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Excavations in the ceremonial complex of the fourth to second millennium BC at Balfarg/Balbirnie, Glenrothes, Fife

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'Perfection in such inquiries is not in the power of any body of men to obtain at once, whatever may be the extent of their views or the vigour of their exertions.'
(Bailey & Culley 1805)

ABSTRACT

The portions of the Balfarg/Balbirnie ceremonial complex excavated between 1983 and 1985 are described and related to the portions dug previously: Balbirnie stone circle and Balfarg henge.

The prehistoric ceremonial use of the area seems to have lasted from early in the third millennium until late in the second millennium BC (in terms of uncalibrated radiocarbon dates). The sequence began with pit digging and pottery deposition in two parts of the site, near Balfarg Riding School (BRS) and to the west of the Balfarg henge. Then, two timber structures, possibly with a mortuary function, were erected at BRS, probably in the early/mid third millennium BC (uncalibrated). The later of the two was mounded over and surrounded by a circular ditched enclosure (a henge?); this activity was associated with the deposition of Grooved Ware. At about the same time, at the west end of the site, a similar deposition of burnt and broken Grooved Ware predates the construction of the Balfarg henge, with its timber and stone circles, and there is evidence of the first use of the Balbirnie stone circle.

Later in the third millennium BC (uncalibrated) and in the second millennium, during

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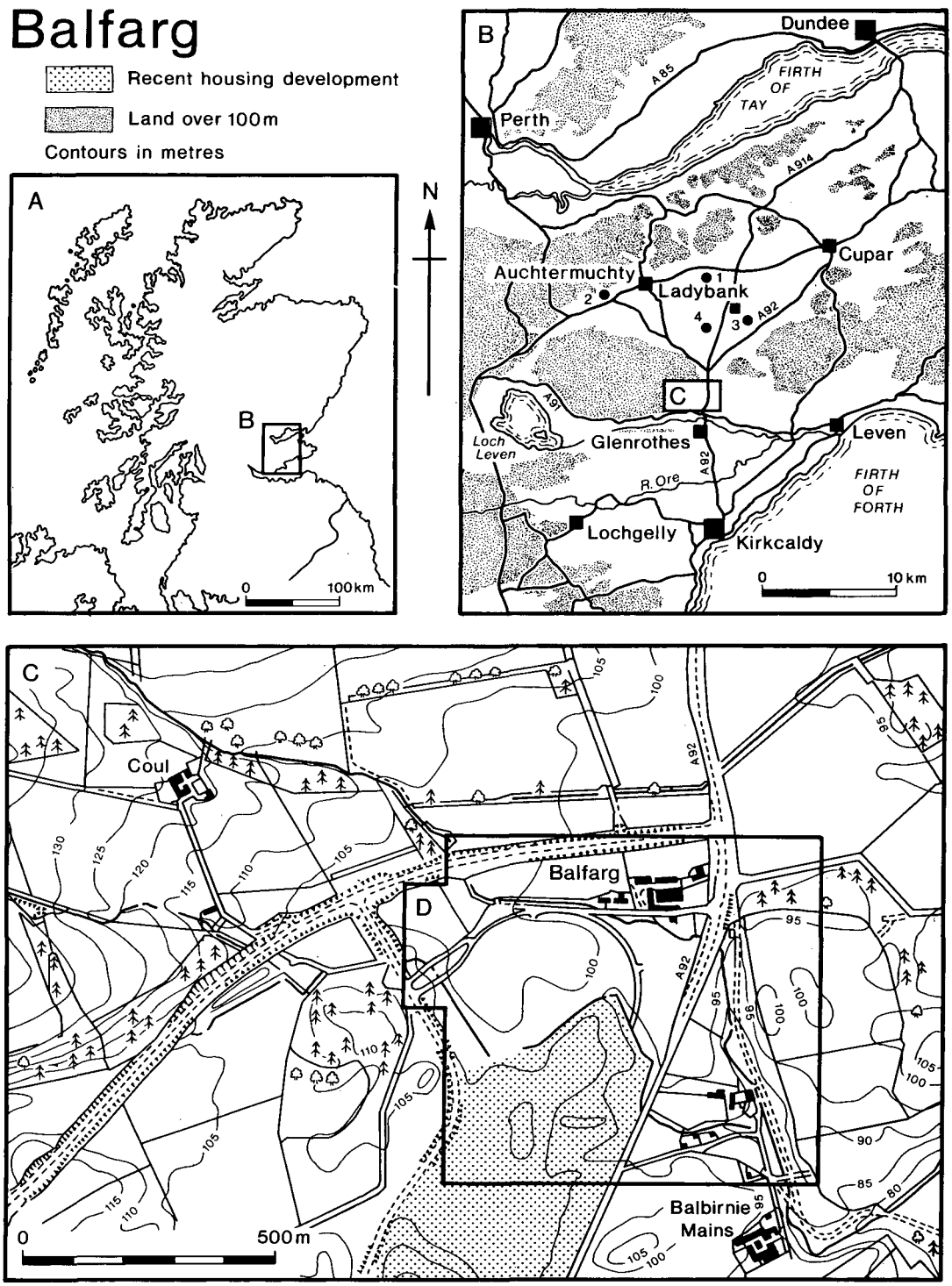


ILLUS 1 Location map. The area of illus 4 is marked 'D' on map C. The location of four possibly related sites is shown: 1. Kinloch Farm – possible Neolithic settlement; 2. Strathmiglo – hengiform enclosure; 3. Balmalcolm – hengiform enclosure; 4. Rossie Drain – hengiform enclosure. (*Based upon the Ordnance Survey map Crown copyright*)

the prolonged use of the Balfarg henge and the Balbirnie stone circle, a complex sequence of events unfolds at BRS, including the digging of a ring-ditch and the erection of two concentric ring-cairns and a further cairn.

Late in the use of the complex there are episodes of burial associated with Beaker and Food Vessel pottery. Most burials are simple cremations, mainly in the area of Balbirnie stone circle, all apparently late in the sequence of the sites on which they are found. At the west end of the complex cremations were deposited in simple urns.

The excavation was undertaken by Historic Scotland.

SECTION 1 INTRODUCTION

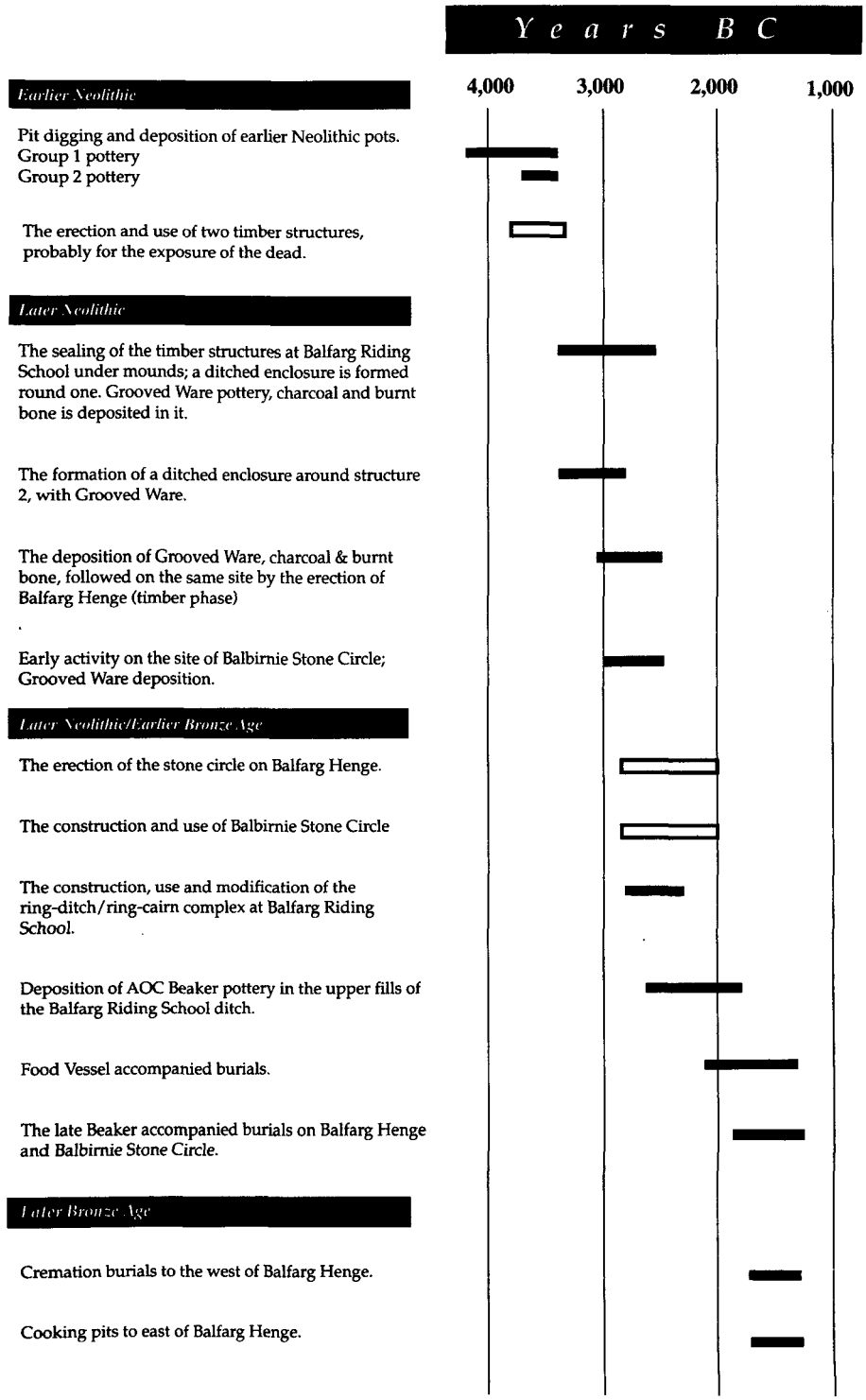
G J Barclay

1.1 CONTENTS

1.2 THE NATURE AND FORM OF THE REPORT

This report conforms to Historic Scotland's draft publication policy; that is, the interpretation of the site is presented together with sufficient description of relevant features to support the conclusions of the excavator and to allow very limited re-working of the evidence. The editors of this report do not believe in the particular usefulness of the publication of large quantities of more detailed excavation evidence in microfiche; the reader is referred instead to the excavation archive in the National Monuments Record of Scotland. The microfiche appended to this report, therefore, contains only the catalogues of the pottery and stone artefacts, to allow relatively easy access to this specialist material. We have attempted to follow Alcock's prescription (1978); he suggested that: '. . . the most that is needed is a summary account of major structures, most characteristic finds, and outline site history; with just enough presentation of the basic evidence to demonstrate how the main stratigraphic sequence is established, and with the excavator's preferred solutions to all problems . . . set out and justified as economically as possible'. Possibly rather more has been presented than Alcock would have wished. However, the editors present what *they* would wish to see in a report of this kind.

The interpretation of the excavated evidence suggests the sequence of events shown in illus 2. In the printed text the groups of features (pits, post-holes, etc) are described and interpreted in the first section, broadly in the chronological order interpreted by the excavator. The site feature numbers (eg F2501) are used throughout the report where they are relevant. The locations of all features believed not certainly to be of natural origin (with the exception of features within the timber structures) are shown on illus 7 (Area A, to the west



ILLUS 2 Date chart: the solid blocks show the span of each activity, as indicated by calibrated radiocarbon dates; the open blocks are interpretations only.

of the henge excavated by Mercer) and illus 6 (Area C, the area around the Balfarg Riding School (BRS) enclosure). Only significant features, which are used to support arguments or which contained important evidence, are described in any detail. For example, in the case of the Neolithic timber structures (Section 2.2, below) the single-phase boundary post-holes are not described individually although their general characteristics are summarized and oddities noted. The post-holes and pits in the structures' interiors are described in more detail, however, because of their complexity and their significance for the interpretation of the structures. All pit and post-hole sections, however, are illustrated.

Specialist contributions are related as closely as possible to the excavation data, so that the feature descriptions and the finds and burnt bone, etc, are to be found together; an exception is the flintwork, the report of which is presented separately because of the difficulties of tying substantial quantities of undiagnostic and long-lived material to specific phases of use of the area. Additionally, much specialist material is incorporated in the main text as part of the feature descriptions (in particular, the palaeobotanical work which in most features was limited to assessments of floated samples). More substantial specialist contributions are attributed as far as possible to their author(s), by the display of initials.

The Discussion (GJB) deals with the broader context of individual elements of the Balfarg/Balbirnie group, and with the nature of their relationship one to another; an interpretation of the place in the group of both the Balfarg henge (Mercer 1981; Mercer *et al* 1988) and the Balbirnie stone circle (Ritchie 1974) in the light of the excavation reported here is also presented. Finally there is a more general discussion of Neolithic and earlier Bronze Age ceremonial and burial practices, and the nature of 'ceremonial complexes' in relation to the Balfarg/Balbirnie evidence.

In accordance with the Society's policy, uncalibrated radiocarbon dates and estimates of age based directly upon them, are indicated by the suffix 'uncal'. A consideration of the radiocarbon dates and their calibration is presented on p. 161.

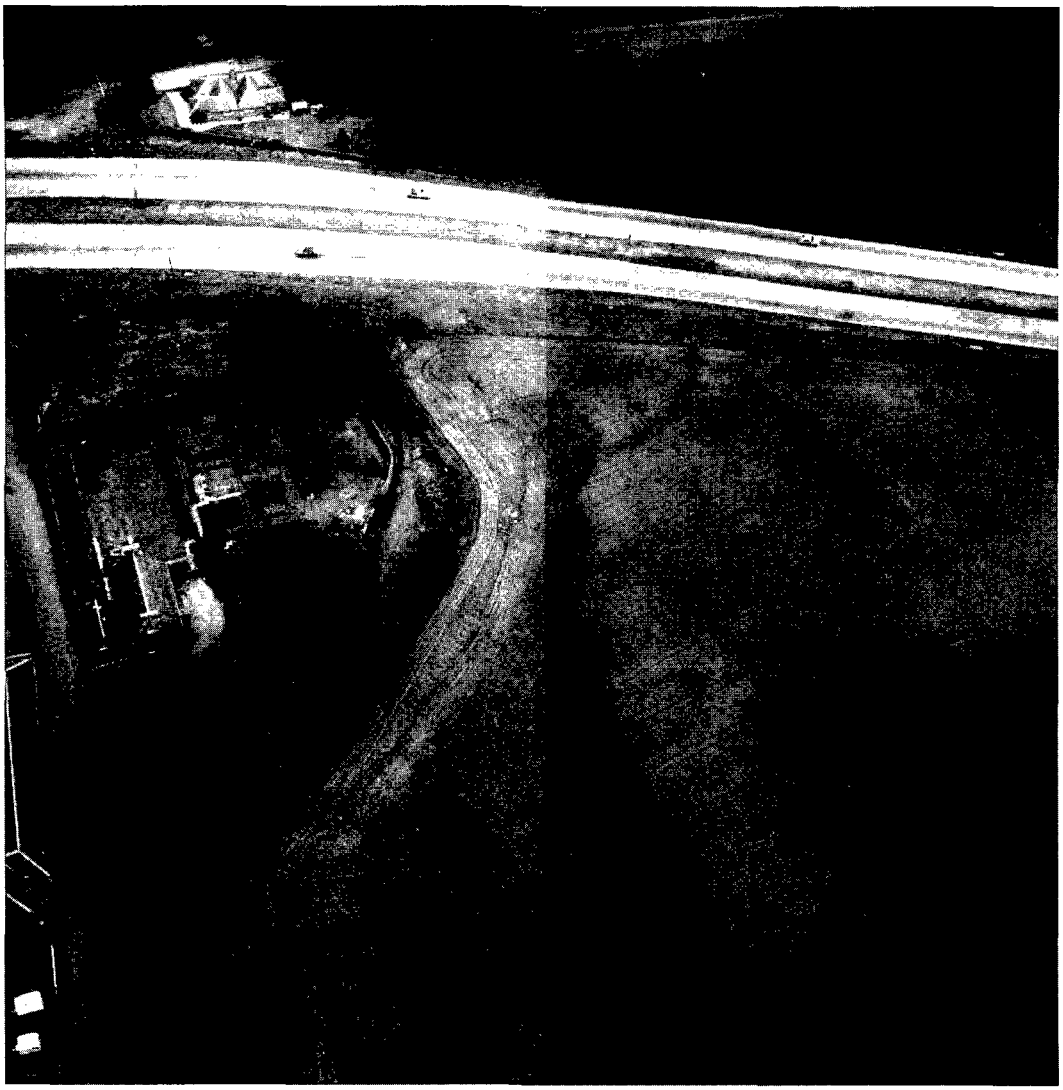
1.3 THE TOPOGRAPHICAL CONTEXT OF THE COMPLEX

The Balfarg/Balbirnie complex is situated at a height of 95–100 m OD between NGR NO 280030 and NO 286028, 1.75 km north of the River Leven on the north side of Glenrothes New Town in Fife (illus 1). The topography of the site itself is described by Jordan (Section 1.7 below) and the place of the complex in the archaeology of the region is dealt with in the general discussion (Section 4.8).

The complex lies at the eastern end of the Lomond Hills a little south of the watershed between the Howe of Fife (the middle valley of the River Eden) to the north and the River Leven to the south. Although substantial areas to the east and to the west of the Lomonds have been reclaimed by modern drainage there were, prior to the agricultural improvements, substantial areas of potentially good, well-drained arable land and grazing in this part of Fife to north and south, and on the Lomond Hills themselves (Thomson 1800).

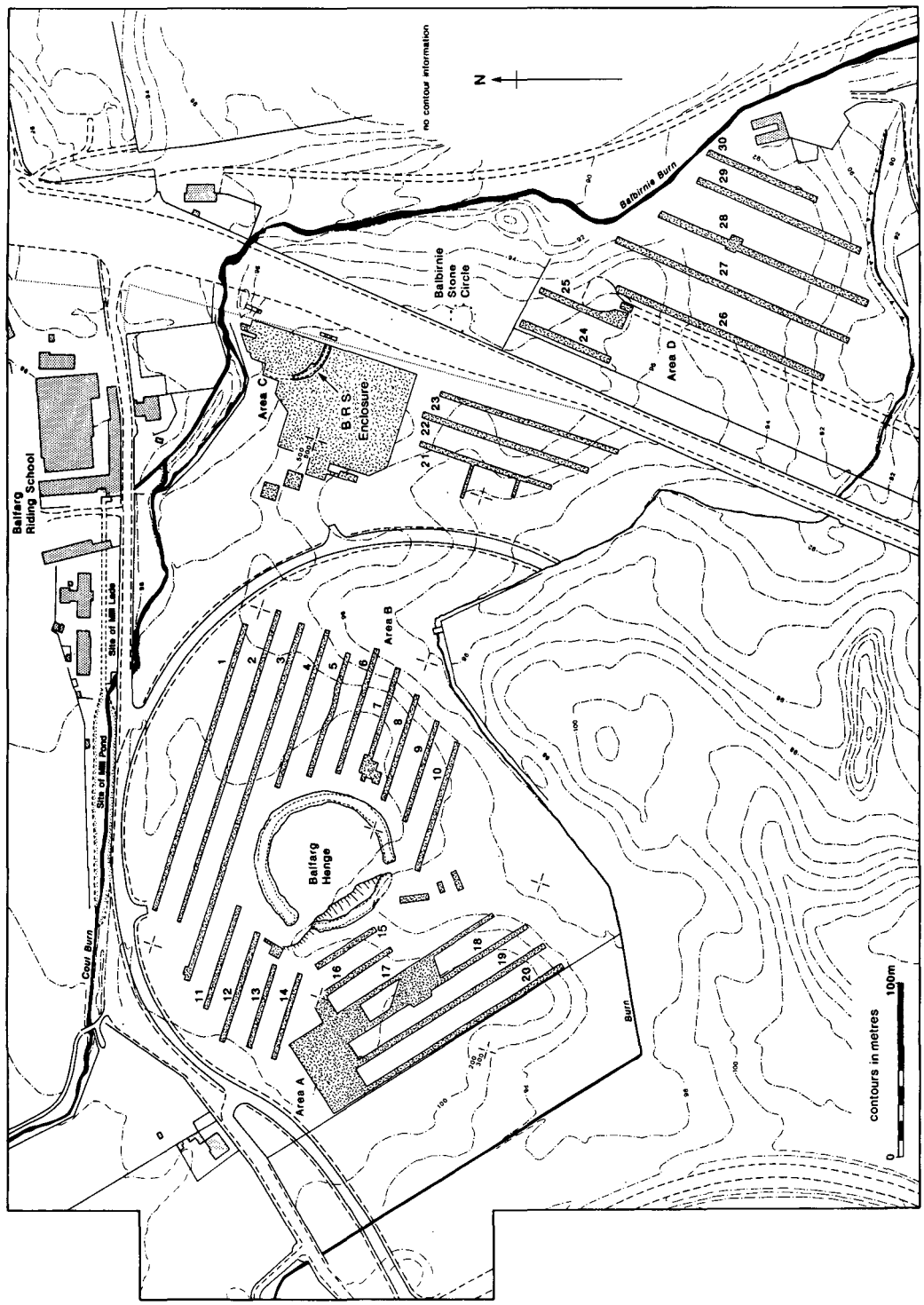
1.4 BACKGROUND TO THE EXCAVATION

The modern excavation of the ceremonial complex at Balfarg/Balbirnie (illus 4) took place over 15 years, in three phases, under three supervisory teams, arranged by Historic Scotland and its predecessor departments. The recorded antiquarian activity in the area (mainly by Balfour in the 1880s) has been described elsewhere (Ritchie 1974).



ILLUS 3 Aerial photograph showing the cropmark of the BRS enclosure ditch prior to excavation. *(Crown copyright: RCAHMS)*

The area of the complex lies at the northern edge of Glenrothes New Town. The need for improved road communications threatened Balbirnie stone circle, leading to its excavation in 1970/1 and its removal to another site (Ritchie 1974). The henge at Balfarg was excavated in 1977/8 prior to its planned destruction by the expansion of the New Town (Mercer 1981). In 1978 RCAHMS photographed from the air a hitherto unknown enclosure (near Balfarg Riding School) in the north-east corner of the same field as the henge (illus 3). This enclosure, known as the Balfarg Riding School (BRS) enclosure, and the features within and around it (and further features near the stone circle and henge) were excavated between 1983



ILLUS 4 Plan showing the local topography, the location of the excavation areas and the sample trenches. The contour lines are at 1 m intervals. The locations of features are shown on illustrations 7 (Area A) and 6 (Area C).

and 1985 (Barclay 1983a, 1983b, 1984, 1985, Barclay & Tavener 1985) in advance of their destruction, and it is this work which forms the basis of this report. A number of more recent features was found during the excavation, including a mill lade, the digging of which had damaged the ring-cairn at BRS. This later material will form the subject of another report (Russell-White in prep).

1.5 EXCAVATION AND SAMPLING

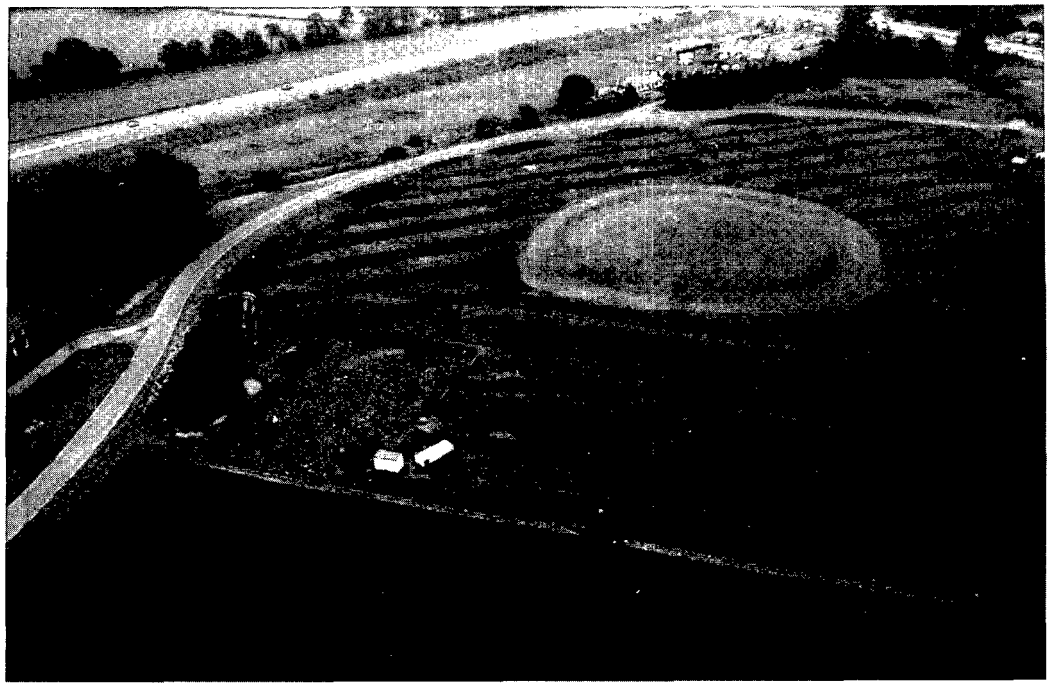
'It is scarcely possible, in an undertaking of this kind, to describe all the minutiae of practice...' (Bailey & Culley 1805)

In the spring of 1983 the Central Excavation Unit of Historic Scotland's predecessor department carried out a trial excavation over the ditch and part of the interior of the BRS enclosure (illus 4). The excavation showed that in the interior there were post-holes (one of which produced Grooved Ware) and that the ditch contained considerable quantities of Grooved Ware and Beaker pottery (Barclay 1983a).

A second season was mounted later in 1983 to investigate the enclosure and its immediate surroundings. This revealed not only that there was a rectilinear timber structure within the enclosure but also that a considerable spread of features lay to the south-west (Barclay 1983b). A third season was undertaken in 1984 (Barclay 1984) to extend the excavation area to the west and south. At this stage it became clear that there was a strong likelihood that further remains might lie yet further to the south-west and a limited sampling exercise was undertaken to test the area. Two small, machine-dug trenches, out of 46 opened over the area to the south and west of the BRS enclosure, were productive – quantities of Grooved Ware were recovered from the western pit and a larger trench was opened up around it (this led to the discovery of F1002). A further trench located part of a mound of stones – this proved to be part of the ring-ditch/ring-cairn A group (Section 2.3.1; illus 6).

A fourth season was mounted, again in 1984 (Barclay 1985), to examine the features located by the sampling exercise. This revealed the ring-ditch/ring-cairn complex and, at the end of the season, the remains of a further rectilinear timber structure similar to that found in the centre of the BRS enclosure.

As it had become clear that the approach to date had been too site specific, a fifth season was mounted in 1985 (Barclay and Tavener 1986), to complete the work on the ring-cairn, ring-ditch and second timber structure, and to undertake extensive sampling of the ground between and around the three main foci of activity. Mercer (1981, 65) has written of the horrors of the subsoils at Balfarg: '...a bewildering pattern of differing soil compositions ranging from fine sand to large packed cobbles set in clay'. It was very difficult to find prehistoric pits and post-holes in the very varied subsoils at Balfarg and any sampling strategy had to recognize the considerable problems which would be faced in trying to find elusive features in small sample trenches. It was felt that, with the limited resources available, the most economical way to expose enough subsoil was to clear 'lanes' (illus 4 & 5) using a box-scraper, followed by a JCB using a ditching bucket to produce a clean surface. This surface was then hoed clean and examined repeatedly in different weather conditions. This strategy was successful and led to the discovery of an area of Neolithic activity and a Bronze Age cremation cemetery to the west of the henge, and of further features between the henge and the BRS site (illus 5). It also allowed the examination of extensive sections through the soils in the area.



ILLUS 5 Aerial photograph from the south-west of the excavation area showing the sampling trenches around Balfarg henge; the Area A excavations appear in the foreground and Area C lies in the top right hand corner.

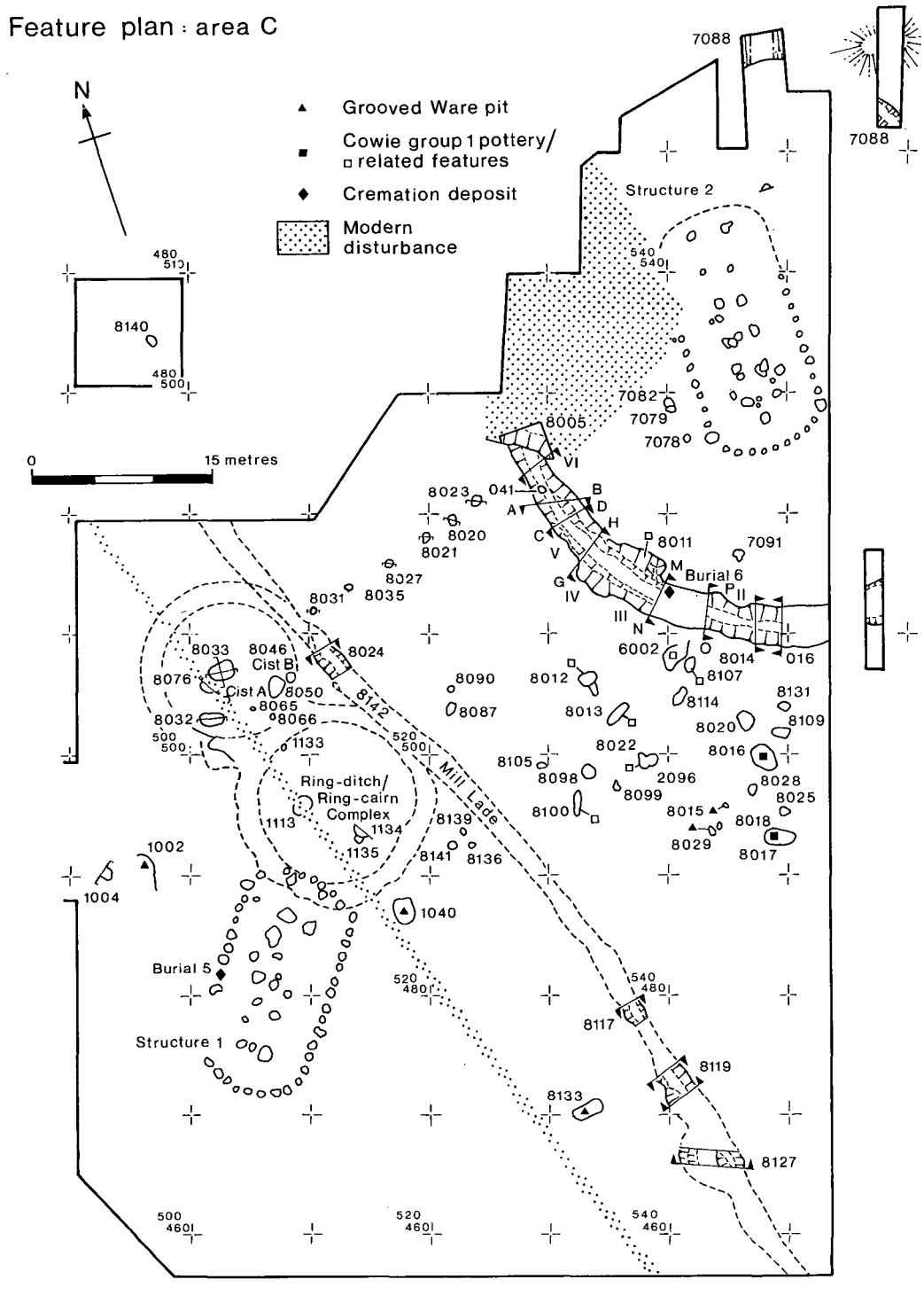
Throughout the excavation an extensive programme of soil-sieving and flotation was undertaken for most of the excavated features and layers on the site. The product of the flotation programme was assessed by Alan Fairweather and Helen Smith. The results showed that there were very few carbonized seeds and suggested strongly that the tiny number of seeds was the result of a general background of carbonized material finding its way into pits and layers. Only two contexts produced substantial numbers of seeds: Cist A (p 135) and F3001 (p 146), where barley grains were found (150+ in the former, 350+ in the latter, which was a later Bronze Age pit).

The grid for the excavation had its origin to the south-west of the site. It was roughly aligned north/south, east/west. References in the site archive to location are Cartesian co-ordinates within this grid; eastings (X-axis) are given before northings (Y-axis).

The archive of documents, photographs and drawings is lodged in the National Monuments Record of Scotland. The finds are in the Royal Museum of Scotland, with those from the Balbirnie stone circle and Balfarg henge.

1.6 PRESERVATION, RESTORATION AND DISPLAY

It has proved possible to preserve and present to the public certain elements of the complex. As the result of a local initiative, the Balbirnie stone circle was moved, shortly after the excavation, from its original site in the path of the proposed realignment of the A92 road, to a



ILLUS 6 Plan of features in Area C. Pits containing Earlier Neolithic pottery and Grooved Ware are marked, except those within the two timber Structures.

new site on the east bank of the Balbirnie Burn. The henge was also saved from destruction and partially reconstructed. It also proved possible to redesign the housing scheme in such a way that the portion of the BRS enclosure which survived in the north-east corner of the field could be preserved, and the site of the timber structure in its interior has been marked by posts. Glenrothes Development Corporation has provided interpretative material for visitors, based on the conclusions of this report and its predecessors. In addition Fife Regional Council and Historic Scotland have prepared a summary popular report and guide to the visible elements of the complex (Barclay 1993).

1.7 SUMMARY REPORT ON THE TOPOGRAPHY, SOILS AND SEDIMENTS

D Jordan

Summary

At Balfarg the eastern slopes of East Lomond Hill flatten out into a broad shelf between the catchments of the Rivers Leven and Eden. The area around the sites undulates gently between two small streams and the depressions and elevations within these undulations contain deposits and soils with differing histories. The soils of the area may be classed as normal Darvel series Brown Forest Soils (containing most of the archaeological evidence, plough-truncated), Colluvial soils, and soils developed in Flandrian flood deposits. A buried soil beneath ring-cairn A may have been cultivated and is described below (p 121). The area to the north of the henge was probably wet and subject to flooding at the time of its construction. The regime of the stream to the west of the site changed in the middle of the third millennium BC (in terms of uncalibrated radiocarbon dates), possibly due to extensive land clearance in its upstream catchment.

Soils, sediments and archaeological evidence

Flooding and stream formation The area to the north of the henge is made up of fluvio-glacial sands and gravels overlain by Flandrian flood deposits. Only in a small proportion of this area is there any stratigraphic evidence of a hiatus between late glacial alluviation and Flandrian flood deposits. Over most of the area the transition is gradational over a depth of 0.2 m or so. This does not necessarily mean that a hiatus did not occur although the sediments deposited do not represent those of a very high energy streamflow, and there is little evidence to suggest that a previous surface has been eroded of soil. The best available *terminus post quem* for the start of deposition is the end of the glaciation. The presence of strata producing artefacts low in the alluvial sequence indicates that the alluvium is Flandrian and the presence of medieval pottery near the centre of the profile indicates that flooding continued until after that medieval period. Maps of the 18th century show that the streams around the site were already canalized and this would probably have prevented flooding. Thus we have a *terminus ante quem* for the close of deposition of the 18th century. It is thus quite possible that the area to the north of the henge was regularly flooded at the period when the henge was built.

Evidence for changes in landuse At the western edge of the complex (just to the west of lane 20 on illus 4) is a small stream valley. Where it passes near the site it broadens and the soils in the valley bottom are peaty. It was suspected that the valley bottom would be a favourable place to look for a continuous sedimentary record which would include the period

of activity on the site. The aim was to determine the nature and rate of sedimentary deposition in the valley and to relate this to erosion rate changes indicative of human activity.

Three holes were excavated to a depth of 3 m and their stratigraphy examined. All were very similar stratigraphically, and it may be assumed that they truly represent changes in depositional regime on the valley floor. The sequence in hole 3 (Table 1) is typical.

TABLE 1
Soil profile

Unit	Depth (cm) below ground surface	
1	0–30	Ap light grey-brown, medium subangular blocky, plastic clay with common, fine, fibrous roots.
2	30–60	Light grey-brown silty clay with a weakly developed weak small subangular blocky structure. A few, well-developed orange mottles. Slight sandy bands indicate a little structure inherited from the parent material.
3	60–90	Light grey-brown loamy sand with massive structure and well-developed orange mottles aligned vertically around relic rootholes. Distinct horizontal sand structure inherited from parent material.
4	90–110	Light grey sand with massive structure. Rare small fragments of charcoal. Gravelly lenses and a few, well-developed orange mottles.
5	110–140	Massive grey clay with rare charcoal fragments. Orange mottles common along relic root channels, gradually becoming rare down the profile.
6	140–170	Massive light yellow-grey sandy clay loam. Common, poorly defined sandy lenses. Rare poorly developed yellow mottles.
7	170–185	Massive mid-grey peaty clay with abundant organic matter which increases in concentration down the profile. Large plant fragments (>5 mm) found. Mottling rare and reducing, absent by 185 cm.
8	185–192	Moderately humified, very dark brown woody peat. Von Post grade 3. Oxidizes rapidly.
9	192–200	Massive, smooth, buttery mid-grey silty clay with common organic fragments and organic staining reducing downwards.
10	200–207	Massive light blue-grey sandy loam.
11	207–213	Massive light-grey silty clay becoming slightly organic down the profile.
12	213–240	Massive, moderately well-humified woody peat with common clay lenses and wood fragments (<8 cm diameter).
13	240 +	Weakly developed columnular prismatic, light blue-grey silty clay. Common organic matter including woody roots and stems.

The section as observed was clearly divided into two parts. The upper part, approximately above unit 6, was generally coarser in texture and browner in colour than the lower part. This is taken to represent a change in stream depositional regime relating to an increase in stream flow rate, flow variability and bedload. Such a change might relate to a change in landuse, climate, vegetational regimes, or, indeed, to all three, in the stream catchment above the site. Coarser texture indicates an increase in stream competence while the greater oxidation of the upper units suggests that they were eroded from well-oxidized upper soil contexts or deposited under oxidizing conditions or both. The clays and peats of the lower units were laid down under subdued streamflow conditions where trees were able to establish themselves. Roots comparable to those of alder and willow were found in units 7, 8 and 12 along with wood of both species; in addition hazelnuts were found still attached to branches. Thus the lower units appear to represent deposition in a wooded carr with the low and persistent streamflow this implies. Roots and wood are absent from the upper units suggesting that this carr was displaced when the streamflow increased. It is not possible to determine from this evidence whether the displacement of the carr was itself directly due to human

activity or purely a response to changes in the drainage upstream. It could be both. Samples of peat and branch wood were submitted for radiocarbon dating from four units, 7, 8, 12 and 13, at depths of 1.8 m, 1.87 m, 2.27 m and 2.44 m respectively. These produced dates as follows:

2870±90 BC uncal (GU-2112) unit 7
2990±60 BC uncal (GU-2113) unit 8
4670±60 BC uncal (GU-2114) unit 12
4750±170 BC uncal (GU-2111) unit 13

Thus, the approximate transition between the two depositional types at 1.7 m occurred after 2870±90 BC uncal. How long after? There are two ways of estimating the deposition rate, first using only the two dates which come from samples closest to the transition and secondly using all four dates. The former approach is open to question because of the uncertainty implied by the counting error terms. The latter approach is open to question because the mean rate of deposition over the two millennia concerned might be quite different from the specific rate near the transition. Using the first approach and staying within the one standard deviation limits applied to the two dates, produces a date range for the transition between 2960 BC uncal and approximately 2350 BC uncal. Using the second approach produces a date for the transition of approximately 2470 BC uncal, all the extrapolations being approximated graphically. Thus the transition probably took place during the mid third millennium BC uncal and we might hypothesize that this is the date of the first extensive clearance episode in the catchment to the west of the site. This hypothesis has not been tested by the recovery of further, dated sedimentary sequences from the area and downstream, or of dated pollen profiles from the vicinity.

1.8 THE PREHISTORIC POTTERY: AN INTRODUCTION TO THE REPORTS

T G Cowie & A S Henshall

The prehistoric pottery descriptions and commentaries are distributed through the report so as to relate closely to contexts. The catalogues are presented on the fiche.This section introduces the way in which the reports have been arranged.

The total assemblage of prehistoric pottery from the BRS sites represents the products of various ceramic traditions, reflecting the long and complex history of use of the site. The catalogue and related discussion have been divided into sections as shown below: unless stated otherwise the numbers relate to identified individual vessels.

P1–P40 : Plain Neolithic pottery (referred to as *Group 1* and *Group 2* in the text)
P41–P82 : Grooved Ware
P83–P114 : Impressed Ware (referred to as *Group 3* in the text)
P115–P153 : Beaker pottery
P154–P155 : Food Vessels
P156–P158 : Bucket urns

The Grooved Ware has been catalogued and discussed by ASH, the balance of the material by TGC. Inevitably we will have brought to our respective treatments of the material some differences in approach and interpretation, but discussion of doubtful identifications, and exchange of draft reports, has, it is to be hoped, ensured that we are in close agreement

about the overall content of the assemblage. Obviously identification has been easier where the pottery retains diagnostic features of form, decoration or, less often, fabric and it is such pieces that have been catalogued in detail and illustrated: a considerable quantity of undecorated coarse pottery too fragmentary or too featureless for detailed identification has largely been omitted from this discussion.

In its entirety, the prehistoric pottery assemblage from Balfarg Riding School provides a major addition to the inventory of Neolithic pottery from Scotland, but much of it is frustratingly fragmentary. Variations in the quality of the evidence clearly reflect differences in the circumstances of deposition of the vessels concerned. A striking feature of the distribution of the pottery is the tendency for discrete areas of the site to produce discrete bodies of material, for reasons that are not at all clear. The role of post-depositional processes, particularly the destruction by ploughing of most activity surfaces, must also remain unclear. Major overlaps in the distributions appear to occur only in areas where prehistoric surfaces have survived which would have acted as 'surfaces of accumulation and/or disturbance' – notably the old ground surface under the cairn, where Impressed Ware, Grooved Ware and Beaker were all retrieved (although only the first type in any quantity). Otherwise the principal deposits of pottery retrieved by the excavation reported here occur as a limited number of discrete units, which may be summarized as follows:

(a) Earlier Neolithic carinated, shouldered bowls: *in situ* material was largely confined to Area C pits F8016 and F8017; otherwise probably a residual scatter (eg in Area A pits).

(b) Earlier Neolithic heavy globular bowls (and other miscellaneous vessels) are limited to Area A pits, principally F2039 and F2430.

(c) Grooved Ware is limited to the layers in the *Middle* part of the filling of the BRS enclosure ditch and a limited number of contexts, principally the large pit F1002; it might be suggested that the Grooved Ware is surviving better – ie very fragmentary but in such a way that individual vessels retain some 'integrity' – because the pottery is perhaps being deliberately taken out of circulation and therefore the process of fragmentation and dispersal is arrested.

(d) Later Neolithic Impressed Wares consisting of heavily worn sherds but limited almost exclusively to the area of protected old ground surface under cairn A.

(e) Beaker: predominantly retrieved from *Upper* filling of the BRS enclosure ditch; there was some overlap with the spread of pottery from the protected old ground surface under the cairn. Again there is the possibility that, following breakage, portions of some vessels ended up as deliberate deposits in the ditch where the process of further fragmentation was halted.

(f) Food Vessels: a complete pot from a burial, and fragments of a further vessel, which may be the remains of another burial.

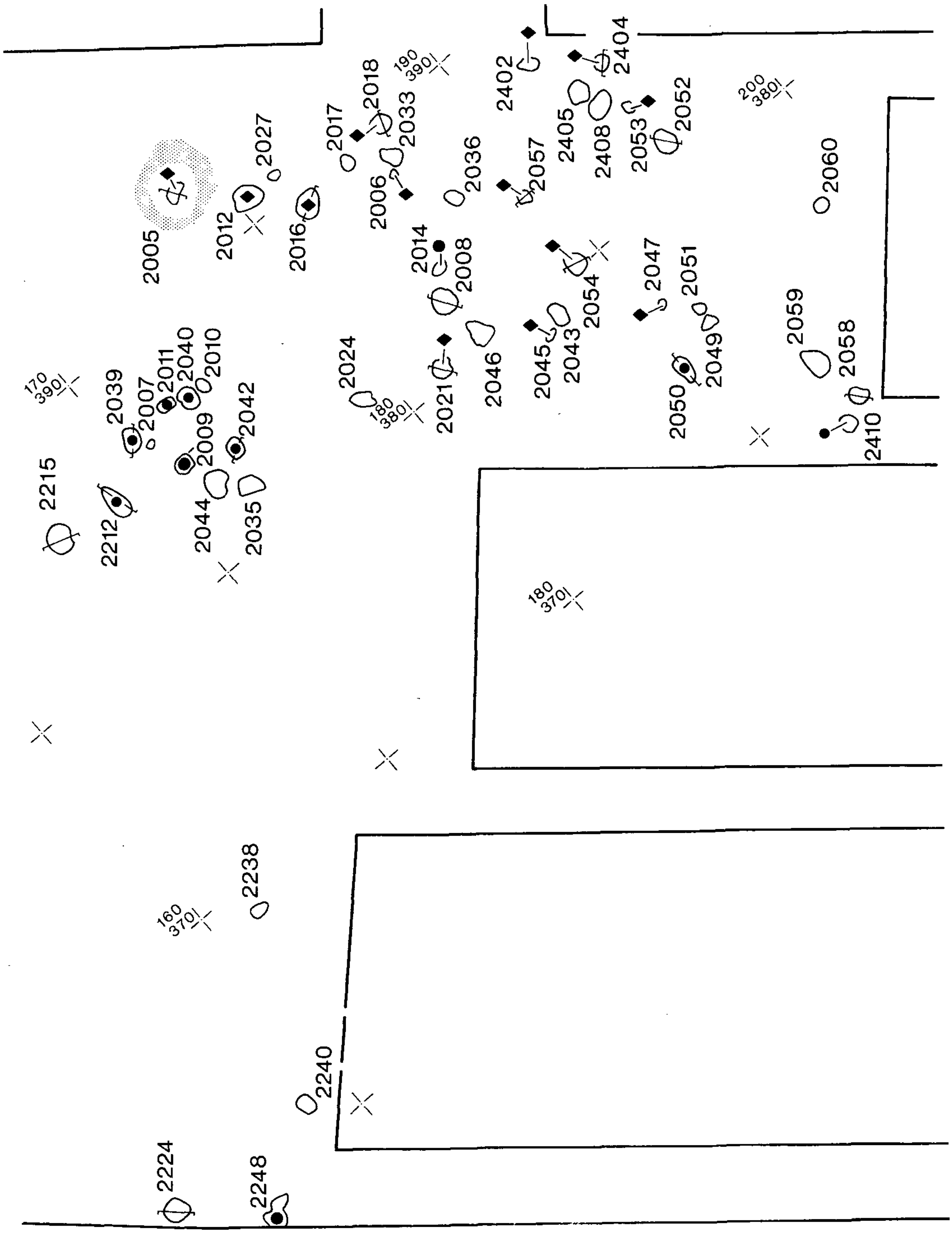
(g) Bucket urns: bucket urns limited to the pit group to the west of Balfarg henge (Area A).

SECTION 2: DESCRIPTION AND INTERPRETATION

G J Barclay, C J Russell-White & P N Tavener
(specialist contributions are attributed to their authors at the beginning of the relevant subsection)

2.1 EARLIER NEOLITHIC PITS

The earliest features identified at Balfarg are pits dated to the Earlier Neolithic by radiocarbon, and by Trevor Cowie's identification of plain pottery types (below). He has identified two groups of pottery which may or may not reflect a chronological division. A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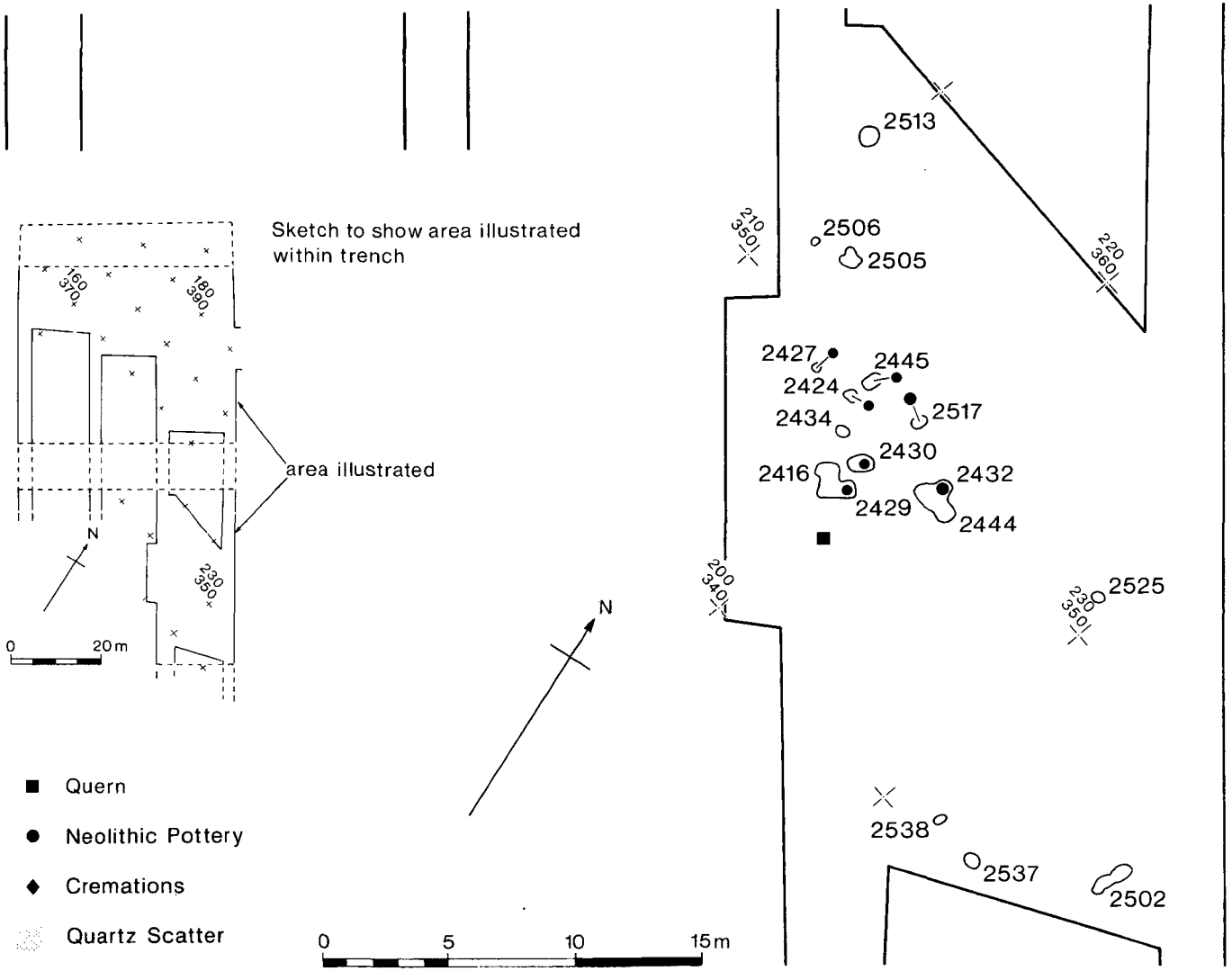


ILLUS 7 Features in Area A, to the west of the henge. The features are of two identifiable periods; pits containing Earlier Neolithic pottery, and pits containing Bronze Age cremations. The tone around feature F2005 shows the limits of a scatter of white quartz.

certain amount of plain pottery, the affinities of which are in some cases uncertain, has provisionally been allocated to a third, miscellaneous, category.

P1–P10: *Group 1*: Carinated bowl, shouldered bowl and miscellaneous sherds in the 'plain bowl style'.

P11–P30: *Group 2*: Heavy, globular bowls and miscellaneous associated pottery.

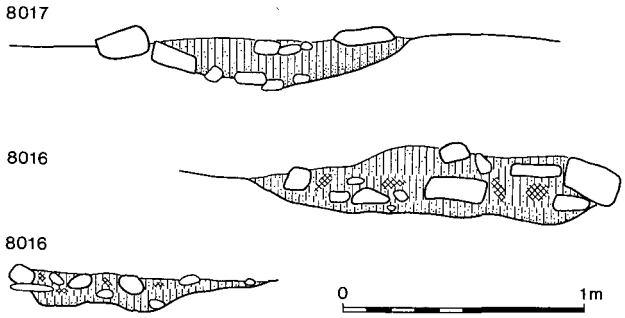
The pits associated with the two types of pottery are in the main located in two discrete areas: *Group 1* in Area C, at the east side of the site (illus 6), and *Group 2* in Area A, at the west edge of the site (illus 7), to the west of the henge excavated by Mercer. There are no vessels of *Group 2* in Area C but there are a few sherds of *Group 1* in Area A. The pits are dealt with below by area, Area C first. Only two pits are described in any detail (F8016 & F8017) but all pits assigned to a period are listed, to allow easy access to the detailed information available in the archive. Trevor Cowie's report on the pottery of this period follows the feature descriptions.

The pits of this period were generally less distinct than the later pits and in some cases, in Area A for example, it would have been relatively easy to assign a natural origin to them if they had not produced artefacts. The problem of interpretation was revealed when several pits, whose filling seemed to be natural, proved on excavation to contain moderate quantities of Earlier Neolithic pottery. The fill of the Bronze Age pits in the same area almost invariably looked like cultural material. If it is accepted that the origins of soil formation in Scotland are likely to be around 7000–5000 years BC uncal then it can be seen that in all likelihood the Earlier Neolithic pits (dated to c 3000 BC uncal), especially shallow ones, will have undergone more than 50% of the soil formation and alteration processes that have affected the surrounding natural soils, and that the fills may bear little resemblance to their original appearance, presumably tending to develop towards 'natural' soils. The section and plan drawings of many of these ill-defined and badly truncated pits were uninformative and are therefore not reproduced here.

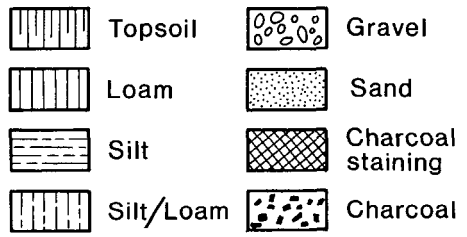
2.1.1 Earlier Neolithic Pits in Area C

The location of these features is shown on illus 6. Only two pits (illus 8) contained any significant quantities of pottery *Group 1* (F8016 & F8017). However, the unusual layers observed in them were replicated, except for the pottery concentrations, in at least five other pits in the area (marked + in the list below). In five of the seven, the lengths varied between 1 m and 1.4 m and the breadth between 0.55 m and 1 m. F8016, F8100 and F8012 were longer (1.85–2.7 m); only F8016 was significantly broader (1.7 m). Their depth varied between 0.25 m and 0.4 m. A particular feature was the presence of large stones (often very closely packed) in the upper layers of all seven with, in four of the seven, charcoal-stained soils and/or burnt bone fragments.

It is suggested that this group represents the remains of a coherent complex of activities involving the digging of pits and their careful backfilling; where pottery is found in any quantity (F8016) it appears to have been deposited carefully and deliberately. In the area around, sherds of the same type of pottery were found scattered, some finding their way into the fills of the later ditch, some preserved in the fragment of prehistoric land surface which survived beneath the ring-ditch/ring-cairn complex. It is clear, however, that the deposition of quantities of pottery was not a necessary part of the filling of these pits: only F8016 has such a deposit. The pottery in F8017 includes only a few sherds of the vessels which appeared in F8016 in far greater quantities; their deposition might be the result of accidental inclusion of



ILLUS 8a Sections of F8016 and F8017 in Area C.



ILLUS 8b The conventions used in all section drawings.

material *not* selected for F8016 and left lying in the area. In F8016 there were substantial portions of P1, but it was almost certainly already fragmentary when deposited.

In the ditch of the BRS enclosure, to the north of this group of pits, small numbers of sherds of this period were recovered from contexts in which Grooved Ware and Beaker sherds appeared in greater quantities: it seems likely that this material was incorporated into the ditch in a fragmentary condition, perhaps through the disturbance of earlier Neolithic features during the digging of the ditch.

A limited number of sherds, once again probably a residual scatter of pottery of this period, was found around the ring-ditch/ring-cairn feature group, to the west of the medieval mill-lade.

Main Contexts with Pottery

F8016	Vessels P1, P2, P3
F8017	Vessel P2

Other contexts

+F8107	Charcoal & tightly packed stone
+F6002	Charcoal; heat-shattered stone; burning *in situ*?
+F8022	Tightly packed stone in upper fills
+F8100	Tightly packed stone in upper fills
+F8011	Tightly packed stone in fills
F8013	
F8012	
F1132	Possibly animal origin (P5 – rim sherd)

ILLUS 9 Photograph of the surface of F8016 showing the heavy stone packing in the upper surviving fills.

F8016 (illus 8 & 9) A shallow distorted oval pit (2.6 m by 1.7 m and 0.3 m deep) indicated on the surface by a group of large stones. The upper edge of the pit around these stones was totally destructured to a depth of 0.1 m. On the west there seemed to be a ring of stones set into more consolidated material. The uppermost layer was a brown to mid-grey brown sandy loam with large stones (which are under-represented in the drawn section). The greater part of the pottery found in the pit was in the mid layer, a brown coarse sandy loam with smaller stones and considerable quantities of charcoal flecks and staining. Three charcoal samples from the mid layer were radiocarbon dated: 2815±55 BC uncal (GU-1903); 3220±90 BC uncal (GU-2604); 3000±70 BC uncal (GU-2605). The dates are significantly different and cannot be averaged. The two older dates include fragments of oak charcoal and the latest date (2815±55 BC uncal) provides the preferred estimate, the other dates being inferred to represent heartwood from large trees.

The remains of a minimum of three Earlier Neolithic vessels were recovered: P1 was the most complete. There was less of P2 (sherds of which also appeared in F8017). A single rim sherd of a third vessel, P3, was also recovered. There were numerous featureless sherds. One flaked stone fragment, S1, is illustrated (illus 65). Fragments of unidentifiable burnt bone were recovered.

F8017 This pit measured 1.2 m by 0.7 m and 0.3 m deep. Like F8016 it was a large, shallow, stone filled pit, with the upper edges badly destructured. There were only two layers, a brown, coarse, very sandy loam with large stones throughout and, on the south edge a grey brown silty loam. Sherds of vessel P2, which join those in F8016, were found in the former; fragmentary sherds of other plain bowls and fragments of unidentifiable burnt bone were also recovered.

2.1.2 Earlier Neolithic Pits in Area A (illus 7 & 10)

These pits were scattered across the summit of a low ridge, separated from the site of Mercer's henge by a dry valley (in part of which the unusual south-west ditch segment of the henge was cut). Their location is shown on illus 7.

Pits associated with Cowie's *Group 1* pottery in Area A As noted above there are a few pits in Area A which are associated with Cowie's *Group 1* pottery; some of the sherds are single pieces found in contexts containing certain or possible sherds of Cowie's *Group 2*. P10 is a portmanteau number for sherds which could not be allocated to an individual vessel.

F2410	1 carinated body sherd (vessel P8)
F2445	2 poss. sherds (P10) (*Group 2* also)
+F2424	rim fragment of bowl (vessel P7) and 1 poss. sherd (P10); (*Group 2* also)
F2429	1 poss. sherd
+F2430	27 sherds and numerous fragments (P10); (*Group 2* also)

+ = described in the section dealing with *Group 2* pottery below.

In addition, sherds have been recovered from the topsoil in this area. Apart from F2430 none of the pits produced any great quantities of pottery of this type and the nature of the material found makes its identification less certain than in Area C.

Additionally three pits bore a superficial resemblance to the stone packing/sealing of the pits in Area C, although their association may be with the *Group 2* pits or with the later (Bronze Age) cremations in the same area:

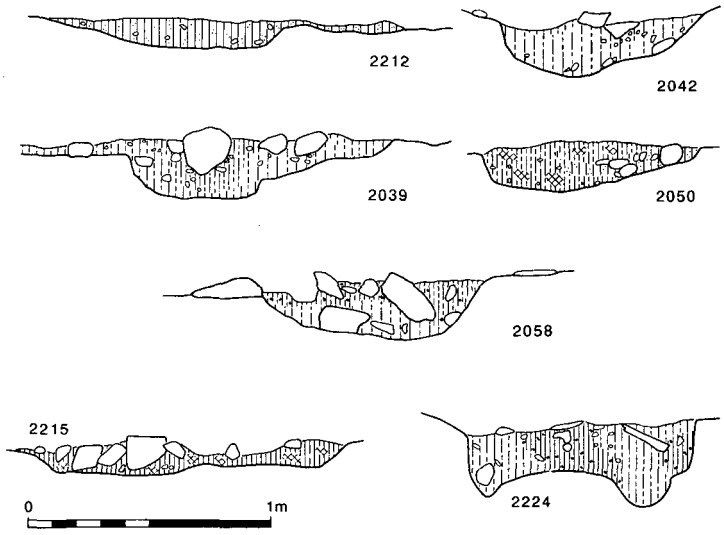
F2215	charcoal, burnt soil, numerous fire blackened stones.
F2058	patches of very dark charcoal staining; many stones.
F2513	charcoal-stained soil with tightly packed burnt, shattered stone.

Pits associated with Cowie's *Group 2* pottery in Area A The bulk of the Earlier Neolithic pottery from Area A is of Cowie's *Group 2*, which is not found elsewhere on the site (illus 7 & 10).

The pits apparently associated with *Group 2* pottery are more disparate than the small group in Area C, associated there with *Group 1* pottery. However, some similarities can be noted. Pit F2430 represents another example of the careful deposition of large quantities of pottery sherds, here comprising the remains of a minimum of 12 vessels (one virtually complete: vessel P11) and the presence of burnt material (or even *in situ* burning (cf F6002 in Area C)). Another 14 pits contain sherds of this type of pottery, often in conjunction with deposits of charcoal or charcoal-stained soil.

The main contexts and subsidiary contexts, with their associated finds are listed below. They are all shallow scoops except where indicated: F2430 is described in detail below.

F2430	P11: complete bowl; P12, 13, 14, 15, 16, 17, 18, 19, 20, 21 – rim and body sherds (including many body sherds which could not be assigned to an individual vessel; vessel P22 lug (sherds of *Group 1* pottery also).
F2050	P24: rim and body sherds: C14 date from charcoal in upper layer: 2770±70 BC uncal (GU-2606)
F2039	P30: rim and body sherds; vessel P28 (part): rim and body sherds; vessel P29 (part): rim and body sherds; vessel P31 (part): rim and body sherds
F2040	Pit. P28 (part): rim and body sherds



ILLUS 10 Sections of Neolithic pits and pits possibly associated with them in Area A.

F2042 Possible post-hole. P39: body sherd with lug
F2212 P23 & vessel P26: rim and body sherds: C14 date from cereal grain in sherd: 2880±40 BC uncal (UtC-1302)
F2424 P34: rim and body sherds (sherds of *Group 1* pottery also)
F2427 P27: rim and body sherds
F2429 P33: rim and body sherds (not certainly Neolithic)

The following contexts also produced miscellaneous *Group 2* pottery: F2432; F2011; F2517; F2248; F2014; F2009; F2445. From topsoil: P38 (body sherds with lugs); P25, P37 (rim and body sherds).

F2430 A poorly defined, shallow, near circular scoop c 0.5 m in diameter and 0.2 m deep with a concave base and containing three identifiable layers. The main layer was a very charcoal-rich black sandy silt loam, which enclosed a light brown sandy silt, devoid of pottery; the bottom layer of the pit was a light yellow/orange silt containing a broken but complete Neolithic vessel P11 (as well as sherds and slabs of at least another 11 vessels (P12–P22) F2430 also contained featureless body sherds which could not be allocated to specific vessels). There were signs of burning *in situ* on the natural subsoil in places. Around the top edges of this layer were several sherds, including vertically set rimsherds. In places the pottery was layered, one slab upon another. The impression given was of a pit lined with slabs of pottery from a number of vessels, one more complete than the others, then backfilled. Fifteen seeds of barley (hulled), one alder, one *Chenopodium cf album*, were recovered from this feature.

Other possibly related features There were 14 features around the pits associated with the *Group 2* pottery, which are most simply explained as part of the same series of activities. They are uninformative as to their function and, like other features not directly dated by radiocarbon or by clear pottery associations in Area A, they may belong with the *Group 1* or with the later (Bronze Age) cremation activity. Some may be the remnants of post-holes, although this interpretation is in no case secure. Three have more or less heavy

concentrations of charcoal: F2007, F2416 and F2502. The last contained burnt angular stones, and the apparent scorching of the underlying subsoil denotes burning *in situ*. An ill-defined area around the features in the southern part of Area A (the feature group containing F2416 etc; see illus 7), marked by a lower density of stones in the subsoil surface (F2443), containing a fragment of saddle quern, was described as the possible shadow of a floor; this feature, the quern fragment (S31), and the cereal fragments which appear in small numbers but widely spread, are perhaps the clearest indications of domestic activity in the area, although this may relate to later Bronze Age settlement (Sections 2.4 & 4.7 below).

In the topsoil above F2044 many sherds were found of vessels P4, P31 and P83. It may be that these had been ploughed out of the pit during its destruction.

2.1.3 The Neolithic Pottery

Vessels P1–P40: Plain Neolithic Pottery (*Group 1 & Group 2*)

T G Cowie

With the exception of a few undecorated Beaker sherds (mainly from the enclosure ditch) and a small group of fragmentary later (Bronze Age) urns from Area A, virtually all the plain pottery from the site can be identified as being of Neolithic date. For descriptive purposes, this mass of material can be subdivided into two main groups on the grounds of form and fabric quality, and these groups may also reflect a chronological division, although the radiocarbon evidence is not conclusive. A certain amount of plain pottery, the affinities of which are in some cases uncertain, has provisionally been allocated to a third, miscellaneous category. Many featureless sherds, fragments and crumbs of coarse, well-gritted pottery have not been included in the published catalogue. Found in isolation, most might be considered to be of just about any date from Later Neolithic to Bronze Age. Wherever possible sherds have been allocated to catalogued vessels but all too frequently this has not been possible without an impractical amount of further conservation and analysis.

P1–P10: *Group 1*: Carinated bowl, shouldered bowl and miscellaneous sherds in the 'plain bowl style' (mainly from Area C) The first group comprises a number of relatively thin-walled and often finely gritted sherds, often, but not invariably, with a good quality of surface finish. This element within the plain Neolithic pottery assemblage is best represented by portions of two bowls (vessels P1–P2) and a rather heterogeneous group of rim and body sherds, mostly too fragmentary to allow accurate assessment of their original form (P3–P9). To these may be added a number of otherwise featureless body sherds distinguishable more or less certainly on the basis of their fabric (P10) as being of Earlier Neolithic date. While the features of some of the vessels represented certainly invite comparison with the so-called Grimston/Lyles Hill series (cf Smith 1974, 106–8), the heterogeneity and fragmentary condition of the group precludes satisfactory application of this term to the whole. The present writer shares the reservations expressed by Kinnes (1985, 22) regarding the potentially misleading use of Grimston/Lyles Hill as a portmanteau category; while there is certainly a carinated bowl component, the relevant BRS pottery is perhaps better described simply as being in the 'plain bowl style' – to use a suitably all-embracing term for material that would formerly have been described as being in the 'Western Neolithic' tradition (Cowie 1993).

Context In view of the fragmentary condition and dispersed distribution of much of the material under immediate discussion, most of the sherds are likely to represent unrelated pieces of separate vessels (P10): accordingly, no attempt has been made to assess the overall numbers of vessels present. However, there seems little doubt that the pottery retrieved from pits F8016 and F8017 does constitute a small closed group comprising portions of three vessels (P1–P3), as well as 17 body sherds not individually catalogued (included in P10). Otherwise, the apparently random distribution of sherds and fragments among widely dispersed features on the site strongly suggests a residual scatter of pottery stemming from the earliest identifiable Neolithic activity on the site. For example, only three small sherds of Neolithic pottery (including P5) occur among some 450 sherds of Beaker pottery from the *Upper* filling of the ditch. While bowls have in the past been seen as a very long-lived form, Herne's recent review of carinated bowls has called much of the relevant evidence for this supposed longevity into question (1989, 14–15), and there are no grounds here for supposing that the few Neolithic sherds were associated with Beakers in anything other than fragmentary condition, simply as a result of the incorporation of material lying in the soils or in features disturbed during the digging of the ditch.

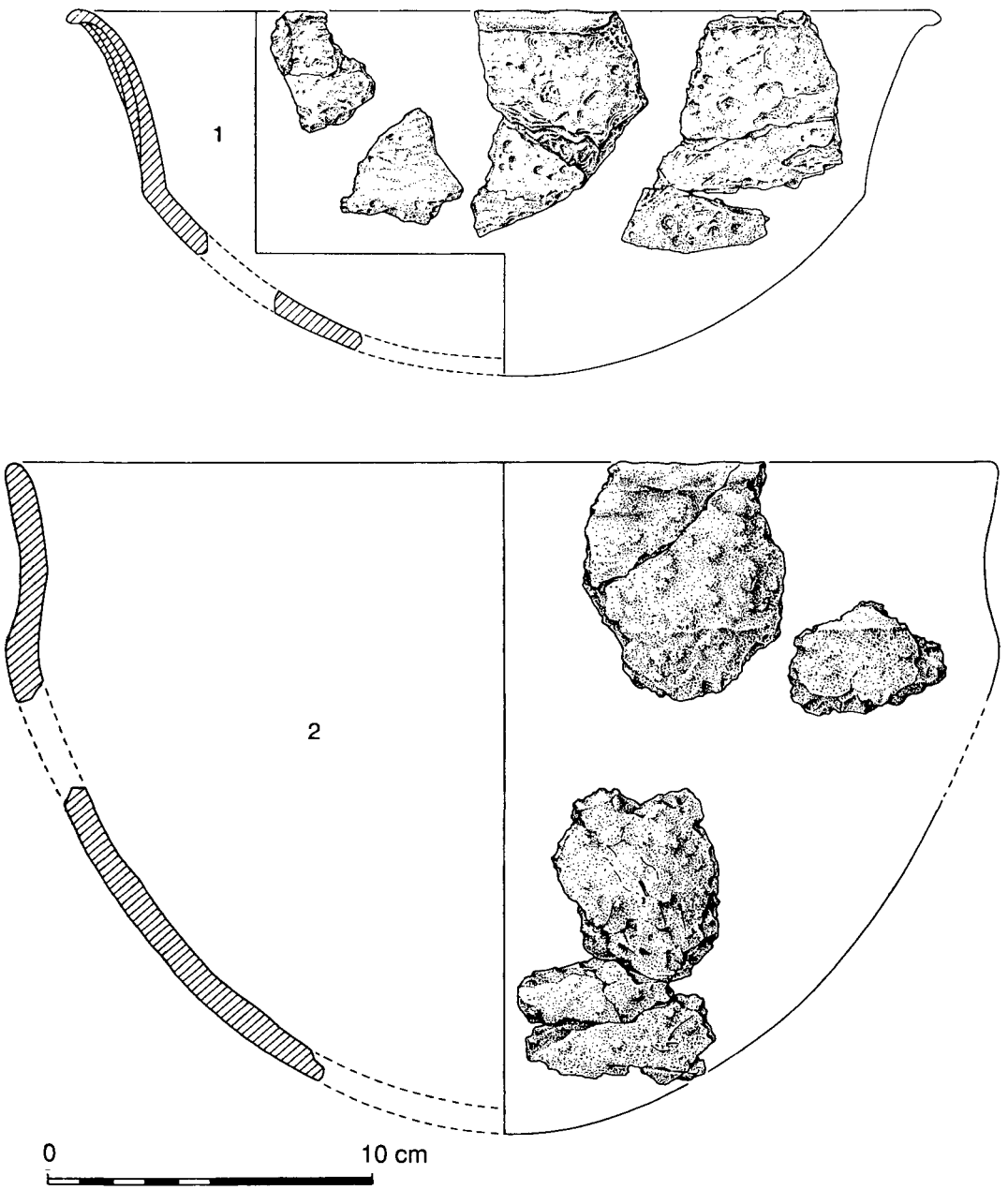
The contexts listed on p 61 and p 63 above produced plain Neolithic pottery of Cowie's *Group 1* (a carinated bowl – P1; a shouldered bowl – P2) and miscellaneous sherds in the 'plain bowl style' (early/middle Neolithic).

Description Vessel P1 comprises a considerable proportion of a carinated bowl, unfortunately too fragmentary to allow a complete reconstruction of the profile. Nevertheless, the orientation of the principal sherds indicates an open shallow vessel with marked carination, probably set low on the body, and an everted rolled-over rim around 260 mm in diameter. The height of the vessel is uncertain but may have been in the region of 100–120 mm. Coupled with the hard, fine, slightly micaceous fabric, and burnished surfaces, the bowl possesses virtually the full complement of traits of the classic carinated bowl of Grimston type (Piggott 1954, 114; Herne 1989, 15). A number of body sherds with very little curvature suggest a shallow bowl, thinning at the base to as little as 5 mm in thickness. Particularly around the upper portion of the vessel, the fabric shows a distinct tendency to laminate, a feature also noted on related pottery from Clatchard Craig, Fife (Close-Brooks 1986, 150–1). The surface of P1 is curiously pock-marked, where spalls have been removed from the surface, almost certainly as a result of scorching.

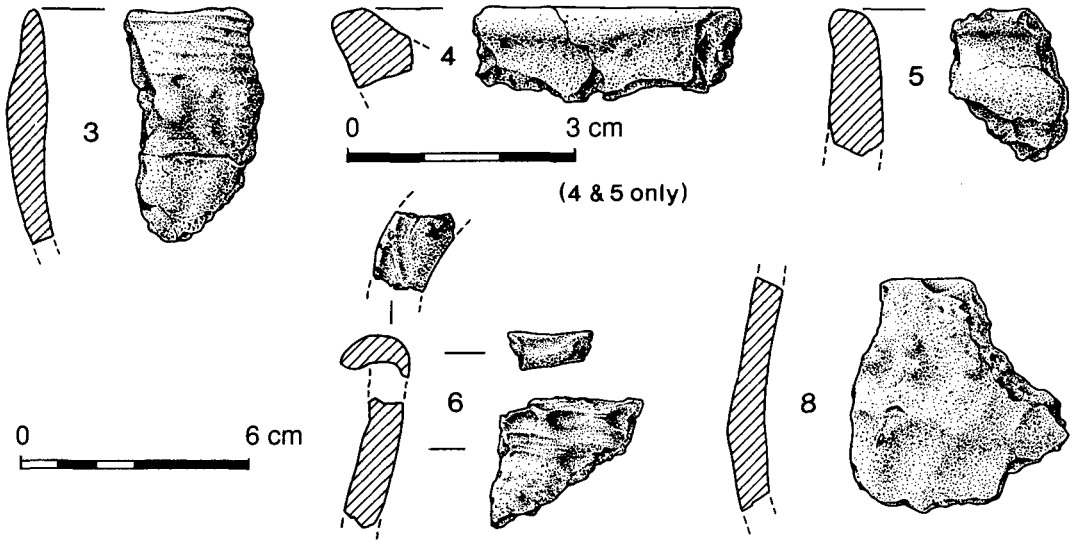
Also from the pits F8016 and F8017, P2 consists of portions of the rim and body of a more upright shouldered bowl, rather larger than P1 with an estimated diameter of 290–300 mm and a height of c 200 mm. Although relatively thin-walled by comparison with pottery to be discussed below (see *Group 2*), this vessel is considerably coarser than P1, possessing a dark grey fabric with a rough unslipped external surface. The rim is of simple rounded form, with a rather irregular beading in places suggesting relatively careless modelling of the clay. As in P1, the sherds deriving from the lower body of this vessel appear to show the effects of heat.

The third vessel from this suite of contexts is represented by the single rim sherd P3, probably part of a simple bowl with a narrow rounded, but rather uneven rim. By comparison with P1, the fabric is coarse, with a roughly wiped, and rather lumpy unslipped external surface, but in relative terms, it is once again finer than, and quite distinct from, the group of thick-walled heavy bowls to be discussed presently.

Neolithic assemblages from Scotland which have Grimston/Lyles Hill series carinated bowls (such as P1) as a major component include Boghead, Moray (Henshall, *in* Burl 1984), Easterton of Roseisle, Moray (Henshall 1983), and Auchategan, Argyll (Scott, *in* Marshall 1978). Within Fife, carinated bowls comprise the main element of the small assemblage from



ILLUS 11 Earlier Neolithic pottery (Cowie's *Group 1*): vessels P1 and P2



ILLUS 12 Earlier Neolithic pottery (Cowie's *Group 1*): vessels P3–P6; P8

Clatchard Craig (Henshall, *in* Close-Brooks 1986), although, there, rather more closed bowl forms predominate. The closed form of P2 appears to be relatively uncommon but is paralleled at Boghead, Moray (*ibid*, cat no 18). P3 may derive from a simple unshouldered bowl, and comparison may be made with the simple hemispherical bowls which form, for example, a minor feature of the Boghead assemblage already mentioned (*ibid*, cat nos 25–29).

Radiocarbon determinations for sites which have produced pottery of the Grimston/Lyles Hill series span the second half of the fourth millennium to the later third millennium BC uncal, but a recent reappraisal of the evidence suggests that the actual currency of carinated bowls may have been more restricted, with a date range of c 3200/3100–c 2900/2800 BC uncal (Herne 1989, 23–4). The three dates from F8016 fall one at each end of this range, while the third falls in the middle.

One gently carinated sherd (P8) (of rather finer quality than the majority of the Neolithic sherds recovered from Area A (see below)) was unfortunately the only pottery in the context in which it was found (F2410). While the original form of vessel represented is uncertain, it may derive from a gently carinated pot with upright or slightly closed neck. One other body sherd may also be mentioned here, P9, closely similar to P1 in fabric, with what may possibly be traces of incised lines on its external surface. Finally, on the grounds of their fabric, a number of otherwise featureless body sherds (listed under P10) invite comparison with Earlier Neolithic pottery, with varying degrees of certainty as noted in the relevant catalogue entry (in fiche).

In summary, a limited quantity of pottery from the site can be attributed more or less confidently to the plain bowl style of the Earlier Neolithic: at least some of the vessels represented appear to derive from intact pits involving the primary discard of artefacts (viz: F8016 and F8017) but the remainder form a rather heterogeneous group most economically explained as a residual, and therefore possibly unrepresentative, scatter of pottery incorporated into later features. Difficulties in matching fragmentary material are hardly

avoidable while the inventory of Neolithic pottery in east and central Scotland remains extremely (possibly even misleadingly) restricted (Cowie 1992; 1993). Apart from Clatchard Craig, already mentioned, published finds of comparable Neolithic pottery from Fife are limited to the few sherds from Barns Farm, Dalgety Bay (Watkins 1982, 111–13), and a rim sherd from Calais Muir, Dunfermline (*ibid*, 113).

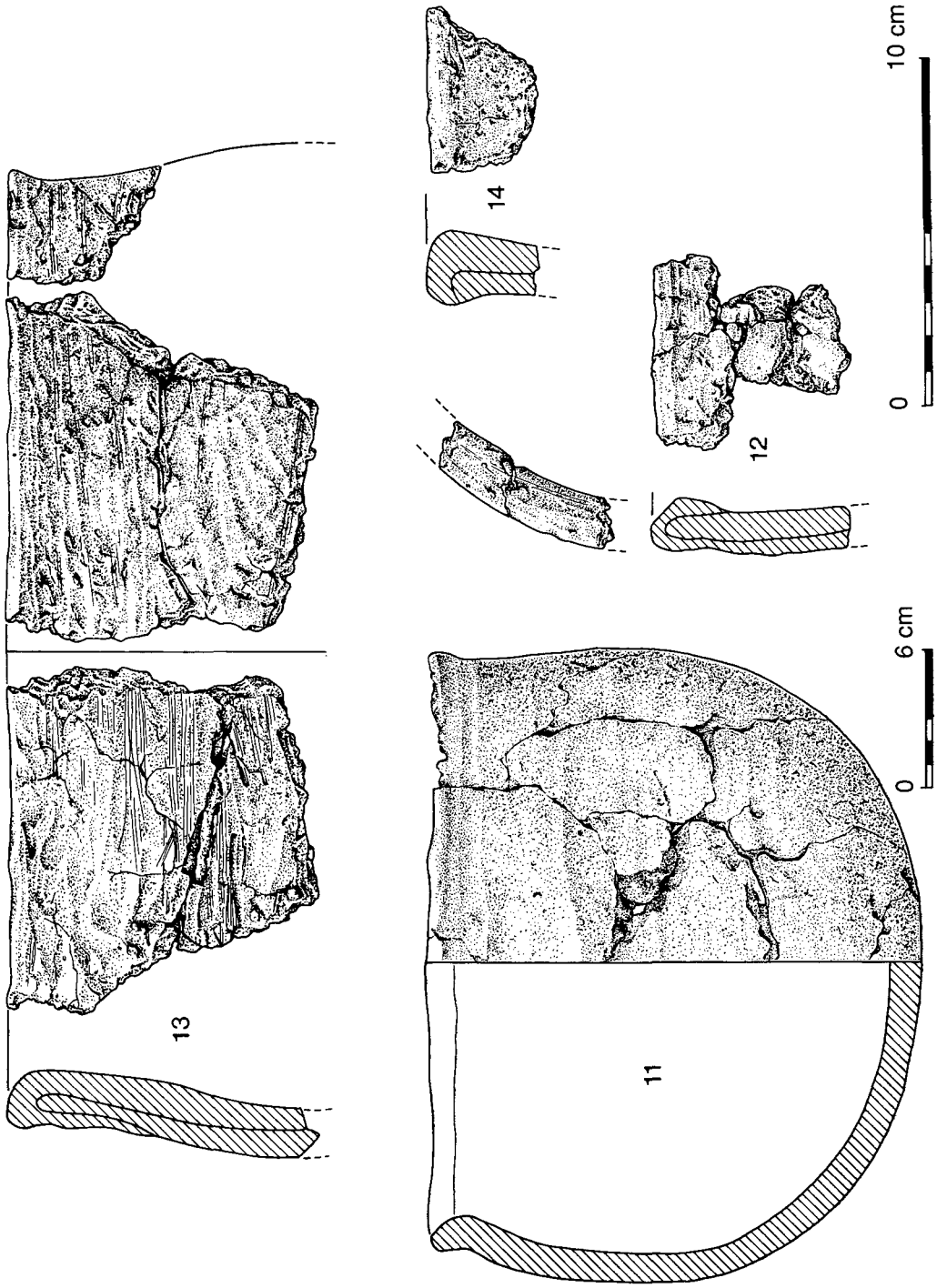
Taken as a whole, this group of material reflects the earliest discernible Neolithic activity on the site, and the radiocarbon dates are broadly consistent with the expected date range from the last quarter of the fourth millennium to the first quarter of the third millennium BC uncal. It is also possible that such activity was small-scale or intermittent, hence the heterogeneity of the sherds.

P11–P30: *Group 2*: Heavy, globular bowls and miscellaneous associated pottery
Contrasting with the pottery just described is a group of material found *exclusively in Area A*: this predominantly comprises what, despite the near absence of reconstructable profiles, appears to be a range of heavy bowl forms in well-made but coarse fabrics. This group clearly owes much to the unshouldered bag-shaped component of the Earlier Neolithic 'plain bowl styles', but the quality of its manufacture stands in such marked contrast to 'classic' Earlier Neolithic pottery that it is tempting to suggest that it marks a 'watershed' in terms of local ceramic developments: while the ancestry of the vessel shapes is hardly in doubt, the heaviness of the rim forms, and the relative coarseness and thickness of the fabrics appear to reflect changing designs and techniques of manufacture. Typologically, these vessels may lie behind the development of the thick-rimmed heavy bowls that form a major element of the Scottish Later Neolithic Impressed Ware assemblages – a development that principally involved further elaboration of the rim to provide a major 'platform' for decoration. The differences between the two Balfarg groups are such that they would not seem to be readily explained as a reflection of functional differences within a single ceramic repertoire – that is, these are not simply the coarse counterparts of the finer bowls discussed previously; the writer would prefer to see the two groups as chronologically distinct, but the interpretation of the radiocarbon dates suggests that there is a significant likelihood of an overlap. If the two earlier dates for F8016 are left out of consideration (p 62 above) the longer calibrated ranges of the relevant dates are as follows:

F8016 (GU-1903) 3685–3380 BC cal – Cowie *Group 1* pottery
F2606 (GU-2606) 3670–3345 BC cal – Cowie *Group 2* pottery
F2212 (UtC-1302) 3710–3510 BC cal – Cowie *Group 2* pottery

Context With only a few exceptions, the pottery of this group was recovered from Area A pits, principally F2039 (P28, but see also P29–P31 below) and F2430 (P11–P22) and nearby pits. In particular, F2430 appears to have contained deliberate deposits of pottery including one complete bowl, substantial portions of two others, and parts (mostly only a few sherds or fragments) of at least a further eight vessels, as well as over 150 sherds, fragments and crumbs not allocated to individual pots.

Description In view of its association by context (particularly the prolific pit F2430), this pottery constitutes a significant new group of material in the inventory of Scottish Neolithic pottery. The forms present appear to have comprised a range of thick-walled heavy bowls, but with the exception of P11 there are no fully reconstructable profiles.



ILLUS 13 Earlier Neolithic pottery (Cowie's *Group 2*): vessels P11–P14

The complete P11 is a globular vessel with a somewhat upright slightly thickened and outwardly expanded club-like rim, while a poorly defined shallow concave zone marks the neck below which the rounded belly of the vessel swells before giving way to a thick, sagging base. The forms of most of the incomplete vessels are likely to have represented variations on this basic shape: the surviving portions of P12 and P23 in particular suggest close similarity to P11. Two of the body sherds of P23 are slightly thickened (unfortunately just beside break edges) in a manner suggestive of seatings for lugs. That lugs were a feature of bowls of this group is probably attested by the presence of several detached examples (P22, P38 & P39). P23 is of especial interest in view of the presence of a well-preserved carbonized grain within the core, identified as barley by Alan Fairweather; the grain has been radiocarbon dated to 2880±40 BC uncal (UtC-1302).

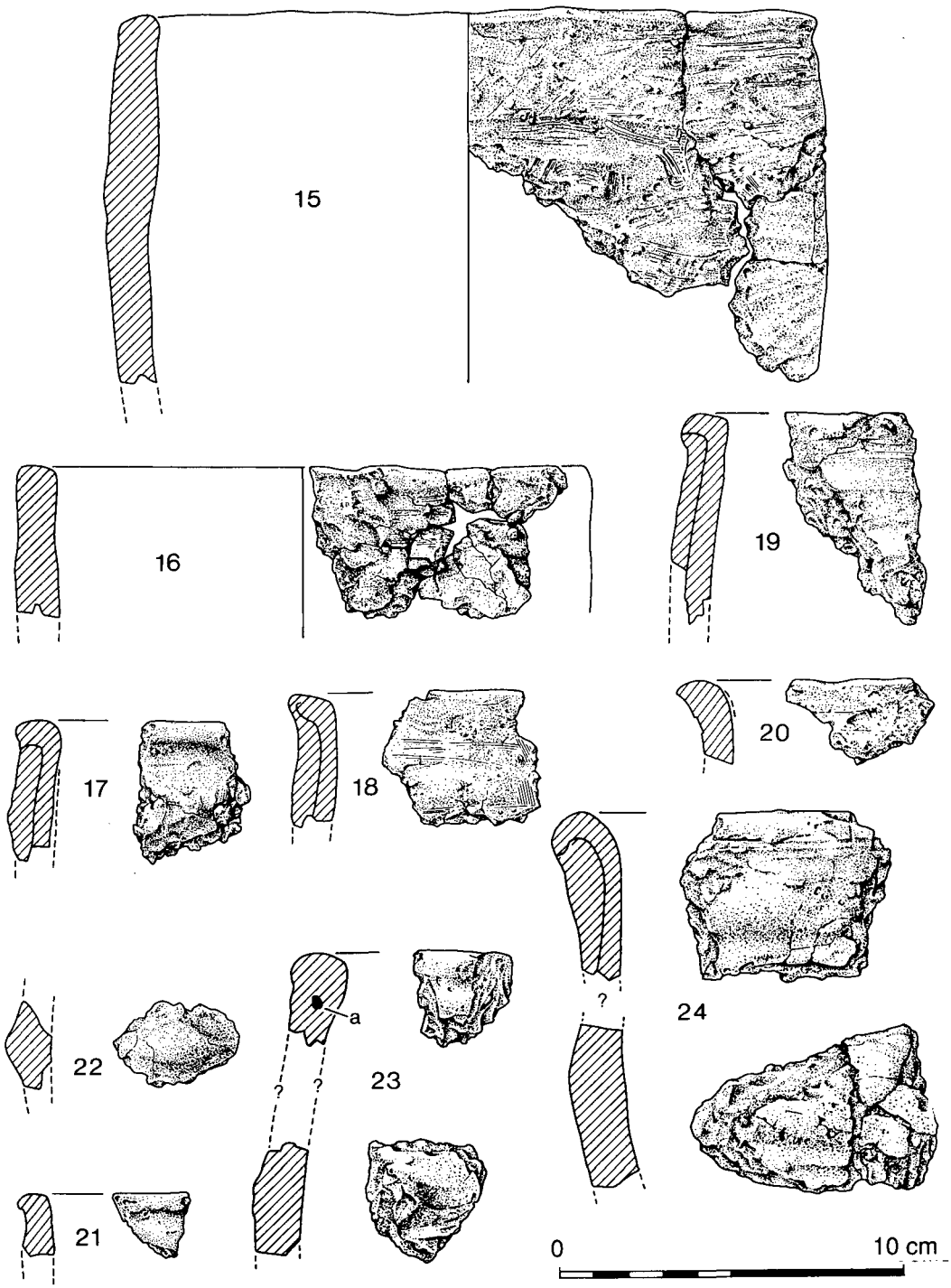
Similarities in the rim form, orientation and fabric of P13, P14, P24 and P25 suggest that these pots may have been broadly similar in size and proportions – in the case of P13 possibly some 280 mm in diameter. In so far as it is possible to judge, these would again appear to have been deep and somewhat globular bowls. The form of P30 is uncertain, but its wall tapers noticeably below the everted rim. P26 may have been a somewhat squatter vessel, of closed form with a rounded shoulder. In other cases, the surviving portions appear to indicate vessels of more upright, and perhaps slightly less globular form: they include P15 and P29 and possibly P16, P17 and P19.

While they differ in details of their fabric and surface finish, pots P27 and P28 appear to have been broadly similar in form: both have carinations, marking significant building joints, set only 25–30 mm below the rim, and the orientation of the sherds suggests a deep bag-shaped lower body. Pronounced shoulders are otherwise absent from this group of heavy bowls.

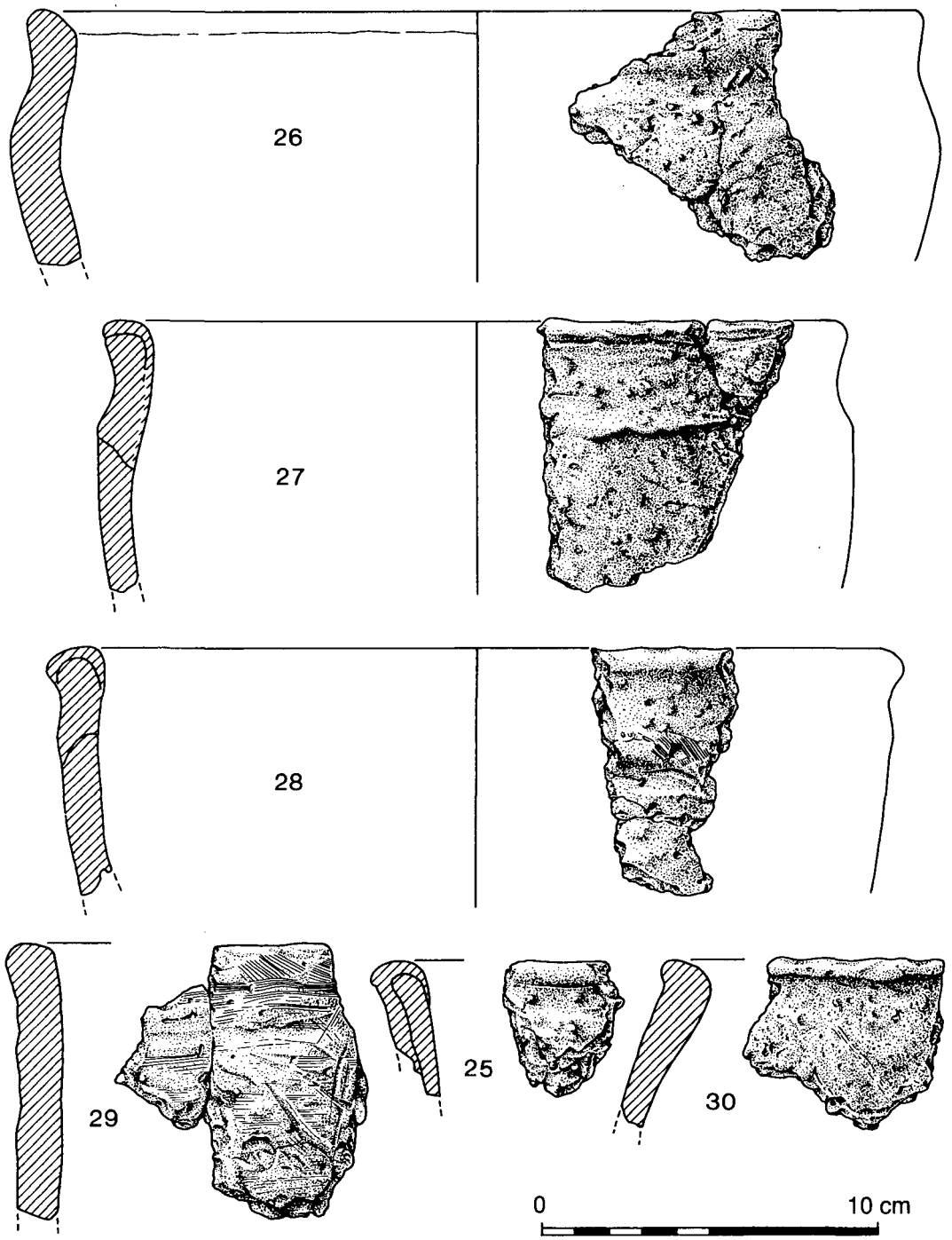
The form of most of the remaining sherds is unfortunately uncertain owing to the fragmentary condition of the pottery: P18 appears to have had an unusual 'channelled' external surface. Irregular low channels or ridges also occur on the exterior of P28, P17 and P19, while a single slight channel encircles P15 c 40 mm below the rim. The incompleteness of the pots unfortunately leaves the significance of these features unclear but they appear more likely to be a factor of the modelling and building of the pots rather than to be decorative. Their occurrence on vessels with more upright forms might possibly indicate the incorporation of ridges as an aid to handling. Two vessels, represented by P20 and P21, have a slightly more compact fabric and are thinner-walled than the bulk of the pottery with which they were associated: the pinched-out rim of P20 clearly recalls Earlier Neolithic pinched-out rim forms in better quality fabrics. The small externally expanded rim sherd P21 cannot readily be matched.

Finally it should be noted that a large proportion of the many featureless undecorated sherds, fragments and crumbs not allocated to specific vessels from contexts in Area A and not catalogued in detail, especially those in the north-west and south-east pit groups, are mostly likely to represent the undecorated portions of plain bowls such as those described above. Mention may also be made of the portions of several thick, rounded bases (eg P40).

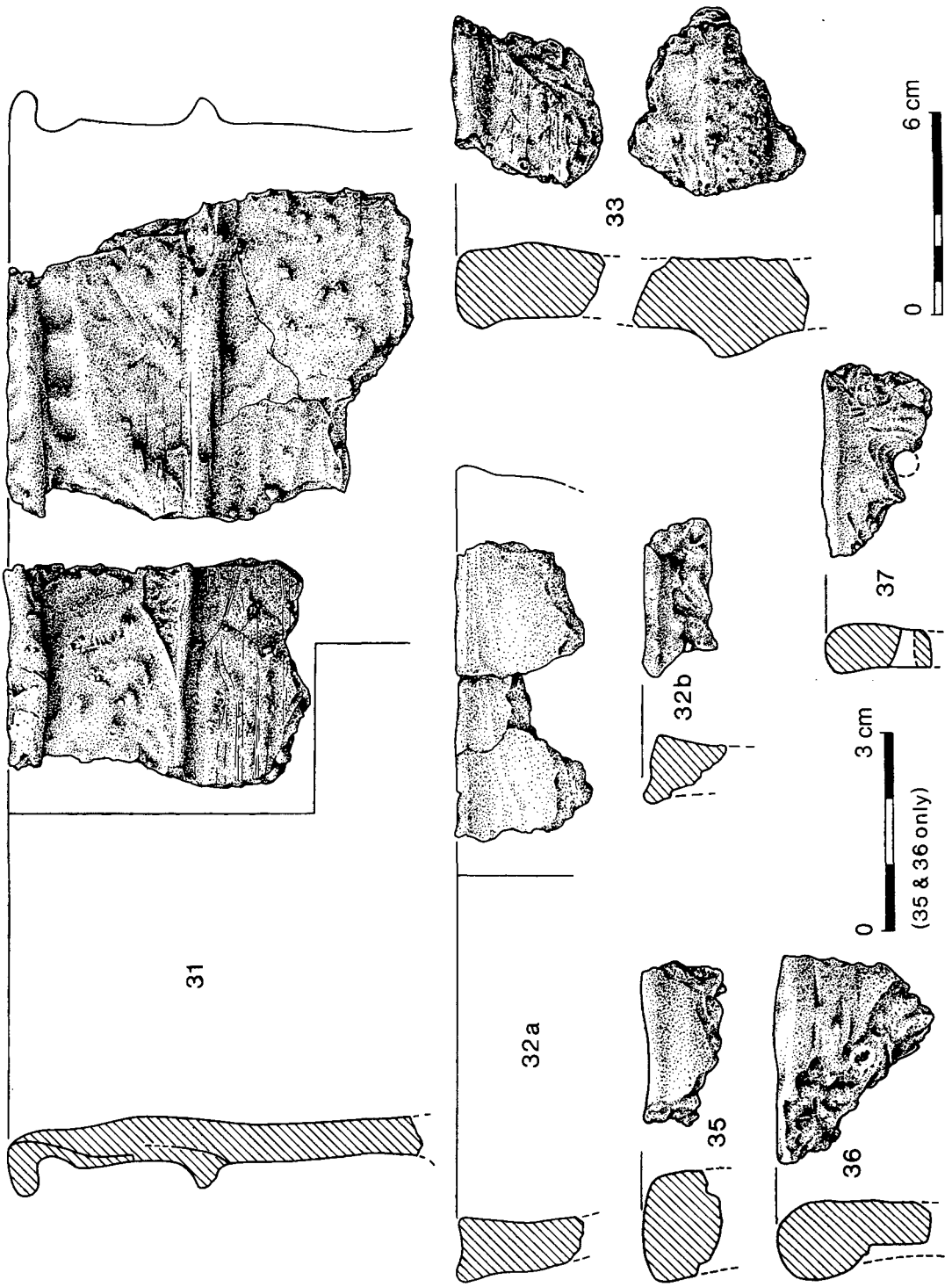
In summary, a major element of the Balfarg pottery assemblage comprises a range of heavy bowls, associated with a phase of activity which can be dated approximately to the first quarter of the third millennium BC uncal. While the origins of this group clearly lie in the plain bowl styles of the Earlier Neolithic, it has proved surprisingly difficult to match the vessels closely; certainly this aspect of the Balfarg assemblage is virtually unparalleled among the range of published Neolithic pottery from east/central Scotland. Relatively



ILLUS 14 Earlier Neolithic pottery (Cowie's *Group 2*): vessels P15–P24



ILLUS 15 Earlier Neolithic pottery (Cowie's *Group 2*): vessels P25–P30



ILLUS 16 Earlier Neolithic pottery (Vessels of uncertain overall form) P31–P33; P35–P37

ILLUS 17 Earlier Neolithic pottery (Vessels of uncertain overall form) P38 and P39

thick-walled vessels do form a component of some assemblages both in Scotland (eg East Finnercy, Aberdeenshire: Henshall 1983; Knappers, Dunbartonshire: Mackay 1950; Ritchie & Adamson 1981) and it is thus perhaps arguable that the group of heavy bowls from Balfarg simply represents one extreme of a range of globular bowl pottery manufacture. However, not only are the rim and wall thicknesses considerably in excess of those found on the heavy component of these 'earlier' Neolithic assemblages, but also the fabric is quite different in composition and texture, inviting comparison instead with the generally coarser wares of the Later Neolithic. The writer has suggested that what is beginning to emerge in lowland Scotland is a picture analagous to that of Yorkshire where Manby has discerned two main Earlier Neolithic ceramic traditions represented by Grimston and Towthorpe Ware (Manby 1988; Cowie 1992 and 1993). However, further work is required in northern Britain to allow a more objective assessment of these differences.

P31–P40: Miscellaneous pottery from vessels of uncertain overall form Among the group of pottery recovered from pit F2039 were sherds of an unusual vessel (P31) with no close parallels known to the writer. The overall form of the pot is uncertain, but it appears to have had a prominent expanded rim the modelling of which has resulted in a heavily fingertipped rim/neck junction; a prominent horizontal cordon appears to have encircled the upper part of the body, while a swelling in the wall hints at a further cordon at the lower break-edge. While the rim recalls Earlier Neolithic forms, the prominent cordons and the cylindrical barrel-like form of the body of the vessel invite comparison with Grooved Ware. The hard gritty fabric also sets this vessel apart from the remainder of the pots with which it was associated.

A number of other vessels – again so fragmentary that their original shapes are left tantalizingly uncertain – have proved difficult to parallel satisfactorily, although details of their form, fabric or circumstances of deposition tend to indicate that most are indeed of Neolithic date. P32 is in a slightly less fragmentary state than most of the material from the contexts (the material of ring-cairn A and the soil buried below it) from which it derives, but the expanded and channelled rim is not closely matched by any other sherds from Balfarg. One of the features in the pit group in Area A (F2429) produced sherds of another exceptional vessel (P33), massively thick-walled in a very compact gritty fabric, with a flattened rim expanded externally and what appears to have been a pronounced shoulder. P34 (F2424) is possibly a portion of the base of this, or a closely similar vessel.

In three cases, P35–P37, the pots in question are represented by single rim sherds of

simple upright form providing little clue to their original shape; the wall of P37 has been perforated prior to firing.

Two large oval lugs (P38–P39) almost certainly derive from the rounded shoulders of heavy bowls of the type discussed above; from such bowls too, probably derive a few fragmentary rounded bases of considerable thickness (eg P40: up to 18 mm thick) from pits in Area A.

2.2 THE RECTILINEAR TIMBER STRUCTURES AND LATER ACTIVITY ASSOCIATED WITH GROOVED WARE

G J Barclay, C J Russell-White & P N Tavener

2.2.1 Timber Structure 1

There were two similar timber structures within Area C at Balfarg (illus 6). Part of the remains of Structure 1 had been cut by the ring-ditch and buried by ring-cairn A, and Structure 2 lay within the BRS ditched enclosure. It is argued below that Structure 1 preceded Structure 2, and the former is described first.

Both structures have two main elements: what appears to be a boundary defined by posts, and a number of pits or post-holes within that boundary. The arrangement of posts of Structure 2 (the first timber structure to be revealed, in 1983), appeared at first to represent the remains of an incomplete, aisled, roofed building. Discussion of the nature and relationship of the two identifiable elements of the structures follows, where it will be argued that they are not roofed buildings (Section 4.2 of the report, below).

The boundary of both structures is incomplete, although different parts are missing; in Structure 1, at the south-west, five posts seem to have been eroded away and one post at the north has been removed by the digging of the ring-ditch. In Structure 2, the northern part has been removed, apparently by erosion.

The boundary post-holes of Structure 1 In Structure 1 (illus 18 & 19) features survive which may be interpreted as post-holes; they are regularly spaced (1–1.2 m apart) to form the two sides and two curved ends. It can be seen from illus 19 that the post-holes on the west side and at the southern end of the structure are very much shallower than those on the east and north. The ring-ditch/ring-cairn complex which overlies the north end sits on a distinct ridge. The modern ground level falls away to the west and south; this disguises an even steeper subsoil slope, falling to a hollow to the south-west, now largely filled with colluvium. It seems likely that the features of the structure have suffered differential erosion, the south and west suffering more. It is suggested that the lines of post-holes supported a continuous barrier; therefore, as a convenient shorthand term, the lines have been referred to as 'walls' throughout.

F1120, a post-hole of the northern boundary wall, was cut by the ring-ditch (illus 18). The surviving dimensions of the post-holes varied from c 0.35 m to 0.8 m across (most were between 0.4–0.65 m; average 0.56 m). Most were roughly circular but a number were quite irregular. The depth varied considerably, between 0.1 m and 0.53 m, largely because of the increase in erosion towards the south-west. Four post-holes at the north end were protected from major modern erosion by the material of the ring-cairn built over them (F1116–F1119). Three are 0.5–0.53 m in depth, the fourth was 0.32 m, from

the subsoil surface; presumably a topsoil depth of at least 0.1 m could be added to these dimensions. In most of the post-holes the clear traces of post-pipes could be recognized. These were mainly about 0.2–0.25 m (averaging c 0.24 m) across; some appeared to be rectilinear (eg F1207 & F1215) but this cannot be taken as a sure indicator of the shape of the post.

On the western boundary wall a cremation deposit (Burial 5) was found in the upper weathering cone of the post-pipe of F1228 (illus 6). The flat stone that it lay upon may be a collapsed packing-stone, and the bone may have worked its way down the weathering cone, although, as another flat slab was laid on top of it, it seems more likely to have been placed deliberately. The bone was mixed accidentally with another deposit on site and therefore no identification can be offered.

On the south wall, in F1234, it was noted that the post-pipe leant inwards, but this may be due to subsidence of materials during the weathering process; this post-hole was surprisingly deep considering its location.

The posts of the north sector of the boundary, protected under the material of the ring-cairn, are probably preserved to their original depth. It can confidently be assumed that the boundary walls were complete; five posts are therefore missing at the south-west and one on the north. The boundary would therefore have comprised 44 posts; 14 on both sides and eight at each end (counting the corner posts as part of the sides).

Internal features of Structure 1 Within the boundary were 16 pits, which were identified as post-holes, except where noted; they are described only where unusual features were noted, where artefacts were recovered or where they appear to be significant to the discussion.

F1129 & F1130 seem to form a pair of similar, very large, post-holes at the extreme north end of the structure. F1129 has some stone-packing. F1130 has numerous packing-stones, with the post set against the opposite side. Because of their location beneath the later cairn, protected from erosion, it is likely that their depths (F1129–0.93 m; F1130–0.72 m) are the closest, of all the features within Structure 1, to what they were when dug.

F1104/1131 A double post-hole with two post-pipes with packing. Sherds of Grooved Ware vessel P55 were found during the cleaning of the surface of the feature but none was found during its excavation.

F1105 A post-hole located to the east of F1131. The post-pipe was canted to one side towards the bottom (and therefore not fully represented in the section).

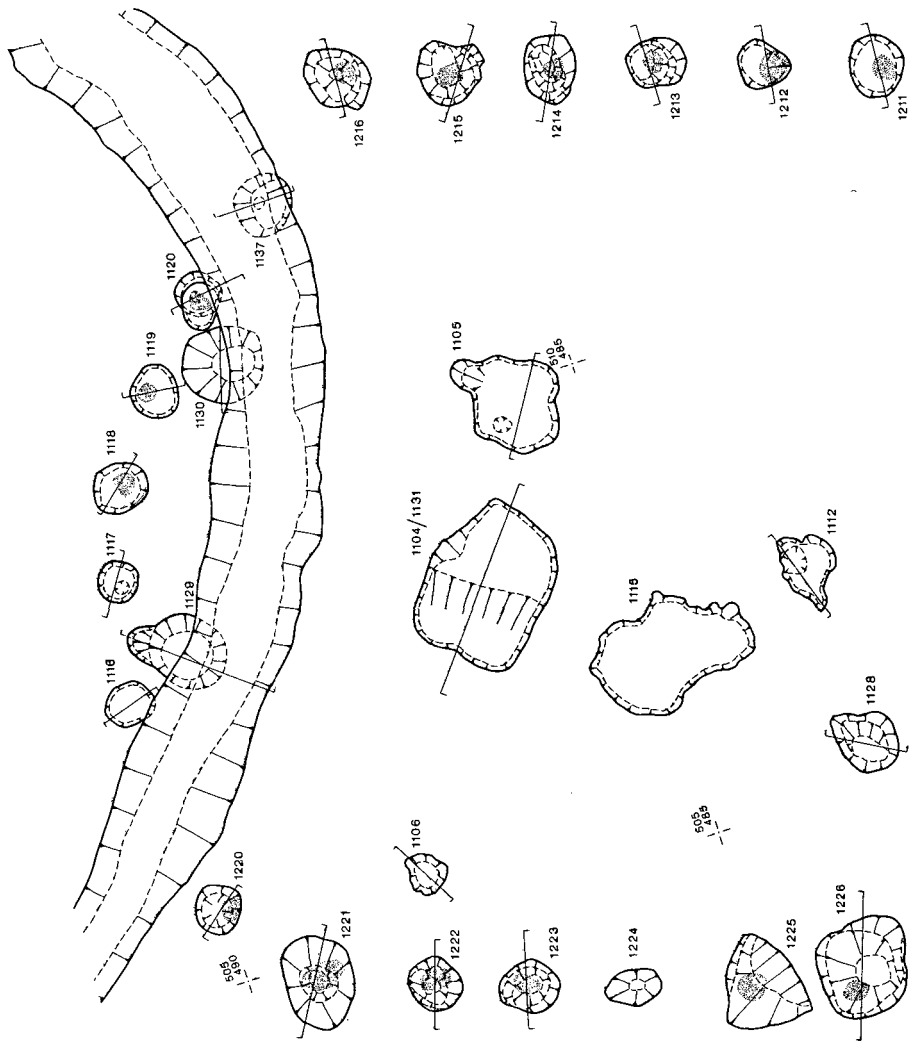
F1111 (Section not illustrated) A possible double post-hole (ie two post-pipes in the same cut). The western post-pipe produced two sherds of Grooved Ware (from vessels P63 and P66 both of which are represented in greater quantities in pit F1002). The western post-pipe was separated from the eastern by large stone packing and no relationship could be established between the two post-pipes.

F1107 A post-hole. The post-pipe (0.22 m across in section) was at an angle; ie the post appears not to have been vertical.

F1108 A probable post-hole which was filled with numerous tightly packed rounded stones (up to 0.15 m3) with little room for a matrix, surrounded by gravel packing. Some of the stones of the central mass were burnt. They may represent the backfill of a removed post as such a concentration of material infiltrating down a weathering cone (all the way to the base of the feature) seems unlikely.

F1121 A pit with a single fill and no clear function. A single sherd of Grooved Ware (vessel P57) was recovered about half way down the pit.

F1123 Perhaps a post-hole from which the post has been extracted.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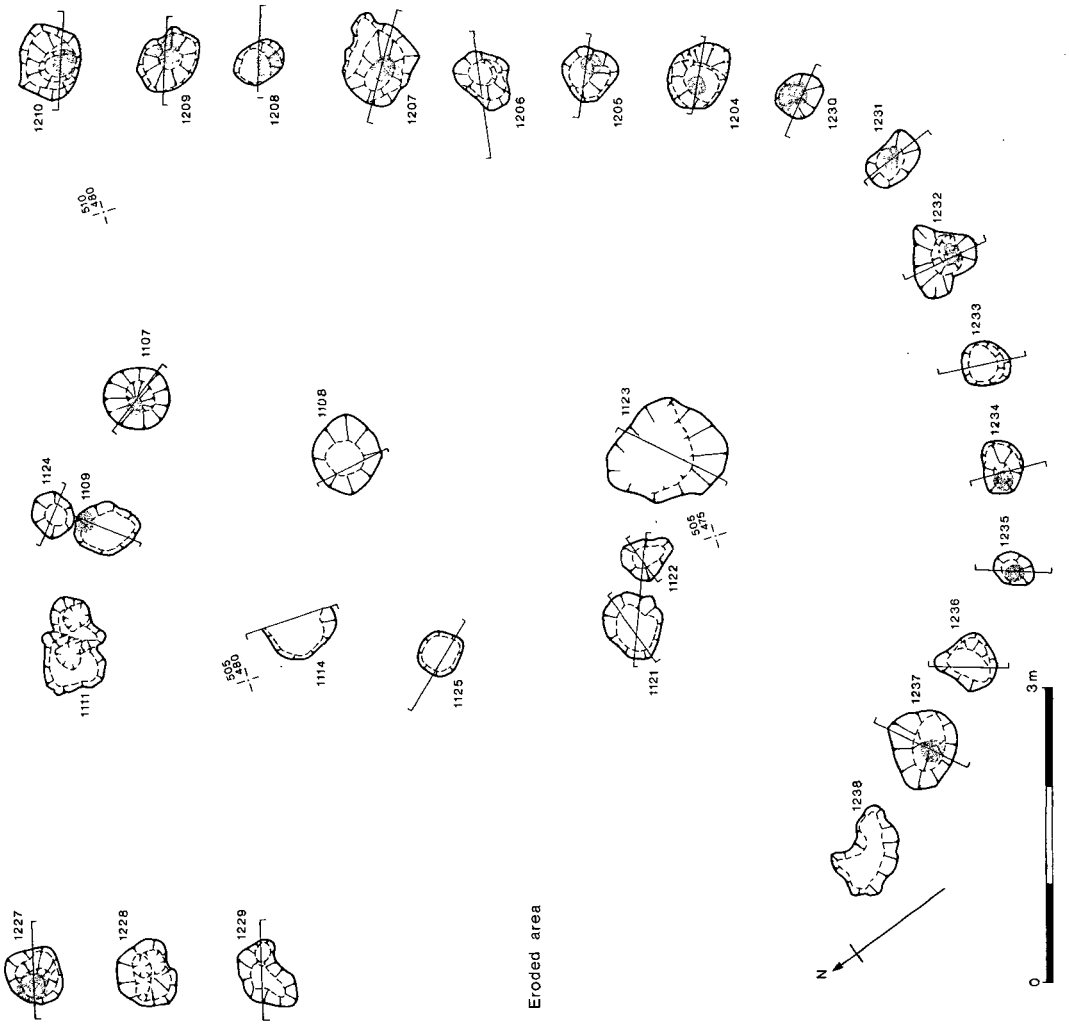
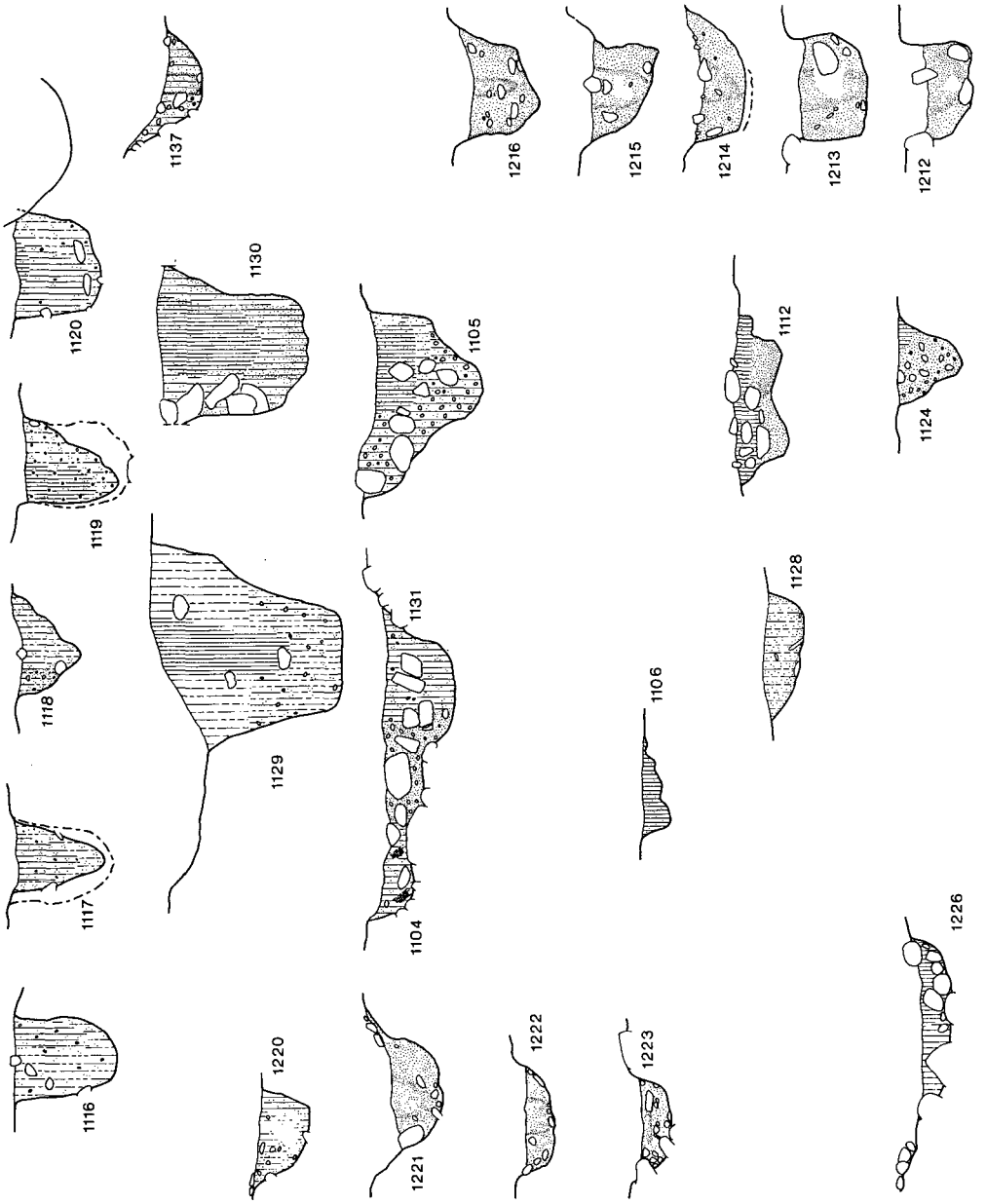


ILLUS 18 Plan of timber Structure 1. The ring-ditch cuts through the north-eastern end of the Structure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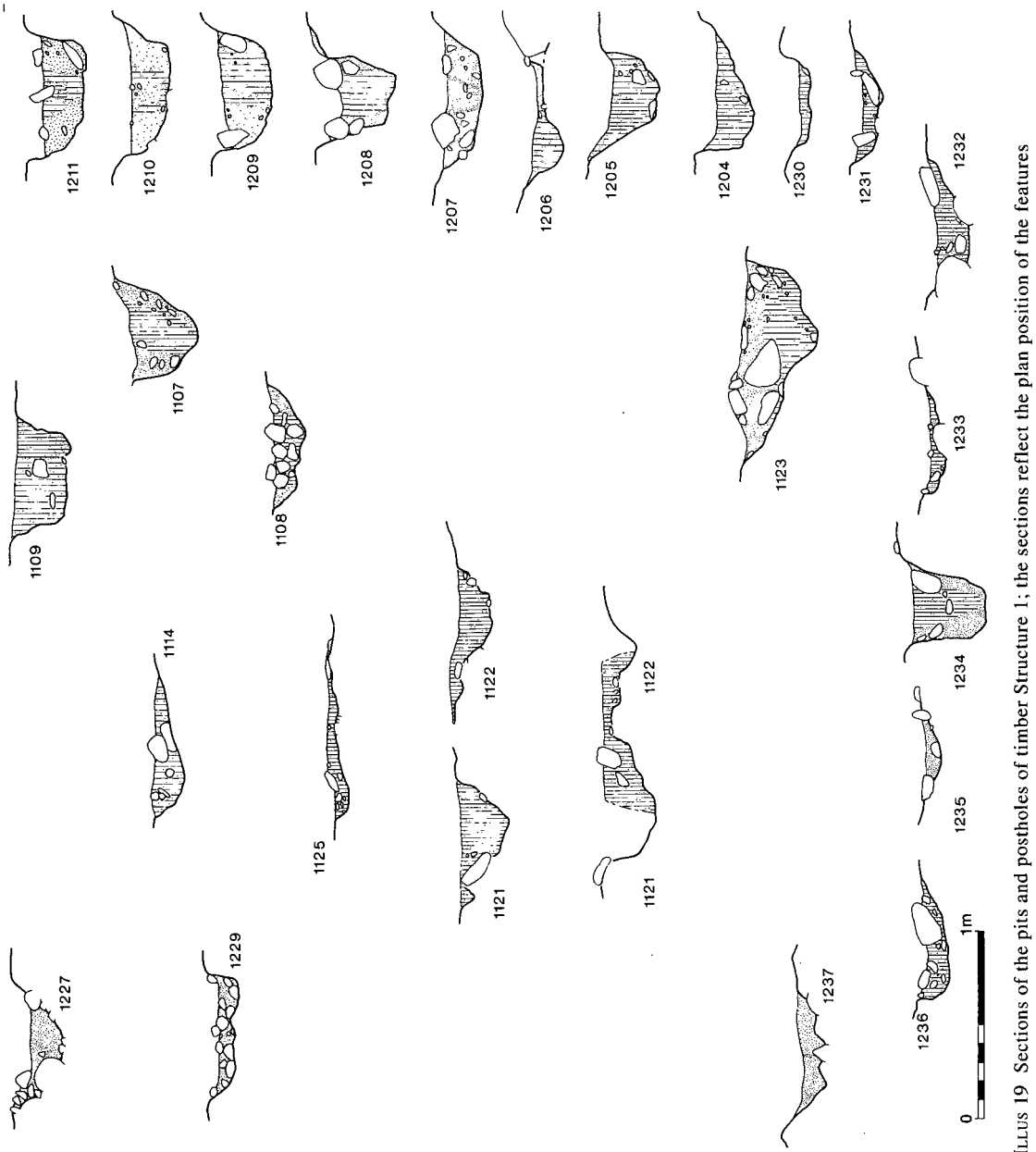
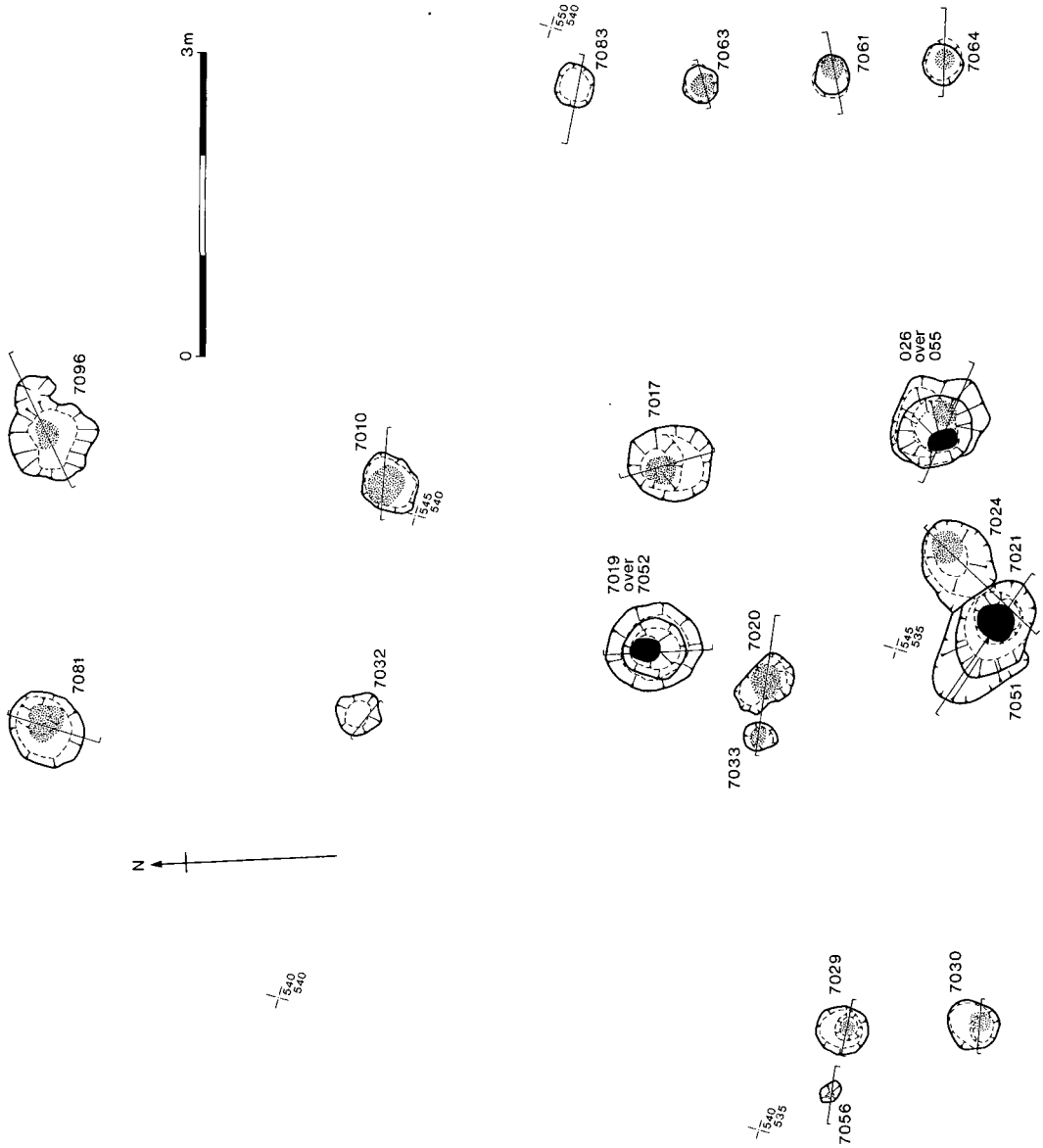


ILLUS 19 Sections of the pits and postholes of timber Structure 1; the sections reflect the plan position of the features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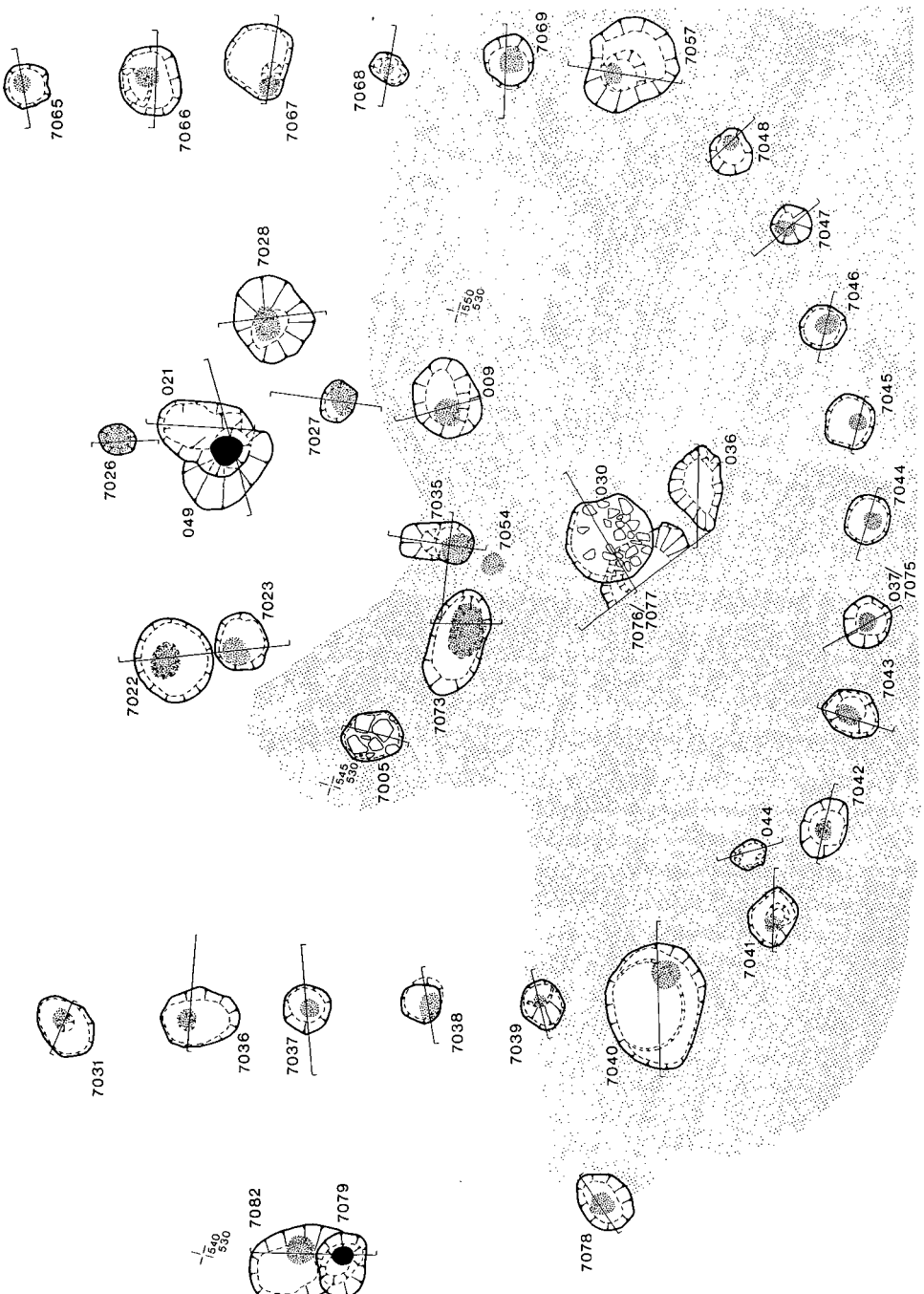

ILLUS 20 Plan of timber Structure 2. The toned area in the southern part of the Structure shows the approximate surviving extent of the 'obscuring layer', comprising soil and stones, and possibly representing the remains of a low mound covering the Structure. The layer obscured all features except F030 – the others are shown clear of the stipple only for clarity. The post-pipes of later post-holes cutting earlier post-holes are shown in solid black

ILLUS 21 Timber Structure 2 from the north.

2.2.2 Timber Structure 2 and other features within the BRS Enclosure

The second timber structure was similar to Structure 1, in that it comprised two elements – a fence of posts apparently enclosing less ordered settings of posts (illus 6, 20 & 22). While the preservation of the surviving posts, especially in the interior, seemed better than in Structure 1, the presumed northern portion of the enclosure had been lost to erosion on the east side, and to modern sand extraction on the west.

Before the features were excavated the topsoil was removed, producing burnt cattle bone (0.57g) and an edge-retouched flake, S27 (illus 67). At this stage a layer (the 'obscuring layer') below the ploughsoil was noted covering the southern part of the structure, surviving in a slight hollow in the subsoil. Its approximate extent is marked on the plan (illus 20) but it survived fragmentarily over a larger area and may once have extended very much further. The layer was clearly the result of human activity, as it contained substantial pieces of Grooved Ware and it obscured the pits and post-holes of the south part of the structure, with the possible exception of F030. It varied in depth from between 0.05–0.3 m. It comprised a soil matrix similar to the B-horizon elsewhere on site, with an admixture of a considerable number of stones (varying between 25% and 70% by volume). Substantial pieces of a number of Grooved Ware vessels were recovered: P46, P48 (also found in the post-pipe of post-hole F021) and P54 (75% of vessel). Most of the sherds of vessels P46 and P54 were found close together immediately to the south-east of post-hole F7028, which had stones from the layer in its upper fill; similar stone fill in the upper part or in the post-pipe was noted also in F7023 and F009. It is argued below that this layer was deposited towards the end of the use of the structure.

Boundary post-holes of Structure 2 The surviving boundary of the structure comprised 10 posts in the east wall (F7057; F7061; F7063–F7069; F7083; including the corner post), eight posts in the west wall (F7029–F7031; F7036–F7040; including the corner post) and nine posts in the southern end wall (F7041–F7048; F7075). The ordinary post-holes of the wall vary between 0.6–0.3 m across (average 0.45 m); post-holes F7031 and F7036 on the west wall and F7066 and F7067 on the east wall are larger, although the post-pipes are of the same diameter as the others. Both surviving corner post-holes are very much larger than the other wall post-holes; the south-east post-pipe is of average size, the south-west post is larger than average. In most cases the post-pipe observed at the surface before excavation corresponded with the pipe seen in half section; as usual, there were cases where the two did not register. Where the post-pipe can be considered to represent the size of the post reliably, their diameters varied between 0.12 m and 0.24 m (average c 0.19 m). The largest post was that at the south-west corner (0.28 m). The posts were spaced at c 1.25 m to 1.35 m intervals. The depths of the post-holes varied from 0.09 m at the north end where they were badly truncated to up to 0.52 m on the south-west. The average depths were 0.25 m to 0.4 m.

Just over half of the posts had been packed only with gravel, sand or loam; in the remainder some stones were included in the packing but only in a handful of cases could the post-holes be described as 'stone-packed'. There was some evidence for silting and even some deliberate filling in the bottoms of some post-holes.

Finds from the post-holes were very limited; a pitchstone inner flake was found in the packing of F7041 and a polished flint inner flake (S5, illus 65) was found in the packing of F7036. In F7063 five fragments of cremated bone were found, including one piece of long bone diaphysis (total 60g), possibly sheep.

Internal features of Structure 2 Within the enclosure formed by the posts described above lay 26 features certainly identifiable as of human origin, mostly post-holes. Some showed clear evidence of the supersession of one post-hole by another. Very generally they fell into two rough lines approximately parallel to the axis of the enclosure. They are described from the north. More artefacts were found in these features than in the boundary features. The great bulk of the flaked stone, where securely contexted, was found in the post-pipes of post-holes which cut earlier post-holes (F7021 cuts F7024 and F7051; F7019 cuts F7052), or where a post-hole might be the later of an adjacent pair. (For instance, F7023 and F7022 may be the equivalent – although one not cutting the other – of F021 cutting F049; F7017 may have obliterated its predecessor, and might be the equivalent second post to F7019.) The Grooved Ware found in the area of this structure was also found only in these secondary post-holes (F021–P48; possibly F7023–P45), in the material filling the post-pipes of other post-holes (F7096 (upper post-pipe) – P80; F7081 (upper post-pipe) – P82 and in the stony layer (the 'obscuring layer') described above); thus, the Grooved Ware associations were not primary. Only those features which contribute to the understanding of the structure are described in detail below.

F7019 & F7052 Post-hole F7019 cut an earlier pit (F7052, probably a post-hole). The well-defined post-pipe of F7019 is a maximum of 0.28 m across. Post-hole F7052 is recognizable as a larger pit; F7019 seems to have been cut through its base. A flint secondary chunk was found in the post-pipe fill.

F7051, F7024 & F7021 A complex of three pits or post-holes (two sections are shown on illus 22). F7021 cuts both F7051 and F7024; the relationship between F7051 and F7024 could not be determined. F7051 was truncated by F7021, a clear post-hole, with some 30 rounded and sub-angular packing-stones, surrounding a well-defined post-pipe. F7024 had a clearly defined post-hole. The only find from the group was a piece of worked stone from the packing of F7024.

F026 & F055 One post-hole (F026) cut an earlier post-hole (F055). F026 had packing material of loamy sand, surrounding a post-pipe filled with charcoal-stained loamy material.

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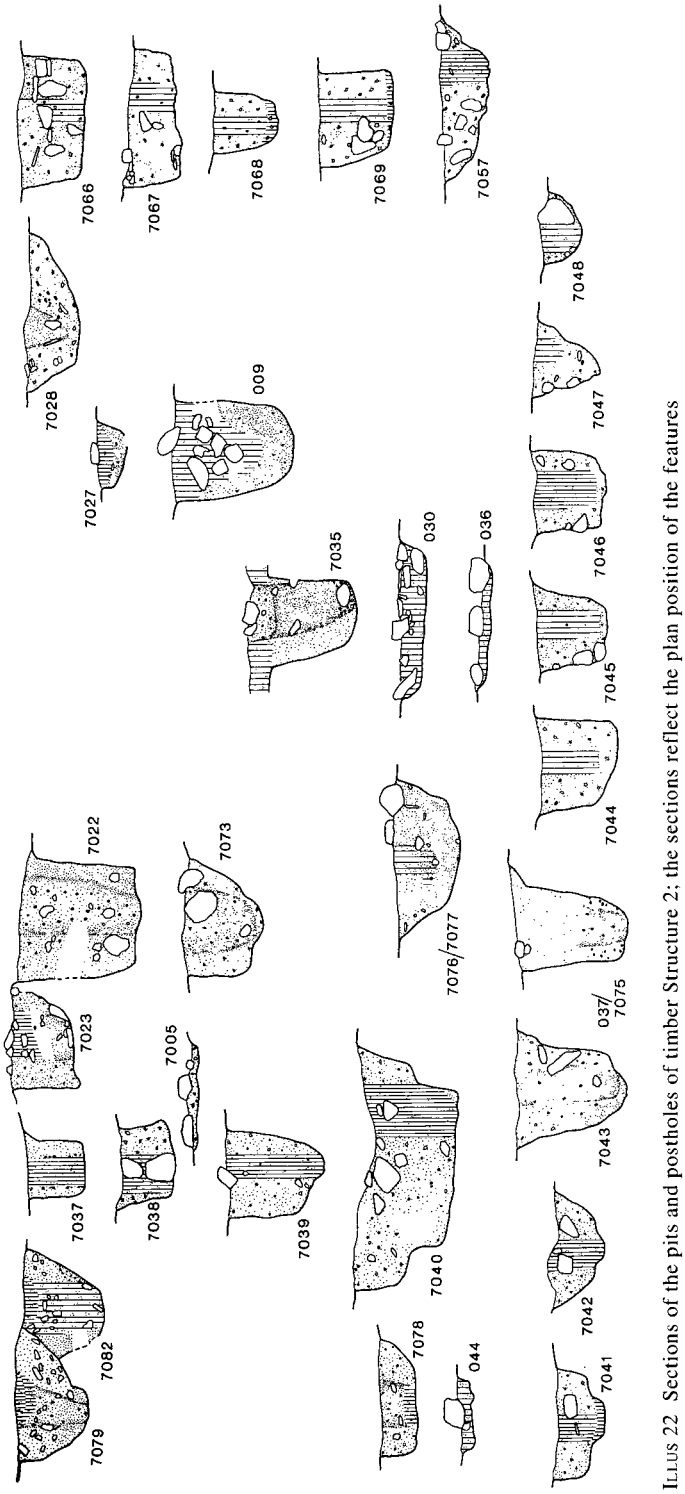


ILLUS 22 Sections of the pits and postholes of timber Structure 2; the sections reflect the plan position of the features

F7023 A post-hole. Some 50% of the upper post-pipe fill was made up of angular stone fragments. The feature produced many finds from the upper and lower post-pipe fill, notably parts of two Grooved Ware vessels (P45 from the upper fill and one sherd of P60c from animal-disturbed packing), a fragment of burnt cattle bone (upper fill), and flakes of stone.

F021 & F049 One post-hole (F021) cut an earlier pit (F049), probably a post-hole. A sherd of Grooved Ware (P48) was recovered from the charcoal-impregnated fill of the post-pipe of F021; including this sherd about 20% of the vessel was recovered from here and the 'obscuring layer' which covered the south end of the structure.

F7005 An unusual feature, possibly the truncated remnants of a post-hole or post pad, comprising an area of four flattish slabs, two of limestone and two of sandstone, with smaller stones around, forming a flat platform 0.62 × 0.5 m across in a matrix of medium red-brown loamy sand. This was marked, in error, as a post-hole with post-pipe on versions of the plan of the structure published in the interim reports.

F7054 (Section not illustrated) A possibly truncated post-hole in which a clear post-pipe visible on the surface, very similar to that in F7035, bottomed out at a depth of c 0.1 m. No post-hole cut could be located. The fill of the possible post-pipe produced fragments of Grooved Ware (P42).

F009 Post-hole. Burnt bone identified as of sheep, with fragments of fish, was recovered, with a single cereal grain (cf oats).

F030 A shallow (0.15 m) circular pit at the south end of the structure filled with flat stones; perhaps a post pad. This was seen before the removal of the 'obscuring layer' of stones and soil which lay over the other features at the south end of the structure. After the removal of the stone layer an ill-defined post-hole (F7076) below part of F030 was found.

The other features within the structure were certain post-holes, with the exception of F7032, where the identification was not certain.

Other features within the BRS Enclosure *F7079 & F7082* (illus 20 & 22) One post-hole (F7079) cuts an earlier post-hole (F7082); they lie just outside the south-west boundary of Structure 2.

F7078 (illus 20) Post-hole just to the west of the south-west corner post-hole of Structure 2 (F7040).

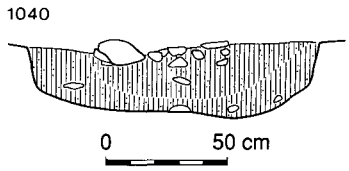
It is suggested that F7079/F7082 and F7078 are related to the use of Structure 2.

F7091 (illus 6; section not illustrated) A fairly large cone-shaped feature with some basalt blocks at the top, suggesting a stone setting, but fewer and more random stones further down. The remainder of the fill was a homogeneous, fine to medium fine, slightly humic, pale yellow brown sand. A pitchstone chip was found in the feature.

Burial 6 (*F7095*; illus 6) A cremation deposit on the edge of the ditch, which seems to have been very badly disrupted by a large animal hole, to the extent that no trace of the original pit, if such there was, survived. The bone was of a human adult (126.3g). A flint flake which may have been associated with the burial was found in the area.

2.2.3 Grooved Ware pits

The Grooved Ware activity on the site was, it is argued in the discussion below, associated with the last use of the two timber structures. Other Grooved Ware activity is evinced elsewhere at Balbirnie stone circle, Balfarg henge, in the layers filling the lower middle parts of the BRS enclosure ditch, and in five isolated pits outside the BRS enclosure. Of the last



ILLUS 23 Section of Grooved Ware pit F1040.

group, pits F1002, F1040 and F8133 were the most notable features, perhaps indicating the deliberate deposition of broken pottery (as in the earlier pits F8016 and F2430 and on the Balfarg henge: Mercer 1981, 84–101). Richards (below) discusses the nature of Grooved Ware deposition.

The main contexts which contain Grooved Ware other than those associated with the timber structures and the ditch were: F1002, F8133, F1040, F8015 and F8029, which are all described below.

F1002 (illus 6) This was a shallow ill-defined pit which was taken down in plan, as its edges could not be defined clearly (therefore no section drawing is available); its overall dimensions could not be ascertained. It contained in its largely homogeneous dark brown loamy fill considerable quantities of Grooved Ware. The only different layer noted was F1003, a thin lens of charcoal-stained soil. It was 0.1 m in diameter and 0.03 m thick. From this layer a radiocarbon date was obtained: 2300±85 BC uncal (GU-1902). Portions of the Grooved Ware vessels (over 25% of P65) marked on illus 26 were recovered from this pit. In addition three flakes were recovered, of which two, S2 and S3, are illustrated (T38).

F1040 (illus 6 & 23) This pit lay close to the south edge of the ring-cairn. One layer of its fill produced the remains of a Grooved Ware vessel (P76). The only pottery in the pit which was not identifiable as Grooved Ware comprised four undiagnostic sherds of plain Neolithic pottery (not catalogued in detail), a single sherd of P90 (*Group 3* – see below) and a single abraded sherd of AOC Beaker, which could not be allocated to a specific vessel. It is likely, given the appearance of a substantial proportion of a Grooved Ware vessel, that the feature is of mid-third millennium BC uncal date. An edge-retouched flake (S4, illus 65) was recovered from the same context.

F8133 (illus 6; section not illustrated) A sub-rectangular shallow scoop c 1.6 m long by 1 m wide and 0.32 m deep, containing moderate quantities of Grooved Ware, and three groups of layers in its fills, most containing pottery. The pottery (largely parts of vessels P60 and P51 – about one-third of the latter pot) was mainly around the edges of the pit. Most of the pottery showed clear signs of scorching or burning.

F8015 This was a small conical hole, sub-circular in plan and excavated in the third season. It was densely packed with Grooved Ware sherds and charcoal. There were only small and very small stones. One layer of yellow-grey brown loamy sand filled the pit along with the many sherds of pottery and three fragments of burnt bone. The largest dimensions were about 0.3 m wide by 0.2 m deep.

F8029 A small feature containing parts of Grooved Ware vessels P43 and P75, disturbed by animals on its north side. There were three layers. The finds were found in the lower layers; the bottom-most was heavily charcoal-stained. A flint flake was recovered.

2.2.4 The ditch of the BRS Enclosure

The arc of ditch excavated at BRS was the only feature within the complex, apart from the henge excavated by Mercer, to appear as a cropmark prior to excavation (illus 3); it ran in an arc on the south and west sides of timber Structure 2 (illus 6). In the east it had been destroyed or buried by the A92 road and in the north it had been removed by modern disturbance associated with sand extraction and with the culverting of the Balbirnie Burn. Extrapolating the arc which survives would suggest that if the ditch had enclosed a circular area, it would have been c 38–43 m in diameter (to the inner edge of the ditch) with Structure 2 set in its centre; however, the line of the portion of the ditch excavated on the road verge suggested that the enclosure might not be perfectly circular. No original causeways in the ditch survived in the area available for excavation (illus 25). A feature which might be the inner part of the ditch was excavated at the northern edge of the main area at BRS (illus 6); no outer edge was located and, because of the disturbed state of the area the feature cannot be identified with certainty as the ditch. It does not sit happily on a ditch line reconstructed as a circle from the surviving arc at the south and south-west. If the enclosure was circular, then roughly 20% of the enclosure ditch was available for investigation.

In the excavated areas the depth of the ditch varied between 0.5 m and 1.1 m (the norm was c 0.6–0.9 m) and its width varied between 2.2 m and 4.5 m (the norm was c 2.5–3.5 m). The shallowest depths were the result of truncation of the ditch, and the greatest widths reflected the erosion of the friable subsoil edges of the ditch in some areas. The profile of the ditch varied according to the material through which it was dug: the sides were steeper where it was cut through compact gravel than where it was cut through sand or loose gravel. In general it had a flattened bottom with steep sides which became shallower for the upper 0.3 m or so of subsoil. In a few places there was stepping closer to the bottom, mainly as a result of a change in the compactness of the subsoil.

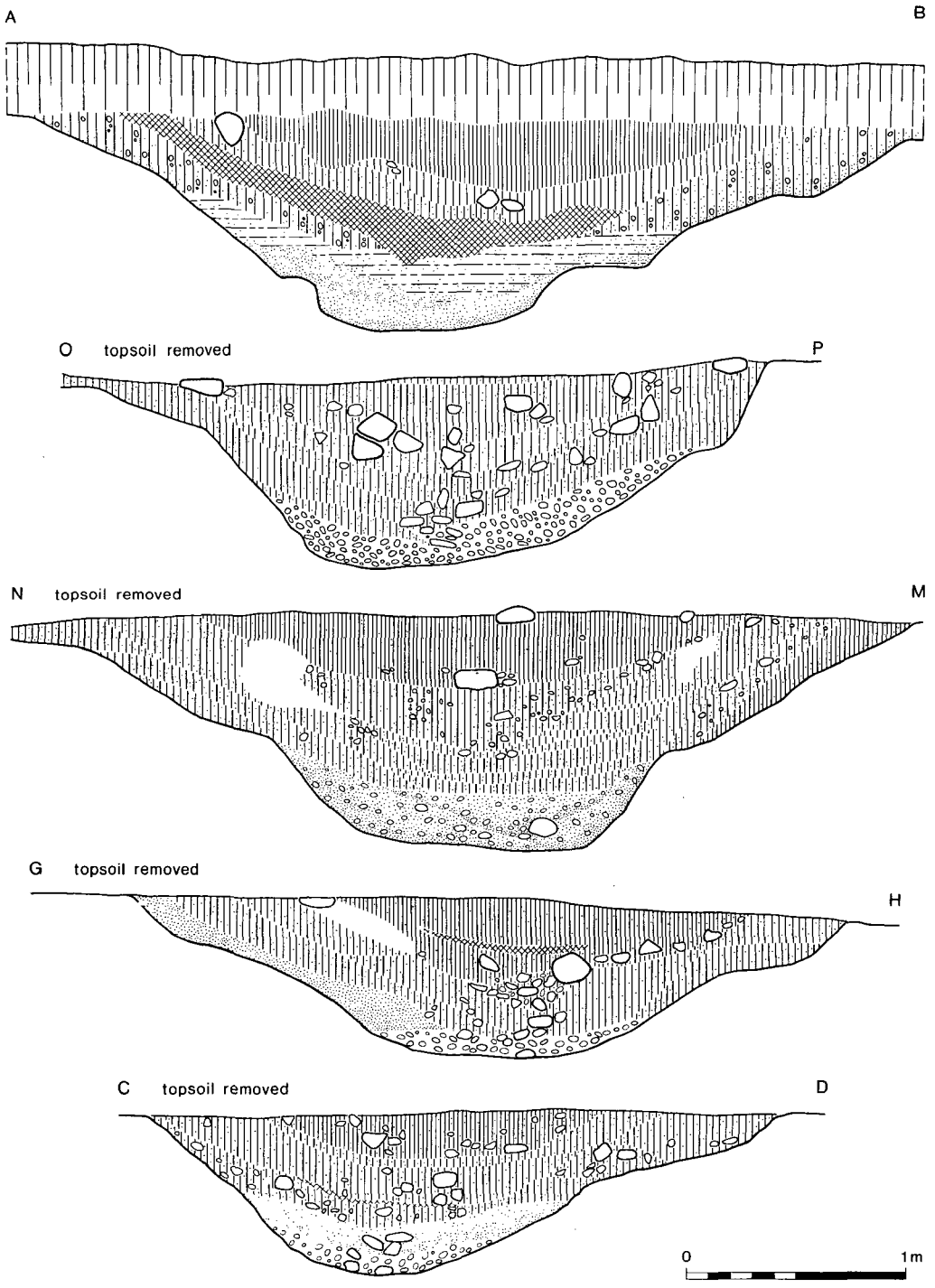
There were three distinct groups of layers in the ditch-fill, a pattern which was repeated over its whole excavated length:

Upper The top of the ditch for its full visible length had a dark brown loam fill.

Middle Below the upper fill and between it and the edge were wedges of lighter, less loamy layers more akin to their neighbouring periglacial deposits.

Lower The lowest layers were always fairly clean-looking silts and fine sands and/or gravels, bottomed in most cases by a medium orange brown gravel.

The three zones – dark loam, lighter less loamy soils, silts – are clearly visible on the sections (illus 24). In cutting IV there was a charcoal- and find-rich layer at the interface of the *Upper* and *Middle* fills, which produced Beaker pottery. Large stones, where they appeared in any number in the ditch, seemed to occur at certain stages, mainly at the bottom of *Upper* and *Middle* fill. The finds likewise had their set levels: Grooved Ware in the *Middle* fill, and Beaker within the *Upper* fill. It had been hoped that a study of the silting pattern from the sides would indicate the position of a bank. However, the lenses and horizontal layers on the sides and bottom clearly related to the very varied types of subsoil through which it was cut. It is interesting to note, however, that the very charcoal-rich layer in the *Middle* fill (visible in section A–B on illus 24), containing Grooved Ware sherds, clearly entered the ditch from the outer edge.



ILLUS 24 Sections across the ditch. To aid the reader, in all the sections the outer side of the ditch lies on the left; some of the drawings have had to be reversed to allow this. Cutting VI (A–B); II (O–P); III (M–N); IV (G–H); V(C–D)

ILLUS 25 Timber Structure 2 and the Balfarg Riding School enclosure ditch viewed from the south

Considerable quantities of pottery, particularly sherds of Beaker, were recovered from the ditch, although it may be noted that these coalesced into significant remains of a relatively limited number of vessels (fewer than six) and the fragmentary remains of many more. Superficially it would appear that there is a significant admixture of pottery types in the ditch, but if the quantities involved are taken into account a clearer picture appears.

The pottery in the excavated ditch sections is distributed as shown on Table 2. None was found in Cutting II.

TABLE 2
Pottery from the ditch sections excavated

Context & Fill		*Grooved Ware Sherds*	*Beaker Sherds*
Cutting III	*Upper*		>52
Cutting IV	*Upper*	<5	>147
	Middle		2
Cutting V	*Upper*	<5	>110
	Middle	>115	3
Cutting VI	*Upper*		
	Middle	>35	
Cutting VII	*Upper*		
	Middle	>36	

The Beaker pottery was concentrated in Cuttings III, IV and V, in the *Upper* fill. The Grooved Ware was concentrated in cuttings V, VI and VII, in the *Middle* fill, associated

particularly (in Cuttings V and VI) with the lens of charcoal-stained soil (shown on illus 24: A–B), apparently entering from the outer side of the ditch. At the north end of the surviving arc of the ditch the pottery was closer to the bottom of the ditch, but still within the *Middle* fill; sherds of vessel P47 were found both in this layer and in the heavily charcoal-stained layer higher in the *Middle* fillings in Cutting VI. The very few Grooved Ware sherds in the *Upper* fill seem best interpreted as residual. The very few small sherds of Beaker pottery in the *Middle* fill may have been brought there by animal activity, of which there is ample evidence.

The palaeobotanical information recovered from the ditch was limited; sloe stones appeared in cutting V, *Upper* and *Middle* fills, with oat and barley grains and hazel fragments; a possible bramble seed was also found. In VI a sloe stone and a crab apple pip were found, with cereal fragments and a possible legume pod.

Cutting II (section O–P on illus 24) The sides of this cutting were steeper than elsewhere primarily because of the uniformly stony nature of the glacial subsoil. As a result the profile and the silting pattern were also simpler with fewer changes of slope and fewer fill wedges down the ditch sides. An edge-retouched flake (S16: illus 66) was found in the *Upper* fill. (Cutting I was a trial section cut in the first season and is incorporated in Cutting II.)

Cutting III (section M–N on illus 24) This cutting was dug through glacial sand. There was a break of slope half-way down the side which corresponds with the top of the lowest fill. Again the ditch bottoms out flatly on to gravel. Thirty-five pieces of flaked stone were recovered from the *Upper* fill; two are illustrated (S10 – chip illus 65; S15 – chunk scraper – illus 66). Flakes were also found in the *Middle* fill.

Cutting IV (section G–H on illus 24) This portion of the ditch was cut, in the main, through sand and disturbed sand but reached the gravels at a depth of 0.3–0.5 m from the surface, where there was a break of slope.

Cutting V (section C–D on illus 24) Four different glacial deposits were visible in the sides of this cutting. There was a break of slope in the ditch side between sand and coarse gravel about 0.3 m down. Over 35 pieces of flint were recovered. Three pieces are illustrated (illus 65 & 66): from the *Upper* fill – an end and side flake scraper S12; a serrated edged flake S13; a reworked barbed and tanged flake point S14; a thumbnail flake scraper S17; an edge-retouched flake S18. Fragments of burnt (?cattle) bone recovered from the *Upper* fill; fragments of burnt bone, possibly sheep and cattle, were found in the *Middle* fill.

Cutting VI (section A–B on illus 24) This was the site of one of the trial trenches of the first season, which was cut on the diagonal. The ditch was truncated here by the erosion slope to the north. The profile, where clearest, showed the double break of slope, at depths of about 0.3 m and 0.7 m. In the *Middle* fill was a very dark charcoal-stained sandy loam containing substantial sherds of Grooved Ware vessel P69. It extended from the outer side of the ditch towards and past the centre of the ditch. A flake (S7) from this layer is illustrated (illus 65), as is a serrated edge blade-like flake (S8 from another part of the *Middle* fill. Two samples of charcoal recovered from the charcoal-impregnated layer were radiocarbon dated: 2475±50 BC uncal (GU-1670); 2435±55 BC uncal (GU-1904). The layer also produced burnt bone, possibly of sheep.

VII This cutting was excavated along the axis of the ditch, to demonstrate the relationship of the ditch to the sand pit, which was shown clearly to cut the ditch. Portions of Grooved Ware vessels P47 and P75b were found in the lowest part of the *Middle* fill.

2.2.5 The Grooved Ware: vessels P41–82

A S Henshall

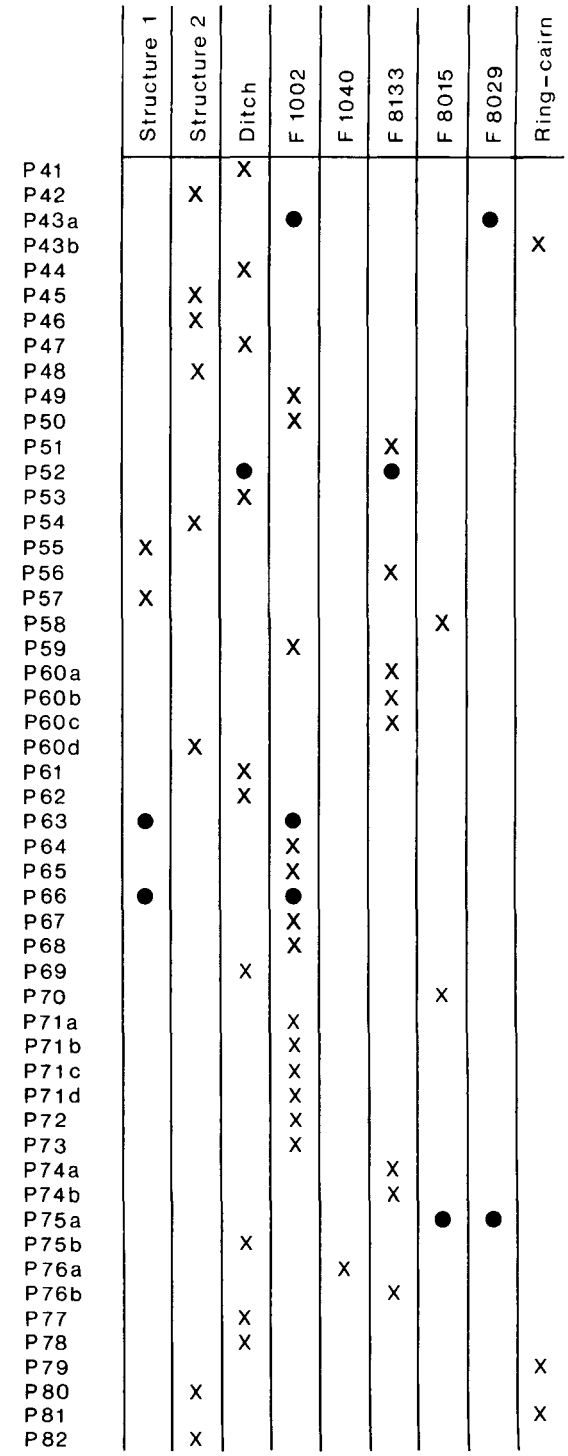
In this report the Grooved Ware recovered in the excavations of 1983–5 at BRS is described and compared with the Grooved Ware recovered by Mercer (1981) from the Balfarg henge.

The considerable assemblage of sherds can be treated as a unit, both because the same forms, decorative techniques and designs appear on pots of all sizes (and there is a very wide range of size) and because the content of the main deposits is similar. There are also direct links between the pottery in the ditch and in pit F8133, and between Structure 1 and the ill-defined pit F1002, provided by joining sherds of pots P52, P63 and P66. Sherds likely to be from P43 came from F1002 and from below ring-cairn A; a single sherd in the ditch from P75b suggests a link between it and two pits (F8015 and F8029) outside the ditch on the south-east side, which contain P75a, which may be the same pot as P75b; another possible link, between F8133 and Structure 2 may be provided by the small sherd P60c. F8133 and pit F1040 are possibly linked by the single sherd of P76b which may be from the same pot as P76a. The relationships are shown in illus 26.

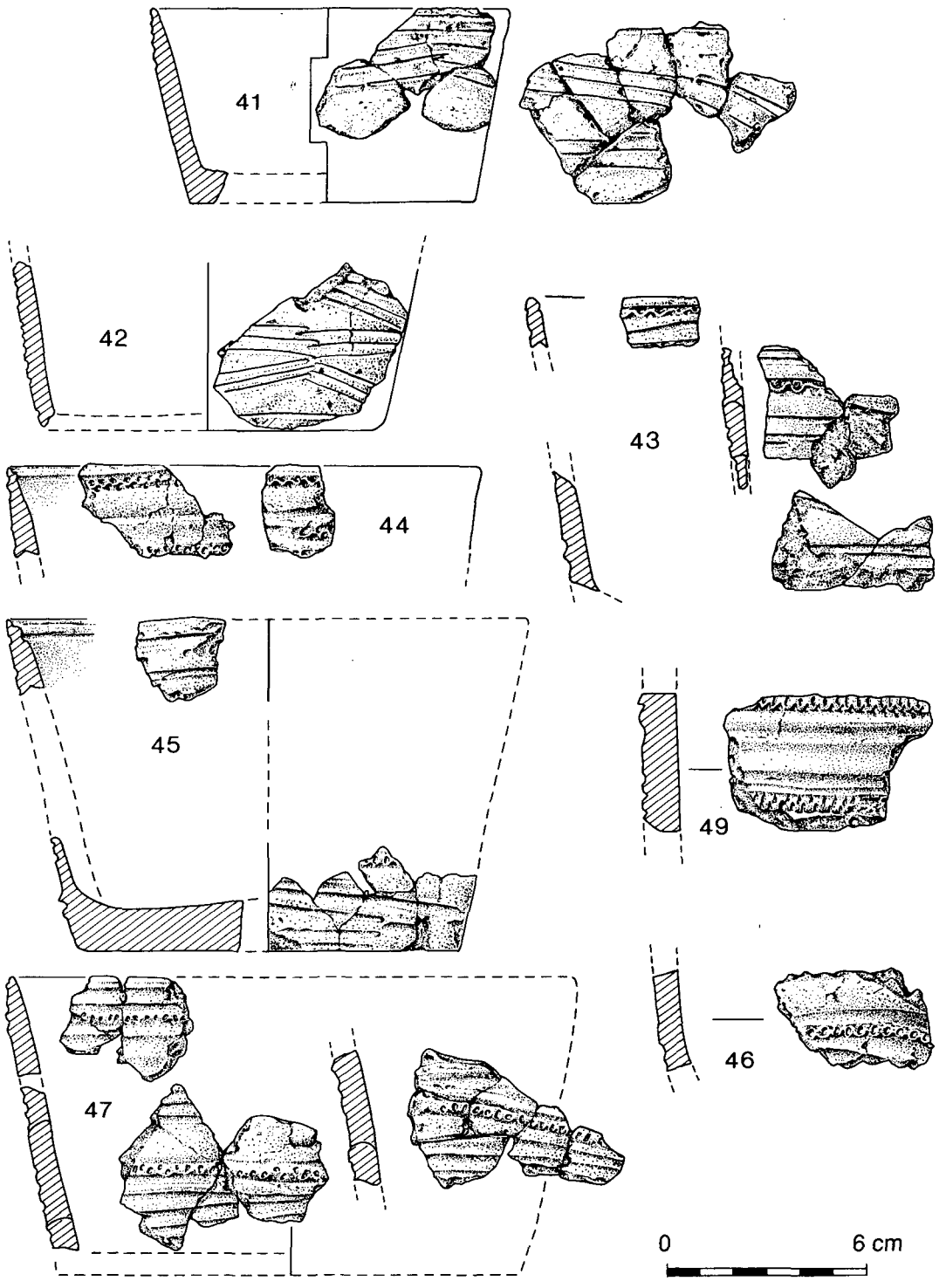
The pottery is very fragmentary and incomplete. Nonetheless it is possible to allocate the great majority of sherds to individual pots on the basis of decoration, size and wall thickness, sometimes assisted by fabric variations. It is thus possible to estimate, with unusual precision for a Neolithic assemblage, the number of pots present. The total is probably 43 (42 catalogue numbers were assigned and in addition the sherds of P71a–d are probably from two vessels). It would be possible to raise the total to 49 if unattached sherds from bases or lower walls do not belong to the pots to which they have been allocated; or the total could be lowered to 39 if certain sherds listed separately derive from otherwise identified pots (eg P66 might belong to P63, P68 might be from P67, P73 might be from P71, and P81 might be from P61). However, there is considerable confidence that the estimate of 43 pots is correct, give or take no more than one or two pots. The relatively few sherds not listed in the catalogue are small and characterless, and there is no reason to believe they come from additional pots.

The profiles of five pots can be reconstructed, all of them having flat bases and straight, somewhat everted walls. They vary from quite shallow relatively open dishes, eg P41 (illus 27) and P54 (illus 28), to deeper more upright forms, eg P48 (illus 28), and to deep tub shapes, eg P65 (illus 31). There is no evidence for pots outside this range, and the indications are that the smaller pots were generally of the shallower form and the larger pots were of the tub-like form. There is a wide variation in the size of the pots but they fall roughly into two groups, small to medium, and large to very large. In the first group there are three small dishes with external rim diameters of 110 mm to about 125 mm, followed by about 10 pots between about 140 mm and 160 mm in diameter (some estimated from the base diameters), and about seven pots in the broader size-range between about 160 mm to 250 mm. There is only one pot between this and 300 mm, yet at least 17 pots have diameters of 300 mm or more and form the second group. The largest established rim diameter is 400 mm (P63: illus 30) but, judging by the thickness of the walls of some of the very fragmentary pots such as P72, P74, and P78, these were considerably larger still.

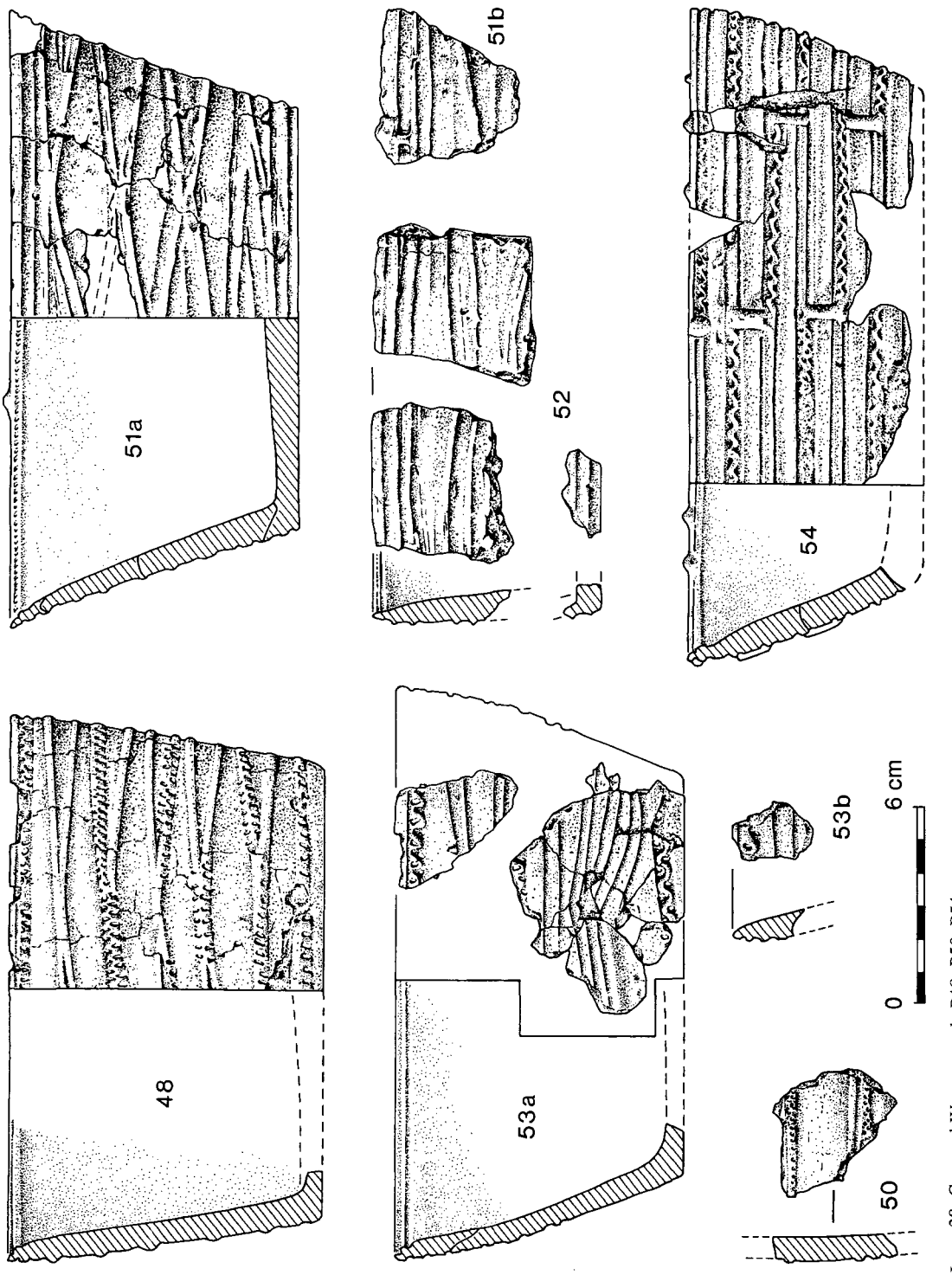
Although the fabrics vary there is no clear grouping, and the character of many has been destroyed by burning or scorching and so defies comment. It is likely the colour was predominantly dark, the lighter tones varying through brown to buff. The quality of the small and medium-sized vessels is excellent, the fabrics being hard or very hard, the forms regular, the surfaces carefully finished and the decoration generally carefully executed. The fabric of some of these pots (eg P41, P42,



ILLUS 26 The distribution of sherds from numbered Grooved Ware vessels on the BRS site. X = pot found in only one context; ● = sherds of vessel found in more than one context. The subdivisions a, b, c etc indicate that sherds *may* be from the same vessel



ILLUS 27 Grooved Ware: vessels P41–P47; P49



ILLUS 28 Grooved Ware: vessels P48; P50–P54

P47, P53) is fine and rather sandy in texture, but when some larger grits are included it has a rather harsh texture (eg P56, P61).

The fabric of others is tempered with angular grits, some quite large, and is finished with a thick slip giving a fine smooth surface (eg P44, P51, P52). The thickness of the walls varies from 5 mm to 10 mm. Among the larger pots, P63 & P64 and P66–P68 are quite heavily tempered with large grits, yet the walls are relatively thin and the fabric is hard, and although the grits show through the surface the exterior is well finished. P65 is so heavily tempered with large grits that it must be described as a coarse fabric and the exposed grits give it an uneven rough surface, yet some of the rim sherds which have escaped burning are hard. Some of the very large pots are similarly very coarse, and in thickness range up to 25 mm, but the sherds are fragmentary and so heavily scorched that their original quality cannot be judged: they are now extremely friable. In contrast the large thick-walled pots P71 and P78 are tempered with surprisingly fine grits. Most of the large pots had a fine outer surface.

On all sizes of pots there is a tendency to break along the building rings, and on some pots (eg P43, P51, P63 & P64) these breaks are very noticeable; also the lower wall tends to break away from the base. It is clear from the impressions on the exterior of sherds from the lower walls of some large pots that these were built up against a basketry support, as discussed on p 108.

Carbonized material adhering to some of the larger pots (P63–P66, P71, P75, P76a) might conventionally have been taken to indicate that they had been used for cooking, and this would have been taken to account for much of the scorching, especially where the poor condition of the lower part contrasted with the good condition of the upper part as on P45 and P65. One sherd of P48 and probably also pots P47 and P55 were scorched after breakage. The very incomplete condition of most pots, and the reduction of the major part of P61 and P65 into very small sherds, together with the evidence from the burnt residues and scorching might, in another context, allow an interpretation of the assemblage as redeposited domestic rubbish; however, Moffat's analyses (below) seem to indicate a more dangerous recipe, and Barclay & Richards (below), in their discussions of the context of Grooved Ware deposition, in particular in the sealing of Structure 2, would suggest a less prosaic origin for all the Grooved Ware deposits.

Although the decoration may be elaborate and was generally extensive (and there is no firm evidence for undecorated pots), the actual decorative techniques employed were limited. There are incised lines, which are generally firm, fairly narrow grooves, but varying to fine lines as on P77, light scoring as on P65, or to wide grooves as on P49 (illus 27), P55 or P71. Incised lines alone were used on the small dishes P41 and P42, but generally cordons formed the more important part of the design. These were so neatly worked that it is often difficult to see whether they have been raised from the surface of the pot or have been applied, the latter probably being the usual method and certainly the case where the relief is high. It is quite common for the cordons to be edged by grooves which served both to define the cordon and to firm the edges of an applied strip, as on P51, P52 and P58. Some cordons have been worked into wavy lines in relief by impressions made alternately from each side. This has sometimes been done very carefully to produce crisp regular waves, notably on P44, P49 and P54, but on some pots the decoration was less careful and on other examples the cordon received only two rough rows of stabs, as on P48 and P58. Several pots have cordons bearing a single row of neat impressions, as on P46 and P56. The tool making the impressions generally had a plain point, but P43 is distinguished by the use of a hollow-ended tool, and P61 by the use of a rough-ended tool. One of the large pots, P69, has a cordon bearing finger-tip impressions. Some of the larger pots also bear spaced deep depressions, in some cases almost penetrating the wall. On P63 and probably on P76 they have been made by a finger-tip; on P69 and P75 they were made by a thin round-section tool penetrating very deeply. A line of impressed cord appears only once, inside the rim of P51.

The smallest pot, P41, bears a simple incised design, two lines below the rim, triple lines above the base, and a single row of triple-line chevrons between, with one repeat in the circuit. A similar incised design with several rows of chevrons, or possibly two zones of chevrons, was used on the slightly larger P42. Insufficient remains of P53 to demonstrate the whole design, but it appears to have been in two zones. There was a cordon with waves in relief below the rim, another about half way

down, and another forming wide chevrons at the base. The spaces between them were filled with paired grooves, either horizontal or forming rather disorganized chevrons. What little remains of P45 suggests a similar design.

Several of the relatively small pots have all-over decoration based on slanting cordons joining to form elongated lozenges and triangles. On pots P48 and P51 the design consists of a straight cordon below the rim and another above the base, with slanting cordons between, each cordon joined alternately to that above and below, there being two repetitions of the pattern in the circuit. P48 has 10 slanting cordons forming alternately four and five recessed lozenges, and P51 has eight slanting cordons. Laying out the design was not easy, especially on a pot with splayed sides; on P51 the potter's error in joining the lowest pair of cordons can be seen on the illustration. The fragmentary P47, probably about the same size as P48, had a similar design but carried out with double cordons. Double cordons were also used on the larger P52 and the even larger P59 but these designs which involved recessed lozenges cannot be reconstructed.

The decoration of P54, a variant of the design described, has been carefully worked out and executed with four repeats in the circuit. Instead of slanting, the cordons (defined by deep grooves) are horizontal, and are linked alternately to those above and below by applied vertical ribs. Between the ribs the cordons are alternately plain and wavy. A similar, although less carefully executed, mixture of plain and wavy cordons can be seen on P48, and on a sherd of pot P56 which is further allied with P54 by the use of a vertical link between paired cordons. The few sherds of P44 include converging cordons, some wavy, suggesting a design similar to that of P48. The single sherd P50 bears paired cordons, both plain and wavy. Fragments were found of five other pots (P43, P46, P49, P55, P62) all bearing wavy cordons and slanting lines and evidently decorated in the general style described above; in particular P43 is very like P44.

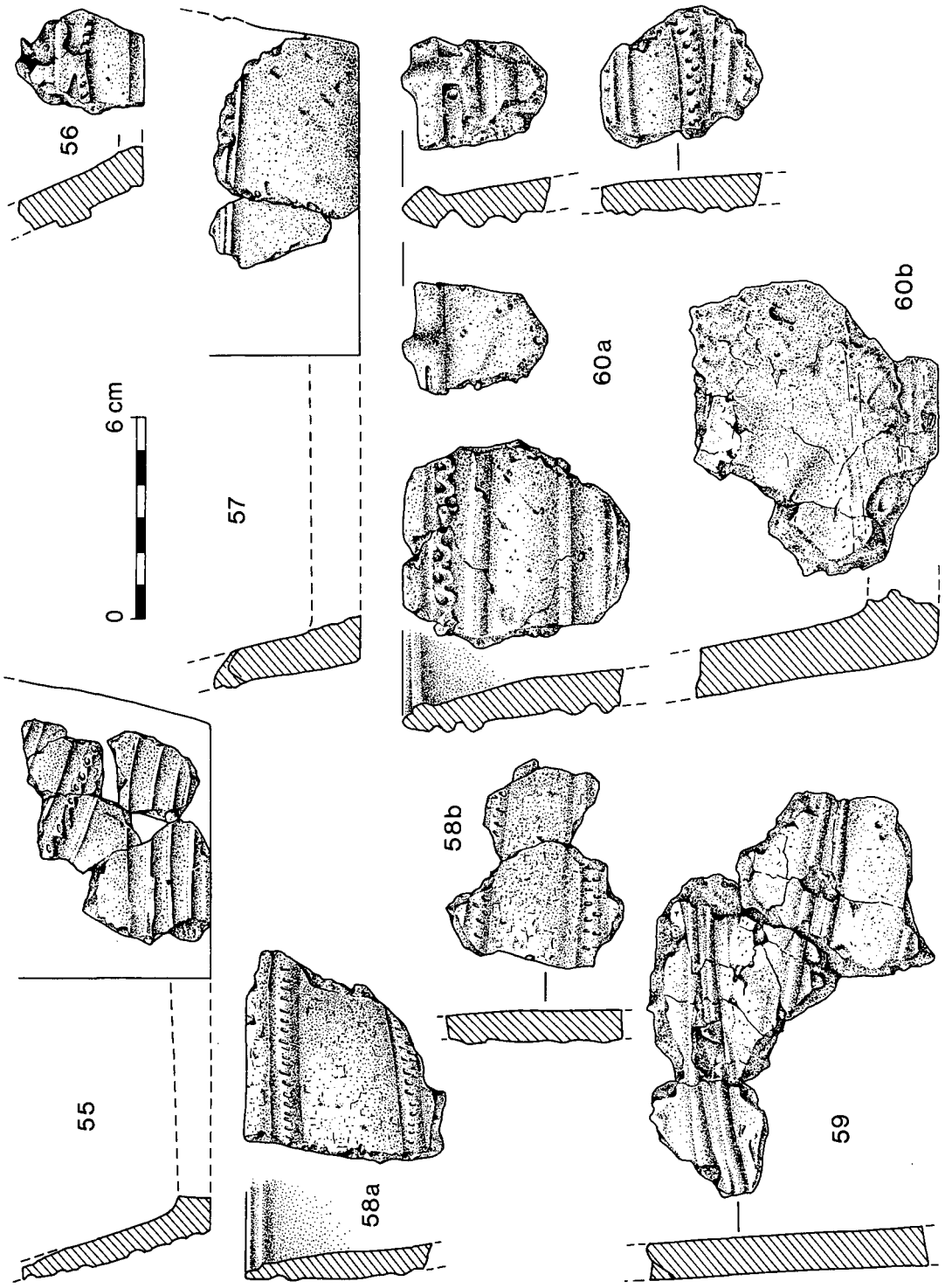
Sherds from two pots of medium size (P58, P60) and one rather larger (P61) also have double cordons, some wavy or stabbed, some of them slanting, which create a more open decoration but evidently on the same themes. There is the probability, however, that the lower parts of pots P60 and P61 were undecorated. The lower part of the smaller P57 was certainly undecorated and there were evidently cordons on the upper part.

Of the 22 pots considered, comprising all the small and medium-sized vessels and one (P61) of larger diameter, only two are without cordon decoration (being incised), and of the cordoned pots only two do not have wavy relief or stabbed cordons. Except for the three pots at the larger end of the size range (P47, P60, P61) the decoration covers the whole pot.

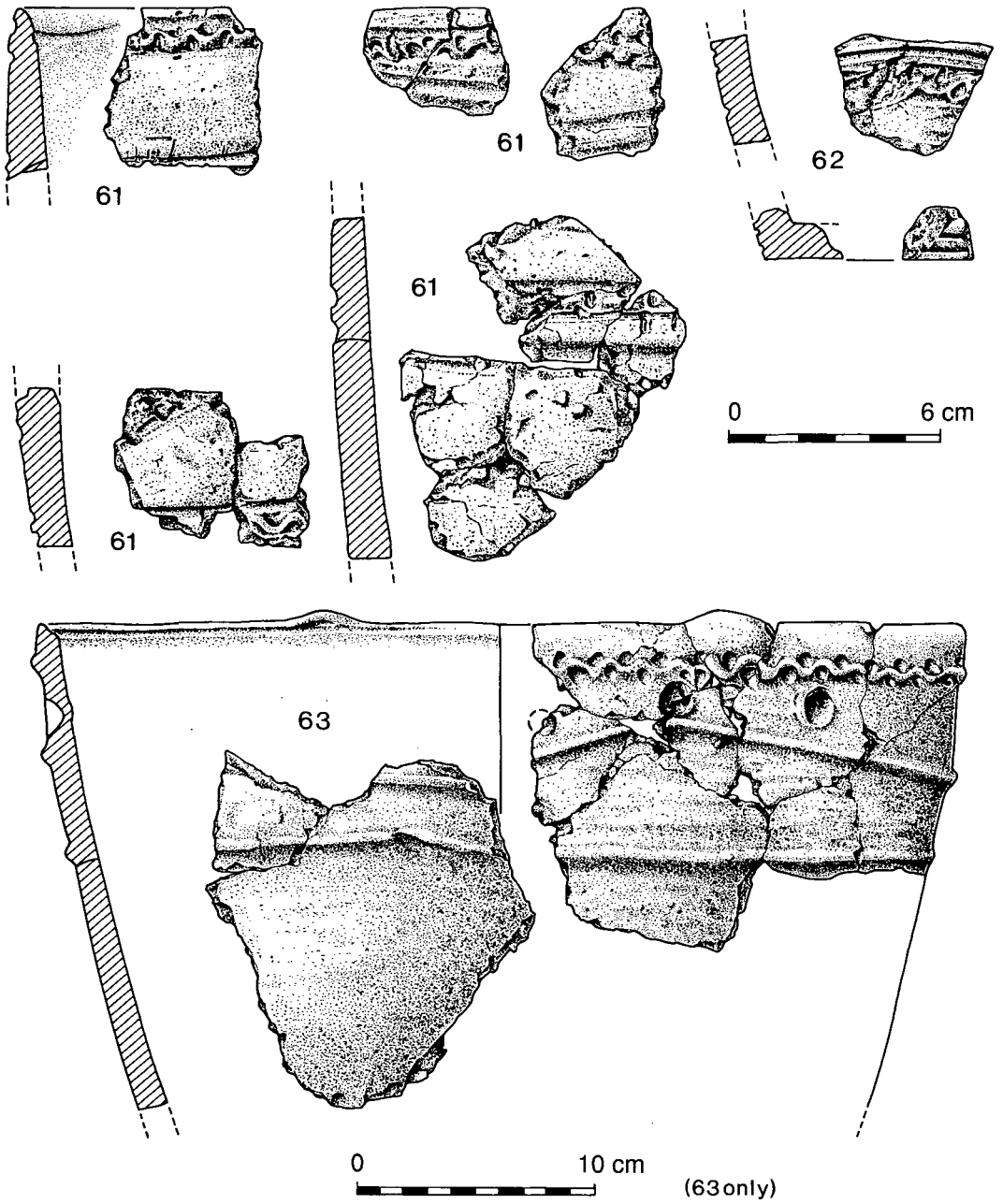
The absence of decoration on the lower parts is a feature of the larger pots, those with diameters of 300 mm or more. On these the whole treatment is more restrained, with horizontal decoration of grooves or cordons below the rim, and scored lattice and depressions the only identified decoration on the rest of the body. Yet links with the smaller pots are obvious: four pots (P63, P69, P74, P80) have wavy or stabbed cordons (and P74 is one of the largest pots in the assemblage), P63 has a chevron cordon, and the treatment of the rims and lugs is common to all sizes of pots. The differences are the appearance of lattice and the horizontal rows of depressions. The latter may be below the rim (P63, P65, P69, P71 and probably P76), on the body (P75), and/or immediately above the base (P71, P75). There are about 17 large pots but unfortunately relatively little remains of most of them, and P65 alone gives a complete profile. The heavy decoration of P69 with its alternately impressed and plain heavy cordons is unusual yet in a sense echoes the treatment of cordons on the small pots.

Except for P68 and perhaps a few of the other larger pots, all the rims are decorated inside, sometimes only by a single or double incised line or groove (exceptionally on P51 by an impressed cord) running just below the lip. Some rims are simply rounded, but others have been bevelled, and in some cases the lower edge of the bevel has been emphasised by paring away the wall below. P64 has light nicks along the rim edge. A few of the larger pots have rims thickened on the inside (P69, P70, P71), and one has a slight cordon (P76a). P70 has a groove along the wide flat upper surface.

Nine pots have applied lugs which project above the rim edge; this is another feature which unifies the assemblage as the lugs appear on small fine pots and on some of the heaviest. Unfortunately



ILLUS 29 Grooved Ware: vessels P55–P60



ILLUS 30 Grooved Ware: vessels P61–P63

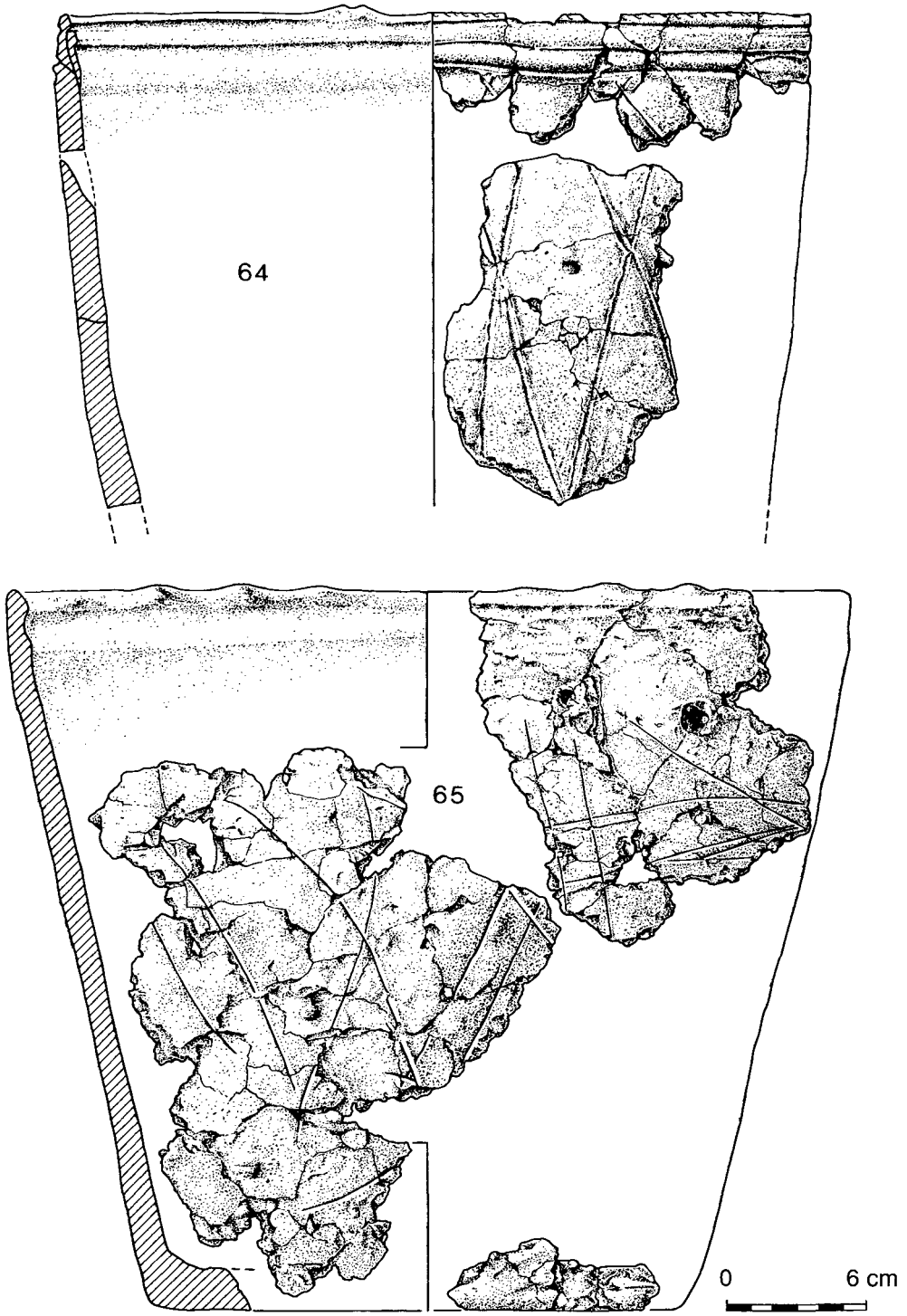
the arrangement of the lugs is not known. On the most complete pot (P54) the lugs have been in close-set pairs (illus 28) spaced into four groups, probably with one and possibly all the groups having the pairs grouped in pairs. On P65 the lugs, no more than low lumps, are in pairs, but on other pots there is no indication of the arrangement except that they are widely spaced. In all but one case (P63) the lugs extend across the internal rim bevel as a rib; on P64 the lug was applied as a large pellet with a deep vertical impression. Sherd P72 bears a scar on the outer surface of the rim where the lug has been extended as a boss and has subsequently broken away. Directly below the lugs on P51 and P60 the uppermost external groove below the rim has been interrupted, clearly intentionally.

The Grooved Ware recovered in 1977–8 during the excavation of the nearby henge at Balfarg (given *BH P* numbers in the following text to differentiate it from the BRS material) had to be considered almost in isolation as the nearest Grooved Ware assemblages of any size were in Orkney and in Yorkshire (Henshall 1981, 128–33, 136–9). The extremely fragmentary condition of the sherds from the henge further restricted assessment, although the number of pots represented was only a little less than from the BRS sites. The two assemblages have in common similar fabrics and also, in general terms, similar forms and range of decorative techniques, both characteristic of Grooved Ware as a whole. In some respects there are similarities in the decoration and occasionally there are specific links. The circumstances of the various deposits make it unlikely that sherds were transferred from one area to another. The differences are such that it is clear the two assemblages are distinct.

The range of pot size was greater at Balfarg Riding School (BRS) than at Balfarg henge (BH). The maximum sizes are unknown but a comparison of the maximum sherd thickness is indicative: 25 mm at BRS with altogether coarser fabrics, and 13 mm at the henge, implying that the largest BRS pots were greatly in excess of the largest rim diameter of 355 mm recorded at the henge. Several of the very fragmentary BRS pots appear to have been immense. Some of these large pots bear impressions of the baskets and mats used during their manufacture. One base sherd from the henge bears a mat impression, but as there is a similar sherd from Rinyo, Orkney, it may be that such aids were widespread and the evidence was usually pared away on pots of manageable size. The smallest BRS pots are slightly smaller than any from the henge, and it is unlikely that any of the pots from the henge were of the unusually shallow proportions found at least twice at BRS.

The rim forms and internal decoration of the pottery from the two sites are in general not dissimilar, but whereas at BRS only two relatively large pots have no decoration, at the henge a number of small pots are undecorated. Also at the henge the internal decoration may be somewhat more elaborate, one pot having a relief wavy line (a technique only used externally at BRS), and four pots having applied cordons; besides single incised lines there is also multiple grooving at the henge, and an absence of upstanding lugs. Among the large BRS pots there are occasional thickened rims and in one case nicked decoration, neither found among the pots from the henge.

In contrast with the BRS site, one pot from the henge was certainly undecorated externally, and this was probably also true of a further seven or more. Another merely had three lines incised below the rim. The actual techniques of decoration at the two sites only differ in the presence at the henge of a few sherds of finger-nail rustication, and there is a specific link in the single appearance at each of string-impressions, in both cases inside the rim. There is, however, a marked contrast in the way these techniques were used, particularly between the elaborate tight all-over linear plastic treatment on the small and medium-sized pots from BRS and the restrained effect produced by incision and light jabs on the pots from the henge. At the BRS site the chevrons and lozenges were exaggeratedly elongated, and



ILLUS 31 Grooved Ware: vessels P64–P65

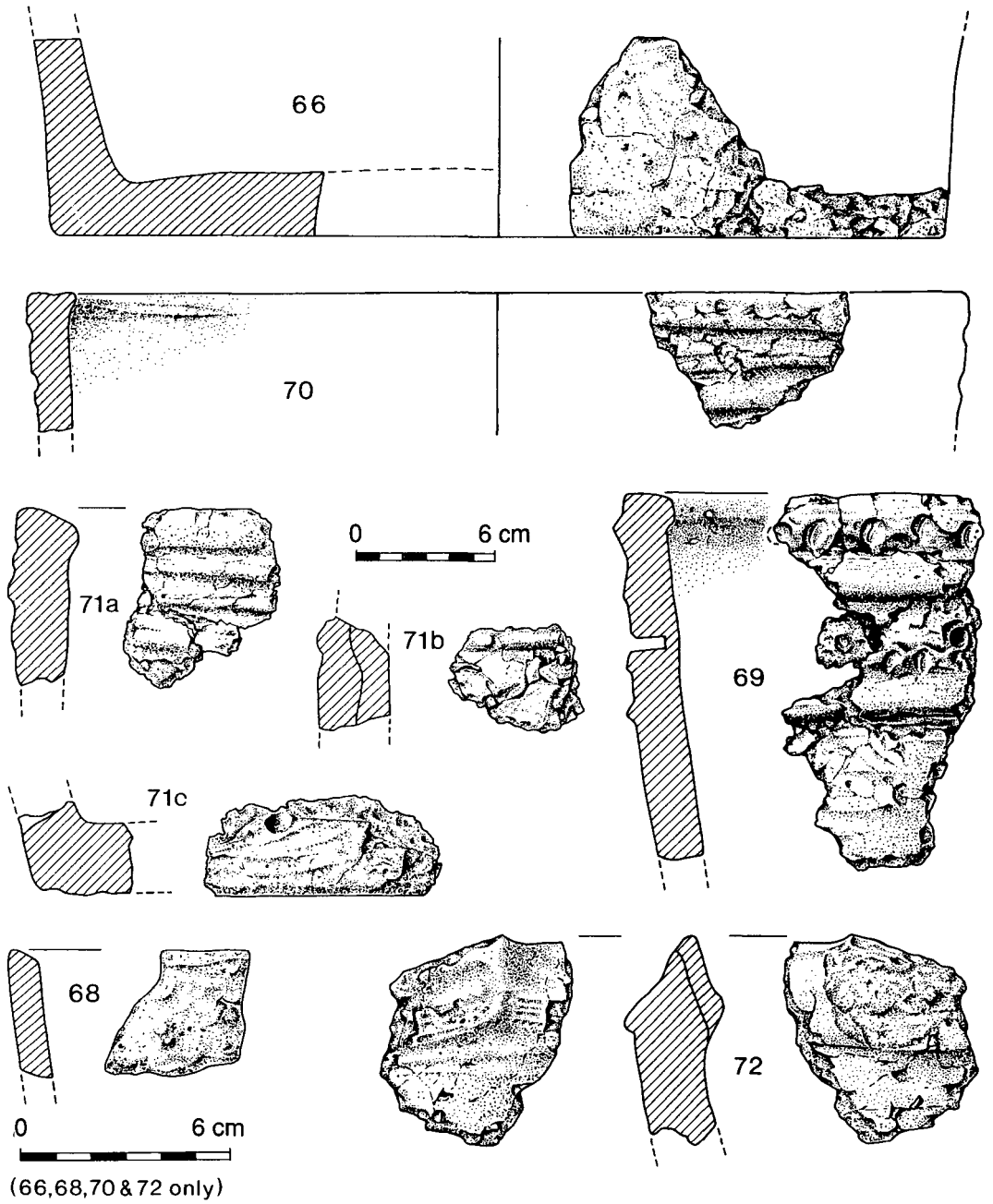
there was no infilling of geometric spaces by light jabs, nor incised hatching nor herringbone, nor undecorated wide cordons. Wavy lines in relief, so extensively used at BRS, appeared on only one pot at the henge.

As far as exterior decoration goes, it is the large BRS pots with their simpler treatment and the tendency for the decoration on them to be concentrated in the upper parts which are closer to the henge assemblage with its bold use of spaced cordons and horizontal grooved lines below the rim. The chevron cordons of BRS P63 can be compared with henge *BH P18* and *BH P19*. More notable still is the similarity of the curious BRS P69 with *BH P16*, both having heavy finger-impressed horizontal cordons and deep narrow round-section impressions: in one almost perforating the thick wall, in the other doing so. Very deep impressions in roughly horizontal rows occur on several other large BRS pots, and there is a row of perforations on another pot from the henge, *BH P40*.

The Balfarg henge pottery, although a single deposit, appeared to incorporate elements from each of the styles of Grooved Ware which have been distinguished by Wainwright & Longworth in a study which was based unavoidably on material from the south of England (1971, 236–43). It was unsatisfactory but not surprising to infer that the henge assemblage represented a local sub-style in south-east Scotland, a region which to date has produced relatively little Grooved Ware and where the largest group of sherds was inadequate for attempting a definition.

The situation regarding the BRS assemblage is clearer. Wainwright & Longworth (1971) identified a number of sub-styles of Grooved Ware; the difficulties in reconciling the subdivisions with the appearance of different sub-styles on the same site were explored by David V Clarke in an unpublished paper. More recently, Richards & Thomas (1984) have taken the argument further in their consideration of the hierarchy of decoration on Grooved Ware, and Richards has undertaken a similar examination of the Balfarg material (below). While the classification proposed by Wainwright and Longworth may not have the significance they suggested, their sub-styles are still useful as a shorthand for the description of Grooved Ware decoration and it is in this way that the names of the sub-styles are used here.

Much of the pottery, especially the smaller vessels, is unmistakably of the 'Woodlands style' (Wainwright & Longworth 1971, 238–40; sites listed with references 268–306), and the larger vessels have features of this style, although in our present state of ignorance the pots themselves appear idiosyncratic. The outstanding characteristic of the 'Woodlands style' is all-over zoneless decoration by neat cordons either applied or raised from the surface, the cordons being either plain or decorated with jabs or incisions, and arranged either horizontally or in elongated lozenges. Open bowls with simple rims are a normal form, and they may be small and delicate. BRS pots P47, P48, P51, P52, P54, P59, are of precisely this type. Three distinctive features which are widespread but relatively uncommon in the 'Woodlands style' appear at the BRS sites: vertical applied 'ribs' or 'lugs' linking horizontal cordons, relief wavy lines on cordons, and applied pellets or 'upstanding lugs' on the rim edges. The close correspondence between some of the BRS pots and some of the geographically remote southern English pots is striking. For instance the small collection of sherds from Woodlands itself, near Woodhenge in Wiltshire, included part of a shallow bowl with horizontal cordons alternately nicked and plain (as on BRS pots P48, P54), linked by applied vertical ribs (as on P54, P56), and with applied ribs rising above the rim reminiscent of the upstanding lugs at Balfarg. There were also sherds of a second pot with horizontal and slanting cordons, some decorated with waves in relief and some plain. When they were



ILLUS 32 Grooved Ware: vessels P66, P68–P72

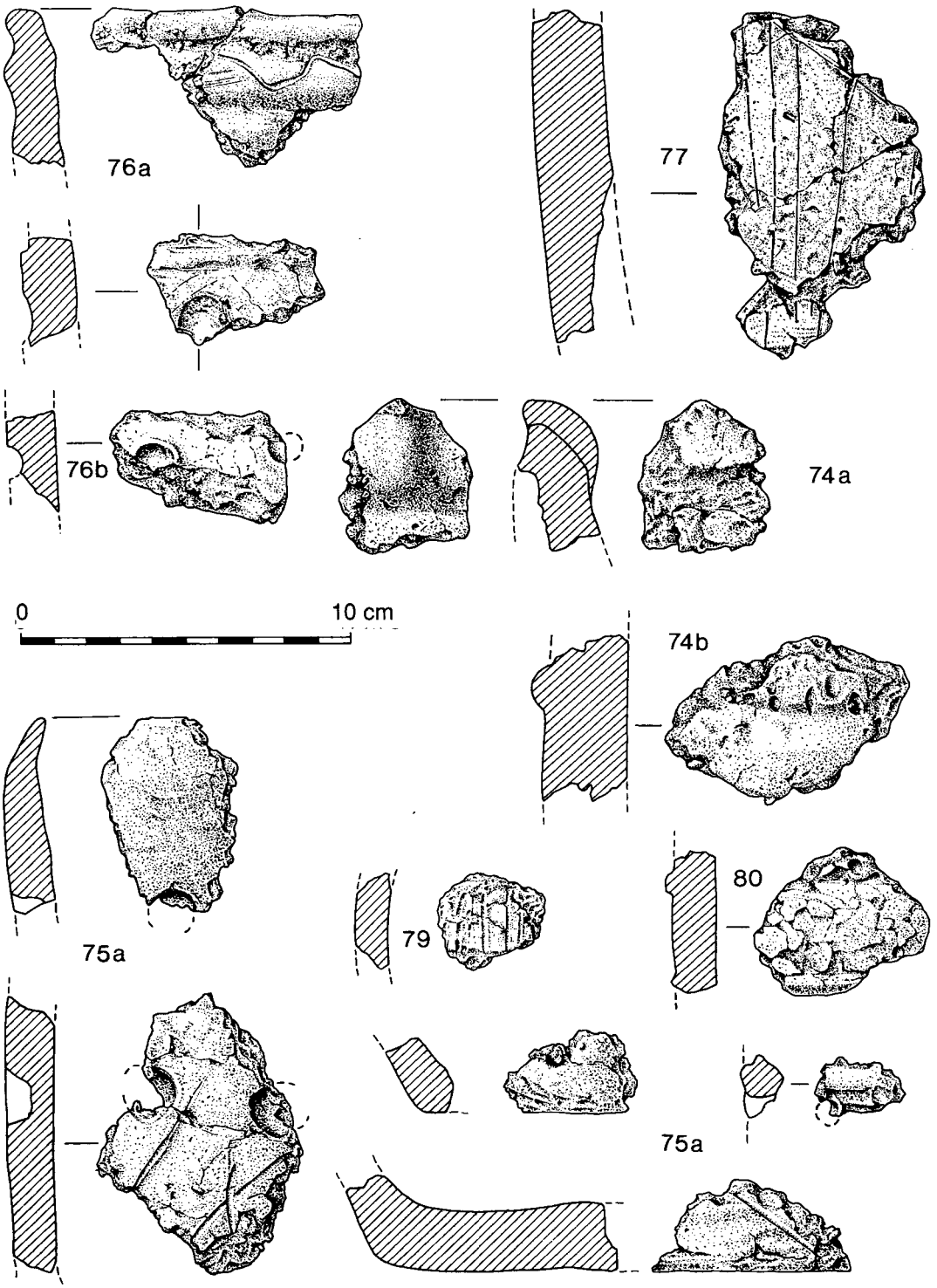
published, comparison was made with sherds from Honington, Suffolk, some of which were reconstructed as two larger bowls with plain cordons similar in appearance to P51, but notable for the paired upstanding lugs very similar to those on pot P54.

The 'Woodlands style' is widespread although less than prolific in southern and south-eastern England. Our knowledge of Grooved Ware in the north of England was greatly increased by Manby (1974), and it is evident that the 'Woodlands style' is present at a number of sites extending almost to the Scottish border (*op cit*, list of sites 3–10, discussion 79; McInnes 1977, 354–5). A few examples are known of each of the distinctive features already mentioned. Because Grooved Ware was first isolated and later extensively studied in the south of Britain (with an outpost in Orkney), and subsequently recognized in small quantities widespread in northern England, there is a tendency to assume the pottery style spread northward from an inception-area in the south: this assumption should be resisted, as the limited chronological evidence indicates the reverse may well be the case.

In Scotland only a few sherds in the 'Woodlands style' have been recognized, scattered from Rinyo in Orkney, to Callanish in Lewis (Ashmore in prep), Tentsmuir in Fife (Longworth 1967, 75–8), Knappers in Dunbartonshire (Ritchie & Adamson 1981, 187–8), Townhead in Bute (see below) and Luce Sands in Wigtownshire (McInnes 1964, 47–9, 66–8). The distinctive features of the BRS pots are very rare or absent; the wavy line in relief is known at Tentsmuir, Callanish and Balfarg henge although careless jabbed versions are known elsewhere; alternating plain and decorated cordons at Tentsmuir and Knappers; upstanding rim lugs, perhaps of the type under discussion, at Kirkburn in Dumfriesshire on an undecorated rim (Cormack 1963, 121, 128), and from a recently disturbed part of the fill of the pit dug for a cist at Dornoch, Sutherland (Ashmore 1989, 64, 68, 70, illus 6a, 3); linking vertical ribs are unknown.

Other decorative traits are present at the BRS sites besides the features which relate the assemblage so clearly to the 'Woodlands style'. The tiny bowls P41 and P42 bear triple incised chevrons similar to the decoration of a distinctive but scattered group of pots discussed by Ritchie (1976, 20–1). Yet grooved decoration without cordons is an element in the 'Woodlands style' and the motif of lozenges or triangles is characteristic. Support for the inclusion of some pots of this type comes from Tentsmuir, Knappers and Townhead where bowls with triple incised elongated lozenges were found with unmistakably 'Woodlands style' sherds. (The ladder pattern, listed by Wainwright & Longworth as one of the definitive features of the 'Woodlands style', was omitted from the drawing of the Townhead sherd illustrated by Mackay 1950, 181, fig 1, 4.) So it seems that this precise form of decoration may be common to both the 'Woodlands' and 'Rinyo styles', and a further link might be seen in the use of pellets on the rim edge, single or paired in the former style, multiple in the latter style. P53 at BRS, and possibly one or two more, appears to be decorated in two zones divided by horizontal lines, and another one or two pots were undecorated near the base. So much of the 'Woodlands style' pottery is fragmentary that the frequency and significance of these apparent aberrations cannot be assessed at present, but it may be noted that a group of 'Woodlands style' sherds at Flamborough, Yorkshire, included two large pots, one with the lower part undecorated (Manby 1974, 72–4).

Large pots are certainly a component of other Grooved Ware assemblages, in Scotland notably in Orkney (eg Clarke 1976, figs 13.2, 13.3) and at the Balfarg henge. Little comment can be offered on the large BRS pots except to note the relatively restrained decoration and close affinity with the smaller pots. The rows of bold deep depressions introduce a new element for which it is difficult to find meaningful parallels other than those tentatively



ILLUS 33 Grooved Ware: vessels P74–P77; P79; P80

suggested when considering *BH P16* (Henshall 1981, 132) which closely resembles the pot BRS P69. It is tempting, too, to suggest a tenuous connection with that small part of the assemblage from Knap of Howar, Orkney, which has decoration in the Grooved Ware manner and includes rows of deep depressions, and perforations (Henshall 1983, 70–1, 73).

While it is appropriate for henge monuments and allied structures to be associated with Grooved Ware, the 'Woodlands style' in England and Scotland comes almost exclusively from pits, generally 'domestic', although occasionally interpreted as having a ritual purpose, or from surface scatters or redeposited material. At Knappers and Callanish there is, however, the possibility of a connection with a ritual monument. At Balfarg Riding School the pots which may be attributed to the 'Woodlands style' were found in the ditch of the enclosure (eg P47), in association with the timber structures (eg P48), in the isolated pits (eg P51) or in more than one context (eg P52), as is shown in illus 26.

2.2.6 Basketry and Textile Impressions on the Grooved Ware

V J McLellan

In the course of cleaning the Neolithic pottery from BRS it was observed that a small number of sherds from five different pots bore faint impressions, possibly indicating the way in which some of the more substantial vessels were constructed. The vessels with such traces were P60c, P61, P69, P70 and P71b.

The impressions seem to have been produced by row upon row of unevenly twisted twine, generally 4–5 mm thick. They occur both on the lower body and on the basal sherds of large vessels with relatively thin walls. The impressions are so indistinct as to suggest they were not intended as decoration as were the cord-impressions on Beakers. They could, however, result from the pot having been supported in a basket while the clay was plastic. There is no evidence to suggest whether the vessels had been made in a basket and then left to dry to a leather-hard condition, shrinking enough to remove the pot from the mould/support, or whether the vessels were fired in the basket. The patchy and sometimes smeared appearance of the impressions suggests that the vessel would have been loose within the basket. Also, the basal impression is eccentric and although the markings appear to be restricted to the lower part of the vessels, they do not extend to the bottom of the wall – again suggesting they did not fit tightly.

It is suggested that the vessels were contained in shallow baskets which allowed the potter to handle with relative ease these relatively thin-walled, substantial vessels while in a plastic state.

The baskets appear to have been constructed from unknown lengths of unevenly twisted twine tightly woven together. There is some evidence to suggest that variation in weaving style did occur on one basket, that used for vessel P69.

2.2.7 An Assessment of the Residues on the Grooved Ware

B Moffat

Samples of organic residues were taken, mainly from two Grooved Ware vessels (P63 and P64 – in the larger size of Grooved Ware vessel at BRS). There is burned material of three broad yet distinct types. Two types, 'amorphous and burned' (ABM) and 'amorphous,

granular and burned' (AGM), are present in abundance in all the samples. The third type has been called burned cereal mash (BCM) and comprises the range of processed and prepared cereal products. Both barley and oats have been distinguished from part grains, but in the absence of entire, carbonized grain – the grain having been thoroughly ground down – taxonomic identification is inappropriate.

The macroremains give plain indications of a cereal-based preparation, but the pollen records – from 15 of the 31 samples – provide much additional detail. Pollen cannot but be carried along with admixed source plant, and it is likely to persist in a readily identifiable state long after the plant itself has been processed (cut up, ground, cooked and mixed up) so as to be utterly unrecognizable. Minute droplets of beeswax (1–2 mm across) and solidified resin (0.5–1 mm across) were also noted. Meadowsweet is indicated by both pollen and macroplant remains, and the clumps in one related sample, 14, indicate that a flowerhead was added. This plant has a widespread and common application as a flavouring (flowers) and as a potherb (young leaves). There are extremely high values for fat hen and cabbage/mustards, in sharp contrast with the 'broad spectrum – low values' for almost all other herbs, and these values suggest that potherbs may be in use. Cultivated flax, an exceptionally low producer of pollen, is a plainly indicated ingredient – perhaps for its oil. The single record of nightshade – family pollen, a rarity (containing plants which without exception contain powerful and dangerous alkaloids), is puzzling. Coupled with pollen of the *Solanaceae* (hemlock family, but not always toxic plants) there seems to have been either an elaborate use of potent plants or a dangerous or careless misuse of them. What of the original preparation and its consistency? Judging from the heterogeneous and coarse texture of most deposits, it seems that the mix is normally coarse and crude. A consistency of a coarse porridge with added pottage (potherbs) and flavourings, is indicated.

A deposit encrusted on the outer surface of one sherd of P63 was examined in more detail. The size and the very fact of the pollen count of *Solanaceae* in this sample is strikingly anomalous in Fife (at a latitude of around 56°N). The Balfarg *Solanaceae* pollen was found to consist wholly of black henbane (*Hyoscyamus niger*). The seeds are extremely robust and resilient and the breaks showed mechanical rending. Pollen and seed fragments were fairly well intermixed suggesting an incomplete process of homogenization. The small cache of seeds is of black henbane alone. Setting aside the pollen adjudged to be 'environmental pollen', the remaining pollen may have some place in ethnobotany at Balfarg: hemlock family (not hemlock, but one or more of the 22 genera of the hemlock family/*Umbelliferae* native to Fife); meadowsweet; fat hen; cultivated flax.

The *Solanaceae* are represented in northern Britain by only three species of significance, according to the *Atlas of the British Flora* (Perring & Walters 1982). In the 26 grid-squares that cover Fife, bittersweet or woody nightshade has been recorded in five since 1930 (nil before); deadly nightshade in nil (two before) and black henbane in one (one before). Native representatives of the family are few and most sparsely and inconstantly distributed today. The *Solanaceae* may be equated with a range of complex and potent phytochemical alkaloids. Alkaloids have, typically, 'a marked physiological action on man or other animals' (Trease & Evans 1978, 543). Most *Solanaceae* act upon the human autonomic nervous system, as they antagonize acetylcholine. Additionally the tropane alkaloids that they contain act as a central depressant of motor function. Consequently, in manuals of poisonous plants, they are classified as 'poisonous', strictly to be avoided. Black henbane seeds, for instance, contain 0.06–0.10% of alkaloids (hyoscyamine with a little hyoscine and atropine) according to Trease & Evans (1978). Historically, the main purpose for the use of black

henbane (where this may be ascertained) has been as a 'narcotic medicine' – to procure sleep and to allay pains – for which it may be taken internally or externally (Grieve 1980). A broadly similar pharmacological assay has been made for the other native *Solanaceae*.

The recent ethnobotanic history of the *Solanaceae*, notably in the medieval and post-medieval periods, is complex and intriguing. Webster (1978) expresses a widely held opinion of black henbane: 'Introduced in north Scotland. Rare, usually near old Kirks and Abbeys, and occasionally as a weed in gardens and tips. All parts poisonous and narcotic ....'. The Floras that cover Fife are broadly on the same lines. Botanists have noted black henbane on islands off the Fife coast where there were once monasteries (Inchcolm, the Isle of May and the Bass Rock), and also on the mainland at Culross Abbey (Anon 1908; 1910). It is not possible at present to determine the nearest source of black henbane in the third millennium BC uncal, but the possibility of long-distance movement of rare plant resources must be borne in mind.

The progressive symptoms of henbane poisoning are blurred vision, dry mouth, confusion, dilated pupils and rapid heartbeat, and possibly dizziness, nausea, headache, euphoria, hallucinations; the possible use of henbane deliberately to induce these symptoms is considered below (p 185). In the Middle Ages henbane preparations were used for medicinal purposes and this possible interpretation for the Balfarg material must also be borne in mind.

2.3 LATER NEOLITHIC AND EARLIER BRONZE AGE ACTIVITY

G J Barclay, C J Russell-White & P N Tavener

2.3.1 Ring-ditch, Ring-cairn and Cairn Sequence

The most complex group of stratified features was discovered at the end of the third season, and excavated in the fourth and fifth seasons, to the west of the BRS enclosure (illus 34, 35 & 37). The group comprised: pits, post-holes and one burial, penetrating the old land surface and/or the subsoil, some of which lie within –

(a) a ring-ditch (illus 34), lying under –

(b) a complex double ring-cairn (A – i being the outer ring-cairn, ii being the inner one) (illus 40), probably covered by an earthen barrow, adjacent to, and probably earlier than –

(c) a complex cairn (B) (illus 40), probably also covered by an earthen barrow, and associated with –

(d) at least four burials and probably –

(e) a line of large post-holes.

The soil cut by all these features may possibly have been cultivated (Jordan, below).

The upper surfaces of ring-cairn A and cairn B had been disturbed by modern ploughing, leading to difficulties in establishing relationships between pits and the cairns. In addition, the greater part of cairn B had been removed in the past, leaving a number of

possible features uncovered, with no clue to how they related to that cairn. The only clear indications of when the ring-ditch/ring-cairn/cairn complex was built and in use are provided by two relationships:

– the ring-ditch cuts timber Structure 1 (illus 18).
– cairn B is cut by the pit of a Food Vessel-accompanied burial (Burial A–Cist A).

The complex therefore would seem to date from after the mid-third millennium BC uncal and before the mid-second millennium BC uncal, when Food Vessel burials were current.

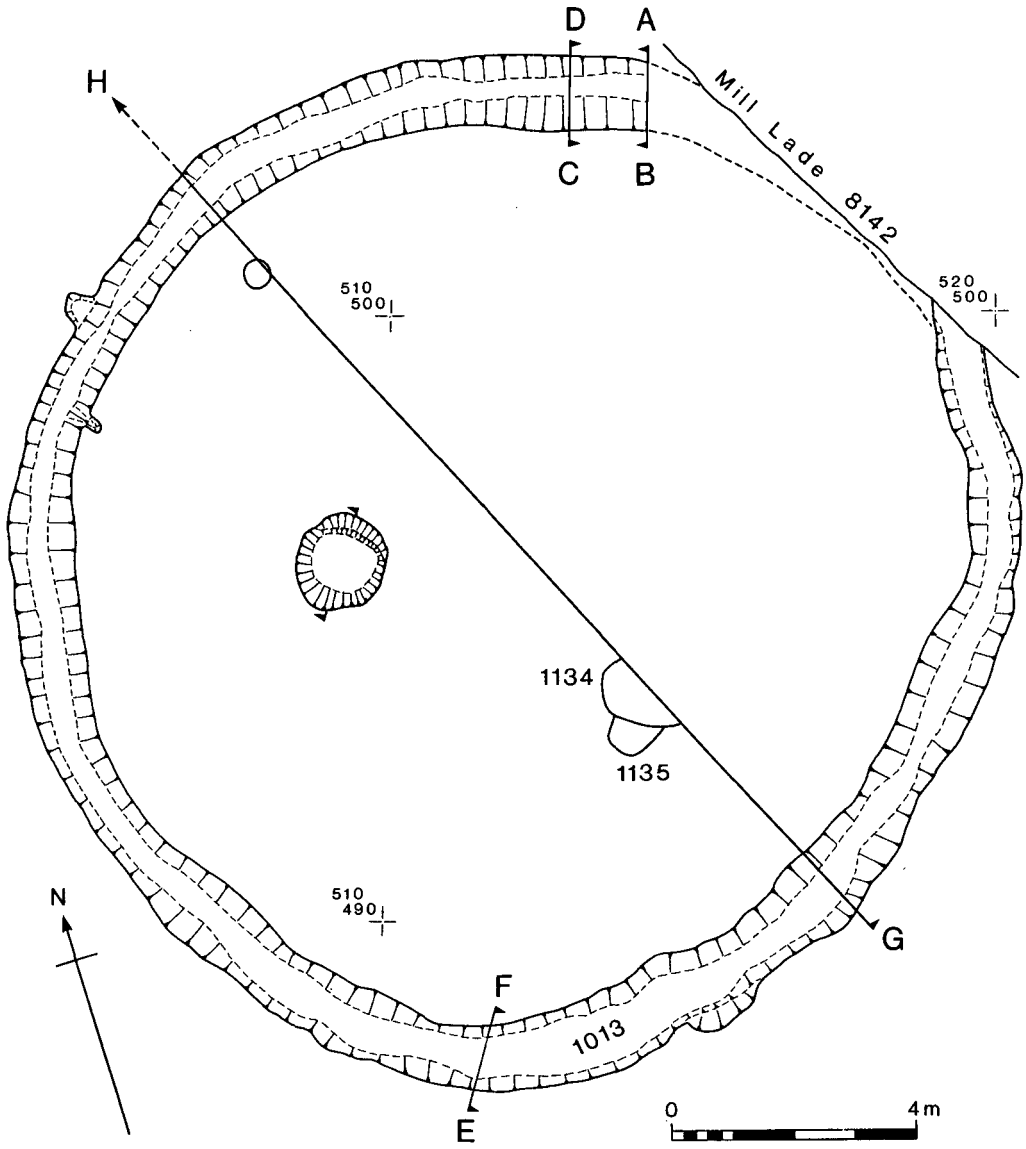
The pottery found in the area offers no great assistance in understanding the chronology of the group; most of the material was found in buried topsoil or in other contexts where it could be secondary. There are possible Earlier Neolithic (Cowie's *Group 1*) sherds, and Grooved Ware and Beaker sherds were also found, but in small numbers, together with a single Food Vessel sherd. Their contexts are none too secure because of the smallness of the sherds and the episodes of disturbance suffered by the cairns. The largest group of material is of Later Neolithic sherds; virtually all the sherds of Cowie's *Group 3* were found in the buried old land surface and in other soils associated with the cairns. This group of pottery falls into the category of what have been described as the Scottish Impressed Wares (McInnes 1969) or more loosely, Decorated Styles (Kinnes 1985). While neither of those terms is wholly satisfactory, the term Impressed Ware has been retained here to distinguish this category from the Grooved Ware on the site. It is characterized principally by the use of impressed or jabbed decorative techniques, but is also distinguished from the other Neolithic pottery on the site partly on the grounds of its fabric. It is possible that this material provides the best clue to the date of construction of the ring-ditch/ring-cairn feature. The common centre of the ring-ditch and the ring-cairns (Ai & ii) lies on an extension of the axis of timber Structure 1; the possible significance of this coincidence is discussed below.

Ring-cairn A and cairn B both survived on the summit of a ridge in an arable field, under 0.15–0.2 m of regularly cultivated ploughsoil, in a situation where soil erosion rather than soil accretion would be expected. It is argued below that only the dumping of soil over the stone element of the cairns (in the form of a barrow?) could have allowed their preservation.

The ring-ditch and features below ring-cairn A (illus 6, 34 & 35) Portions of Grooved Ware vessels P43b, P79 and P81 were recovered from the soil below the ring-cairn; sherds possibly from the same vessels were found in F8029 and F1002. Chunks and flakes of stone were also recovered from the soils buried by and around the cairn. Those illustrated (illus 66) are flakes S24, S25, and bifacial leafed points S22 and S23.

Only five non-natural features were identified below and within the area bounded by ring-cairn A:

F1113 (illus 34 & 35) A large sub-circular post-hole containing five distinct elements in the fill, the topmost of which contained many large stones. It was cut through the buried A-horizon under the cairn, near the centre of the ring-ditch. The feature was nearly circular at the top, but nearly oval lower down. The stones in the upper fill of this feature protruded all the way to the top of the old A-horizon buried by the cairn – which might indicate that cairn material had subsided into the post-hole in the terminal stages of decay (below ground). There was no indication that this post protruded through the cairn.

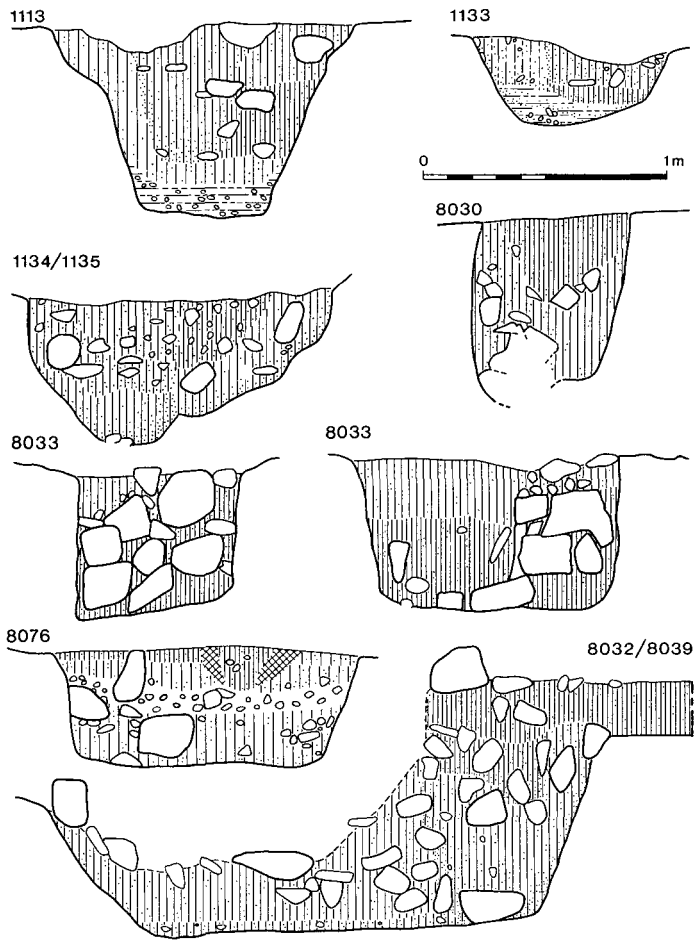


ILLUS 34 Plan of the ring-ditch. The large post-hole shown close to the centre is F1113

F1133 (illus 35) A post-hole sealed below the kerb of ring-cairn Ai. *The location of this feature on illus 34 – a small circle cut by the northern portion of section G–H – is approximate.*

F1134 (illus 35) A large, somewhat enigmatic, pit (perhaps a post-hole), which had probably been sealed by the cairn, containing fragments of cremated bone (perhaps from F1135) in its backfill.

Burial 7 (*F1135*) A small, unstructured cremation deposit in a shallow pit c 0.35 m wide (north end destroyed) and c 0.5 m deep, cut by F1134. The fill was predominantly burnt bone, mostly in the northern part of the feature in a matrix of medium brown sandy loam.



ILLUS 35 Sections of pits below cairn A and cairn B

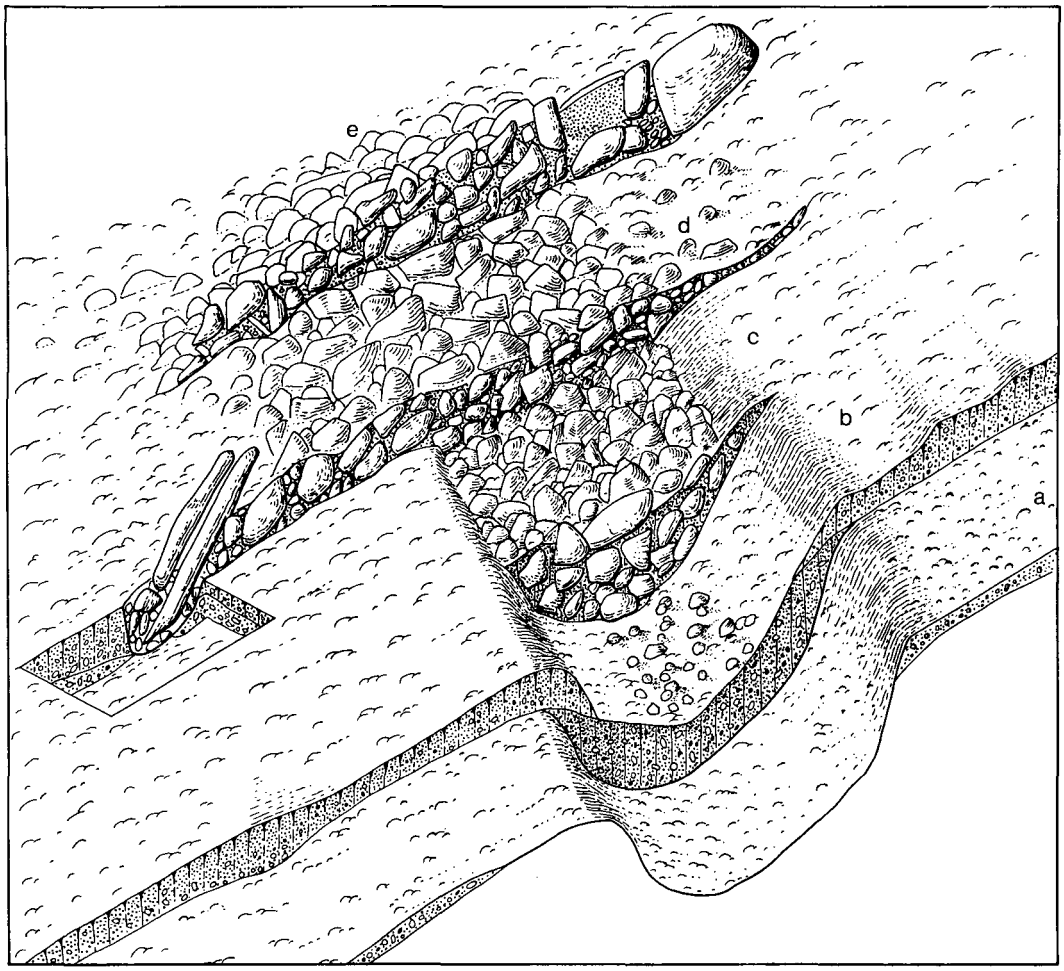
F1015 The Ring-ditch

The area enclosed by the ring-ditch measured 14.2 m in diameter (illus 34). On the north-east side the later mill lade had removed it (Russell-White, in prep) but otherwise there was no break. It varied between 0.8 m and 1.3 m across and up to 0.6 m deep. The sequence of digging and filling was as follows. Once dug, the ditch had been allowed to fill naturally to a depth of about 0.1–0.15 m (illus 37, a). On this surface in much of the circuit a scatter of quartz pebbles had been deposited (illus 37, b); more mixed stone including quartz was then deposited, apparently shortly after this (illus 37, c). The ditch was filled with stone and mounded above the level of its edge (illus 36, 37 d). There was no evidence of a break between the filling with stone of the top part of the ditch and the building of the ring-cairn, into which this stone fill was incorporated. In three sections there seemed to be the possibility that the ditch had been recut before the stone associated with the ring-cairn had been deposited; the differences in soil were, in general, slight, however. It may be that the ring-ditch was partly cleared out for some purpose prior to the deposition of the quartz and stone.

ILLUS 36 The massive upper fill of the ring-ditch exposed. In section, at the top of the photograph, the smaller stone of ring-cairn Ai covers the ring-ditch fill. The surviving fragment of cairn B lies to the right of the ring-ditch at the section line

As it survived on the south-west the ditch was quite shallow in places; the natural silting had in places reached closer to the top of the ditch before the stone element was introduced. The outer edge of ring-cairn Ai and the ring-ditch had been truncated, particularly on the west and south, probably by ploughing. The only finds were S33, a flaked quartzite cobble and six undistinguished flint flakes.

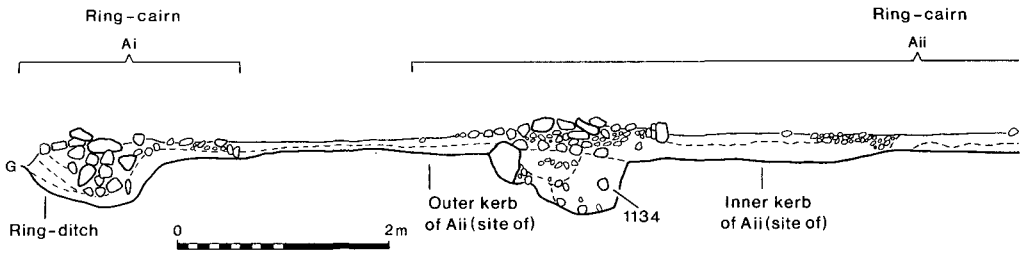
Ring-cairns Ai and Aii Cairn A had two elements: an outer ring-cairn, Ai, surrounding an inner ring-cairn, Aii (illus 39 & 40). As noted above, ring-cairn Ai seemed to 'grow out' of the ring-ditch below it (illus 37, e). It comprised a band of rounded stones measuring a



ILLUS 37 Isometric drawing of the sequence of filling of the ring-ditch and the construction of ring-cairn Ai and cairn B: showing part of NE quadrant. a = ring-ditch empty; b = ring-ditch partly filled with silt: quartz pebbles are scattered over this fill; c = ring-ditch filled with boulders to above level of sides; d = uppermost fill of ring-ditch incorporated into ring-cairn Ai; e = part of ring-cairn Ai covered with stone of cairn B

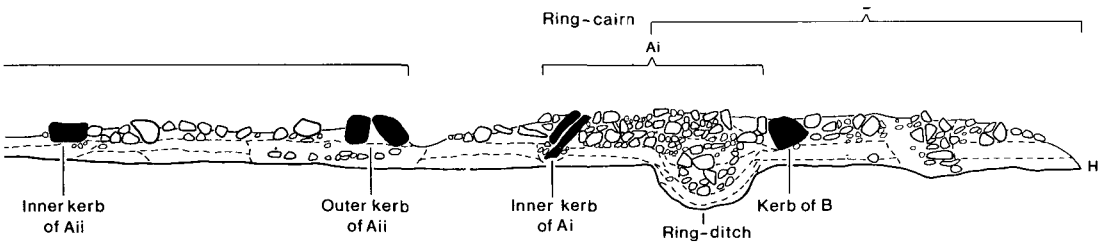
maximum of 2 m across, defined on the inner side by a carefully arranged kerb of slabs, more than one layer deep in places, angled back against the rounded stones, and set in a slot dug into the old land surface. On the outer side the band of stones had a clear edge. The cairn survived on the summit of a ridge; the ground all around it, except to the north, where cairn B stood, falls away quite sharply, perhaps largely as a result of differential plough erosion since the construction of the mound. The stones of the band appeared slightly smaller in general than the stones filling the upper part of the ring-ditch below, but, as noted above there was no real evidence of a break long enough for soil development.

The kerb of ring-cairn Ai, as it survived, was made up exclusively (bar one stone) of



ILLUS 38 Sections running south (left) to north (right) through the ring-ditch, ring-cairns Ai and Aii and the

ILLUS 39 Photograph of the ring-cairn from the south-east during excavation. Ring-cairn Ai is intact; the surviving kerb and mass of ring-cairn Aii within Ai has been removed by excavation in the north and south quadrants. The small surviving portion of cairn B is visible, attached to the north-west edge of ring-cairn Ai

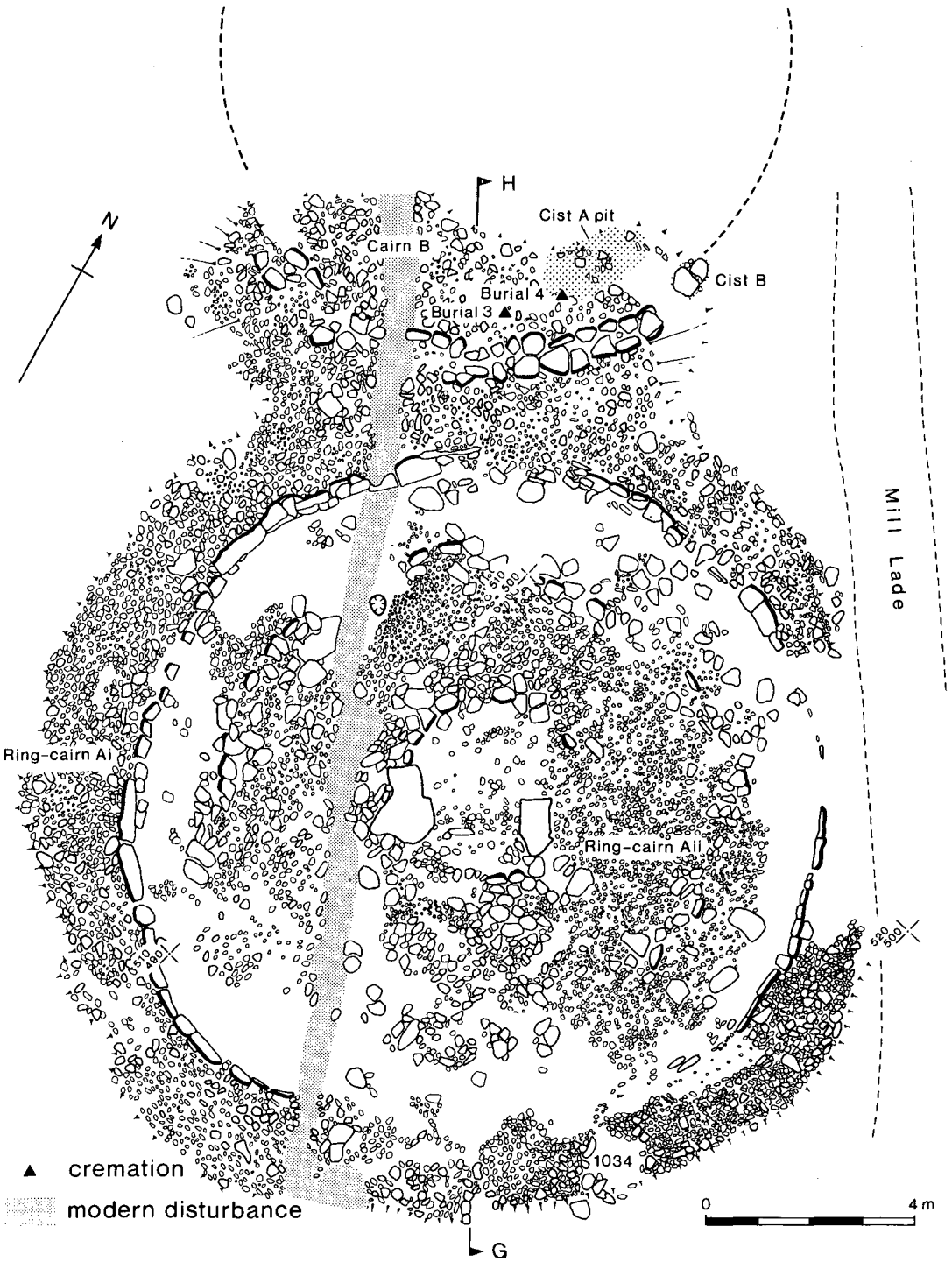


surviving fragment of cairn B.

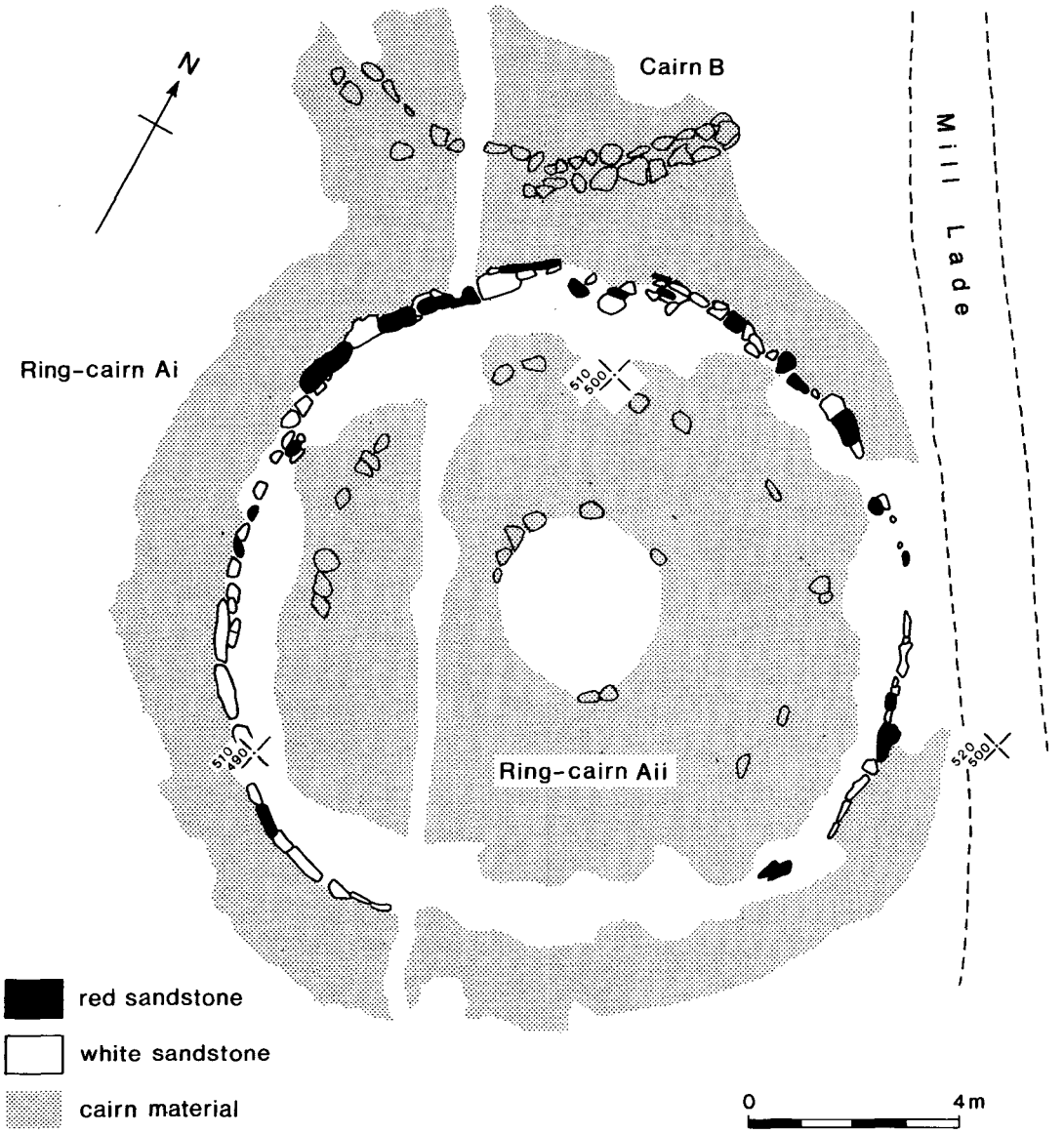
slabs of two types of sandstone in sharply contrasting colours: a yellow/white and a dark red. Illus 41 shows the arrangement of the slabs. When fresh the appearance of the kerb must have been very striking. The kerb was backed by a ramp of soil of variable depth below the stones of the band, not readily distinguishable from the soil horizon (on which it lay) buried below the cairn complex; considerable quantities of Later Neolithic Impressed Ware (*Group 3*; p 121 below), similar to that found in the soil buried below the ring-cairn were found in it; this material formed by far the greatest part of the pottery from the area of the ring-ditch/ring-cairn. In places it seemed that some of this soil overlay the stone upper fill of the ring-ditch; the general picture was confused and it seems likely that some of this soil had accumulated as a result of soil movement during the construction of the kerb.

Within the area enclosed by the kerb were the remains of another ring-cairn (Aii; illus 38, 40). It was defined by a poorly surviving kerb of rounded boulders which had been set on, rather than into, the old land surface. Within this kerb the cairn was made up of small rounded stones, the inner edge of which was also bounded by a poorly surviving kerb; the best impression of the nature of the structure is given by illus 40. This smaller cairn seems to have been set a little higher than ring-cairn Ai and had, as a result, been damaged to a greater extent by ploughing. The outer kerb enclosed an area approximately 9.5–10 m in diameter, and the inner kerb an area 3–3.5 m in diameter. The kerb stones had been dragged out of position, probably by modern cultivation, over much of their circumference, into the area, originally stone-free, between the outer kerb of the inner cairn and the kerb of the outer cairn. The area of greatest damage to both parts of ring-cairn A was in the south.

The sequence of development in the central area of the inner ring-cairn (Aii) was confused. A broad shallow pit (only c 0.1 m deep) had been dug in the central area, apparently before the erection of the inner kerb partly over its edge but there was clear evidence of later disturbance which makes this difficult to prove. The presence of two large slabs, at the edge of the enclosed area and lying partly over the kerb, may suggest that a burial had been disturbed here. Otherwise the only evidence of burial on the site was F1135, the disturbed cremation (Burial 7; illus 36). Two sherds of a Food Vessel were found in the area of the ring-ditch/ring-cairn complex; one lay in the uppermost part of the ring-ditch fill (the stones of the ring-cairn in effect) at the south side of the ring-ditch, the other in a particularly disturbed part of the central enclosed area of the ring-cairn. Neither was therefore in a completely secure context; they may relate, however, to the disturbance of a Food Vessel-accompanied burial in the central area of ring-cairn Aii.



ILLUS 40 Plan of the complex comprising ring-cairn Ai, ring-cairn Aii and cairn B. The kerbs of the cairns are highlighted. Ring-cairn Ai lies over and concentric with the ring-ditch



ILLUS 41 Diagrammatic plan showing the make-up of the ring-cairn kerb.

There is no clear evidence to suggest which part of ring-cairn A was earlier. It is possible, however, that the outer ring-cairn (Ai) was built first, to enclose, but in a different way, an area already defined by the ring-ditch, and that ring-cairn Aii was erected subsequently, within Ai, as part of the development of the ritual or burial function of the site.

Features below or apparently below cairn B To the north of ring-cairn A were the fragmentary remains of a further cairn (cairn B). Less than a quarter of cairn B survived; many of the features found in the subsoil below where the cairn had been removed cannot therefore be related stratigraphically to the body of the cairn.

As under ring-cairn A, the remains of pits were recorded in the subsoil below the cairn; their interpretation as anthropogenic is in some doubt and the function of those which seem likely to be non-natural is in most cases still unclear. There are three pits which seem to be of some interest (F8030, F8032 and F8033) and these are described in detail and are marked with solid lines on illus 6; their sections are shown on illus 35. The remainder are marked on illus 6 with dotted lines. In the buried soils beneath the surviving portion of the cairn were found a worked stone pebble, three flakes (two of flint) and a worked stone chunk.

F8030 (illus 35) A sub-circular, vertical-sided, post-hole 0.9 × 1.1 m and 0.95 m deep. Post-hole F1033 is perhaps a parallel. Within the feature and in the area around it were scattered jet disc beads (see Shepherd below)

F8032/8039 (illus 35) Probably cut through the cairn. A large stone-packed oval pit measuring 1.8 × 1.3 m and 0.7 m deep, with flattened ends. The east end was apparently overlain by the cairn material but further to the west the cairn material had tumbled into it forming a very loose stony fill. This may perhaps have been related to 19th-century excavations by Balfour. At the west was a hint of collapsed dry-stone walling. An edge-retouched flake (S26, illus 67) was recovered.

F8033 (illus 35) Another large stone-filled pit, roughly oval in plan, and measuring 1.1 × 0.67 m and 0.63 m deep. Possibly disturbed in antiquity. The fills were fairly loose because of large stones but not very loamy. There was dry stone walling at both ends and a rough dry stone bank at the north side.

Cairn B Less than a quarter of the area of cairn B survived (illus 40) – only an area 10.2 × 3.4 m (about 20 sq m). The surviving edge of the cairn is defined by about 8 m of a substantial kerb of boulders; after the removal of some cairn material a second, slightly lower setting of stones was noted on the inner side. The kerb was about 0.7 m across from the inner to the outer face. The kerb, if complete, would be c 11.2 m in diameter. Within the kerb the cairn comprised stone of similar size to ring-cairn Ai, surviving at most 2.5 m from the kerb. On the south-west, outside the kerb, was a spread of stone similar to the body of ring-cairn Ai; it is possible, but not proveable, that cairn B was also a ring-cairn, with an open central area subsequently closed after use. This halo seemed to overlie the stone of ring-cairn Ai (illus 37, e). The surviving body of material within the kerb was disturbed, particularly in the east, where a number of burials had survived. In the western part of the kerb many of the kerbstones from both faces had been dislodged, some apparently by recent activity, as modern glass was found under one of the stones.

The possible mounding over of the cairns As has been noted above, the ring-cairn A/cairn B complex was situated on an exposed ridge, from which soil must have been regularly eroding when the field was ploughed. However, both cairns had up to 0.2 m of ploughsoil over them; we must therefore seek an explanation for the survival of ring-cairn A in a relatively good state of preservation, and it is suggested that soil had been dumped over the cairns to form earthen mounds towards the end of their use.

2.3.2 Soils buried beneath ring-cairn A

D Jordan

The ring-cairn A complex overlay a buried soil. Six profiles through this soil were examined and revealed similar sequences of horizon development. The buried soil is a Brown Forest Soil with fewer indications of acidification and leaching than modern soils developed on the sands and gravels. An iron pan was found in one of the sections but, passing through the buried A-horizon, it appears to have formed since the cairn was built. The weathering of dolerite cobbles and gravels has produced locally base-rich pockets in the upper parts of the buried soil and the profile may have been influenced more generally by such weathering-induced enrichment. Caution should therefore be exercised in interpreting the properties of the buried soil since its current properties are demonstrably not those which it had when first buried. A typical profile through the buried soil is shown in Table 3.

TABLE 3
Soil profile beneath ring-cairn A

Horizon	Depth (cm)	
Ah	0–17	Dark brown sandy loam. Compound crumb and sub-angular blocky structure. Rare roots, occasional stones, common charcoal. Abrupt boundary.
B2	17–33	Mid orange brown loamy sand. Weakly developed medium angular blocky structure. No roots, occasional stones, rare charcoal. Clear boundary.
B3	33–51	Mid orange brown loamy sand. Apedal, weakly indurated, no roots or charcoal, moderately stony. Gradual boundary.
C	51 +	Indurated sand and gravel.

This profile is similar to those found nearby today, although acidification and leaching are less advanced in it than in the modern soils. For example, bleached sand grains are occasionally found in the modern soil Ap and upper B horizons but these were absent from the buried soil. The abrupt, wavy boundary and possible ard marks between the Ah and B2 horizons might indicate that the soil was cultivated. This interpretation of the evidence is very tentative, however, since the possible ard marks could not be confirmed as such in plan.

To sum up, the buried soil appears to represent a Brown Forest Soil, possibly cultivated, of higher base status than modern, local soils. The probability of post-burial alteration and the limited extent of the soil which was exposed cause any interpretation to be made tentatively.

2.3.3 Later Neolithic Impressed Ware: vessels P83–P114 (Group 3)

T G Cowie

Approximately 95 sherds and fragments of the decorated pottery from BRS invite general comparison with the category of Later Neolithic decorated pottery characterized by McInnes (1969) as 'Scottish Impressed Wares', best known from coastal sites such as Hedderwick, East Lothian, Luce Sands, Wigtownshire, and Tentsmuir in Fife itself. With the principal exceptions of P90, P96 and P109, the pots are represented by single sherds (illus 42–3). Some of the plain body sherds found in association with these may well derive from undecorated portions of the vessels in question, but no attempt has been made to isolate such pieces as it is very doubtful whether such an exercise would permit any further reconstruction of vessel

form. In particular, many of the plain sherds recovered from the old ground surface beneath ring-cairn A and cairn B at BRS almost certainly derive from the undecorated portions of vessels represented in the following section.

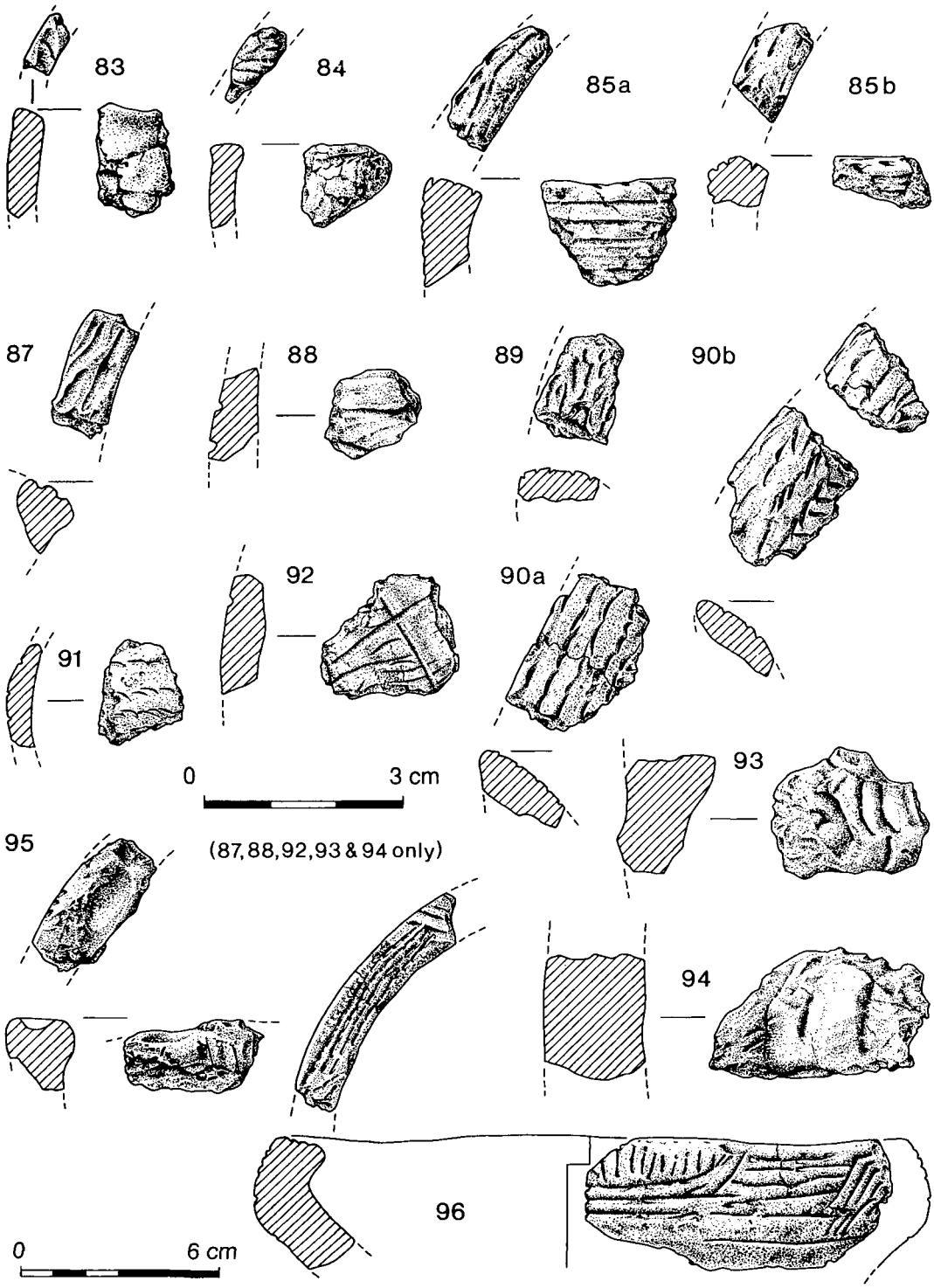
Context With only a few exceptions the decorated sherds derive from a variety of contexts sealed by ring-cairn A; those which do not derive from these contexts include P89 from F8067, but the sherd is very worn and could be residual, while the identification of P91 from F8070 is also uncertain, and it could possibly be part of a coarse Beaker or Food Vessel. P103 from F8056 is also uncertain – hard and relatively thin-walled, neither the form nor the slightly gritty fabric is easily paralleled. P111 is a tiny badly worn rim fragment from F8051 – a feature with both Later Neolithic and Beaker sherds, while P113 from the same feature may bear jabbed-and-dragged lines, a technique matched among the decorated Later Neolithic sherds.

Apparently, therefore, the decorated pottery under discussion is confined to a very limited area of the site. It comprises an assemblage composed of worn and already fragmentary pottery. It is clear that the contexts from which most of this pottery was recovered represented the end of a process of fragmentation and redistribution of the pieces of the original freshly broken pots. It may be noted, for example, that the fragments of P90 have different degrees of scorching and abrasion and it seems clear that the sherds had a chequered history prior to their deposition in the contexts from which they were recovered. It is possible that they were from domestic rubbish spread as part of manuring of the old land surface beneath the ring-cairn. The loss of the old land surface may account for the lack of survival of such sherds elsewhere.

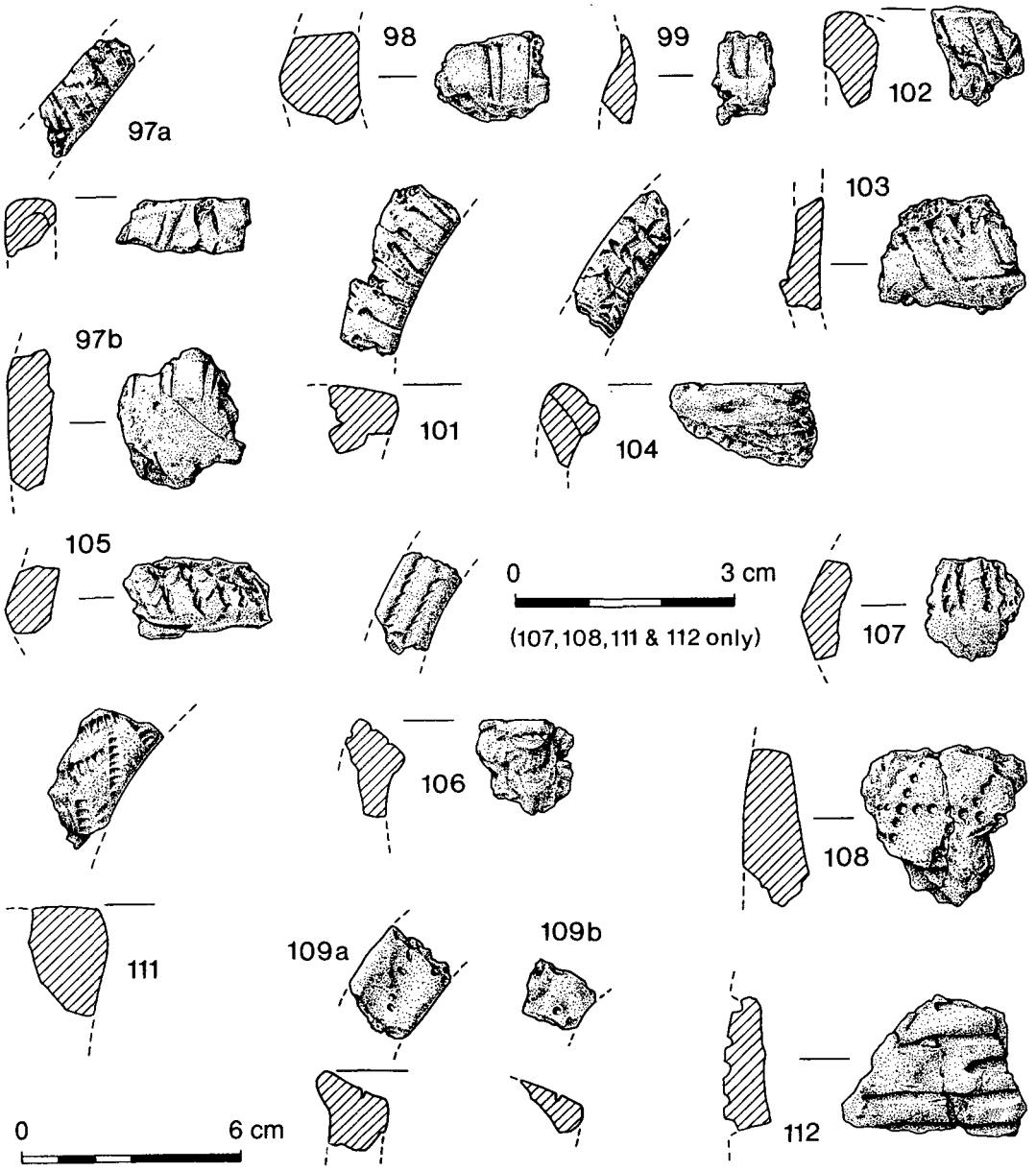
Description Most of the surviving portions of rims (eg P85, P90, P95) clearly derive from pots whose broad rim-tops or bevels provided the focus for decoration using a variety of simple impressed techniques. Although their overall profiles are mostly indeterminate, there has clearly been a considerable range of vessel form. For example, P85 appears to derive from a vessel with upright walls, whereas the surviving portions of P90 indicate a more open bowl form. The most complete profile available is that of P96, an unusual shouldered bowl with flat internal bevel. The general fabric range is in keeping with that found in the richer assemblages mentioned above, and in some cases the comparisons are very close (P95, for example, is virtually indistinguishable from material from Luce Sands or Hedderwick).

Four pieces bear individual oval or elongated jabbed impressions made with a pointed implement applied at an angle: these include two rim sherds (P85) almost certainly from the same vessel despite the differences in their profiles, and two very worn rim fragments (P86 (not illustrated) and P89). In the case of P85 the external surface of the sherd has traces of shallow horizontal grooves probably applied with a light jab-and-drag action using the same tool as that employed to decorate the top of the rim. Continuous lines formed of deeper, contiguous jabs occur on a small fragment almost certainly deriving from a vessel with an expanded rim (P87). However, the most striking use of jabbed-and-dragged ornament occurs on P96, comprising a small group of sherds from a bipartite vessel of uncertain overall form: the internally bevelled rim, and the slightly convex upper part of the vessel bear horizontal and curving jabbed-and-dragged lines set out in a rather haphazard 'panelled' arrangement.

A number of sherds bear fingernail-impressions, reflecting an alternative form of jabbed decorative technique. The clearest example is provided by P90, comprising a small number of sherds recovered from several different contexts: the broad internal bevel of this vessel has been decorated with rows of horizontal fingernail-impressions. Neatly arranged horizontal fingernail-impressions also occur on the body sherd P91, part of a rounded shoulder. Fine fingernail-impressions and incised lines occur together on P92 as part of a more complex arrangement, but too little survives to allow even a guess at the



ILLUS 42 Later Neolithic Impressed Ware (Cowie's *Group 3*): vessels P83–P85; P87–P96



ILLUS 43 Later Neolithic Impressed Ware (Cowie's *Group 3*): vessels P97–P99; P101–P109; P111; P112

original design. Coarser fingernail-impressions are present on several sherds and fragments: in the case of P93, the fingernail-impressions have been arranged vertically on either side of a slight carination, but the form of vessel is again unknown. P94, however, is representative of a small number of pieces evidently decorated with more or less random fingernail-impressions on their external surfaces. Finally, one vessel, represented by several fragments (P95), has irregular broad fingertip-impressions in the top of the rim, with a pair of incised strokes on the surviving portion of external surface.

Incised lines also feature on the external surfaces of a number of sherds (P84, P97–P103) mostly too fragmentary to merit more than passing reference to the presence of the technique. However, P84 appears to be a very worn T-headed rim in hard, compact fabric, with transverse incisions on the flat top of the rim: although included with the decorated pottery for convenience, it may conceivably be of earlier Neolithic date. Transverse incisions also occur on P97, a simple rounded rim, possibly from a vessel with irregular incised lines around the upper portion of the exterior, and on P101, a fragment possibly from the inner edge of a thickly-expanded rim. As will be clear from the illustration and the relevant catalogue entries, incised ornament occurs on a very heterogeneous group of sherds, varying in form and in fabric, and in the details of the application of the ornament.

Twisted-cord impressions occur on two rim sherds and two body fragments, all from different vessels. The original form of vessel from which P104 derives is uncertain, but this rim appears to have been thickened and internally expanded to form a sloping bevel ornamented with short transverse cord-impressions. These partly overlie traces of a single corded line running around the lower margin of the bevel. Two concentric lines of twisted cord-impressions ornament the internal bevel of the other rim sherd P106, while a single horizontal corded line crosses the surviving portion of the external surface. The carinated external profiles of the two body fragments suggest that both derive from the shoulders of the vessels concerned: P105 has traces of four lines of twisted cord meeting the carination obliquely, with traces of fingernail-impressions accidentally incorporated into the intervening spaces as a result of impressing the cord into the clay, while P107 retains worn traces of unusual 'doubled' cord-impressions, the precise method of application being uncertain.

Whipped-cord maggot-impressions occur only twice, on two small and very badly worn rim fragments (P111): on the clearer piece, there are traces of two rows of oblique maggot-impressions on what may be a fragment of a flat-topped rim.

P109 comprises several rim sherds and fragments and a body sherd from a vessel of uncertain overall form, possibly a deep bowl. The moulded rim has a pronounced external expansion and gently sloping internal bevel on which there are an irregular series of punctuations applied with a sharp point. Finally one body sherd (P108), in a coarse laminated fabric, bears traces of intersecting rows of fine dots or punctulations, just possibly applied with a coarse comb.

Although a proportion of the plain and featureless sherds from the relevant contexts could derive from the undecorated portions of vessels represented by the decorated sherds and fragments described above, it will be clear that this group is composed of pottery in a very fragmentary condition. In view of this, it is impracticable to attempt more than a very general survey of the relevant comparative material. The almost complete absence of diagnostic formal features means that attention has mainly to be focused on the range of decorative techniques, and to a lesser extent the nature of the fabrics. Despite these limitations, it is possible to be reasonably confident about the general affinities of the decorated pottery under discussion and in some cases to cite more specific analogies. The general ceramic background is that provided by McInnes' 'Impressed Wares' (1969) or Kinnes's 'Decorated Styles' (1985), exemplified by the large (and almost entirely unstratified) collections from coastal sand dune sites such as Luce Sands, Hedderwick and Tentsmuir (see list in Kinnes 1985, 49). Proportions of forms and decorative techniques vary from site to site, and virtually every technique represented at BRS can be found elsewhere. Significantly, however, there are close matches for some of the more distinctive sherds among the few sites known from eastern central Scotland. In particular, both the form and the jabbed-and-dragged decoration of P53 and P96 find parallels among the assemblage recovered from a pit at Brackmont Mill, Fife (Longworth 1967: especially nos 9–11, 13), while the general form of P96 also occurs at Grandtully, Perthshire (McInnes 1969; Simpson & Coles 1990).

Taking into account, too, the presence of related pottery at North Mains, Perthshire

(Barclay 1983c, 211), the BRS material goes some way to reinforcing Longworth's suggestion (1967, 72) that the Brackmont Mill assemblage might represent a local regional variant on the range of Scottish Later Neolithic decorated styles. The site at Grandtully, Perthshire, is one of the few to have furnished radiocarbon dates for features associated with this general tradition of pottery (Simpson & Coles 1990): determinations of 1970±100 BC uncal (GaK-1396) and 2130±190 BC uncal (GaK-1398) suggest a range from the late third millennium BC to the early second millennium BC (uncalibrated), and are in keeping with the much fuller sequence of dates for Meldon Bridge, Peeblesshire (cf Burgess 1976). At the latter site the published dates for features associated with the local sub-style range from 2736±90 BC uncal (SRR-648) and 2726±180 BC uncal (SRR-643) to 2132±90 BC uncal (SRR-645). While the excavator kept an open mind regarding the possibility that such pottery might have been as early as the first half of the third millennium in radiocarbon years, the main cluster of dates would tend to favour currency of the local 'Meldon Bridge style' in the second half of the third millennium BC (uncalibrated). This would also be in keeping with the few radiocarbon dates available from samples associated with related pottery from northern England (eg Thirlings, Northumberland: 2130±130 BC uncal (HAR-1451): Miket 1976). A comparable date range might be expected for the Balfarg material.

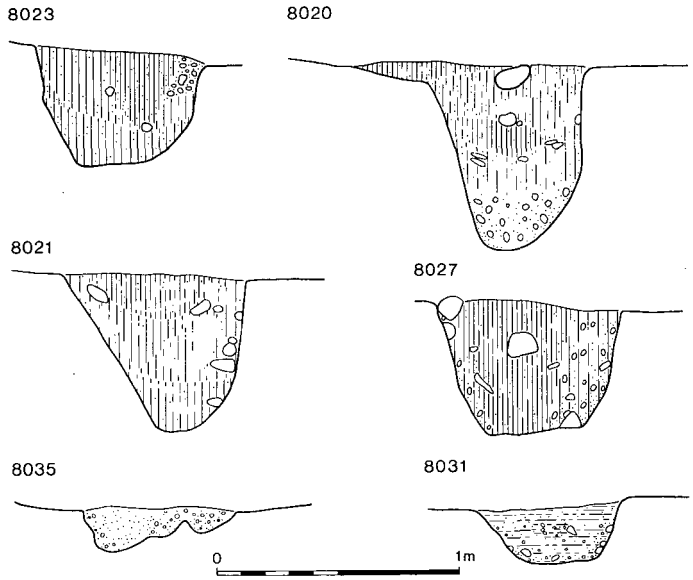
The post alignment north-east of cairn B (G J B) An alignment of large post-holes was noted to the north-east of cairn B in the third season (illus 6 & 44). If extended to the south-west it would intersect with the estimated position of the centre of cairn B. It comprised six post-holes, four of which are very similar (F8023, F8020, F8021, F8027). There was little direct evidence for the date of these post-holes. Two sherds of Beaker pottery were found in the post-pipe of F8020 and one in the post-pipe of F8021, but it is likely that this is residual material which had found its way into the post-pipes during the rotting of the posts. One of the others is very shallow and the last, nearest cairn B, is less than half the average depth of the others. It is argued below that the two post-holes nearest cairn B were cut through the earthen material forming the barrow over cairn B, accounting for their reduced depth. It may further be suggested that a seventh post might have been erected on the edge of the enclosure ditch at the north-east of the alignment; if erected on an external bank the hole would not have penetrated the subsoil.

TABLE 4
Features in the post alignment

	Dimensions	Depth	Finds
F8023	0.8 × 0.7m	0.48 m	
F8020	0.8 m	0.75 m	P120 (post-packing) P152 (post-pipe) sherds in ditch also
F8021	0.9 × 0.8 m	0.64 m	P91 (post-packing)
F8027	0.8 × 0.7 m	0.55 m	
F8035	0.6 m	0.18 m	
F8031	0.37 × 0.3 m	0.2 m	

2.3.4 Activity associated with Beaker pottery

The activity associated with the use of Beaker pottery at Balfarg is represented by few surviving features. Mercer (1981) found only one Beaker-associated feature: the burial near the centre of the henge. Ritchie (1974) found the disturbed remains of a Beaker probably originally associated with a burial. The Beaker material from the excavations reported here



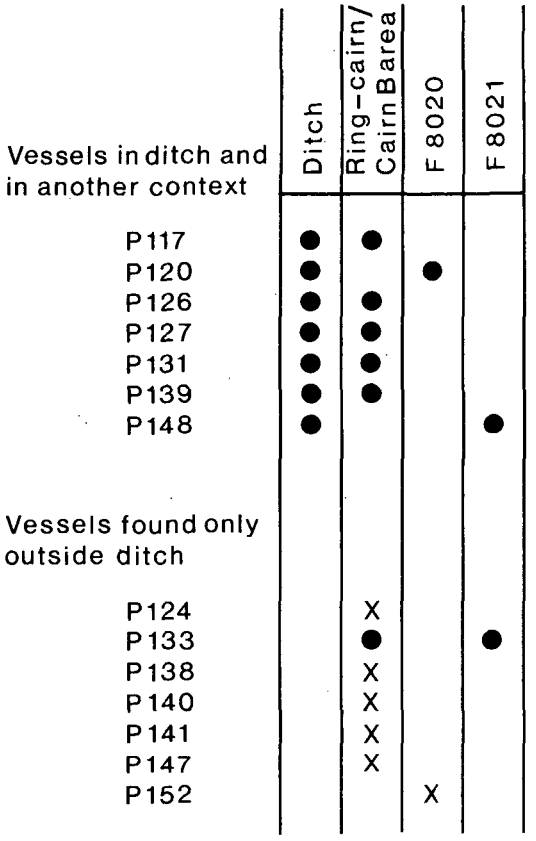
ILLUS 44 The sections of the posthole alignment to the north-east of cairn B (illus 6).

occurred in very much larger quantities, but in contexts where the purpose of the deposition was not so clear; almost all the Beaker pottery recovered was from the BRS enclosure ditch. The location of the Beaker sherds in the ditch is probably fortuitous; they appear in the topmost fill and probably only survive here because the surfaces around have since been destroyed by ploughing. Three sherds, probably residual, were found during the excavation of the line of post-holes running north-east from the cairn (above). The remainder of the material comprised a few sherds and fragments from insecure contexts associated with the old land surface buried beneath ring-cairn A, and from the material of that cairn. It is interesting to note that the quantities preserved under the cairn and in the ditch are *very* different; it is suggested that the activity which resulted in the deposition of hundreds of sherds of Beaker pottery in the ditch occurred after the building of the cairn, as is argued above. It may be that the material was cleared into the slight hollow which marked the ditch at that stage. The nature of the Beaker activity is discussed further below. No Beaker sherds were found in any contexts associated with the two Neolithic timber structures.

2.3.5 Beaker Pottery: vessels P115–P153

T G Cowie

Over 450 sherds, fragments and crumbs of Beaker pottery were recovered from the BRS site: approximately 90% of these were retrieved from the upper fill of the enclosure ditch and comprise substantial parts of four vessels (P115, P118, P120 & P153) and smaller portions of a *minimum* of 21 others. In addition, at least a further three vessels are represented by sherds from non-ditch contexts. However, since a sizeable number of body sherds (in particular see



ILLUS 45 The distribution of the few Beaker vessels represented by sherds found outside the ditch fills. X = pot found in only one context; ● = sherds of vessel found in more than one context

P133 and P148) and parts of several plain bases (P149–P152) cannot be allocated to individual vessels, the maximum number of pots represented could be very much higher. Nearly all the Beaker pottery derives from a fairly confined stretch of the ditch (particularly cuttings IV and V: see Table 2: p 92); however, there appears to have been some pattern to the deposition, for the distribution of individual sherds indicates that, while P115 and P120 were chiefly present in ditch cutting IV, the main portions of P118 had been deposited in cutting III, and P153 primarily lay in cutting V. In marked contrast to the decorated Neolithic pottery, this pattern must reflect disposal of some Beakers in a partly intact condition (or at least disposal prior to their complete fragmentation and dispersal), and may indicate that the deposition of the Beaker pottery in the ditch was a relatively rapid episode. However, as some of the Beaker sherds have clearly been reduced to an abraded condition, or occur only singly, the source of the Beaker assemblage in the ditch must have encapsulated both recently broken pots and the fragmentary remains of earlier breakages – the kind of accumulation that might arise in a domestic context (amongst other possibilities). A number of Beaker sherds

therefore furnish potentially informative links between the ditch and other site contexts, and could perhaps throw some light on where other, perhaps domestic, activity may have been focused.

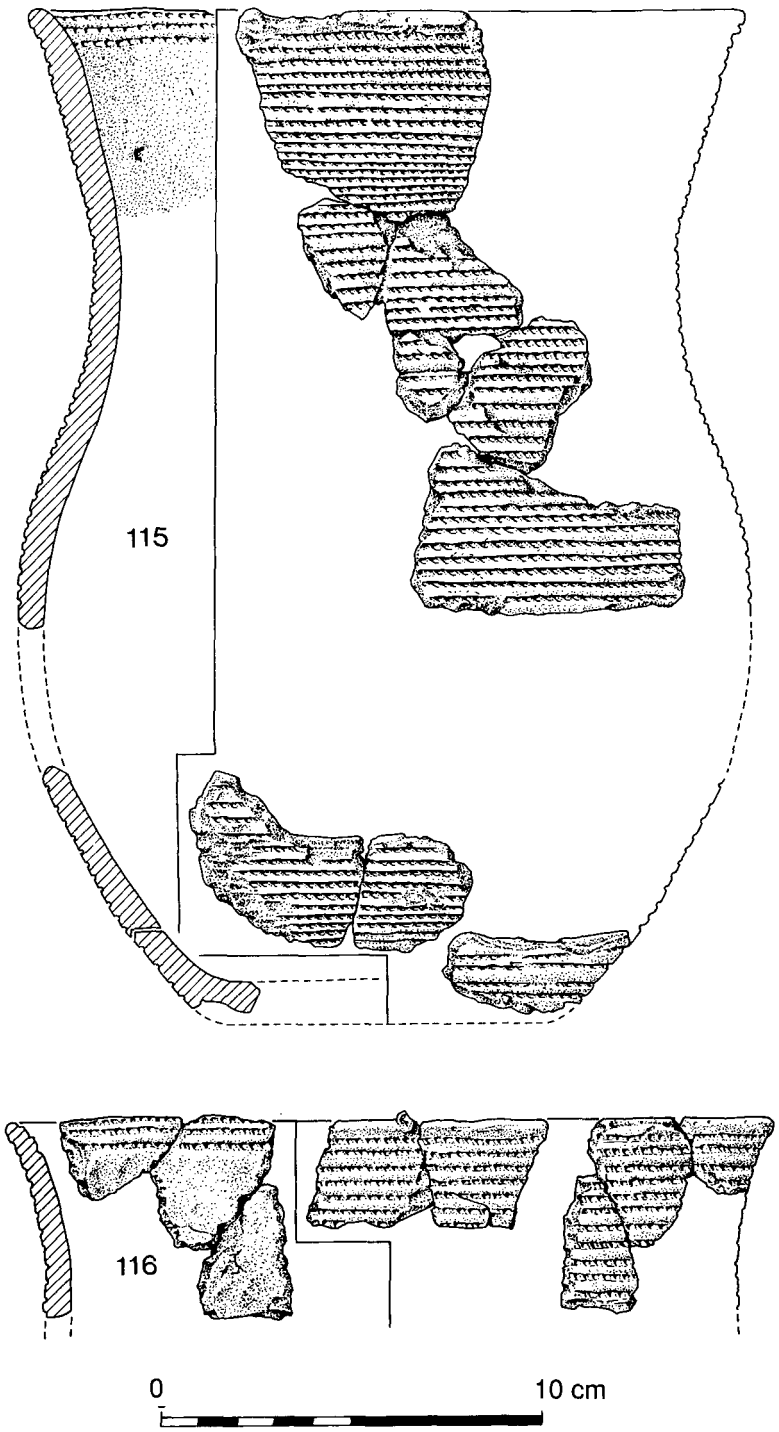
Sherds of a number of Beakers were found both in the ditch and also in other contexts (see illus 45). It is perhaps significant that no piece certainly identifiable as Beaker pottery was recovered from Area A, an absence which tends to reinforce the likelihood that the episode of Neolithic activity marked by the deposition of the 'heavy bowl' assemblage (Cowie's *Group 2*) in Area A contexts completely predates the appearance of Beakers at Balfarg.

Description The Beaker assemblage is dominated by cord-ornamented sherds (P115–P133). Despite their superficial uniformity, a large number of the corded sherds can be distinguished on the basis of differences in their fabric and variations in the type and layout of the cord-impressions. As a result of such sherd-matching, it has been possible to allocate, with a fair degree of certainty, a very high proportion of the material to just three vessels, while several other pots are represented by smaller groups of sherds. Unfortunately, owing to their very fragmentary condition, little light is shed on the original form of most of the vessels concerned but in a few instances enough survives for their profiles to be partly reconstructed. The rims are generally everted or slightly flaring with rounded tops (and internal decoration in several cases), the necks concave, and the shoulders/bellies of the vessels apparently rounded rather than angular (cf Clarke 1970, 52; Appendix 1.2: shape II). The few comb-ornamented vessels (P134–P140) are even more fragmentary, but in two cases the rims appear to have been slightly flared, particularly in the case of P138. At least two vessels, one comb- and the other cord-ornamented, have had horizontal cordons a short distance below the rim (P124, P134): such cordons have been interpreted as functional features (as aids to handling and to securing covers on vessels) and are much more frequent in domestic assemblages than in funerary contexts (Clarke 1970, 36). P147 (not illustrated) appears to represent a fragment of a further badly abraded cordon. Base sherds are heavily under-represented within the assemblage as a whole, and in only a few cases has it been possible to make a tentative allocation to a specific vessel.

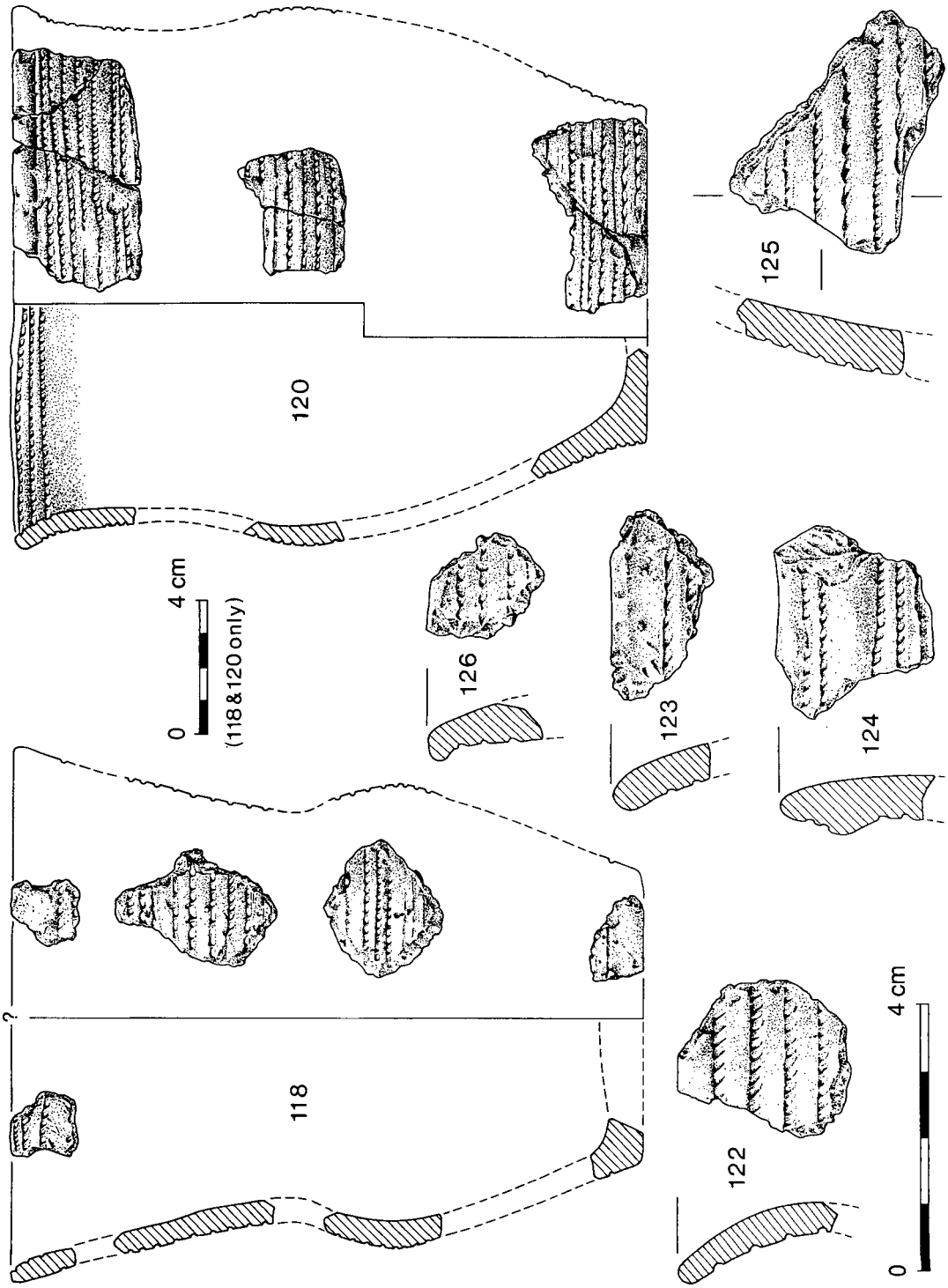
The size range of the vessels in the assemblage is uncertain owing to their fragmentary condition, but P115 indicates the presence of pots of considerable size at the upper end of the scale (approximate rim diameter: 220 mm), while P134 may be representative of some of the smaller vessels. Fabric quality, too, is variable: some sherds (eg P129: not illustrated) derive from vessels with fine compact fabrics, with a good quality surface finish, while others are somewhat coarser and rougher in texture.

In this respect, attention may finally be drawn to the unusual undecorated vessel P153, represented by some 84 sherds, fragments and crumbs recovered from layers in the *Upper* ditch fill. Although quite clearly deposited along with the Beaker pottery, this vessel is distinguished by both form and fabric. The most prominent features of this most unusual vessel are the series of moulded horizontal ridges encircling its upper portion, the profile of the lower body unfortunately being uncertain (conservation proved very difficult owing to friability of fabric). The fabric of this pot is without parallel in the BRS assemblage as a whole, the most noticeable feature being the presence of tiny fragments of crushed calcined bone as inclusions within a particularly friable fabric. In common with a number of the Beakers (eg P120), the condition of the fabric suggests that the pot has been subject to severe scorching, possibly when already fragmentary, but in the case of P153 the effects have been very much more marked (reducing some of the sherds to the consistency of an over-fired Digestive biscuit). While the rim form of P153 can be matched with the everted cordoned rims of domestic Beakers (cf Clarke 1970, 37, fig VI), the writer has been able to find only one close parallel for the overall form of this pot, a ridged vessel from Risby Warren, Lincolnshire (Riley 1957, 55, fig 9.1).

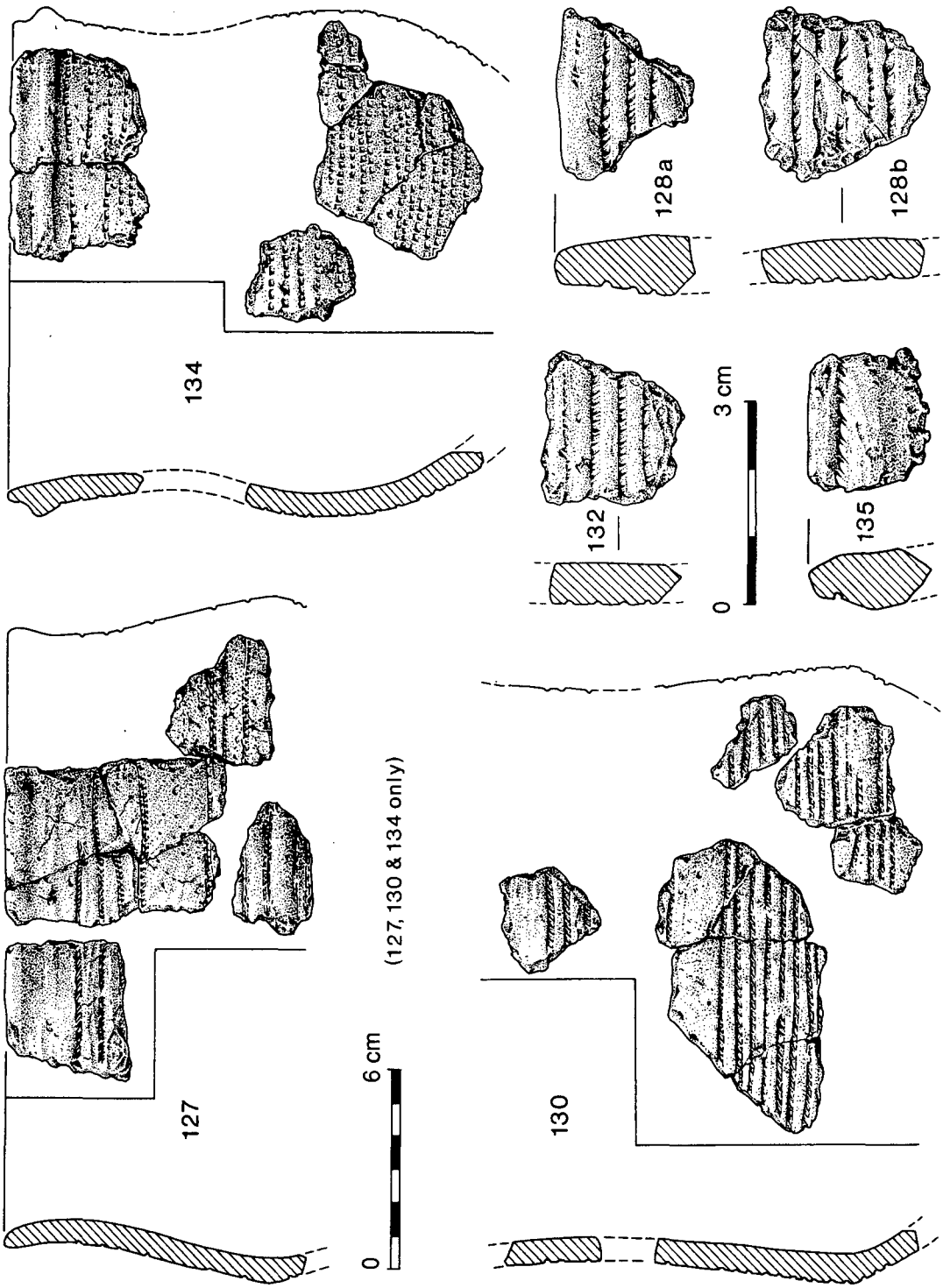
All-over-cord was the most common technique used to decorate the Beaker pottery, with the caveat that only in very few cases is anything like a complete profile available; it is consequently possible that some corded sherds may derive from vessels which could also have incorporated



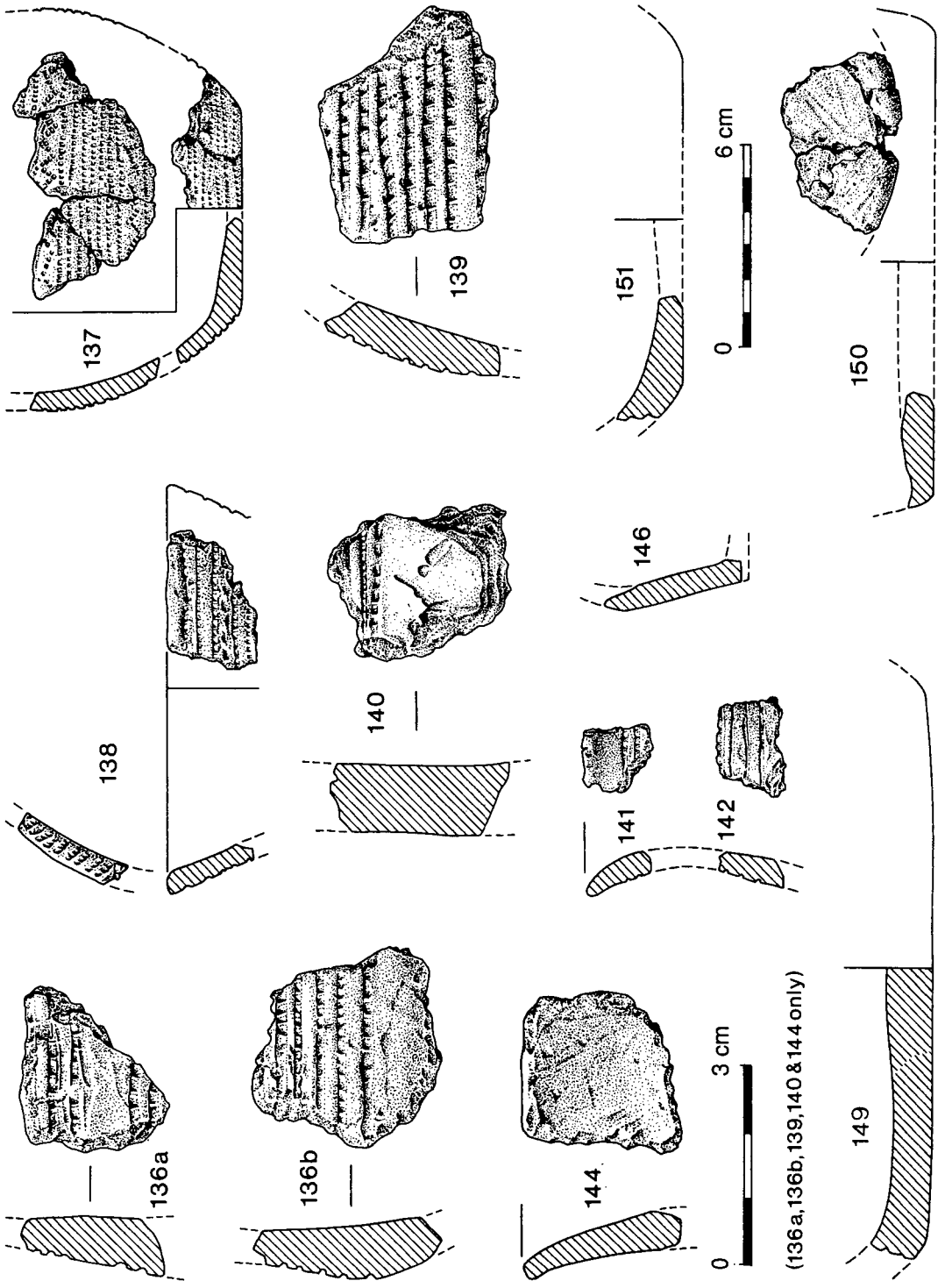
ILLUS 46 Beaker pottery: vessels P115 and P116



ILLUS 47 Beaker pottery: vessels P118; P120; P122–P126



ILLUS 48 Beaker pottery: vessels P127; P128; P130; P132; P134; P135



ILLUS 49 Beaker pottery: vessels P136–P142; P144; P146; P149–P151

undecorated areas, or zones ornamented using other techniques (although it may be said that no sherd shows evidence of such combinations). Certainly the presence of narrow reserved zones suggests that on some of the vessels (eg P118, P120), the decorative layout may have involved some 'zone contraction' (cf Clarke 1970). With only a few exceptions noted below, the corded decoration has been applied using S- or clockwise twisted fibre (thereby forming a Z-twist when seen as an impression). The types of cord used vary from fine (eg P132) to relatively coarse (eg P128) and sometimes combinations of such impressions occur, as on P125, suggesting unevennesses within the length of the cord wrap involved. Decoration of the interior of rim with several lines of horizontal cord occurs in four or five cases – another feature particularly common among domestic Beaker assemblages (Clarke 1970; Gibson 1988).

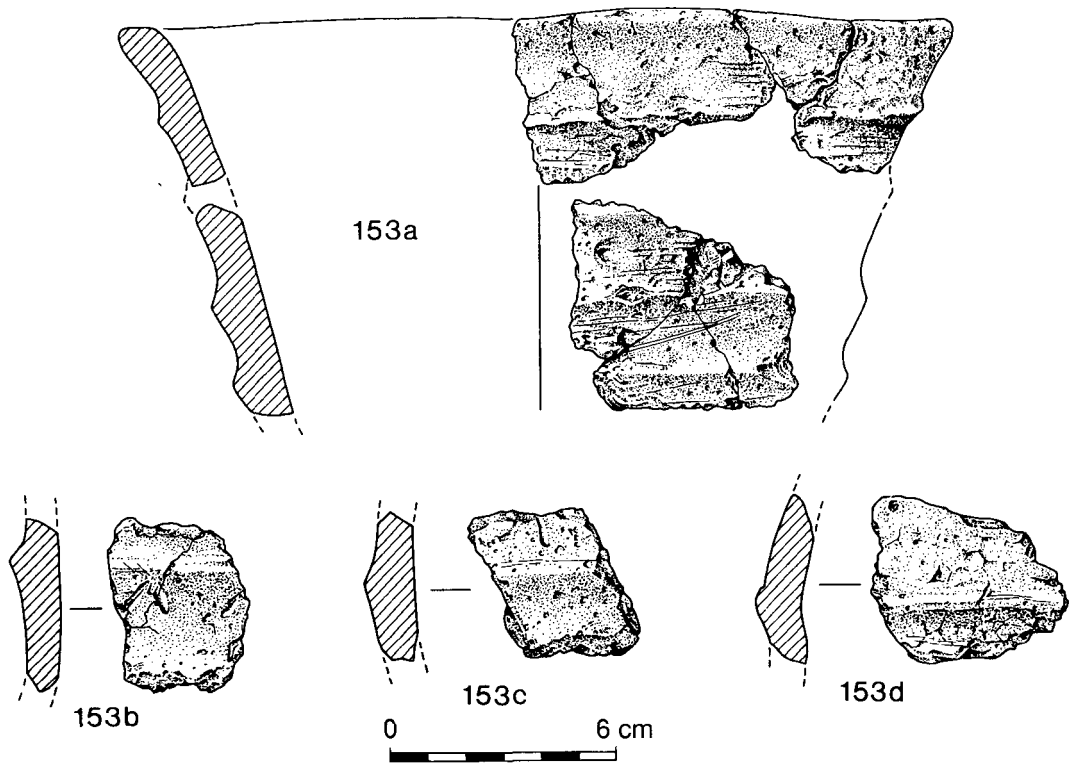
Two vessels stand apart on account of unusual features of their cord ornament: in the case of P127, tentative reconstruction of the upper portion of the vessel suggests that a distinctive 'doubled cord' wrap was used to create an arrangement of zones composed of three or four horizontal corded lines separated by reserved areas. A similar combination of lines of horizontal cord-impressions alternating with reserved zones may have been present on P130, but in this case the type of cord applied created a distinctive pattern resembling the tracks of a worn bicycle tyre.

Comb ornament occurs on only a relatively small number of sherds, mostly from the fill of the ditch and representing a minimum of six vessels (just possibly five if P139 and P138 are from the same vessels). The surviving portions of P134 and P138 have all-over ornament composed of horizontal comb-impressions: in the former case, however, the somewhat irregularly spaced impressions indicate a comb with broad rectangular teeth, while a comb with closer-set teeth has been used to ornament both the exterior and the flattened rim of P138. More complex comb ornament is apparent on P137 comprising portions of only the belly and base of the vessel concerned. Applied with a square-toothed comb, the teeth of which appear to have been rather irregularly cut, the surviving ornament appears to consist of multiple horizontal lines alternating with single zigzag lines made up of short oblique impressions. A combination of horizontal and oblique combed lines also occurs on a single body sherd (P140) in a coarser fabric.

Two sherds (P136), probably from the neck and shoulder of the same vessel, appear at first sight to have been incised, but closer inspection suggests that decoration was with a square-toothed comb which has been applied to the clay and then 'dragged' to create an arrangement of multiple horizontal lines, possibly alternating with reserved zones. The overall effect is somewhat similar to that produced by incised ornament. Use of this technique is confined to three sherds, two of which may be from the same vessel, since P142 may be from above the shoulder of the same vessel as P141, a small Beaker with incised horizontal lines on the surviving areas of its exterior. A further very worn sherd P143 (not illustrated) is possibly from the neck region of a further vessel.

A number of Beaker sherds – all body or basal sherds/fragments – are completely plain (P144–P152) but in view of their small size and the undoubted presence of reserved zones on other vessels in the assemblage, these cannot be identified as parts of undecorated vessels with any certainty. However, two rim sherds and a number of body sherds (P144–P146) may possibly derive from a single plain vessel. The exceptional nature of the plain carinated/ridged vessel P153 has already been noted above.

Most of the elements of the Beaker pottery from BRS can be paralleled among the sherd assemblages from coastal sand dune sites such as Tentsmuir, in north-east Fife; Hedderwick, Archerfield and Tusculum in East Lothian; Ross Links in Northumberland, and Luce Sands, Wigtownshire (Gibson 1982, with further references to individual sites). Some of the more uncommon features of the BRS Beaker pottery can also be compared elsewhere: for example, the unusual doubled lines on P127 can be matched on a basal sherd from Archerfield, while a rim sherd from that site also provides a parallel for the application of transverse comb-impressions to the flattened rim of P138. Rim-top decoration is a feature of northern British Beakers, being found, for example, on Beakers of Clarke's N2/DD, N1 and N2 groups (1970).



ILLUS 50 Beaker pottery: vessels P153

Similarly, the fringe zigzag on the combed Beaker P127 is a predominantly northern motif. In the light of the presence of such features as minor components alongside the main all-over-cord element, the Beaker pottery from BRS may be described as a middle style (cf Case 1977) or Step 2 assemblage (Lanting & Van der Waals 1972). However, the validity of Beaker typology is once again a matter of debate because of the British Museum programme of radiocarbon dating of human bone. Simple all-over-ornamented Beakers may have had a long currency, and it would be unwise to attempt to date the Balfarg Beaker assemblage any more precisely than within the broad date-range of Beakers as a whole, that is from c 2600 to 1800 BC (Kinnes *et al* 1991, 39).

2.3.6 Burials Associated with Cairn B

G J Barclay

Burial 1 – Cist A (illus 51 & 52)

This was cut through the cairn material. The uppermost fill of the pit was a dark brown to red brown gravel which overlay cairn-like rubble of small to medium stones in a matrix of dark brown sandy loam. This overlay the cist slab. The cist was set in a pit 1.6 m long by 1.4 m wide by 0.35 m

deep from the subsoil surface, lined with a double (treble at the north) thickness of slabs on edge. Between two and four courses of dry stone walling were raised on top of these slabs.

At the north end of the cist lay the only substantial fragment of bone – a portion of a human femur, covered by a red sandstone slab similar in appearance to the kerbstones of ring-cairn Ai. The stone covered the head of the femur (illus 51 c) and would have covered the pelvis and probably the feet of the crouched inhumation. In the acidic soils of Balfarg this limited survival of unburnt bone is what would be expected. There was a pile of small slabs stepped in the north-east corner of the cist. Under these stones and around the bone was a yellow brown slightly loamy clay forming a thin layer. This was very limited in area. The bottom fill of the cist was a yellow brown sandy loam with flecks of charcoal and lots of small stones, containing fragments of tooth enamel and the remains of a jet disc necklace; this had been disturbed by animal burrowing but still survived in complete runs of beads. An almost intact Food Vessel (P155; illus 51 b) lay on its side in the south-east corner of the cist. There was insufficient room for it to have been placed upright and to have fallen into the position it was found in; it is likely that it was deliberately placed on its side. Examination by the author of the location of organic residues or staining in Scottish Beakers and Food Vessels in the National Museum and other collections suggests that a significant number had been placed deliberately on their side, containing small quantities of liquid leaving a distinct 'tide-mark'.

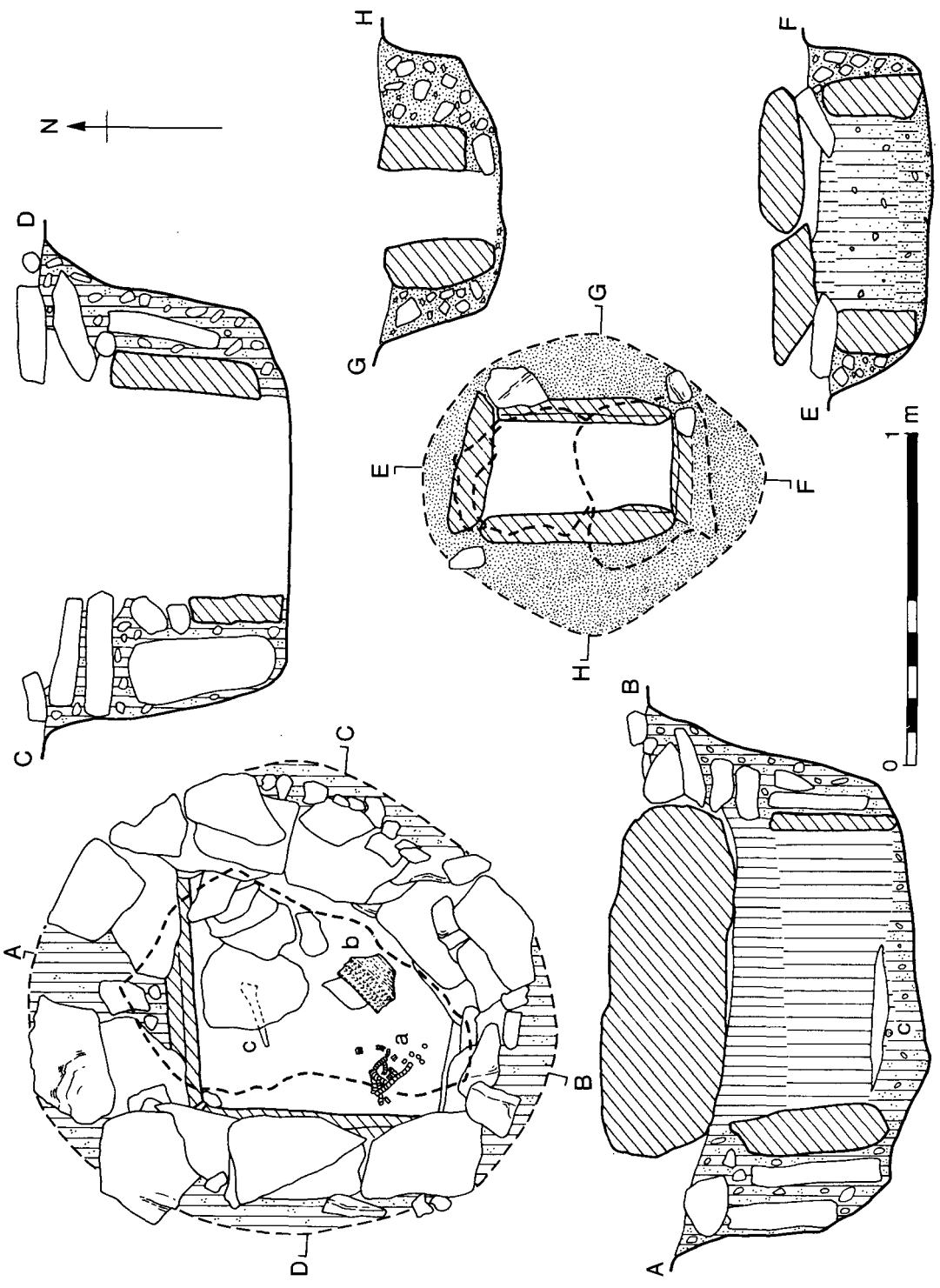
The rest of the cist was filled with a fine yellowish brown clayey loam with charcoal flecks. A dark brown wormy, greasy loam covered this, probably more recent silting. Above this was, in places, a small airspace. The slab measured 1 m long by 0.6 m wide and 0.35 m deep. It rested both on parts of the fill and the dry-stone walling, suggesting perhaps that the cist was largely backfilled before capping. Finally the slab was packed around with smaller stones, including some white quartz, and covered by a small pile of larger stones and finally an area of orange gravel. Apart from the grave goods, a flint chunk was recovered from the upper fill. From the same fill 155 grains of hulled six-row barley and further barley fragments were recovered, with four of oats and one carypsis cf *Bromus* sp. This was the second largest deposit of cereal grains found on the site but its context was felt to be too insecure for radiocarbon dating.

Burial 2 – Cist B (illus 51)

The double capstones of a small cist were visible from an early stage in the cleaning of the area. The large upper capstone was sub-rounded and smoother than the lower which was sub-angular. Both stones were stabilized with smaller packing-stones. The cist pit was roughly egg-shaped with its blunt end to the north. The four side slabs formed a small neat rectangle in the centre north-east of the pit. The cist was filled completely with soil, on which the cist slab rested. Some unidentifiable pottery fragments and three pieces of unidentifiable burnt bone were found in the main fill, along with the following seeds: 13 barley and four further barley fragments; one oat grain.

Burials 3 & 4

There were two small cremation deposits in the top of cairn B. Both of these were just over half a metre in from the kerb. They are marked on illus 40. They lay in rough depressions in the cairn material. Burial 3 was the burial of a juvenile/adult? human, female?; the cremated bone weighed 281.2g. Burial 4 was smaller and has been identified as human(?); the bone weighed 38.7g.



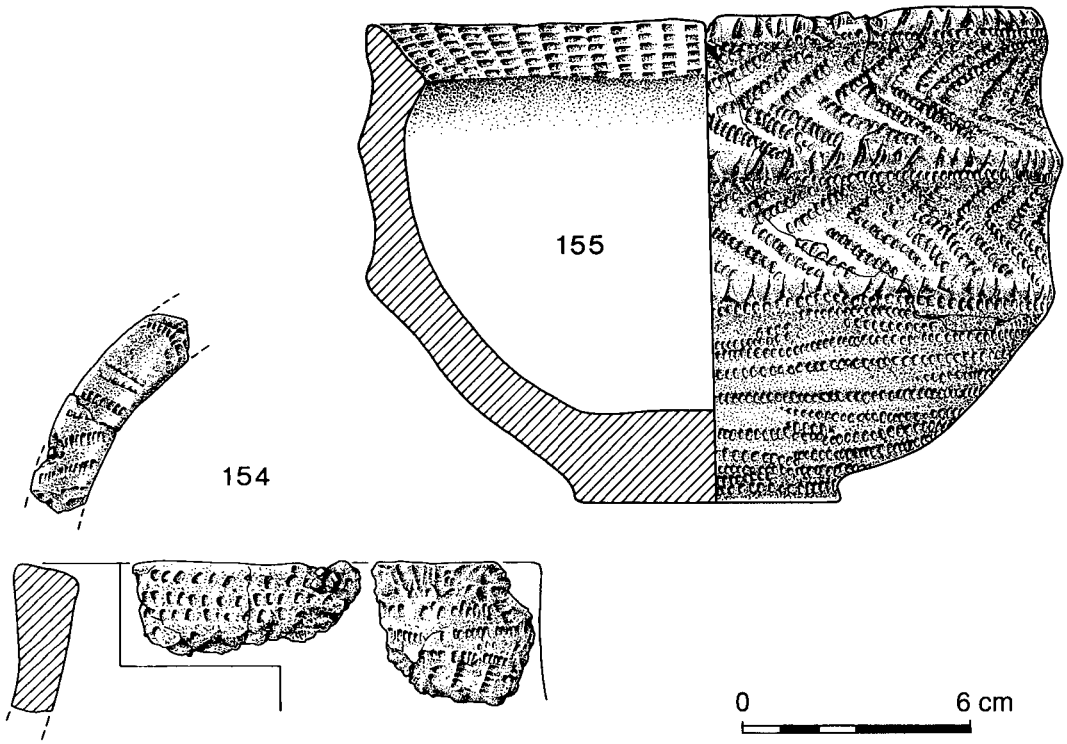
ILLUS 51 The cist burials associated with cairn B. In the larger cist, a = the jet necklace, b = Food Vessel (P155), c = surviving fragment of human bone. In the plans of both cists the dashed lines indicate the positions of the capstones

ILLUS 52 Cist A, viewed from the north, showing the complex drystone construction in its upper part

2.3.7 The Food Vessels: vessels P154–P155

T G Cowie

Context Two Food Vessels were recovered from contexts in Area C. Two rim sherds (P154) of what has tentatively been identified as a Food Vessel were recovered from disturbed contexts in ring-cairn Ai or Aii. They may perhaps be from a disturbed burial (see discussion of cairn B). The complete vessel (P155) accompanied the burial in Cist A.



ILLUS 53 Food Vessels: P154 and P155

Description P154 represents part of the rim and neck of a vessel of uncertain overall form, with slightly thickened, internally bevelled rim, and gently concave neck, which appears to be swelling out towards a shoulder at the break; the decoration consists of transverse maggot-impressions on the bevel, and rows of jabs and oblique maggot-impressions ornament the exterior. All of these elements of form and decoration would be in keeping with the features of a simple vase Food Vessel.

The other vessel, P155, is a tripartite bowl, complete apart from some damage around the rim and a hole in one side. These flaws, and the friability of the fabric may be the result of heat damage, although the circumstances of its discovery show no sign of burning *in situ*. The vessel is profusely decorated with cord maggot-impressions, arranged vertically on the internal bevel, and horizontally or herring-bone fashion on the exterior, where triangular jabs have also been used to emphasise the exterior of the rim and the two mouldings. The squat form recalls the Irish-Scottish bowls but the decoration is more in keeping with that found on Northern Tripartite Vases; however, it has been noted that vessels from this region of Scotland show an amalgamation of traits (cf Pierpoint 1980).

Both Food Vessels are of forms well known from eastern central Scotland, and the range of decorative techniques and the manner of their application can be readily matched elsewhere. Finds of Food Vessels from Fife have been discussed by Shepherd in reports on the finds from Barns Farm, Dalgety Bay (Watkins 1982, 99, 106, 110), while the available radiocarbon dates for burials discovered in eastern central Scotland associated with Food Vessels have been listed by Cowie & Ritchie (1991, appendix 1). Unfortunately insufficient collagen could

be extracted from the bone fragment from the BRS burial, but the admittedly small number of radiocarbon dates from other sites suggest an approximate age range of 1700–1150 BC uncal for the activity at Balfarg, with the majority of the dates lying closer to the earlier rather than the later end of the range.

2.3.8 The Jet: summary and discussion

I A G Shepherd

Introduction The jet assemblage from Balfarg consists of a total of 286 disc beads and one pebble, split into two, as well as four fusiform beads and a flat jet piece. Of these, 259 of the disc beads and the pebble were discovered with Burial 1 in Cist A. Twenty-seven disc beads as well as the flat piece of jet and the four fusiform beads were found in a separate context, scattered in the area originally beneath Cairn B which had been exposed at an unknown date when much of the cairn was destroyed.

The jet from which the 259 disc beads found in Cist A had been fashioned is all of a slightly granular texture, a trifle less lustrous than that of several other Scottish assemblages handled by the author, but good viable jet nonetheless. The jet of the 27 other disc beads is consistently shiny and dense, rather more 'waxy' than the set from the cist. They are also very black and lustrous. The detailed catalogue is lodged in the National Monuments Record of Scotland.

Technology All these disc beads from Cist A have been cut extremely skillfully and regularly, neatly drilled, and show few signs of use, apart from the instances noted below. They beads demonstrate an extremely high degree of control of the manufacturing process.

This control can be seen in the notable consistency of thickness achieved during the production of the beads. Out of the 259 from the cist, 189 or 73% are 1 mm thick – an unusually thin series – while the remaining 27% are 1.25 mm thick. Similarly, examination of their diameters reveals that 89 or 34.4% of these beads are within 0.25 mm of 7 mm and that 250 or 96.5% are between 6 and 8 mm. (The mean diameter of those in the cist is 7.32 mm and the range is between 5.25 and 8.5 mm, while the mean diameter of the perforations is 2.34 mm with a range of between 2 and 2.75 mm.)

The vast majority of them were drilled by a cylindrical metal bit from one side. Only four beads (nos 92, 192, 197 & 235) are exceptions, having either an hourglass (no 92) or a conical perforation. The beads were probably produced by shaping many jet lumps or pebbles into rods which were then drilled and the individual beads finally cut off and polished (Shepherd 1985). The flake scars noted at the edges of 57 (22%) of the beads might have been produced during the final stages of the manufacturing process, but are more likely to be the result of dismantling sections of the necklace prior to deposition. This is suggested because the flake scars are fresh and unworn, and occasionally can be seen on beads either exhibiting slight use wear or final shaping striations.

On 32 (12.4%) of the beads wear was noted consisting of concentric grooving which may have been caused by a piece of grit becoming trapped between tightly strung beads. On only seven (2.7%) beads was there noticeable wear from use, while on 37 (14.3%) the striations caused by the final shaping of the beads were still visible. It can be surmised that the necklace was made and assembled by a single hand, and that it was worn or otherwise used for a short time before deposition.

The piece of unworked jet accompanying these beads exhibits no clear traces of utilisation.

The unstratified beads associated with Cairn B:

The 27 disc beads forming this series contrast with those from Cist A in being considerably thicker (2.56 mm mean thickness; range 1.75–2 mm) and of slightly larger diameter (mean 8.03 mm; range between 7.5 and 9.5 mm). The perforations are also larger, having a mean of 2.79 mm (range 2.5–3.25 mm). The slight difference in the texture of the jet in the two groups has already been noted.

However, these beads exhibit an almost comparable degree of control of manufacture, although they are generally much more worn. In particular, their thickness is very consistent and evenly distributed: 12 (44%) are 2.25 mm thick, while 25 (92.6%) are between 2 and 2.5 mm in thickness. Their diameters, although spread between 7.5 and 9.5 mm, have 66.7% (18) between 8.5 and 9.25 mm. There is, on the other hand, a greater range of accomplishment in the actual cutting out of the beads, several being less than regular and one (no 263) decidedly skewed.

There is also greater variety in the technique of boring the perforation, four (14.8%) bearing an hourglass-shaped perforation possibly produced by use of a flint point from both sides. The flaking, some of sizeable proportions, noted around the perforations on seven (25.9%) of the beads may also indicate use of a triangular flint bit.

Finally, much greater evidence of wear from use is evident, ten beads (37%) having wear round the perforation from stringing. This is most clearly seen on no 283. However, a small number of beads are relatively unworn (nos 272, 286, 287). A considerably smaller proportion (1: 3.7%) of the disc beads from the cairn show the parallel striations left by the shaping process.

The four fusiform beads average 16.1 mm long and 7.1 mm in diameter (ranges 13–22.25 mm in length and 6.25–7.75 mm maximum diameters). They are in good jet and show evidence of wear. The fragment of jet found with these beads, although flat, is too small and irregular to be an unfinished spacer-plate. A smaller object, such as a necklace toggle, could have been formed from it, but the piece displays no evidence of preparation.

Comparanda and discussion In terms of their dimensions the Balfarg disc beads compare best with disc beads from short cist burials at Almondbank, Perthshire, and Barns Farm, Dalgety, Fife, and to those from a formal disposal context at Cloburn, Lanarkshire. The 259 beads from Cist A at Balfarg compare most closely with the 218 beads from Cist IX at Almondbank (Shepherd forthcoming) which had a mean diameter of 7.06 mm (range = 4.75–7.75 mm) and a mean thickness of 1.55 mm (range = 1–3 mm). With a mean diameter of 7.32 mm and a mean thickness of 1.06 mm, the Balfarg beads are slightly larger and rather thinner.

The 27 disc beads associated with Cairn B at Balfarg can be most closely compared to the 210 beads found in Cist 4 at Dalgety (Shepherd 1982) which had a mean diameter of 9.63 mm (range: 6–11.5 mm) and a mean thickness of 2.47 mm (range: 1–3.5 mm), making them rather larger overall but very similar in thickness.

These relationships are expressed in Table 5.

TABLE 5
Jet disc beads

	Mean diam (mm)	Mean thickness (mm)	No	Association
Balfarg cist	7.32	1.06	259	FV
Balfarg cairn	8.03	2.56	27	Fbds
Cloburn	9.71	1.54	20	V-b
Almondbank VII	6.36	2.02	37	Fbds
IX	7.06	1.55	218	Fbds
Dalgety 4	9.63	2.47	210	S7
Stoneykirk	–	–	187	S7
Culduthel	–	–	520	V-b

[Abbreviations: FV: Food Vessel; Fbds: fusiform beads; V-b: V-bored button; S7: Lanting & Van der Waals step 7 Beaker.]

The extraordinary thinness of the Balfarg cist beads is emphasized by Table 5; although not as large as the excellently manufactured series from Cloburn, they are the thinnest by a considerable margin (32%).

The Balfarg beads came from two distinct contexts, a cist and a scatter beneath a cairn; both

such methods of deposition are represented by the sites listed above. Short cists predominate and provide good parallels for Balfarg, but the circumstances in which the beads from the cairn at Balfarg were found also have an echo in the formal disposal of the beads beneath a platform cairn at Cloburn Quarry, Lanarkshire (Kemp 1988; Kemp-Clarke forthcoming) and, more distantly, in the 17 disc beads from Achnacreebeag, Argyll, which were found throughout the blocking and in the disturbed portion of the chamber of the chambered cairn (Ritchie 1970, 49, fig 4 & pl 6).

The two bead series from Balfarg are entirely consistent with other finds of jet from Fife and elsewhere in Scotland. The large quantity of disc beads from the cist, from which a tripartite Food Vessel was also recovered, has already been compared with the Dalgety late Beaker burial, in south Fife. It joins other cist burials which have produced sizeable groups of disc beads, such as Almondbank, Perthshire (Stewart 1974), Stoneykirk, Wigtownshire (Mann 1902) and Culduthel Farm, Inverness, whose necklace of 520 jet disc beads remains the largest single find by a substantial margin (Low 1929). The association of disc beads with fusiform ones is almost a characteristic feature of Fife late Beaker/Food Vessel burials, being recorded at Greenhill, Balmerino (Hutcheson 1902), Upper Largo (*Largo Field Historical Soc* 1969) and, most significantly, in the dagger grave at Masterton, Pitreavie (Henshall & Wallace 1963). Here, a short cist with a rare hide burial also contained a necklace of 67 fusiform and 91 disc beads, a bronze dagger, a fragment of another blade and two sheet bronze armlets, all with impeccable Yorkshire, and ultimately Wessex, affinities (Gerloff 1975, 58). The importance of the Yorkshire/Fife axis during the early Bronze Age has been argued elsewhere (Shepherd 1982, 120). It is to this context, one of conspicuous display during the rituals of death, that the Balfarg jet objects belong.

2.3.9 Cremations and Pits at the West Edge of the Site

G J Barclay, C J Russell-White & P N Tavener

To the west of the henge excavated by Mercer, the fifth season sampling exercise revealed Earlier Neolithic pits (p 63 above) and a group of pits associated with Bronze Age cremation burials described here (illus 7).

TABLE 6
Cremation burials in area A

Main Contexts	Burial No.		Weight of Bone		Pot No.
*F2005	8	C	356.2 g	Adult human	
F2006	9	C Truncated	144 g	Adult human (female)	
*F2012	10	C/P Urned crem.	226 g & 18 g	Adult human	P158
F2016	11	C	69 g	Human	
F2018	12	C	58 g	Adult human	
*F2021	13	C/P 2 Urns	415 g	Adult human (? young)	P156 & P157
F2045	14	C			
F2047	15	C Poss. urn	12 g		P159
F2402	16	C/P	121 g	Human	P161
*F2404	17	C/P	121 g	Adult human	P162
F2053	18	?P Poss. urn			P160
*F2054	19	?C	11.1 g		
F2057	20	?C			

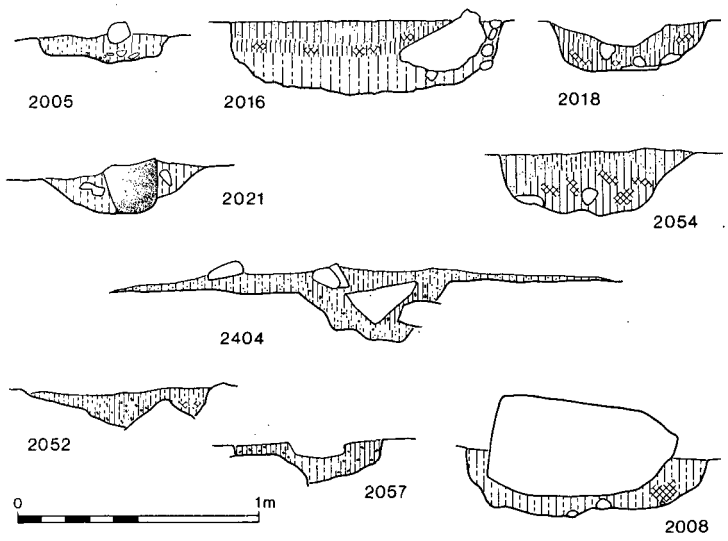
C = crem P = pot * = detailed description follows

ILLUS 54 A Bronze Age cremation pit in Area A (F2021), containing the remains of two urns: one is upright, the other seems to have been deposited upside down when already reduced to a fragmentary base

There were 10 deposits of identifiable human cremated bone (Burials 8–17) and three further probable burials (18–20) in Area A, in a group of pits, all of which had suffered considerable disturbance. Two of the pits contained substantial remains of two urns (F2012–P158, F2021–P156). Both urns were upright, although the latter was accompanied by the everted base of a further urn (P157 – illus 54 & 55), apparently placed in a broken state. There is some evidence for medieval activity in the area, and one pit was sealed by a soil which may be of that period. It is suggested that the disturbance of these pits was begun at the latest in the medieval period, and that little new damage has been done since. One of the larger deposits (F2005) was surrounded by a 'halo' of stones, containing a high proportion of quartz pebbles (illus 7). The survival of this must make us consider how the truncation of the pits and of the subsoil into which they are cut has occurred. It is possible that a combination of worm and plough action might allow a proportion of a dense concentration of stones to settle through the disturbed soil (Atkinson 1957; Reynolds & Barber 1984).

As with the Neolithic features, these burials occupy the summit of a low ridge separated from the henge by a dry valley. They lie c 50 m from the south-west entrance to the henge and their position, on the nearest prominent site to that entrance is surely significant, as is the absence of such burials within or immediately around the henge enclosure (insofar as this could be confirmed by the pattern of sample trenches).

F2005 – Burial 8 (illus 55) A shallow, irregular, sub-rectangular scoop cut vertically on one side, containing two layers. A roughly circular deposit (c 0.2 m in diameter) of dark brown silt loam and



ILLUS 55 Sections of Area A cremation pits and features likely to be associated with them

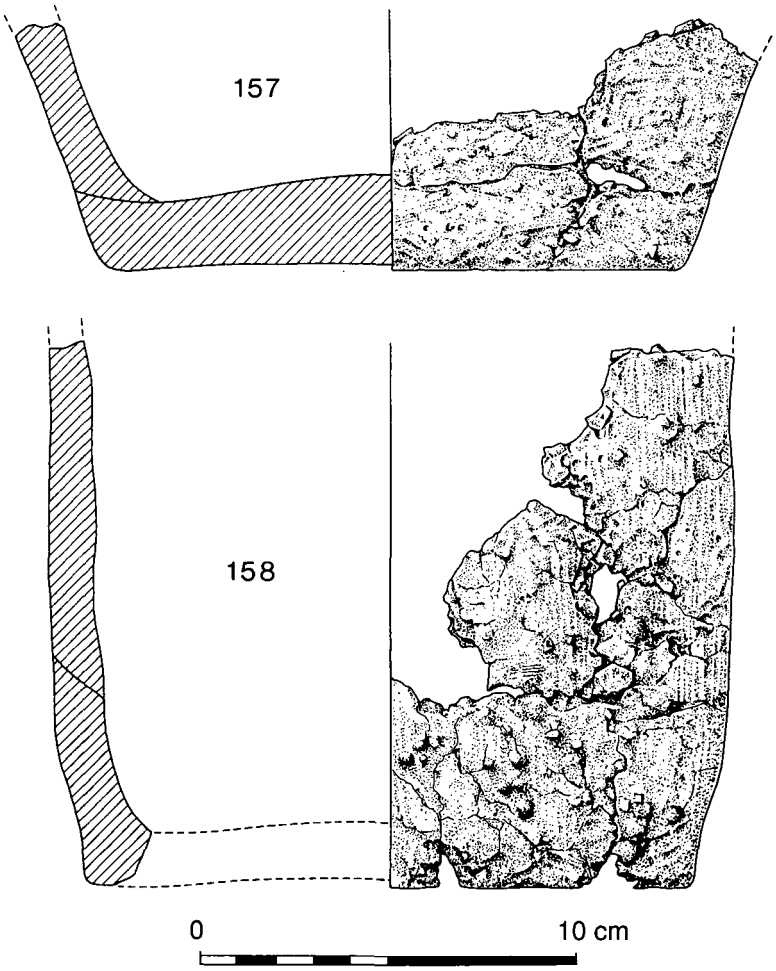
burnt bone, which appeared as a circular patch on the surface, but was more spread about lower down (possibly by animal disturbance), overlay a medium brown silt loam forming the bulk of the pit fill. This contained very few fragments of burnt bone, which were identified as those of an adult human of indeterminate sex. The pit was surrounded, at a distance of c 1 m, by a halo of pebbles containing a high proportion of white quartz.

F2012 – Burial 9. An ill-defined small pit containing the remnants of an urn (P158) and cremated bone. There were two deposits of bone, one within the urn, the other found under a large stone to one side of the urn. The bone within the urn was possibly of an adult, but the sex could not be determined. The smaller collection of bone could not be identified.

F2021 – Burial 13 (illus 54 & 55) A small, irregular, sub-square scoop containing the bottom half of an urn in a relatively intact condition. The urn (P156) was the right way up and contained a moderate quantity of burnt bone in a medium brown soil. Adjacent to the urn (on its north side) was the inverted base of another urn (P157). No other sherds of this vessel were identified during excavation, and its position at the base of the pit would seem to indicate that it was deliberately placed and that only the base was deposited. The cremated bone was identified as of a young adult or adult.

F2404 – Burial 17 (illus 55) The shallow remnants of a scoop c 0.6 m in diameter and 0.3 m deep, containing four layers: a bowl of very dark brown silty clay loam containing many small sub-angular stones and cremated human bone (identified as adult human), overlying heavily charcoal-impregnated dark black/brown silty loam containing a shallowly pitched slab in its upper part, as well as several large and medium stones around the edge of the layer, set around and slightly higher than the slab. The pitched slab was blackened underneath, and the charcoal and sooty soil below this contained burnt plant impressions, probably of grasses. The bottom of the feature was concreted and slightly fire reddened.

F2054 – Burial 19 (illus 55) A medium-sized, nearly circular pit. The deposit of burnt bone was well defined and domed, suggesting perhaps the deposition of a bag full of material.



ILLUS 56 Bronze Age Urns: vessels P157 and P158

Pits possibly related to the cremations There are a number of pits in the area of the cremation deposits which have a similar nature, but are not associated with significant quantities of burnt bone or urn pottery. They all have clear concentrations of charcoal. Some show signs of burning *in situ*. Their numbers are: F2008 (sealed by boulder; illus 55); F2017; F2024; F2027; F2046 (sealed by boulder); F2051; F2052 (illus 55); F2056; F2420; F2422; F2425 (stone-capped charcoal deposit); F2439 (indeterminate bowl-shaped deposit of charcoal).

2.3.10 The Bucket Urns: vessels P156–P158

T G Cowie

Context The pits in Area A described above produced portions of what appear to be plain bucket-shaped vessels with slightly expanded upright rims, simple slightly convex profiles and flat or slightly sagging bases. In only one case is a complete profile available (P156; not

available for illustration); in the case of P157 and P158 only parts of the base and lower body have survived. The loss of the upper portions of these vessels may be a reflection of their burial in an upright position – a trait which distinguishes bucket urns from other varieties of cinerary urn in which inversion of the vessel is virtually orthodox practice (cf Morrison 1968).

Description There is little to add to the brief description of the salient features of these vessels, beyond noting that the coarse, well-gritted fabric is for the most part distinguishable from the Neolithic pottery recovered from Area A (see p 69 above).

This small group of bucket-shaped urns lacks close parallels in the region, where the inventory of cinerary urns is dominated by collared and cordoned urn types, and it is necessary to look to the south-west of Scotland for broadly similar types of vessels (eg Morrison 1968). As noted above, however, truncation of the upper portions of most of the vessels as a result of their burial in an upright position has rendered an already relatively formless type of vessel even less susceptible to comparison.

2.4 FEATURES LOCATED BETWEEN THE HENGE AND THE BRS ENCLOSURE (AREA B)

G J Barclay & C J Russell-White

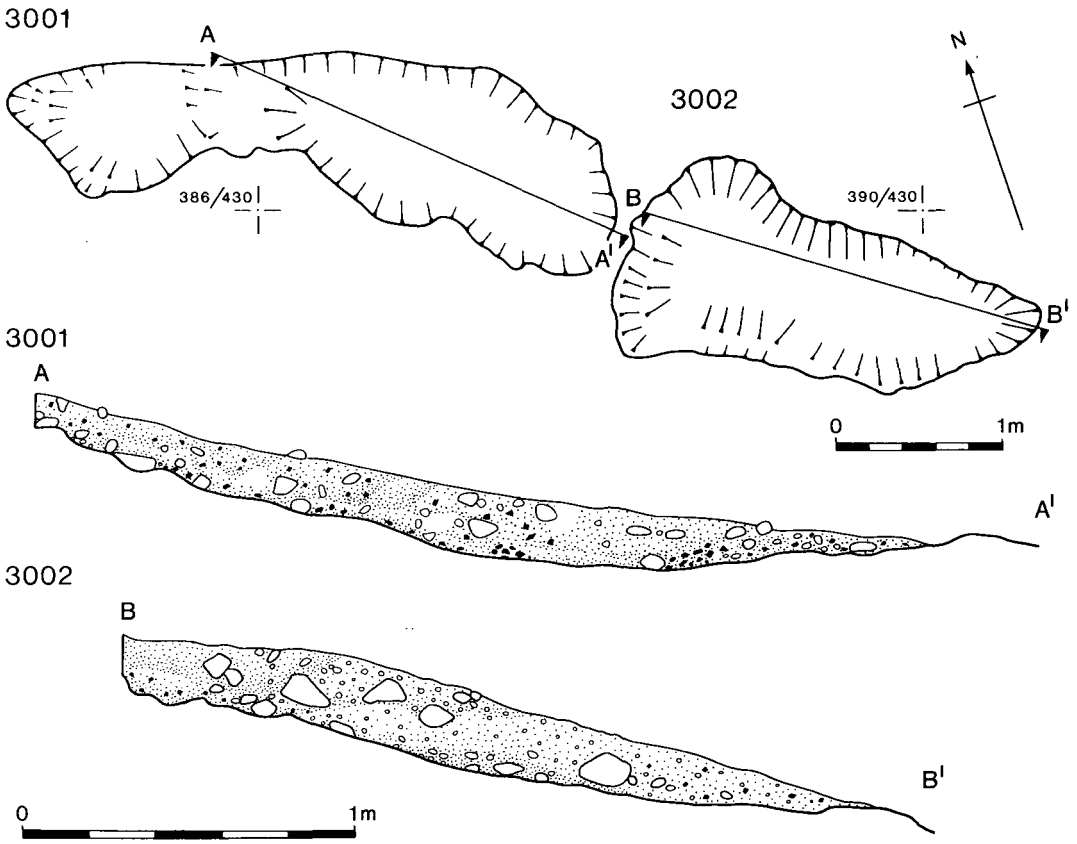
Fourteen trial trenching lanes and the extensions to them formed the bulk of the sampling area between the henge and the BRS site (illus 4). Over large areas of Area B a considerable depth of 'A' horizon buried beneath the modern 'Ap' horizon was encountered, especially around the north-west side of the henge, and also along the edges of the hollow located to the immediate east of the east end of lanes 3–10. It was obvious that considerable sculpturing of the area had taken place resulting in a levelling out of the ridges and hollows; it is possible that this mainly post-dated the Neolithic activity. To the north-west of the henge a buried soil was noted, especially in lanes 3 and 11 and in a small test trench by the entrance to the henge.

To the north-east and east of the henge many of the features were isolated, heavily truncated and of unknown date and function. Only two small areas produced evidence of any note, both on the east side of the henge, ie F3001 and F3002 (possible cooking pits) and the scatter of small post-holes and pits associated with an area of paving (F3066).

The Features

Lane 6 Over most of lane 6, topsoil depths were 0.3–0.4 m except at the east end where the lane cut into the edge of a natural gully or hollow, with topsoil accumulation rising rapidly downslope to over 1.2 m. Near the east end of the lane two pits were found both on the break of slope.

F3001 (illus 57) was an elongated pit c 3 m long by 0.9 m wide. Only the bottom 0.2 m survived but, given its vulnerable position on the break in slope of the natural hollow, this is not surprising. In all, some 14 distinct soil layers were found; these can be simplified. Generally the upper fill was a medium brown silty sandy loam with charcoal flecking. There was some animal disturbance. The bottom fill was dark, heavily charcoal-stained and often distinctly red in hue, interpreted as burning *in situ*. This interpretation was reinforced by heavy red staining, not just of the natural on the cut but also extending some 0.1 m down into the subsoil, indicating considerable temperatures. The complexity of the fill suggests deliberate deposition, ie backfilling. Considerable quantities of



ILLUS 57 Bronze Age pits in Area B, lane 3

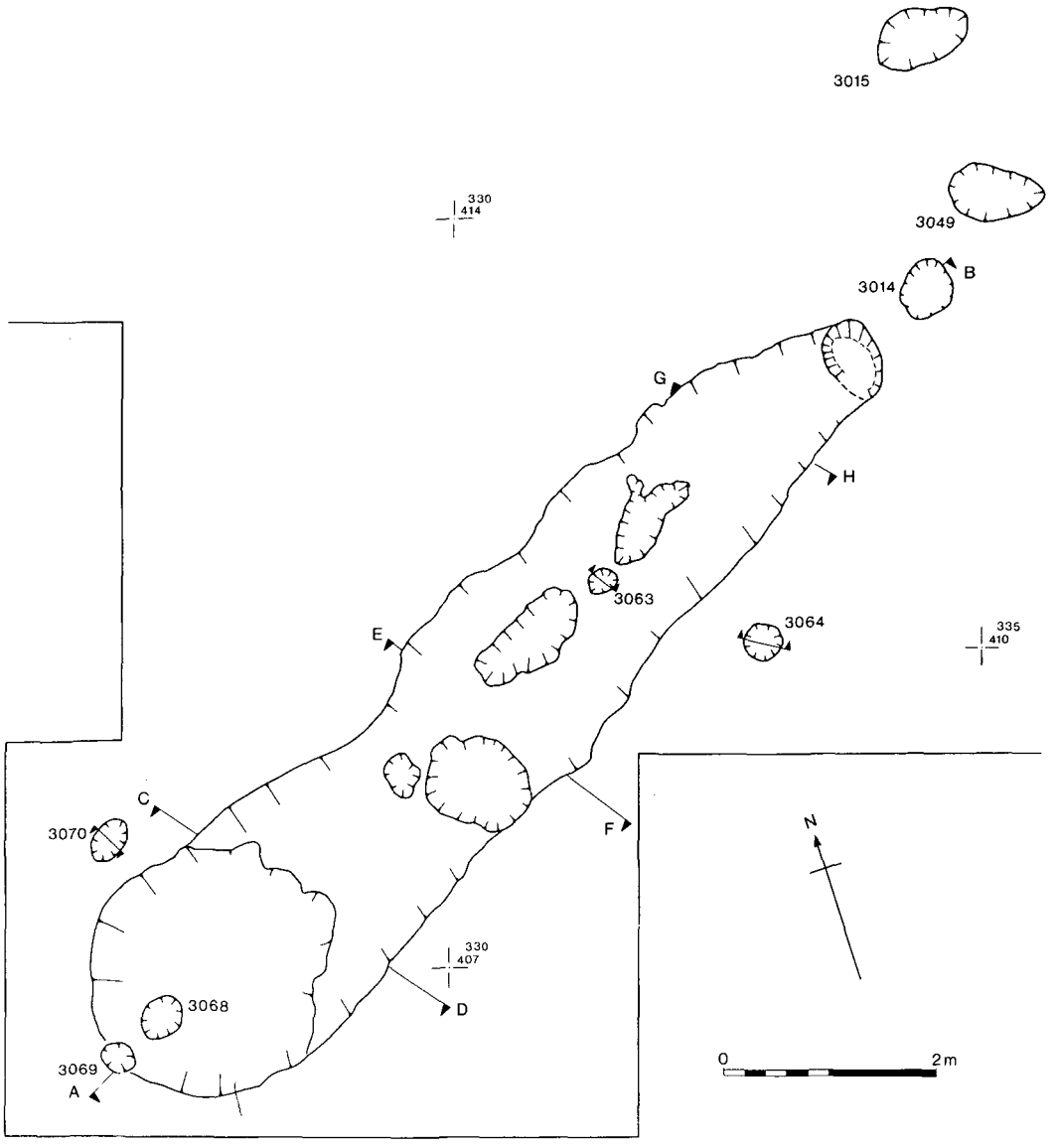
seeds were retrieved: there were more than 350 grains of hulled six-row barley (between 20% and 60% of each sample examined). Two samples of charcoal and cereal grains were radiocarbon dated.

GU-3263 1310±50 BC uncal
GU-3264 1230±50 BC uncal

F3002 (illus 57) was an almost identical pit located some 0.2 m to the WNW of F3001, with a fill consisting of an upper layer of medium brown sandy loam with charcoal flecking, and underlying deposits of charcoal and burnt soil with heavy burning of the subsoil surface.

The proximity of these two pits, suggesting that they were part of an arc, led us to believe that we had found part of a larger feature group but no further features were found in an extension to the original trench.

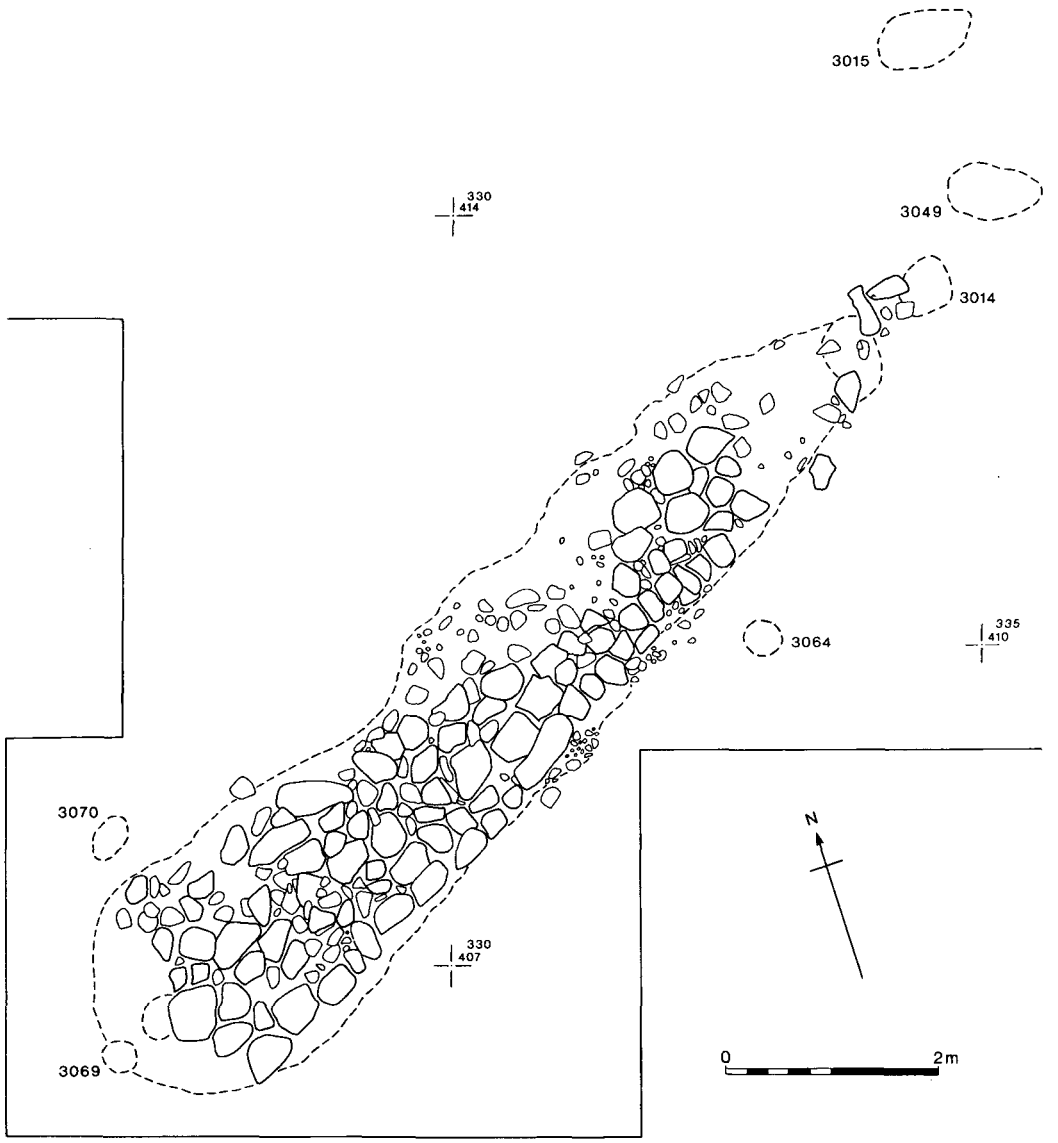
Lane 7 In the central part of lane 7 a possible pit (F3008) was located; it measured c 1.5 m long by c 0.75 m wide and 0.13 m deep and was filled with dark brown silty loam and two large stones but very



ILLUS 58 Linear hollow (F3065) with the paving (F3066) removed, and associated features, in lane 7

little charcoal. It was obviously heavily truncated, and was of unknown date or function. In addition there were three possible post-holes in the same area: F3009, F3012 and F3045.

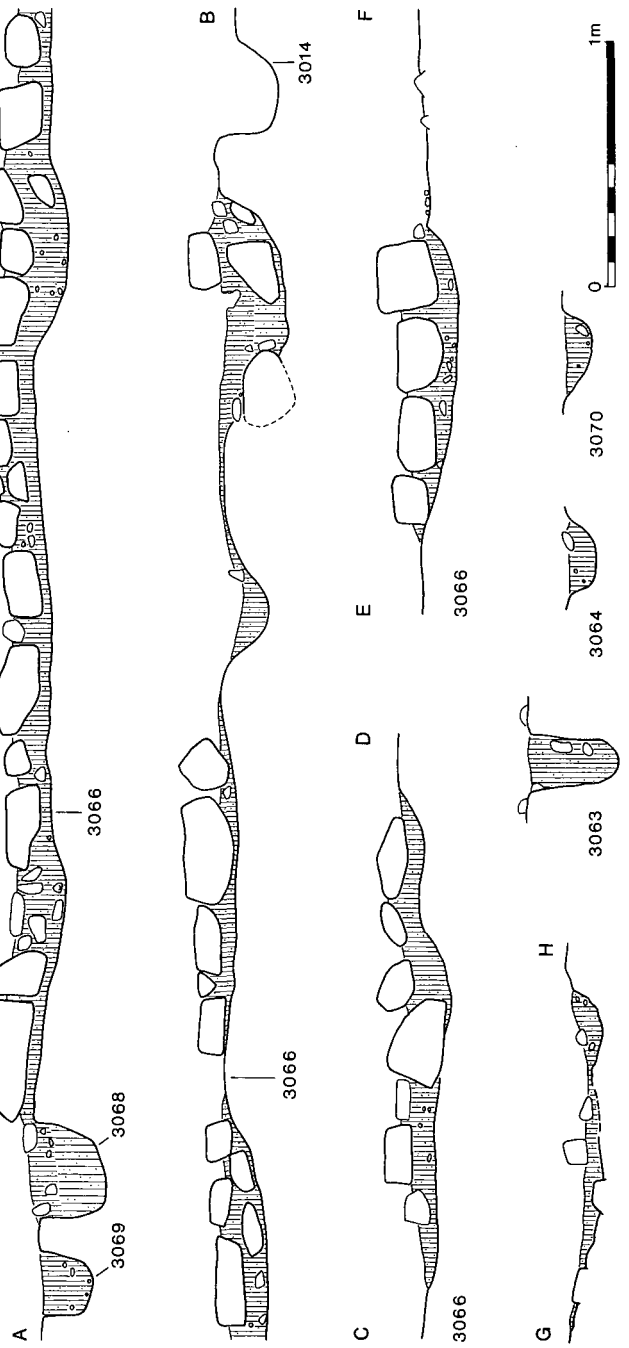
In the western part of lane 7 the discovery of three features in close proximity led to an extension of the excavated area to the south of the three small featureless pits discovered in the original lane (F3014, F3015, F3049). In this expansion of the lane there was a shallow hollow (F3065: illus 58), measuring c 10 m long by 2.4 m, tapering to 1.4 m at the north-east end, containing two soil layers which underlay an area of stone paving (F3066: illus 59). There were a number of features in the area, including five post-holes: F3063, F3064, F3068, F3069 and F3070.



ILLUS 59 Paved feature (F3066) and associated pits in Area B, lane 7

F3066 A layer of closely laid stone paving, defined by a kerb on the south side and tentative suggestions of a kerb on the north side, lay in the upper fill of F3065. The paving may have been truncated at the north-east. The soil covering the paving produced a dozen barley grains and slaggy material.

F3067 A line of stones set on edge along the south side of F3066, and contained within scoop F3065. They are parallel to the edge of the scoop.



ILLUS 60 Sections of features shown on illus 58 and 59

The features located within F3065 form a somewhat enigmatic group. The scoop itself is undoubtedly of human origin. In plan, there is a suggestion that the post-holes F3049, F3014, F3069, F3068 and F3063 form a rough line. Note that several small irregular depressions in the bottom of the scoop also fall along this line. It is tempting to see F3068 and F3069 as a pair at one end matched by F3013 and F3014 at the other, although the true extent of the paving and scoop at this end is unknown. It is not possible to state with any certainty whether any of these posts protruded through the paving at any stage.

SECTION 3: NON-PERIOD-SPECIFIC SPECIALIST CONTRIBUTIONS

3.1 THE STONE ASSEMBLAGE

C R Wickham-Jones & D Reed

Introduction The total assemblage of flaked stone from the excavations at BRS comprises 256 pieces. A total of seven different materials are present: flint, agate, pitchstone, chert, chalcedony and mudstone. The majority of the assemblage (75.78%) is flint (illus 61a). In addition there were four other worked stones (S31–S34) which are described in the full catalogue which is presented on the fiche.

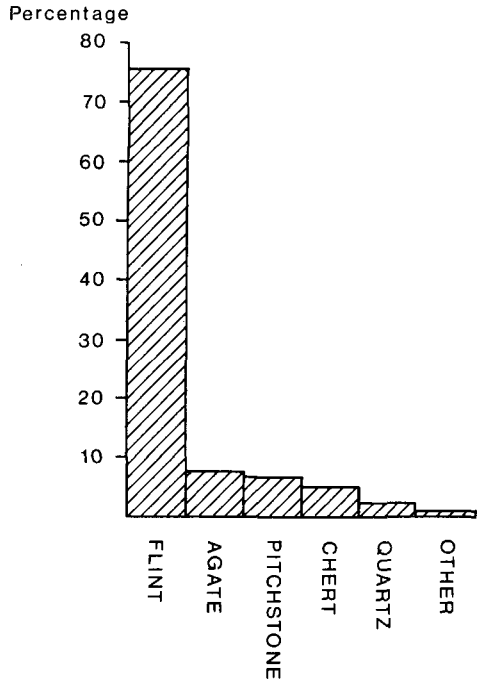
Location The assemblage has been divided into seven basic units: the Earlier Neolithic, Structure 1, Structure 2, the fills of the BRS enclosure ditch, Beaker activity, the ring-ditch/ring-cairn sequence, and the cremation pits.

Materials and condition The flint is entirely pebble flint derived from local gravels such as those of the north Fife coast, 18 km away (Wickham-Jones & Collins 1978). The distinctive colours of the flint suggest that only a small number of nodules is presented in the assemblage. About 20% of the flint is corticated in a process of post-depositional change (Shephard 1972). Of the other materials (illus 61a), all except for the pitchstone were locally available in similar gravels. The only exposure of pitchstone in Scotland used in prehistory occurs on Arran (Thorpe & Thorpe 1984). Although it is found on many prehistoric sites, pitchstone is only ever present in small amounts. At BRS most of the pieces are inner flakes and the knapping of only one nodule is represented, though the final waste core was not recovered during the excavation.

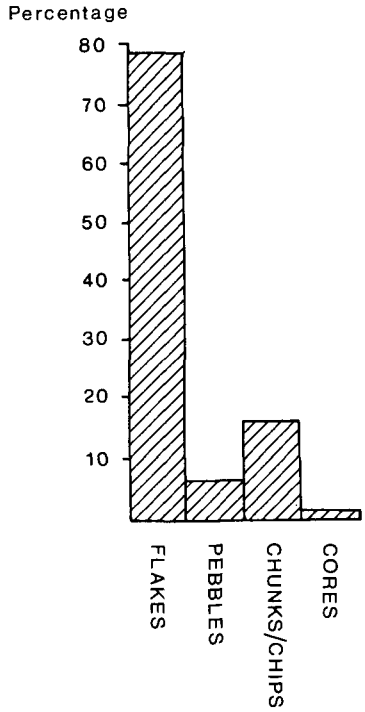
Random dull surface polish is present on about 25% of the flakes distributed evenly throughout the site. This may reflect post-depositional conditions.

Technology There is little evidence of *primary* knapping on site; only 30% of the flint is debitage. At BRS the detachment characteristics on the flakes indicate the predominant use of soft-hammer percussion on to nodules on which artificial platforms had been prepared. The edges of these platforms were carefully trimmed and maintained. On 16 of the flakes the platform had been further prepared by the removal of small facets. Such faceted platforms are particularly suitable for use with indirect percussion. The use of a punch to transmit force to the core assists the production of regular flakes and it is noteworthy that the majority of the flakes in the BRS assemblage are indeed very regular.

Only two cores were recovered. Both are bipolar, a technique in which the core is seated on an anvil (Clarke, Cowie & Foxon 1985). It is particularly suitable for pebble flint. The majority of the flakes, however, appear to have been removed from platform cores and it is likely that careful maximization of the flint resource led to the development of bipolar cores from exhausted platform cores.



ILLUS 61a Histogram showing the composition of the materials used in the flaked stone assemblage



ILLUS 61b Histogram showing the breakdown of the flaked stone assemblage by type

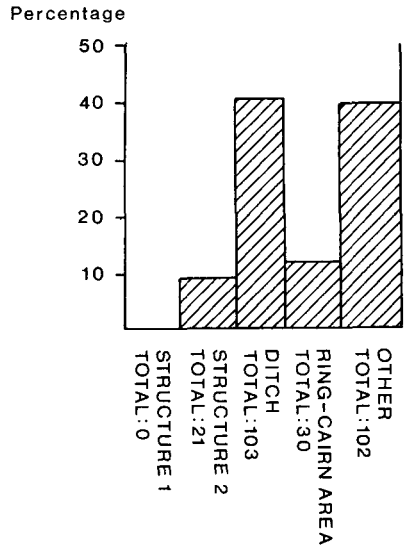
The knappers at BRS were apparently intent on producing flakes. Despite the poor quality of the raw material the flakes are generally uniform and regular. Although 43% of the flakes are broken the majority have lengths of edge quite suitable for use without modification.

Secondary Knapping

A high proportion of the pieces at BRS (13%) has been selected for alteration. This selection appears to have taken place on a basis of suitability for the proposed modification and there is slight evidence that the knappers preferred *secondary* flakes, perhaps because of their general robustness over the finer inner flakes. Only flint was selected for secondary modification.

Secondary knapping may be used in two ways: to create a specific working edge or to alter the shape of any piece. At BRS the majority of the pieces have been retouched to create a specific working edge. In many cases pressure flaking has produced shallow, parallel-sided retouch and has created an acute edge (eg S26 (illus 65), S29). On the scrapers the retouch is coarser, the likely result of percussion retouch, probably from a small hammer stone (eg S12; illus 65).

On three pieces the whole shape of the original flake has been modified: the three bifacial points. Two are leaf-shaped (S22 – Green type 4A; S23 – Green type 3C; illus 66) and one is barbed and tanged (S14; illus 65). There is also a broken tip that may be from a bifacial point. All have fine retouch, no doubt the result of pressure-working which has both thinned the original flake and shaped the edges. The broken barbed-and-tanged point (S14) is unusual as it has been snapped and then reworked across the break into a very blunt piece, still barbed-and-tanged.



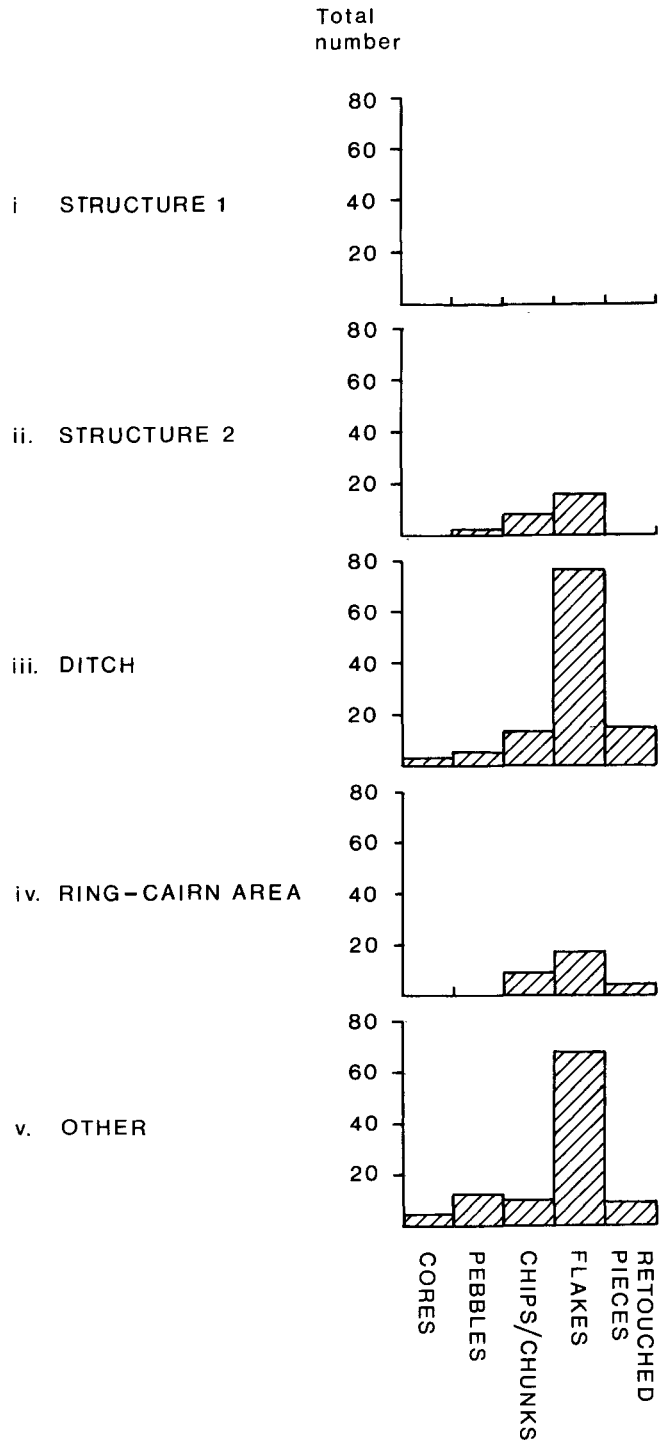
ILLUS 62 Histogram showing the location of flaked stone on the site

Four of the flakes have very finely serrated edges (S9, S8, S13, S24). Long, fairly regular blades were selected and only one edge serrated. This may be done by applying pressure from the edge of another blunt flake or chunk. In one case (S9) the resulting serrations are particularly fine. All of these pieces have visible 'sickle-gloss' along the serrated edge; there are, in addition, two similar flakes with 'sickle-gloss' but no serration, and these presumably belong to the same class of tool.

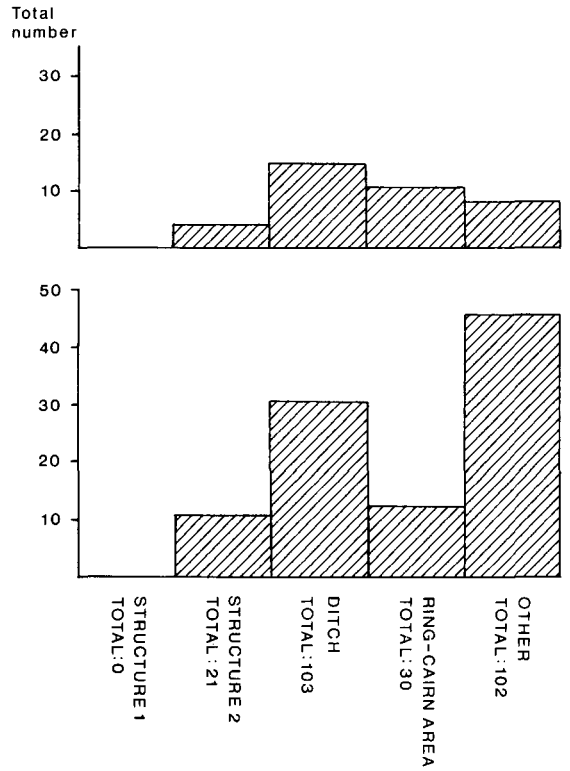
One further type of secondary modification is present in the assemblage. Two small flakes have remnant polished surfaces. They do not refit but are made on the same raw material and may have come from the same polished artefact.

The analysis shows the assemblage as a whole to have been made of similar materials and with similar techniques. There is no concentration of any particular artefact or material types in any of the specific locations. When divided into the five basic locations, however, some general morphological differences within the assemblage are highlighted (illus 62, 63).

Distribution The majority of the assemblage (103 pieces) comes from the ditch, mainly from the upper levels (where the predominant pottery type was Beaker) and some flakes could be refitted. Within the ditch there is little debitage and a high percentage of retouched and regular pieces (45% of this assemblage was broken and 16% burnt: illus 64). The ring-ditch/ring-cairn area contained 30 pieces (37% of the assemblage was broken and 37% burnt) mostly flakes with some debitage and two retouched flakes. From timber Structure 2 only 21 pieces were recovered. Again the assemblage was mainly flakes, but with a high proportion of debitage and a complete absence of retouched pieces. An unusually high proportion (67%)



ILLUS 63 Histogram showing the breakdown of the assemblage by type and location



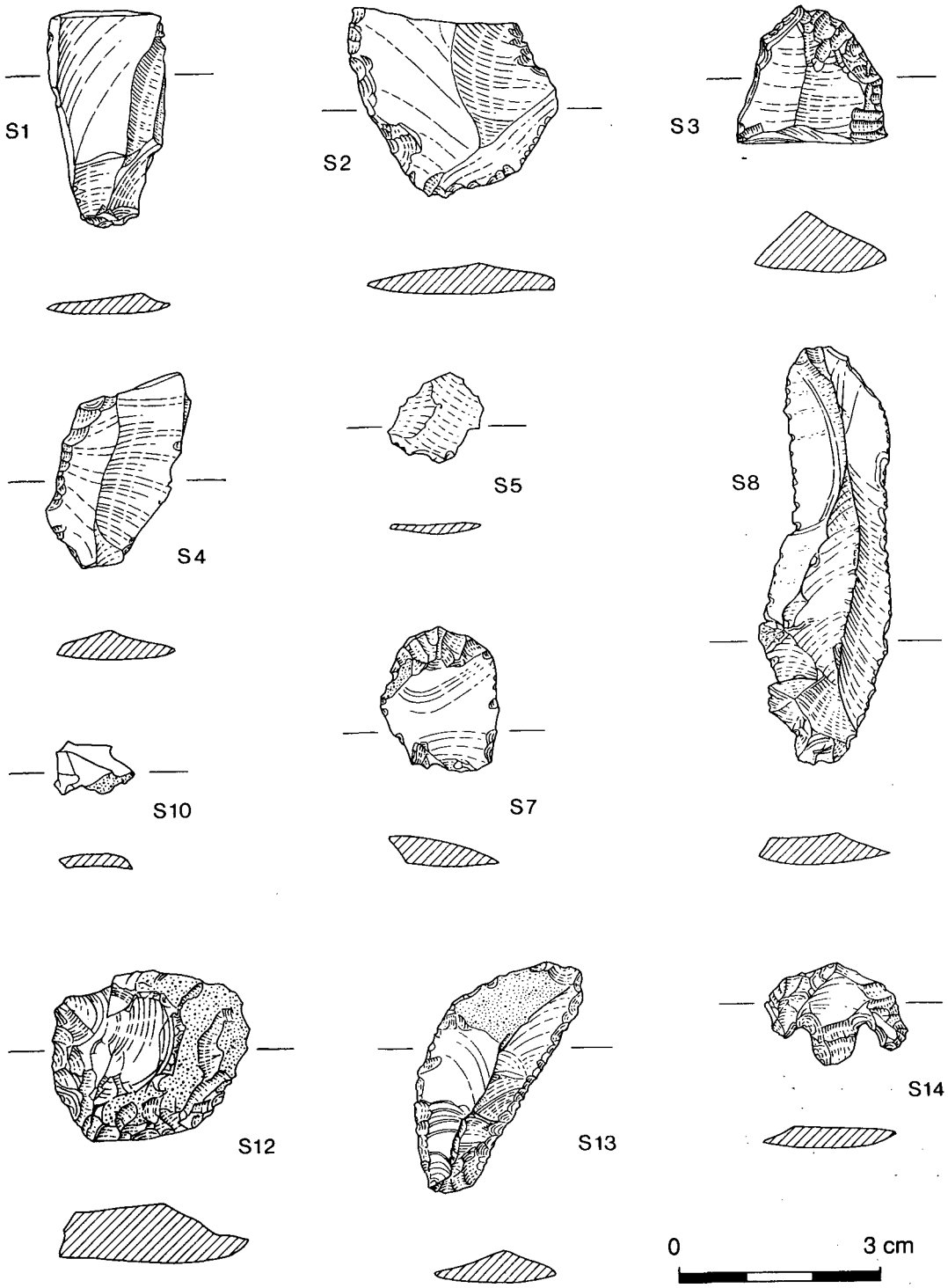
ILLUS 64 Histogram showing the location of broken (above) and burnt (below) flaked stone, by area

of these pieces were broken and 20% were burnt. Structure 1 contained no flaked stone at all. The amounts from the surface between these contexts is small and comprise mainly flakes and debitage with seven retouched pieces (44 of these were broken and seven were burnt). Three pieces came from disturbed or recent contexts. No conjoining flakes were found between any of the units.

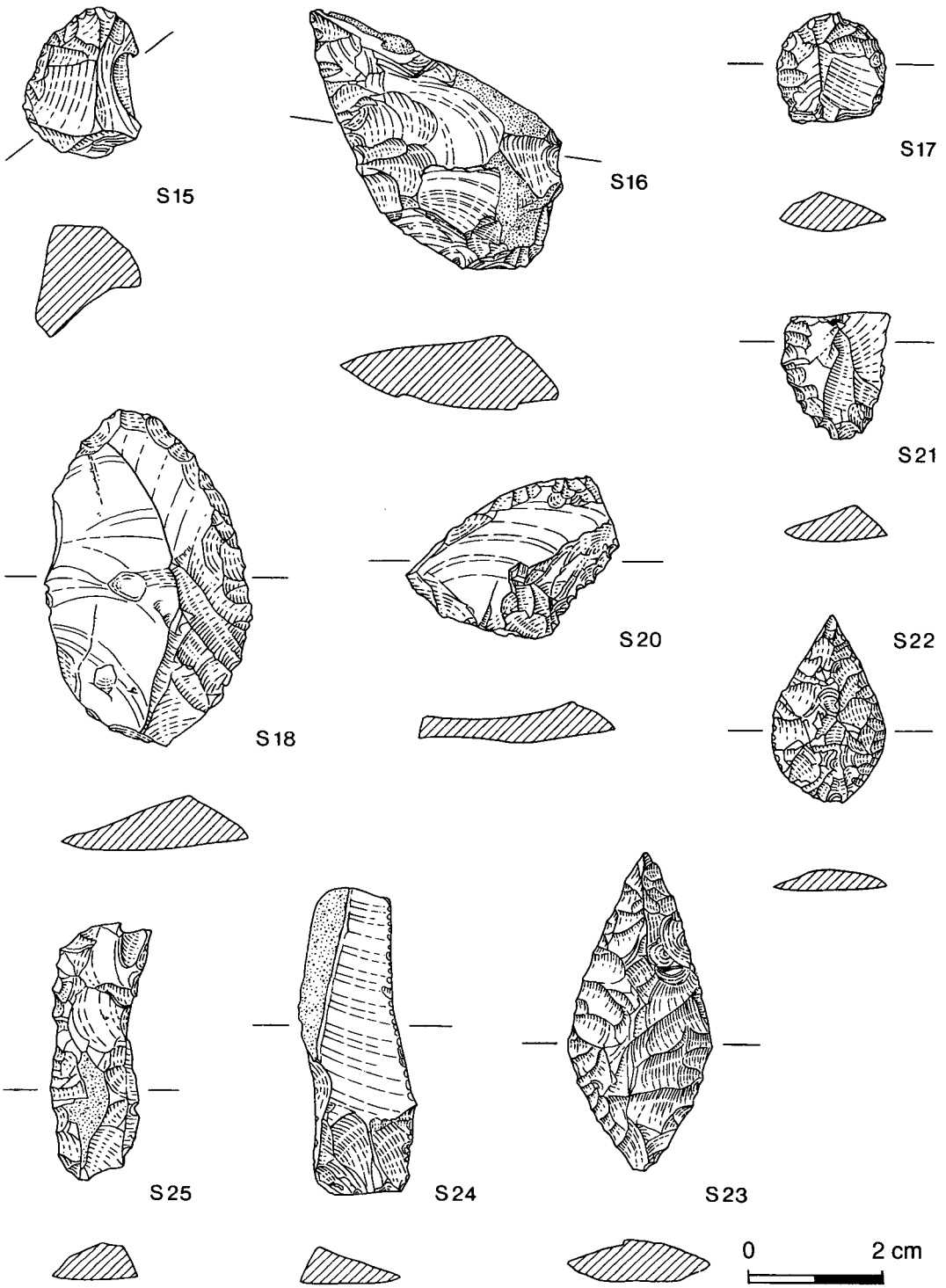
Function The small amount of debitage and the high percentage of good-quality flakes, together with the retouched pieces, indicate that the assemblage as a whole does not represent knapping *in situ*. In addition, there are signs (such as the 'sickle-gloss') that some of the pieces have been used. Clearly, deposition of used artefacts is represented, whether this was accidental or deliberate.

The unusual spatial patterning, together with the large percentage of retouched pieces in some areas, suggests some deliberate, selected deposition. The small size of the assemblage might support this argument though, alternatively, it may have resulted from the accumulation of the assemblage over a short period of time.

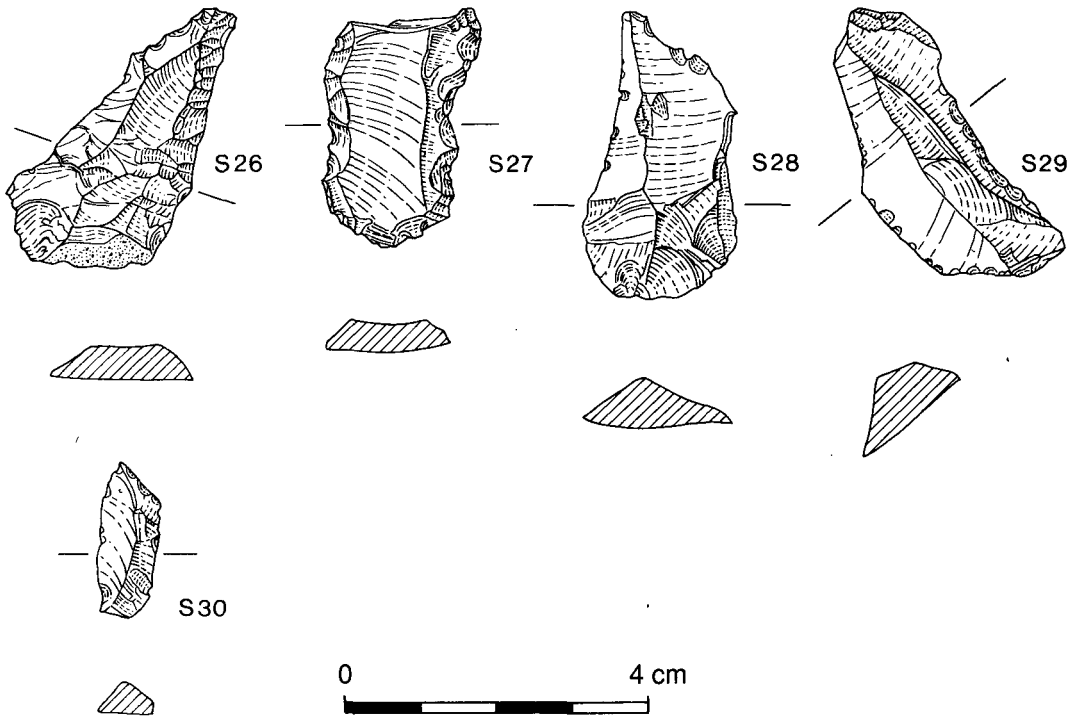
As far as individual pieces are concerned it is impossible to assess function without a detailed micro-wear analysis. The presence of a macroscopic gloss upon six of the



ILLUS 65 Flaked stone



ILLUS 66 Flaked stone



ILLUS 67 Flaked stone

pieces shows that the assemblage from BRS does have potential for such a study, but in the absence of this work no firm conclusions can be drawn about the use of any specific piece.

Cultural affinities It is very difficult to draw cultural information from such a small assemblage though one or two general trends may be observed. Technologically, knapping tends to be related very much to the raw material but the use of faceted platforms is prevalent in the late Neolithic throughout Britain and has been called by some a Grooved Ware trait (Manby 1974). Scrapers are few in number at BRS (five): there are the large, coarse types (eg S7) frequently associated with the late Neolithic, and the smaller more rounded scrapers frequently associated with Beakers (eg S17). The serrated edge flakes with pronounced gloss are unusual in Scotland but are more common on a variety of sites in the Later Neolithic farther south.

It is interesting to note that the two leaf-points were recovered from the old land surface buried by cairn A whilst the barbed-and-tanged point, together with the thumbnail scraper and other scrapers, came from the ditch of the BRS enclosure.

Discussion The assemblage of flaked stone recovered from the excavations at BRS is small, only 256 pieces were present, and it seems to have resulted from the specific

deposition of lithic artefacts, including some used pieces, across the site. Although consideration of the collection practices suggests that not all may have been recovered, the assemblage would indeed seem to be a representation of those originally deposited on site.

Although a variety of materials was used, flint was preferred and, with the exception of the pitchstone, all were local. Knapping seems to have taken place elsewhere, but the detachment characteristics suggest that the flint was utilized carefully with the aim of producing large, regular flakes, some of which were further modified. The value of flint to the knappers is emphasized by the presence of two reworked pieces taken from a large (presumably discarded) polished artefact. The value of the lithic materials generally is emphasized by the introduction of a small quantity of Arran pitchstone transported for some reason the 120 km from Arran.

The sites at BRS are, of course, only a part of a much larger complex of remains including both the Balfarg henge, 250 m to the west (Mercer 1981) and the stone circle at Balbirnie 100 m to the south-east (Ritchie 1974) and it is instructive to consider the complex as a whole. At Balbirnie only two pieces of flint were found. The so-called 'knife' was very similar to some of the edge retouched pieces from BRS. Mercer's excavations at Balfarg henge recovered an assemblage of 102 pieces of similar materials (with the exception of pitchstone) to that from BRS. Most of the assemblage came from the ground surface and was apparently associated with activity prior to the construction of the henge. Amongst the retouched pieces are a number of edge-retouched pieces and one barbed-and-tanged point. There was little evidence of on-site knapping amongst the assemblage. One interesting similarity to be noted is the presence at both Balfarg henge and BRS of pieces from polished flint artefacts.

Although knapping techniques in use in any part of the monument complex varied (there was, for example, no evidence of bipolar flaking at Balfarg henge) the part played by the lithic assemblages in different parts of the complex was comparable. There would appear to have been a general spread of debris on the ground surface prior to the construction of the monument. This may well have resulted from occupation but the later activity has rendered any interpretation uncertain.

None of the excavations located any areas that appeared to be primarily associated with knapping activities though they must be close-by as small amounts of debitage have made their way into each assemblage. Each excavation produced a surprisingly high percentage of retouched pieces and the material from the henge includes, as at BRS, many large regular flakes. In each case, therefore, the use and deposition rather than the manufacturing of specific artefacts is represented, particularly amongst the pieces associated with individual monuments.

3.2 RADIOCARBON DATING AND CALIBRATION

3.2.1 The charcoal samples and radiocarbon dates

G Cook & R McCullagh

The radiocarbon dating programme, on charcoal identified by Mr R McCullagh, was undertaken by Dr Gordon Cook at the Scottish Universities Research & Reactor Centre at East Kilbride. The only exception to this was the accelerator date obtained for a carbonized cereal grain, identified by Mr Alan Fairweather, from a pottery vessel.

TABLE 7
Radiocarbon samples and dates
The following samples were submitted for radiocarbon dating.

Sample no.	Identification	Context	Date
GU-1670	*Corylus avellana*	Heavily charcoal-impregnated layer in BRS ditch	4425±50BP $D^{13}C = -26.5‰$
GU-1902	*Alnus, Betula, Corylus, Salix spp*	Charcoal-impregnated fill of ill-defined Grooved Ware pit (F1002)	4250±85BP $D^{13}C = -26.7‰$
GU-1903	*Alnus glutinosa, Corylus avellana, Fraxinus sp*	Charcoal-impregnated fill of Earlier Neolithic pit (F8017)	4765±55BP $D^{13}C = -24.8‰$
GU-1904	*Alnus, Betula, Corylus spp*	As GU-1670	4385±55BP $D^{13}C = -26.7‰$
GU-1905	*Alnus sp*	Charcoal from post-pipe in interior of Structure 2	4285±55BP $D^{13}C = -26.5‰$
GU-1906	*Quercus, Alnus spp*	Post-pipe of boundary post of Structure 2, southern end (F7044)	4155±70BP $D^{13}C = -27.3‰$
GU-1907	*Quercus, Alnus spp*	Post-pipe of boundary post of Structure 2, southern end (F7041)	4330±85BP $D^{13}C = -24.7‰$
GU-2604	*Corylus avellana, Quercus sp. Salix sp.*	As GU-1903	5170±90BP $D^{13}C = -25.4‰$
GU-2605	*Quercus*	As GU-1903	4950±90BP $D^{13}C = -25.2‰$
GU-2606	*Corylus avellana*	Charcoal-impregnated fill of Earlier Neolithic pit (F2050)	4720±70BP $D^{13}C = -27.4‰$
UtC-1302	*Hordeum sp.*	Grain within potsherd from F2212	4830±40BP $D^{13}C = -24.2‰$
GU-3263	*Corylus avellana, Alnus glutinosa, Hordeum*	Cooking pit (F3001)	3260±50BP $D^{13}C = -27.1‰$
GU-3264	*Corylus avellana, Alnus glutinosa, Hordeum*	Cooking pit (F3001)	3180±50BP $D^{13}C = -27.2‰$
Radiocarbon dates from the pit dug for the soil report (see Jordan above)			
GU-2111	*Undifferentiated organic matter*	Unit 13	6700±170BP $D^{13}C = -28.45‰$
GU-2112	*Alnus glutinosa*	Unit 7	4820±90BP $D^{13}C = -27.37‰$
GU-2113	*Alnus glutinosa*	Unit 8	4940±60BP $D^{13}C = -28.47‰$
GU-2114	*Salix sp*	Unit 12	6620±60BP $D^{13}C = -28.16‰$

3.2.2 The calibration of the radiocarbon dates

M Dalland

The dates were calibrated using data from Pearson *et al* (1986), producing a calibrated probability distribution (PD) for each date. From the PD curves can be calculated the short (SCR) and the long continuous range (LCR). These are, respectively, the shortest continuous ranges for which the probability of the date to lie within their limits, adds up to $\geqslant$ 68.26% and $\geqslant$ 95.45%. These values are equal to the probabilities of the one and two-sigma ranges of a normal distribution. The calibrated probability distributions have irregular shapes: there is a marked peak around 2900 BC which appears in several distributions.

Table 8 shows the SCR and LCR of the calibrated dates from Balfarg, as well as dates, calibrated using the same process, from Balfarg henge and Balbirnie stone circle.

TABLE 8
Radiocarbon calibrations

Sample	Context	raw date	Short Calibrated Range range (BC)	Short Calibrated Range probability (%)	Long Calibrated Range range (BC)	Long Calibrated Range probability (%)
BALFARG RIDING SCHOOL						
Early/Mid Neolithic Pits and Pottery						
GU-1903	8017 Cowie gp 1	4765±55BP	3645–3505	68.49	3685–3380	96.29
GU-2605	8017 Cowie gp 1	4950±70BP	3790–3650	68.65	3955–3625	95.45
GU-2604	8017 Cowie gp 1	5170±90BP	4035–3830	69.95	4225–3780	95.79
GU-2606	2050 Cowie gp 2	4720±70BP	3605–3385	70.22	3670–3345	95.85
UtC-1302	2212 Cowie gp 2	4830±40BP	3675–3545	69.16	3710–3510	95.57
Timber Structure 2						
GU-1905	7023B	4285±55BP	2990–2880	68.72	3040–2770	95.49
GU-1906	7044B	4155±70BP	2920–2700	69.09	2925–2540	95.59
GU-1907	7041B	4330±85BP	3030–2885	68.68	3305–2770	95.55
Charcoal Impregnated Layer Containing Grooved Ware in Ditch						
GU-1904	013/102	4385±55BP	3045–2905	69.09	3275–2900	95.64
GU-1670	013/012	4425±50BP	3100–2915	69.37	3300–2915	96.06
Grooved Ware Pit						
GU-1902	1002	4250±85BP	2930–2750	68.64	3040–2610	95.59
Later Bronze Age pits						
GU-3263	3001	3260±50BP	1650–1510	68.58	1680–1430	95.70
GU-3264	3001	3180±50BP	1520–1415	73.79	1585–1320	95.68
BALFARG HENGE						
GU-1160	Post A7	4180±50BP	2915–2735	68.41	2915–2625	95.73
GU-1161	Post A11	4035±50BP	2620–2465	69.12	2855–2460	95.67
GU-1162	Post A11	4270±60BP	3015–2885	69.45	3020–2705	95.90
GU-1163	Post A11	4315±60BP	3015±2900	70.94	3080–2780	95.51
BALBIRNIE STONE CIRCLE						
GaK-3426	On stone setting	2840±80BP	1115–900	68.49	1260–835	95.87
GaK-3425	Beaker burial	3325±90BP	1730–1515	68.37	1860–1415	95.88

3.3 The Fieldwalking Exercise

J Downes & C Richards

Introduction The excavations at Balfarg and Balbirnie have not only revealed evidence of a long history of human activity in prehistory, ranging from the Earlier Neolithic to the Bronze Age, but have also provided a detailed picture of the architecture and materiality of a Later Neolithic monumental complex. A problem constantly encountered in the interpretation of similar complexes elsewhere in Britain is their relative isolation from other aspects of Later Neolithic life. The main problem in attempting to take a wider perspective is the scarcity of evidence. In the case of Balfarg we simply do not know where or how the people who built and used the monuments lived; this is due mainly to the high archaeological visibility of the monumental sites, as opposed to the relative invisibility of the remains of Later Neolithic settlement and land use. To address this imbalance in the data and to begin a reconstruction of the Balfarg landscape, a trial fieldwalking survey project was initiated. This had the dual purpose of assessing fieldwalking as a viable method of survey and site-location in this region of Scotland and, if successful, of providing valuable information on other human activities in the immediate environs of Balfarg. Moreover, a particular aim of the project was to locate material, particularly lithics, which were contemporary with the use of the Balfarg monuments.

Field survey The immediate environs to the south, east, and west of Balfarg were either developed or were in the process of being developed for housing, leaving only the area to the north for examination. The local topography is that of rising ground to the north-west and fairly low-lying ground to the north-east. Given the high degree of cultivation in this area, systematic fieldwalking was considered the most appropriate form of field survey. As a technique, fieldwalking is extensively employed in England, but in Scotland it remains underrated and largely unpractised. Where it has been implemented in recent years, for instance in Orkney, the results have been extremely encouraging (Richards 1990).

In March 1990, 15 of the 34 fields within the study area were in an appropriate state of cultivation and weathering to be systematically walked. This amounted to an area of approximately 140 ha to be surveyed. Surface collection was undertaken along runs 25 m apart, with collection units of 50 m. This is a fairly standard format used widely in Wessex (J Richards 1990) and in Orkney (Richards 1985). Judging from the results obtained in these areas it is clear that this approach is both sensitive to the majority of archaeological sites and an extremely cost-effective method of field survey.

A note of caution must be introduced for this method of survey is selective and therefore discriminates against certain types of archaeological material and periods. For example, flintwork survives well but the majority of prehistoric ceramics, because of low temperature firing, will disintegrate through rain and frost action if left on a field surface over a single winter. Therefore only resilient materials usually survive to be collected. It must be noted that due to the types of material culture in use, some historic or prehistoric periods will be virtually invisible and will therefore be unrepresented in surface collections.

The direct interpretation of surface material is without doubt a problematic exercise. Changes in geology, topography, landuse, and agricultural practices, can each greatly influence the overall form of artefact distribution. A further bias exists in the relatively small proportion of the total amount of archaeological material present within the ploughsoil which

is visible on the field surface for collection. Given these uncertainties, however, at a general level we can equate with some confidence high densities of surface material with sites or locations of past activity.

Results The results of the trial fieldwalking project were particularly informative. A variety of archaeological material was present on the ground surface. While the observation and collection of this material demonstrates the effective nature of the application of fieldwalking to this area, it also reveals the destruction of archaeological contexts. Neolithic and Bronze Age flintwork, and medieval/post-medieval pottery represented the two predominant types of archaeological material recovered. The inclusion of the latter material in illus 68 provided a useful comparison and guide to the overall distribution of artefacts.

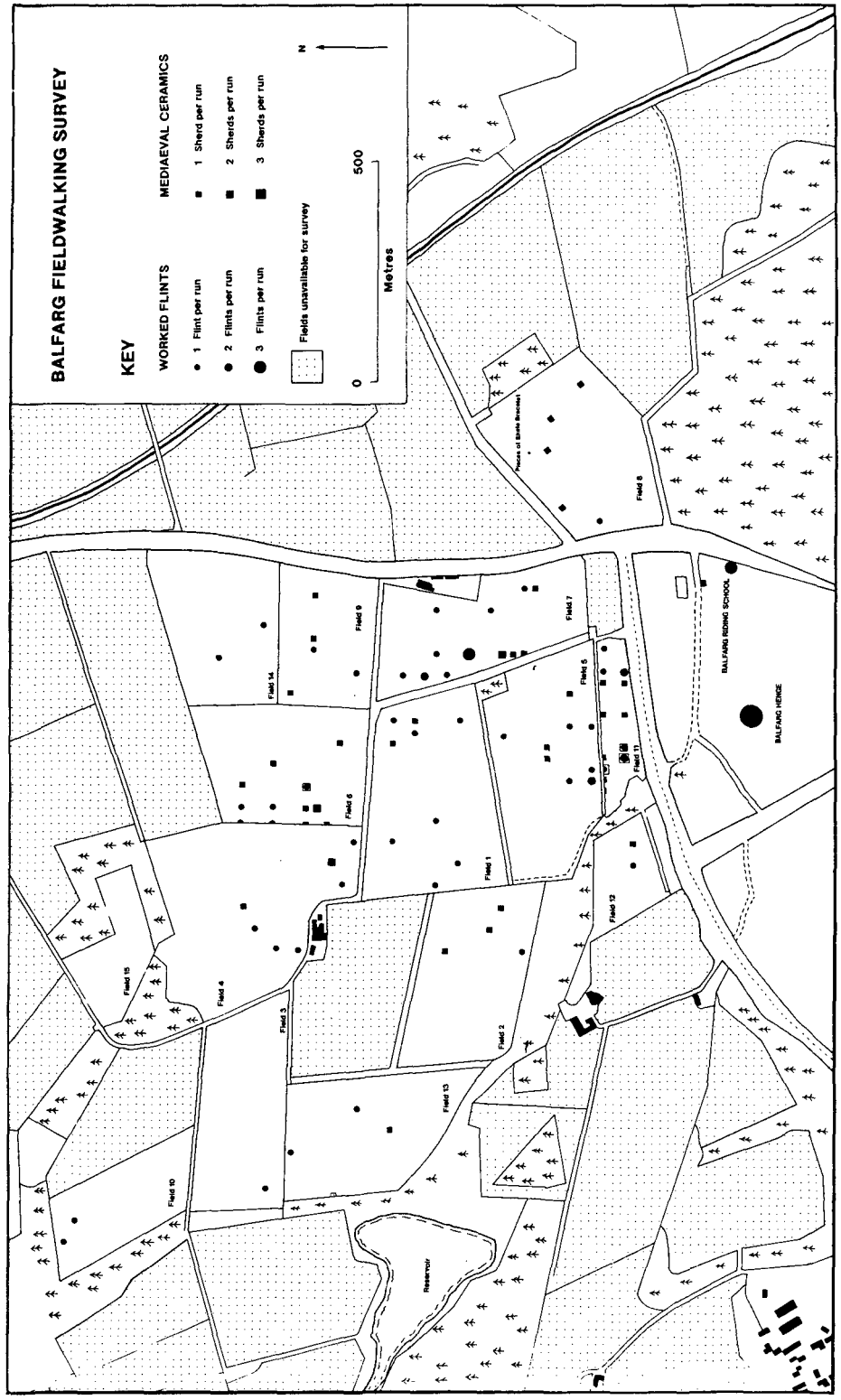
The fieldwalking at Balfarg showed increased activity occurring on the lower slopes directly north of the monumental complex. Given the low numbers of flint artefacts recovered it is difficult to interpret their presence as representing settlement. However, small concentrations noted in the southern area of field 5 and field 11, and in the north-western corner of field 7 (illus 68), both of which included retouched flints (illus 69), may represent limited occupation in the Neolithic/EBA periods. The more dispersed distribution of the remaining flints, being relatively widespread across the landscape, could be seen as the occasional exploitation of what was probably wooded upland to the north-east. The only datable artefact from this area was a barbed and tanged arrowhead from field 1 which was found in isolation.

An interesting element within the dispersed pattern of flints was the apparently random spread of retouched flint implements. As mentioned above, only in fields 5, 11 and 7 was there any indication of a small concentration. The other examples were found in isolation and it must be wondered whether we are seeing the results of isolated activities occurring within the landscape or a more substantial presence with either relatively minimal levels of deposition or fairly intact sub-surface deposits.

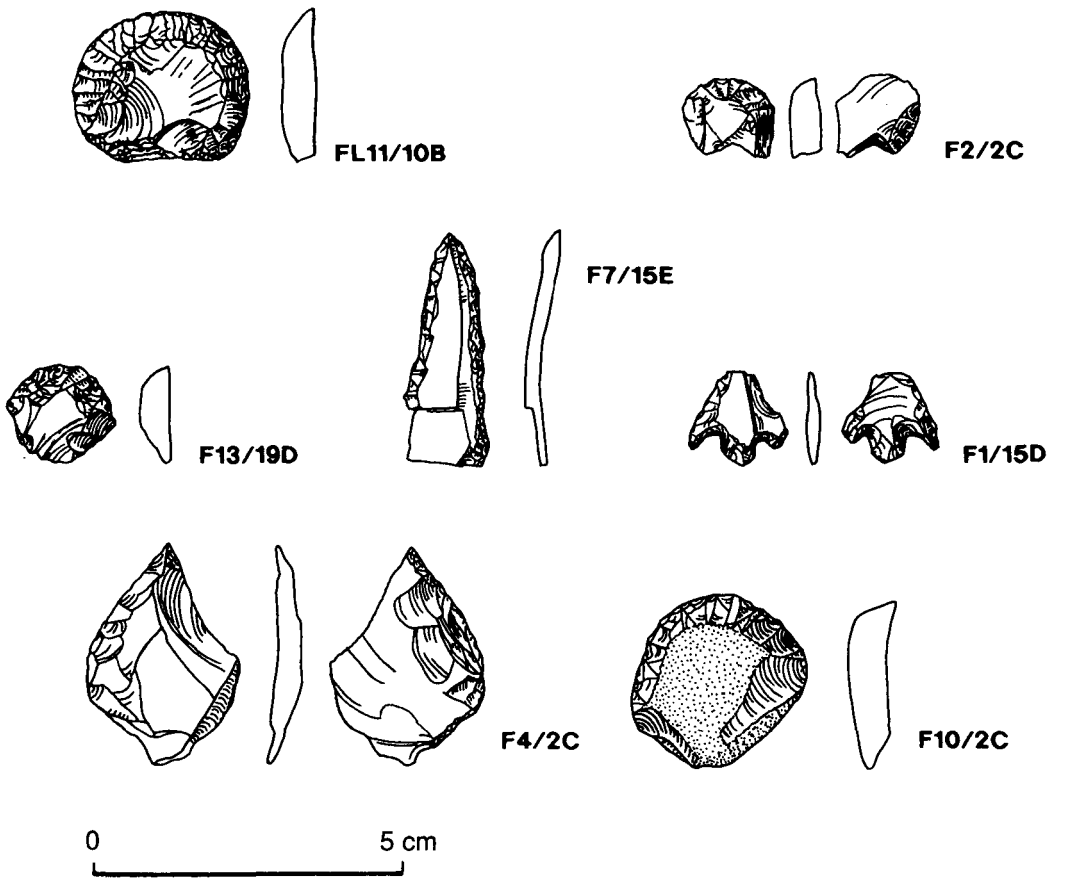
Little lithic material was recovered from the lower-lying area to the north-east. It is possible that a build up of alluvium has masked the archaeology in these fields. However, the recovery of two pieces of shale bracelet, found alone and close to each other in field 8, tends to throw doubt on this. However, given the low potential of survival of prehistoric ceramics it is possible that such items may be one of the few indicators of later prehistoric activity.

A general spread of medieval and post-medieval ceramics was noted across the landscape. Apart from the interesting small concentrations observable in fields 11 and 7 no other concentration of material was detected; the possibility of the movement and redeposition of artefacts into the agricultural landscape through manuring practices has to be considered (Crowther 1983).

Conclusion Although the project successfully located archaeological material on the surface of cultivated fields it apparently failed to locate any substantial prehistoric settlement, although two small concentrations of flints were noted. Without additional support it is difficult to assess what the surface evidence actually reveals. At present we are not in a position to correlate surface material with sub-surface deposits. This is especially true for the Neolithic and Bronze Age in Scotland, where in some areas flint was a scarce resource and relatively small surface scatters may represent substantial sites. There is thus a need for support work to be undertaken in tandem with fieldwalking: geophysical and geochemical survey, and small-scale exploratory excavation. Taken together, such programmes of work are extremely cost-effective and can provide a tremendous amount of information for a minimal



ILLUS 68 Map showing the results of the fieldwalking exercise. *(Based upon the Ordnance Survey map. Crown copyright)*



ILLUS 69 Flint recovered from the fieldwalking exercise

financial outlay. Within this framework there is also great potential for extremely valuable work to be undertaken by local archaeological societies. Moreover, archaeologists in Scotland can also draw on the extensive body of literature available on methodology and surface analysis undertaken in England (e.g. Schofield 1991).

As a trial exercise to test fieldwalking as a viable method in field survey in the Balfarg area, this project was successful. The applicability of this technique must bode well for future work in Fife and other parts of Scotland. If archaeological sites of low visibility are not searched for in the landscape through survey they will inevitably be destroyed and lost.

SECTION 4: SITE DISCUSSION

G J Barclay (with specialist contributions as noted)

Alcock (1978) wisely suggested that '. . . even on the most liberal interpretation . . . an excavation report is not the best vehicle for synthesis . . .'. The discussion presented here is designed mainly to set the excavation in its context. It is set out as follows.

4.1 EARLY NEOLITHIC PIT DIGGING AND POTTERY DEPOSITION

The excavations of 1983–5 produced evidence for the deposition of early Neolithic material in Area A, to the west of the henge associated, largely, with Cowie's *Group 2* pottery, and immediately to the south-west of the BRS enclosure in Area C, associated exclusively with Cowie's *Group 1* pottery.

There are three radiocarbon dates from the Area C pits (although only the latest is considered to be a reliable indicator) and two from the Area A pits; the date ranges overlap (illus 2; Table 8). It may be suggested that the two episodes of deposition were broadly contemporary, by two groups with differing pottery traditions, or may represent the deposition of different types of pottery that conveyed a differing meaning to two depositions by the same group, or that the two pit groups reflect two separate episodes. The contexts of the depositions are obscure – the pits may be the only surviving features of more complex, extensive and long-lasting use of the area, perhaps largely for domestic purposes.

Richards & Thomas (1984, 191), in their useful consideration of the relationship between ritual, symbolism and ideology, state '. . . the notion that all forms of material culture contain symbolic meanings is undisputed'; they further note that 'As ritual activities involve highly formalised, repetitive behaviour, we would expect any depositional patterns observed in the archaeological record to maintain a high level of structure'. Is there evidence of 'structured deposition' at Balfarg? Certainly the pits of the early Neolithic display a range of characteristics, some of which might imply a function more complex than the unelaborated disposal of domestic rubbish. The small number of pits at Balfarg might be taken to show only a limited length of occupation, if rubbish was ordinarily disposed of this way! At Balfarg, what evidence is there for the pits containing TGC's *Group 1* and *Group 2* pottery being other than crudely utilitarian?

Sherratt (1991) suggests that deposits of the kind which may be identified at Balfarg could be the result of 'appropriate ways' of disposing of profane material; Richards (below)

suggests a similar explanation for the patterns of Grooved Ware deposition detected at BRS or the Balfarg henge.

First, at the east end of the site in Area C the blocking of the two pits F8016 and F8017, above the level of the pottery and charcoal deposits, with closely-packed stones can be noted; these should be considered together with five other pits in same area, which were blocked in the same way but with no deposition of pottery. Might organic material, which has not survived, have been sealed under the stone packing in these pits?

Second, there is the manner of deposition of the sherds of pottery in F2430 in Area A, in particular the distinct impression of the lining of the pit with slabs of pottery from a number of vessels, one (P11) more complete than the others. Once again, further pits in the area have similar fills, some with pottery, and many of the pits have a similar shape – shallow and elongated.

The deposition in pits of pottery and other artefacts of the late fourth/early third millennium BC (uncalibrated) is a widespread phenomenon in the British Isles. In some cases the interpretation offered has been a domestic one (rubbish or storage pits; eg Smith 1964), in others a ritual one. As Richards & Thomas have written (1984): 'It is common in the archaeological literature for the term "ritual" to be used as a catch-all designation for anything which defies a crudely utilitarian explanation.' Bradley (1984) has remarked on the irony of Neolithic domestic material (a rare enough find) being automatically assigned a ceremonial function and origin when found on ritual/burial sites.

Richards & Thomas (1984) have discussed the definition of ritual activity and have rightly pointed out the way in which ritual is an indivisible part of ordinary life, although some ritual activity will be of a different order of formality, requiring different levels of complexity of involvement, behaviour and accompanying equipment and structures. As Whittle (1988, 203) says: 'There is . . . an interesting contrast between the extremes of ritual action, between specific set-piece public rituals or rites of passage . . . and the spectrum of ritualised action which may structure daily life . . .'; he also suggests (1988, 149) '. . . a difference could be sought between say the ritualised disposal of rubbish in a settlement with a restricted and unvarying audience, and the manipulation of special symbols in a specially defined area before a wide and singular audience'.

The appearance of very small numbers of carbonized cereal grains in the features under discussion, together with charcoal, might suggest that the deposits were, after all, of domestic material, unless we are seeing minor 'ritual' activity in the deposition of domestic material. However, the quantities are so small that it seems more likely that the debris is from domestic activity in the general area. Colin Richards' work at Barnhouse in Orkney has demonstrated that structures we might accept as *primarily* ceremonial, such as the Stenness henge, can be placed close to settlement and that buildings possibly with a largely ceremonial function (Barnhouse 'structure 8') can be placed within settlements (Richards 1990). As Bradley notes (1984, 26) '. . . important settlements might be directly linked with funerary monuments of particularly elaborate types'. It might be suggested that the settlements associated with such elaborate structures might themselves be out of the norm.

As has been noted above, material of this period is frequently discovered in areas where, later, substantial ceremonial complexes were sited. At Balfarg the pit-digging activity is the first recorded episode in a continuum of clearly non-utilitarian activity lasting over 1500 years. At North Mains, Perthshire (Barclay 1983c), this early activity took the form of pits, cut by later ring-ditches. Pit digging associated with domestic activity in the Early to Middle Neolithic period may be very widespread; it is possible that we are seeing only a

small proportion of such sites through their accidental co-location with larger, later, ritual sites which attract archaeological attention. It is an interesting speculation that the sites of overt burial and ritual activity, of the period immediately following the pit digging and into the Later Neolithic, might deliberately be placed on the site of particularly early settlement or other activity; just as the building and use of Earlier Neolithic burial sites have been associated by some writers with the legitimation of land-holding, the legitimation of later ceremonial activity might be enhanced by the use of sites of earlier settlement, perhaps primary settlement in the area. It should be noted in this context that the evidence for increased land clearance in the catchment of the stream bounding Balfarg on the south is dated to the early third millennium BC (uncalibrated), roughly contemporary with the pit-digging episodes under discussion.

There are clear examples of 'structured deposition' elsewhere in Scotland. In a context clearly *not* of domestic origin, at Bannockburn, Stirlingshire (interim account: Tavener 1987), two double alignments of pits were located as cropmarks. The eastern alignment consisted of a double line (c 36 m apart) of pits with a U-shaped terminal. The filling pattern of most of the pits was: digging and partial silting, followed by partial cleaning out and the insertion of a crude stone lining (often no more than a single ring of stones), associated with burning; finally there was an accumulation of charcoal in the tops of the pits. Plain Earlier Neolithic bowl sherds of the kind found at North Mains and Balfarg were recovered from these upper fills (Cowie 1992b).

At Kirkburn, Dumfriesshire, Cormack (1963) discovered pits containing early Neolithic pottery in an area which subsequently saw ceremonial and funerary activity associated with Beakers, Food Vessels and cinerary urns. The filling pattern of at least one of the pits (no. 9) raises some suspicions about its function: 'A fairly large circular pit . . . Half way down the pit was roughly lined with flattish stones. The pottery occurred both above and below these stones . . .'.

At Dalgety, Fife (Watkins 1982), under a Bronze Age barrow and surrounded by later burials, 'pit 1' was filled largely with the shells of whelks with some mussels and limpets, radiocarbon dated to 2762±50 BC uncal (SRR-529); this may be a demonstration of how incomplete a picture of the contents of such pits we may be seeing on sites with acid soils, such as Balfarg.

Harding (1987, 47) discusses a number of sites where there is pre-henge activity; at Yeavering, in Northumberland, Llandegai B, in Caernarvonshire, and Whitton Hill 2, in Northumberland, this activity belonged to the early/mid Neolithic. The pit near the west entrance of the Yeavering henge, next to the grave, measured 0.8 m by 0.62 m and 0.3 m deep and contained carbonised nut remains over a layer of burnt material; the radiocarbon determination was 2940±90 BC uncal (HAR-3063) (Harding 1981). The depression at the east entrance was poorly defined (cf the Balfarg pits) and contained large quantities of Neolithic pottery. At Llandegai A the 'fire pit' within the henge was radiocarbon dated to 2790±150 BC uncal (NPL-220) (Houlder 1968, 219; 1969).

At Cairnpapple, West Lothian (Piggott 1948), the phase 1 features, with their heavy stone packing and deposits of cremated bone, may have been the product of 'non-utilitarian' pit digging. During a watching brief on Cairnpapple, when the ditch was being partly cleared, a section was cut through the bank, revealing a pit with three clearly differentiated, carefully laid layers of stone, separated by soil, as the only fills (P R Ritchie, pers comm).

In summary, it is suggested that the Balfarg pits represent a form of ritual activity close to or within a settlement. Their precise relationship to the place of settlement is not clear, but the ubiquitous carbonised cereal grains and the hint of cultivation below the ring-cairn (Jordan, above) may suggest that it was close by.

4.2 THE TIMBER STRUCTURES AND THE MORTUARY STRUCTURE TRADITION

The two timber structures were perhaps the most unusual features discovered at Balfarg. The discussion which follows includes structural analysis (by David Hogg) and a consideration of the nature of these structures, their possible functions and their place in the complex sequence of development on the site.

4.2.1 Analysis of the Timber Structures

D J Hogg

The author of this report and the excavator are united in the view that the structures each comprise a boundary fence surrounding free-standing structures in the interior (Interpretation *b* below); there are two interpretations of the important detail of the nature of the timber structures within the boundary. Both are presented at the end of the section.

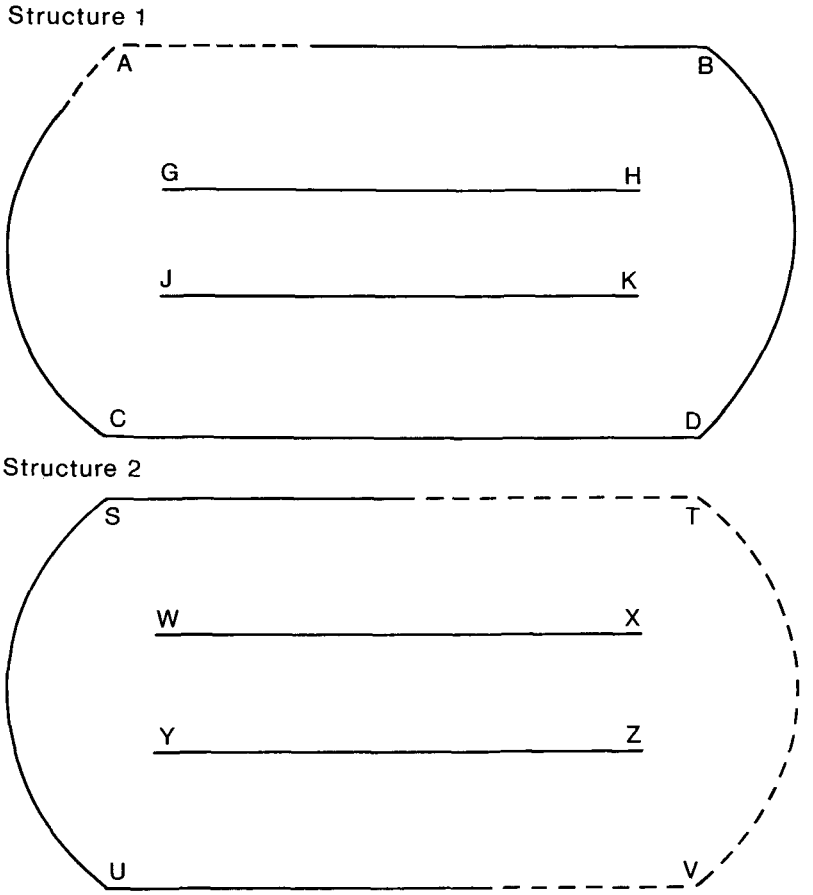
Assumptions and significance of data The consideration of the nature of the structures rests on certain limits being placed on the significance of data; certain assumptions are also made for the purpose of identification. These are:

1 Soil marks in sections are assumed to represent the true positions of timber posts.
2 Posts are treated as being large or small; no other differentiation is made.
3 No significance is given to parts of dimensions under 100 mm in *individual* plan relationships.
4 No significance is placed on residual pit dimensions unless specifically stated.
5 Particularly in Structure 2 it is assumed that the post-holes found do not represent the whole structure but that any lost or undiscovered post-holes belong to the 'families' of those already found.
6 It is assumed that the 'families' of holes discovered are the sole means by which the assumed structure derived support from the ground.

The reasoning behind the last assumption requires some further explanation. In most types of building the ground provides not only resistance to the vertical components of the forces generated by the mass of the building and dynamic forces acting thereon, but also resists horizontal components of those forces, for example, the force generated by an untied arch or partial truss roof. Further, in the case of a building founded on posts let into the ground, the posts provide a reaction against any rotational moment, in any vertical plane, generated by the building. This removes or diminishes the requirement for bracing and for temporary scaffolding and centering. These advantages are not normally lightly foregone, although buildings on very weak soils, such as peat or perma-frost, are now constructed, and have in the past, with variations on the surface raft principle.

In analysing the structures we must first consider the dimensional and alignment relationships within and between 'families' of post-holes. The 'families' are shown on the diagram (illus 70).

Structure 1 AB and CD are the straight elements of the outer family, linked by arc AC and BD. GH and JK are the notional alignments of posts within the boundary formed by the outer family.



ILLUS 70 Diagram showing points referred to in Hogg's discussion of the nature of the timber Structures

AB and CD *Alignment*: Parallel within 1° of arc. *Spacing*: Taken in pairs, the maximum-minimum variation is 150 mm, but taken in groups of four the pair the variations drop below the limits of accepted significance. It is possible that the posts are uniformly set out.

GH and JK *Alignment*: There is considerable scattering but the general trend respects the major axis of the group. *Spacing*: A peak in spacing at around 2.8–3 m; over three pairs the spacing is c 5.7 m.

AB and CD with GH and JK *Alignment*: More or less parallel and centred if we assume that some posts in JK have been lost.

Arc AC *Alignment*: The fit to a circle of c 5.2 m radius is quite good. The centre of the presumed circle lies some 400 mm off the centre line between AB and CD. *Spacing*: The spacing of the posts from point C to the centre of the arc is about 1200 mm but it is unlikely that the rest of the arc conformed to this.

Arc BD *Alignment*: The fit to a circle of c 5.3 m radius is quite good. The centre of the presumed circle lies 600 mm off the centre line between A–B and C–D. *Spacing*: I regard it as unlikely that the posts were spaced at uniform intervals.

Structure 2 ST and UV are the straight elements of the outer family, linked by arcs SU and TV. WX and YZ are the alignments of posts within the boundary formed by the outer family.

ST and UV *Alignment*: These are parallel to within 1° of arc. *Spacing*: Taken in pairs, the maximum-minimum variation is 150 mm, but taken in groups of four the pair variation drops to c 20 mm which suggests that the individual variations in spacing are due to timber shape rather than setting-out error.

WX and YZ *Alignment*: If one gives more weight to the extreme members of the family these *could* be parallel. *Spacing*: Not regular but not random. There is a marked peak around 2.8–3 m.

ST and UV with WX and YZ *Alignment*: There is a divergence of c 2.5° causing a relative displacement of 600 mm over the length of the remains.

Arc SU *Alignment*: The fit to a circle of approximately 7 m radius is good. The perpendicular to cord SU misaligns with ST/UV by 2.50. The centre of the presumed circle is 300 mm off the centre line between ST and UV. *Spacing*: Varies by a maximum of 300 mm in pairs but group comparison once again improves consistency.

Observations on the quality of the setting out of the posts Structure 1: This differs from the clear pattern in Structure 2, which is described below, in that the posts in AB/CD are almost certainly not paired, and while the inner family is irregular there is not enough data to show a consistent divergence from the alignment of AB/CD as in Structure 2. The quality of the arcs AC/DB is not as good as in Structure 2 in spacing but the position of the post at D implies in this case at least that CD was set out or indeed built before arc BD. Note that in Structure 2 the analagous posts for A and C are set at positions which lie intermediate between those which would have been allocated to them had they been members of either ST/UV or AC/BD; that is, the curve may have been sweetened, as in the intermediate curve used in road design. Note that the post-holes excavated for these posts are significantly larger than those for the rest of the outer family and are consistent with the relocation of the posts after setting out. The position of the northernmost two posts of the inner family at points H and K, hard against the outer family, should be noted.

Structure 2: Establishing parallel lines of the quality of ST and UV requires great luck or the construction of two equal angles. Perspective effects make it unlikely that it was done by eye. The failure of the centre of arc SU to fall on the main axis may not be due to lack of care or purpose. I do not regard it as intuitively obvious that the centre of the arc requires to be on the major axis to provide a symmetrical fit to ST/UV. Also, if a structure exists in the interior of the outer family it would make the determination of an accurate centre for the arc that much more difficult. The good pairing of opposing posts in ST/UV also supports deliberate geometrical construction by the establishment of a right angle.

The nature of the Structures There are two possible interpretations: (a) that the remains represent a roofed building, having a pitched, possibly thatched roof spanning between the outer rows of posts, with the inner rows providing intermediate support; (b) that the remains do not represent a roofed building or interdependent structure.

Assuming timber sizing comparable to medieval examples, we might expect the rafters

of a roofed building of this scale to be around 300 × 150 mm, the sizes being determined not by the absolute strength of the timber in compression or bending, but by the limit in jointing techniques prior to the introduction of modern glues or metal connectors; that is, the size of the timber is related more to the size needed for an adequate joint at its end than the load it has to bear, resulting in a larger than necessary timber.

The combined self load of a roofed structure and a dead load of snow would be within the capacity of the apparent size of the posts to carry, but the horizontal wind-load would be in the order of half a ton per post, tending to rotate the posts of the inner families in the ground. Unless the posts were very short it is doubtful that the apparent size would be adequate to resist the assumed loads; in any case, heavy stone packing would be expected and this is absent from most of the postholes. The ability of a building of the postulated size to withstand wind-load would be very much less than a circular building of the same height. The depth of post-settings of circular houses at the excavation at Romancamp Gate (Barclay, this volume), over 1 m deep in some cases, contrast with the relatively shallow post settings at Balfarg.

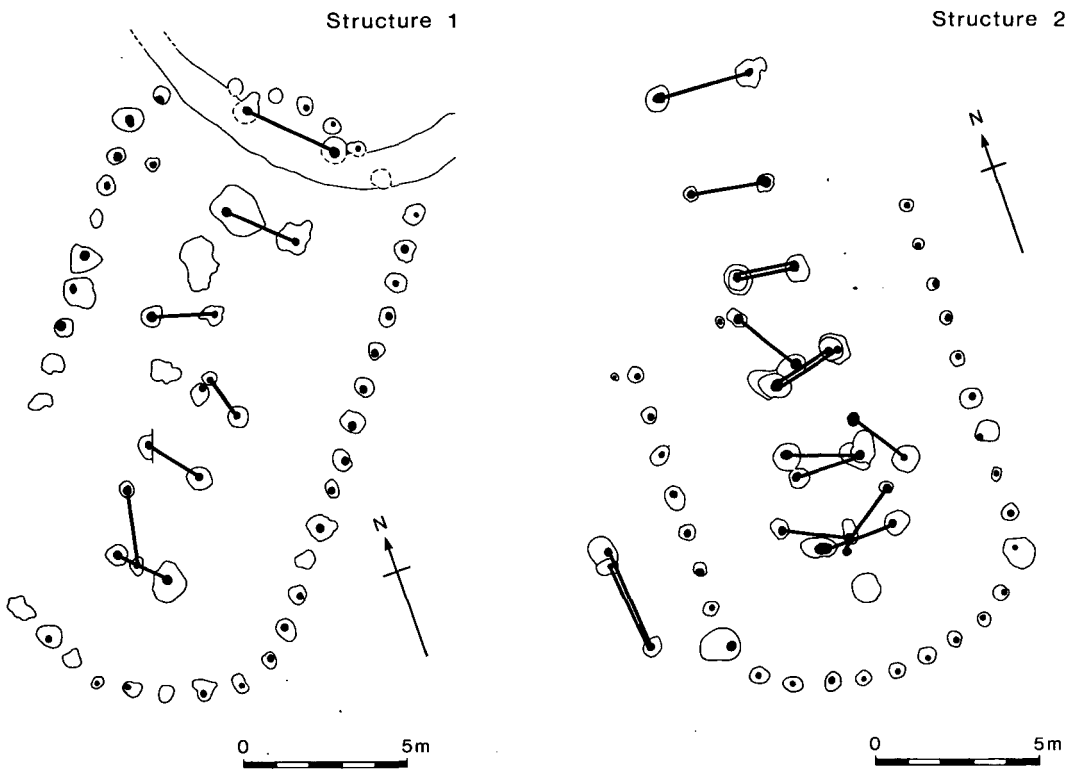
The position of the central posts is not the optimum to minimize bending moment in any rafter timbers (they are too close to the axis of the structure) but the use of lateral struts would reduce this problem, which in any case is not too weighty; one-third of Gothic cathedrals collapsed during or soon after their construction. We must allow for our Neolithic builders to be incompetent. The replacement of what would be the central posts of such a roofed building without any apparent disturbance to the outer family is virtually inexplicable.

The most telling objection to the structure being a roofed building lies in the variable quality of the setting out and the implications this would have for the ease of construction. In Structure 2 the misalignment of the inner and outer 'families' would mean that each rafter would have had to be individually sized and fitted and that any experience gained from the construction of previous buildings and the earlier part of the current building would have been devalued; whoever laid out the outer family would have found it as easy to lay out the inner family with as much accuracy, and would have considerably reduced the work necessary to roof the building thereby.

It is likely that the disparity between the outer and inner 'families' in respect of quality of setting out is an indicator of differing intended function, and possibly of differing conditions in which the operation was carried out. It can also be argued that building work had started before setting out was completed, that is the work took place in phases. The apparent sweetening of the corners at S and U in Structure 2 and the awkward junction between CD and BD in Structure 1 both support this thesis. The apparent misalignment of the arc centres with the major axis of the structure together with the poorer spacing of the end arcs, particularly in Structure 1, suggest that the ground over which the arcs were being struck was either not level, or obstructed, or both. The irregularity of the setting out of the central 'families', while still holding a general alignment to the major axis of the overall structure, suggests that it may not have been possible to determine the position of the earlier post-holes in the family when the later ones were being located.

Conclusions It is suggested that the inner family of posts is made up of pairs of posts, mainly perpendicular to the axis of the enclosure formed by the outer family of posts. It may be argued that the pairs may have operated independently or in groups of pairs. DJH's preferred interpretation is discussed first, followed by GJB's.

The structures may have developed as follows. Structure 2 is used as the exemplar (except where a specific point relating to Structure 1 is made).

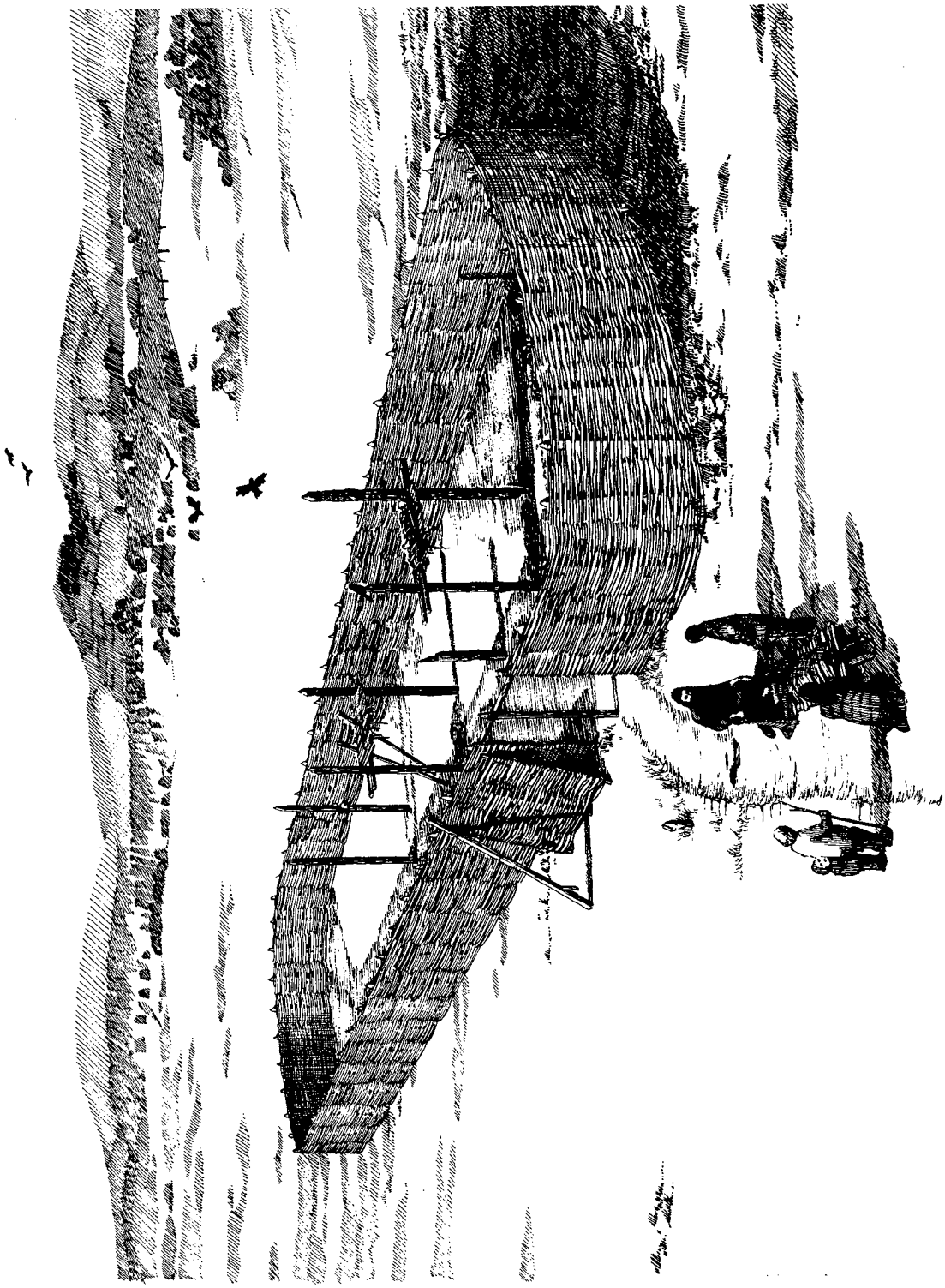


ILLUS 71 Diagram showing pairs of posts which may be identified within the two timber Structures

ST and UV were set out and constructed. The arcs SU and TV were then set out from the end members, in the case of BD in Structure 1, from the end member of AB, in conditions which made the accurate positioning of the arcs difficult (obstruction or sloping ground). From the spacing and sweetening of corners, mentioned above, it is suggested that a wattle fence strong enough to exclude animals might have been raised on these posts, nothing stronger or heavier.

WX and YZ together represent a series of operations starting at WY, of the following nature. Within the enclosure of posts a structure was formed consisting of groups of pairs of posts, c 2 m apart, spaced at an average of 2.8 m along the major axis. The structure may have consisted of either two or three pairs. Some operation was performed on the structure which partially obscured its remains – eg it was razed to the ground or mounded over. After an indeterminate time another structure of similar character was formed abutting the north end of the original, sometimes superseding one or more of the post-holes of the original structure and more or less in alignment with it. This process was repeated until the family of post-holes was complete.

This interpretation of supersession rather than replacement rests entirely on the fact that the most southerly pair and the posts lying between them in both Structure 1 and Structure 2 show no sign of having been replaced. An objection to this interpretation is that if the



ILLUS 72 Speculative reconstruction drawing of one of the timber Structures in use, by David Hogg

intermediate posts between the first and third pairs of both Structures 1 and 2 are any indication of the lengths of these settings then the second phase of construction in the interior of Structure 2 would have overlapped the first by 50%. Another consideration is that if the central family developed in increments, the outer family could not have been completed first unless the builders knew how long the inner settings were going to be.

GJB comments The pattern of posts within the boundary fence of the structures is interpreted by Hogg as operating in groups – that is, as constructions consisting of four or six posts. However, they might also be interpreted as representing free-standing two-post settings operating independently of each other. There is clear evidence that this is the way they operated. Other posts survive within the boundary formed by the outer family of posts and, in the case of Structure 2, just outside it. This alternative interpretation would see the interior of the two structures being filled by an accretion of two-post constructions, mostly perpendicular to the main axis of the structure, some superseding others. In Structure 2 there are at least 10 pairs which can be interpreted in this way (illus 71). In addition, however, some of the extra posts, particularly in the southern half of Structure 2, can be interpreted as further pairs, not set at right angles to the axis of the structure. These may predate the erection of the boundary fence, which then gave the later pairs a more uniform direction; could they have been the obstacle which made the setting out of arc SU so fraught with difficulty? It may also be suggested that the post-holes just outside the boundary of Structure 2, to the south-east, represent the remains of a further two pairs, perhaps predating the erection of the outer family; the post-holes are numbers F7078, F7079 and F7082. It is suggested that the pair F7078 and F7079 supersede a pair made up of F7082 and a post-hole destroyed by the digging of post-hole F7078; the group of F7017, F7019 and F7052 within the boundary fence are interpreted in the same way. DJH has kindly drawn a speculative reconstruction of the structure using the two-post mortuary interpretation (illus 72).

4.2.2 The interpretation of the Structures

G J Barclay

To summarize, the excavator and the specialist contributor, David Hogg, believe that the evidence from the excavation demonstrates that the two timber structures at BRS were *not* roofed buildings, for the following reasons:

1 There is no explanation, if the structures were roofed, for the contrast between the neat parallel layout of the boundary posts and the ragged and irregular layout of the interior posts; this considerable contrast in layout would pose entirely unnecessary problems in roofed construction.

2 There is no explanation, if the structures were roofed, for the considerable amount of post replacement in the interior of Structure 1 (where the posts would be protected to a considerable degree from weathering and bacterial attack) in contrast to the absence of post replacement in the boundary posts, which would, in a roofed building, be far more exposed we must therefore seek an explanation of the pattern of use of the boundary feature and the posts in its interior, unrelated to the normal processes of decay and replacement.

3 The relationship between the width of the building and the spacing between the two rough lines of posts in the inner group was very different from the spacing normal to rectangular roofed buildings; that is, the two rough lines in the middle of the structure were too close together, and too far from the walls of the hypothetical building (Mr P Hill's assistance is acknowledged for this observation).

It is therefore suggested that they were not roofed buildings, but comprised a fence supported on light posts set c 1–1.5 m apart surrounding an open space, within which other post-supported constructions were erected. Hogg suggests that the pattern of posts in the interiors of the two enclosures might be explained by the erection of a number of similar four- or six-post settings over a period of time. The excavator's preferred interpretation (as outlined at the end of David Hogg's report) would see the interior of the two structures being filled by an accretion of two-post constructions, mostly perpendicular to the main axis of the structure, some superseding others.

If the structures are not roofed buildings but are rather fenced enclosures surrounding settings of posts, then we must seek some explanation of their function. Given the fairly standard spacing of the post settings in the interior of the structure we can perhaps surmise that they were linked by some standard construction. The structures are situated in an area where no clear evidence of domestic activity survives, close to ceremonial and burial monuments and it seems likely that the structures themselves do not have a domestic function. Further support is given to this interpretation by the subsequent treatment of Structure 2 in particular; this is dealt with in greater detail in the next section.

It is noted also that the Balfarg structures differ considerably from the rectangular Neolithic buildings, interpreted as being roofed, at Balbridie, Grampian (Ralston 1982) and at Lismore Fields, Derbyshire (Garton 1985, 1986, 1987). However, a domestic interpretation for the structures, perhaps a function in agricultural processing, must still remain a slight possibility.

4.2.3 The place of the Structures in the stratigraphic sequence

The place of the two structures in the overall history of the group of sites at Balfarg/Balbirnie must now be considered. Stratigraphically it has been demonstrated that Structure 1 was cut by the ring-ditch. It is interesting to note that the axis of the structure, if extended to the north, runs through the centre of the ring-ditch. This seems too much of a coincidence, and we can, perhaps, suggest that the position of the ring-ditch was related to some element of the structure which was still visible. At the same time we must note that the northern end of the structure was cut, rather than respected, by the ring-ditch; perhaps this implies that the features marking the site were not very substantial. The relationship between the 'avenue' of posts and the ring-ditch at Kilham in Yorkshire (Manby 1976) is strikingly similar.

One explanation may be provided by comparison with the other timber structure, where it may be suggested it had been mounded over at the end of its use. Evidence for this interpretation is provided by the stony layer (the 'obscuring layer', p 84 above) containing much Grooved Ware, which survived over the south part of Structure 2 (marked as a tone on illus 20); it is suggested that this layer represents the last remnant, otherwise ploughed away, of a low mound of soil and stone piled over the structure. The layer completely masked the post-holes of the structure in that area, suggesting that it was laid down when many of the posts had already rotted away or been removed.

If Structure 2 was mounded over, then so might Structure 1 have been. Whether this would have provided a sufficiently clear marker for the ring-ditch to be dug at the north end of Structure 1 (illus 6), its centre on the axis of the structure, is perhaps doubtful, and it may be more likely that the ring-ditch was dug on the axis of surviving elements of the timber structure. It is argued below (p 196) that ring-cairn A (and also perhaps cairn B) were mounded over at the end of their use. It may also be suggested that the deposits of human cremated bone on the upper surface of cairn B and the isolated deposit in the top of a post-hole of the boundary of Structure 1 (Burial 5) are all late deposits dug into earthen mounds. Particularly in the case of the deposit in Structure 1, we must suggest that the location of the structure was marked in some way, to have attracted the cremation deposit.

The dearth of finds in Structure 1, in contrast to Structure 2, should also be noted. In Structure 1 small numbers of sherds of Grooved Ware were found in two contexts and only one of these, F1121, is relatively secure (and even here the single sherd found came from the upper fill of the post-hole). The other context was the fill of an ill-defined pit, interpreted as possibly of non-anthropogenic origin. Sherds of two pots were found in this context – the bulk of the sherds of the two vessels were recovered from the major pit to the west (F1002) – and it may be suggested either that the few sherds in the area of Structure 1 were stray parts of this more substantial assemblage, or the remains of the processes of pottery deposition suggested by Richards (below) for Structure 2.

In Structure 2 much larger quantities of Grooved Ware were found both in the stony layer already described, surviving in and covering the south part of the structure (the 'obscuring layer'), and in the post-pipes of five post-holes. It is interesting to note that the Grooved Ware was found only in post-pipes, and particularly in the post-pipes of those post-holes which cut earlier post-holes, and which were therefore in use later in the sequence. It is also important to note that these post-pipes were also those which contained charcoal in any quantity. No Grooved Ware sherds were found in the postholes of the boundary feature; it is suggested that the decay of the less substantial posts of the boundary may have reached a stage beyond which artefacts and charcoal could become incorporated into the post-pipes (Reynolds & Barber 1984).

It is argued that the Grooved Ware belongs to a period late in the life of Structure 2, when material deposited on the surface was finding its way into the centre of the posts, as their heartwood was rotting (Reynolds & Barber 1984), or was deposited in a layer covering the structure, subsequent to extensive burning on the surface, perhaps associated (as suggested by Richards below) with the breaking and burning of Grooved Ware. The lack of overlap between individual vessels within the purlieus of the Structure and in the surrounding ditch might suggest, however, that there was no contact between the two contexts; it is possible that we are seeing different processes operating on different types of Grooved Ware – perhaps predominantly the larger coarser vessels being treated in a different location.

There are three radiocarbon dates from post-holes of Structure 2, one from the interior (F7023; probably cutting the post of an earlier setting) and two from the southern boundary fence (F7041 and F7044). The calibrated ranges for these samples (illus 2; Table 8) overlap with those for the two dates from the charcoal-impregnated layer containing Grooved Ware in the BRS enclosure ditch and it is possible that the charcoal in both contexts originated in the same event, although there are differences in the style of Grooved Ware deposited in the two contexts. All three dates are from samples of charcoal found in post-pipes, and appear to date wood burnt or deposited as charcoal on the surface which subsequently found its way into the spaces left by rotting posts. There is no evidence for the timber structure burning down, but

clearly the post-rotting processes were still active and it should be noted that there was no trace of burning under the 'obscuring' layer which covered the south end of Structure 2. It is possible that the area affected by the burning or deposition lay in the central part of the structure, where the sealing layer did not survive. It is suggested that the episode of burning, and the deposition of Grooved Ware relate to the events associated with the sealing of the structure at the end of the use of the two-post constructions. The relationship of the two structures cannot be determined stratigraphically, however an interpretation based on circumstantial evidence may be attempted:

1 Structure 1 stands on its own without an enclosure ditch around it, while Structure 2 lies in the centre of a ditched enclosure. It is therefore suggested that the structures did not *require* an enclosure to fulfil their function and that the ditch around Structure 2 was dug around the later of the two structures.

2 The ditched enclosure around Structure 2 is associated with Grooved Ware, which appears in the lower part of the *Middle* fill of the ditch. From experience gained on the site it can be demonstrated that the friable subsoils forming the ditch sides could have been eroded to form the primary fills in weeks or months. The final activity on Structure 2 is also related to Grooved Ware deposition. Structure 1 seems to have fallen out of use before much Grooved Ware was deposited (the two contexts in which the handful of sherds are found are dubious) even though much Grooved Ware was deposited in the area (F1002); it also does not seem to have attracted a ditched enclosure around it.

3 It might tentatively be suggested that the activity associated with the deposition of Grooved Ware around Structure 2 represents the sealing of a structure associated with burial (perhaps involving it being mounded over) and its conversion, by the digging of a ditch around it, into a site of different purpose with a different meaning for its users. The contrast in treatment between Structures 1 and 2 may suggest that Structure 2 was chosen for attention because it was more prominent, perhaps because it was still in use or had fallen out of use more recently. The possible identification of the ditched enclosure as a henge is discussed below.

4.2.4 The function of and possible parallels for the Structures

It has been argued above that Structures 1 and 2 are not roofed buildings and that their associations, and the treatment of Structure 2, mark them out as being of non-domestic function. Where, therefore, in the British Neolithic can we find parallels for the structures and for the sequences at BRS?

Sharples (1985) has argued for the development of funerary sites of the third millennium BC (uncalibrated) into sites of different function, presenting the digging of the ditch around Maes Howe, and the sealing or alteration of cairns as examples; he suggests (1985, 59) a 'shift away from burial monuments to physically defined spaces, presumably used for ceremonial purposes'. It is suggested here that the process is reflected in the sequence at BRS, where a structure which may be interpreted as an Earlier Neolithic mortuary structure is associated, at the end of its life, with a ditch, which may be identified as a henge. It is further suggested that the structures had a function in the disposal of the dead, perhaps associated with the treatment of corpses prior to final burial.

Many authors have discussed the patterning of human remains in Neolithic burial mounds (eg Whittle 1988; Scott 1992) and the archaeological aspects of excarnation as a process in the transition from life to death (eg Ashbee 1966; Mercer 1980; Hedges 1983; and more generally, Huntington & Metcalfe 1979); evidence for the processes of preparing the bone for final disposal or rearrangement, and the structures associated with these processes have, however, remained largely elusive.

The frequent occurrence of disturbed bone and disarticulated skeletons on Neolithic burial sites has been cited to suggest the possible practice of excarnation. At Wayland's Smithy in Oxfordshire (Atkinson 1965, 130) the burials between the distal posts of the mortuary structure were partly disarticulated and the excavator suggested that the bodies had been excarnated, as much of the small bone was missing: 'To explain the state of the bones at the time of deposit on the pavement it seems necessary to assume that the bodies had been exposed and stored, for varying periods after death, in circumstances which precluded the access of rodents or other mammalian carnivores, but allowing removal bodily of the small bones presumably by buzzards and other carrion-eating birds.'

Mercer (1980, 31) has suggested that excarnation in a way *not* designed to protect the corpse from disturbance by larger animals was practised at Hambledon Hill. Vyner (1986) and more recently Scott (1992) have considered some structures which might have had a function in the process of excarnation comparable to that now suggested at BRS; that is, the exposure of bodies on platforms, to avoid disturbance by larger animals (but not by birds). It is interesting that in an Earlier Bronze Age context, at Snail Down in Wiltshire, Thomas (pers comm) identified buzzard droppings on the old land surface under barrow 17, round a roughly rectangular setting of stout stakes, and also in the less fully investigated barrow 19, perhaps suggesting that bodies were being exposed to birds on platforms.

Recent excavations on mortuary enclosures have served to emphasize the variety of structures involved but at the same time have suggested that some features seem to recur, or that the same functions might be served by different features. There are also many structures in the Neolithic which incorporate post settings which could be interpreted as pairs, or groups of pairs, of posts; there are also many rectilinear enclosures and structures. There are some sites which offer insights into the possible appearance and function of the post-pairs and their relationship to the enclosing elements around them. It is not the intention to discuss at length the great variety of mortuary enclosures, structures and practices detected in Neolithic Britain but some sites which seem to be particularly relevant will be drawn together.

Loveday (1985) has examined the tradition of rectilinear enclosures in connection with the development of longer rectilinear monuments. He defined three classes: major cursus monuments; minor cursus monuments; and oblong ditches, the last grading into enclosures (mainly appearing as cropmarks) of ovate and trapeziform plan. The principal oblong ditches are seen as being mainly of the late fourth/early third millennium BC (uncalibrated), and represent the remains of 'long mortuary enclosures' and ploughed-down long barrows.

Loveday suggests that the ancestry of cursus in these oblong sites best explains their function: 'as a *temenos* associated with ancestral/mortuary practices' (Loveday 1985, abstract). In his Rhind lectures in 1992, Bradley considered cursus monuments as primarily ceremonial but with a clear association with structures of primarily funerary function. While the excavation and study of rectilinear monuments has been concentrated so far in midland and southern England, there is an increasing amount of information on possibly related sites in the north. Loveday noted a number of ditched cursuses and pit-defined cursus variants in Scotland, as well as possibly related smaller features, such as the pit-defined enclosures at

ILLUS 73 The cropmarks at Littleour, near the Cleaven Dyke (Perthshire) which may represent a structure similar to those identified at Balfarg Riding School. (*Crown copyright: RCAHMS*)

Douglasmuir (Kendrick 1980) and Bannockburn (Tavener 1987). More direct parallels to southern long mortuary enclosures have been demonstrated at Inchtuthil (Barclay & Maxwell 1991) and tentatively identified in the cropmark record.

Loveday notes the occurrence of long barrows and long mortuary enclosures near cursus monuments. In this context it is interesting to note that the Douglasmuir enclosure lies very close to the Balneaves minor cursus, and that the Cleaven Dyke, which is probably a cursus similar to the one at Scorton in Yorkshire (Pitts & St Joseph 1985, 260; Topping 1978), has very near it, at Littleour, a cropmark resembling the Balfarg timber structures (illus 73) (M Brown, pers comm). Further parallels for the Littleour site within Perthshire have been discovered nearby at Cairsie and Upper Gothens, and further to the west, at Fortingall.

Beneath the round barrow at Dalry in Ayrshire, a timber structure, measuring 14.5 × 6.4 m has been interpreted as a Neolithic structure (Coles & Simpson 1965; Linge 1987) and as a Dark Age hall (Laing 1969; Scott 1989). There is a distinct resemblance between the Dalry structure and those at Balfarg, and the sealing of the structure below a mound would certainly fit the same pattern of use and abandonment.

It might be suggested that the Balfarg structures represent another part of the continuum, proposed by Loveday (1985), from the relatively small long mortuary enclosures to the great cursus monuments, a regional variation involving timber rather than earthwork boundaries. The nearest parallels would lie in the long mortuary enclosures and in those long barrows in which a palisaded phase can be detected. The evidence concerning these sites has been examined elsewhere in these *Proceedings* in relation to the long mortuary enclosure at

Inchtuthil (Barclay & Maxwell 1991). Vyner (1986) has reviewed some of the evidence for excarnation, pointing to structures at a number of sites which may have acted as enclosures for the exposure of the dead. It may be that some or all of the long barrows where a boundary is erected as part of the construction sequence were used in this phase of their existence for this purpose: for example, those at Kilham (Manby 1976), Willerby Wold (Manby 1963) and Skendleby (Phillips 1935). At some sites, it may also be that elements of structures not subsequently or directly used in the construction of the mound were used for this purpose.

We should note in this context Ellison and Drewett's discussion of two-, four- and six-post-hole structures in the Later Bronze Age and Iron Age; there the ethnographic parallels for post-settings of domestic, ritual and mortuary-associated function (insofar as they can be separated) were considered and illustrated (1971, 191, fig 2); excarnation platforms were included in that discussion. There is evidence that excarnation was practised in the Neolithic, and that the methods used differed considerably. The results of a number of long barrow and long cairn excavations have shown that bodies, at the final stage of their deposition, were unfleshed, and that bones from many bodies could be mixed, with, on occasion, types of bones (eg long bones or skulls) collected together in different parts of the tomb (cf Whittle 1988). It has been argued that this defleshing took place before the bodies entered the tomb for the first time, although it may be that corpses were allowed to decompose within the tombs prior to the re-arrangement of bones. There has been much discussion (eg Bradley 1984; Clarke, Cowie & Foxon 1985) of the role played in Earlier Neolithic society by the burial of bodies, and of the nature and role of ritual practice and their associated structures, as society changed in the later Neolithic. This is not the place to discuss this deposition in detail; it is enough for the purpose of considering the function of the Balfarg structures that we accept that there is evidence of such practices in the Neolithic, and that the Balfarg timber structures may have operated as enclosures within which settings of two, four or six posts acted as supports for corpses. From comparison with modern ethnographic parallels the use of two- or four-post settings would seem more likely.

Simpson (1968) raised doubts about the interpretation of a tented roof for the Wayland's Smithy and Fussel's Lodge mortuary structures, and in general the minimalistic view expressed in various forms by Kinnes (*in* Jackson 1976), Vyner (1984) and Scott (1992) has prevailed: the 'classic' Neolithic sub-barrow mortuary structure was a very narrow simple building, no wider than its massive distal posts.

The group of posts that formed the first phase mortuary structure beneath the Dalladies long barrow (Piggott 1972) was more complex than that below the Pitnacree mound (Coles & Simpson 1965). There were three massive post-holes, two of which (the north-west – E – and the central – F) contained three and two post-pipes respectively. The south-east end post (G) had only one post-pipe surviving. To the north-west of the structure were two individual post-holes (A and D). The two later radiocarbon dates from the phase II mortuary structure at Dalladies are comparable with those from the timber structure at Balfarg; they are 2710±50 BC uncal (SRR-289) and 2585±55 BC uncal (SRR-290) (Piggott 1972). Scott (1992) does not consider Dalladies in his discussion of two- and three-post mortuary structures, but the elements of the structure can be interpreted in a number of ways.

At Aldwincle, in Northamptonshire, Kinnes (*in* Jackson 1976) suggested a sequence starting with the deposition of Earlier Neolithic plain wares in a scatter of pits, followed by a sub-rectangular enclosure defined by a shallow segmented ditch. Within the enclosure were at least two post-pairs: the 'structure I' posts were 5 ft 6 in. (1.65 m) apart. The 'structure II' post-holes were 7 ft 4 in. (2.23 m) apart; two inhumations lay between them. Scott (1992, fig

8.1) presents a simplified plan; there may have been two other post-pairs. The mounding over of these elements may be inferred from a scatter of limestone fragments.

One pair of posts, erected for whatever purpose, resembles any other pair although they could serve a great variety of functions. Indeed it is worth noting that the four-post settings which are usually given a more prosaic interpretation in settlements of the first millennium BC are very similar to Hogg's interpretation of four-post settings within the Balfarg timber structures. The editors would do no more than suggest that some of the structures recognised at other Neolithic sites could also have functioned within this complex sequence of developments to support platforms on which bodies could be exposed. For example, the sealing of the Dalladies phase I mortuary structure might reflect a similar change of use to that seen at Balfarg with the mounding over of Structure 2, and the construction of a sealing mound at Aldwincle. However, the considerable number of possible two-post settings within the two timber structures at BRS contrasts with the one, two or three settings found at the other sites discussed here. The absence of bone from the areas of Structures 1 and 2 would not be unusual in the context of the acidic soils of eastern Scotland (cf the absence of bone from the Dalladies mortuary structure (Piggott 1972), from the chamber at Corrimony (Piggott 1956) and from the centre of the North Mains barrow (Barclay 1983c)).

At Balfarg the two-, four- or six-post structures within and perhaps outside the boundary fences might therefore be interpreted as free-standing platforms for the exposure of the dead; however, there are also parallels in the burial record of the British Neolithic for the placing of inhumations between pairs or groups of three posts c 1.5–5 m apart, as already mentioned, at Aldwincle (Jackson 1976). The evidence at Balfarg for the repeated building of what may have been two-post settings within the structures points to a periodic need for these pairs, whatever their function might have been. While the role of excarnation as a normal part of the process of the treatment of the dead in Earlier Neolithic society has been discussed, we must consider the possibility that excarnation and the mortuary structures of the period (in particular long barrows and cairns) were not involved in the normal disposal of the dead. It has been widely suggested that the deposition of mixed human bone in tombs is associated with the legitimation of land holding through the presence on the land of the communal ancestral bone (Bradley 1984; Clarke, Cowie & Foxon 1985). We must consider whether such deposits represented the normal means of burial for the whole, or for a significant part, of the population, or whether this strand of mortuary ritual was confined to the disposal of a small proportion of society, the sole purpose of which was to provide bodies and bone for deposition in special structures for special purposes. Barrett has written (1988, 36): 'It is a common fault of almost every approach to these data to assume that they represent the full pattern of the way the dead were treated.' Could it be that such structures were the product of periodic treatment of the dead in a special way, relating to time (the need to provide a specially treated corpse of a particular generation), or to the status ('good ancestor material') of the corpse, or a combination of the two?

4.3 THE HENGES AND GROOVED WARE DEPOSITION

4.3.1 The Henges and their Sequence

The excavations at Balfarg henge and Balbirnie stone circle produced no clear evidence for activity before the appearance of Grooved Ware. The excavations of 1983–5, centred on the BRS enclosure, recovered evidence of activity early in the third millennium and it is

suggested that the erection and use of the two timber structures pre-dates the deposition of Grooved Ware, although by how long is not clear; however, the structures' possible relationship with the mortuary traditions of the first part of the third millennium BC (uncalibrated) might add weight to this suggestion.

The ditched BRS enclosure, around Structure 2, was the feature which led us to excavate those elements of the Balfarg/Balbirnie complex which lay between the henge excavated by Mercer and the stone circle excavated by Ritchie. There is no surviving entrance into this ditched enclosure and there is no clear indication of the location of any upcast bank from the ditch. Evidence of activity, either on the edges of the ditch or in the form of deliberate deposition of material, survives in the form of considerable quantities of Grooved Ware and Beaker pottery in the *Middle* and *Upper* fills respectively. There seems to be one main episode of Grooved Ware deposition in this part of the site, not long after the primary silting – although, when the friable nature of the subsoil is considered, it is likely that it was quite soon after the digging of the ditch.

Harding (1987) considered the BRS enclosure as a possible henge. The value of the term 'henge' has been much discussed in recent years (Clare 1986, 1987; Harding 1987; Barclay 1989) and it is not the intention to rehearse the arguments again here. However, if we accept that the arc of ditch excavated at BRS was part of a complete circuit from 38 m to 43 m in diameter, then such an enclosure, associated with Grooved Ware in its lower fills and Beaker in its upper fills, can at present only be paralleled in the class of monument accepted as henges; no feature of the site would place it outside Harding's definition of the 'classic henge'(Harding 1987, 30–56). The internal diameter and the ditch dimensions fall well within the norms for henges, and the appearance of Grooved Ware in primary contexts can also be paralleled in these sites, but only at Balfarg henge, Stonehenge and Llandegai A does it date before 2300 BC uncal (as at BRS) – the main mass of dates falls between 2100 and 1800 BC uncal. It has been noted elsewhere (eg Bradley 1984) that the earliest radiocarbon determinations associated with Scottish henges and Grooved Ware tend to be earlier than for similar sites and pottery further south.

If the BRS enclosure is to be interpreted as a henge, then it must be differentiated in this text from Mercer's henge. Although we will argue below that the BRS enclosure is the first henge monument on the site, references to the 'Balfarg henge' below refer to that excavated by Mercer, as opposed to the 'BRS enclosure'.

The two radiocarbon dates for the BRS enclosure ditch relate to a single layer near the north end of the surviving section on the west side. The layer appears clearly in illus 24 (cutting VI: A–B); it was heavily charcoal-impregnated and contained considerable quantities of unabraded but burnt Grooved Ware. It should be noted that the layer entered the ditch from the outer side, after the ditch had silted up to a depth of 0.3–0.4 m. The two radiocarbon dates and their calibrated ranges (long continuous range) match well: 2475±50 BC uncal (GU-1670): 3300–2915 BC cal; and 2435±55 BC uncal (GU-1904): 3275–2900 BC cal. The material dated is relevant to a comparison of these dates with those from Balfarg henge: the earlier date is from roundwood *Corylus avellana* and *Alnus glutinosa* and the later from the outer margins of more mature *Alnus glutinosa*, *Betula* sp and *Corylus avellana*. The charcoal was not badly abraded and it seems likely that the charcoal and pottery were deposited in the ditch during or shortly after the burning which produced it.

The earliest phase of activity on the Balfarg henge (Mercer's phase 0) associated with layer U2 was: 'The use of the western area of the enclosure as an area where wood and bone were burned and pottery broken which had itself become involved in incinerary processes.'

Mercer suggests that this phase preceded the digging of the ditch. The parallel with the deposit of charcoal-impregnated soil in the ditch of the BRS enclosure, containing Grooved Ware (some of which was scorched) and burnt bone, is striking. While layer U2 survived on the ground surface, the equivalent at the BRS enclosure survived only in the material protected from ploughing in the ditch and in the 'obscuring layer' over Structure 2, although the material in the ditch may originally have been deposited over a wider area. However, at BRS it seems to have happened after rather than before the digging of the ditch.

The relationship between the Balfarg henge and that suggested at BRS cannot be demonstrated stratigraphically. However, we may essay an interpretation. It has been suggested above that the BRS enclosure was dug around an earlier structure, perhaps in a deliberate attempt to change the character and purpose of that site. It has been demonstrated that this took place at a time when Grooved Ware was first being deposited on the site. Radiocarbon determinations suggest that the wood which had been deposited shortly *after* the BRS ditch was dug, had died in the period 3300–2900 BC (calibrated). The radiocarbon dates for Balfarg henge relate to Mercer's 'event 0' – layer U2 and its material – in the phase of burning shortly *before* the erection of the timber ring; the determinations, calibrated, suggest that the wood which had been burned had died in the period 2915–2460 BC (LCR of *alnus* dates GU-1160 & GU-1161) and 3080–2705 BC (LCR of *quercus* dates GU-1162 & GU-1163), grouped as suggested by the radiocarbon laboratory. If we compare the calibrated long continuous ranges of the non *quercus* dates from the henge (2915–2460 BC cal) with those from BRS (3300–2900 BC cal) we can perhaps suggest that the two episodes were separated by a little time, as the burning phase at the henge took place just before the henge ditch was dug (ie the henge is post 2915–2460 BC), and the BRS burning took place after the digging of that ditch (ie the BRS ditch is pre 3300–2900 BC).

Grooved Ware was deposited in a number of contexts other than the ditch of the BRS enclosure and in association with Structure 2 (discussed above). Five pits contained quantities of Grooved Ware. The largest collections were recovered from two pits, one to the west of Structure 1 (F1002), the other to the south-east of this structure (F8133). Sherds of some vessels were found in more than one context. Pieces of vessel P52 were found in F8133 and in the ditch of the enclosure and sherds of P63 and P66 were found in F1002 and in Structure 1. F1002 was ill defined. The pottery within it may have been deliberately deposited but it may be that the feature was no more than a natural hollow in which burnt material, broken on the surface, had survived later disturbance. Whatever the explanation, it seems likely that the breaking of the pottery in an area in which burning was going on represents activity comparable to that which produced the U2 deposit on the Balfarg henge and in the BRS enclosure ditch. The Grooved Ware vessels recovered from F1002 were predominantly of the larger range identified by Henshall (above); that is, with diameters over 300 mm. A radiocarbon date was obtained from *alnus, betula, corylus* and *salix* charcoal from F1002 2300±85 BC uncal (GU-1902) (3040–2610 BC cal) placing it in much the same period as the activity to the west at Balfarg henge. A sherd of one pot (P43a) was also found in pit F8029, well to the east.

The deposition of Grooved Ware, charcoal and burnt bone in the pits at BRS is similar to the deposit in the 'ritual pit' described by Hope-Taylor at Yeavering (1977). The sequence of pottery recovered from Yeavering is also generally very similar to that from BRS.

The identification of quantities of Solanaceae pollen and *Hyoscyamus niger* (black henbane) seeds encrusted on one of the Grooved Ware vessels, taken in the context of discussions on the uses of Beaker and Food Vessel pottery (eg Scott 1977), suggests that the

deliberate use of this plant to induce intoxication or hallucination cannot be ruled out. Certainly, if these vessels were used in this way then the danger of 'ritually charged' material, discussed by Richards, might have more than a purely symbolic truth. The use of intoxicating and hallucinogenic substances in Later Neolithic Europe has most recently been discussed by Sherratt (1991), who has demonstrated effectively how widespread this sort of activity was.

4.3.2 Contextual analysis of the Grooved Ware at Balfarg

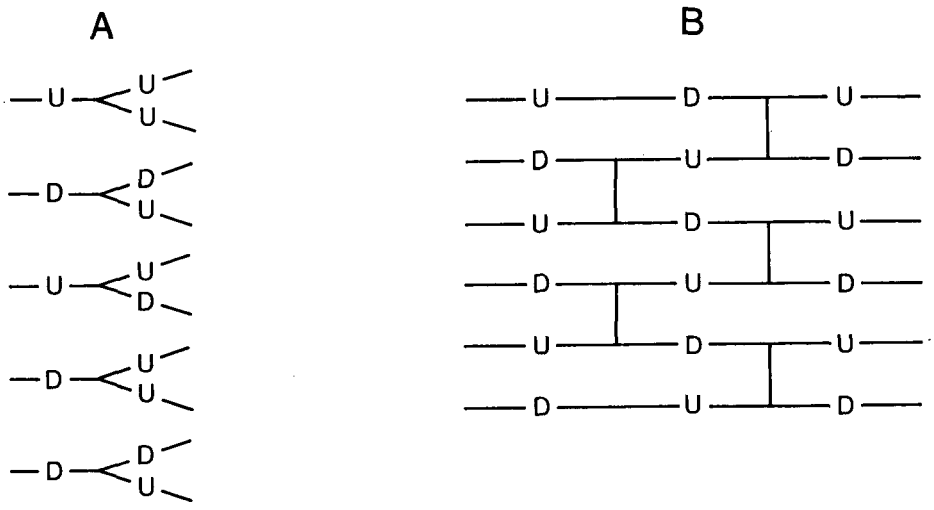
C Richards

In attempting to understand and interpret the various deposits and contexts of Neolithic activity at Balfarg a particular disadvantage has to be recognised in the isolated nature of the monuments. This situation tends to be a feature of the majority of excavations of henge monuments in Britain. The evidence for the Later Neolithic occupation of Fife is scanty. For instance, the evidence from Kinloch Farm (Barber 1982) reveals fairly localized contrasting material assemblages although the exact nature of the site remains undetermined. Similarly, the Grooved Ware from Tentsmuir (Longworth 1967, 75), whilst indicating Later Neolithic activity, provides no clear contexts for examination. Although the Balfarg complex stands as an isolated entity it nevertheless provides well-excavated contexts for examination. Particular interest is therefore directed towards a greater understanding of different contexts through the material culture present.

Grooved Ware The ceramic assemblage from the Balfarg complex constitutes the largest collection of Grooved Ware yet recovered from a Scottish mainland site. When examining a form of pottery which, in various forms, is distributed across the British Isles it is apparent that both localized characteristics and wider conventions provide dual parameters of design. However, regardless of geography, a consistent feature of Grooved Ware design is the emphasis placed on the division of space. In 1983, by utilizing two sets of opposed categories: *decorated/undecorated*, and *bounded/unbounded*, a structural classification was produced which related, it was hoped, to the conscious decisions taken by a potter decorating a Grooved Ware vessel (cf Richards & Thomas 1984). The result is a hierarchical scheme of six design stages.

1 Undecorated surface.
2 Decorated surface.
3 Bounded and undecorated.
4 Bounded and decorated within the boundaries.
5 Bounded and undecorated with boundaries decorated.
6 Bounded and decorated.

The design stages represent structural variation which can occur upon all or only parts of vessels; different parts of a vessel's outer surface may be characterized differently. It is becoming clear that certain forms of pottery, within the broad definition of Grooved Ware, are both decorated and used in a specific manner. Thus, in certain Scottish assemblages, the larger vessels, often bucket- or basket-shaped, show distinctive variation in surface decoration from that found on smaller 'flowerpot/tub' forms. The larger, often coarser,



ILLUS 74 Diagram of Grooved Ware design structure generated by Decorated (D)/Undercorated (U) sequence. On the left A = vessel P48, on their right B = vessel P54. See illus 28 for the vessels themselves

types of Grooved Ware vessel tend to display either physically bounded upper areas, thereby separating the top from bottom or, alternatively, decoration of the upper area alone, which effects the same distinction. This procedure is in marked contrast to the consistent level of decoration encountered on smaller vessels and is relevant to the areas of a pot perceived as appropriate for decoration (cf Friedrich 1970). Here we are seeing a clear statement of the potter's perception of different forms of decoration appropriate to different types of pot and the categorization of different areas of decoration on the surface of a vessel.

The Balfarg complex provides examples of these distinctions of decoration between the larger (coarse) and smaller (fine) vessels. A further indication of the way a 'grammar' of the decorated/undecorated distinction is employed to create a complex design structure is demonstrated in a deconstruction of design structure on three of the complete smaller pots: P48,P51, P54 (illus 28). Each example employs raised cordons to delineate space in a similar manner. The boundaries on P51, however, remain undecorated as opposed to P48 which employs a combination of opposed decorated-undecorated cordons to create a complex horizontal/vertical design structure (illus 74, A). A similar, although less complex, interplay between these categories creates the design present on P54 (illus 74, B).

From these basic observations of a formalization present in Grooved Ware design, we can discern distinctions between different types of pottery and begin to understand certain rules which appear to have underlain Grooved Ware decoration. This, however, represents the beginning of an ongoing project which should investigate the specificity of certain types of pot with particular forms of decoration to various contexts of human action and to different and changing functions of vessels. Such a project cannot be restricted to a single site but requires a broader template.

Spatial analysis: artefact deposition in the Balfarg complex Excavations at Balfarg have uncovered a number of contexts representing different areas of activity. Given the nature of the Balfarg sites it must be taken into account that such activities will be extremely difficult for us to recognize or indeed understand. The two excavations, at BRS and Balfarg henge (Mercer 1981), revealed three main constructions and a number of pits: the Balfarg henge; timber Structure 2 and the BRS enclosure ditch; and timber Structure 1.

As with all Later Neolithic monumental complexes, the monuments at Balfarg are spatially distinct. They are also architecturally different and although two elements are separated from the outside world by enclosures, and could be deemed typologically similar, they remain different places. The necessary movement to and between monuments may be important in understanding such complexes. Access into the Balfarg henge is limited by a single main causeway; Mercer *et al* (1988) have discussed the nature of the other, less monumental, causeway. Passing through the entrance, two possible concentric circles of small posts lay outside an inner ring of large free-standing wooden uprights. Entry to the inner area involved moving through breaks in the outer circles E and B, and passing between two larger posts A11 and A10 which combined with A12 and A9 to create an impressive entrance (Mercer 1981, fig 40). Unfortunately, as with the artefactual remains, a complete picture of all the interior features inside the henge has been confounded through differential erosion. This also effectively counters any attempted phasing of the possible additional timber circles. However, the stratified material deposits do exhibit an interesting distribution and a detailed examination of the artefactual patterning is a welcome feature of the report by Mercer (*ibid*). Hence, this discussion is limited to a brief reassessment of a comparative nature.

Here attention is drawn to the three main areas of artefact deposition within the Balfarg henge: an area or spread of material (U2) located in the north-west between the timber circles and the encircling ditch; the post-holes of ring A, particularly those in the western perimeter; and a feature (X2) situated within the timber circles to the south-west.

It should be noted that to offer an interpretation of the material patterning is quite different from understanding the nature of the henge and the practices which occurred therein. One of the interesting features of the ceramics is the presence of many conjoining sherds between the post-holes, layer U2, and feature X2. Consequently, Mercer (1981, 114) correctly points to the activities which led to the deposition of this material occurring prior to the construction of the timber circles. Whilst the purposeful movement of ceramics is acknowledged I wish to consider the activities in slightly greater detail.

The focus of activities appears to have been around X2 where a fireplace or hearth was situated. The activities involved the use of at least six Grooved Ware vessels with rim diameters of between 150 mm and 200 mm. Here animal bone was cremated and, taking into account the high phosphate concentration in this area, cooking or animal sacrifice cannot be ruled out. The pottery was subsequently broken and removed *outside* the line of the ring of timbers, which were then erected, to layer U2. The absence of pottery in the ditch at Balfarg henge may indicate that it had not been excavated at this time. Although small amounts of Grooved Ware were present in post-holes A12 and A13 their quantities were nowhere near the large amounts present in the adjacent post-hole A11. This is a curious discordance which is not entirely attributable to the difference in size between the post-holes.

The movement of material from the original context of use and deposition is a feature of a number of henge monuments but may represent little more than keeping an area clean. However, within the limits of the evidence, it appears that material never left the henge. For

instance, at Stenness, Orkney, Grooved Ware resulting from activities within the centre of the henge was cleaned away and placed in the ditch before it was subjected to trampling (Richards forthcoming). This raises the question of the absence of material in the Balfarg ditch and the possibility that after the ditch was dug the type of action occurring within its confines did not involve material deposition.

The distribution of Grooved Ware at BRS contrasts with both the above examples. In comparing the BRS enclosure and the Balfarg henge we find not only large amounts of pottery deposited in the ditch but also dissimilarity in its decoration technique and its design structure. The pottery in different contexts on the henge is from linked vessels; in contrast, at BRS, the pottery in the enclosure ditch and associated with Structure 2 is not the same – it varies in both morphology and design structure (illus 75, 76); most importantly the vessels situated in the ditch and in association with Structure 2 represent discrete deposits, with no sherds from any pot present in one context being located in another. Similarly, variation between the ditch and interior is also a feature of the lithic assemblage.

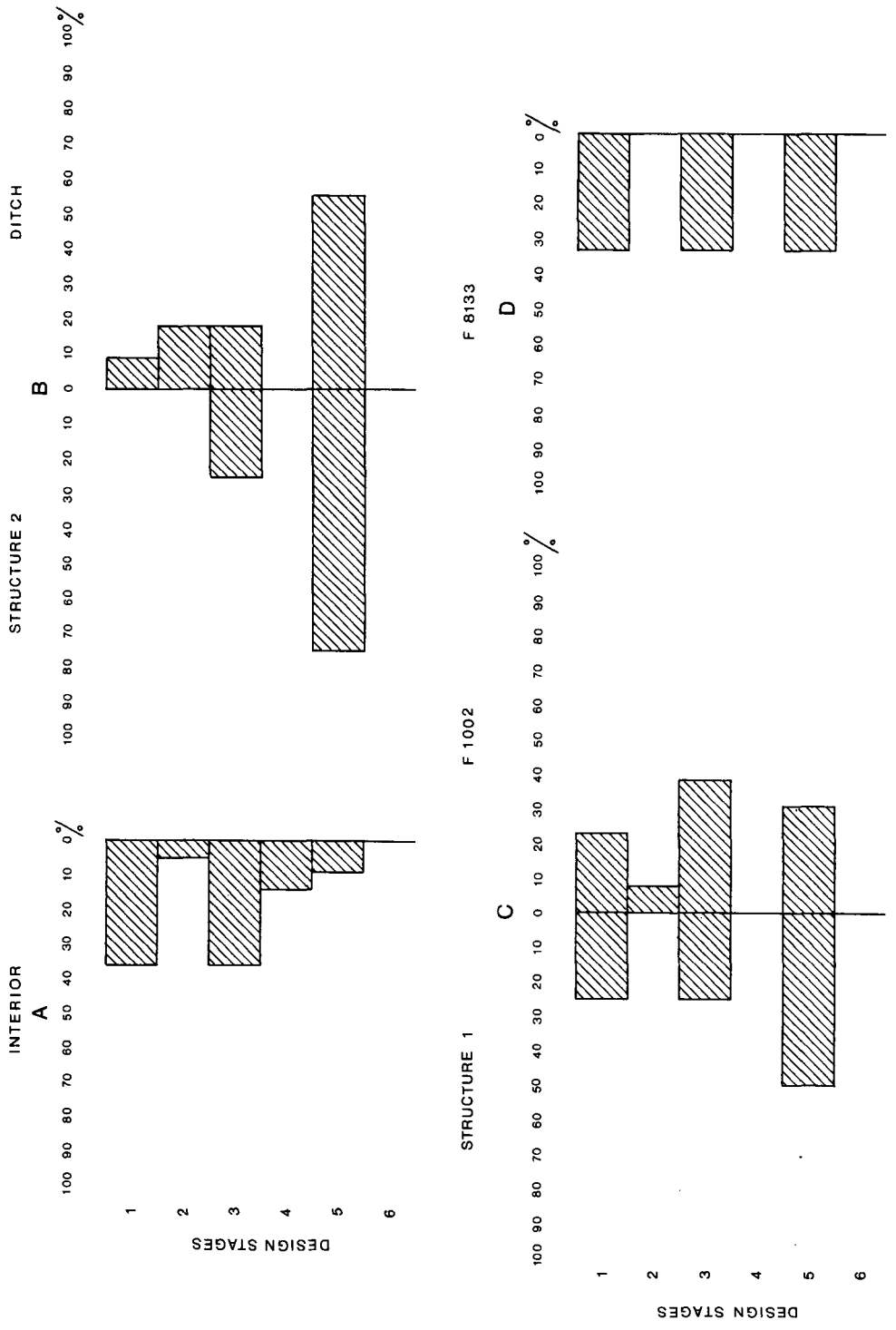
Introducing the sparse evidence from Structure 1, it is apparent that the Grooved Ware recovered from the adjacent pit (F1002), whilst having similarities with the material spread located in both of the structures (and having conjoining sherds present in insecure contexts within Structure 1), does display considerable variation from that in Structure 1. This is evident in both Grooved Ware morphology and design structure. Hence, although some differences in the vessels from Structure 1 and pit F1002 are discernible, at some time the pit acted as a receptacle for certain vessels which were used and broken in the area around Structure 1 although they were not certainly associated with it.

In the description of Structure 2 Barclay notes that the Grooved Ware sherds found there are in secondary contexts, and suggests in the discussion that the Grooved Ware may be associated only with its closure. The very limited evidence of Grooved Ware activity on Structure 1, and the insecurity of the contexts in which the Grooved Ware was found, prevent any clear interpretation of the role (if any) of this pottery there.

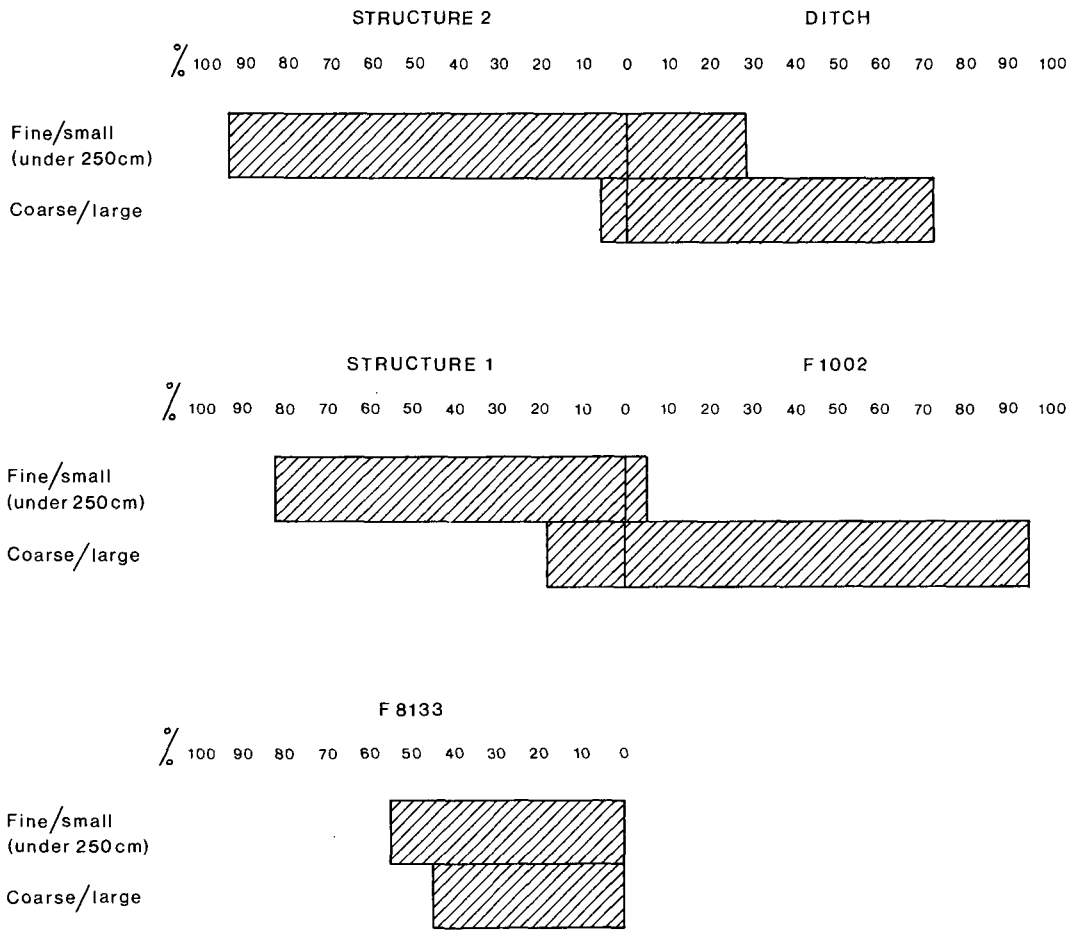
The final stage of ceramic analysis involves the spatial distribution of the structure of Grooved Ware design and vessel type at BRS. The pottery from the interior of Structure 2 is predominantly design stage 5 (illus 75B), the most complex form recognized at Balfarg, on smaller, fine vessels. Moreover, this deposit contained both P48 and P54, the design structure of which was discussed earlier. This deposit contrasts significantly with that from the ditch, which is composed of an extremely high proportion of larger, coarser vessels.

Furthermore, Structure 1, like Structure 2, reveals a high proportion of stage 5 which contrasts with pit F1002. Interestingly, when examining the morphological distinctions between pots in contexts a similar pattern is discernible. The smaller, finer, vessels predominating in the assemblages recovered from the interiors of the two structures contrast with the coarse, larger, vessels which form the higher proportion in the enclosure ditch and F1002 (illus 76). Once again the problems of the small quantity of pottery and the insecure contexts in which it was found in Structure 1 make any conclusions drawn about the Grooved Ware there very tentative.

Moving on to examine other forms of material culture we find the worked stone to be of particular interest since it appears to underline the variation displayed in the ceramic analysis. A difference between Balfarg henge and BRS is seen in the distribution of Arran pitchstone which is restricted to the latter site. Here we also find variation between the interior of Structure 2 and the enclosure ditch (illus 77) with a higher proportion being deposited in the interior. Interestingly, this contrasts with flint implements which are absent



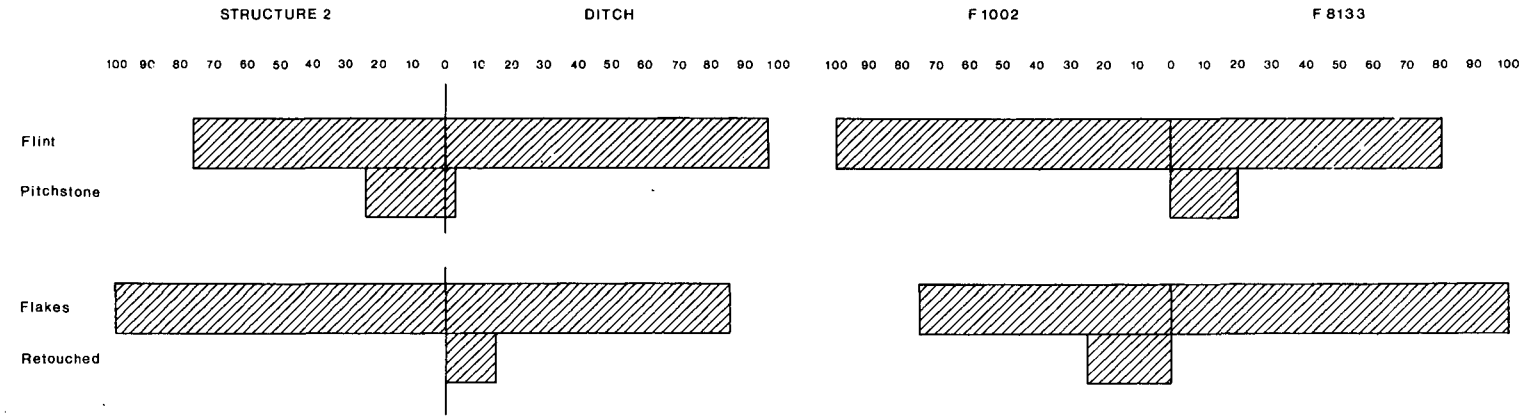
ILLUS 75 Contextual variation in Grooved Ware design structure, shown as proportion of vessels present. The 'interior' shown at A is that of Balfarg henge



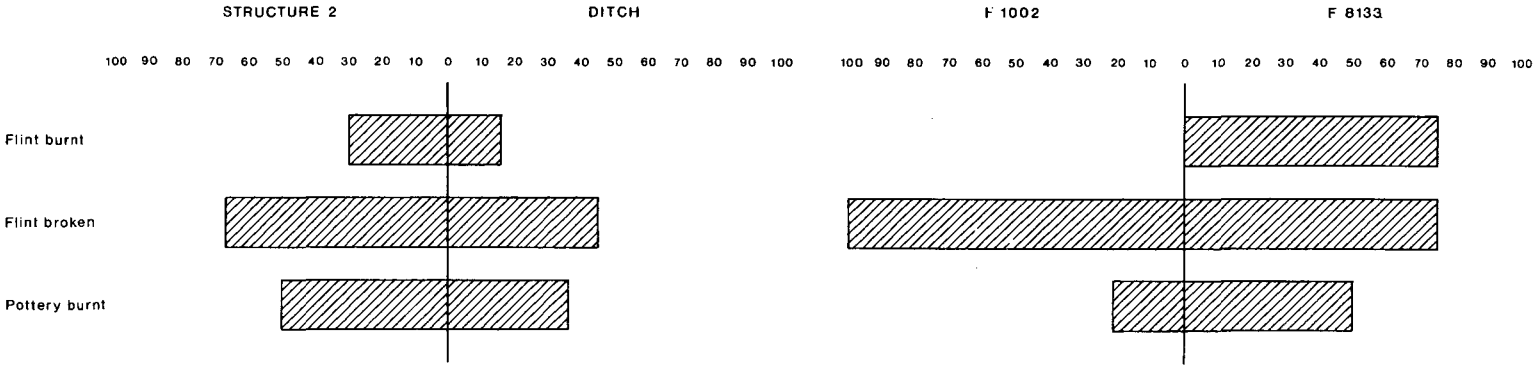
ILLUS 76 Distribution of coarse and fine Grooved Ware, shown as proportion of sherds per context

from the interior being only present within the ditch (illus 77). However, the number of flaked stones in question is very small and due caution must be exercised in drawing conclusions. The condition of the worked stone is of a similar nature to the ceramic assemblage (illus 78) with a large proportion of the artefacts being burnt and/or broken. The overall distribution mirrors that of Grooved Ware with the level of destruction being higher in Structure 2 than in the enclosing ditch deposits. A similar distinction exists between Structure 1 and F1002.

How are we to understand these acts of deposition? It seems clear that the assemblages from the enclosure ditch and F1002 represent conscious acts of deposition, an occurrence also noted at Balfarg henge. The presence of conjoining sherds, again noted at the henge, together with a high proportion of pottery and worked stone which had been subjected to burning, points to the removal of broken vessels from areas where fire may have constituted an element in the proceedings (perhaps associated with the closing of the structures), to other, external contexts.



ILLUS 77 Percentage of Arran pitchstone and retouched flint, by context



ILLUS 78 Percentage of burnt pottery and burnt and broken flint, by context

Moreover, certain deposits (eg those in the enclosure ditch) are almost certainly deliberate, in as much as they represent placed materials, for example to mark a boundary. Certain items may be deemed ritually 'charged' and dangerous, and such materials would never leave specific contexts. We may be seeing any or all of these situations in the Balfarg deposits. The situation in Structure 1 may be similar, but the state of preservation of the internal features, the more limited quantity of Grooved Ware and the lack of evidence of burning tell a less coherent story. It may be that the absence of larger coarser vessels in the area of Structure 2 represents a functional separation – perhaps the larger vessels were used to transport the materials consumed on site, the smaller vessels being used for serving, and the larger vessels did not pass the boundary ditch.

Although similar actions have been identified at Balfarg henge and BRS, basic differences in architecture and depositional practices remain. Why, for example, is the ditch of the Balfarg henge apparently clean of material culture while the enclosure ditch around Structure 2 has very particular deposits? One answer may be that we are seeing chronological differences. An alternative explanation is that differences in architecture between the monuments and structures relate to different roles in a elaborate ritual and religious complex. Movement within and between different 'places' may be the key to understanding their differences. Such an interpretation allows a fusion of the sites into a coherent whole whilst recognising their many differences.

4.4 THE RING-DITCH/RING-CAIRN/CAIRN COMPLEX (CAIRNS A & B)

G J Barclay

4.4.1 Sequence

The ring-ditch and cairn complex at BRS proved to be the most complicated part of the site. Many sites with a simple appearance have a long and complex history of building, use and reworking, and the sequence at Balfarg is not unusual:

1 ring-ditch, deliberately infilled in a structured manner;
2 ring-cairn Ai, with ring-cairn Aii built within it;
3 cairn B built abutting A;
4 burials inserted;
5 both cairns mounded over?
6 alignment of posts erected to north-east of cairn B?

Much of the sequence at Balfarg can be seen as the result of different ways of defining space and the alteration, through structural changes, of the nature and purpose of defined spaces. The sequence of events is summarized in more detail on page 110, above. The pottery associations of the sequence and its date are obscure. Whilst the ring-ditch cuts Structure 1 and cairn B has a Food Vessel-accompanied burial cut through it, these termini are about 1000 years apart. The predominant pottery type found in this part of the site is decorated Later Neolithic material (TGC *Group 3*: Impressed Ware), but its date and associations are not exactly known; however, the limited radiocarbon evidence for this type of pottery in Scotland suggests a date in the later third or early second millennium BC (uncalibrated).

While looking in more detail at this complex group of features as a whole, there is value also in looking at the individual elements.

4.4.2 The ring-ditch

Ring-ditches are a common feature in eastern Scotland, appearing on many aerial photographs singly, in groups, and near other possibly related features. In southern Britain, excavation has shown many ring-ditches to be the boundaries and quarries of burial mounds. In Scotland, the excavation of three unploughed ditched enclosures by Gordon Maxwell at Black Type, Bait Laws and Fall Hill, all in Lanarkshire (1974), and a fourth by Alistair Maclaren (1967) at Broughton Knowe, Peeblesshire, demonstrated clearly the considerable variety of uses and sequences of development on these superficially similar sites. Ironically, the excavation of monuments where there is a ring-ditched element has concentrated, in Scotland, on upland sites or sites preserved under later structures; little has been done on the numerous cropmark ring-ditches. The range of dates for these sites is probably wide, perhaps from the early third millennium BC (uncalibrated) to the late second or even early first millennium BC (uncalibrated); it is also possible that some of the round barrows/ring-ditches co-located with the groups of square barrows in various parts of Scotland, which are probably Pictish (Ashmore 1980), are of the first millennium AD.

Many ring-ditches known only as cropmarks have been found in close proximity to other monuments which may bear an interpretation as ceremonial or funerary monuments of the Neolithic or Bronze Age. For example, out of 32 pit-circles identified by Tolan (1988) 18 have ring-ditches nearby.

At BRS and at Beech Hill House, Angus (Stevenson 1990), it can be seen that the ring-ditches were not mere quarries but seem to have had a function independent from and prior to the erection of the cairns on both sites. The Beech Hill House site is of particular interest in considering the Balfarg sequence; a ring-ditch 8.5–9 m in diameter, with no surviving gap, was superseded by a cairn with a substantial kerb, apparently set out from almost the same centre. The excavator has suggested that post-pipes were noted in the ditch although the evidence is not conclusive. Grooved Ware very similar to some of the BRS material was found on the site, although it was not associated with the ring-ditch or cairn. Cists were found under, possibly cut through, and around the cairn. As at Balfarg, we see a site with a phase where the definition of a space was important, succeeded by burials and by cairn building closely related to, but only partly respecting, the original boundary.

The excavation at Loanleven Quarry in Perthshire (Lowe 1988) revealed a ring-ditch 20 m in diameter surrounding a number of cists, similar in many ways to that (10 m in diameter) excavated at Kinneil Mill, Stirlingshire (Marriott 1968). It is difficult to tell if the burials were placed in a pre-existing enclosure or if the enclosure was an integral part of the changing nature of the space; for example, it may have served as the quarry ditch to provide some or all of the material for a low barrow or enclosing bank, now destroyed. At Kinneil, as at Beech Hill House (Stevenson 1990) it is interesting to note that the burials spread beyond the boundary ditch.

Looking further afield, excavation of ring-ditch type features in England and Wales has shown the considerable variety of features and sequences of site development over time. Parallels were drawn between the enclosures at Whitton Hill (Miket 1985) and the excavated sites at Broughton Knowe, Peeblesshire (MacLaren 1967), and Rullion Green, Midlothian (Stevenson 1972; Watkins 1984a, 1984b; Watkins & Murray 1988); Miket suggested that site 1 at Whitton Hill and these two Scottish sites showed evidence for tented roof structures. The evidence at Whitton Hill could certainly be interpreted in a different way; the interpretation for such a roof is based solely on the discovery of five charred timbers lying parallel in the ring-ditch, pointing towards the centre of the enclosed area and does not seem convincing to

this author. It might, for example, be suggested that the timbers were part of a burnt fence, where some members had fallen over, or had been pushed over (cf Barclay & Maxwell 1991). At Broughton Knowe a low mound was bounded by an annular ditch; the mound had been covered by a hard-packed layer of soil, clay and large stones, which extended over the top of the ditch, which was itself filled to a great extent by fairly large angular chunks of stone. The excavator suggested that the ditch had been deliberately refilled almost immediately after it had been dug, and that the arrangement of the stony fill suggested that it had packed a timber structure in position. While this was interpreted as being 'tent-shaped' there is no reason, from the published evidence, to believe that the timbers (perhaps supporting a fence) were anything other than near-vertical. At Rullion Green, the evidence from Stevenson's excavation for a roof is flimsier; the only structural elements noted were a low vertical 'wall' of stones in the ditch, and a low clayey bank on the inner lip of the ditch. There is no evidence at all for post- or stake-settings, apart from the central post-hole. Watkins, in his more recent work (1984a; 1984b; Watkins & Murray 1988) at Rullion Green, has revealed complex sequences of development on individual ring-ditches/ring-banks, with a relatively late date, which cannot support a roofed interpretation; the excavation of circle B revealed a ring-ditch, with a bank on the inner lip, surrounding scattered deposits of charcoal and burnt bone. Subsequently the ring-ditch was filled with stones. At the henge at Moncrieffe in Perthshire, a small site with, in its phase I, features similar to Whitton Hill (Miket 1985) and Street House (Vyner 1984), Stewart noted the presence of small stakeholes on the outer lip of the ditch, which could 'only have supported the flimsiest of timber'(Stewart 1985, 130), perhaps to mask the ditch. There is no evidence at Balfarg that the stone-packed upper part of the ring-ditch supported substantial timbers, but the possibility of light fencing having been erected there, perhaps temporarily, must be borne in mind.

The purpose of some ring-ditches might be analogous to the possible non-funerary purpose of certain ring-cairns (Ward 1988). The palisaded ritual enclosure at Street House in Yorkshire (Vyner 1984) bears a striking resemblance to the Whitton Hill site 1 enclosure (here the timbers are clearly set vertically), and to the enclosure surrounding cremation burials at Loanhead of Daviot, Aberdeenshire (Kilbride-Jones 1935, 1936). The recumbent stone circle next to the cemetery at Loanhead combines a number of features recorded at Balfarg; as with so many other recumbent stone circles of north-east Scotland an integral part of the site was a ring-cairn.

The deposition of white quartz pebbles in the fill of the ring-ditch was clearly deliberate, as was the creation of the 'halo' of quartz around the later burial (F2005) in Area A. The occurrence of quartz with ceremonial sites of the Later Neolithic and earlier Bronze Age, as in the fill of the ring-ditch at BRS, is very common, particularly in eastern Scotland (Burl 1976) in association with circular, defined spaces. Quartz is a notable feature of ring-cairns and stone circles, for example at Croft Moraig, Perthshire (Piggott & Simpson 1971), Balnuaran of Clava (Barclay 1990) and Monzie, Perthshire (Young & Mitchell 1939), showing the great range of sites involved.

4.4.3 The ring-cairns

The Balfarg ring-cairn is part of a continuous sequence of activity commencing with the digging of the ring-ditch and its structured filling. There is no very clear association between the ring-ditch/ring-cairn A complex and human burial: the few deposits of human bone are found late in the sequence. Some of the pits below cairn B may have been for burial, but

there is no clear evidence of this and the relationship of most of the pits to the cairn material was lost by the destruction of much of cairn B in the past. The role of ring-cairns in non-funerary ritual has been discussed by Ward (1988), mainly in a Welsh context, who notes the appearance of 'token' deposits of human bone. Burgess (1980, 296) summarizes this neatly: 'The great range of ring-monuments – ring cairns, stone circles, henges and the like – seem to have served a broad spectrum of ritual, ceremonial and public functions in which interment played only an incidental part.' It may be that the Balfarg ring-ditch and ring-cairn did not serve a primarily funerary function, or it may be that the funerary function developed only later.

The date of construction of ring-cairn A is not clear. The latest type of pottery found in securely sealed elements of the sub-cairn land surface is Cowie's *Group 3* (Impressed Ware), the decorated Later Neolithic material; the *Group 3* pottery under the ring-cairn is abraded and may not represent a primary deposit. The few sherds of Beaker recovered from this area are from areas of the land surface exposed between ring-cairns Ai and Aii or from the cairn surface, and the ring-ditch/ring-cairn complex seems to be best interpreted as broadly associated with the *Group 3* pottery, identified by Cowie (above), which provides a *terminus post quem*. A similar Later Neolithic Impressed Ware assemblage, at Grandtully, Perthshire, has been radiocarbon dated to 2130±190 BC uncal (Gak-1398) and 1970±100 BC uncal (Gak-1396) (Simpson & Coles 1990).

The ring-cairns at Balfarg must be seen against a corpus of surveyed but largely unexplored ring-cairns in eastern Scotland which has increased considerably in number and variety since the last considerations of the type in Scotland (Ritchie & MacLaren 1972; Kenworthy 1972; Burl 1972; Lynch 1979). Ring-cairns have frequently been found to form an earlier phase of cairns where the open space is filled up to form a platform cairn or a 'pudding bowl' shaped mound; thus, any assessment of ring-cairns surviving with recognizable central spaces must always be incomplete: only those sites where the sequence was not completed, or where antiquarian work has revealed the central space, can be recognized as ring-cairns.

Ring-cairns must be seen in the context of a great variety of broadly circular monuments with a predominantly ceremonial and/or burial function. It has been argued that although the physical characteristics of some sites (or rather some phases of them) may be different, they might fulfil similar functions. That is, that the nature of the defined space might be more important than the nature of the feature used to define the space; of equal interest, however, is an appreciation of the way in which, on individual sites, the definition of space was deliberately changed by later alterations. While Clare (1986; 1987) tried to address the first point, he did not deal with the second (Barclay 1989).

We must accept the possibility that in different areas, particularly in the second millennium BC, broadly similar functions resulted in the creation of significantly different types of structure to define the same sort of space. It has been noted that the nature of ceremonial and funerary structures becomes more varied and diverse towards the end of the third millennium BC (uncalibrated) and into the second millennium, reaching a peak of variability late in the second millennium. For example, in the early third millennium recognizably similar timber structures appear in long and round barrows and cairns over much of Britain (Vyner 1986; Scott 1992), and sites which can be identified with some confidence as long mortuary enclosures appear right up the east coast of Britain, as far as north-east Scotland. In contrast, at the very end of the Neolithic and into the Bronze Age there is nothing like so great a conformity in structures associated with burial and other ritual

activity. The strong, widespread traditions rooted in the Earlier Neolithic seem to have disappeared and regional traditions became more vigorous and diverse (cf Whittle 1988) as the nature of monuments changed in the Later Neolithic and into the Bronze Age.

Some characteristics emerge clearly, particularly the predominance of small, roughly circular, defined spaces. In Scotland it is interesting to note the frequency of annular structures, where a defined space seems to have no formal access; 'hengiform' structures of similar dimensions such as Balneaves, Angus (Russell-White 1988), and Moncrieffe (Stewart 1985) seem to be different. The Scottish ring-cairns, almost by definition, have no visible entrance (in contrast to some of the Welsh examples) and ring-ditches are also generally annular. In many parts of Britain there is evidence of multiple phasing of monuments of the second millennium, particularly involving the filling-in or the closure of open spaces defined by annular ditches or bands of stone. In Scotland, for example at the Balfarg ring-ditch/ring-cairn complex, Beech Hill House (Stevenson 1990), Sketewan in Perthshire (Mercer 1988), and at the excavated Clava ring-cairns in Moray (Piggott 1956), it seems to have been the rule rather than the exception that enclosed spaces were modified in such a way that the defined space ceased to exist, although at some sites the space was reflected in later structural elements. For example, in the barrow at North Mains (Barclay 1983c, 199) the central circular space, defined at ground level by an encircling fence and ring-bank, was reflected not only through the body of the mound as it was built (by the use of physical boundaries and the differential use of building materials) but also in a 'crown' of large boulders on the mound's summit.

4.4.4 The mounding of the cairns and the post alignment

It has been mentioned above that the cairns at BRS survived under soil cover which was regularly ploughed, on top of a pronounced ridge, from which soil was actively eroding. It has been suggested that the only way in which such a depth of soil could have arrived on top of the cairns was as a deliberate deposit; this deposit is interpreted as a mound erected over the cairns in prehistory, to form low barrows. As Kinnes (1981) has written: 'The final version of many sites was a sealed monument, long or round mounds immediately visible in the landscape.'

The only physical link between the ring-cairn/cairn complex and the BRS enclosure is also believed to date from the same period. It comprises an alignment of six post-holes running north-east from cairn B, on a line which, if extended, would intersect both the centre of cairn B and the approximate centre of the BRS enclosure (illus 6). This link can be interpreted in two ways: it could be broadly contemporary with the BRS enclosure and the cairn could have been erected subsequently on the axis of the post alignment; this would require the alignment still to be visible. Alternatively, and more probably, the alignment could have been erected during the life of cairn B, designed specifically, perhaps, to make a link between the new site and the old, in particular the mounded-over Structure 2 in the middle of the BRS enclosure.

4.5 ACTIVITY ASSOCIATED WITH BEAKER POTTERY

The Beaker pottery associated with burials at Balfarg and Balbirnie is of types traditionally considered to be of late date (Ritchie 1974; Mercer 1981). In contrast, the All-Over-Cord Beaker associated with the non-burial activity is likely to be rather earlier;

but Cowie, in referring above to the British Museum programme of radiocarbon dating (Kinnes *et al* 1991) (above p 135), suggests a calibrated range of 2600 BC to 1800 BC. He notes the parallels between the assemblage from Balfarg and those from coastal domestic sites; he also points to the presence in the assemblage of 'domestic' coarser vessels, with cordons. Of particular interest in his discussion are his comments on the high proportions of three vessels which are found in discrete areas of the ditch (suggesting deposition before scattering or abrasion could occur) mixed with many sherds which were abraded, forming only small parts of many vessels. The possibility of the Beaker assemblage from the ditch being the result of domestic activity must be considered; however, the deposition of so much pottery in a limited area, if not the result of redeposition of midden material, might be seen as a further reflection of the breaking and deposition of pottery associated with the continued ceremonial function of the BRS enclosure, paralleling the Grooved Ware deposits lower in the filling of the ditch and, indeed, the Earlier Neolithic pit deposits. The sequence of deposition, in which Grooved Ware in the primary fills is followed by Beaker in the upper fills, is found in a number of henge ditches (Harding 1987). The very limited spread of Beaker sherds suggests deposition over a very small area on the edge of the ditch, or in the partly filled-in ditch itself; this is perhaps not what might be expected from a domestic episode, when a rather broader spread of material might have occurred.

4.6 BURIALS OF THE LATE THIRD AND EARLY SECOND MILLENNIA BC

At all three of the major foci of activity (the Balfarg henge, Balbirnie stone circle, and the sites at BRS in Area C) there were human burials, mainly late in the main period of use of each site. The henge had the remains of only one burial, located near its centre, accompanied by a handled Beaker (Mercer 1981).

The total number of burials represented in the complex is surprisingly large, over 50 individuals. The activity of a number of periods is clearly represented. Some are associated with activity of the later Neolithic (eg deposits II, IV, VI, IX, X in the stone sockets of the Balbirnie stone circle). There are about eight cist burials, one in the centre of the henge, four or five beneath the cairn at Balbirnie and two associated with cairn B in Area C at BRS. However, the greatest number of burials is made up of simple deposits of cremated bone inserted in the material of the cairn erected within the Balbirnie stone circle and, to a lesser extent, in late contexts near the BRS enclosure. The final group comprises the remains of a cremation cemetery to the west of the henge, co-located with the scatter of Earlier Neolithic pits discussed above, associated with bucket urns.

The understanding of the pattern of burials can be aided first by consideration of date. There are difficulties because of the dearth of radiocarbon dates attached to the burial phases and to the main phase of use of the Balbirnie stone circle. The following split by period is tentatively suggested:

Mid/late third millennium BC (uncalibrated)

Balbirnie Stone Circle: Burials III, IV, VI, VII, IX

Balfarg Henge: miscellaneous burnt bone scatter (none certainly human)

Early/mid second millennium BC (uncalibrated)

Cists	Henge Cist 1 Balbirnie Cists 1 to 4 + Beaker BRS Cists A and B
Cremations	All other cremation deposits at the Stone Circle, in cairn B and elsewhere at BRS.

While the great number of cremations in the cairn material of Balbirnie stone circle is the most dense concentration of human burial in the complex, it must be remembered that other less resilient contexts may also have held burials, and hence the number of simple late cremations might have been even higher. These are: the earthen mounds which may have covered the cairn complex at BRS (two cremation deposits lay on the upper surface of cairn B); the earthen mounds which may have covered the timber structures (one burial survived at the edge of Structure 1); and the cremation cemetery to the west of the henge, which has suffered much damage (any burials in pits only slightly shallower than those excavated pits, would have been destroyed).

Therefore, the trend that we can detect in the later phases of all the elements of the complex, towards burial as the main use, might have been even more pronounced.

It is not possible to tie the burials securely to a chronology sensitive enough to differentiate episodes of burial with any confidence, particularly in the case of the simple unaccompanied cremations. These, however, occur mainly in late contexts – in the covering-cairn of the stone circle, in the upper surface of cairn B and on the edge of the suggested mound covering Structure 1. Perhaps they can be seen to belong to the mid to late second millennium, certainly post-dating the Food Vessel-accompanied burial on the stone circle and possibly post-dating the cists cut through cairn B.

The burials to the west of the henge could not be radiocarbon dated. The fragments of three featureless bucket urns associated with two of the burial pits cannot be securely dated nor tied convincingly to the sequence of events elsewhere in the complex. The location of the cemetery, on the closest piece of flat ground to the south-west entrance to the henge, is surely significant, as is the avoidance of burial within the henge enclosure itself. At North Mains (Barclay 1983c), burials in a variety of forms, post-dating the main use of the enclosure, were found within the henge; only in the later second millennium/early first millennium BC (uncalibrated) were burials placed in such a way that suggested the deliberate avoidance of the enclosed area of the henge (Barclay 1983c, figs 3, 20 & 21: F3–F6).

One of the cremation burials in Area A had around it a halo of quartz pebbles (F2005), recalling the association of quartz pebbles with urn burials (once again, particularly with bucket urns) on several sites in south-west Scotland; eg Ardeer, Ayrshire (Morrison 1968) and Luce Sands, Wigtownshire (Cormack 1968).

Further burials in the area of cairn B may be represented by the unusual pits under the cairn. One (F8030) produced jet disc beads from around and within it. F8032/8039 and F8033 were large stone-filled pits. It may be that these are earlier Bronze Age graves; from the state of the surviving bone in cist A it would be expected that little or no bone would survive in the acidic soils filling these pits.

4.7 EVIDENCE FOR LATER BRONZE AGE SETTLEMENT

The two pits in Lane 3 can best be paralleled in shape and character in the cooking pits at Myrehead (Barclay 1983d); two pits at that site were radiocarbon dated: 875±85 BC uncal (GU-1608) and 880±60 BC uncal (GU-1609). While the pits at Balfarg are around 400 years older they appear to be in a very similar style and are perhaps best given the same interpretation. While the urn-associated cremation burials to the west of the Balfarg henge, in Area A, could not be radiocarbon dated, they are perhaps the element of the ceremonial and burial complex which are closest in time to the cooking pits. There is no other evidence of Bronze Age settlement in the area. At Myrehead, the cooking pits were associated with saddle querns; the only saddle quern found at Balfarg was located not far from the cremation burials, to the west of the henge (S31). It is interesting to note that the later Bronze Age *in situ* cremations to the north of the henge at North Mains (Barclay 1983c) were radiocarbon dated to 895±60 (GU-1437), 905±85 (GU-1350) and 1085±70 (GU-1351), all BC uncal.

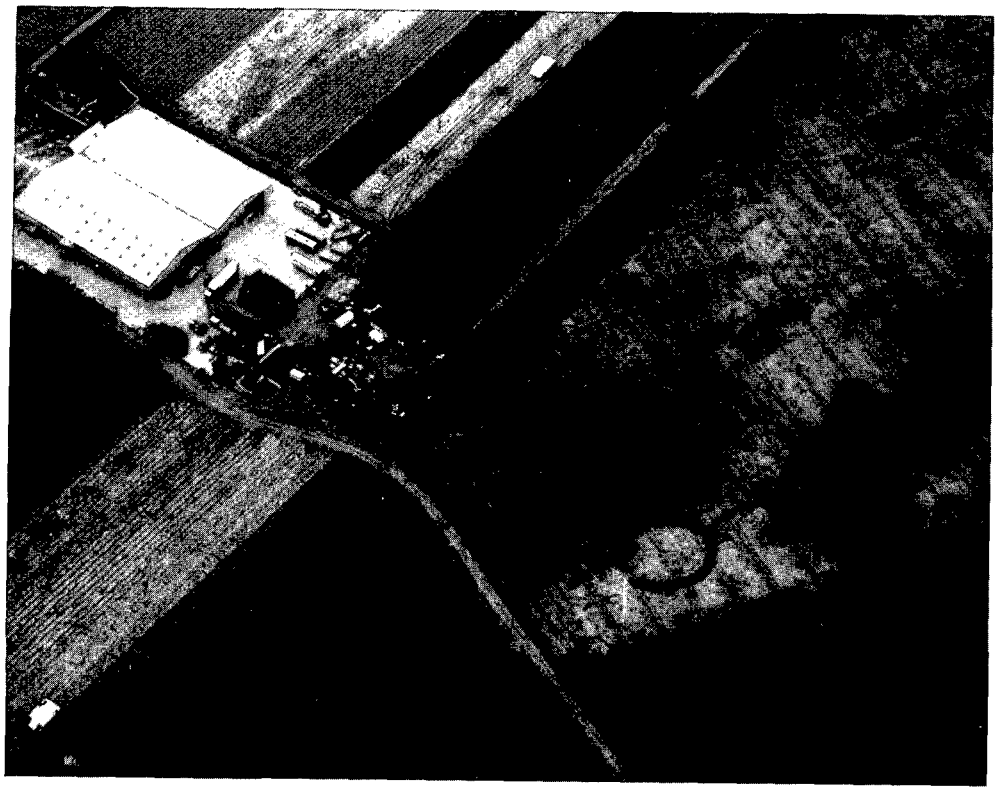
4.8 THE BALFARG/BALBIRNIE COMPLEX: LOCATION, NATURE AND ASSOCIATIONS

The site at Balfarg/Balbirnie is situated at the south-east end of the Lomond Hills, which form a considerable barrier to movement, channelling access to and from the fertile land of the Howe of Fife to the east and west of their massif; problems of access would have been further compounded by the extent (far greater than before the extensive drainage campaign in the 19th century) of wet, badly drained ground, particularly in the area to the east of Loch Leven.

Barnatt (1989), in considering the concept of 'regional foci' argues that the average spacing between such places was relatively consistent. He suggests (*ibid*, 221) that monuments at higher levels in the site hierarchy commonly display non-random siting at 'central' or 'boundary' positions (in a topographical sense). Balfarg's position would certainly seem to be on the edge of the Howe of Fife, but its relationship to its overall 'catchment' is impossible to understand, without the catchment itself, and its settlements, being better defined. Balfarg is, however, geographically central in Fife, and is the only known complex of its kind in the area between the Tay and the Forth to the south-east of the Cleish Hills. It is interesting to note that if the complex had been placed anywhere to the north or north-east, on reasonably flat ground, the Lomond Hills would have severely restricted the outlook to the south-west; as many writers have observed (in particular Mercer in his consideration of the Balfarg henge) south-western orientations are common, and seem important, in later Neolithic/earlier Bronze Age ceremonial architecture.

Barnatt (1989, fig 5) plots the henge distribution in 'Tayside' although the selection of sites included is not consistent. This author would agree with Harding's doubts about the Newton of Boysack enclosure as a henge (Harding 1987, 415–16) but would certainly include some of the features at Forteviot (Harding 1987, 411), the small henge at Moncrieffe (Stewart 1985), and the probable henge at Culdrochie, Perthshire (Harding 1987, 408), as well as the hengiform enclosures at Strathmiglo, Balmalcolm (illus 79) and Rossie Drain (Harding 1987, 354) (all Fife) (illus 1). These alterations to the distribution of henges in the area would disrupt the neat pattern in Barnatt's figure 5. If we are to accept that Balfarg has a function as a 'regional focus' in the later Neolithic, then we might suggest that the earlier Neolithic pit digging and perhaps also the timber structures had a local significance and that other local foci of the period would have existed.

What, in the archaeological record of Fife, relates to the phases of Balfarg's use as first



ILLUS 79 The hengiform enclosure at Balmalcolm the cropmarks of pits (post-holes?) are visible on the inner lip of the ditch. *(Crown copyright: RCAHMS)*

a local focus, then a regional focus, and then perhaps again a local site in the earlier Bronze Age? Cropmarks in the Howe of Fife may conceal, in their ill-understood variety, elements of the settlement background to Balfarg. The frustratingly incomplete picture of the enclosed site at Kinloch, Fife (Barber 1982) and, further afield, the hints provided by the trial trenching at North Mains in Tayside (Barclay & Tolan 1990), suggest that there may be a tradition of enclosed earlier prehistoric settlement yet to be explored. Sites and artefact find spots which may reasonably be dated to the Neolithic or earlier Bronze Age are scattered across central Fife. There are chance finds of axes, arrowheads and carved stone balls, discoveries of burial cists and cinerary urns, but none in any meaningful pattern. There are a number of ring-ditches, including two some 1.5 km to the east of Balfarg, which may or may not be of the period of interest. The area around Balfarg is not particularly rich in material of the Neolithic and earlier Bronze Age; there are the cairns at Pitcairn (Barclay 1978) and Law Head (RCAHMS 1933, 208–9), and a find of a stone axe from Markinch, but little else is known for a distance of 3–4 km until the Ladybank area is reached. The latter includes the possible henge at Balmalcolm (illus 79) and is close to the possible Neolithic settlement at Kinloch farm (Barber 1982).) South-west of there, little is known closer than the area between the summits of the East and West Lomond hills, where four cup-marked stones have

been found (one close to the Early Bronze Age cairn on the summit of East Lomond, 5 km to the north-west of Balfarg). The limited fieldwalking programme undertaken around Balfarg has provided little more in the way of background to the use of the complex.

Jan Harding (1991) has discussed the idea of areas set aside as purely ceremonial sites, separated from more clearly domestic activity, such as settlement or farming, and has questioned the application to other parts of Britain of models developed in Wessex. Our knowledge of the nature of domestic sites in the Neolithic of Scotland, outside the northern isles, is very limited and it is difficult to discuss the relationship between groupings of ceremonial sites and the operation of settlements and agriculture. At Balfarg/Balbirnie the area within which the various sites were erected and used appears to have been defined by watercourses and this may have been deliberate. Jordan's work (above) has suggested that the area between the watercourses was in the past more pronouncedly hilly; erosion has flattened hills and filled in hollows to some extent. Effectively, the ceremonial and burial sites were set on the areas of flatter ground, the only naturally dry-shod access to which was across the narrow neck of land between the burns, at the north-west. The extensive sampling exercise undertaken at Balfarg located nothing which could be clearly identified as Neolithic or earlier Bronze Age settlement, although the early Neolithic pit digging, and the Beaker activity around the BRS enclosure, could still bear a domestic or partly domestic interpretation.

A full picture of the nature of ceremonial and funerary complexes such as Balfarg must rely to a considerable extent on both extensive and intensive excavation. We have seen that there can be considerable movement over time of areas of activity within such complexes. The sampling strategy adopted at Balfarg was designed to find any significant concentrations of archaeologically detectable activity in the areas available for investigation. In seeking to draw wider parallels, we must first seek data of comparable completeness. Close concentration on narrowly defined sites has resulted in a limitation of the available data. Where the narrow confines of a burial mound, or little more than the enclosed area of a henge, has been excavated (eg North Mains: Barclay 1983c), evidence of activity contemporary with, or earlier or later than the main focus will only be detected if it lies within these narrow bounds. At North Mains, earlier and later activity was detected, but we must ask ourselves what else was going on further afield, beyond the excavated areas?

The detection and investigation of these 'peripheral' activities is important. In our investigation of ceremonial and funerary complexes we can see that the manipulation of the symbolism of space is important. This appears as changes to the nature of a site (eg filling in the central space of ring-cairn) but also in the way that activity moves from one focus to another, *perhaps deliberately colonizing or, alternatively, avoiding the site of earlier activity.* At North Mains we can see, for example, that the Period IV burials (dated to the late second/early first millennium BC – uncalibrated) concentrate just to the north of the henge enclosure, apparently deliberately avoiding using it.

In his consideration of ceremonial complexes in the midlands of England and in East Anglia, Loveday (1989) notes a recurring pattern of monument types occurring together: cursus monuments, oblong ditched enclosures and hengiform monuments. In Scotland our understanding of the groupings of monuments has not yet matured sufficiently for a similarly detailed analysis to be attempted as the rate of discovery of new sites and groups of sites is still high, and little excavation and dating evidence for monument types is yet available. While suggesting due caution in comparing such widely separated material, we may note the co-occurrence of what might be interpreted as Scottish versions of Loveday's types, for example, in the Lunan Valley in Angus. Here the pit-defined cursus variant at Balneaves lies

only a few metres from a pit-defined rectilinear enclosure and the site of a 'hengiform' enclosure (Russell-White 1989), close to a number of ring-ditches, and not far from the pit-defined rectilinear enclosure at Douglasmuir (which had radiocarbon dates of 2900±55 (GU-1210), 2945±70 (GU-1469) and 2950±65 (GU-1460), all BC uncal: Kendrick 1980, and P Ashmore, pers comm). It is clear from the results of recent aerial reconnaissance and of monument reinterpretation that there is a greater variety and density of ceremonial sites and complexes in eastern Scotland than we had believed.

The individual foci of activity at Balfarg/Balbirnie are very much spread out but most elements had a complex individual history, overlapping in time and in artefact associations with what was happening on another part of the site. One characteristic which might allow the differentiation of types of complex is the presence of one or more of what we would see as the same kind of site; eg at Balfarg/Balbirnie two stone circles (including that within the henge), two henges, two timber structures. Unexcavated sites, such as Forteviot (Harding 1987), suggest that other major complexes in the area might also have multiple duplication of monument types.

Developments on a site can very often be seen as a change in the definition of space, perhaps in some cases reflecting a change in function or status of the site. We must ask why there is movement from one focus to another for a different function, and movement from one focus to another for what seems to be a similar function. Further, we must consider the space between elements which might be related.

We can note that extensive complexes of ceremonial sites, which might involve the sacrifice of large areas of productive land, have mainly (as yet) been found in lowland arable areas. There are hints that this is an effect of the availability of cropmarks as the means of discovery; at two locations in Lanarkshire there is clear evidence of extensive upland Neolithic ceremonial and burial activity. At one, Blackshouse Burn, a vast Neolithic enclosure (RCAHMS 1978), which has been compared in size with Durrington Walls in Wiltshire, is located in a landscape of complex burial cairns (P Hill, pers comm). At the other, clear evidence of upland Neolithic settlement and burial has been found at Biggar Common (Sheridan 1990; Johnston 1991; Ward 1991).

Barrett (1988) stated that 'Ritual is made up of actions, not things. There are no such things as "ritual sites". . . The places where ritual may be enacted and the artefacts used will also have been encountered in the daily routines of life (including the avoidance of sacred ground).' We may note that the focus of activity over the area defined by the two watercourses at Balfarg moved with time. The earliest activity, the early Neolithic pit digging, occurred in two places which we can identify. At the eastern of these two, the next activity was related to the erection and use of the two timber structures, which ended, perhaps, with the enclosure of the later one at the end of its use. We may suggest that the construction of the full-blown henge at Balfarg follows fairly quickly and that the focus of attention shifted to that site for a time. Towards the end of the millennium the Beaker activity and later activity associated with the later Neolithic Impressed Wares showed a continued or resumed interest in the area around the BRS enclosure (although not, as far as we can tell, within the enclosure itself). The burials accompanied by Beakers or Food Vessels, and the undated, but presumed late, cremation deposits (to the west of the henge, in the mounds covering cairn B and possibly Structure 1 and, in greatest profusion, in the Balbirnie stone circle), show a general interest in the funerary use of the whole area.

The place of the complicated sequence of development of the Balbirnie stone circle in the larger sequence of the ceremonial complex as a whole is problematic. Radiocarbon

evidence is lacking. Grooved Ware sherds found at Balbirnie (Henshall 1981) show that there was some later Neolithic activity on the site, and the parallels between the central setting there, and at the Stenness henge, might reinforce the suggestion of a date in the mid to late third millennium BC (uncalibrated) for the earliest activity on the site. It may be that the stone circle was sited on an existing feature, and it is not beyond the realms of possibility that it replaced (and obliterated) an earlier timber setting associated with the Grooved Ware and the central feature (cf Machrie circles 1 and 11: Haggerty 1991).

4.9 CONCLUSIONS

The excavation of the complex at Balfarg/Balbirnie has provided us with useful information on the development of individual sites of known type – henges, stone circles, a ring-ditch, ring cairns – and has led to the discovery of a new type of possible funerary structure. It has allowed the extension of our understanding of the ritual use and deposition of pottery, particularly Grooved Ware. It has also added to our understanding of the ways in which sites develop and are changed over time, and the ways in which such individual monuments relate to each other in function and over time. The value of excavating substantial areas well beyond the visible boundaries of 'monuments', and the need to do so, as pressed by Burl (1969), have once again been clearly confirmed.

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REFERENCES

Alcock, L 1978 'Excavation and publication: some comments', *Proc Soc Antiq Scot*, 109 (1977–8), 1–6.

Anon, 1908 & 1910 'Nature Notes – Culross' *T Bot Soc Edin.*

Ashbee, P 1966 'The Fussel's Lodge long barrow excavations 1957', *Archaeologia*, 100 (1966), 1–80.

Ashmore, P J 1980 'Low cairns, long cists and symbol stones', *Proc Soc Antiq Scot*, 110 (1978–80), 346–55.

Ashmore, P J 1989 'Excavation of a Beaker cist at Dornoch Nursery, Sutherland', *Proc Soc Antiq Scot*, 119 (1989), 63–71.

Atkinson, R J C 1957 'Worms and weathering', *Antiquity*, 31 (1957), 219–33.

Atkinson, R J C 1965 'Wayland's Smithy', *Antiquity*, 39, 126–33.

Bailey, J & Culley, G 1805 *General View of the Agriculture of Northumberland.*

Barber, J 1982 'The investigation of some plough-truncated features at Kinloch Farm, Collessie, in Fife', *Proc Soc Antiq Scot*, 112 (1982), 524–33.

Barclay, G J 1978 'The excavation of a cairn at Pitcairn, Glenrothes, Fife', *Proc Soc Antiq Scot*, 109 (1977–8), 361–6.

Barclay, G J 1983a *Balfarg Riding School – Interim Report.* Privately circulated paper.

Barclay, G J 1983b *Balfarg Riding School – Second Interim Report.* Privately circulated paper.

Barclay, G J 1983c 'Sites of the third millennium BC to the first millennium AD at North Mains, Strathallan, Perthshire', *Proc Soc Antiq Scot*, 113 (1983), 122–281.

Barclay, G J 1983d 'The excavation of a settlement of the later Bronze Age and Iron Age at Myrehead, Falkirk District', *Glasgow Archaeol J*, 10 (1983), 41–71.

Barclay, G J 1984 *Balfarg Riding School – Third Interim Report.* Privately circulated paper.

Barclay, G J 1985 *Balfarg Riding School – Fourth Interim Report.* Privately circulated paper.

Barclay, G J 1989 'Henge monuments: reappraisal or reductionism', *Proc Prehist Soc*, 55 (1989), 260–2.

Barclay, G J 1990 'The clearing and partial excavation of the cairns at Balnuaran of Clava, Inverness-shire, by Miss Kathleen Kennedy, 1930–1', *Proc Soc Antiq Scot*, 120 (1990), 17–32.

Barclay, G J 1993 *Balfarg: the prehistoric ceremonial complex.* Glenrothes.

Barclay, G J & Maxwell, G S 1991 'The excavation of a Neolithic long mortuary enclosure within the Roman legionary fortress at Inchtuthil, Perthshire', *Proc Soc Antiq Scot*, 121 (1991), 27–44.

Barclay, G J & Tavener, P N 1986 'Balfarg', *Discovery Excav Scot 1985* (1986), 13.

Barclay, G J & Tolan, M 1990 'Trial excavation of a terrace-edge enclosure at North Mains, Strathallan, Perthshire', *Proc Soc Antiq Scot*, 120 (1990), 45–53.

Barclay, G J & Tolan, M 1991 'Romancamp Gate', *Discovery Excav Scot 1990*, 19–20.

Barnatt, J 1989 *Stone Circles of Britain: taxonomic and distributional analyses and a catalogue of sites in England, Scotland and Wales*. Oxford.

Barrett, J 1988 'The living, the dead and the ancestors: Neolithic and Early Bronze Age mortuary practices', *in* Barrett, J & Kinnes, I (eds) 1988, 30–41.

Barrett, J & Kinnes, I (eds) 1988 *The Archaeology of Context in the Neolithic and Bronze Age: Recent Trends*. Sheffield.

Bradley, R 1984 *The Social Foundations of Prehistoric Britain*. London.

Bradley, R & Gardiner, J (eds) 1984 *Neolithic Studies: a Review of Some Current Research*. Oxford (= Brit Archaeol Rep Brit Ser 133).

Burgess, C 1976 'Meldon Bridge: a Neolithic defended promontory complex near Peebles', *in* Burgess, C & Miket, R (eds) 1976, 151–79.

Burgess, C 1980 *The Age of Stonehenge*. London.

Burgess, C & Miket, R (eds) 1976 *Settlement and economy in the third and second millennia BC*. Oxford. (= Brit Archaeol Rep Brit Ser 33).

Burl, A 1969 'Henges: internal features and regional groups', *Archaeol J*, 126 (1969), 1–28.

Burl, A 1976 *The Stone Circles of the British Isles*. London.

Burl, A 1972 'Stone circles and ring-cairns', *Scott Archaeol Forum*, 4 (1972), 31–47.

Burl, A 1984 'Report on the excavation of a Neolithic mound at Boghead, Speymouth Forest, Fochabers, Moray', *Proc Soc Antiq Scot*, 114 (1984), 35–73.

Callander, J G 1929 'Scottish Neolithic pottery', *Proc Soc Antiq Scot*, 63 (1928–9), 29–98.

Case, H 1961 'Irish Neolithic pottery: distribution and sequence', *Proc Prehist Soc*, 27 (1961), 174–233.

Case, H 1969 'Settlement-patterns in the North Irish Neolithic', *Ulster J Archaeol*, 32 (1969), 3–27.

Case, H 1977 'The Beaker culture in Britain and Ireland', *in* Mercer, R J (ed), *Beakers in Britain and Europe*, Oxford, 71–84. (= Brit Archaeol Rep Supp Ser 26).

Childe, V G & Smith, I F 1954 'Excavation of a Neolithic barrow on Whiteleaf Hill, Bucks', *Proc Prehist Soc*, 20 (1954), 212–30.

Clare, T 1986 'Towards a reappraisal of henge monuments', *Proc Prehist Soc*, 52 (1986), 281–316.

Clare, T 1987 'Towards a reappraisal of henge monuments: origins, evolutions and hierarchies', *Proc Prehist Soc*, 53 (1987), 457–77.

Clarke, D L 1970 *Beaker pottery of Great Britain and Ireland*. Cambridge.

Clarke, D V 1976 'Excavations at Skara Brae, a summary account', *in* Burgess, C & Miket, R (eds), *Settlement and economy in the third and second millennia BC*, 233–50. (= Brit Archaeol Rep Brit Ser 33).

Clarke, D V, Cowie, T G & Foxon, A 1985 *Symbols of Power at the Time of Stonehenge*. Edinburgh.

Close-Brooks, J 1986 'Excavations at Clatchard Craig, Fife', *Proc Soc Antiq Scot*, 116 (1986), 117–84.

Coles, J & Simpson, D D A 1965 'The excavation of a Neolithic round barrow at Pitnacree, Perthshire', *Proc Prehist Soc*, 31 (1965), 34–57.

Collins, A E P 1957 'Trial excavations in a round cairn on Knockiveagh, Co. Down', *Ulster J Archaeol*, 20 (1957), 8–28.

Cormack, W F 1963 'Burial site at Kirkburn, Lockerbie', *Proc Soc Antiq Scot*, 96 (1962–3), 107–35.

Cormack, W F 1968 'A burial cairn in Luce Sands, Wigtownshire', *Trans Dumfries Galloway Natur Hist Antiq Soc*, 45 (1968), 240–1.

Cowie, T G 1992 'Neolithic pottery from Barbush Quarry, Dunblane, Perthshire, with notes on the Neolithic pottery of Eastern and Central Scotland', *in* Sharples, N & Sheridan, J A (eds), 272–85.

Cowie, T G 1993 'A survey of the Neolithic pottery of eastern and central Scotland', *Proc Soc Antiq Scot*, 123 (1993), 13–41.

Cowie, T G & Ritchie, J N G 1991 'Bronze age burials at Gairneybank, Kinross-shire', *Proc Soc Antiq Scot*, 121 (1991), 95–109.

Crowther, D 1983 'Old land surfaces and modern ploughsoil: implications of recent work at Maxey, Cambs', *Scott Archaeol Rev*, 2 (1983), 31–44.

Friedrich, M 1970 'Design structure and social interaction: archaeological implications of an ethnographic analysis', *American Antiquity*, 35 (1970), 332–43.

Garwood, P, Jennings, D, Skeates, R & Toms, J (eds) 1991 *Sacred and Profane: Proceedings of a Conference on Archaeology, Ritual and Religion. Oxford 1989*. Oxford.

Gerloff, S 1975 *The Early Bronze Age Daggers in Great Britain and a reconsideration of the Wessex Culture*. Munich. (Prahistorische Bronzefunde VI,2.)

Gibson, A 1988 *Beaker domestic sites. A study of the domestic pottery of the late third and early second millennia* BC *in the British Isles*. Oxford. (= Brit Archaeol Rep Brit Ser 107)

Gibson, A (ed) 1989 *Midlands Prehistory*. Oxford. (= Brit Archaeol Rep Brit Ser 204).

Grieve, M 1980 *A Modern Herbal*. London.

Haggerty, A 1991 'Machrie Moor, Arran: recent excavations at two stone circles', *Proc Soc Antiq Scot*, 121 (1991), 51–94.

Hardin, M A 1984 'Models of decoration', *in* van der Leeuw, S E & Pritchard, A C (eds) *The many dimensions of pottery* (CINGULA 7), Amsterdam, 573–614.

Harding, A F 1981 'Excavations in the prehistoric ritual complex at Milfield, Northumberland', *Proc Prehist Soc*, 47 (1981), 87–135.

Harding, A F 1987 *Henge Monuments and Related Sites of Great Britain*. Oxford. (=Brit Archaeol Rep Brit Ser 175).

Harding, J 1991 'Using the unique as the typical: monuments and the ritual landscape' *in* Garwood, P, Jennings, D, Skeates, R & Toms, J (eds), 141–51.

Harvey, J 1981, 1990 *Mediaeval Gardens*. London.

Hedges, J 1983 *Isbister: a Chambered Tomb in Orkney*. Oxford. (= Brit Archaeol Rep Brit Ser 115).

Henshall, A S 1981 'Report on the pottery from Balfarg, Fife', *in* Mercer, R J 1981, 128–33.

Henshall, A S 1983a 'Pottery: catalogue and discussion', *in* Ritchie, A, 'Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray, Orkney', *Proc Soc Antiq Scot*, 113 (1983), 40–121.

Henshall, A. S. 1983b 'The Neolithic pottery from Easterton of Roseisle, Moray', *in* O'Connor, A & Clarke, D V (eds) *From the Stone Age to the Forty-Five. Studies presented to R B K Stevenson*, Edinburgh, 19–44.

Henshall, A S & Wallace, J C 1963 'A Bronze Age cist burial at Masterton, Pitreavie, Fife', *Proc Soc Antiq Scot*, 96 (1962–3), 145–54.

Herne, A 1988 'A time and a place for the Grimston bowl', *in* Barrett, J C & Kinnes, I A (eds) 1988, 9–29.

Houlder, C 1968 'The henge monuments at Llandegai', *Antiquity*, 42 (1968), 216–21.

Houlder, C 1969 'Llandegai', *Archaeology in Wales*, 9 (1969), 8–9.

Huntington R & Metcalf, P 1979 *Celebrations of Death*. Cambridge.

Hutcheson, A 1902 'Notice of the exploration of a cairn of the Bronze Age in the parish of Balmerino, Fifeshire', *Proc Soc Antiq Scot*, 36 (1901–2), 635 –53.

Jackson, D A 1976 'The excavation of Neolithic and Bronze Age sites at Aldwincle, Northants, 1967–71', *Northamptonshire Archaeol*, 11 (1976), 12–70.

Johnston, D A 1991 'Biggar Common', *Discovery Excav Scot 1990* (1991), 37.

Kemp, M 1988 'Cloburn Quarry', *Discovery Excav Scot 1987* (1988), 46.

Kemp-Clarke, M forthcoming 'Excavation of a platform cairn at Cloburn Quarry, Lanarkshire'.

Kendrick, J 1980 *Douglasmuir: the excavations of an early Iron Age settlement and a Neolithic enclosure, 1979–1980: preliminary report*. Privately circulated paper.

Kenworthy, J 1972 'Ring-cairns in North-East Scotland', *Scott Archaeol Forum*, 4 (1972), 18–30.

Kilbride-Jones, H E 1935 'An account of the excavation of the stone circle at Loanhead of Daviot, and of the standing stones of Cullerlie, Echt, both in Aberdeenshire, on behalf of the Office of Works', *Proc Soc Antiq Scot*, 69 (1934–5), 168–223.

Kilbride-Jones, H E 1936 'A late Bronze Age cemetery: being an account of the excavations of 1935 at Loanhead of Daviot, Aberdeenshire, on behalf of HM Office of Works', *Proc Soc Antiq Scot*, 70 (1935–6), 278–310.

Kinnes, I 1979 *Round Barrows and Ring-ditches in the British Neolithic*. London.

Kinnes, I A 1981 'Dialogues with death' *in* Chapman, R W, Kinnes, I A & Randsborg, K (eds), *The Archaeology of Death*, Cambridge, 83–91.

Kinnes, I A 1985 'Circumstance not context: the Neolithic of Scotland from the outside', *Proc Soc Antiq Scot*, 115 (1985), 15–57.

Kinnes, I, Gibson, A, Ambers, J, Bowman, S, Leese, M & Boast, R 1991 'Radiocarbon dating and British beakers: the British Museum programme', *Scott Archaeol Rev*, 8 (1991), 35–68.

Laing, L R 1969 'Timber halls in Dark Age Britain – some problems', *Trans Dumfries Galloway Natur Hist Antiq Soc*, 46 (1969), 110–27.

Lanting, J N & van der Waals, J D 1972 'British Beakers as seen from the Continent. A review article', *Helinium*, 12 (1972), 20–46.

Largo Field Historical Soc 1969 'Upper Largo', *Discovery Excav Scot 1968* (1969), 21–2.

Linge, J 1987 'Re-discovering a landscape: the barrow and motte in north Ayrshire', *Proc Soc Antiq Scot*, 117 (1987), 23–32.

Longworth, I H 1967 'Further discoveries at Brackmont Mill, Brackmont Farm and Tentsmuir, Fife', *Proc Soc Antiq Scot*, 99 (1966–7), 60–92.

Loveday, R 1985 *Cursuses and Related Monuments of the British Neolithic*. Unpublished PhD thesis, University of Leicester.

Loveday, R 1989 'The Barford ritual complex: further excavations (1972) and a regional perspective', *in* Gibson, A (ed) 1989, 51–84.

Low, A 1929 'A short cist at Culduthel, Inverness', *Proc Soc Antiq Scot*, 63 (1928–9), 217–24.

Lowe, C 1988 'A Bronze Age cemetery at Loanleven, Almondbank, Perth and Kinross, District', *Historic Buildings and Monuments (Scotland), Central Excavation and AM Laboratory Annual Report 1988* (1988), 27–9.

Lynch, F 1972 'Ring-cairns and related monuments in Wales', *Scott Archaeol Forum* 4 (1972), 61–80.

Lynch, F 1979 'Ring cairns in Britain and Ireland: their design and purpose', *Ulster J Archaeol*, 42 (1979), 1–19.

McInnes, I J 1964 'The Neolithic and Early Bronze Age pottery from Luce Sands, Wigtownshire', *Proc Soc Antiq Scot*, 97 (1963–4), 40–81.

McInnes, I J 1969 'A Scottish Neolithic pottery sequence', *Scott Archaeol Forum*, 1 (1969), 19–30.

McInnes, I J 1977 'Descriptive catalogue of pottery and flints and survey of the pottery', *in* Hope-Taylor, B *Yeavering, an Anglo-British centre of early Northumbria*. (= Department of the Environment Archaeol Rep 7), London, 349–57.

Mackay, R R 1948 'Neolithic pottery from Knappers Farm, near Glasgow', *Proc Soc Antiq Scot*, 82 (1947–8), 234–7.

Mackay, R R 1950 'Grooved Ware from Knappers Farm, near Glasgow, and Townhead, Rothesay', *Proc Soc Antiq Scot*, 84 (1949–50), 180–4.

McKean, D R 1988 *A checklist of the plants of Midlothian*. Edinburgh.

MacLaren, A 1967 'Recent excavations in Peeblesshire', *Proc Soc Antiq Scot*, 99 (1966–7), 93–103.

Manby, T G 1963 'The excavation of the Willerby Wold long barrow', *Proc Prehist Soc*, 29 (1963), 173–205.

Manby, T G 1970 'Long barrows of Northern England; structure and dating evidence', *Scott Archaeol Forum*, 2 (1970), 1–27.

Manby, T G 1974 *Grooved Ware sites in the north of England*. Oxford. (= Brit Archaeol Rep Brit Ser 9).

Manby, T G 1976 'Excavation of the Kilham long barrow, East Riding of Yorkshire', *Proc Prehist Soc*, 42 (1976), 111–59.

Manby, T G 1988 'The Neolithic period in Eastern Yorkshire', *in* Manby, T G (ed) *Archaeology in Eastern Yorkshire. Essays in honour of T C M Brewster*, Sheffield, 35–87.

Mann, L M 1902 'Note on the finding of an urn, jet necklace, stone axe and other associated objects, in Wigtownshire', *Proc Soc Antiq Scot*, 36 (1901–2), 584–9.

Mann, L M 1903 'Report on the excavation of prehistoric pile-structures in pits in Wigtownshire', *Proc Soc Antiq Scot*, 37 (1902–3), 370–415.

Marriott, J W 1968 'A Bronze Age burial site at Kinneil Mill, Stirlingshire', *Proc Soc Antiq Scot*, 100 (1967–8), 86–9.

Marshall, D N 1978 'Excavations at Auchategan, Glendaruel, Argyll', *Proc Soc Antiq Scot*, 109 (1977–8), 36–74.

Maxwell, G S 1974 'The excavation of ring-ditched enclosures in Annandale and Clydesdale', *Glasgow Archaeol J*, 3 (1974), 1–8.

Mercer, R J 1980 *Hambledon Hill: A Neolithic Landscape*. Edinburgh.

Mercer, R J 1981 'The excavation of a late Neolithic henge-type enclosure at Balfarg, Markinch, Fife, Scotland, 1977–78', *Proc Soc Antiq Scot*, 111 (1981), 63–171.

Mercer, R J 1988 'Sketewan', *Univ Edinburgh Dept Archaeol, 34th Annual Report* (1988), 26–7.

Mercer, R J, Barclay, G J, Jordan, D & Russell-White, C J 1988 'The Neolithic henge-type enclosure at Balfarg – a re-assessment of the evidence for an incomplete ditch circuit', *Proc Soc Antiq Scot*, 118 (1988), 61–7.

Miket, R 1976 'The evidence for Neolithic activity in the Milfield Basin, Northumberland', *in* Burgess, C & Miket, R (eds) 1976, 113–42.

Miket, R 1985 'Ritual enclosures at Whitton Hill, Northumberland', *Proc Prehist Soc*, 51 (1985), 137–48.

Moffat, B 1991 *SHARP Practice 4*. Edinburgh.

Morrison, A 1968 'Cinerary urns and pygmy vessels in south-west Scotland', *Trans Dumfriesshire Galloway Natur Hist Antiq Soc*, 45 (1968), 80–140.

Perring, F H & Walters, S M (eds) 1982 *Atlas of the British Flora* (3rd edn). Wakefield.

Phillips, C W 1935 'The excavation of the Giants' Hills long barrow, Skendleby, Lincolnshire', *Archaeologia*, 85 (1935), 37–106.

Pierpoint, S 1980 *Social patterns in Yorkshire prehistory 3500–750 BC*. Oxford. (= Brit Archaeol Rep Brit Ser 74).

Piggott, S 1948 'The excavations at Cairnpapple Hill, West Lothian, 1947–48', *Proc Soc Antiq Scot*, 82 (1947–8), 68–123.

Piggott, S 1954 *Neolithic cultures of the British Isles*. Cambridge.

Piggott, S 1956 'Excavations in passage graves and ring cairns of the Clava group, 1952–3', *Proc Soc Antiq Scot*, 88 (1954–6), 173–207.

Piggott, S 1972 'Excavation of the Dalladies long barrow, Fettercairn, Kincardineshire', *Proc Soc Antiq Scot*, 104 (1971–2), 23–47.

Piggott, S & Simpson, D D A 1971 'Excavation of a stone circle at Croft Moraig, Perthshire, Scotland', *Proc Prehist Soc*, 37 (1971), 1–15.

Pitts, L F & St Joseph, J K 1985 *Inchtuthil: the Roman Legionary Fortress*. London. (= Britannia Monograph no. 6).

Ralston, I B M 1982 'A timber hall at Balbridie Farm', *Aberdeen University Rev*, 168 (1982), 238–49.

RCAHMS 1933 Royal Commission on the Ancient and Historical Monuments of Scotland *Eleventh Report, with Inventory of Monuments and Constructions in the Counties of Fife, Kinross and Clackmannan*. Edinburgh.

RCAHMS 1978 Royal Commission on the Ancient and Historical Monuments of Scotland *Lanarkshire: an Inventory of the Prehistoric and Roman Monuments*. Edinburgh.

Reynolds, N & Barber, J 1984 'Analytical excavation', *Antiquity*, 58 (1984), 95–102.

Richards, C C forthcoming 'Anatomy of a late neolithic monumental landscape: excavations at Barnhouse and Maeshowe, Stenness, Orkney'.

Richards, C 1985 *The Orkney Survey Project: an interim report*. Privately circulated paper.

Richards, C 1990a 'The late Neolithic settlement complex at Barnhouse Farm, Stenness, Orkney', *in* Renfrew, C (ed) *The Prehistory of Orkney* (2nd edn). Edinburgh.

Richards, C C 1990b 'Barnhouse, Stenness', *Discovery Excav Scot 1989* (1990), 66.

Richards, C C & Thomas, J S 1984 'Ritual activity and structured deposition in later Neolithic Wessex', *in* Bradley, R and Gardiner, J (eds) 1984, 189–218.

Richards, J 1990 *The Stonehenge Environs Project* London.

Riley, D N 1957 'Neolithic and Bronze Age pottery from Risby Warren and other occupation sites in North Lincolnshire', *Proc Prehist Soc*, 23 (1957), 40–56.

Ritchie, J N G 1970 'Excavation of the chambered cairn at Achnacreebeag', *Proc Soc Antiq Scot*, 102 (1969–70), 31–55.

Ritchie, J N G 1974 'Excavation of the stone circle and cairn at Balbirnie, Fife', *Archaeol J*, 131 (1974), 1–32.

Ritchie, J N G 1976 'The Stones of Stenness, Orkney', *Proc Soc Antiq Scot*, 107 (1975–6), 1–60.

Ritchie, J N G & Adamson, H C 1981 'Knappers, Dunbartonshire: a reassessment', *Proc Soc Antiq Scot*, 111 (1981), 197–204.

Ritchie J N G & Maclaren, A 1972 'Ring-cairns and related monuments in Scotland', *Scott Archaeol Forum*, 4 (1972), 1–17.

Russell-White, C J 1988 'Excavation of a cropmark site at Balneaves, Friockheim, Angus District', *Central Excavation Unit and Ancient Monuments Laboratory Report 1988* (1988), 14–16.

Russell-White, C J forthcoming 'Medieval and later features at Balfarg Riding School'.

Schofield, J 1991 *Interpreting Artefact Scatters*. Oxford.

Scott, B G 1977 'Dancing, drink or drugs?: comments on the "Beaker Cult-package" hypothesis', *Irish Archaeol Research Forum*, 4.2 (1977), 29–34.

Scott, J 1989 'The hall and motte at Courthill, Dalry, Ayrshire', *Proc Soc Antiq Scot*, 119 (1989), 271–8.

Scott, J 1992 'Mortuary structures and megaliths', *in* Sharples, N & Sheridan, A (eds) 1992, 104–19.

Sharples, N 1985 'Individual and community: the changing role of megaliths in the Orcadian Neolithic', *Proc Prehist Soc*, 51 (1985), 59–74.

Sharples, N & Sheridan, A (eds) 1992 *Vessels for the Ancestors*. Edinburgh.

Shephard, W 1972 *Flint, Its Origins, Properties and Uses*. London.

Shepherd, I A G 1982 'The artefacts', *in* Watkins, T, 'The excavation of an early Bronze Age cemetery at Barns Farm, Dalgety, Fife', *Proc Soc Antiq Scot*, 112 (1982), 99–113.

Shepherd, I A G 1985 '[Craftsmanship in] jet and amber', *in* Clarke, D V, Cowie, T G & Foxon, A 1985, 204–16.

Shepherd, I A G forthcoming 'The artefacts', *in* Stewart, M E C 'A short cist cemetery at Almondbank, Perthshire'.

Sheridan, A 1990 'Biggar Common', *Discovery Excav Scot 1989* (1990), 60.

Sherratt, A 1991 'Sacred and profane substances: the ritual use of narcotics in later Neolithic Europe', *in* Garwood *et al* (eds) 1991, 50–64.

Simpson, D D A 1968 'Timber mortuary houses and earthen long barrows', *Antiquity*, 42 (1968), 142–4.

Simpson, D D A & Coles, J 1990 'Excavations at Grandtully, Perthshire', *Proc Soc Antiq Scot*, 120, 33–44.

Smith, I F 1964 'Note on the distribution of Neolithic storage pits', *in* Field, N H, Matthews, C L & Smith I F 'New Neolithic sites in Dorset and Bedfordshire with a note on the distribution of Neolithic storage pits in Britain', *Proc Prehist Soc*, 30 (1964), 352–81.

Smith, I F 1974 'The Neolithic' *in* Renfrew, A C (ed) *British prehistory – a new outline*, 100–36.

Stevenson, R B K 1972 'Circular enclosures at Rullion Green, Midlothian', *Scott Archaeol Forum*, 4 (1972), 48–9.

Stevenson, S J 1990 'A kerbed cairn at Beech Hill House, Coupar Angus, Perth and Kinross', *Historic Scotland, Archaeological Operations and Conservation: Annual Report 1989*, 10–14.

Stewart, M E C 1974 'Almondbank short cist cemetery', *Discovery Excav Scot 1973* (1974), 40–1.

Stewart, M E C 1985 'The excavation of a henge, stone circles and metal working area at Moncrieffe, Perthshire', *Proc Soc Antiq Scot*, 115 (1985), 125–50.

Tavener, P N 1987 'Bannockburn: the pit and post alignments', *Historic Buildings and Monuments: Central Excavation Unit and Ancient Monuments Laboratory Annual Report 1987* (1987), 71–6.

Thomson, J 1800 *General View of the Agriculture of the County of Fife.*

Thorpe, O W & Thorpe, R S 1984 'The distribution and sources of archaeological pitchstone in Britain', *J Archaeol Sci*, 11 (1984), 1–34.

Tolan, M 1988 *Pit Circles in Scotland: Some Possible Interpretations.* Dissertation presented to the Department of Archaeology, University of Newcastle upon Tyne.

Topping, P 1978 'Excavation at the cursus at Scorton, North Yorkshire 1978', *Yorkshire Archaeol J*, 54 (1978), 7–21.

Trease, G E & Evans, W C 1978 *Pharmacognosy.* London.

Vatcher, F de M 1961 'The excavation of the Long Mortuary Enclosure on Normanton Down', *Proc Prehist Soc*, 27 (1961), 160–73.

Vyner, B 1984 'The excavation of a Neolithic cairn at Street House, Loftus, Cleveland', *Proc Prehist Soc*, 50 (1984), 151–95.

Vyner, B 1986 'Evidence for mortuary practices in the Neolithic burial mounds and cairns of Northern Britain', *Scott Archaeol Rev*, 4 (1986), 11–16.

Vyner, B 1988 'The Street Wossit: the excavation of a late Neolithic and early Bronze Age palisaded ritual monument at Street House, Loftus, Cleveland', *Proc Prehist Soc*, 54 (1988), 173–202.

Wainwright, G J & Longworth, I H 1971 *Durrington Walls: excavations 1966–68* (= Reports of the Research Committee of the Society of Antiquaries of London 29). London.

Walker, I C 1968 'Easterton of Roseisle: a forgotten site in Moray', *in* Coles, J M & Simpson, D D A (eds) *Studies in Ancient Europe*, Edinburgh, 95–115.

Ward, A H 1988 'Survey and excavation of ring-cairns in south-east Dyfed and on Gower, West Glamorgan', *Proc Prehist Soc*, 54 (1988), 153–72.

Ward, T 1991 'Biggar Common', *Discovery Excav Scot 1990* (1991), 37.

Watkins, T F 1982 'The excavation of an Early Bronze Age cemetery at Barns Farm, Dalgety Bay, Fife', *Proc Soc Antiq Scot*, 112 (1982), 48–141.

Watkins, T F 1984a Rullion Green 1983: report on the third season of excavations. (=Project paper 1, University of Edinburgh, Dept of Archaeology).

Watkins, T F 1984b *Rullion Green: report on the 1984 season of excavations.* (=Project paper 3. University of Edinburgh, Dept of Archaeology).

Watkins, T F & Murray, J 1988 *Rullion Green 1985: report on the third season of excavations.* (= Project paper 11. University of Edinburgh, Dept of Archaeology).

Webster, M McC 1978 *Flora of Moray, Nairn and Inverness.* Aberdeen.

Whittle, A W R 1988 *Problems in Neolithic Archaeology.* Cambridge.

Wickham-Jones, C & Collins G H 1978 'The sources of flint and chert in north Britain', *Proc Soc Antiq Scot*, 109 (1977–8), 7–21.

Williams, G (1989) 'Excavations at Longstone Fields, St Ishmael', *Archaeol Camb* 138 (1989), 20–45.

Young, A & Mitchell, M C 1939 'Report on excavation at Monzie' *Proc Soc Antiq Scot*, 73 (1938–9), 62–70.

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