ART. II. *Excavations at Birrel Sike, near Low Prior Scales, Calder Valley, Cumbria (NY 0702 0735).* By C. RICHARDSON, B.A., M.PHIL.

1. Introduction.

EXCAVATIONS were carried out at this hill-top site crossed by the 213 m line in 1978-9, an interim report appearing in September 1979.[1] Situated 3·2 km N.E. of Calderbridge (Fig. 1), south-west Cumbria, the remains cover *c.* 4·6 hectares, field clearance and ploughing to the east and west having removed any further traces. There are surface indications in an area of permanent pasture to the south-west where large quantities of stone were uncovered during the laying of field drains some years ago. Two main features are present: stone cairns and circular/oval-shaped stone or stone-and-earth banks enclosing open areas or "saucer-shaped" depressions of the "hut-circle" type (cf. Section 3). Three cairns and one "hut-circle" were fully excavated with a fourth cairn half excavated. Finds included worked flints, a possible whetstone, a piece of ? polished shale, a stone blade, a fragment of fired clay, burnt stone, cinder and coke. Enough charcoal from suitable locations was found for radiocarbon age determination to be carried out.

In 1976, the site was brought to the notice of the writer by Mr R. Hartley, the tenant-farmer at Low Prior Scales farm, 1 km to the west. Mary C. Fair had inspected the site and identified the structures as "Bronze Age hut-circles", as had Mr H. Stephenson, who had marked them on an O.S. 6 in map whilst carrying out fieldwork in the 1940s. Stephenson noted "twenty-one hut-circles and tumuli", somewhat less that the actual total of sixty-eight (Fig. 2). A number of small turf-covered "humps" and slight depressions may be the remains of cairns or "hut-circles"; these have been omitted from the survey.

The first published reference to the site is CW2, xlvii, 238-9, under the heading "Tumulus. Low Prior Scales".[2] The large "tumulus" is still extant but of dubious antiquity, and may be a modern clearance heap. Further references are provided by Hyam,[3] Harding,[4] and Cherry.[5]

2. General Topography

Birrel Sike lies on a rounded hill-top above the valley of the River Calder, at a point where the surrounding district begins to rise to over 305 m (1,000 ft.) and is occupied chiefly by the rocks of the Borrowdale Volcanic Series, along with some parts of the Ennerdale Granophyre and the Eskdale Granite. Between the site and the Irish Sea coast to the west, much of the ground lies below the 91 m (300 ft.) contour and is composed of New Red Sandstone largely hidden by deposits of Glacial drift. Thick beds of St Bees Sandstone and red shale can be seen in section in the River Calder, while sandstone is exposed at frequent intervals along Birrel Beck.[6] Boulder clay lies in thick deposits in the valley bottoms (up to *c.* 31 m (100 ft.) thick in the Calder Valley above prior Scales) thinning rapidly up the valley sides with the hill-tops usually free from drift. The boulder clay varies in composition and colour, but is frequently red, due to the incorporation of Triassic material. The site lies in an area of considerable faulting and almost on the line

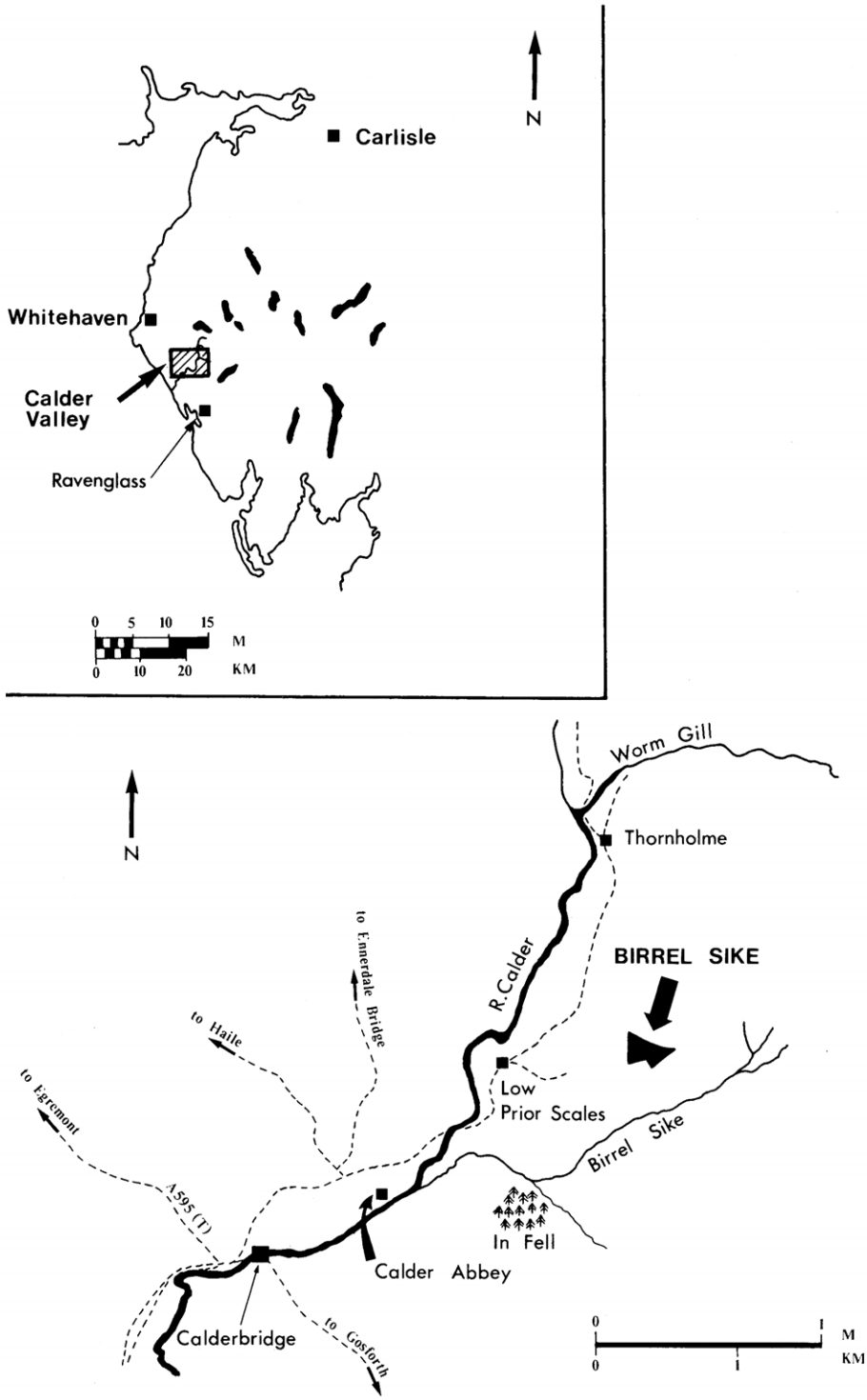

FIG. 1. Birrel Sike, Calder Valley – site location map

of the Mousegill-Prior Scales Fault.[7] A representative selection of rocks collected from the excavated structures comprised mainly tuffs and rhyolites with occasional pieces of dolerite, iron rich agglomerates and sedimentary silica.

The site area is one of rough pasture enclosed by dry stone walls, falling away to a small beck on the north, the vegetation changing abruptly to tough bent grass and moorland peat as the ground rises up Wheel Fell. Hill-peat is widespread on the elevated moorlands drained by the rivers Calder and Bleng, the high rainfall and poor drainage ensuring its continued development. The largest spread is on Stockdale Moor, with isolated patches occupying the high ground on Cold Fell, Tongue Moor, Stords, Ponsonby Fell and Bleng Fell.

3. The Site

The surface remains divide roughly into thirty-nine "hut-circles", twenty-nine cairns, and a circular feature enclosing a low mound. A number of "hut-circles" are in poor condition, the original form and size being difficult to determine. Circular forms predominate over oval, while others have irregular outlines. Structures sited on sloping ground have undergone stone movement and robbing, rendering identification as "hut-circle" or cairn uncertain.

Measurements vary considerably in the "hut-circle" group; external diameters in the circular forms ranging from 3·8 m to 8·3 m, internal diameters 1·4 m to 5·0 m, maximum bank height ranging above present ground level 0·12 m to 0·5 m, and average bank width 0·7 m to 2·1 m. The smallest of the oval forms measures 4·8 × 3·3 m externally, the largest 7·8 × 6·4 m, internal measurements ranging from 2·0 × 1·2 m up to 5·0 × 4·2 m, surviving bank height above present ground level 0·14 m to 0·6 m, and average bank width 1·0 m to 2·0 m. Where a "hut-circle" is reasonably well preserved the enclosing bank is invariably complete with no "gap" suggesting an entrance; however, the majority have banks with large sections missing or small animal path openings. Structures of indeterminate form, marked on the plan (Fig. 2) as "hut-circles" include HC10, 17, 32, 35, 37, 38, and 39.

Circular cairns are in the majority, ranging in overall diameter from 2·2 m to 8·9 m, maximum height above ground level 0·15 m to 0·75 m. There are two elongated cairns; C29 (excavated), length 3·8 m aligned SSW-NNE, and C15 9·0 m long with surface depressions, aligned N-S, and abutting HC10. A feature recorded in a cairnfield at Muir of Gormack, Perthshire, may have some relevance here.[8] Structures C25 and C26 shown as "cairns" are difficult to interpret on account of their poor condition.

The circular feature consists of a shallow groove averaging 0·8 m in width enclosing an area 7·2 m in diameter, with a small cairn measuring 2·1 × 1·3 m aligned E-W, positioned inside the groove close to the southern perimeter. The possibility of the feature being a small enclosed cremation cemetery should not be overlooked, in view of the occurrence of EECs "in close proximity to fields of small cairns and other structures".[9] The typical form of a well preserved "hut-circle" is illustrated by HC12 (Plate I).

Prior to excavation, it was apparent from surface observation alone, that many, if not all of the features regarded by previous observers as hut-circles, were unlikely to have been domestic dwellings. The small internal size and uneven nature of the central areas (angular bedrock protruding in places), in addition to the lack of a definite entrance on

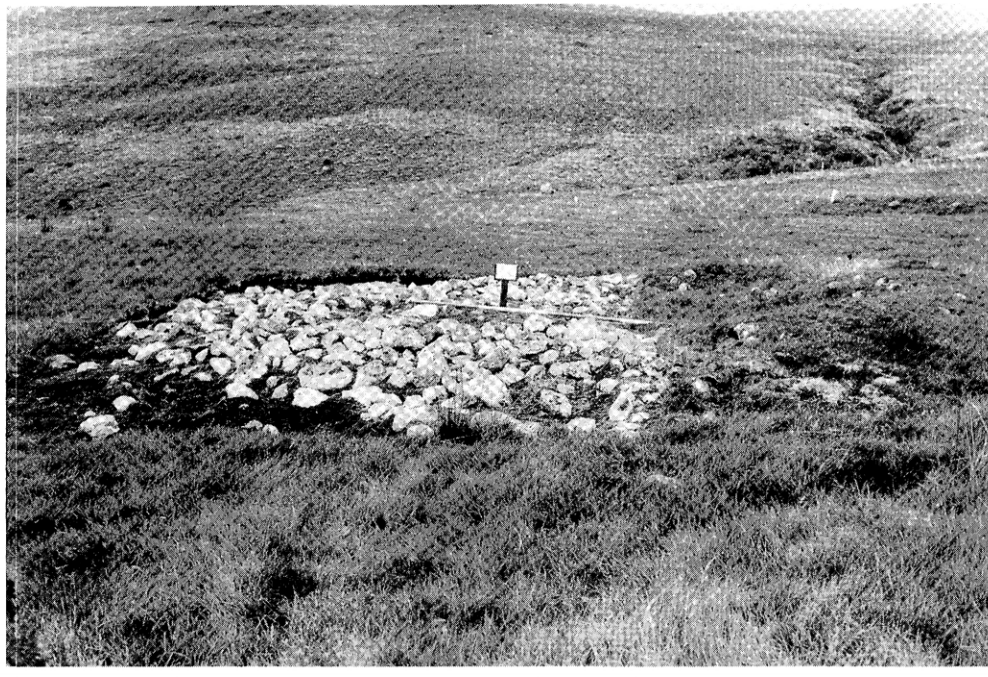

PLATE I. One of the best preserved embanked features (HC12), with turf cover removed from northern half.

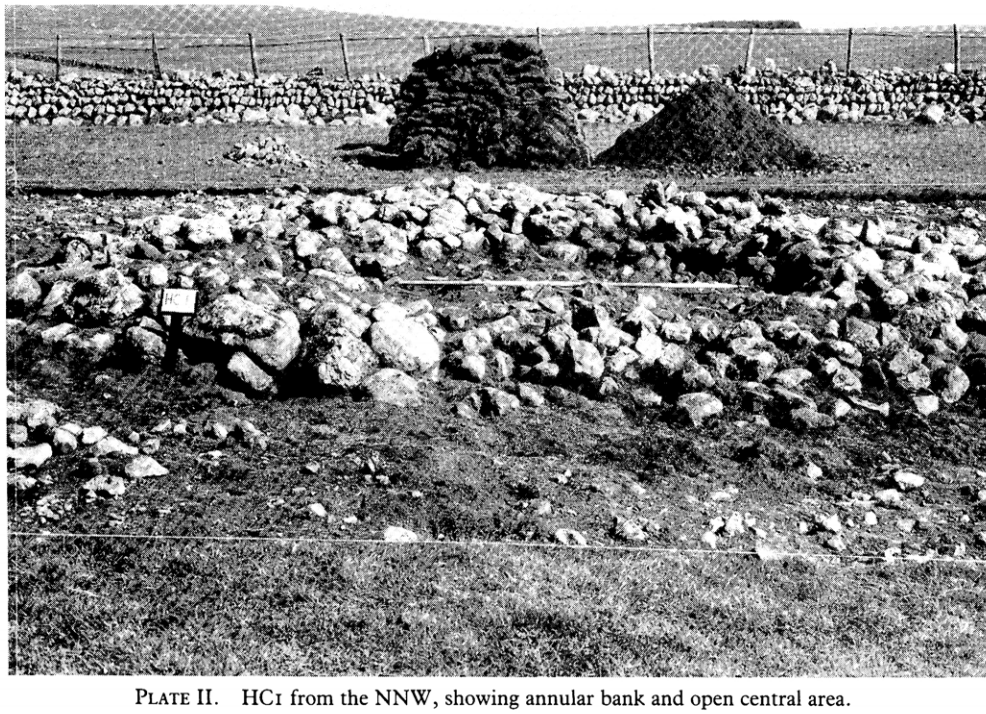

PLATE II. HC1 from the NNW, showing annular bank and open central area.

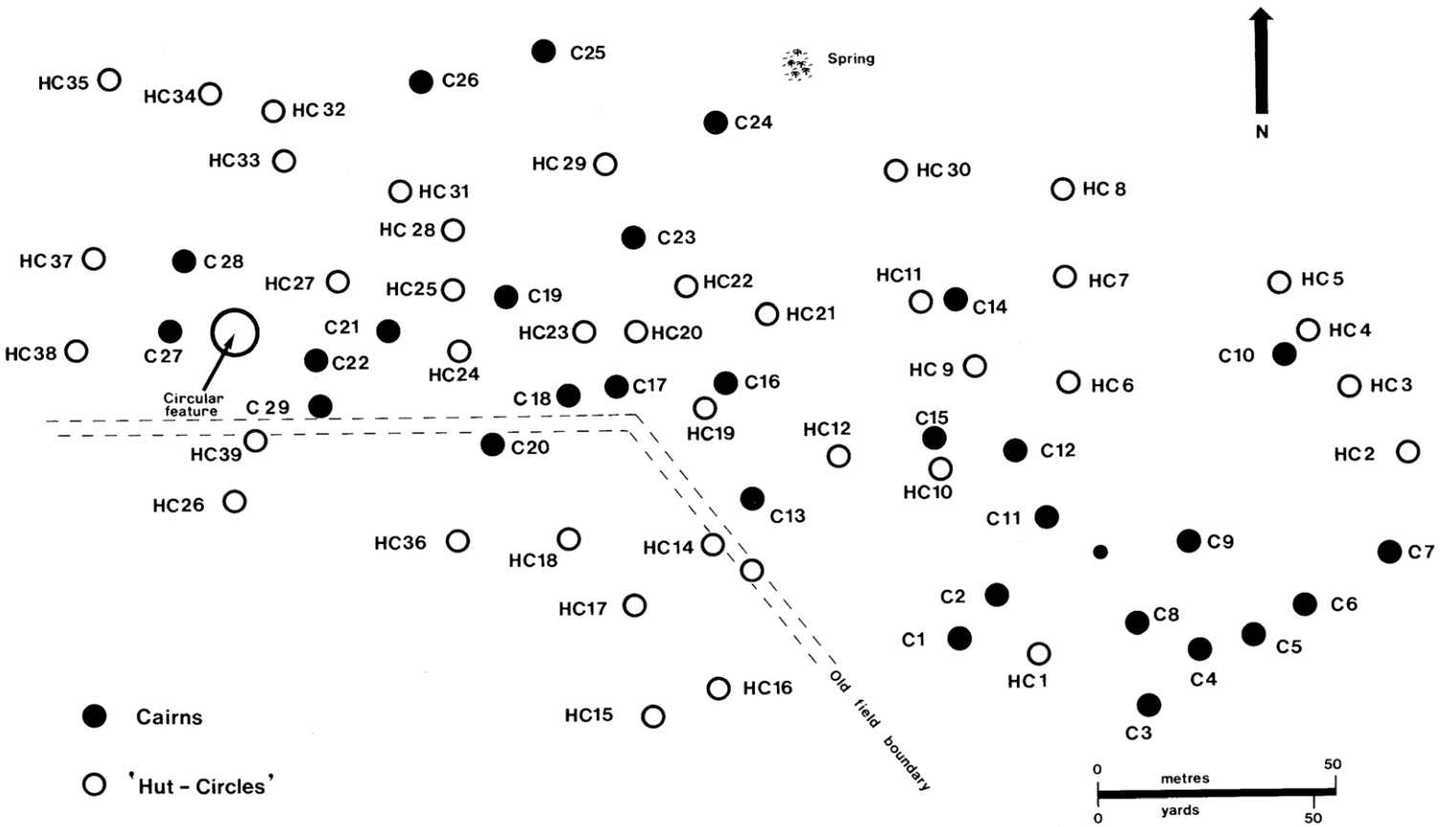

FIG. 2. Cairns and "hut-circles" at Birrel Sike, Calder Valley.

those structures with complete enclosing banks and of any attempt at "wall" construction, suggested a type of monument which has been noted elsewhere, principally in Scotland and Wales, but has hitherto received scant attention within the Cumbrian region, namely "ring-cairns".[10] While these monuments vary considerably in size, composition of the enclosing bank, and constructional detail,[11] the type which provides a close parallel for the Birrel Sike embanked structures, consists of a low circular or oval-shaped bank composed of stones or earth and stones (frequently turf-covered) without any definite form or construction and normally lacking an entrance, enclosing an open area which may be flat or slightly concave. Ring-cairns of this simple form, located in Dumfriesshire, are described by Scott-Elliot ". . . *and are always found close to, or within fields of small cairns, never on their own.* Not all cairn fields have ring-cairns in them".[12] Work on Scottish and Welsh ring-cairns places them in the first half of the second millenium B.C.[13] Taking the average dimensions of both circular and oval forms of embanked structure at Birrel Sike, they are comparable to ring-cairn measurements elsewhere. (For a summary of cairn and inner-ring dimensions on ring-cairns in N.E. Scotland, cf. *Scottish Archaeological Forum*, vol. 4, 1972, pp. 18-47).

The term "hut-circle" has been retained here, since it would be premature to identify all the embanked structures on the site as "ring-cairns" on the basis of surface observation and the excavation of one structure, though some certainly exhibit ring-cairn characteristics. The initial survey work suggested the hut-circles might be robbed-out cairns close to modern field walls, but for various reasons this theory was abandoned as an explanation for *all* the "hollow" features on the site, while recognizing that at least six embanked structures (HC16, 23, 25, 26, 27, 36) may be conventional cairns with their centres removed.[14]

Following the line of the present boundary on the southern perimeter of the surveyed area and running parallel with it across the site (cf. Fig. 2), is a low mound with a slight depression each side. A trial trench 1·0 m wide and 4·0 m long revealed an earth and stone bank, almost certainly the remains of an earlier wall or hedge-bank and not associated with the prehistoric remains. A reed-lined hollow close to the northern boundary wall probably marks the site of a spring.

Finds and documentation have been deposited in Carlisle Museum (Acc.No.88-1981), including a list of all cairns and hut-circles.

4. The excavation

Hut-circle No.1

A well preserved structure slightly oval in shape with a substantial stone and earth annular bank enclosing an open area (Plate II). It measured when exposed: 7·3 × 6·8 m externally, 3·0 × 2·6 m internally; average bank width 2·0 m, maximum bank height 0·6 m. Large stones protruded above the turf cover on the enclosing bank and in the central area, comparable to the enclosed "floor area" in a ring-cairn at Whitestanes Moor (Site 8), Dumfriesshire.[15] As the excavation progressed, a recognisable construction pattern emerged, the larger boulders forming a rough inner and outer ring serving as retainers for the smaller stones and earth infill. While not constituting an inner and outer kerb, the irregular nature of the outer ring may be compared with the circle of stones

running inside the cairn perimeter at Hawkshead Moor.[16] A sprinkling of boulders in the bank centre formed an axial core.

Removal of the whole structure revealed a foundation trench 0·5 m in width and *c.* 15·0 cm average depth containing a soft fill, running below the line of the outer boulder ring. Further constructional evidence was provided by the core boulders which were packed around or wedged from below with smaller stones, while boulders in the outer ring were packed from the inside in addition to being bedded in the foundation trench fill. This building technique has been observed at other sites, including Glassonby,[17] Banniside Moor,[18] Penmaenmawr, Caernarvon,[19] and Chatton Sandyford, Northumberland.[20]

The enclosing bank material had been raked-up or collected in the immediate area; there was no evidence of a ditch, either externally or internally. Much soil filled the interstices (see Section 6). Pieces of cinder and coke below the modern turf line probably resulted from attempts to improve the pasture; HC12, C2 and C22 also yielded pieces.

Charcoal was recovered from the perimeter bank, the top of the O.G.S. below the bank on the S.W. side and from around the structure. The central area was the most productive with scatterings and concentrations in subsoil depressions. Hole A, diameter 23·0 cm, depth 30·0 cm, yielded sufficient charcoal for sampling, producing a radiocarbon age determination of 1720±100 b.c. (Birm-1018).

The interior was extremely uneven with no hearth or posthole evidence indicative of a house structure. Set slightly off-centre and bedded in dark-brown subsoil was a large stone 0·46 × 0·54 × 0·3 m with a charcoal concentration at the base, analogous to an excavated tumulus at Moor Divock.[21] This stone was in a circular setting of twelve smaller stones, probably an accidental arrangement rather than intentional, although Cairn C at Milkingstead, Eskdale, contained two large stones surrounded by "a rough ring of six largish stones".[22] Hole A was encircled by and lined with stones, similar to the holes at Woodhead[23] and Birkrigg,[24] while stone-lined "Pot or pocket-holes" were uncovered at Milkingstead and Thwaites Fell.[25] A number of stones from the central area were discoloured as though having been subjected to heat.

The enclosed area was at a higher level than the O.G.S. outside, the make-up material consisting of angular and rounded stones and soil of varying texture and colour. Cleared to a depth of *c.* 0·5 m, the interior yielded no finds or evidence of a sepulchral nature, the subsoil appeared undisturbed. Areas of iron staining occurred, frequently in situations below the dark-grey soil level which in all probability represents the original soil cover. The latter was present over much of the area occupied by the structure, suggesting that the O.G.S. was not removed prior to construction.

Natural soil profile for HC1 (cf. Fig. 3):

1. Turf cover and modern soil layer of dark-grey to black humus, penetrated by many rootlets.
2. Very dark-brown soil with patches of dark reddish-brown soil. Considerable root penetration.
3. Layer of dark-grey soil with some root penetration.
4. Dark-brown subsoil containing small water-worn pebbles of glacial origin.

Following the excavation of HC1, it was evident that the employment of a definite building technique in the enclosing bank, in addition to the regular inner face, confirmed that the structure was not a robbed-out conventional cairn or clearance heap, but had been built for a specific purpose and retained its original form. The closest parallels to be

PLATE III. One of the largest cairns C2, with turf removed.

PLATE IV. Cairn No. 13 with body structure exposed.

found are in those monuments with simple enclosing banks falling within the ring-cairn classification. The remarkable similarity in section between HC1 and Whitestanes Moor, Site 8,[26] is worth noting. Excavators occasionally observe that following the removal of a conventional cairn, the ground in the centre is slightly *depressed* due to the weight of stone.[27] Examination of the surface below HC1 centre revealed no trace of a concavity, reinforcing the view that the feature reflects the original form.

Three flints and one lump of chert-like material were found in and around the structure, and a possible unperforated whetstone from the enclosing bank, trapezoidal in shape with one flat edge; length 8·35 cm, max. width 3·02 cm, max. thickness 1·4 cm. Should this object be a whetstone, its recovery would suggest the sharpening of edged tools in the vicinity, if not on the site.

Cairn No.2

This large oval cairn (Plate III) selected for excavation on account of its proximity to HC1, measured 6·0 × 5·0 m after turf-stripping with a maximum height at the centre of 0·60 m. A shallow depression on the north side indicated earlier disturbance or internal subsidence. This cairn produced the bulk of the flints from the site (twelve), a fragment of ? polished shale, a worked stone blade, charcoal, and pieces of cinder and coke.

The body was composed of large angular and rounded boulders with a considerable soil and small stone infill. There was no regular construction pattern or kerb, although many of the large boulders were located towards the perimeter. Previous work on Cumbrian cairns indicates there was no common construction method.[28]

Pieces of cinder and coke came from below the turf cover, and a fragment of shale 3·2 × 2.6 × 0·8 cm, with smooth surface suggesting artificial polishing, was found wedged in between the stones on the SSW side *c.* 20·0 cm below the surface. Lying on top of the O.G.S. below the cairn centre and dismissed as natural when first picked up, the stone blade fragment revealed signs of working along one edge. Rounded at the end and plano-convex in section, it is part of a larger blade which has snapped across; surviving length 3·7 cm, max. width 3·4 cm, max. thickness 0·6 cm.

Charcoal fragments were found throughout the cairn body and below it, lying on or in the original soil cover and in positions beyond the perimeter stones, lying on top of the O.G.S. These have been sent for radiocarbon analysis.

Black humus filled the interstices to a depth of 0·25 m, and was especially dense below the central stone cap, much of it resulting from decomposition of the overlying turf layer. Iron pan had formed below the cairn, with deposits of sandy and dark-grey coloured soil lying in shallow depressions in the pan. The latter soil (as in HC1) is probably the remains of the original soil cover and survived only below the cairn centre.

Natural soil profile for C2 (cf. Fig. 3): (soil colours as in Munsell Soil Colour chart 1973)

1. 0-25 cm. Turf cover and modern soil layer of black humus, root mat.
2. 25-60 cm. Greyish-brown soil (Munsell 10YR 5/2) with quantities of small stones and roots filling the interstices. Large pockets of dark reddish-brown soil (Munsell 5YR 2.5/2) interspersed with patches of sandy soil.
3. 60-70 cm. Layer of very dark-brown soil (Munsell 10YR 2/2) of fine texture, some root penetration.
4. 70-75 cm. Small areas of dark-grey soil, probably the original soil cover.
5. 75 cm.→ Dark-brown subsoil (Munsell 7.5 YR 3/4) containing small stones.

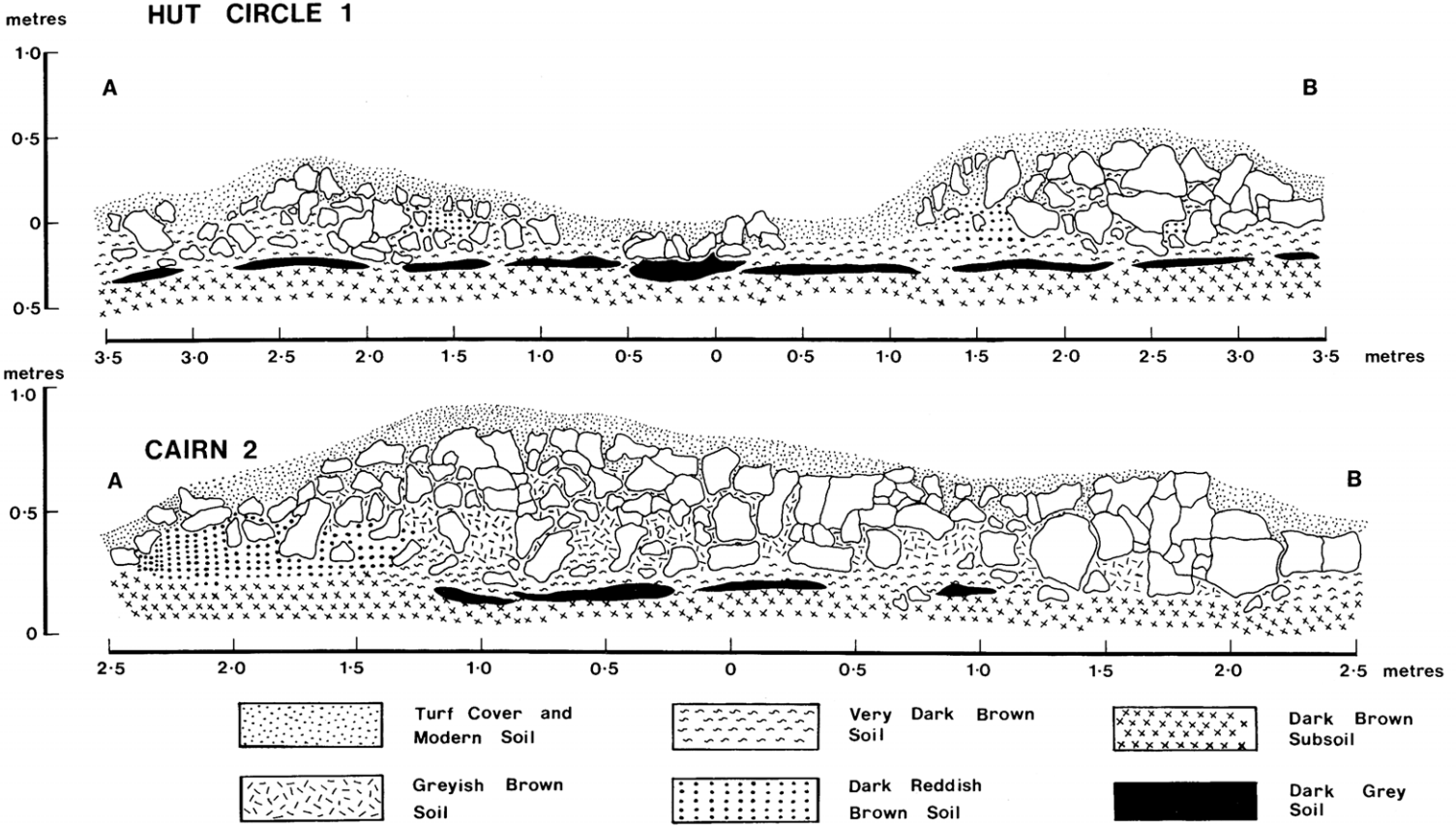

FIG. 3. Sections through Hut-Circle No. 1 and Cairn No. 2.

Following the complete removal of C2, a circular depression was exposed containing a soft fill of dark reddish-brown soil coinciding with a ring of larger boulders running close to or set back slightly from the cairn perimeter, a feature already noted in the Hawkshead Moor cairn. This depression provided a foundation trench for the boulders and probably reveals the original diameter of the cairn as 4·2 m measured across the outer lip, assuming the boulder ring to have been a rough kerb later concealed by stone movement or dumping. However, it should be borne in mind that a boulder ring within the cairn body, either set back from the perimeter or encircling a central point, can form an integral part of the building technique and need not necessarily constitute an original kerb. Set into the trench were two boulders of larger size than the rest and deeply bedded. The occurrence of a single large boulder or boulders either forming the core of a cairn or providing a starting-point for its construction, has been noted at other sites including Moor Divock, Banniside Moor, Dava Station, Morayshire[29] and Kildale Moor, Yorkshire.[30] The use of large earth-fast stones forming a nucleus for cairn-building in Iron Age Denmark is pointed out by Graham, a practise still being followed in recent times in the West Highlands of Scotland.[31] An embanked feature HC21 at Birrel Sike had a large boulder 0·56 × 0·63 × 0·56 m incorporated into the perimeter bank on the west side.

Cairn No.13

A symmetrically shaped cairn (Plate IV) 3·2 × 3.0 m when exposed, maximum height 0·6 m. Bounded by a kerb of large angular and rounded stones, the body had a core of large stones with a soil and small stone infill. The modern black humus layer penetrated to some depth with areas of light-grey and sandy soil in the lower levels extending below the central core stones. Comparing the profile with HC1 and C2, the light-grey layer probably represents the O.G.S., surviving below the centre and petering out towards the perimeter. Iron pan had formed in solid patches or "rings" below the cairn stones; the subsoil was undisturbed.

Natural soil profile for C13:

1. Turf cover and modern soil layer of black humus.
2. Greyish-brown soil with small stones and plant roots filling the interstices
3. Light-grey soil with patches of sandy soil, present in the lower levels.
4. Subsoil of pure glacial deposit, clean sand and small water-worn stones.

Removal of the loose body material revealed a large stone slab lying in the centre and supported at an angle by other core stones. Plano-convex in section and measuring 0·7 × 0·55 × 0·15 m, the stone covered a fairly thick deposit of charcoal 0·75 m square.

Analysis of a charcoal sample from below the slab yielded a radiocarbon age determination of 1690±100 b.c. (Birm-1063).

Deposits of charcoal or burnt earth and charcoal covered by a stone are recorded at a number of mound and cairn sites in the Cumbrian area and elsewhere, notably Hawkshead Moor, Birkrigg, Sunbrick,[32] and Bolton Wood.[33] At Hirwaun, Glamorgan some of the cairns had "several large flat slabs, suitable for protecting an urn or cremation deposit occurred".[34] Over thirty "black earth" or charcoal deposits were recorded at Birkrigg, Barrow 4, each covered by a stone, while the presence of "alien stones" in the black deposits which the excavators regarded as "clearly intentional",[35] is especially relevant to C13, a piece of fire-blackened red sandstone being recovered from the charcoal spread,

the sole representative of that rock type in the cairn. The only find was a flint scraper, collected 0·75 m west of the cairn centre below the modern turf layer.

Cairn No.22

Of this well preserved compact circular cairn, occupying a prominent position at a point where the ground falls away to the north-west only half was excavated. Its diameter was 4·3 m and its height 0·6 m.

Pieces of cinder and charcoal were found below the modern turf line, with charcoal fragments appearing up to a depth of *c.* 15·0 cm below the surface stones. This was the only cairn with charcoal confined to the upper part of the mound. Much very dark-brown soil was packed around the body stones, while a line of larger stones bedded in the subsoil formed a rough kerb. Unlike the other excavated structures, there was no iron pan below the cairn or any trace of the original soil cover in the excavated area, which would suggest wholesale stripping of the O.G.S. prior to construction. An area one metre square and 0·5 m in depth was removed below the cairn centre with no sign of previous disturbance.

Natural soil profile for C22:

1. 0-5 cm. Surface covering of modern turf, soil and roots.
2. 5-15 cm. Layer of grey coloured soil containing roots.
3. 15-18 cm. Very dark-brown soil with large stones predominating.
4. 80 cm. Dark-brown subsoil containing a mixture of large and small water-worn stones.

The only find was a small chip of pale yellow flint, max. length 1·5 cm, max. width 1·02 cm, max. thickness 0·35 cm, with a large area of dirty grey-white cortex adhering, found 0·30 m south of the cairn centre on top of the subsoil (not included in the flint report.)

Cairn No. 29

A small elongated cairn near No. 22 and aligned SSW-NNE was 3·8 m long, 2·2 m wide and 0·5 m high. The body was irregular with many displaced stones, mostly small and less than 15·0 cm in diameter. It is unlikely that this cairn possessed even a rough kerb in its original state. Two pieces of coke were found below the turf cover and a piece of fired clay 4·6 × 3·3 × 1·7 cm came from the top of the cairn stones. It is extremely doubtful whether this is part of a vessel. Charcoal fragments came from all levels, mainly below the stones lying on the iron pan and below it in the subsoil.

Very dark-brown finely textured soil lay between the body stones with patches of more compact soil on the subsoil beneath the cairn. The O.G.S., as suggested for C22, had probably been removed prior to construction. The subsoil was removed to a depth of 30·0 cm, with no sign of previous disturbance.

Natural soil profile for C29:

1. Modern turf and soil cover with root mat.
2. Very dark-brown soil with rubble and plant roots.
3. Dark-brown subsoil containing small stones. Coarse in texture for the first 10 cm, gradually becoming finer and shading into a light-grey deposit.

In view of the less than compact nature of the structure and exposed position, the very dark-brown soil in the cairn body was probably not incorporated at the time of construction but formed at a later date.

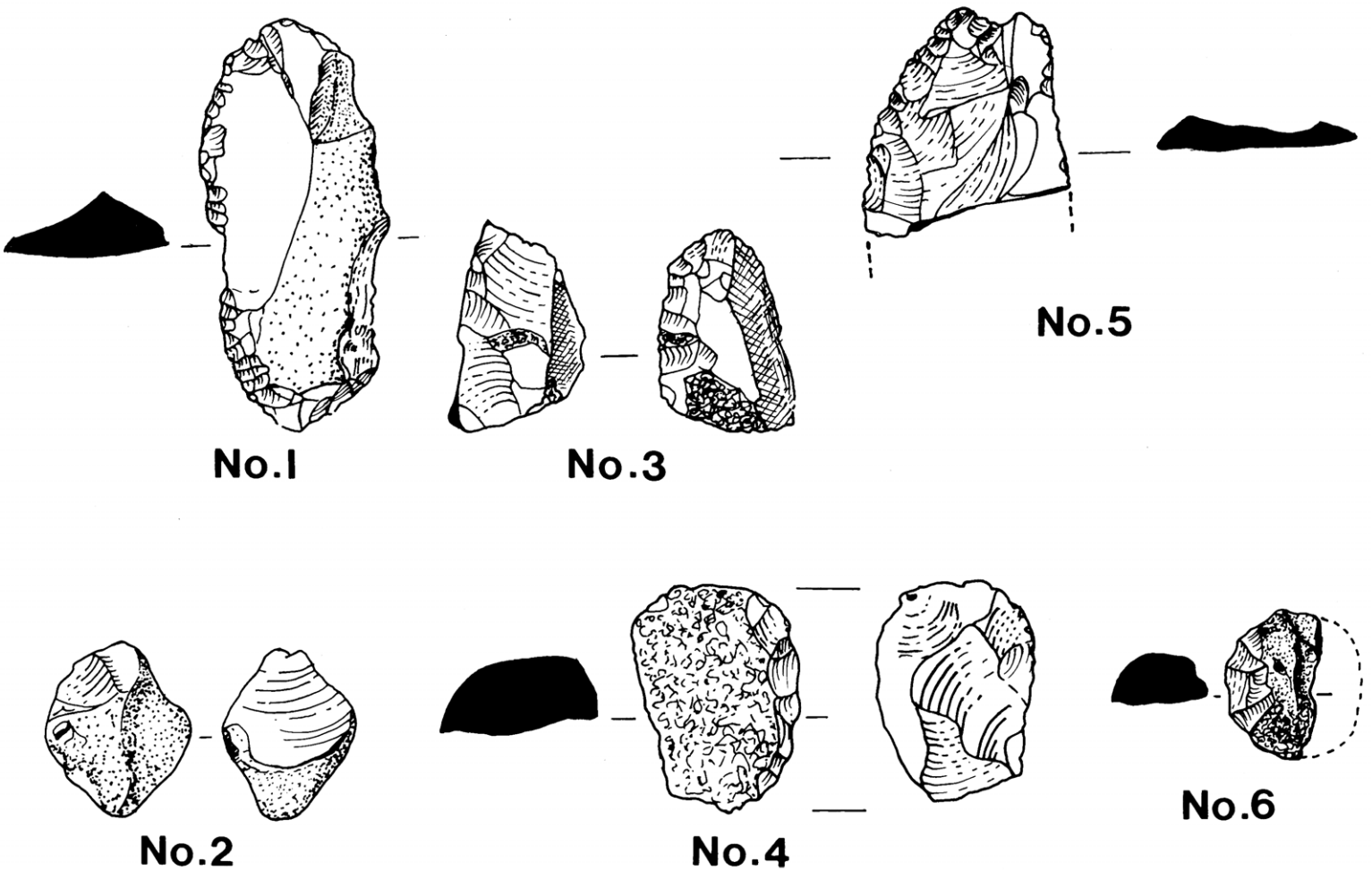

FIG. 4. Flint material from Birrel Sike. (1:1)

5. Discussion and Conclusion

The Birrel Sike cairns and embanked strructures are irregularly spaced with few open areas or signs of marking-out which could be interpreted as cultivation plots. The presence of ring-cairn type remains in some numbers, the building techniques employed in HC1 and C2, and to a lesser extent C13 and C22, the protected deposit in C13, the associated finds, combine to suggest a more complex overall picture than clearance heaps lacking signs of definite construction or finds in the manner of Totley Moor.[36]

Construction evidence from HC1 has been outlined in Section 4, and its ring-cairn characteristics established. Points requiring additional emphasis include retention of the O.G.S. prior to construction, the rough interior, heat discoloured stones, charcoal scatterings throughout and beneath the enclosing bank and concentrations in the central area.

The uneven interior can be paralleled at ring-cairn sites elsewhere, while central areas filled with earth and stones have been recorded at ring-cairn and kerb-cairn sites in Scotland and Wales.[37] Burnt stones are a recurrent feature at many local mound and cairn sites – Hawkshead Moor, Bleaberry Haws, Sizergh Fell, Shield Knowe, Old Parks, Thwaites Fell and Grey Croft – while "burnt *flakes* of stone" were found at Birkrigg and Banniside Moor. Evidence for considerable burning in the interior of ring-cairns is not lacking.[38] Holes or depressions containing charcoal *only*, are recorded at Bleaberry Haws,[39] Birkrigg (Barrow 5), and Moor Divock. A small ring-cairn at Cefn Caer Euni II, Merionethshire had a charcoal-filled hole in the central area.[40]

In the absence of sepulchral evidence, the function of HC1 is obscure and reflects the situations encountered in simple ring-cairns excavated elsewhere, although two flints, a ? whetstone and charcoal constitute a form of assemblage. It may well be that irrespective of the numbers excavated, their true purpose is unlikely to be revealed. Their sporadic appearance in fields of small cairns suggests a "ritual or ceremonial" purpose, objects being placed within or below the structure, the sole function of the latter being that of a marker or receptacle. Cairns 2 and 13 may well have performed a similar function.

Each excavated cairn differed in some degree from the others. Retention of the O.G.S. below the cairn centre and removal from adjacent areas in C2 and C13, compares with the Barnscar findings,[41] while absence of the original surface below C22 and C29 indicates wholesale stripping or non-survival, as at Mecklin Park,[42] Clifton,[43] Shielde Knowe (partial survival), and probably the two cairns excavated in the Duddon Valley in 1950.[44] During work on the Hirwaun cairnfield, the old surface had been removed in some cases, and not in others.[45] Retention of the O.G.S. either in whole or in part below certain structures possibly indicates an order of importance or priority accorded to those structures on the part of the builders.

Only Cairn 13 had a genuine kerb and core, although the two large boulders set into the foundation trench in C2 probably constituted a starting-point or nucleus for the cairn-builders. The ring of larger boulders bedded in the trench and supported by packing stones in C2 confirms the use of a construction technique. A clearance heap would hardly have warranted the labour involved in digging such a trench, especially on firm, level ground while the recovery of twelve flints, a piece of ? polished shale and a stone blade suggests *intentional* rather than accidental deposition. The cairn was not sepulchral but was built for a specific purpose which did not include field clearance. At Barnscar Walker concluded that the cairns were not clearance heaps but were raised for reasons unknown.

All four cairns contained charcoal in varying quantities, either in or below the body structure and could equally be the result of "funerary or ceremonial rites" or vegetational clearance in the vicinity. Exceptions to the latter being HC1 and C13, with concentrations rather than scatterings. The protected deposit in C13 suggests this cairn is not the result of stone clearance, the closest parallels existing in structures of non-clearance origin. There was no evidence of burning on the O.G.S. in the places where it survived, unlike Barnscar.[46]

Large quantities of soil were present in all the excavated structures, and would appear to have been deliberately deposited as a construction aid in HC1, C2 and C22. One of the cairns excavated by Dymond & Hodgson at Threlkeld had been "Filled up and packed with earth . . . the quantity of it quite disposed of the opinion that these were mere gathering heaps of stones cleared off the land . . . there was not much good soil to spare therabouts, and no one would have wasted it on stone heaps".[47] The Inventory for Lanarkshire states that many of the small cairns "contained a large proportion of earth" a factor which "argues against agricultural clearance being the reason for their construction".[48] It is worth noting that clay used in the construction of the Barnscar cairns had been obtained by excavation. Of the four excavated cairns, C2 and C13 are clearly not clearance heaps, and while C22 and C29 may qualify as such, the rough kerbing and soil quantity in C22 suggests an alternative reason. Accepting that HC1 is a ring-cairn of simple embanked form, the radiocarbon date of 1720±100 b.c. is comparable to those obtained from ring-cairns elsewhere, while the radiocarbon date of 1690±100 b.c. from C13 would place at least two of these monuments in the same chronological context. The two results are not significantly different, and do not imply that HC1 pre-dates C13.

Prof. W. Pennington's work on various upland sites in the south-west area has shown there was a marked decrease in the oak forest and an expansion of grassland in the second millenium B.C., "which seems limited to those areas where burial cairns abound".[49] This pastoral use of land between 215 m (700 ft.) and 277 m (900 ft.), would provide a suitable context for the emergence of the Birrel Sike cairnfield. It is uncertain whether the area now occupied by the site was forested, but Barnscar, which lies 13 km to the south-east, produced evidence that the area was "partially wooded and that bog development had hardly begun" when the cairns were constructed.[50]

Though no firm conclusions can be based upon the excavation of five structures in an area containing at least sixty-eight features, their appearance in the first half of the second millenium B.C. probably coincided with the gradual spread of Bronze Age people on to the upland areas and clearance of the forest cover, which enabled a pastoral-based economy to develop with some crop cultivation on small plots or fields.[51] There is every likelihood that these people moved inland towards the higher ground from the coastal region, or, at the very least, were in close contact with the coast, as the flint material from the site and its physical proximity would indicate. In this context it is worth noting a cairn on Birker Moor which produced only one flint but led the excavators to suggest "a probable connection between the cairn and the people whose flint pebble industry existed on the West Cumberland coast south of Seascale".[52]

The evidence to date from Birrel Sike, on balance, weighs more heavily in favour of the structures being for ceremonial or ritual purposes than field clearance, and doubtless excavation of other site features would yield evidence of a sepulchral nature. However, in view of the complex and multi-period nature of cairn-field sites, clearance may not be

entirely discounted. To try to understand these upland monuments, one can only emphasize the need for intensive field survey backed by selective research excavation, the latter to include area stripping and surface examination in between the cairns as well as the structures themselves.

Acknowledgements

I owe a debt of gratitude to all the volunteers who gave up their weekend leisure time to assist in the work. A special vote of thanks is due to the "hard-core" who attended regularly, including Mr & Mrs S. C. Snook and family, Mr D. Woolley, Mr K. Newland, Miss J. Fielding, Mr D. T. Harrison, Mrs N. Donaldson, Mrs A. Till, Mrs D. West, Miss S. Mitchell, Mr R. Jackson, various members of the South-West Regional Group, and my wife Carol and daughter Sheena.

My thanks also to the farmer, Mr R. Hartley, for permission to excavate and for drawing my attention to the site, Mr J. W. Hartley, for providing transport "up the hill", and to Mr & Mrs J. Evans and family for assisting on the site and transportation of site cabin and equipment "down the hill". I am grateful to Mr R. E. G. Williams, University of Birmingham, for his invaluable help and analysis of the charcoal samples, and to the Cumberland & Westmorland Antiquarian & Archaeological Society for a grant towards the cost of sampling and for the purchase of a site cabin. I would also like to express my thanks to Mr R. Young, St David's University College, for the flint report, and to Mr M. Walker, for examining the rock samples. I am indebted to Prof. G. Jobey, University of Newcastle, for much informal discussion during the preparation of this report, reading the draft and his helpful suggestions, and to Miss C. I. Fell, for advice and comments on the text.

6. The Flint Material from Birrel Sike. *By R. Young.*

Of eighteen pieces of flint and chert recovered in the course of the excavation, seventeen are included in this report. The raw materials used can be broken down as follows:

Colour and Raw Material	*No.*	*% of Total*
Grey flint	13	76
Toffee Brown Flint	2	12
Grey/Brown Chert	1	6
Red/Grey Flint	1	
		6
	17	100%

Two pieces show incipient white patination and two show golden-yellow staining. Eight pieces (approximately 48% of the total) retain nodular cortex or outer pebble surface. This varies in colour and texture as follows:

Cortex Colour and Texture	
Hard, off-white cortex	2
Brown/grey hard pitted cortex	2
Off-white, smoothed and pitted pebble cortex	3
Yellow stained, rounded pebble cortex	1
	8

As the two tables show, raw material from the site varies greatly in colour. In the main, low grade pebble flint seems to have been the major exploited resource.

The following table indicates the concentrations of flint material at the site:

Area of Site	*No.*	*% of Total*	*Weight*
Hut Circle No.1	4	24	22·84 gms
Cairn No.2	12	71	42·89 gms
Cairn No. 13	1	5	2·26 gms
	17	100	67·99 gms

It is now proposed to deal with each of these discrete groups.

Hut Circle No.1

Fig. 4, No.1. A plano-convex knife on a large toffee-brown flint flake. Max. length 59 mm, max. width 24 mm, max. thickness 10 mm. The left edge exhibits very fine retouch which runs around the distal end, becoming very steep here (angle of retouch at distal end = 66°). This edge also exhibits some coarse inverse retouch. The right edge is battered and blunted at the distal end possibly to facilitate ease of holding the implement. The dorsal face exhibits a broad band of brown/grey, hard pitted nodular cortex.

Context – Found in the S.E. quadrant, well bedded in the enclosing bank stones at a depth of *c.* 20·0 cm below the modern turf cover.

Three other pieces were found in the area of the "hut"; a light-grey chip retaining a minute piece of pebble cortex, measuring 8 mm × 5 mm × 2 mm, found in the perimeter bank stones on the west side; an irregular lump of grey-brown chert-like material, rounded on all its surfaces, measuring 19 mm × 13 mm × 9 mm, found lying on top of the O.G.S. in the area outside the enclosing bank in the N.W. quadrant; and the bulbar end of a large red/grey flint flake, broken transversely to the flake's long axis, measuring 24·5 mm × 20 mm × 7 mm. This piece exhibits hard off-white pitted cortex on its dorsal face and also traces of incipient white patination on both dorsal and bulbar faces. Traces of utilization may be visible on the right edge. This piece was also found on top of the old land surface on the west side of the structure, beyond the perimeter stones.

Cairn No. 2

As the foregoing tables indicate this cairn produced the largest concentration of flint, twelve pieces. However, eight of these seem to be "waste" pieces, flakes, chips, and irregular lumps.

Five of these, all in varying shades of grey flint, were found on and in the ? old land surface, a layer of dark-grey soil immediately above iron pan beneath the cairn. A sixth was found "lying in a depression in the pan which had formed below the cairn". This piece exhibits a hinge fracture at its distal end. These pieces range from 20 mm to 11 mm in length, with an average length of 11·1 mm, and in breadth they range from 22 mm to 9 mm, with an average breadth of 13·6 mm.

Two further "waste" pieces were found outside the perimeter of the cairn. A reddy grey sub-rectangular flint exhibiting much battering and some hard, off-white, smooth pebble surface on its dorsal face, measuring 27 mm × 24 mm × 6 mm. Found below the modern turf and root layer in the S.W. quadrant. A light-grey ? preliminary dressing flake with off-white rolled and pitted cortex, max. length 28·5 mm, max. width 14 mm, max. thickness 6 mm. Found on the west side of the cairn, lying on top of the O.G.S.

Cores

Two definite cores were recovered from outside the perimeter of the cairn. Fig. 4, No. 2 is a small rolled golden yellow stained, grey flint pebble, max. length 26 mm, max. width 22 mm, max. thickness 8 mm. One large flake has been removed from one face. Weight = 4·63 gms. Fig. 4, No. 3, is a completely worked-out grey core with soft white chalk inclusions. Flakes have been removed from every possible direction and much hinge fracturing is visible. Max. length 29 mm, max. width 18 mm, max. thickness 20·8 mm, weight 9·64 gms.

Context: No. 2 was found lying on top of the iron pan in the N.E. quadrant of the area. No. 3 was collected in the S.E. quadrant lying on top of the old land surface.

Scrapers

The two remaining pieces can both be classed as scrapers. Fig. 4, No. 4, is in light-grey flint made on thick ? preliminary dressing flake. The right edge has been retouched very steeply, and traces of heavy utilization are visible on this edge. Angle of retouch 77°. The dorsal face is wholly cortical. The bulbar face has had at least two flakes removed from it, and the piece may also have served as a core. Max. length 32·8 mm, max. width 23·3 mm, max. thickness 11 mm.

Context – From the stone make-up of the cairn, NNE of its centre at a depth of 0·50 m below the surface stones.

Fig. 4, No. 5, is the bulbar end of a very large grey flake, broken transversely to its long axis. The left edge is fairly steeply retouched (angle of retouch 45°) and the right edge bears very fine flake scars on both faces ? through use. Several small areas of gloss are visible on the dorsal and bulbar faces. Max. length 29 mm, max. width 30 mm, max. thickness 6.5 mm. The piece may also have served as a knife.

Context – Recovered from the old earth surface south of the cairn centre.

Cairn No. 13

This cairn produced only one piece. Approximately half of a roughly circular flint scraper (Fig. 4, No. 6), made on golden yellow stained, red and brown, plano-convex,

preliminary dressing flake. The dorsal face is almost wholly cortical and only part of the piece's circumference seems to have been very steeply retouched (angle of retouch = 63°). Max. surviving length 21 mm, max. surviving width 12 mm, max. thickness 7·5 mm.

Context – Found immediately below the modern turf cover *c.* 0·75 m due west of the cairn's centre.

Discussion

The occurrence of rounded, rolled outer pebble skin on several of the pieces, along with the general size of the flints themselves, would suggest that beach pebble was the main raw material utilized at the site. The sea is only some 6·5 km away and the flint sites at Seascale, Drigg, and St. Bees, all utilizing beach pebbles and flint from coastal glacial drift, 7 km S.W., 8 km S., and 11 km N.W. respectively. Cherry's work especially, has shown that pebble flint occurs in sufficient quantity to form a stable source of raw material from the Mesolithic to the Bronze Age and possibly later (Cherry, 1963, 1965, 1967 and Cherry, J. & P. J., 1973). Typologically, this group of flints is not outstanding. The scrapers could be paralleled at most Neolithic-Bronze Age flint sites on either side of the Pennines. The most interesting piece is the plano-convex knife, which the excavator believes is "similar to Irish material in the Carlisle Museum collection". The possibility of Irish flint reaching the Cumbrian area was discussed by C. I. Fell, 1940.

References

(Abbreviations as used in Harding, D.W. (ed.) *Archaeology in the North* (1976).
J. Cherry, (1963) "Eskmeals sand-dunes occupation sites – Phase I, flint working", CW2, lxiii (1963), 31-52.
J. Cherry, (1965) "Flint-chipping sites at Drigg", CW2, lxv (1965), 66-85.
J. Cherry, (1967) "Prehistoric habitation sites at Seascale", CW2, lxvii (1967), 1-16.
J. & P. J. Cherry, (1973) "Mesolithic habitation sites at St. Bees, Cumberland", CW2, lxxiii (1973), 47-66.
C. I. Fell. (1940) "Bronze Age connections between the Lake District and Ireland", CW2, xl (1940), 127-130.

References

[1] C. Richardson, "Excavations at Birrel Sike, Calder Valley, Cumbria", C.B.A. Group 3, *Archaeological Newsbulletin*, Series 2, No. 8, Sept. 1979, 9-10.

[2] My thanks to Miss C. I. Fell for drawing my attention to this reference.

[3] E. D. Hyam, *Report on archaeological sites in S.W. Cumberland*, 1958, 7. (Listed under 6" Cumb. 73 SW, item 4).

[4] D. W. Harding, (ed.), *Archaeology in the North* (Northern Archaeological Survey, 1976).

[5] J. Cherry, "The Settlement Evidence", in T. W. Potter "Romans in North-West England" (1979), 8. *CWAAS, Research Series* vol. I.

[6] Geological Survey of Gt. Britain, *Gosforth District*, (HMSO 1937), 84.

[7] *Ibid.*, 15.

[8] A. Graham, "Cairnfields in Scotland", *PSAScot.* xc, 1956-7, 16.

[9] J. N. G. Ritchie & A. MacLaren, "Ring-Cairns and Related Monuments in Scotland", *Scottish Archaeological Forum*, vol. 4, 1972, 16.

[10] It is hoped to discuss at some future date reasons for the virtual absence of ring-cairns from the archaeological record in Cumbria including possible parallels for the Birrel Sike embanked structures. Only in recent years have ring-cairns received attention in field surveys. While the simple stone embankment enclosing an open area tends to be placed within the ring-cairn classification, only more intensive research will perhaps reveal

whether it marks a *transition* from ring-cairn to cremation cemetery type of enclosure (cf. A. Burl, *The Stone Circles of the British Isles*, (Yale Univ. 1979), 185-6, Fig. 30, Pl. 21), or warrants a separate category. Lynch hints that the simple spread of stones, as opposed to the more elaborate forms of bank construction, and surrounding an open area, "may turn out to be significant for, in Wales, they tend to be much larger than the kerbed type" (cf. F. Lynch, "Ring-Cairns and Related Monuments in Wales", *Scottish Archaeological Forum*, vol. 4, 1972, 63). However, work in other areas demonstrates the wide range in overall size of the simple stone embankment.

Ritchie & MacLaren suggest the term "ring-cairn" should be employed for monuments "with a genuine bank of cairn material surrounding an open area in which burials are deposited or inserted into the bank" (cf. J. N. G. Ritchie & A. MacLaren, *op. cit.*, 1972, 1). The sepulchral nature of all monuments identified as ring-cairns however, is in some doubt, some excavated examples yielding no finds.

The one ring-cairn feature excavated at Birrel Sike (HC1) produced no burial evidence, although firm conclusions can not be drawn without sampling other embanked structures on the site.

[11] *Scottish Archaeological Forum*, vol. 4, 1972.

[12] J. Scott-Elliot, "The Small Cairn Fields of Dumfriesshire", *D. & G. Trans.*, xliv, 1967, 100-1.

[13] Scottish Archaeological Forum, vol. 4, 1972, 1, 78.

[14] Examination of the bank construction on the better-preserved hut-circles revealed a regular inner face. In the case of a heavily robbed or badly disturbed cairn the material in the centre will normally have been "howked-out", leaving a jagged inner face, clearly discernible in section if not on the surface (cf. A. M. Jackson, *Forestry & Archaeology: A Study in Survival of Field Monuments in South-West Scotland"*, (1978), 24, Pl. 8). The cross-section through HC1 (Fig. 3) showed a regular inner face on the enclosing bank.

A number of large cairns situated close to the field walls are *intact*, while hut-circles are located at some distance. It is unlikely that this ready source of building material would have been overlooked.

My thanks to Mr. L. J. Masters, Univ. of Glasgow, for much useful discussion on this and other problems relating to cairns and "hut-circles".

[15] J. Scott-Elliott, *op. cit.*, 1967, 117-8.

[16] CW1, ix, 1888, 202, 497-8.

[17] CW2, i, 298.

[18] CW2, x, 346.

[19] *Arch. Cambrensis*, ciii, 1954, 71.

[20] *AA*[4], xlvi, 1968, 9-10.

[21] CW2, xxxv, 67.

[22] CW2, xxviii, 150.

[23] CW2, xl, 164.

[24] CW2, xiv, 478.

[25] CW2, xxix, 254-5.

[26] J. Scott-Elliot, *op. cit.*, 1967, 118, Fig. 1.

[27] CW2, ii, 49.

[28] The cairn in the stone circle at Grey Croft, Seascale, was formed of larger boulders on the perimeter than on the inside (CW2, lvii, 5), while at Corney Fell, the excavator found that "Cairn 1 had large stones in the centre and small ones at the edge, while Cairn 2 was exactly opposite" (CW2, lxxvii, 1). Two of the Threlkeld cairns had a central core of large stones with smaller stones "above and around . . . all filled up and packed with earth". The mound at Mecklin Park had a substantial kerb of large granite boulders (CW2, xxxvii, 104), while the cairn at Clifton had a kerb of "small, unshaped boulders" (CW2, lxxix, 1). The ten cairns excavated at Barnscar in 1957-8 lacked "clearly discernible construction techniques" but possessed a form of incomplete kerbing (CW2, lxv, 53-65). At Sizergh Fell, McKenny Hughes considered that field clearance heaps were signified by large stones on the outside with an infill of smaller stones, and the cairn chosen for excavation was selected on the basis that the larger stones formed a circle "around some centre within the mound before its completion" (CW2, iv, 76-7).

Elsewhere, the cairnfield at Penmaenmawr comprised turf-covered mounds of stones and earth, some with substantial kerbs, others without (*Arch. Cambrensis*, ciii, 1954, 71-3). The Inventory for Argyll records that the only structural features present in the small cairns "are a kerb of boulders" (R.C.A.H.M.S. *"Argyle"*, vol. I: *Kintyre* (1971), 8), while the Inventory for Lanarkshire records small cairns with large boulders around the perimeter approximating to kerbs, but concludes that "it is not a diagnostic feature" (R.C.A.H.M.S. *Lanarkshire: An Inventory of the Prehistoric and Roman Monuments*, (1978), 10, 57, 67).

[29] A. Graham, *op. cit.*, 1956-7, 10.

[30] P. Ashbee, "Excavations on Kildale Moor, North Riding of Yorkshire, 1953", *York. Arch. Journ.*, xxxix, 1957, 189.
[31] A. Graham, *op. cit.*, 1956-7, 22-3.
[32] J. Dobson, CW2, xxvii, 101.
[33] J. E. Spence, CW2, xxxvii, 47.
[34] A. Fox, & L. M. Threipland, *Arch. Cambrensis*, xcvii, 1943, 81.
[35] Rev. C. Gelderd *et al*, *op. cit.*, 1914, 469.
[36] J. Radley, *Arch. Journ.*, cxxiii, 1966, 9.
[37] J. N. G. Ritchie & A. MacLaren, *op. cit.*, 1972, 4-8.
[38] J. N. G. Ritchie & A. MacLaren, *op. cit.*, 1972, 10-11.
[39] H. S. Cowper, *op. cit.*, 1888, 501.
[40] F. Lynch, *Scottish Archaeological Forum*, vol. 4, 1972, 73.
[41] D. Walker, CW2, lxv, 56.
[42] J. E. Spence, CW2, xxxvii, 104.
[43] G. J. Fairclough, CW2, lxxix, 1.
[44] M. Cross, CW2, 1, 200.
[45] A. Fox & L. M. Threipland, *op. cit.*, 1943, 79.
[46] D. Walker, *op. cit.*, 1965, 56, 62.
[47] C. W. Dymond & T. H. Hodgson, *op. cit.*, 1902, 48.
[48] R.C.A.H.M.S. *Lanarkshire: An Inventory of the Prehistoric and Roman Monuments*, (1978), 10.
[49] W. Pennington, "Vegetational History in the North-West of England: a Regional Synthesis", in D. Walker & R. G. West. Studies in the Vegetational History of the British Isles, (Cambridge, 1970), 72.
[50] D. Walker, *op. cit.*, 1965, 61-2.
[51] The presence of large cairns situated adjacent to or within fields of small cairns has been noted in various parts of the Highland Zone, and has led to suggestions that large pre-existing cairns may have attracted cairnfields to their vicinity (G. Jobey, *op. cit.*, 1968, 49; A. Graham, *op. cit.*, 1956-7, 14; J. Scott-Elliot, *op. cit.*, 1967, 99-116). Should the large "clearance heap" at Birrel Sike prove to be a cairn of some antiquity, then it could be a contributory factor in the emergence of the cairnfield. The existence of large stone cairns in small cairn groupings in the Cumbrian area is recorded by Ward, who also notes the number of "walled enclosures" associated with the small cairns (CW1, iii, 1878, 241-265).
[52] J. Cherry & W. Fletcher, CW2, lxiv, 373.