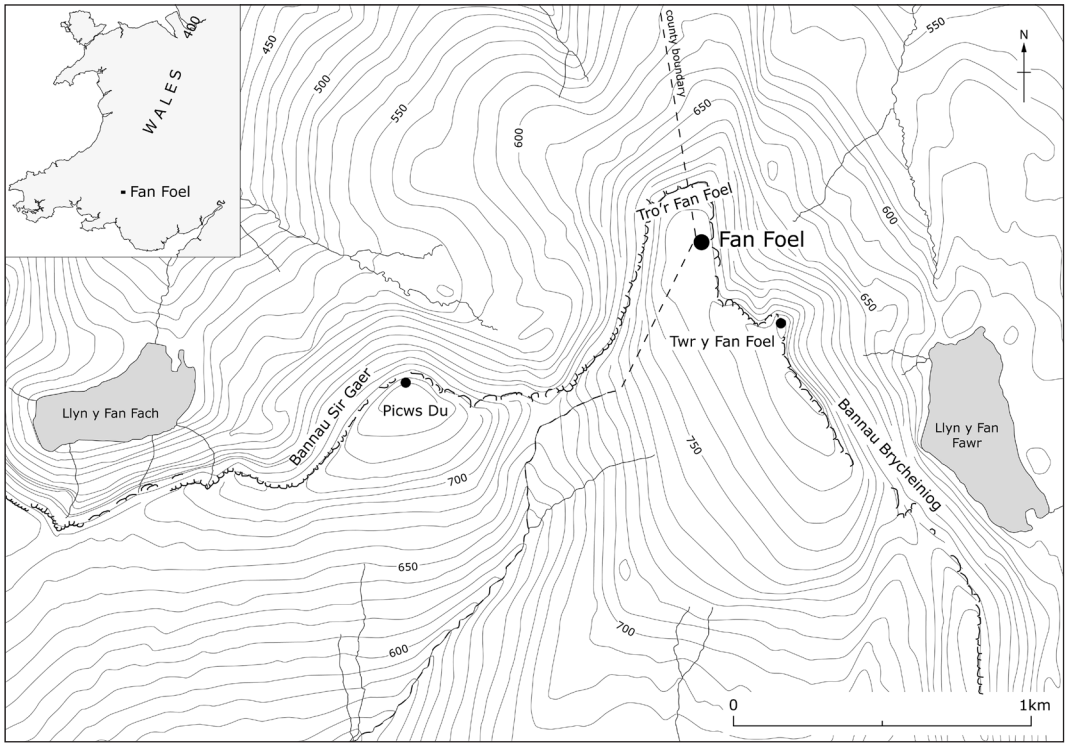


Fig. 1. Map showing the location of Fan Foel. Contours in metres.

The barrow is on one of the most prominent locations in South Wales (Fig. 2), on a rectangular-shaped plateau at 781m above sea level, bounded to the west and south-west by Bannau Sir Gâr escarpment and to the north-east, east and south-east by Bannau Brycheiniog escarpment. To the south-southeast the land rises to a round barrow located on the high point of Twr y Fan Foel at 802m; to the south the land falls gently away. A third round barrow lies 1 kilometre to the south-west on the local summit of Picws Du at 740m. The geology of the site is Devonian sandstone (British Geological Survey 1994). Soils are typical humic gleys of the Freni series (Avery 1990, 352–54). The stones from Fan Foel round barrow are similar in geology and character to the sandstone screes and rubble spreads that can still be found on Fan Foel and Picws Du and are therefore are assumed to have been collected from these local deposits.

Fan Foel barrow occupies a local high point on the plateau. On the surface, the barrow mound is *c*. 16m in diameter, survives up to 1m high on the north side, sloping down to 0.30m high on the south side, with the surface of the mound forming a gently sloping platform. The excavation demonstrated that the barrow mound was constructed of locally obtained turves (see report by Macphail), onto which the exposed secondary kerb and other stones had been placed. The modern walkers' cairn measured approximately 4m × 2.5m in plan and 1m high (Figs 3 and 4). The current topsoil is black with a high organic content.

In the early twentieth century, T. C. Cantrill recovered a string of 'burnt clay beads' together with a flint flake in a disturbed section of Tro'r Fan Foel round cairn. However, H. E. Roese questions whether these are beads or the result of natural processes (1978–79, 31–32, fig. 5). Burrow lists one piece of lithic debitage from Fan Foel (2003, 172–3, item 253). The name Tro-r Fan Foel is marked on Ordnance Survey maps *c*. 130m to the north of Fan Foel round barrow, at a point where a gentle north-facing slope turns into an escarpment.

Fig. 2. Aerial photograph showing the dramatic location of the round barrow. The location of the barrow is marked by an arrow. © *Crown copyright: Royal Commission on the Ancient and Historical Monuments of Wales.*

A mound is marked and labelled at this location on the 1887 Ordnance Survey 1st edition 1:2500 map, at a point where the Carmarthen/Brecon county boundary formerly kinked. There is now no trace of this mound. Burrow refers to the site from which the lithic debitage was found as Fan Foel, Carnau Gwys. Given these inconsistencies, it seems only possibly that these finds came from the excavated Fan Foel round barrow.

EXCAVATION RESULTS

The general objective of the archaeological and conservation work was to ensure the protection and long-term survival of the monument. However, it was recognised that before any remedial work could be undertaken a detailed record would need to be made of the surface archaeological deposits and the most vulnerable features associated with the barrow. This would be undertaken in a research context. In particular the evidence for barrow construction and the nature of funerary and ritual activity can be directly compared with the information from the summit barrows at Pen-y-fan and Corn-du, both in Powys, 25 kilometres to the east (Gibson 1997).

Following survey and evaluation in 2002–03, the excavation involved the recording and removal of the walkers' cairn and removing the remaining turf and soil from the kerb and from the barrow within the kerb

Fig. 3. The site prior to excavation showing the erosion, the exposed kerb and the walkers' cairn. Contours at 0.2m intervals.

(Fig. 4). Exposed surfaces were then cleaned and recorded prior to the excavation of sections of the kerb and the cist. In addition, a single trench, 1m wide and 7m long, was excavated through the barrow mound on the south-eastern side down to natural deposits. A programme of palaeoenvironmental sampling was undertaken (see report by Caseldine and Griffiths). Finally, the exposed surface of the barrow was then covered with a layer of geo-textile and the site was backfilled and re-seeded. In 2014, very little vegetation was present over the excavated areas, and geotextile was visible in pockets of eroding soil. An interim report on the excavation was published in 2004 (Hughes).

Pre-barrow soil

This pre-barrow soil exposed in the trench excavated through the south-east side of the barrow consisted of a thin, strongly humic deposit, probably an old turf, overlying a *c*. 100mm thick sandy-loam, with pockets of organic sediments (A horizon), and a lower B horizon comprising a *c*. 100mm thick silty-clay resting on bedrock. A radiocarbon determination from the organic material in the A horizon produced a date range of 2460–2140 cal. BC (Beta-209006), providing a *terminus post quem* for barrow construction. Pollen analysis of the buried soil has shown that a grass-heath vegetation community dominated the summit of Fan Foel immediately prior to construction of the barrow, with hazel scrub on the lower slopes and mixed woodland at lower levels (see report by Caseldine and Griffiths). Human activity in the form of

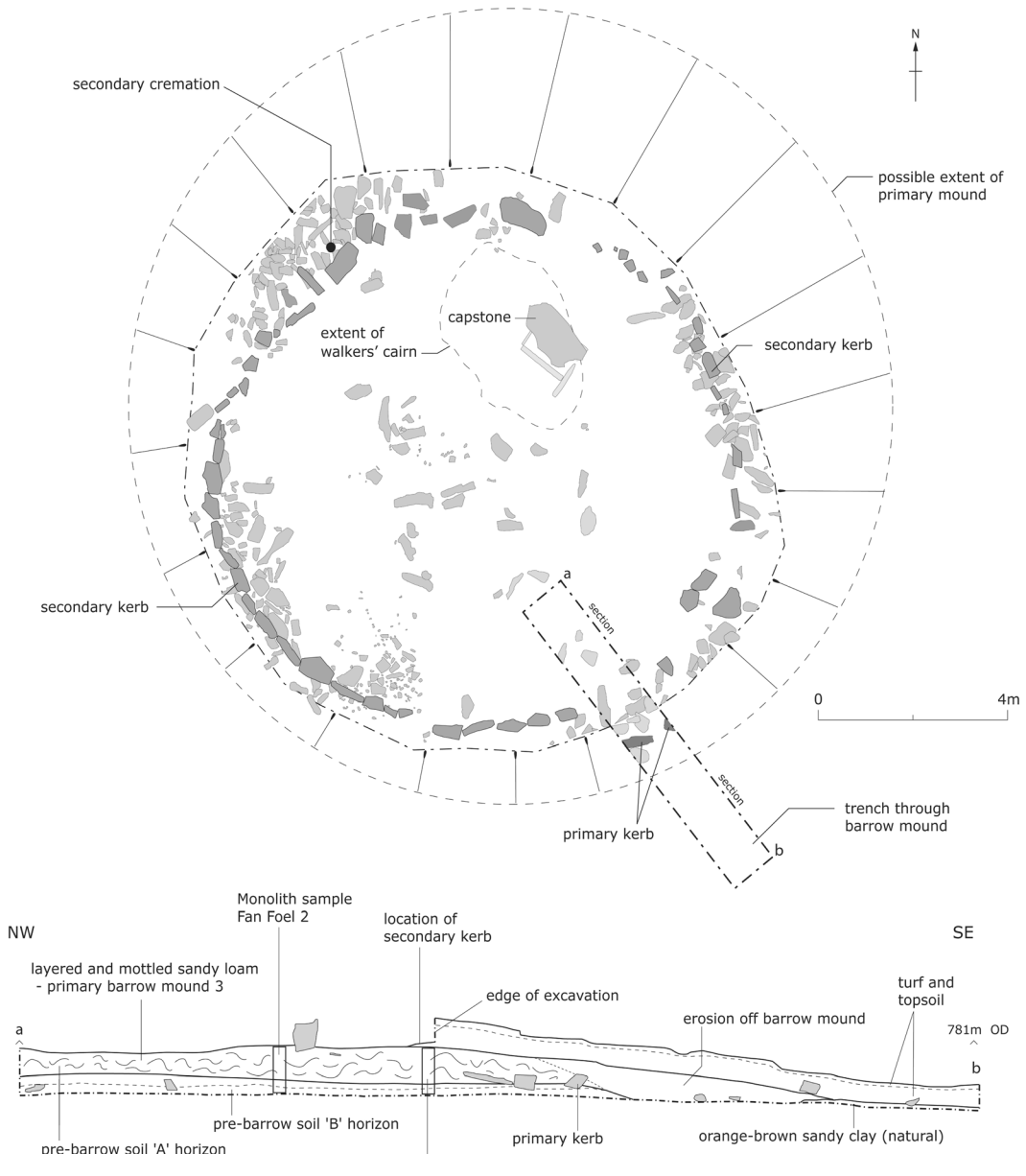


Fig. 4. Plan of the excavated area after removal of the walkers' cairn and turf and topsoil and section of the trench through the barrow mound.

burning and trampling took place for several years prior to barrow construction, probably quite intensive at first and then slackening off immediately before construction (see report by Macphail).

Fig. 5. The mottled appearance of the mound can be seen in this section. The possible primary kerb is on the right-hand edge of the photograph and the remains of the secondary kerb lie along the excavation edge. Scales 2m and 1m.

Primary barrow

In the excavation trench, the primary barrow mound comprised a 0.3m thick stone-free deposit of mixed dark brown/yellow sandy-loams and lenses of clayey peat giving a layered and mottled appearance (3) (Figs 4 and 5). Macphail's analysis of the mound material shows that it was derived from local soils and turves. Large stones on the south-east side of this deposit were probably the remains of a primary kerb. The extent of the mound was not fully explored as its limits lay outside the excavated area to the north-west, north and north-east, and the probable primary kerb was only identified in the excavated trench.

Cist burial

The cist burial lay to the north of the projected centre of the barrow as defined by the secondary stone kerb, but was probably central to the primary barrow mound (3). The primary mound had been built around the cist, and the capstone of the cist at the time of the excavation stood slightly proud of the surface of the barrow mound, which in this part of the site was the modern ground surface (Fig. 6). The walkers' cairn had been constructed immediately over the capstone, and some modern debris including sweet wrappers and crisp packets had found their way into the upper layers of the cist interior.

The cist was effectively a stone-box with internal dimensions 1.15m by 0.55m and 0.65m deep (Figs 7 and 8). The base of the cist was formed by two stone slabs lying flat and the sides were formed by several upright slabs. It is assumed that the stone basal slabs rested on the pre-barrow soil, but this was not confirmed. If this assumption is correct then the barrow mound around the cist was 0.65m thick. The large, subrectangular capstone, 1.4m long by 0.8m wide, had been dislodged from its original position sometime in the past, but the contents of the cist had not been disturbed. From the surviving evidence it was not possible to conclude whether the capstone was designed to be visible on the surface of the barrow, or whether it was covered with barrow material, subsequently eroded. The lower fill of the cist comprised a grey-brown silty-clay up to 0.1–0.15m thick (1031). This overlay a cremation burial (1033), consisting almost entirely of burnt bone with very little charcoal, lying on the base of the cist just to the north-west of centre. The bone lay in a discrete patch, *c*. 0.50m by 0.40m, suggesting it may have been deposited in a bag or another type of organic container (Fig. 8). Analysis by Ros Coard (see report below) identified the remains of an adult and two juveniles. The adult was probably female at least 40–45 years old. One of the juveniles was about 10–12 years old and the other an infant approximately nine months old.

Two radiocarbon determinations were obtained from bone from the older juvenile: 2140–1915 cal. BC (GrA–29950); and 2135–2080 cal. BC or 2065–1895 cal. BC (GrA–29963). Combined these give a date range of 2135–1925 cal. BC. The cremated remains of the front right leg of a juvenile pig were mixed with the human bone. The weight of the human cremated bone (1810g) suggests that most of the bone

Fig. 6. The cist before excavation. Scales 1m.

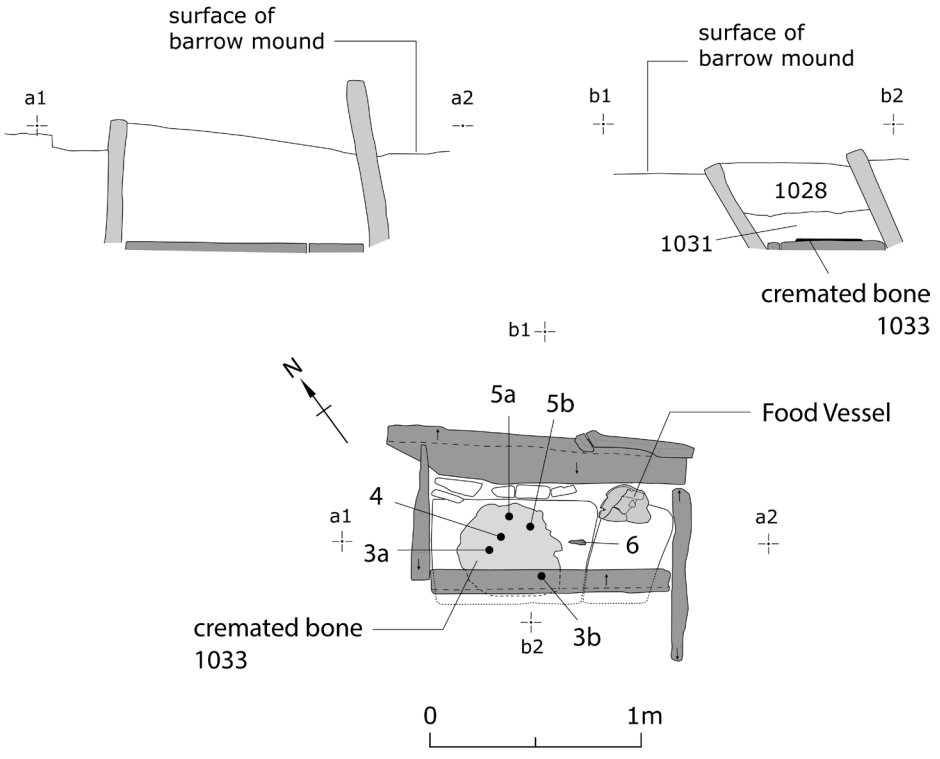


Fig. 7. Plan and profiles of the cist, showing the location of the cremation burial, the Food Vessel and the lithic artefacts.

from the cremation processes was buried in the cist. In the north-east corner of the cist were the remains of a crushed, incomplete Food Vessel (Fig. 10, no. 1; see report by Gibson). Mixed with the cremated bone and burnt were a chert plano-convex knife, a bilaterally retouched blade, a worked flint flake and a bone pin (Fig. 10, nos 2–6) and a triangular flint point was found on the base of the cist *c*. 100mm from the cremation burial (Fig. 11, no. 2) (see reports by Barfield and Gwilt). The lower fill of the cist was overlain by a series of sandy-silt deposits, 0.65m thick (1028) that were presumably the result of silting into the cavity of the cist from the barrow material. Analysis of pollen from the cremation burial (1033) showed that a small amount of *Filipendula* pollen grains were present, probably *Filipendula ulmaria* (meadowsweet). This pollen is almost certainly the result of a deliberate deposition at the time of burial, perhaps a floral tribute; this is dealt with in more detail below (see report by Caseldine and Griffiths and the final Discussion).

Secondary stone kerb and secondary cremation burial

As noted above, in 2002, an almost continuous stone kerb existed on the west side of the barrow, discontinuous on the east side. By 2004 this stone kerb was only really distinct on the south-west side where it comprised a *c*. 13m long arc of large stones laid end to end with a projected diameter of *c*. 11m (Fig. 9), overlying the primary barrow mound (3). Elsewhere, the remnant kerb consisted of a 1.5m wide band of stones resting on the primary mound. A scattering of other stones lay on the barrow mound.

Fig. 8. The cist showing the cremation burial, crushed Food Vessel and flint point no. 6. Scales 1m and 0.5m.

Fig. 9. The secondary kerb on the south-west side of the barrow. Scales 2m and 1m.

A cremation burial (1029) lay amongst the kerb stones on the north-west side of the barrow. This deposit lay just below the modern ground surface and appeared to be considerably disturbed. It is possible that two individuals were present. An adult, probably a young adult, was definitely identified. Less certain was the identification of the bones of a two- to eight-year-old child. Two radiocarbon determinations were obtained from bone from the adult: 2010–2005 or 1980–1750 cal. BC (GrA–29945) and 1940–1740 or 1710–1700 cal. BC (GrA–29949). Combined these give a date range of 1935–1760 cal. BC. An unburnt bone belt hook had been deposited with the cremation burial, and sherds of a Collared Urn were associated with it (Fig. 11, nos 1–2; see reports by Gibson and Gwilt). As with the cist burial, a small amount of *Filipendula* pollen grains was present (see report by Caseldine and Griffiths).

RADIOCARBON DATING

The calibrated dates are calculated using OxCal 4.2 (Bronk Ramsey 2009).

GrA-29945
Context: Secondary cremation burial 1029
Material: Human bone
Radiocarbon age: 3540±40BP
Calibrated range at 2 sigma: 2010–2005 cal. BC (0.9%) and 1980–1750 cal. BC (94.5%)

GrA-29949
Context: Secondary cremation 1029
Material: Human bone
Radiocarbon age: 3510±40BP
Calibrated range at 2 sigma: 1940–1740 cal. BC (93.9%) and 1710–1700 cal. BC (1.5%)

GrA-29950
Context: Cist cremation burial
Material: Human bone from juvenile
Radiocarbon age: 3650±40BP
Calibrated range at 2 sigma: 2140–1915 cal. BC (95.4%)

GrA-29963
Context: Cist cremation burial
Material: Human bone from juvenile
Radiocarbon age: 3635±40BP
Calibrated range at 2 sigma: 2135–2080 cal. BC (17%) and 2065–1895 cal. BC (78.4%)

Beta-209006
Context: Pre-barrow soil in Monolith 1
Material: Organic sediment
Radiocarbon age: 3820±40 BP
Calibrated range at 2 sigma: 2460–2420 cal. BC (5.9%) and 2410–2190 cal. BC (81.4%) and 2180–2140 cal. BC (8.2%)

BRONZE AGE POTTERY
By Alex Gibson

Two vessels were found; a Food Vessel in the cist next to a cremation burial (1033), and a Collared Urn with the secondary cremation burial (1029).

Food Vessel (Fig. 10, no. 1)
The Food Vessel comprises a partially reconstructed upper portion plus 59 other sherds with a combined total weight of 622g. From the reconstruction and the remaining available sherds, it is obvious that the vessel is incomplete.

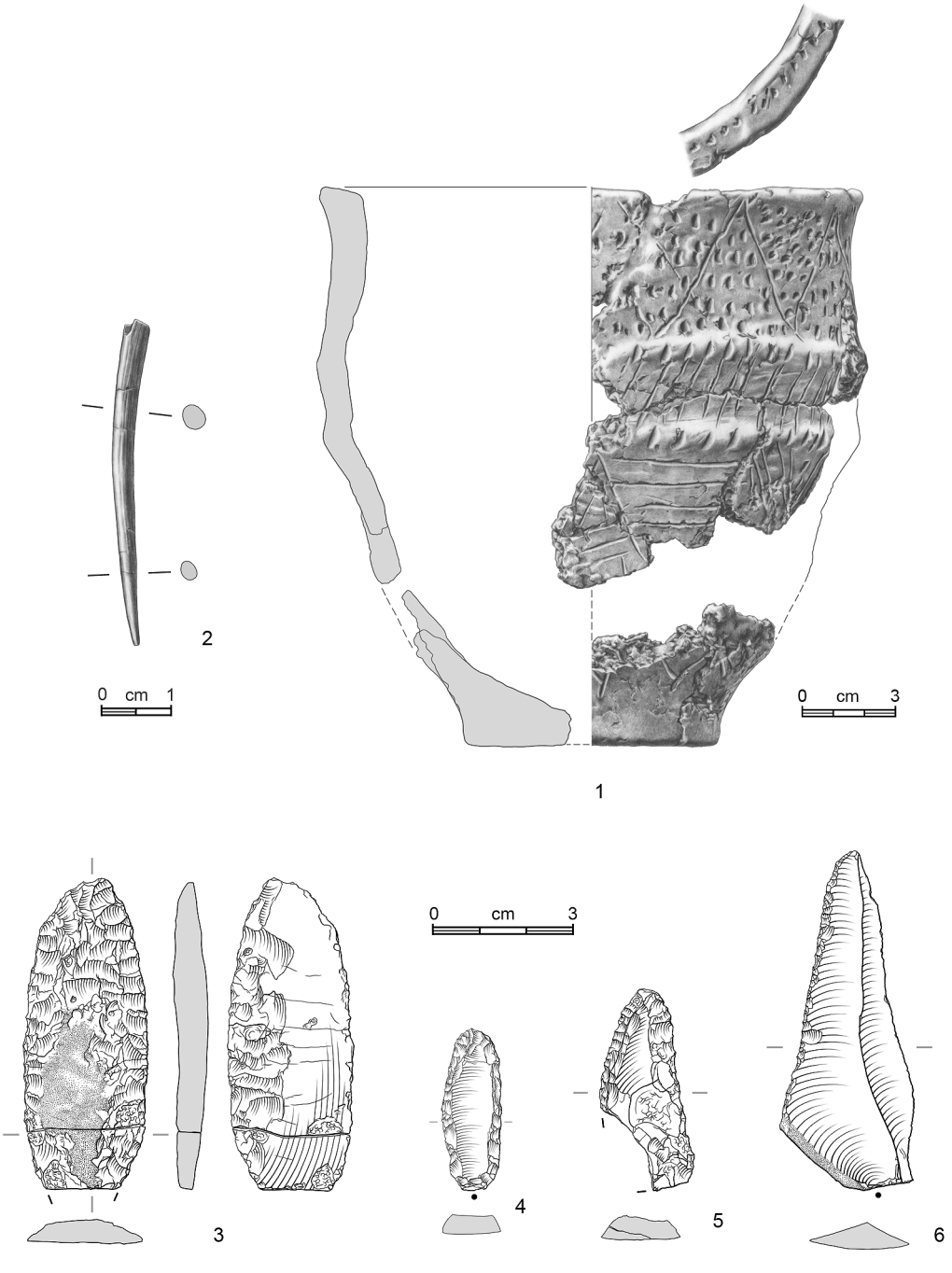


Fig. 10. The Food Vessel, the lithic artefacts and the bone pin from the cist burial deposit.

The Food Vessel is tripartite with a well-defined neck and belly and a broad cavetto at the shoulder. As reconstructed, the rim is circular with a diameter of *c*. 175mm and the base diameter is in the region of 80mm. Given the body angle and the base diameter, a height of 178–190mm might be estimated. The rim has a slightly sloping internal bevel averaging 12mm wide. The rim itself is rounded and slightly expanded externally. The neck is upright but concave and measures some 50mm deep. The cavetto zone on the shoulder is defined by two rounded carinations which seem to have been raised rather than applied. The cavetto zone is in the region of 25mm deep. The body appears to be relatively straight sided and slopes inwards towards the base, the angle of which is upright for a depth of *c.* 10mm, probably corresponding to the thickness of the disc from which it was formed.

The fabric is soft and poorly fired. It is friable and averages some 9mm thick. The outer surface varies from light brown to a light greyish brown in places with patches of darker brown. The inner surface tends to be light grey though there are also brown patches. The core of the fabric is black and the surface colouration barely penetrates the fabric (rarely more than 2mm). These surface colour variations and the dense black core are indicative of a short and therefore economical open firing. The fabric contains both angular and rounded stone inclusions. Some of these break the surfaces of the pot giving the fabric a speckled appearance and measure up to 8mm across. There are also traces of pinkish grog inclusions, up to 5mm across, which also break the surface on occasion and add to the speckled effect. The vessel has almost certainly been coil, ring or strap built but the rings have been well bonded and distinctive coil breaks can rarely be detected with the naked eye.

It would appear that the whole of the vessel has been decorated as some oblique incised lines are visible on the wall of the base sherds. The decoration is profuse but carelessly executed. The rim bevel is decorated with a single row of semicircular pits formed by stabbing a rounded implement at an angle into the clay. Similar D-shaped impressions decorate the neck but are divided into triangular zones by single incised lines. The stabs penetrate some 2–3mm into the clay. The lightly incised or scored lines which form the neck triangles are carelessly executed and the lines do not always meet at precise points. On one section of the neck, there is an apparent breakdown of the decoration where there is a single triangle filled with near vertical incised lines rather than stabs. The shoulders defining the cavetto are each highlighted with a single row of D-shaped stabs or possibly fingernail impressions while the cavetto zone itself is decorated with incised diagonal lines. The decoration below the cavetto zone is more difficult to determine due to the damage to the lower part of the vessel. However it is clear that it has been incised with deep bold and crude lines. There are also some stabs on the reconstructed portion of the vessel. Most likely the decorative scheme on the belly has consisted of incised filled triangles. The base itself is undecorated as is the interior.

With a rim diameter of 165mm and an estimated height of 190mm, the vessel falls short of the size range for Food Vessel Urns also known as Enlarged Food Vessels (e.g. Fox 1927), Food Urns (e.g. Tomalin 1984) and Vase Urns (e.g. Sheridan 2003) but at the higher end of the size range for Food Vessels (Cowie 1978, fig. 2). The tripartite shape can be paralleled at many sites in Wales, England and Scotland both amongst Food Vessels and Food Vessel Urns and is in itself unremarkable. The decorative scheme is, however, profuse and unusual. The crescentic impressions that accentuate the ridges at the top and bottom of the cavetto zone are very similar to those found on the otherwise undecorated Food Vessel Urn 2 from Simondstown while the slashes in the cavetto zone of the Fan Foel pot are paralleled on the associated Simondstown Urn 1 (Fox 1959, fig. 51). Deep dot impressions as found on the upper body are similar to those on a bipartite vase Food Vessel from Rhydwen (Fox 1959, fig. 24) though they are much more profuse on the Fan Foel pot. Nevertheless the combination of both stabs and bold oblique incision is noteworthy as is the decoration of the entire outer surface. Dot stabs are also used to decorate the collar and internal bevel of a Collared Urn from Abergwynolwyn, Gwynedd (Savory 1980, fig. 61). A ridged vase Food Vessel from Trelystan, Montgomeryshire, is decorated with stabs though they are rather more

sparse than on the present vessel (Britnell 1982, P19).

The use of filled triangles is more difficult to parallel within Wales, and indeed on Food Vessels generally though the motif is common on Collared urns and Funerary Cups as well as Middle and Later Neolithic styles. Whipped cord chevrons are found on a vessel from Castlemartin, Pembrokeshire (Savory 1980, fig. 56) and crude incised herringbone and oblique lines are found on a fragmentary bowl Food Vessel from Newton, Glamorgan (Savory 1980, fig. 57). Further afield, filled triangle motif on the lower part of the vessel has been noted on a vase Food Vessel from Haugh Head, Northumberland (Gibson 1978, no. 56) and a Food Vessel Urn from Bamborough in the same county (ibid. no. 90) but the triangles are rather better executed on these pots than on the Fan Foel vessel.

All over decoration on Food vessels is much more typical in Ireland than in Britain, and filled triangles are a common motif for example on vase Food Vessels from Tipper South, Co. Kildare and Enniscorthy, Co. Wexford (Ó Ríordáin and Waddell 1993, nos 529, 572) where the incisions are deep and untidy to much finer decoration as on the tripartite vase Food Vessel from Kilmuckridge, Co. Wexford (Ó Ríordáin and Waddell 1993, no. 438).

The breakdown in the decorative scheme on the upper part of the vessel is a phenomenon that has been noted elsewhere, notably on Bronze Age cups from Scotland (Gibson 2004, 280–2), on a Beaker recently found at Ferrybridge, West Yorkshire (Gibson 2005) and on a Beaker from Monkton-Minster, Kent (Gibson 2002, 54–5, pls 9–10). The reason for these imperfections in decoration are difficult to understand, particularly in the case of some highly decorated vessels. Shoddy workmanship may be the simple cause but appears to be too simplistic when care is taken over other parts of the decorative scheme. Perhaps building in imperfections was considered necessary, perhaps it was a way of the potter identifying his/her personal works or objects (Tomalin 1995) or perhaps the decoration was rather less important than we like to believe. Certainly in the Fan Foel pot, it would have not been too difficult to have smoothed over what appears to have been an error and to have tried again had the potter thought it necessary. Equally, this digression from the major decorative motif or scheme may not have been careless or an error but may have been deliberate and may have had a meaning: the device may have communicated some special information, perhaps to do with family lineage or status. As in heraldry, symbols may be combined when families marry thus making a statement about their lineage. Perhaps, in the Bronze Age, motifs could be combined to convey some similar sociological information. This may be subjective but certainly the extent and frequency of this variety in decoration might warrant future study.

Food Vessels are rare in Wales (Lynch 2000) and Food Vessel-associated radiocarbon dates even rarer. A small, undecorated vase from Sarn-y-bryn-caled, Montgomeryshire, was dated to 2142–1926 cal. BC (Gibson 1994), and would appear to be well within if at the earlier end of the Food Vessel period of currency. P9, a ridged vase from Trelystan has a probable date of 2350–1995 cal. BC, and a date of 2206–1873 cal. BC is directly associated with a bipartite Food Vessel Urn as is the date of 2036–1738 cal. BC (Britnell 1982). The English and Irish dates for Food Vessels have been summarised and compared with the new and re-evaluated Scottish dates by Alison Sheridan (2004) who concludes a period of currency for these vessels from *c.* 2200–1500 cal. BC.

Collared Urn (Fig. 11, no. 1)

The Collared Urn comprises a portion of (reconstructed) rim plus 255 sherds with a combined total weight of 830g.

The rim has a diameter in the region of 210mm. The rim is flat with traces of a slight central groove. The Urn is tripartite. The collar appears to have been at least 60mm deep and well-defined. A neck zone below this is also approximately 60mm deep and ends in a rounded shoulder. No base remains have been identified.

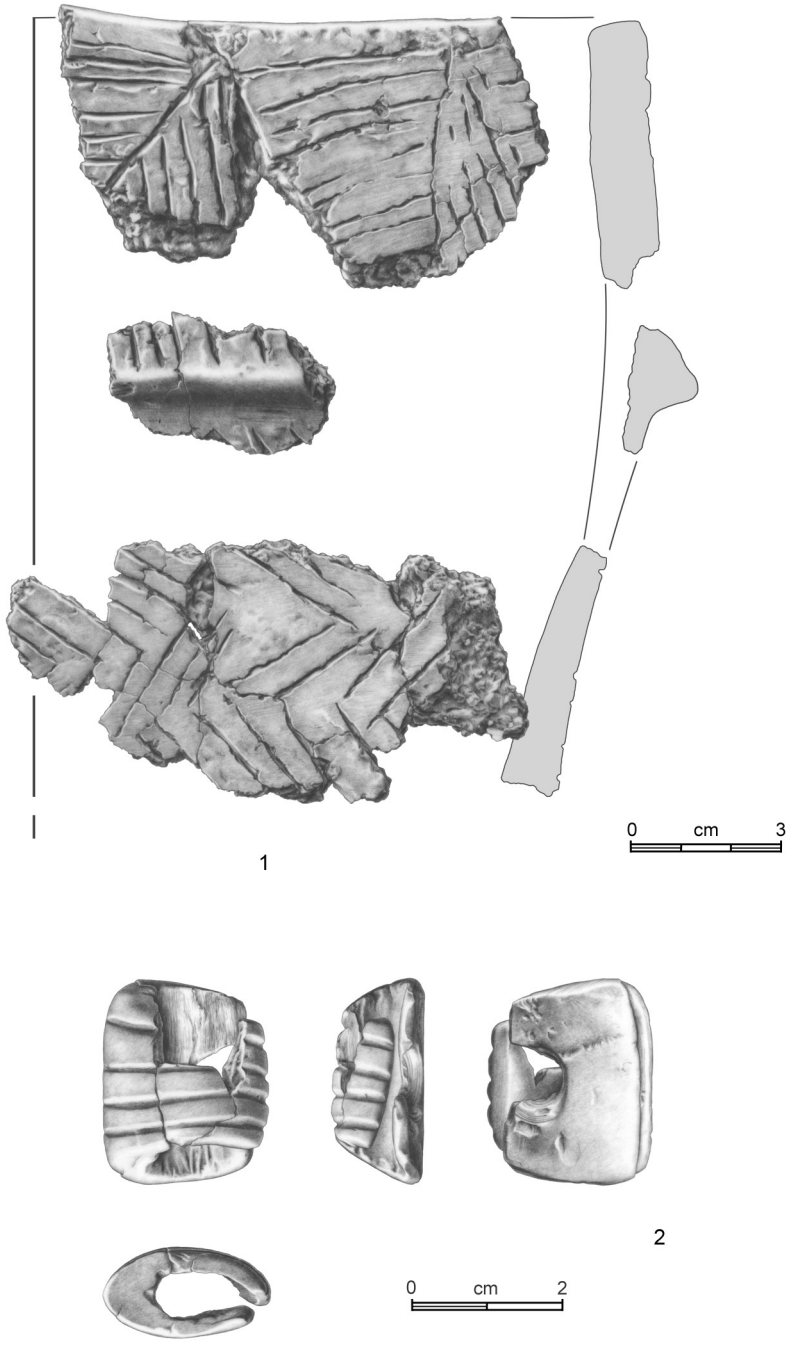


Fig. 11. The Collared Urn and the bone belt hook from the secondary cremation burial. Note: the bone belt hook was drawn prior to the current interpretation of the form and usage of belt hooks, leading to inconsistent lighting effects as a result of reorientation.

The fabric is quite friable and many sherds have lost one or other surface. The outer surface is quite well finished and a rich pinkish brown colour. The fabric is generally this colour throughout. Grog inclusions up to 3mm across are also visible. Internally there are horizontal ridges formed by the potter's fingers during the finishing of the vessel. The fabric varies in thickness, but at the collar averages 10mm. Other body sherds from below the shoulder reach up to 12mm thick. Coil breaks are visible in a few of the sherds.

A shallow intermittent groove on the top of the rim may be a result of finishing rather than an attempt at decoration. On the collar, the decoration is deeply incised and arranged in a rather irregular filled triangle arrangement (Longworth 1984, motif group H). The decoration in the neck is also deeply incised and seems to have comprised at least 3 rows of opposed oblique incisions forming 1.5 rows of herringbone. The vessel seems to have been undecorated below the shoulder.

The incised filled triangle motif is common on the collars of Collared Urns in both incised and a variety of impressed techniques. The motif in twisted cord, for example, makes up part of the decorative schema on a Collared Urn from Llangynidr, Powys (Savory 1980, fig. 69) and completely fill the collars on urns from Tredunnock, Monmouthshire, Kilpaison Burrows, Pembrokeshire (Savory 1980, fig. 67) and Carneddau, Powys (Gibson 1993). An incised version of this motif, but with cross-hatching rather than herringbone in the neck comes from Letterston in Pembrokeshire (Savory 1980, fig. 66).

A Collared Urn, probably closely resembling the Fan Foel vessel was found at Hepple in Northumberland (Longworth 1984, pl. 172a). This vessel has cord impressed filled triangles on the collar, but the collar base is well defined; there two rows of incised herring-bone in the neck and the shoulder is not well pronounced. A similar combination of motifs is found on a tripartite secondary series urn from Wharram Percy, North Yorkshire (ibid. pl. 172) but again the triangles are cord impressed.

The flat rim, slightly concave collar and filled triangle motif might place the vessel in Longworth's secondary series (Longworth 1984), and the bold motifs, and the well defined, pinched out collar base might suggest a late urn according to Burgess' scheme (Burgess 1986). The absolute dating of Collared Urns is problematic. Some dates have margins of error too large to be useful. Others are on unidentified charcoal. In Wales, few dates have, as yet, been carried out on cremated bone, though work in Scotland is redressing this problem (Sheridan 2003). Dates for Scottish Collared Urns range between 2000 and 1500 cal. BC and Sheridan, following Burgess (1986), suggests that they may have appeared slightly earlier in southern Britain, say around 2100 cal. BC.

Burgess (1980) pointed out the clear Beaker–Food Vessel–Collared Urn sequence in many of the barrows of, particularly, Wessex and Yorkshire although he was at pains to point out that there was a period when all these vessel forms were in contemporary use. Burgess was dealing with very few radiocarbon dates, many from poorly considered samples, on which to base this observation which has now been confirmed by Sheridan (2004) dealing with a larger and more accurate radiocarbon database. Indeed, the degrees of overlap in the periods of currency are considerable but Burgess's observation stands: that Collared Urns are never primary to Food Vessels when found in the same cairn or barrow. There must therefore be a sociological rather than chronological explanation or even one of personal preference to explain this relative sequencing. This observation is further upheld by the present site.

FLINT AND STONE
By Lawrence Barfield

Four of the items (Fig. 10, nos 3–6) were found in the cist burial (see location on Fig. 7). Item no. 7 is from topsoil and is not illustrated.

3. Plano-convex knife from cist cremation (1033). Blade shaped tool of chert with rounded tip and plano-convex cross-section. Heavily burnt and broken into two pieces (a–b) by heat with the proximal end missing. Original length *c.* 70mm.
4. Small, bilaterally retouched blade from cist cremation (1033). A blade-like flake blank of creamy grey flint.
5. Unifacially worked flint point from cist cremation (1033). Originally of triangular shape with a trapezoidal cross-section. It is heavily burnt and fragmentary and broken by heat into two pieces (a–b).
6. A long triangular flake of mottled brown and grey flint with unifacial and unilateral, marginal retouch along whole of left side. From fill of the cist (1031) but resting on the stone base close to cremation (see also Fig. 8).
7. Small flake of yellowish flint from topsoil. Not illustrated.

The plano-convex knife, no. 3, is a type that is now known to have been part of the British lithic repertoire from the Early Neolithic (Edmonds 1995), when they appear to have been especially common (Nelis 2004) through into the Bronze Age and are thus not clearly distinctive of a specific period or culture. They also show considerable variation in shape from pointed to asymmetrical forms. In fact rather than a specific tool type we should perhaps rather see the plano-convex knife as the result of a simplified technical approach to tool production using bilateral unifacial retouch that becomes particularly evident during the early Bronze Age, and at Fan Foel beside the plano-convex knife, the blade no. 4 and the point no. 5 are also made using this same basic approach.

It is, however, also clear that in the Early Bronze Age knives made with this technology were frequently selected for use as grave goods and as such were endowed with a certain social value which 'suggest a heightened concern with the definition of a clear and consistent type' (Edmonds 1995, 144–5). As a grave item the type in Britain parallels the role of the flint or metal dagger, that became established on the Continent from late fifth millennium Chalcolithic onwards and is present in British Beaker contexts as stone and metal daggers. In fact in Britain the simple unifacial technology of the plano-convex knife replaces the bifacial technology of Beaker 'daggers'. Elevated to a grave item, across Britain it is characteristically associated with Food Vessel and less commonly with Cinerary Urn burials (Clark 1932). This association is just as true of Wales where all associations are with Food Vessels and food vessel urns, with the exception of one found with a cremation and pygmy cup in a collared urns at Letterston, Pembrokeshire (Savory 1980, 36, no. 316, and fig. 50, 316.2).

The inclusion of a specific type of metal or stone blade in a burial is usually taken to reflect the 'social persona' of an individual such as gender, age or status—not necessarily rank (Binford 1972). While in the past it could be suggested that food vessels burials were essentially female (Ashbee 1960, 138) more recently Edmonds (1995, 144–5) has suggested an association of plano-convex knives mostly with male graves. According to Simpson (1968), on the other hand, the plano-convex knife is found equally in both male and female graves. While associated with the 'social persona' of the dead we would suggest that, like many daggers and knives, rather than necessarily a weapon it would also have had a general purpose function.

Item 5, while best described as a point, also shares the basic plano-convex technology with the knife as indeed does item 4 in a more simplified form.

The retouched pointed flake, no. 6, which combines a point with a blade edge, is arguably not a specific 'type' but rather an *ad hoc* tool. However, the fact the blank was selected for purpose, and imported, might equally suggest a deliberate type was intended or at least recognised. Similar pointed blade/flakes, with comparable unilateral marginal retouch are in fact also known from other burial contexts such as the Beaker burial at Wellington, Herefordshire (Harrison *et al*. 1999) and the, probably, Beaker cist grave

at Alderbury, Shropshire (Shrewsbury Museum, unpublished). While item 5 would be usually defined as a 'waste flake' in a flint poor context like Wales it could easily have been a utilised piece and can be compared with a small flake found in the belt pouch of the Hauslabjoch Iceman (Egg and Spindler 1993, abb. 17, 3).

Tools 3 and 5 have been heavily burnt, presumably with the cremation. Since both are incomplete it can be supposed that the missing fragments were left at the site of the pyre which in turn suggests that not all the pyre material had been transported to the burial site. Item 4 is not burnt even though found among the cremated bones and thus presumably had been included in the cremation deposits after the cremation had taken place.

The unburned retouched pointed blade-like flake no. 6 had been placed close to the cremation burial and may have been an offering or an object used at the barrow during the final stages of the funerary process. It is tempting even to suggest that it could have been used for the cutting of the meadowsweet found with the burial.

BONE ARTEFACTS
By Adam Gwilt

The two bone artefacts reported upon below, were contained within the two cremation burials discovered at Fan Foel and were discovered by Ros Coard while processing and studying each of the cremations. The respective fragments were later carefully re-adhered at the Archaeological Conservation Laboratory of Amgueddfa Cymru – National Museum Wales to permit illustration for publication and later museum display.

Pin (Fig. 10, no. 2)
From cist burial cremation deposit 1033. Surviving length 46mm; diameter at break end 3.0–3.4mm; surviving weight 0.61g.

Tip and shaft fragment of burnt bone pin, reconstructed from seven fragments retrieved from the cremation deposit. The pin has been heat distorted, the shaft being gently curved with a slight distortion also towards the tip end. It has a carefully shaped round to oval shaped cross-section and is slender in form. Examination of the exposed break indicates the presence of a circular and less dense bone cortex, indicating shaping from a whole bone element, rather than from a splinter. Two longitudinal and parallel striations are clearly visible under the microscope along one side of the pin (see Fig. 10) and towards the break-end, providing evidence for shaping during the making process. Mid-way along the fragment, these striations become increasingly feint, being absent at the tip end. This provides probable evidence for use-wear of the pin, prior to its inclusion with the burial on the pyre. The very good fit of all breaks suggest the pin was broken after it was burnt, either as it was gathered for burial beside the cremated bone, or during the recent excavation and retrieval process. The pin has differential surface colouration consistent with uneven burning, with areas of blue-grey colouration towards the break end and more prominent white to cream colouration at the tapering tip end.

The fragmentary nature of this pin, and in particular the absence of a head, prevents identification to a specific form, of Early Bronze Age currency (e.g. Gerloff 1975, 110–112 and Appendix 3; Longworth 1984, 63–5). However, its round cross-section tends to preclude pin forms made from bone splinters (e.g. Longworth 1984, 64, Groups 4 and 5). Bone pins are frequent associations with cremation burials spanning the first half of the second millennium BC, with ceramic associations including Food Vessels, Food Vessel Urns, Collared Urns, Cordoned Urns and Cups (e.g. Annable and Simpson 1964; Simpson

1968, 201; Gerloff 1975, 110–112 and Appendix 3; Cowie 1978, 44–8; Waddell 1985, 26; Brindley 2007, 86, 123 and 148). They were probably used as dress fasteners, their commonly burnt condition suggesting usage as fasteners for funerary garments burnt with the deceased upon the pyre (Waddell 1985, 26; Sheridan 2007, 175). Some bone pin forms, such as ring-headed and crutch-headed pins, closely copy bronze pins, allowing for contemporary comparisons of bone with bronze (Gerloff 1975, 110–12; Longworth 1984, 63).

Examination of the pin by a zooarchaeologist has confirmed the observation of a hollow diaphysis with a very narrow cortex, consistent with an avian, rather than mammalian source (Richard Madgwick pers. comm.). The slender and hollow form precludes the pin having been fashioned from the splinter of, for example, a sheep ulna. Though the bone cannot be identified to bird species, this is consistent with either the radius of a large bird (e.g. buzzard-sized), or tibio-tarsus of a smaller medium-sized (e.g. magpie-sized) bird (broad size categories based on Ayres *et al,* 2003, 360–406; Serjeantson 2009, 81–2), although the element cannot be determined with confidence. It is potentially of interest that a pin made of bird bone was selected to accompany this cremation. Following the pyre event, conceivably involving the release of the spirit or soul of the deceased upwards into the air, the cremated human bone and accompanying pin were carefully gathered up to be buried at this dramatic elevated position, soaring above the land below to the north, east and west (Figs 1 and 2). One wonders whether the association of bird bone at this lofty burial place was significant and representative, perhaps of flight into the next world, yet one still overseeing the land of the living below.

This pin from Fan Foel, independently dated by two radiocarbon dates from a cremation, is an early example for Wales, probably centring on the twenty-first to twentieth centuries BC. Its association also with a Food Vessel, plano-convex knife, flint point and retouched blade, suggests the grave group belongs to the early period of currency of Food Vessels in Wales, cremations associated with Food Vessels and Food Vessel/Vase Urns now being radiocarbon dated with a combined span of between 2150–1750 BC in Britain and Ireland (Sheridan 2003, 203–6; 2007b, 169; Brindley 2007, 77–104, 117–31; (see also report by Gibson, above). A preliminary comparative search has revealed examples of ring-headed bone pins with Collared Urn associations from Llanferres (Denbs.), Tredunnock (Mons.) and Welsh St Donats (Glam.) (Savory 1980, 133, nos 339 and 342; Longworth 1984, 63, nos 2022, 2088 and 2178). These are likely to span in date between 1950 and 1500 BC, based upon recent radiocarbon dates from cremated bone associated with Collared Urns (Brindley 2007, 282–6; Sheridan 2007b, 163–8). A skewer bone pin with rectangular perforation and a perforated splinter bone pin have also been found with Collared Urn associations at Trawsfynydd (Gwynedd) and St Twinnells (Pembs.) respectively (Longworth 1984, 63–4, nos 2153, 2084).

At Capel Eithin (Angl.) a bronze pin fragment was discovered within Burial C1 and associated with an early Collared Urn (Longworth 1999, 89 and fig. 23; Smith 1999, 66). A radiocarbon date from this burial provided a date of 2140–1755 cal. BC (White and Smith 1999, 51, 60–2). As it was taken from a charcoal sample, some caution over its use and accuracy must be exerted, however it suggests a date within the early currency of Collared Urns. A bronze 'pin' of unknown type, now lost, was also found with a probably late Collared Urn at Llanfihangel-y-Creuddyn (Ceredigion) (Savory 1980, 149, no. 427 and fig. 67). Mention should also be made of the discovery in 1855, of a fine bronze pin with a three-ringed head at Bryn Crûg (Gwynedd) with a cremation also associated with urns of unknown form, a bronze tanged razor and a double looped bronze flanged axe (Ffoulkes 1868, 246 and fig.; Stanley 1868, 261). The bronze pin, copying similar shaped Continental pins, probably dates to the end of the Early Bronze Age (Gerloff 1975, 111 and pls 54H, 62A). Nearby, another cremation was discovered and contained within two urns of unknown form, one inverted over the other. A Cup and a second bronze pin (of unknown form) were discovered within the urns and cremation deposit (Ffoulkes 1868, 246 and fig.; Stanley 1868, 259–61).

Decorated belt hook (Fig. 11, no. 2)
From secondary cremation burial deposit 1029. Length of outer decorated hook (parallel with longitudinal grooves) 22mm; width decorated hook terminal 16.8mm; maximum height of back plate 26.7mm; surviving length of perforated back plate 19.5mm; overall belt hook thickness 11.9mm; decorated hook thickness 2.6–3.7mm; maximum back plate thickness 2.6mm; diameter back plate perforation approx. 5.0mm; surviving weight 4.65g.

A finely worked subrectangular to wedge-shaped artefact, with carefully rounded edges, made from the transverse section of an animal bone element. The spongy core of the bone element has been carefully hollowed out creating a central longitudinal cavity. Traces of spongy bone are detectable on one end of the interior surface. The front or upper surface takes the form of a decorated hook in the horizontal field, and the integral reverse takes the form of a plain and perforated subrectangular back-plate. A narrow gap separates the hook terminal from the back plate along one side, while the artefact is widest at the side opposing the hook-terminal. In cross-section, the object has a gapped oval shape. The artefact is incomplete and reconstructed from four fragments, with part of its upper face and a section of its back-plate missing. Across the upper hook surface, four deep transverse grooves, each 0.7–1.0mm wide and approximately 0.5mm deep have been shaped. While tight and parallel at the hook end, the grooves flare and diverge on the opposing non-hook side. The hook terminal has been shaped into a gently convex curve, with rounded edges. The perforation on the back plate was drilled from the reverse exterior side, the circular concentric striations on the angled perforation margins being consistent with the use of a flint awl to define the start of the drill hole. The end of the back plate is missing, removing the outer circuit of the perforation, once around 5mm in diameter. Viewed terminal end on (see Fig. 11), the hook is now at an angle to the back plate and the gap between hook and back plate is extremely narrow. This is probably the result of heat distortion and contraction, during cremation with the body of the deceased on the pyre. The whitened appearance of the bone is also consistent with cremation. The artefact breaks are close fitting and without differential distortion, suggesting that the object fragmented after the cremation process. One of the hook fragments has a markedly whiter surface colouration than the other fragments, suggesting slightly different post-burial environments. This provides tentative support to the suggestion that the artefact fragmented immediately prior to or during burial of the cremation, rather than recently, during excavation retrieval.

This finely worked artefact may be identified as a belt hook. The perforation on the back plate would have allowed the hook to be sewn or riveted onto the front of the belt, with the hook in the horizontal plane. Sheridan, in her recent study of this class of artefacts has suggested that these hooks once engaged with a copper or bronze ring set into the opposite end of the belt. Green staining has been observed on some belt hooks (e.g. Bargrennan, Dumfries and Galloway; Norton Bavant Borrow Pit and Wilsford G18 Wiltshire), supporting this hypothesis, although the corresponding rings have never been found (Sheridan 2007a, 112–4 and fig. A3.3). The Fan Foel belt hook was worn as part of the funerary costume of one of the two individuals represented within the cremation deposit (see report by Coard), probably the young adult. It was burnt on the pyre, as evidenced by the distortion of the hook and contraction of the aperture between hook end and back plate. Accentuation of the curvature of hooks caused through burning has been observed on other known examples (Sheridan 2007a, 114).

Examination of the belt hook by a zooarchaeologist does not permit, with certainty, identification of the bone to specific species and body element. Two possibilities are suggested: either the radius of a medium sized mammal, for example pig, or alternatively the rib of a large mammal species, such as cow (Richard Madgwick pers. comm.). The former would be consistent with a broader association of pigs and boars with masculine identities, for example the repeated association of tusks with Early Bronze Age burials and early metalworker identities. The association of belt hooks with male burials is consistent with this

observation. However, the interpretation should not be pushed here, since the large mammal rib option also remains a possibility. Moreover, the association of cremated pig bone with the primary cist cremation burial at Fan Foel (an adult female with teenager and baby) urges caution on assuming rigid gender-species associations.

The Fan Foel belt hook is the first example discovered from Wales and one of a group of 20 known from across Britain and Ireland. It may be identified as one of Sheridan's Type 1, typified as being small (with plate lengths of 25–30mm) and with a hook nearly as wide as the back plate. Belt hooks are chronologically diagnostic artefacts, associated with strong and diverse material associations and independent radiocarbon dating evidence (summarised in Sheridan 2007a, 116–24 and table A3.1). The pair of combined radiocarbon dates derived from the Fan Foel secondary burial, associated with the belt hook and Collared Urn (see report by Gibson, above), therefore make an important contribution to the wider study of this artefact class.

Belt hooks are associated with dates spanning the twentieth to seventeenth centuries BC, with ceramic associations including two Food Vessels, four Collared Urns and one Cup, with further associations including Armorico-British daggers and an Intermediate battle axe. It is also of interest that a cluster from southern England have rich so-called 'Wessex 1' and 'Wessex 2' grave associations. Sheridan has suggested a chronological development from early Type 2 belt hooks, with smaller Type 1 examples being later developments (Sheridan 2007a, 114). Prominent among the early and larger examples are the Killycarney, Co. Cavan, example associated with two Food Vessels and the rich Bush Barrow grave (Wilsford G5), Wiltshire (Annable and Simpson 1964, 45–6, 99, nos 168–78; Clarke *et al.* 1985, 280–1 and no. 101, figs 4.30 and 4.42; Kinnes *et al.* 1988). The former probably dates to the twentieth century BC (Sheridan 2007a, 114), with the latter 'Wessex 1' grave probably dating to the 1950–1750 cal. BC range (Needham *et al.* 2010). Well dated and later Type 1 belt hooks include the example from Bargrennan, associated with a Collared Urn and an Intermediate-type battle axe, with an associated radiocarbon date of 3475±35 BP (GU-13906); 1880–1740 cal. BC at 1 sigma (Cummings and Fowler 2007, 165–7; Sheridan 2007a, 114; 2007c, 99–101; 2007d, 108–9) and the example found with an inhumation burial at Norton Bavant, Borrow Pit (Wilts.) associated with a dagger and knife dagger with probable Armorico-British C characteristics, a bone pin, whetstone, organic bag and Cup (Butterworth 1992; Cleal *et al.* 1992). This has since been viewed as a transitional grave between 'Wessex 1' and 'Wessex 2', with a radiocarbon date, obtained from human bone, of 3410±35 BP (BM-2909) 1750–1645 cal. BC at 1 sigma (Needham 1996, 132; Needham *et al.* 2010, 369). The pair of dates associated with the Fan Foel secondary cremation, belt hook and Collared Urn (GrA-29945 and GrA-29949), provide a combined date of 3525±28 BP, calibrating to 1910–1770 cal. BC at 1 sigma, 1935–1760 cal. BC at 2 sigma. This locates the burial towards the beginning of the currency of Type 1 belt hooks.

Amongst the other burials containing belt hooks, only six have been sexed, four being male and the other two being possibly male (summarised in Sheridan 2007a, 116–24, table A3.1). On the basis of this evidence, we might make a tentative inference that the gracile adult within the Fan Foel secondary cremation (see report by Coard) is likely to have been male. The comparative age data amongst burials containing belt hooks include two adolescents, three adults and two elderly adults (Sheridan 2007a, 116–24, table A3.1) and for this reason, it seems currently unlikely that the Fan Foel belt hook was worn by the two- to eight-year-old child within this cremation. Sheridan has argued that belt hooks accompanied the elite to the grave, citing the rich graves containing them (e.g. Bush Barrow, Norton Bavant and Arreton Down) and the large size and complexity of the monuments in which some were found (e.g. Buckskin Barrow and Kilycarney) as evidence in support of this (Sheridan 2007a, 115). She has also remarked that the wide geographical distribution of belt hooks (which tend to concentrate in southern England and Yorkshire, but with examples also in Scotland, Wales and Ireland), may relate to the wide-

ranging networks of their time. While these were probably linked with the movement of raw materials for metalworking, they also enabled the elite to create fashions in their expression of wealth and status. In the light of this, although the Fan Foel secondary cremation appears modest, by virtue of being discovered only with a Collared Urn and belt hook, and inserted as a secondary grave into a later phase outer stone kerb of the monument, it is possible to suggest that this may have been the grave of a high status young adult. That this burial was placed within such an imposing and highly distinctive landscape location, on a summit with commanding views to north, east and west (Figs 1–2), could support this interpretation (Sheridan 2007a, 115).

CREMATED BONE
By Ros Coard

Cist cremation burial 1033

Cremation burial 1033 consists of human and animal remains, and grave goods. Total weight of the burnt bone is 1810g. Three individuals are present: an adult and two juveniles. The adult is mature, 40–45+ years, and most probably female. One of the juveniles is a very young teenager, the second a baby around nine-months old. The juveniles are unsexed.

The cremation also contains the front right limb bones of a pig, a juvenile over one year old but less than three and a half years old.

Secondary cremation burial 1029

Total weight of the burnt bone is 257g. This is a small proportion of what could reasonably expected from a deposit containing all cremated bone representing what is probably two individuals. The first is an adult, probably a young adult. This is not a large individual, and none of the bone fragments have pronounced muscle markings, and although this would rule out a robust male, it could include younger/more gracile males and females. There is less certainty about the second individual, if correctly identified, it is a two- to eight-years-old child.

PALAEOENVIRONMENTAL EVIDENCE
By Astrid E. Caseldine and Catherine J. Griffiths

The excavations at Fan Foel provided an opportunity to investigate the environmental conditions around the time the barrow was constructed and to see if there was any botanical evidence which would provide an insight into funerary ritual practices. The investigation involved the analysis of pollen, plant macrofossils and charcoal from the site.

Monolith samples were taken for pollen analysis from beneath the secondary kerb of the barrow (Fan Foel 1) and from beneath the mound (Fan Foel 3) (Fig. 4). Spot samples were also taken from beneath stones making up the secondary kerb and from the cist cremation burial (1033), adjacent to the bone in the primary fill (1033) of the cist, the deposit (1032) surrounding the secondary cremation burial (1029) and a sample from the fill (1035) of the Food Vessel in the cist.

The provenance of the spot samples was as follows:

1023	Upper horizon of buried soil
1028	Fill of cist above primary fill 1031

1029 Secondary cremation burial
1030 Deposit immediately overlying secondary cremation burial and comprising a mix of 1029 and 1032
1031 Primary fill of cist
1032 Deposit adjacent to the secondary cremation burial
1033 Cremation burial in cist
1034 Deposit immediately surrounding Food Vessel in cist
1035 Fill of Food Vessel within cist

Pollen

Preservation in the buried soils and spot samples was reasonably good although a decrease in concentration occurred in the lower soil horizons. Some movement of pollen in the profiles and differential pollen preservation cannot be totally ruled out but comparison of the data with the thresholds of pollen assemblage properties which can indicate post-depositional biasing (Tipping *et al*. 1994; Bunting and Tipping 2000; Bunting *et al.* 2001), suggests they are reliable.

Pollen phases

The following phases have been identified in the diagrams (Figs 12–15) from the pollen monoliths.

Fan Foel 1

FF1.1 Phase dominated by *Corylus avellana*-type, *Calluna* and Poaceae pollen. *Alnus* and *Quercus* values are relatively low. Occasional grains of herb taxa occur. *Pteridium* and Pteropsida (monolete) indet. spores are present in small amounts. Charcoal is scarce. Pollen concentrations are low.

FF1.2 *Corylus avellana*-type values increase and *Alnus* and *Quercus* values decrease in this phase. Poaceae pollen increases and then declines as do *Pteridium* and Pteropsida (monolete) indet. spores. *Calluna* values are lower than in the previous phase. Of the herbs, *Solidago virgaurea*-type pollen is more frequent. Charcoal continues to be scarce. Pollen concentrations remain low.

FF1.3 *Corylus avellana*-type and Poaceae values are lower and *Calluna* values rise. *Alnus* and *Quercus* values are slightly higher than in the previous phase. *Pteridium* and Pteropsida (monolete) indet. spores are less frequent. Herb pollen continues to be present at a low level. Charcoal is much more frequent. Pollen concentrations fluctuate but show a distinct increase.

FF1.4 A further decline in *Corylus avellana*-type and increase in *Calluna* occurs. Other pollen values are similar to the previous phase but there is a small peak in *Plantago lanceolata* and Cereal-type pollen is present. Charcoal is abundant. Pollen concentrations increase markedly in the upper levels.

FF1.5 *Calluna* pollen decreases and *Corylus avellana*-type pollen increases. *Alnus* values are marginally lower. Representation of other taxa resembles the previous phase. Charcoal values fall but are still frequent. Pollen concentrations are lower.

FF1.6 *Calluna* values after declining further, increase slightly. *Corylus avellana*-type values remain relatively high. The frequency of other taxa is similar to previously. Charcoal continues to be frequent. Pollen concentrations are comparable to the previous phase.

Fan Foel 3

FF3.1 Phase characterised by high *Corylus avellana*-type values. *Calluna*, *Alnus* and *Quercus* values are relatively low. Poaceae pollen is present in moderate amounts. Herb taxa occur occasionally apart from *Solidago virgaurea*-type which is more frequent. Charcoal is scarce. Pollen concentrations are low.

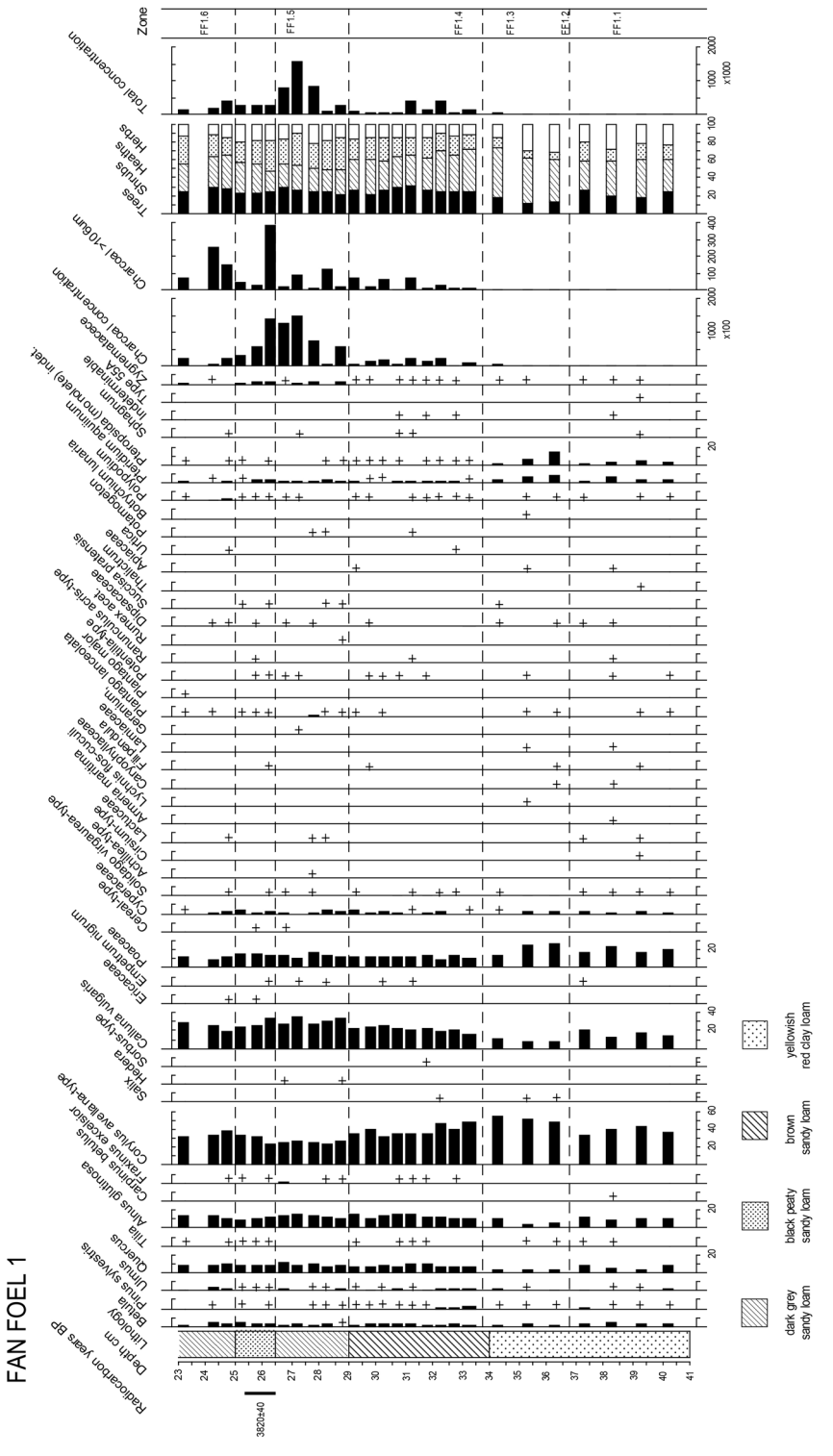


Fig. 12. The pollen evidence from under the kerb at Fan Foel.

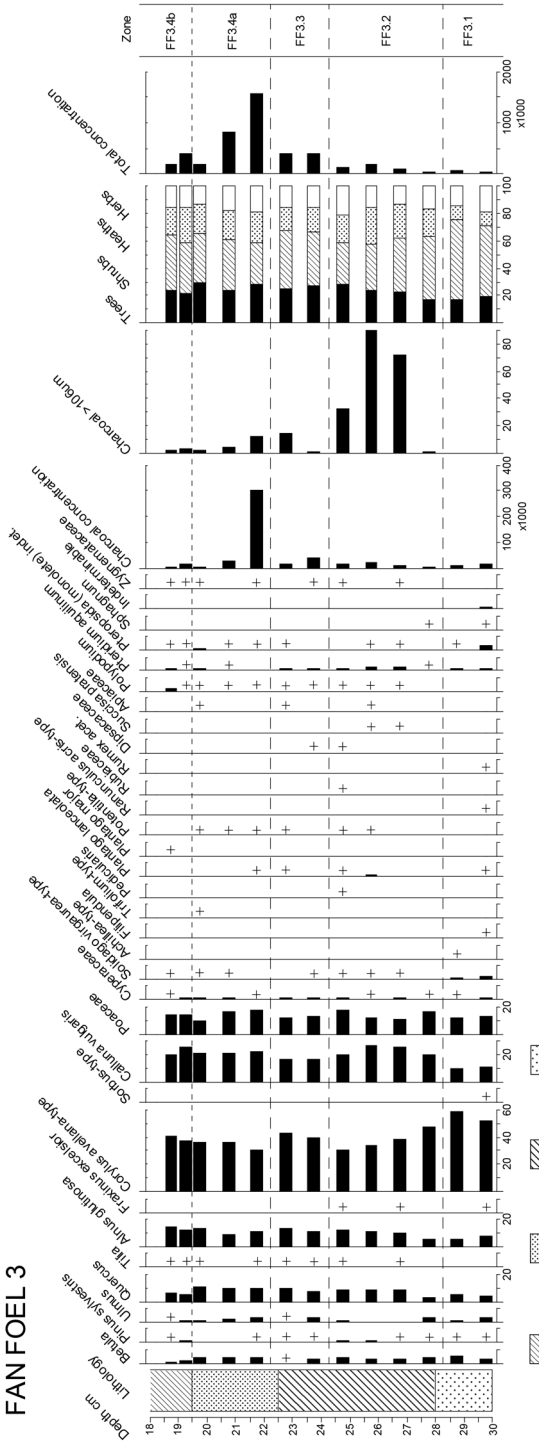
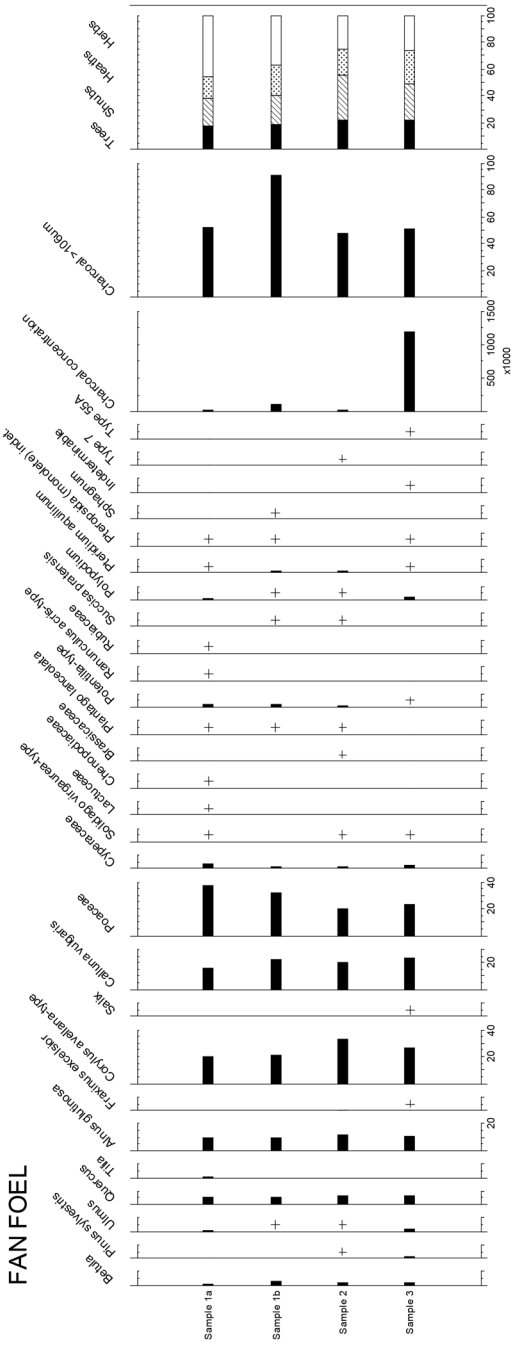


Fig. 13. The pollen evidence from under the barrow mound at Fan Foel.



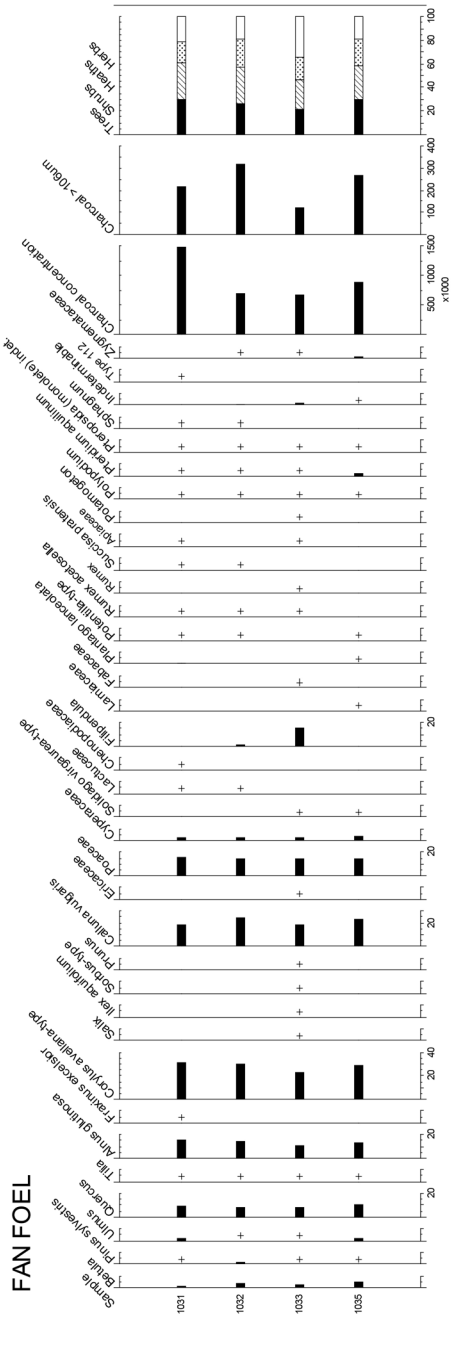


Fig. 14 (*top*). The pollen evidence from underneath the stones of the kerb at Fan Foel.
Fig. 15. The pollen evidence from the cremations and the Food Vessel at Fan Foel.

FF3.2 *Corylus avellana*-type pollen declines whilst *Calluna*, *Alnus* and *Quercus* pollen increases. Poaceae pollen shows a slight fall but recovers. Herb pollen continues to be present in small amounts. Charcoal is frequent. Pollen concentrations increase.

FF3.3 *Corylus avellana*-type values increase and *Calluna* values fall slightly. Other taxa are similar to the previous phase. Charcoal remains frequent. Pollen concentrations increase further.

FF3.4a An initial decline in *Corylus avellana*-type is accompanied by a slight rise in *Calluna* and Poaceae pollen. Herb pollen continues to be present sporadically. Charcoal is frequent. Pollen concentrations are high initially but decline.

FF3.4b The pollen assemblage is similar to the previous phase but *Quercus* and *Betula* values are lower. A brief peak in *Calluna* occurs before returning to a level equivalent to those in FF3.4a. After a slight decline at the end of FFe3.4a, Poaceae values in FF3.4b increase to a level similar to earlier in FF3.4a . Pollen and charcoal concentrations are lower.

The pollen monolith samples

Zonation is evident down both profiles, essentially corresponding to the different soil horizons. The longest record is from Fan Foel 1 which was taken from beneath the kerb. Overall the assemblage is dominated by *Calluna*, *Corylus avellana*-type and Poaceae pollen, indicating an open moorland environment with hazel scrub probably on the slopes below the summit, perhaps with some birch woodland. On the lower slopes and in the lowland *Quercus*, *Alnus*, *Ulmus* and *Tilia* indicate mixed deciduous woodland with possibly a little pine. Certainly during the early- and mid-Holocene pine frequency appears to have varied considerably from site to site and been dependent on local factors such as soil moisture and nutrient levels (Moore 1978; Walker 1982; Watkins 1990; 1991; Walker *et al.* 2001). Changes in the relative frequency of the main pollen types, *Corylus avellana*-type, *Calluna* and Poaceae, suggest shifts in the extent or proximity of the heather, grass and hazel dominated communities. During the earliest phase FF1.1 (corresponding with a bBs soil horizon) the evidence suggests a grass-heath community with some sedges in the immediate area of the barrow, while occasional grains of *Plantago lanceolata*, *Potentilla*-type and other herbaceous taxa suggest limited pastoral activity. Generally fungal spores were not preserved but Type 55A, a sordariaceous spore associated with decaying vegetation and, more particularly, dung was found in this phase. *Pteridium* and Pteropsida monolete spores may reflect a fern understorey within woodland or invasion of open areas, including abandoned ground. The higher representation of these spores in this phase compared with the upper zones could reflect differential preservation with depth, but this seems unlikely as, rather than declining, they do in fact increase in the zone FF1.2, immediately above. At the same time *Corylus avellana*-type pollen increases, as does Poaceae pollen while *Calluna* pollen declines, indicating that an expansion in hazel scrub and grassland occurred at the expense of heather moorland. From the evidence it appears that these changes were accompanied by an expansion in fern communities. The occurrence of *Plantago lanceolata* and other herbaceous taxa, including an increase in *Solidago virgaurea*-type, hint at continued human activity and pastoralism in the area but do not suggest high levels of activity at the site.

In the following phase, FF1.3, a decline in *Corylus avellana*-type and Poaceae pollen corresponds with an increase in *Calluna* and reflects the re-expansion of heather moorland. The presence of microscopic and 'macroscopic' charcoal indicates burning episodes, either as a result of natural events such as lightening strikes, or purposive anthropogenic activity and possibly deliberate attempts at management. The 'macroscopic' charcoal includes ericaceous remains, confirming that local heather communities were being burnt. Occasional herb taxa, including *Plantago lanceolata*, occur suggesting a continuation of pastoral activity in the area, but again do not indicate high levels of activity in the immediate area of the site. This is in agreement with the soil micromorphological evidence for the upper part of this zone and

bEag soil horizon, which points to trampling, probably by humans rather than animals, as well as burning.

A further fall in *Corylus avellana*-type pollen and increase in *Calluna* pollen in phase FF1.4 coincides with high charcoal values. These changes suggest a further expansion in moorland/blanket peat vegetation communities and decline in hazel at the moorland fringes. Particularly high microscopic charcoal values occur in the upper levels whilst the 'macroscopic' charcoal shows a distinct alternating pattern, also evident in the previous phase, and the soil micromorphological evidence again shows evidence of trampling. Pollen concentrations peak, pointing to a trampled buried surface. The soil micromorphological evidence for this and the previous phase suggests trampling and slaking and that compaction led to localised waterlogging. Further evidence for this is an increase in Zygnemataceae (algae), which are indicative of shallow, stagnant mesotrophic water in spring-time (van Geel 1978), in this phase.

Herbaceous taxa remain present in low amounts but a small peak in *Plantago lanceolata* and a cereal type pollen grain occur. In general the evidence suggests a continued low level of pastoral activity with perhaps attempts at deliberate burning of the moorland to increase the productivity, but it seems unlikely that there would have been any attempt at cultivation in the immediate vicinity of the site and that the grain is derived from lower altitudes.

A decline in *Calluna* and increase in *Corylus avellana*-type during phase FF1.5 coincides with the peaty loam horizon. Charcoal also declines although charcoal could not be easily quantified because the samples comprised partially burnt material which had not been reduced to charcoal, a difficulty also encountered on other sites such as Linga Fiold, Orkney (Bunting *et al.* 2001). The soil micromorphological evidence indicates a level of burning consistent with management of moorland/heathland by fire. Herbaceous taxa indicative of low levels of pastoralism are present and again a cereal-type pollen grain was recorded, indicating cultivation in the region. A radiocarbon date with a total range of 2460–2140 cal. BC; (Beta-209006) was obtained from the organic sediment. This pre-dates the date of the cist cremation burial of date range 2135–1925 cal. BC and is in keeping with the interpretation of the humose deposit as 'turf' material.

The pollen assemblage in phase FF1.6 is from a redeposited sandy loam similar to that below the peat horizon. The assemblage resembles that in earlier levels but interpretation is limited given the nature of the deposit.

The pollen sequence from Fan Foel 3 from the buried soil and basal deposits towards the centre of the mound are broadly similar to those from the profile, Fan Foel 1, from beneath the kerb. *Corylus avellana*-type values are relatively high in the lowest levels (phase FF3.1) whilst *Calluna* values are comparatively low, as in phase FF1.2 from beneath the kerb. This is followed by a decline in *Corylus avellana*-type values and increase in *Calluna* (phase FF3.2), accompanied by an increase in charcoal, especially 'macroscopic' charcoal. This corresponds with phase FF1.3. An increase in *Corylus avellana*-type and decline in *Calluna* occurs in phase FF3.3 for which there is some slight evidence in the upper levels of phase FF1.3. Again the soil micromorphological evidence indicates trampling during the latter two phases and differences between the two profiles could perhaps be due to this. The pollen above, phase FF3.4, is from a humic horizon comparable to that in phase FF1.5. Microscopic charcoal values are initially very high, as in phase FF1.5 but the pollen spectra and concentration levels show some similarities with both phase FF1.4 and phase FF1.5. The decline in pollen concentration values during FF3.4a could perhaps indicate the remains of an inverted turf.

The phase FF3.4b above from a silty clay loam contains a similar assemblage but with a lower concentration.

Spot samples from beneath the secondary kerb

The kerb stones overlay the barrow mound and are associated with a cremation burial dated to 1935–1760 cal. BC. The spot samples from beneath the kerb stones should therefore give some indication

of the environment when the stones were emplaced, although the assemblages may comprise a mix of contemporary pollen and pollen from redeposited material, thereby limiting their interpretation. All the samples indicate a similar moorland/ grass-heather environment to that recorded in the buried soils, suggesting little change in the environment. High concentrations of microscopic and macroscopic charcoal occur, reflecting either contemporary or earlier burning activity. Occasional grains of *Plantago lanceolata* and low amounts of *Potentilla*-type provide evidence for grazing activity, if limited, and the presence of a Type 55A fungal spore supports this.

Spot samples associated with the cremation burials and pottery vessel

The pollen spectra from the contexts associated with the cremation burials and the Food Vessel are essentially similar to those from the spot samples from beneath the secondary kerb stones and the buried soils, with the exception of sample 1033 from the cist cremation burial. The spectra are largely dominated by *Corylus avellana*-type, *Calluna* and Poaceae with lesser amounts of *Alnus*, *Quercus*, *Betula* and Cyperaceae and probably mainly derive from material making up the mound. Hence the pollen spectra from sample 1035 provide no information about the possible use of the Food Vessel. However, the sample from the cist cremation burial (1033) differs in the relatively high percentage of *Filipendula* pollen. It also contains *Ilex aquifolium* and *Prunus*, taxa not recorded in other samples, but these are just single grains and most likely are derived from background pollen rain. A small amount of *Filipendula* was also recorded in the sample from the deposit (1032) adjacent to the secondary cremation burial. The percentage of *Filipendula* pollen in 1033 is too high to be accounted for by aerial pollen rain, especially as it is an entomophilous species, and it is unlikely to have been growing in the immediate vicinity of the site. There are two species of *Filipendula*. *Filipendula ulmaria* (meadowsweet) is particularly common in fens and wet woodland but is also found on wet rock ledges, by rivers and in wet meadows but is absent from acid peat, whilst *Filipendula vulgaris* (dropwort) occurs in calcareous grassland. Furthermore if it had been growing locally then it is likely that higher values would have occurred in other contexts from the site and there is only the occasional grain. As the pollen is from the sediment surrounding the bone, it seems likely that it could represent a purposeful anthropogenic deposition at the time of burial. The occurrence of *Filipendula* pollen at more than 1% total land pollen in the sample from adjacent to the secondary cremation also suggests that *Filipendula* could have been deliberately placed with that cremation as well.

Although it seems unlikely that *Filipendula* would have been growing at the site of Fan Foel itself, an exposed summit at 781m, it is perhaps possible that the *Filipendula* could have been collected from elsewhere in the area. Certainly there is some evidence for *Filipendula* growing in the uplands of South Wales, at least into the Neolithic. *Filipendula* is recorded in the pollen records from beneath the cairns at Corn-du and Pen-y-fan, but usually only in low amounts though it reaches *c.* 5% TLP during a zone dated to 4830±80 BP to 4160±80 BP at Pen-y-fan (Chambers and Lageard 1997). The latter was interpreted as representing a mixed heath-grass community with some *Filipendula*, but as suggested this would have been an unusual mix of taxa and represent a vegetational community for which there is no modern analogue (Chambers and Lageard 1997). However, at one site at Waun-Fignen-Felen (Smith and Cloutman 1988), approximately 4.5 kilometres to the south of Fan Foel, relatively high *Filipendula* values persisted until *c.* 4600 BP, reflecting marshy conditions at the margin of the lake basin, and it is perhaps possible that elsewhere in the area localised stands of *Filipendula* adjacent to pools of open water survived into the Bronze Age. Hence the *Filipendula* could perhaps have been gathered en route to burial of the cremation. Alternatively the *Filipendula* could have been placed with the cremated bone prior to it leaving the cremation site in the 'lowlands'. The dominance of oak and the presence of alder in the small charcoal assemblage from the cremation (see below) also suggests the funeral pyre was built at a lower altitude. Interpretations on the use of *Filipendula* in cremation burials is discussed below.

Plant macrofossils

The samples contained both charred and uncharred remains, mainly the former (Table 1). Heather (*Calluna vulgaris*) remains predominated in the charred assemblage and occurred in all the samples. However, they were comparatively scarce in the cist cremation burial 1033 and were probably incorporated at the time of deposition or intrusive from the primary fill of the cist rather than part of the initial cremation deposit. The only other remains in the cremation burial were a few grass (Poaceae) fragments. The relatively low incidence of *Calluna* remains tends to support the view that the cremation occurred elsewhere. Of the other species in the assemblage, deergrass (*Trichophorum cespitosum*) was the most abundant, notably

Table 1. Plant macrofossils from Fan Foel

Sample Sample size – litres	1023 10	1028 3.5	1029 10.5	1030 15.5	1031 64.5	1032 8	1033 4.5	1034 1.25	1035 1
Waterlogged									
Calluna vulgaris (L.) Hull (heather) – stem frags	–	–	10s	–	1	–	–	–	–
Calluna vulgaris (L.) Hull – semi-charred stem frags	–	–	–	–	20	–	–	–	–
Rubus fruticosus L. agg. (bramble)	–	–	–	–	1	–	–	–	–
Juncus sp. (rushes)	–	–	–	–	1	–	–	–	1
Trichophorum cespitosum (L.) Hartman (deergrass)	–	3	–	–	–	1	–	–	–
Sphagnum sp. (moss)	–	–	–	–	1	–	–	–	–
Charred									
Calluna vulgaris (L.) Hull (heather) – flowers	81	20	–	14	3	–	–	30	80
Calluna vulgaris (L.) Hull stem frags	1000s	100s	100s	100s	100s	1000s	10s	100s	100s
Potentilla sp. (cinquefoil)	2	1	–	2	2	1	–	–	–
Juncus sp. (rushes)	–	–	–	–	5	–	–	1	–
Juncus sp. – capsule	–	–	–	–	1	–	–	–	–
Luzula sylvatica (Hudson) Gaudin (great wood-rush)	–	–	–	–	2	–	–	–	–
cf. *Eriophorum vaginatum* L. (hare's-tail cottongrass)	–	–	–	1	1	–	–	–	–
Eriophorum vaginatum L. sclerenchymatous spindles	–	–	–	5	–	–	–	–	–
Trichophorum cespitosum (L.) Hartman (deergrass)	8	4	1	8	101	21	–	4	3
Avena sp./Poaceae (oat/grass)	–	–	–	1	–	–	–	–	–
Poaceae (grass)	1	–	–	–	–	–	–	–	–
cf. Poaceae	–	1	–	–	–	–	–	–	–
Poaceae stem/rhizome frags	5	5	–	–	–	–	2	10	–
indeterminate	–	–	–	–	1	–	–	–	–

in the primary fill (1031) of the cist, although this is primarily a reflection of the much greater quantity of material processed. Deergrass, though rare, and heather were present in the secondary cremation burial (1029). Again it is probable that the origin of these remains, although they were possibly broadly contemporary, was not directly associated with the cremation. The other species that were present in the assemblage, mainly from the primary fill of the cist (1031, the largest sample examined), include hare's-tail cottongrass (*Eriophorum vaginatum*), rushes (*Juncus* sp.), great wood-rush (*Luzula sylvatica*), and grasses (Poaceae) and, along with the heather and deergrass, indicate an open moorland environment. The *Potentilla* seeds were not sufficiently well preserved to identify them with certainty to species level but are likely to be tormentil (*Potentilla erecta*), a species commonly found on moorland, frequently where there is grazing activity. It seems likely that most of the heather, deergrass and other remains found in the contexts associated with the cremations derive from the old land surface and 'turves' from the surrounding area brought onto the site. The only possible cultivar was a caryopsis of oat/grass (*Avena* sp./Poaceae) from a deposit associated with the secondary cremation (1030), but unfortunately the caryopsis was incomplete. If it is oat it is also possible that it is a wild rather than a cultivated variety but its occurrence is of interest because in later periods oat, especially bristle oat (*Avena strigosa*), was frequently the chosen crop in the uplands of Wales.

Generally waterlogged/uncharred remains were scarce in the samples. The only uncharred seed which could be of significance is an uncharred bramble (*Rubus fruticosus*) seed in the primary fill (1031) of the cist. It is unlikely that bramble would have been growing in the immediate area of the barrow and it is probable that it was brought from elsewhere. It could have some ritual meaning associated with deposition of the cremation burial, or simply represent 'natural' deposition of a seed which had been transported to the site perhaps in a bird dropping or attached to the feet of animals or humans.

The heather assemblage from the buried soil at Fan Foel is similar to that encountered in the old ground surface and turf samples from Corn-du and Pen-y-fan (Caseldine and Barrow 1997), although there the state of preservation was much better and much of the plant material was uncharred as well as charred. The occurrence of large quantities of charred *Calluna* remains in the buried soil demonstrates burning at the site. This could represent natural fires or deliberate fires which were created either in an attempt at land management to increase browse (cf. Caseldine and Barrow 1997), or to deliberately clear the site prior to construction of the barrow and, given the location of the site on the summit of Fan Foel, may have been of symbolic/ritual significance. The limited evidence for pastoral activity at the site supports the latter interpretation but nor are the possible alternatives mutually exclusive. It is possible that the site could have developed as a burial site from a site already established as a ritual site, either accidentally or intentionally, by the use of fire.

Charcoal

Wood charcoal is generally scarce in samples from the site, even in the cremation burials, and was absent from the buried soil (Table 2). Oak (*Quercus* spp.) dominates the assemblages from the cremation burials although alder (*Alnus glutinosa*) and hazel (*Corylus avellana*) are also present in the cist cremation burial. Small amounts of oak occur in the other contexts associated with the cremation burials, apart from 1032 which contains only two fragments of hazel charcoal. Oak and hazel are the main species found on Bronze Age sites in Wales (Caseldine 1990). On a number of sites oak charcoal has been found with bone, presumably from the funeral pyre, which suggests deliberate selection (Hogg 1977; Lynch 1984; Caseldine 1991; 1993).

The assemblage differs from the pollen record in which *Corylus avellana*-type is the dominant arboreal taxon with *Alnus* and *Quercus* less well represented, indicating hazel woodland or scrub on the upper summital slopes and oak and alder woodland at a lower altitude. The low incidence of wood charcoal and the nature of the assemblage suggest that the funeral pyre was located elsewhere, on the lower slopes or

in the valley.

Table 2. Charcoal identifications from Fan Foel

Sample	1023	1028	1030	1031	1032	1033	1034
Quercus spp. (oak)	1	14	4	10	–	17	1
Alnus glutinosa (L) Gaertner (alder)	–	–	–	–	–	1	–
Corylus avellana L. (hazel)	–	–	–	–	2	4	–
Total	1	14	4	10	2	22	1

SOIL MICROMORPHOLOGY
By Richard I. Macphail

Three thin sections from the round barrow mound were examined, described, ascribed soil microfabric/microfacies types (MFTs) and counted according to established methods (Bullock *et al.* 1985; Courty 2001; Courty *et al.* 1989; Goldberg and Macphail 2006; Macphail and Cruise 2001; Stoops, 2003). Interpretations of the microfabrics benefited from experimental studies of buried soils and turf stacks, and upland analogue sites (Bell *et al.* 1996; Macphail 1996; Macphail *et al.* 2003; Smith *et al.* 1996).

The site is located on typical humic gley soils (cf. Freni soil series—formerly Ynys soil series; Avery 1990, 352–54). Micromorphology shows that these soils are formed in a fine loamy, probable drift that includes much mica and are characterised by both iron depletion and mottling.

The soil micromorphology is not simple, but nevertheless the three thin sections studied seem to have a consistent character which is composed of:

Upper part (microfacies type B – MFT B) that is sand-dominated and strongly humic, with often only a small amount of charcoal, that appears to be representative of Ah horizon formation under acidic conditions (Mor humus-like). This MFT B, which forms a marked contrast to the underlying MFT A1/A2 layers, is not uniform however. Upwards it can show layering and be rather less humic. This implies that MFT B does not represent homogeneous Ah horizon formation.

Lower part (microfacies type A1 and A2 – MFT A1 and A2) that is fine loamy (with much mica) compact, microlaminated, and characterised by textural pedofeatures, namely coarse and fine soil separations, pans and dusty clay void coatings. Although ‘coarse’ minerogenic layers are often separated from fine humic ones, fine and coarse charcoal are generally ubiquitous (MFT A2). MFT A1 is generally similar although iron stained, through post-depositional iron impregnation of the fine fabric and roots, for example.

Interpretation of these materials, as transported soil forming a barrow mound, is not straightforward. Clearly these are not soils collected from ‘naturally-formed’ acidic turf, because these Fan Foel soils do not show a homogeneous mineralogy, organic/mineral character of Ah over Eag horizons (cf. Wareham Experimental Earthwork, Dorset and other acidic turf mounds; Macphail *et al.* 2003). Instead, they

represent the use of 'turf' from disturbed ground that had developed through time. The 'lower' soil (MFT A1 and A2) has formed by compaction of micro-colluvial deposits, trampling causing slaking and hence an abundance of textural pedofeatures. This compaction has caused poor drainage, and hence localised waterlogging and iron staining. The exact mechanisms forming separate minerogenic and fine/humic laminae are difficult to determine, but trampling and micro-colluviation are possibilities. Physical disturbance can arise from freeze-thaw and mass-movement associated with cold periods such as the Late Glacial, but the pedofeatures of this natural process have been well-researched and are quite distinctively different from those found at Fan Foel, and moreover are only found in poorly weathered subsoils (Romans and Robertson 1974; Smith *et al.* 1996; Van Vliet-Lanoë 1998; Van Vliet-Lanöe 1985). In any case, the associated presence of charcoal would seemingly link the formation of MFT A1 and A2 to rather intensive/focused human activity. This implies use of the site and its close environs by humans, prior to construction of the barrow, but probably as part of the continuing use of the area (see discussion of MFT B, below). Finally, it can be suggested that trample-disturbance/compaction was probably dominantly by humans, rather than by stock (albeit there being some small traces of possible animal 'inputs', see below). In brief, stock trampling is usually accompanied by contamination of the soil by dung fragments and liquid waste. The last produces textural pedofeatures that can be distinctive (phosphatic, reddish and humic; Courty and Nornberg 1985; Macphail 2011; Macphail *et al.* 1998), compared to trampling by humans (Rentzel and Narten 2000). As an analogue, at Carn Brea, Cornwall, cleared soils were trampled ahead of rampart construction, and the lack of the distinctive clay coatings suggested that this disturbance was chiefly by people (Courty *et al.* 1989; Macphail 1990). The rapid sedimentation of these supposed trampled laminae at Fan Foel indicates that they were formed rapidly over a short time period.

The dumped 'turves' also show local disturbance-induced micro-colluviation became increasingly sand dominated and seems to show alternating humic/fine charcoal rich layers and clean sand deposition at the pre-barrow site. The origins of this can only be speculated upon from the three thin section samples. Sandy colluviation was occurring in the likely environs but at least two periods of (likely short-lived) stasis seem to have occurred permitting Ah/turf formation in this material. Such humic laminae/turf formation periods have been observed elsewhere, such as down-slope of a Bronze Age barrow field at West Heath, Surrey (Drewett 1989). Generally, only small amounts of charcoal occur in this humic soil, indicating typical moorland/heathland background burning related to management by fire (Macphail *et al.* 2003). This humic horizon or horizons formed *in situ*, seemingly during the managed lifetime of the site (rather than being an Ah developed over thousands of years).

The barrow, therefore, seems to have been constructed of 'turf' from an area which had undergone one or more periods of disturbance followed by minor disturbance and moorland management. The construction itself caused minor soil disturbance and dusty clay inwash into voids (as for example found anomalously in humic MFT B), as commonly found in earth mounds (Romans and Robertson 1983). On the other hand, in the dumped turf there are rare examples of fine voids in MFT B being infilled with yellowish, possible iron phosphate, which may imply a phosphate input locally from anthropogenic activity (such as stock, weathered ash, or bone). There is no evidence of this site ever having had a cultivation background as inferred for present-day podzols at Chysauster, Cornwall, or suggested for a number of clearance cairns in lowland but very wet south-west Norway (Sageidet 2005; Smith *et al.* 1996).

Conclusions

The three thin section samples from the barrow at Fan Foel represent a complicated land use at the site and local area which pre-dated use of topsoils ('turf') for barrow construction. The three thin sections have a consistent soil micromorphology sequence. First, layered deposits of fine loamy soils containing fine charcoal were formed, probably through (human?) trampling and micro-colluviation in bare ground.

Upwards, alternating sand and humic layers accumulated, again accompanied by the inclusion of charcoal, further indicating localised disturbance but with minor periods of stasis. Lastly, the dumped 'turves' contain humic horizons formed in colluvial sands implying that the local area was much less affected by human impact, and reflects local management of the area by fire and only occasional major disturbance and colluviation. Rare microfeatures within the last-formed humic turf may indicate very minor phosphate inputs, but from an unknown source. Clearly the site had been impacted upon for at least several years by human activity (burning and trampling), before the local soils were employed to construct the barrow. A ritual use of the site appears to be most appropriate from the soil micromorphology. It could be suggested that the site was rather intensively used first, and then activities slackened off before ritual activity culminated in barrow construction.

DISCUSSION

By Astrid E. Caseldine and Ken Murphy

The environment

The results from Fan Foel are in accord with other palaeoenvironmental evidence from the Black Mountain where an expansion in heathland is recorded during the later Neolithic and Bronze Age. At Waun-Fignen-Felen, about 4.5 kilometres to the south of Fan Foel, an increase in *Calluna* is recorded generally between *c*. 3220–2820 cal. BC although at one site this did not occur until *c.* 2090 BP (Smith and Cloutman 1988). Carbonised remains of *Calluna vulgaris* and *Erica tetralix* in peat deposits dated to *c.* 2245–795 cal. BC confirm that heath-burning was widespread in the area and at one site occur at *c.* 1965 cal. BC, similar to the dates from the cremation burials at Fan Foel. Together with substantial amounts of *Plantago lanceolata* pollen and *Pteridium* spores, the charred remains are interpreted as evidence of human pressure on the landscape during the Bronze Age. There is similar evidence at Pen Rhiw-wen (Cloutman 1983) about 10 kilometres south-west of Fan Foel and at Banc Wernwgan about 4 kilometres west of Pen Rhiw-wen (Caseldine 2013a). Further evidence occurs about 7 kilometres to the south of Waun-Fignen-Felen, in peat deposits close to the cairn of Carn Goch and a ring cairn at Mynydd y Drum, a ridge of upland extending south-west from Fforest Fawr. There, birch carr gave way to a more open local environment comprising heaths, sedges and grasses (Chambers *et al.* 1990). These changes were accompanied by increased charcoal representation and were interpreted as representing marked human activity in the area *c.* 2960 cal. BC. Later fluctuations in arboreal and non-arboreal pollen are considered to indicate human impacts during the Bronze Age with the most dramatic episode dated to *c.* 1830–1570 cal. BC. Pollen evidence from buried soils beneath the cairns themselves indicates they were constructed in an already substantially altered landscape dominated by either heath or hazel scrub. A consistent picture therefore emerges of a largely open heath and grass dominated landscape already established in the Bronze Age in the Black Mountain area where the cairns/barrows were located. This picture is repeated in the Brecon Beacons where comparison with the pollen data from the cairns at Corn-du and Pen-y-fan (Chambers and Lageard 1997) show close similarities with that from Fan Foel.

As on the summit of Fan Foel, the local environment suggested by both the pollen (Chambers and Lageard 1997) and plant macrofossil records (Caseldine and Barrow 1997) at Corn-du and Pen-y-fan is one of a grass-heath vegetation community with hazel scrub. The latter was reduced in extent and proximity to the summital sites by the time the cairns/barrows were constructed. Prior to this a period of hazel regeneration with grassland peaks occurred at the beginning of a phase dated to *c*. 5300–3650 cal. BC, which in turn followed a period of opening of a hazel dominated woodland environment and increase in heather. Similar phases are recorded in the pollen records from Fan Foel, although dating of these phases is uncertain.

There is clear evidence for burning of heathland vegetation during the Bronze Age on both the Black Mountain and the Brecon Beacons and with the increased frequency of pastoral indicators may reflect deliberate attempts at land management to improve grazing or natural lightening strikes which incidentally could have improved productivity. However, the evidence for burning at Fan Foel, Corn-du, Pen-y-fan and Mynydd y Drum could perhaps relate as much to deliberate ritual fires, especially given the limited evidence for animal activity at Fan Foel, prior to construction of the barrows, or burning for management reasons could have to led to or enhanced the symbolic significance of the summital peaks. Alternatively, natural fires could have perhaps contributed to the symbolic importance of the summital barrow sites.

The presence of *Filipendula* (meadowsweet) in the cremation burials

The occurrence of *Filipendula* pollen at Fan Foel is of particular interest because high percentages of *Filipendula* pollen have been recorded elsewhere in Britain on Bronze Age burial sites, notably in Scotland and at Pant y Butler (Caseldine 2013b) and Buttington Cross (Daffern 2009) in Wales and similarly attributed to anthropogenic activity. Several explanations have been put forward for the high counts, a number related to foodstuffs, including mead or honey as the source (Dickson 1978), as flavouring of porridge or fermented ale (Bohncke 1983) and at Udny Farm as flavouring in a drink (Davies and Tipping 2007) and, on the basis of lipid analysis, possibly a drink of milk flavoured with honey (Mukherjee and Evershed 2007). Alternatively, it has been suggested that high *Filipendula* values indicate floral tributes, either the deliberate deposition of flowers or vegetation mats at the time of inhumation (Whittington 1993; Tipping 1994; Tipping 1997; Whittington 1997; Clarke 1999; Daffern 2007; Caseldine 2013b). The *Filipendula* from Fan Foel includes immature pollen grains and clumps of grains and this has been interpreted as indicating the former presence of flowerheads (Lambert 1964; Dickson 1978; Bohncke 1983; Whittington 1993; Tipping 1994; Clarke 1999). On several sites high counts of *Filipendula* pollen have been associated with 'body stains', and for example at Whitsome were found in the area around the head and interpreted as indicating a headdress or pillow (Clarke 1999). At Sandfjold on Orkney, they were obtained from dust and cremated bone on the floor of an urn but because of high amounts of *Spergula*-type pollen, and the possibility that this represented corn spurrey which has been used as a famine food, it was concluded that the *Filipendula* could have been used as flavouring in a meal rather than as a floral tribute (Tipping 1994). The pollen spectra at Fan Foel do not indicate any other use for the *Filipendula* than as a floral tribute. It has attractive clusters of cream-white flowers and both the flowers and leaves, the latter when crushed lightly, give off an aromatic scent (Tipping 1994). However, its association with a cremation at Fan Foel, rather than a burial and the possible need to counteract the smell of rotting flesh, perhaps adds weight to the suggestion of its symbolic status in the Bronze Age (cf. Clarke 1999).

The barrow

Three phases of Bronze Age activity can be recognised at Fan Foel:

1. Pre-barrow human trampling of the soil and vegetation burning, taking place several years prior to barrow construction. The radiocarbon determination of 2460 – 2140 cal. BC provides a *terminus post quem* for construction. Given the site's location this was almost certainly associated with activity in preparation for the raising the barrow,
2. Construction of a cist, deposition of cremation burials with a Food Vessel and other grave goods within the cist, and the construction of an earthen barrow from locally obtained turf surrounded by a stone kerb. It is assumed that the cist was roughly central to the barrow. Radiocarbon determinations with a combined range of 2135–1925 cal. BC provide at date for this phase of activity.

3. The addition of another kerb on top of the earthen mound, reducing the diameter of the monument and moving its centre a couple of metres to the south. The scattering of stones within the kerb may be an indication that the barrow was capped with stone or heightened by the construction of a cairn. A cremation burial found within the kerb stones is likely to be associated with this phase, but it could be a later addition. Radiocarbon determinations with a combined range 1935–1760 cal. BC from this burial just overlap with those from the cist burials, and thus although there is likely to have been a significant time lapse between Phases 1 and 2, the two phases *could* have been broadly contemporaneous.

The results from Fan Foel are remarkably similar to those from two other excavated summit barrows, Pen-y-fan and Corn-du (Gibson 1997), located on the highest (886m) and second highest (873m) points respectively in South Wales, approximately 25 kilometres to the east, and visible from Fan Foel. Radiocarbon determinations from environmental samples and from old ground surfaces suggest construction of both these monuments in the period roughly between 2550 cal. BC and 2050 cal. BC, which encompasses the dates from Fan Foel. The remains of both these sites were fully excavated, and it is interesting to note that pre-barrow mound activity was recorded at both. At Pen-y-fan a rough circle of flat stones was laid on the turf around the central cist and at Corn-du a polygonal/circular setting of orthostats on the turf surrounded the central cist. It is possible that the cists and surrounding stones were constructed several years prior to the deposition of cremated remains and the raising of a turf mound; more extensive excavation at Fan Foel may have revealed similar remains which would account for the recorded pre-barrow trampling and burning. A central cist, a low earth mound and the addition of a kerb and stone capping or cairn is a common feature of all three sites. The Corn-du and Pen-y-fan barrows exhibited some internal complexity; this was not evident at Fan Foel, possibly owing to the restricted excavated area.

The recognised Bronze Age burial tradition in south-west Wales is almost exclusively cremation, and therefore the Fan Foel examples are typical of the region, but this may be due to lack of recognition of other rites, particularly as uncremated bone does not survive in the acid soils that dominate the region. The only demonstrated exception is a Pant y Butler near Cardigan where a fragmented and redeposited inhumation was found in a secondary context (Murphy and Murphy 2013).

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10. All radiocarbon dates are shown calibrated to 2 sigma using OxCal 4.3, unless otherwise stated.

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