Oxfordshire Archaeological Unit

Report 1

(CBA Research Report 28)

The excavation of an Iron Age settlement, Bronze Age ring-ditches and Roman features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974-76

By Michael Parrington

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The excavation of an Iron Age settlement, Bronze Age ring-ditches and Roman features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974-76

By Michael Parrington

with sections on the Bronze Age by Christopher Balkwill, on the carbonized seeds by Martin Jones, on the Iron Age pottery by CD De Roche, on the animal bones by Bob Wilson, and drawings by Robin Spey

With contributions by Philip Armitage, Don Bramwell, Henry Cleere, Eric Edwards, Peter Fowler, Julie Hamilton, David Miles, Philip Powell, Mark Robinson, and Bill Skellington

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Preface

By Professor B W Cunlife

The publication of this report on the rescue excavation carried out at Ashville in 1974-76 marks the beginning of a new era in the archaeology of the Oxford region. In an organizational context it is the first major excavation to be wholly organized, brought to a satisfactory conclusion, and published by the Oxfordshire Archaeological Unit since its inception in July 1973. That a work of this complexity could be completed in such a short time is a credit to the excavation director, Michael Parrington, and the Unit's staff, not least when it is seen against the impressive array of publications, both surveys and reports, which the Unit has been generating during the past four years. As the first monograph to be published jointly by the Unit and the CBA it marks an auspicious beginning to what cannot fail to be a series of international significance.

Although the site at Ashville Trading estate cannot claim to have exercised the beauty or allure of many rural excavations, and the archaeological features were not in themselves of gripping novelty, the picture to emerge from this highly skilful piece of excavation, analysis, and synthesis is of unusual fascination both for students of later prehistory and for those interested in archaeological methodology. What is presented here is a thoroughly integrated study of a developing community and its economy: as such it is a model of its kind.

It may be thought by some that the specialist reports, particuarly those on pottery, plant remains, and animal bones. are of excessive length. This is not so. All three are pioneering studies which deserve, indeed demand, full presentation. Pottery. though much has been published from the Oxfordshire region. has not hitherto been susceptible to the type of detailed and objective analysis to which it is here subjected. Only now can we begin to understand the complexities of innovation and conservatism which were at work. When several groups of this kind have received a similar rigorous treatment we will at last be in a position to break away from the typological approach and begin to consider the dynamics of t he craft.

There is less need to justify the space devoted to the consideration of faunal and floral remains. Virtually nothing of value has hitherto been written on the animal bone assemblages from the Midlands. in spite of the example of a body of competent work from the South. and the recovery of plant remains from sites such as this is a relatively recent departure requiring the development of a new range of analytical techniques. It is right and proper that sufficient space should be given to these important contributions and that the new methodology involved should be carefully explained.

This report is not simply an amalgam of loosely linked specialist contributions. It is the result of a group of specialists working closely together in the field and collaborating creatively with each other throughout the processes of analysis and writing. As such it is a fine demonstration of the outstanding value of professional archaeological units. Ashville will very soon take its rightful place as one of the key sites in Iron Age studies.

Summary

The excavations revealed a complex of pits, ditches, and post-holes, mostly of Iron Age date. These features are interpreted as part of an Iron Age settlement which was replaced in the latter Iron Age by a system of field ditches. Two Roman wells and part of a Roman field system were excavated and a portion of a small Roman cemetery was recorded during a salvage excavation *c* 200m to the south of the site. The Iron Age and Roman occupation of the site was preceded by its use as a funerary area in the Bronze Age. during which time two ring-ditches with associated cremation were located there.

By the use of simple sieving techniques on many of the archaeological features. relatively large quantities of carbonized seed remains were recovered which enable fairly accurate assessments of the crop-growing economy of the site to be made. Large amounts of animal bone and Iron Age pottery were also recovered which give indications of the farming practices and ceramic traditions of the site. Other items found during the excavations suggest that weaving and metal working were carried on, and perhaps the most notable object was the remains of a well preserved wooden ard from a 3rd century Roman well.

The excavations were carried out by the Oxfordshire Archaeological Unit with the Abingdon and District Archaeological Society in advance of the redevelopment of the area.

Acknowledgements

We are extremely grateful to the owners of the site, Ashville Properties Ltd. for allowing the excavation to take place and to the main contractors, Britannia (Cheitenham) Ltd. for their cooperation during the later stages of the excavation, and to British Leyland for allowing the excavation of the Roman cemetery. Thanks are also due to the many volunteers and the members of the Abingdon and District Archaeological Society who worked on the site during the excavation, and especially to Christopher Balkwill and Kim Storey who were responsible for planning the site in 1974, and to Roger Thomas who acted as site supervisor in the early stages of the excavation. We are also grateful to John Hazelden who kindly examined a soil sample from the site, to Patricia Roberts who drew the Roman pottery, and to the contributors of specialist reports listed above. Various members of the staff of the Unit have read and commented on the text of the report and we acknowledge their constructive criticisms. Finally we extend our thanks to the people of Abingdon who have always show an avid interest in our work and who demonsrated this interest in no uncertain manner on an extremely cold day in November 1974 when an estimated 5,000 people visited the open day at the site.

Professor Barry Cunliffe and Richard Bradley have kindly read and commented on the contents of this report and we are grateful for their constructive criticisms.

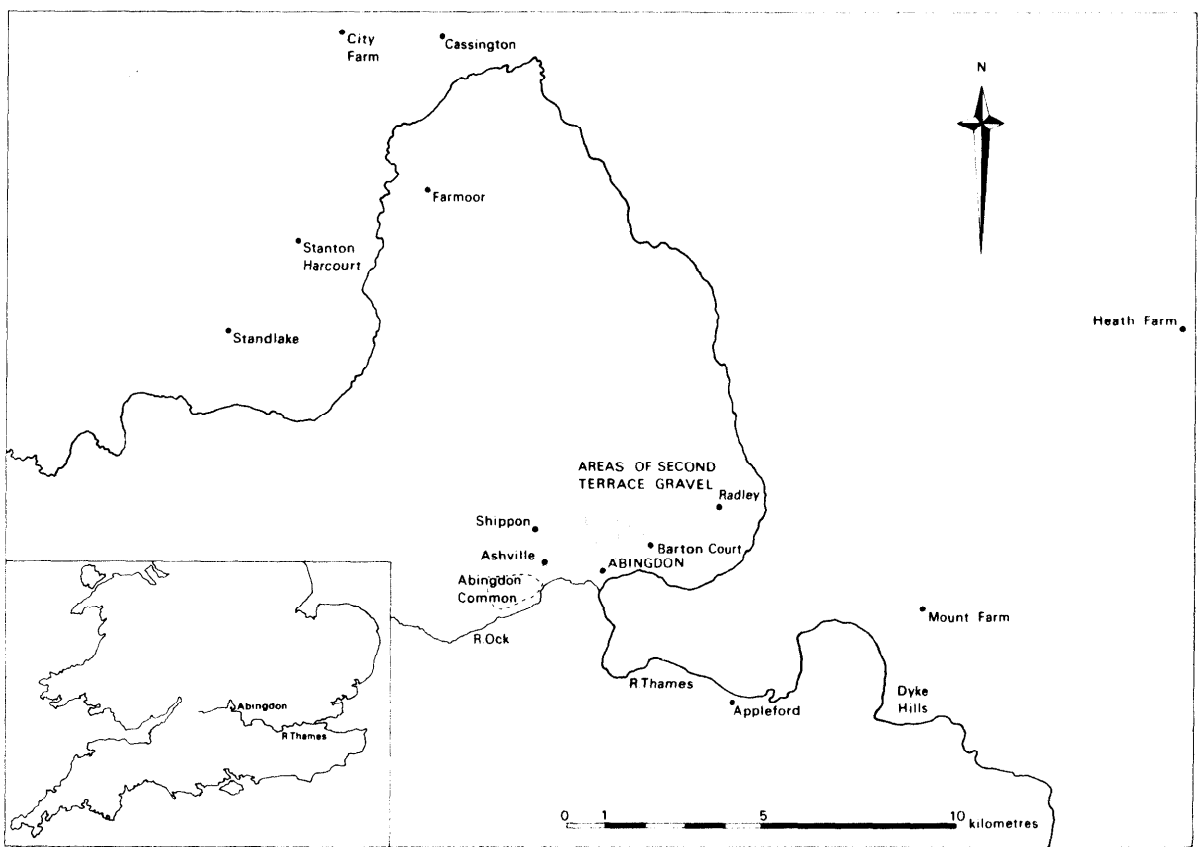
Introduction

The site lies at 60m OD approximately 1 mile (1.6 km) to the west of central Abingdon, NGR SU483973 (Fig. 1). Early in 1974 the site was levelled in preparation for redevelopment. During the levelling process, between 0.2 and 0.3m of top soil was removed over most of the field. During field walking by Mr W Skellington of the Abingdon and District Archaeological Society, a scatter of pottery, mostly of Roman date, was observed in the south-west corner of the field. Trial excavations by the Abingdon Society revealed a number of Iron Age features. Interpretation of these features was difficult because of the confined nature of the trial excavations, and when the redevelopment was delayed for non-archaeological reasons it was decided to examine a larger area.

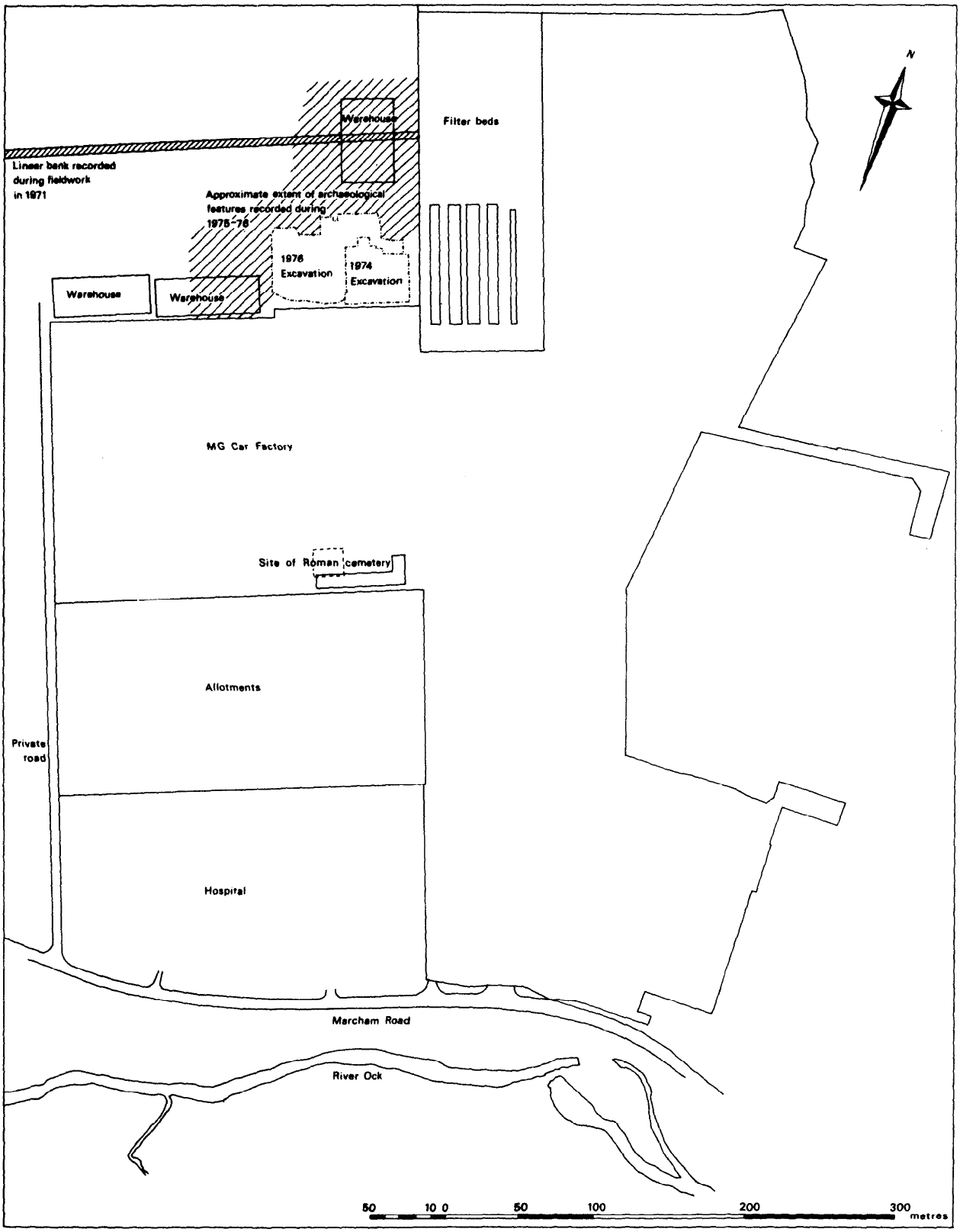
An area 27m north-south × 21 m east-west was mechanically stripped on to the natural gravel and the Abingdon Society members continued to excavate the site on a part-time basis. It soon became obvious that the archaeological remains were extensive, and it was decided to expand the area under excavation and to excavate on a full-time basis. As the area to the south of the site is covered by a car park and the area to the east has been destroyed by filter beds cut into the gravel, the trench was extended on the north and west sides. In all a total of c. 1600m^2 was examined in 1974. Nearly every feature within this area was examined with the exception of the north-west corner of the trench, where the gravel was capped with a layer of clay which did not allow easy identification of the features. Excavations continued until November 1974 when redevelopment of the area was due to commence (Fig. 4).

In May 1975 construction work for a warehouse started (Fig. 2) c. 60m to the west of the 1974 excavation. The area to be occupied by the warehouse was levelled and c. 0.1 m of top soil was removed. At this level there was still c. 0.1 m of top soil overlying the natural and it was not possible to recognize features. During the construction of foundations for the building, pads 1.3 m deep were dug by machine around the perimeter of the warehouse which measured 65 m east-west × 25 m north south and also on the inside to form internal divisions. The pads were up to 2m square and 3 m apart. The pads were linked by wall trenches which were c. 0.5 m wide and 0.6m deep. Archaeological features were noted in virtually every pad in the eastern half of the building up to the mid-point. where a substantial north south ditch was located. There were a few features west of this ditch, most of which appeared to be modern. Very few finds were recovered during this salvage work as all excavated spoil was removed from the site by lorry.

At Christmas 1975 the contractors commenced to strip the area between the new warehouse and the 1974 excavation and also stripped a large area to the north of the 1974 excavation. The northern area was covered over with aggregate almost as soon as it was exposed and only limited observations of the area were possible. Large numbers of archaeological features were exposed in the area next to the 1974 excavation (Figs. 3, 5, and 6, Pl. I) and, as the development of this area was to be delayed for two months, it was possible to plan the area and to excavate some of the features. The contractors' stripping was more severe than was archaeologically necessary and



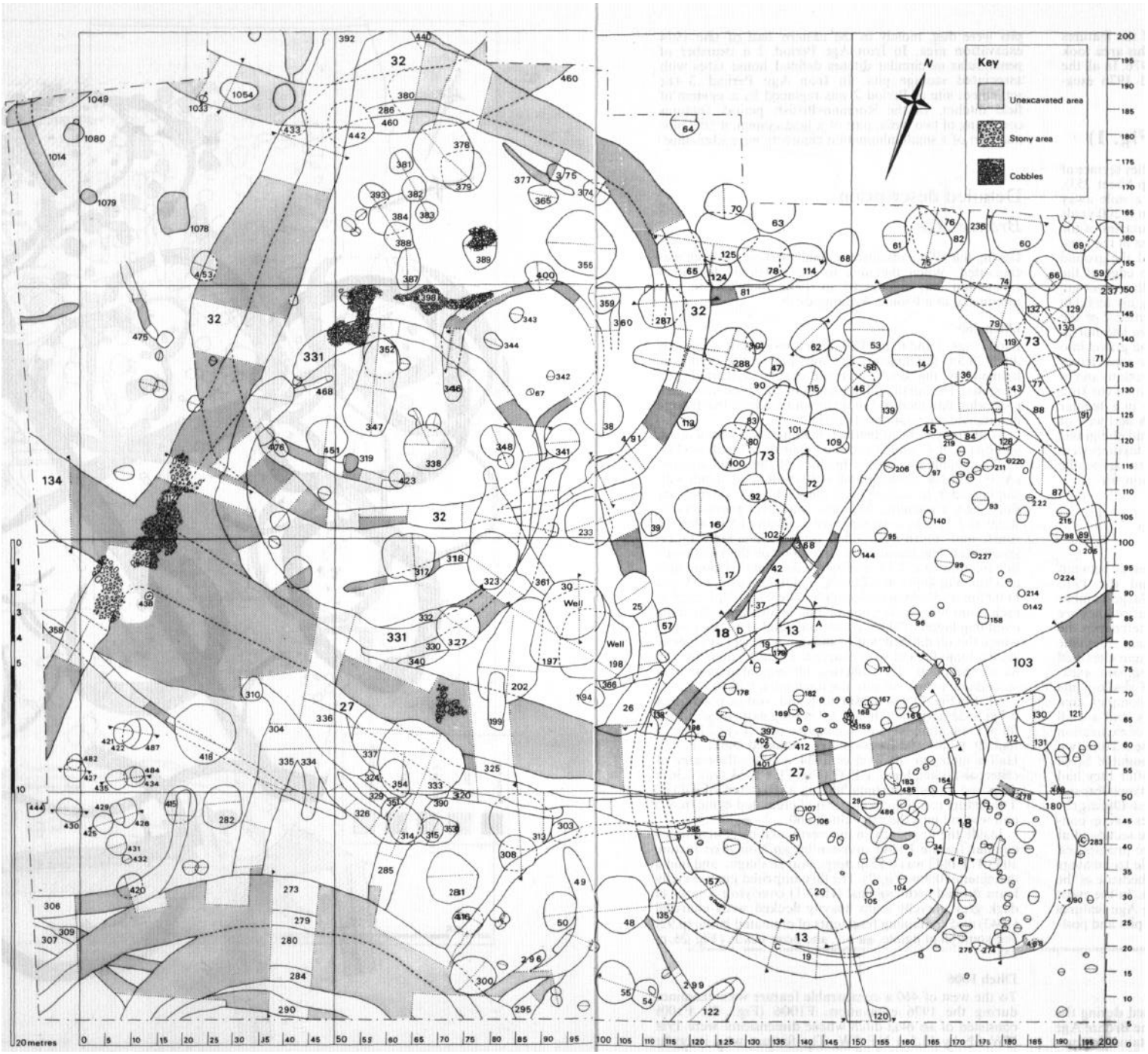
1 Ashville: location plan



2 Ashville: site plan


Bronze Age
Iron Age 1
Iron Age 2
Iron Age 3
Romano-British
N
0 1 5 10 20 40 metres

3 Phase plan



4 1974 excavation plan

between c. 0.1 m and 0.2m of the top fill of the features was lost during their operations. Work in this area took place from Christmas 1975 until 1 March 1976. In all the total area examined during the 1974 and 1976 excavations was c. 5100 m^2.

Geology and topography (Fig. 1)

The site is situated on the Summertown/Radley terrace of the River Thames (Geological Survey Map Sheet 253). The River Ock is just over a quarter of a mile away (0.4km) to the south and the Larkhill stream is 200 yards (0.2km) away to the east. Springs and tributaries of the Ock are to be found to the north and the west of the area. The site is filirly level and well drained and the ground slopes away to the Ock from the southern edge of the field. The gravels of the second terrace at this point arc capped with a layer of cover loam or clay up to 0.1 m thick. This clay was patchy in the southern half of the 1974 excavation. being more in evidence in the north-west corner of the trench. The quality of the gravel into which the features were cut varied. In some areas lenses of sand or clay could be seen in the gravel sections and in others layers of concreted gravel had prevented the Iron Age pit diggers from excavating their pits in a regular manner (e.g. pits 48 and 317). To the north and west of the excavated areas the geology changed and the gravel gives way to heavy clay. Few archaeological features were recorded on the clay and it would seem to define the northern and western limits of the occupation site.

The excavation

Throughout the report a distinction will be made between the 1974 excavation, salvage work, and the 1976 excavation. Because of the comparatively large number of features examined during the 1974 excavation they arc identified both by number and by a grid reference in the description of the features where necessary to make location on the plan easier. Fewer features were identified during the 1976 excavations as the contractors' excavations undoubtedly removed all traces of shallow pits and post-holes. Consequently in this less complex area the features are identified by number only and are all numbered from 1000. During both periods of-excavation it was sometimes necessary to give the same feature two or more numbers as it was not always possible to be certain they were the same feature until after they had been excavated. The primary numbers of these features will be the ones used in the text and the plans. During the 1974 excavation all pits and post-holes were conventionally half-sectioned and ditches Here sectioned at the appropriate point in order to record their profiles and recover dating evidence. It was not possible to excavate the 1976 excavation features in such detail because of the relatively short time available for the work. In the event attention was concentrated on the Bronze Age features and on the Iron Age ditches and few of the pits and post-holes were excavated.

General description

Five main periods of activity were identified during the excavation (Fig. 3). The main features in the Bronze Age were two ring-ditches, both of which contained cremations. In Period 1 of the Iron Age a number of substantial pits were dug, mostly in the eastern half- of the 1974 excavation area. In Iron Age Period 2 a number of penannular or circular ditches defined house sites with associated storage pits. In Iron Age Period 3 the settlement site of Period 2 was replaced by a system of field ditches. In the Romano-British period features consisting of two wells, part of a field system, a few pits, and part of a small inhumation cemetery were identified.

Detailed description

Bronze Age

During the 1974 excavation a small portion of ditch was excavated. When the area to the north of the 1974 excavation was uncovered in 1976 the feature was recognized as a Bronze Age ring-ditch.

Ditch 460

F460 (Figs. 3 and 6, ref. 060 184) consisted of a circular ditch 20.5m in diameter. The west side of the enclosure formed by the ditch was noticeably flattened and irregular. The north and east sides of the ditch were also somewhat flattened and only the south side of the feature maintained a smooth are (Pt. 11).

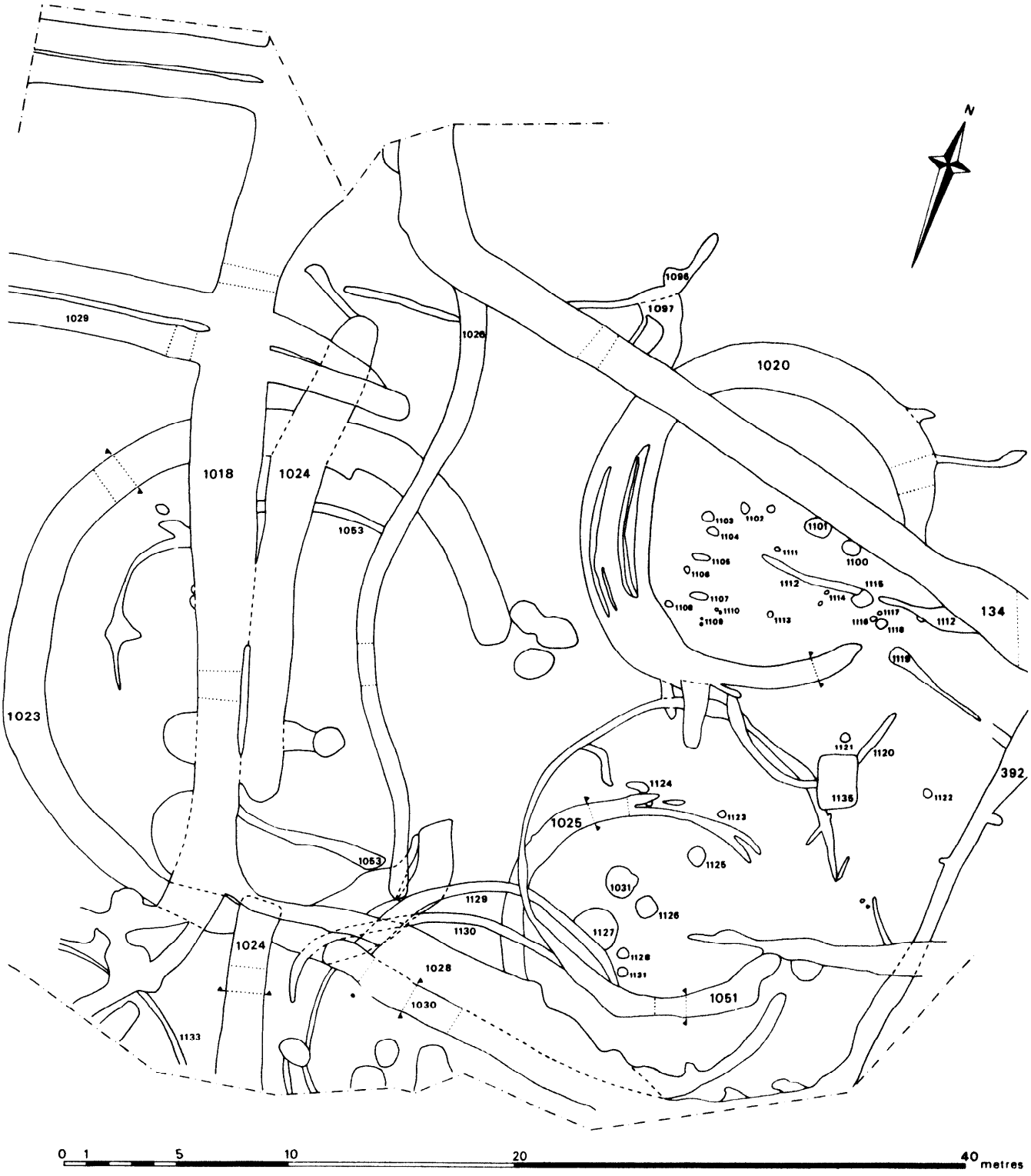
Four cross-sections through the ditch were excavated: sections A. B, C, and D and one longitudinal section (Fig. 7). The profile was similar in three of the cross-sections (A. B. and D). consisting of a flat-bottomed ditch with sloping sides. In section C on the north-west corner, the ditch had a rounded base and was also considerably wider at 2.35 m as compared with a width of 1.8m on the south and south-west sides (sections A and D respectively). The feature was also wider on the north-cast side (section B) at 2.2m and was deepest at this point also at 0.9m. The depth at section C was 0.75m and at A and D 0.65m and 0.68m respectively. The fill of the ditch at each point was similar, comprising brown gravelly loam overlying layer:, of clean gravel and sand. The only point where the fill differed was in section A. where a layer of brown loam flecked with charcoal Intruded into the top fill of the ditch. This differing fill has identified as a secondary feature cut into the ditch silts, F1054

Fl054 (Fig. 7) was 0.14m deep and oval in plan being 0.7m wide north south and 1.3m long east west. In the fill of the feature were two complete pots (Fig. 27. No. 9 and 10, p. 28) and fragments of cremated bone (p. 92). Half a metre to the west of 1054 was another arca of charcoal-flecked loam. F1033 (Fig. 7). F1033 was 0.36m deep and circular in shape hating a diameter of 0.25m. The feature contained fragments of eremated bone (p. 92) and was cut into the fill of ditch 460.

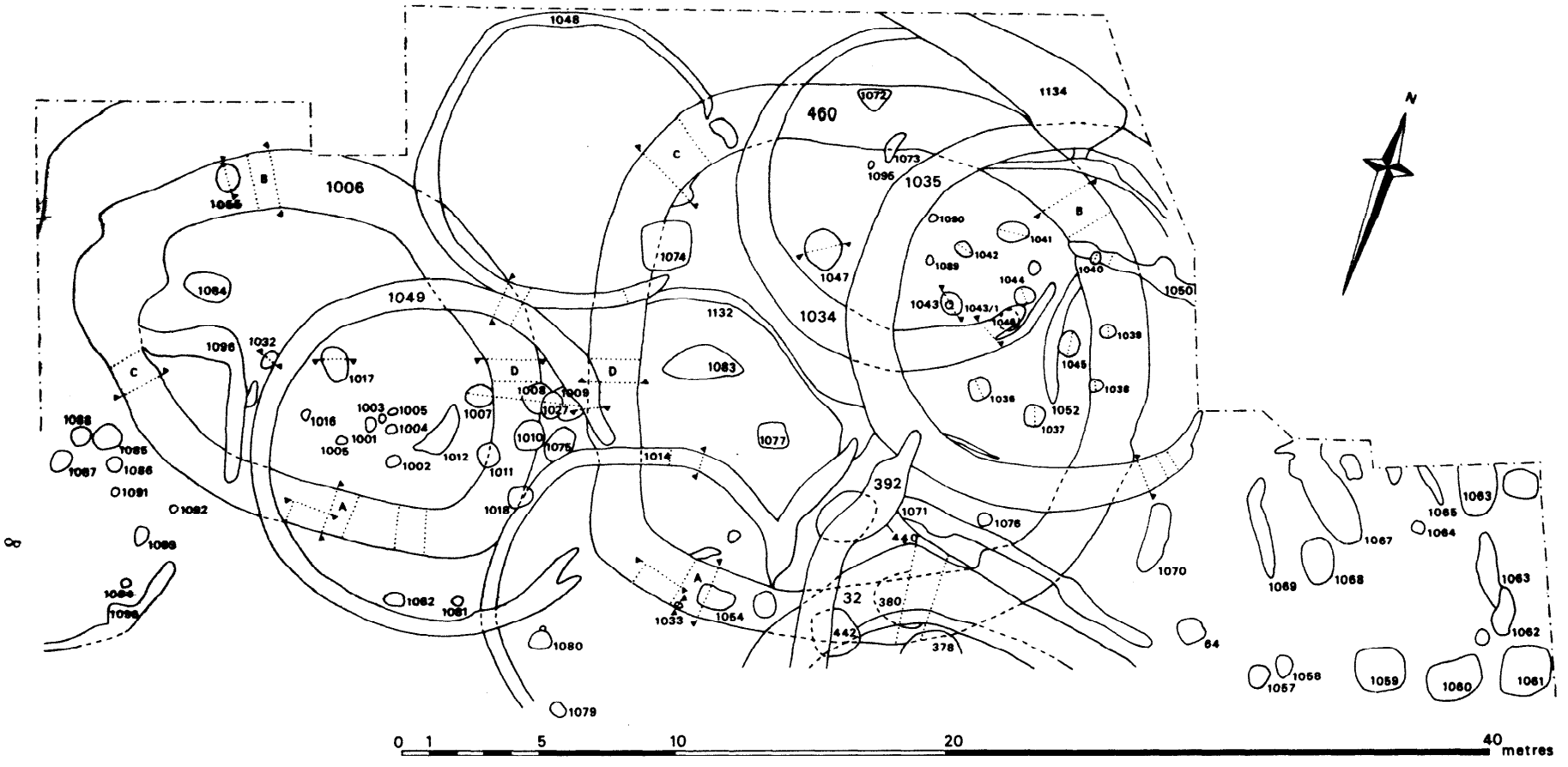
Inside the ring-ditch to the north-east of centre was a circular feature F1043 overlain by an Iron Age feature 1043_J 1. F1043 was 0.55m deep. oval in shape. and had a diameter of 0.9m (Fig. 7). The fill comprised grey gravelly loam flecked with charcoal (1043 1) overlying a layer of dark grey gravelly loam heavily flecked with charcoal (1043) and containing fragments of cremated bone (p.92) and some jet or lignite. amber, and bone beads (Fig. 26, p. 28).

Ditch 1006

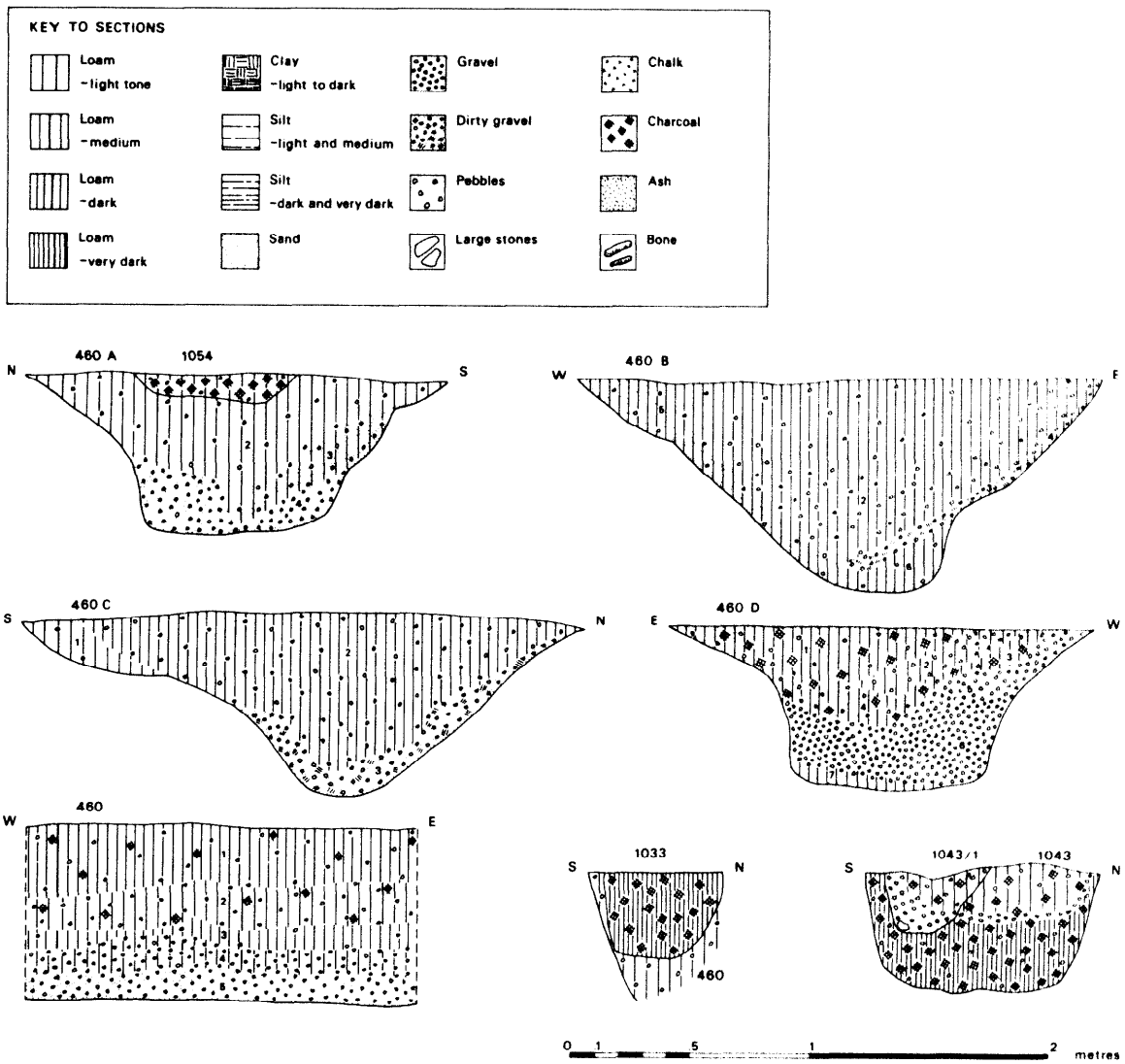
To the west of 460 a comparable feature was examined during the 1976 excavation, Fl006 (Fig. 6). F1006 consisted of an oval ditch whose dimensions were 19m NW-SE by 13.5m NE SW. The feature was irregular in shape, being slightly flattened on the south and cast



5 1976 excavation plan: west



6 1976 excavation plan: north



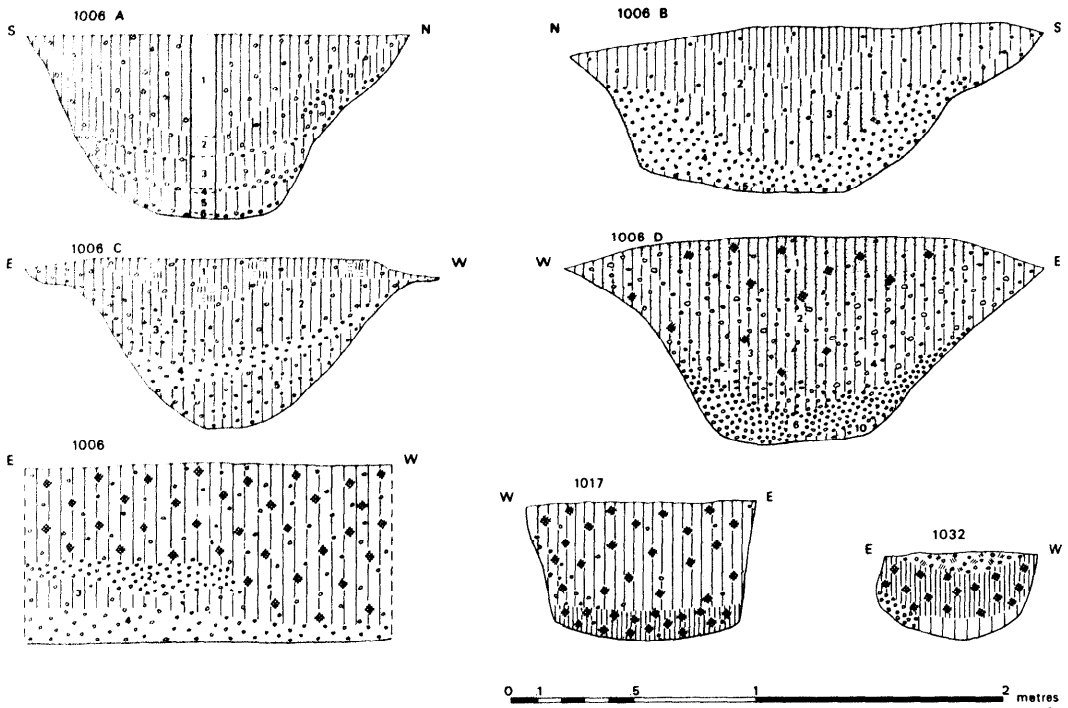
7 Ditch 460 and cremation pits 1033, 1043, and 1054 sections

sides (P1. III). The north side was rounded and the shape of the west side is uncertain because of damage caused by the contractors' machinery. Five cross-sections through the ditch were excavated, two on the south side and one on each of the other three sides. Four of these sections are described here, A, B, C, and D being on the south, north, west, and east sides of the ring-ditch respectively (Fig. 8). The ditch was flat-bottomed with sloping sides in each of the sections and was similar in depth in each section, being 0.7m deep in sections B and C and 0.75m deep in sections A and D. At sections B and D the feature was 1.93 m and 1.9 m wide respectively, and 1.7 m and 1.57 m wide at sections C and A. The upper filling of the ditch consisted of dark grey loam overlying brown gravelly loam which in turn overlay layers of clean gravel. The grey loam in the upper filling contained sherds of Iron Age pottery and presumably represents later sinkage into the Bronze Age fill. Inside the ring ditch were a number of features of Bronze Age date which are described below.

F1001 (Fig. 6) was 0.23m deep, circular, and 0.4m in diameter. The fill was black charcoal-flecked loam. Fragments of a complete pot (Fig. 27, No. 7) were recovered from the western side of the feature and one small unidentifiable fragment of burnt bone. F1002 (Fig. 6) was 0.15 m deep, circular, and 0.5 m in diameter. The fill was black charcoal-flecked loam and it too contained fragments of a pot lying on its side on the north side of the feature (Fig. 27, No. 8). No bone was present in the fill of the feature! F1002 was c. 1 m south of 1001 and both features were located in the south-east corner of the ring-ditch.

F1017 (Fig. 6) was 0.58m deep and pear-shaped. The north-south diameter was 1.2m and the east west 0.9m. The fill consisted of fine dark brown loam overlying black charcoal-flecked loam. Fragments of cremated bone were recovered from the feature, especially on the south side where the gravel edges were undercut. Cremated bone and fragments of animal bone were also recovered from the upper filling (p. 92).

F1032 (Fig. 6) was 0.36m deep, circular in shape, and had a diameter of 0.62m. The fill consisted of a thin layer of gravelly loam overlying black charcoal-flecked loam which overlay a layer of fine grey charcoal-flecked soil. Fragments of a complete pot (Fig. 27, No. 6) and cremated bone (p. 92) were distributed throughout the two lower layers (P1. IV). The gravel sides of the feature



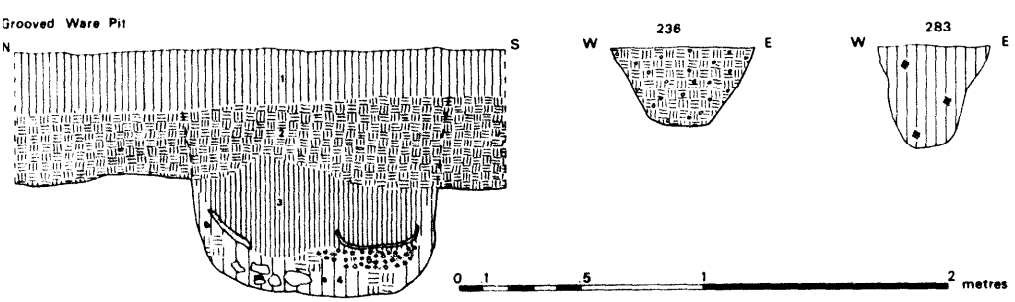
8 Ditch 1006 and cremations 1017 and 1032 sections

were burnt red and coated with soot and charcoal. The upper fill of the feature was very loose and seems likely to be a later (? modern) disturbance. F1032 was cut by ditch 1049 on its east side. The two cremations (1017 and 1032) were centrally located within the ring-ditch.

A number of small pits were located in the same general area as features 1001 and 1002. These are features 1003, 1004, 1005, 1015, and 1016. Their widths varied between 0.25 and 0.5m and their depths between 0.05 and 0.2 m. They ail had a similar black charcoal-flecked loam fill and the sides of 1004 were burnt red, as were the sides of 1032. No dating evidence was recovered from these features but their location and charcoaly fill may justify including them with the Bronze Age features.

During the 1974 excavation a cremation pit was excavated on the east side of the trench. F283 (Fig. 4, ref. 196040) consisted of a small pit 0.45 m deep and 0.5 m in diameter. The fill consisted of brown gravelly loam flecked with charcoal (Fig. 9). A large urn (Fig. 27, No. 11) was set upright in the feature and contained a large quantity of cremated bone (p. 92) and charcoaly brown loam. The rim of the vessel was absent from the pit and may have been lost in antiquity as no fresh breaks were observed on it.

One other feature of possible Bronze Age date is F236 (Fig. 4, ref. 180-118). This consisted of a ditch on a north - south alignment. The ditch was flat-bottomed with sloping sides (Fig. 9). The ditch terminated c. 10m from the north edge of the 1974 excavation and two portions of a similar feature (F1063, Fig. 6) were recorded during the 1976 excavation and may have been a continuation of 236. A few fragments of bone and pottery of indeterminate date were recovered from the ditch fill but the evidence for its date is in its relationship to the other features in the area. all of which cut it.



9 Cremation 283, ditch 236, and Grooved-Ware pit sections

Iron Age Period 1

This period is represented by a small penannular ditch and a number of-pits which seem to be contemporary.

Ditch 346

Ditch 346 (ref. 073 141, Fig. 4) was located inside ditch 32 and was adjacent to its south-cast entrance. Ditch 346 had a diameter of 5.5m and a 3m wide entrance on its south side. The east side of the ditch was shallow and only survived as a stain in the gravel, except around the entrance where it was more substantial and had an out-turned terminal. The ditch was up to 0.62m wide and 0.3m deep with a rounded base and sloping sides (Fig. 15). The fill was fine grey loam with some gravel.

Four post-holes (67, 342, 343, and 344) were inside the ditch circle and formed a trapezoidal shape 3m × 2m × 1.3m. The two most southerly post-holes 67 and 342 were the least substantial being narrower and shallower than the two northerly ones. The depths of the post-holes arc shown in the detailed drawing (Fig. 10) and all four had a similar grey gravelly loam till.

Iron Age Period I Pits

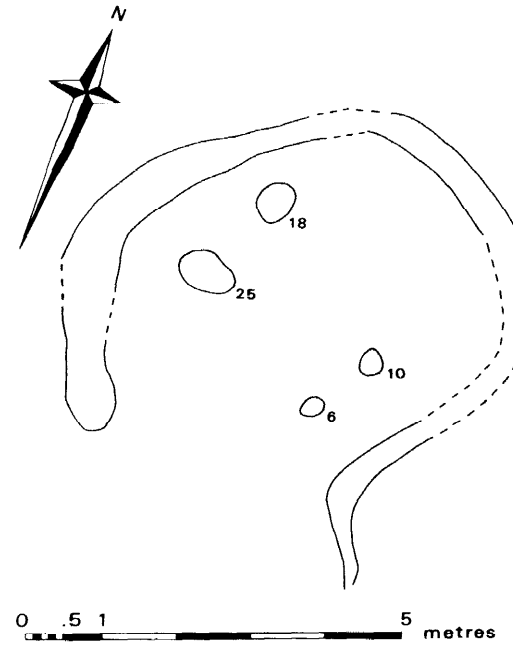
By careful analysis of the Iron Age pottery from the site (p, 47) it has been possible to distinguish a number of pits which appear 10 be earlier than the Period 2 ditch circles. Some of these pits are also stratigraphically earlier than the ditch circles. These features are listed below with their coordinate references.

No	*References*	*No*	*Reference*
14	163–136	79	175–145
37	135–085	82	165–160
38	100–125	84	170–125
46	150–130	91	195–125
48	107–027	114	140–153
56	153–133	119	180–130
59	200–153	125	125–160
60	180–160	128	180–120
64	118–182	129	197–147
70	125–165	157	120–030
71	195–140	233	100–105
74	175–152	313	084–045
78	133–153	341	095–120

The dimension\ of all the pits are give in Table I. The Period 1 pits were more substantial than the later pits, with sixteen of the 26 pits being more than 1.65m wide and more than 0.5m deep. Their fills consisted of grey gravelly loam flecked with charcoal and occasional fragments of limestone. A few of them had layers of clay or gravel in their bottom fills indicating some silting but the majority had a hompogenous till. The pits were all basically circular in shape with straight sides and flat bases. Pith 60 and 313 both contained layers of burnt clay and charcoal in their fills (Fig. 11) indicating burning had taken place in them (see p. 38 and Pl. V).

Pits 71, 82 and 114

Pits 71 and 114 both contained cattle skulls (p. 37). The skull in pit 71 was lying on the north side of the pit tilted to one side slightly and with the horns uppermost (Pl. VI). Two large limestone fragments c. 0.4m long were also resting on the base of the pit next to the skull. In pit 114 the skull was resting upside down on the south side of the pit with the horns to the south. Also in pit 114 there was a layer of orange clay up to 0.2 m thick on the side of the pit but not on the base (Fig. 11). Pit 82 contuined part of the articulated skeleton of a sheep (p. 37).



10 Ditch 346 plan showing depth of post-holes in centimeters

Some examples of Period 1 pit sections are shown in Fig. 11

Iron Age Period 2

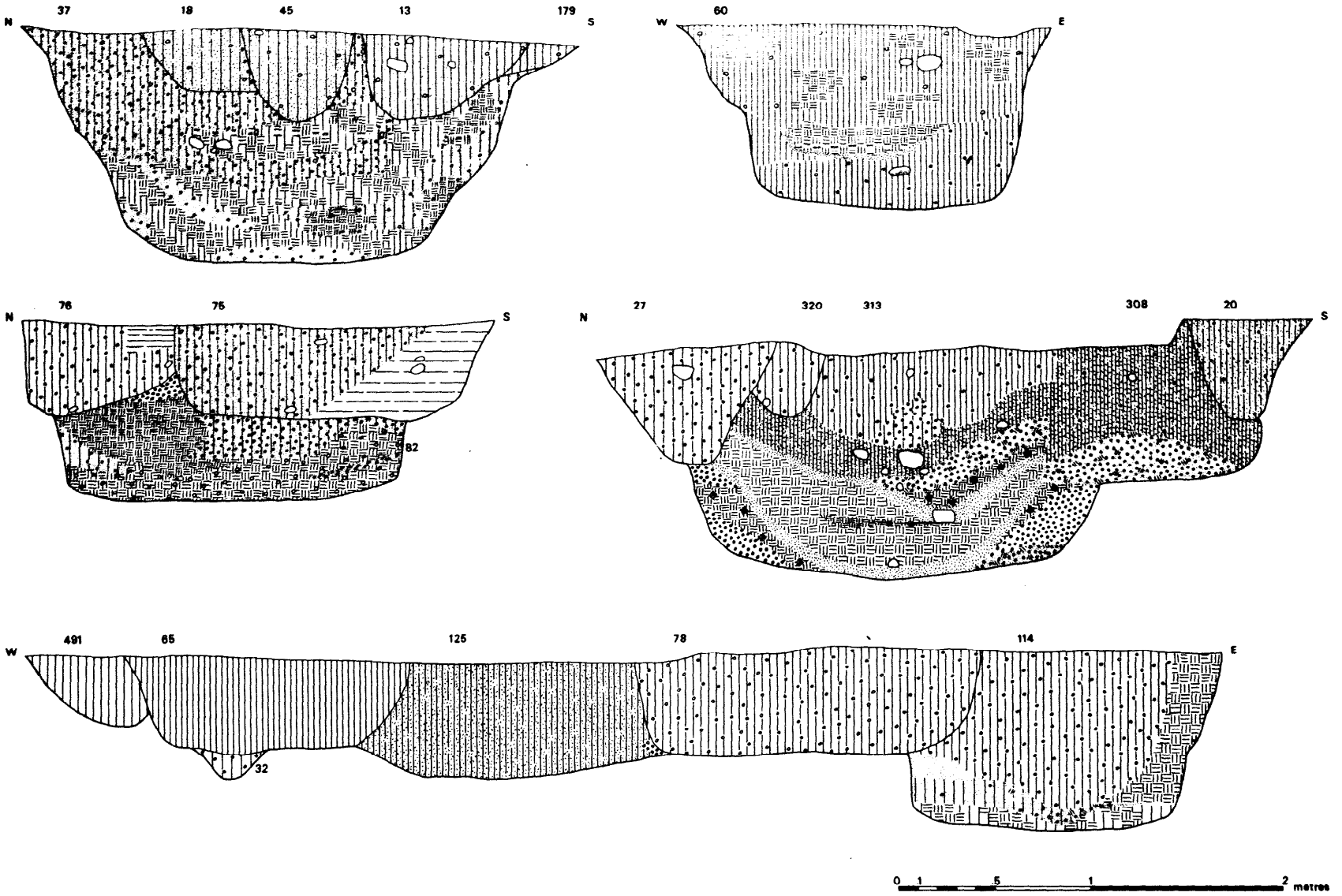
In this Iron Age period the site was occupied by ***a*** number of penannular ditches. The diameter of these features varied between 11m and an estimated 26m. but the majority were between 11.5 m and 15 m in diameter. Most of these features had been recut at least once and most of them had eastern or south-eastern entrance gaps.

Ditches 13, 18, 19, 45, 73 and 180 (PI. VII)

Ditch 13 (Fig. 4. ref. 135–022) was cut into the fill of the earlier ditch 19 (Fig. 4) which in turn was cut into the fill of ditch 18 (Fig. 4). Ditch 18 had a larger diameter at 14.5 that than ditch 19 which was 13m in diameter as was ditch 13. The layout of the three superimposed ditches and their associated annexes is shown in Fig. 12. Phase 1 consisted of an annular ditch (IX) with no apparent entrance. Ditch 18 (ref. 135 018) had an average depth of 0.4m and average width of 0.8m. Its depth was variable however and it was c. 0.2m deeper on the cast side and much shallower on the south-west side. The profile of the ditch varied. It had gently sloping sides on its south and south-west sides (Fig. 13) with more acutely angled sides on the north and west (Fig. 13). The fill of 18 was grey gravelly loam with a few limestone fragments.

An associated ditch (ditch 73. ref. 168–150. Fig. 4) was connected to 18 by ditch 42 (Fig. 4). Ditch 42 was 0.33m deep and 0.36m wide. It had steeply sloping sides and a fill of grey gravelly loam.

Ditch 73 formed an enclosure to the north of 18. The north south leg of the ditch was up to 0.6m deep and up to 0.85m wide. The remainder of the ditch was shallower



11 Pits 37, 60, 65, 75, 76, 78, 82, 114, 125, 308, and 313 sections and ditches 13, 18, 20, 27, 32, 45, 320, and 491 sections

Table I Recorded dimensions of Iron Age pits (metres)

No.	*Width*	*Depth*	*No.*	*Width*	*Depth*	*No.*	*Width*	*Depth*	*No.*	Width	Depth
14	1.62	0.29	72	1.53	0.47	131	1.44	0.48	352	1.82	0.71
16	1.95	0.71	74	1.96	0.63	133	1.23	0.35	354	1.46	0.63
17	1.97	0.42	75	1.80	0.45	135	1.62	0.29	355	2.70	0.77
25	1.74	0.72	76	1.50	0.48	138	0.71	0.21	359	1.30	0.39
36	1.26	0.46	77	1.62	0.72	139	1.28	0.29	365	1.17	0.25
37	2.60	1.21	78	2.05	0.56	157	2.30	1.43	374	1.05	0.15
38	1.76	0.53	79	2.72	1.04	194	1.02	0.21	375	0.86	0.29
39	1.06	0.43	80	1.43	0.59	233	1.96	0.81	378	2.70	0.30
43	1.47	0.38	82	2.23	0.90	237	1.05	0.62	379	1.70	0.57
46	1.39	0.40	83	0.89	0.26	281	2.01	0.41	380	2.02	0.59
47	0.87	0.21	84	2.62	1.09	282	1.87	0.56	381	0.90	0.38
48	2.20	1.18	87	2.16	0.68	287	2.05	0.94	382	1.10	0.41
50	1.60	0.46	89	1.41	0.87	288	1.87	0.84	383	0.90	0.15
51	1.53	0.40	91	1.56	0.47	300	1.74	0.18	384	1.50	0,25
53	1.92	0.40	92	1.14	0.41	301	0.90	0.23	387	1.86	0.75
54	1.22	0.21	100	1.68	0.32	303	1.12	0.38	388	1.28	0.43
55	1.69	0.41	101	2.17	1.09	308	1.41	0.83	389	1.55	0.62
56	0.71	0.42	102	1.66	0.53	310	0.94	0.51	390	0.75	0.31
57	0.90	0.10	109	1.67	0.62	313	2.56	1.20	393	1.10	0.21
59	2.38	0.41	112	1.44	0.74	314	1.50	0.21	400	1.27	0.28
60	2.00	0.94	113	0.88	0.16	315	1.00	0.70	412	1.84	0.38
61	1.17	0.24	114	1.79	0.91	317	2.12	0.56	415	1.30	0.08
62	1.62	0.85	115	1.12	0.17	323	2.08	0.90	416	1.08	1.02
63	1.66	0.40	119	1.70	0.63	327	1.71	0.69	418	2.43	0.39
64	1.08	0.41	120	1.24	0.25	333	3.35	0.83	420	1.05	0.19
65	2.02	0.55	121	1.65	0.49	337	1.98	0.90	433	1.23	0.61
66	1.26	0.30	124	1.06	0.29	338	1.90	0.52	442	1.83	0.79
68	1.50	0.58	125	2.28	0.59	341	1.35	0.59	451	1.59	0.46
69	1.64	0.43	128	1.21	0.54	347	1.90	0.28	453	1.14	0.45
70	1.42	0.24	129	1.69	0.67	348	1.43	0.34	1031	1.64	0.24
71	1.66	0.69	130	1.75	0.68	351	1.00	0.27	1055	1.00	0.55

at 0.4m deep and averaged 0.75m wide. The sides of the ditch sloped down steeply to a flattened base (Fig. 13). There was an entrance into the ditch on the west side but the width of the entrance is uncertain as the north terminal had been cut away by the later pit 62. Another entrance was present on the east side of the enclosure where the ditch terminated 8m north-east of ditch 18. The fill of ditch 73 was noticeably different around the east terminal where the fill consisted of burnt pebbles, charcoal, pottery, bone, limestone fragments, and daub mixed with grey loam. Elsewhere the ditch fill contained less 'occupation' material and the fill consisted of grey loam with a little gravel.

After ditch 18 had filled up it was replaced on a slightly different alignment by a penannular ditch of a smaller diameter (ditch 19, ref. 135-015, Fig. 4). Ditch 19 was 0.5 m deep on the south side and 0.25 m deep on the north side. Its width was 0.75m on the south side but the width on the three remaining sides is uncertain as most of the ditch fill was removed on these sides by ditch 13. The ditch was steep-sided and had an entrance gap 3m wide on the east side. The fill consisted of grey gravelly loam with a few limestone fragments (Fig. 13).

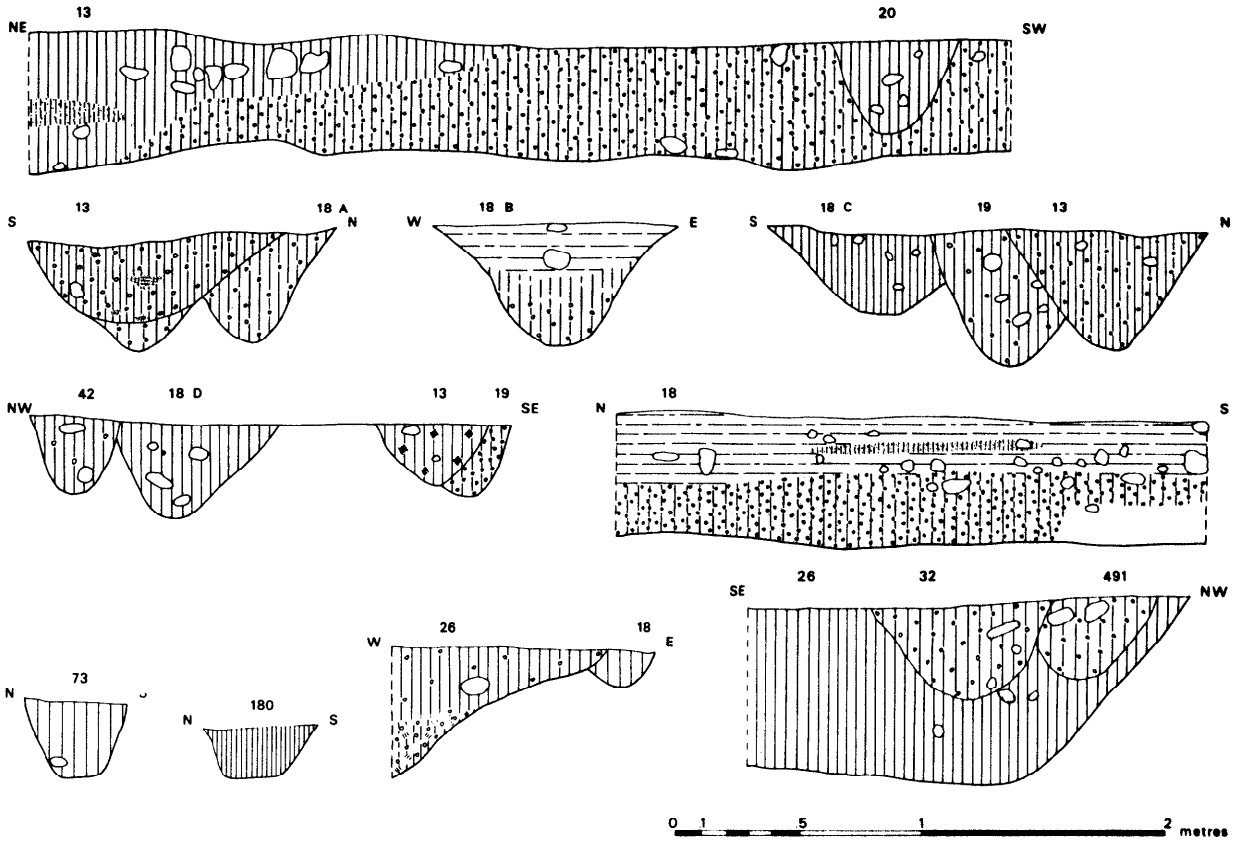
After ditch 19 had filled up it was replaced on a slightly different alignment by ditch 13. Ditch 13 (ref. 135-022, Fig. 4) was penannular with a varying depth which was up to 0.65 m on the north-east and 0.3 m deep on the west side of the circle. The width was fairly constant at 0.8m and the ditch was steep-sided and had an entrance gap on the east side. The fill of the ditch was grey gravelly loam with fragments of limestone and occasional fragments of daub (Fig. 13). On the south side of the circle where 13 cut pit 157, five small holes cut into the fill of pit 157 and on the same alignment as 13 were noted (Fig. 4). The holes had a fill of fine grey loam and were between 0.08m and 0.05 m wide and up to 0.05 m deep.

An associated ditch (ditch 45, ref. 180-122, Fig. 4) was joined to 13 on its north side and formed a contemporary enclosure to the north of 13. The average depth of 45 was 0.25m and the average width was 0.45m. The ditch was U-shaped in section and had a fill of fine grey soil with some gravel (Fig. 11). The feature was cut through the fill of annexe ditch 73 and petered out 5 m north-east of 13 to form an entrance on its cast side. No increase in finds of pottery and bone was recorded near the entrance into 45 but an increase in the number of finds was noted around the entrances to 19 and 13.

To the east of the ditch 13 and 19 entrance gaps was a curving ditch (ditch 180, ref. 179-020, Fig. 4). The ditch partially enclosed the entrance gap and forked at its north end, one fork petering out by the north terminal of ditch 13 and the other continuing to the north until it was cut by pit 131. The ditch was flat-bottomed with sloping sides (Fig. 13) and had a number of post-holes in the bottom. The fill of the ditch was fine grey gravelly loam. There was no distinction between the fill of the ditch and the fill of the post-holes. The numbers of the post-holes in the ditch are as follows: 274, 275, 278, 488, 489, and 490 (Fig. 4).

Inside the three consecutive ditches 18, 19, and 13 was a feature which appears to be a hearth (F159, ref. 150-065, Fig. 4). F159 consisted of an oval depression 0.34m deep and 0.88m long. The hearth had a fill of limestone fragments set around the edges of the depression with a central fill of grey gravelly charcoal-flecked loam. Also inside the three circles and their associated annexes were a number of post-holes, some of which may have formed circular and rectangular structures. The interpretation of these post-holes and their depths below the scraped gravel surface are shown in Fig. 12 and discussed on p. 35. The post-hole fills were similar to those of the surrounding ditches, grey gravelly loam with

12 Interpretive plan of ditches 13, 18, 19, 42, 45, 73, 180, and associated post-holes in centimetres



13 Ditches 13, 18, 19, 20, 26, 32, 42, 73, 180, and 491 sectiom

the odd limestone fragment. Few of them contained finds and their dating to the Iron Age period depends upon their location inside the circular ditches and annexes. Also inside ditch 13 were two lengths of shallow ditch, ditches 146 and 397, both of which had a grey gravelly loam fill.

Ditch 20

Ditch 20 (ref. 152-005, Fig. 4) was circular with an estimated diameter of 18.5m; it cut the fill of ditches 18, 19, and 13 and was cut by ditch 27 to the north and ditch 273 to the west. The average depth was 0.3m and the average width 0.9m. The ditch became very shallow on its north side and at one point only survived as a stain in the gravel. Only the north half of the feature was inside the area of the 1974 excavation and no sign of an entrance gap was noted in the portion of ditch uncovered. Ditch 20 had sloping sides and a flat base. No evidence of recutting was observed in the section. The fill was fine grey loam with some gravel and limestone fragments (Figs. 13 and 14).

Ditch 32

In the north-west corner of the 1974 excavation was a large circular ditch with a diameter of 20m, ditch 32 (ref. 112-120, Fig. 4). Two recuts were identified in this ditch complex; in the earliest phase was ditch 491 (ref. 108-118, Fig. 4) which was recut by 32 on the outside of the enclosure. Ditch 491 was also recut on the inside of the enclosure by ditch 286 (ref. 115-147, Fig. 4). Ditch 32 was up to 1.25 m wide and up to 0.68m deep. Ditch 286 was up to 0.55m wide and up to 0.37m deep, and ditch 491 was up to 0.95 m wide and up to 0.5 m deep. The fill of the three ditches was similar, grey gravelly loam with a few pebbles (Figs. 13 and 14). There was an entrance into 491 and 286 on the south-east side but no apparent evidence of an entrance in ditch 32. All three ditches had sloping sides with a flattened base.

Ditches 273 and 279

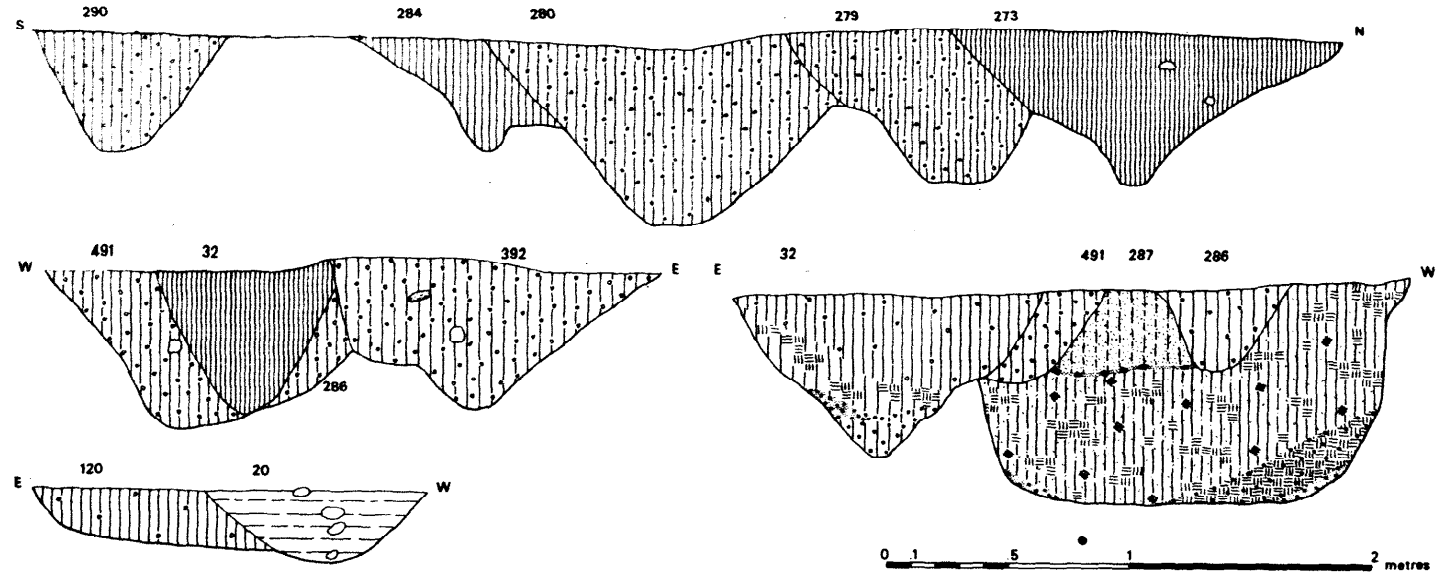
Ditch 273 (ref. 038-030, Fig. 4) was circular with an estimated diameter of 26m; it was located along the southern edge of the 1974 excavation and less than half of its circumference was within the excavated area. The ditch recut a similar ditch (ditch 279, ref. 038-025, Fig. 4) which was on the same alignment. Ditch 273 was up to 1.63 m wide and up to 0.67 m deep, and 279 was similar in depth but a little less wide at 1.2m. The ditches had a similar profile, sloping sides with a flat base and a similar fill of grey gravelly loam (Fig. 14).

Ditches 280 and 284

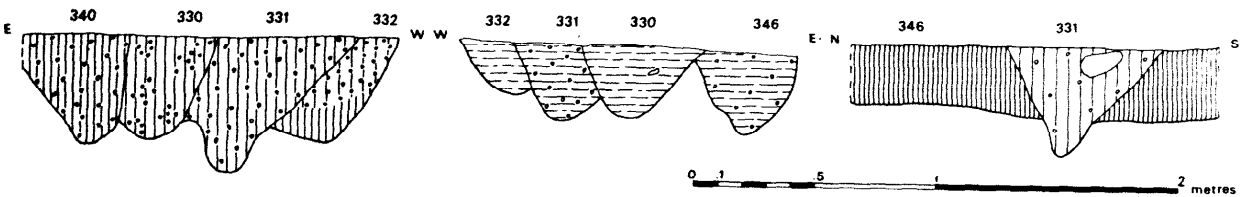
To the south of 273 and 279 was a similar alignment of ditches forming a smaller circle estimated diameter 17m (ditches 280 and 284). Ditch 280 (ref. 038-020, Fig. 4) was recut into the fill of ditch 284 (ref. 037-016, Fig. 4) and was up to 1.62m wide and 0.8 m deep. Ditch 284 was up to 0.9m wide and up to 0.5m deep. Both ditches had similar fills of grey gravelly loam and similar profiles of sloping sides and flat bases (Fig. 14).

Ditch 290

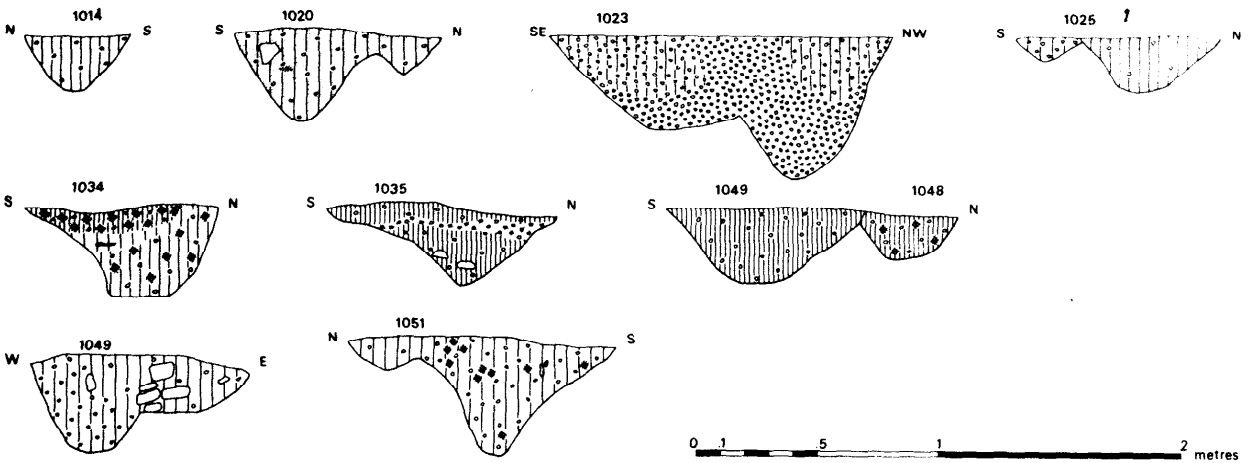
A small portion of a curving ditch (ditch 290, ref. 039-009, Fig. 4) was south of and cut by 284. Ditch 290 was up to 0.8m wide and 0.5m deep. The feature had



14 Ditches 20, 32, 273, 279. 280, 284, 286, 290, 392, 491 and pits 120 and 287 sections



15 Ditches 330, 331, 332. 340. and 346 sections



16 Ditches 1014, 1020, 1023, 1025, 1034, 1035, 1048, 1049, and 1051 sections

sloping sides with a flat base and the fill was very gravelly brown loam (Fig. 14).

Ditch 331

Ditch 331 (ref. 086 102, Fig. 4) was located to the west of 13 and was cut through the fill of 32 and 346. There was evidence of recutting on the south-east side of the circular 13 m diameter ditch with 331 cutting an internal ditch 332 and being cut by 330 which was in turn cut by 340. Ditches 332 and 340 were only recorded on the south-east side of the ditch circle and ditch 330 terminated in an out-turned entrance midway along the east side of the circle. Ditch 331 was the only ditch which could be traced for the entire circumference of the circle except for a narrow 0.25m gap on the north-west side. Ditch 331 was 0.75m wide and 0.55 m deep (Fig. t 5) and the other three ditches were slightly less substantial. All the ditches had similar profiles. sloping sides with rounded bases (Fig. 15). and a similar fill of grey gravelly loam.

A number ofpost-holes were located inside the ditch as can be seen in the plan (Fig. 4). These post-holes form no coherent structure and their location inside the ditch may be fortuitous. Also inside the circle were three short lengths of ditch. ditches 318. 424. and 468.

Ditch 1014

Ditch 1014 (Fig. 6) was circular. diameter 11.5m. and was adjacent to the north-wrest side of ditch 32. It had an eastern entrance with its northern terminal 1 m west of 32. The south side of the ditch was more shallow than the north and all trace of it was removed by the contractors' machinery. The surviving portion of the ditch was up to 0.44m wide and up to 0.23 m deep. The fill was grey gravelly loam and the feature cut both ring-ditches (F460 and F1006). In section the ditch had sloplng sides with a rounded base (Fig. t 6). A seemingly contemporary ditch protruded from the north-east side of the ditch (1137) parallel with ditch 392 and terminated c. 0.5 m from 1035 where it cut the fill of 1136.

Ditch 1020 (PI. VIII)

Ditch 1020 (Fig. 5) was c. 10m west of ditch 331. penannular. and 16.5 m in diameter at its widest point. The ditch had been recut upon at least four occasions. these recuts being visible in plan on the west side of the ditch. Four of the recuts were identified in the cast section through the ditch but because of similarity in their tills their relationships could not be defined. In the south section through the ditch one recut was recorded but again because of the similarity, of the fills it was not possible to say what the relationship was. The entrance into 1020 was on the east side represented by a gap c. 5m wide. The fact that there was one recut on the south side and four on the cast side of the circle indicates that several of the recuts terminated before the 5m entrance gap. and the entrance may have been further south and wider at sonic stage.

The dimensions of the recuts varied. On the south side of the ditch the inner ditch was 0.3m wide and 0.17m deep and the outer ditch was 0.6m wide and 0.4m deep. On the east side the three middle ditches were 0.6m wide and 0.4m deep whilst the inner and outer ditches were much slighter at 0.3 m wide and 0.3 m deep. The ditches on the south side and the three middle ditches on the east side had similar V-shaped profiles. The inner and outer ditches on the east side had flat bases and near-vertical sides (Fig. 16). A curving ditch (ditch 1120) protruded from the south side of 1020. No portion of this ditch was excavated but it would seem to be contemporary with one phase of 1020‘s use as it cut one of 1020's terminals and was cut by another later terminal. The ditch was up to 0.5m wide and terminated c. 3m south of ditch 1020’s southern terminal. The fill of 1020 and 1120 comprised grey gravelly loam with small limestone fragments and a few fragments of daub. Ditch 1120 cut ditch 1051.

With the exception of ditch 13 and ditch 1035, 1020 was the only ditch with a significant number of post-holes inside it. These post-holes were clustered in the south part of the circle and may have formed an oval structure c. 5m north south x 8m east west. None of the post-holes were excavated and their depths are not known but a glance at the plan of the area wilt show the varying widths of the post-holes (Fig. 5). Other features in the same area were two lengths of ditch 1122 which were aligned cast-west and had a total length of c. 10m before the east end was cut by 134.

Ditch 1023

Ditch 1023 (Fig. 5) was c. 3 m west of ditch 1020 and had a diameter of 24m. The ditch was penannular with an entrance gap 8m wide on the east side. The feature had been recut upon one occasion, the outer ditch being the later. The later ditch was more substantial at 0.95m wide and 0.6m deep than the inner ditch which was similar in width at c. t m wide but only 0.4m deep. Both ditches had similar fills of clean gravel overlaid by gravelly grey loam and similar profiles of sloping sides and rounded bases (Fig. 16).

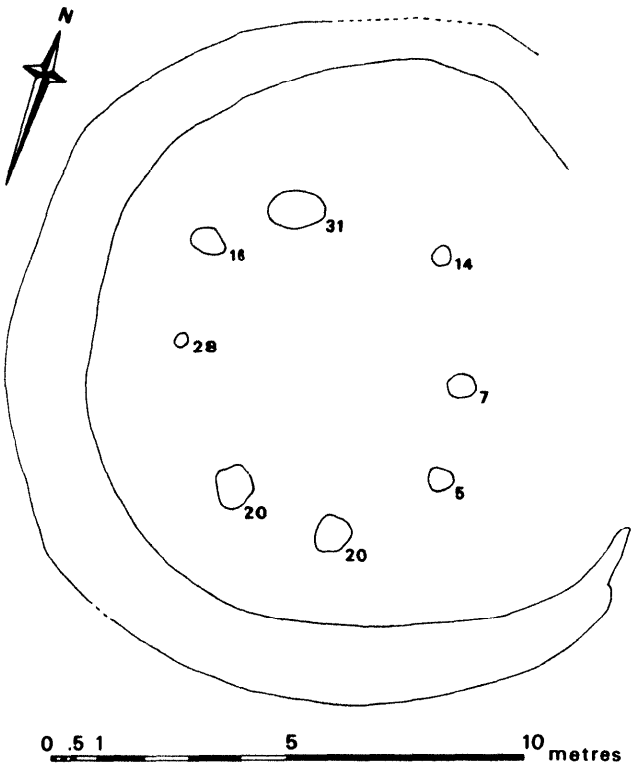
A narrow discontinuous ditch (ditch 1053). which was not excavated, was inside ditch 1023. Ditch 1053 was up to 0.5m wide and followed the same alignment as 1023 on the north and west sides and petered out on the west side, starting up again cast of ditch 1018 which cut it. The portion of the ditch east of 1018 terminated by the southern terminal of 1023 and the northern portion of 1053 was cut by 1026 and was not traced east of this point. The portions of 1053 that were recorded formed an open-ended circle c. 15 m in diameter with a grey gravelly loam tilt.

Ditch 1025

Ditch 1025 (Fig 5) was 3m south of 1020 and had a diameter of 13.5m. The ditch was penannular with an entrance gap 6m wide on the east side. The feature had been recut once, the inner ditch cutting the outer. The inner ditch was 0.57m wide and 0.24m deep. The outer ditch was much slighter at 0.3 m wide and 0.1 m deep. The inner ditch had a flattened base with sloping sides and the outer ditch was V-shaped (Fig. 16). Both ditches had a fill of grey gravelly loam with the outer ditch being more gravelly.

Ditch 1034

Ditch 1034 (Fig. 6) was 6m north of ditch 32 and had a diameter of 12.5m. The ditch had one recut and was penannular with an entrance gap to the east. Only the southern terminal of the ditch was excavated, the northern having been destroyed by later ditches. At the southern terminal the inner ditch only was excavated and as the inner and outer ditches did not impinge at this point their relationship is not known. The inner ditch was 0.8 m wide and 0.37m deep. The base of-the ditch was flat and the north side had a steep slope with a more gentle slope on the south side (Fig. 16). The fill was grey gravelly loam flecked with charcoal overlying a tighter loamy fill with more gravel and less charcoal. The ditch was cut through a small pit (pit 1046) near the southern terminal and also cut ditch 460.



17 Ditch 1035 plan showing depths of post-holes in centimetres

Ditch 1035

Ditch 1035 (Fig. 6) was 2 m north of ditch 32 and had a diameter of 15m. The ditch was penannular with an entrance gap 7m wide on the east side. The southern terminal of the ditch was excavated where one recut was noted, the inner ditch tting the outer. Both ditches were 0.7m wide, the outer ditch was 0.28m deep and the inner ditch was 0.1 m deep. The outer ditch was V-shaped and the inner had a flat base with gently sloping sides (Fig. 16). Both ditches had similar fills of grey gravelly loam and there was a thin band of clean sandy gravel overlying the fill of the outer ditch. Ditch 1035 cut ditch 1034 and the Bronze Age ditch 460,

Centrally located within the circle were eight post-holes (1036, 1037, 1038, 1039, 1040, 1041, 1042, and 1043/l) which form an oval structure 7.5m north-south x 6.5m east- west (P1. II). As can be seen on the detailed plan (Fig. 17) these post-holes varied in width and depth, the three cut into the fill of ditch 460 being the least substantial. Post-hole 1043/1 cut into the fill of an earlier Bronze Age cremation 1043. All the post-holes had a similar fill of grey gravelly loam except 1043/1 which was grey loam flecked with charcoal. The sections of the post-holes are shown in Fig. 18. Three other post-holes were located inside the post circle and two lengths of ditch with a grey gravelly loam fill were also inside the post circle, one length of ditch (1050) being cut by 1040, one of the hut circle post-holes.

Ditch 1048

Ditch 1048 (Fig. 6) was 12m north-west of ditch 32 and had a diameter of 11.5m. The ditch was penannular with an entrance gap 6m wide on the east side. The southern terminal and a portion of the south side of the ditch were excavated and no evidence of recutting was found. The ditch was 0.44m wide and 0.19m deep with a rounded base and sloping sides (Fig. 16). The fill of the ditch at the southern terminal was grey gravelly loam with a large number of limestone fragments up to 0.2m in length. Elsewhere the ditch fill was grey gravelly loam. Ditch 1048 cut Bronze Age ditches 1006 and 460.

Ditch 1049

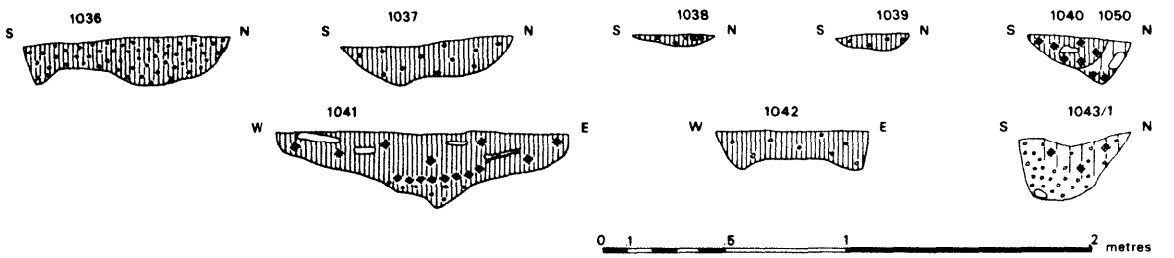
Ditch 1049 (Fig. 6) was 3 m north of 1020 and was 14m in diameter. The penannular ditch had an entrance gap 4m wide on the east side and had been recut once. At the northern terminal the outer ditch was the latest but in a section through the ditch where it cut 1048 no recut was visible (Fig. 16). The inner ditch was the most substantial with a width of 0.55m and a depth of 0.4.m. The outer ditch was 0.7m wide and 0.23 m deep. The inner ditch had sloping sides with a rounded base and the outer ditch had a flat base with sloping sides (Fig. 16). The fill of the ditches was grey gravelly loam with a number of fragments of limestone up to 0.15m in length in the northern terminal. Ditch 1049 cut the Bronze Age ditches 460 and 1006 and cut ditches 1014 and 1048.

Ditch 1051

Ditch 1051 (Fig. 5) was adjacent to the south side of ditch 1020 and 14m in diameter. The ditch was penannular and had a 4m wide entrance gap on the east side. The ditch was sectioned on the south side and had one recut, the inner ditch being the later. The inner ditch was much less substantial than the outer with a width of 0.37m, and depth of 0.14m. The outer ditch was 0.85m wide and 0.5m deep. The inner ditch had curving sides and the outer ditch was V-shaped with a flattened base (Fig. 16). The ditches had similar fills of grey gravelly loam with a few charcoal flecks. Ditch 1051 cut ditches 1025, 1129 and 1130.

Ditches 1129 and 1130

Ditches 1129 and 1130 (Fig. 5) were located 11 m to the south of 1020 and were similar in diameter at 15m. Neither ditch was excavated but they had similar fills of grey gravelly loam and similar widths of 0.5m. Both



18 Hut circle post-holes 1036, 1037, 1038, 1039, 1040, 1041, 1042, and 1043/1 sections

ditches appeared to have entrances to the east and 1130 also had a break on the west side. Both ditches cut 1025 and 1129 cut 1023.

Miscellaneous ditches

All the Iron Age Period 2 features described above consist of fairly well defined circular ditches. In addition to these features a number of short lengths of straight ditch were excavated and planned. The function of these features is obscure and the only detailed description given here is of a length of straight ditch. This was ditch 26 (ref. 105-109) which ran between ditch 18 and ditch 32. Ditch 26 cut ditch 18 (Fig. 13) which makes ditch 32 stratigraphically later than ditch 18 (Fig. 30).

Other ditches were excavated and recorded which formed arcs, as for example ditches 49 (ref. 098-026) and 306 (ref. 020-046) in the 1974 excavation and ditch 1132 in the 1976 excavation which was located inside the earlier Bronze Age ring ditch 460. These three features were similar in width and depth to the penannular ditches and had similar grey gravelly loam fills. Ditch 306 partially encircled the recut post-holes but it is uncertain if it is associated with them.

Two other ditches recorded during the 1976 excavation may be the remains of penannular features. Ditch 1133 was in the extreme south-west corner of the stripped area and only a 7m section of it was uncovered. Ditch 1096 was located in the north-west part of the stripped area and two portions of the feature were exposed. The southern portion of the ditch formed an arc and was cut by ditch 1019 which followed its alignment and had removed it on the south and west sides. The north portion of the feature had been disturbed by the contractors' machinery and no plan of its original shape could be obtained. The diameter of this circle is estimated at 15 m and the feature had a 3.5m wide entrance gap on the east side. Ditches 1096 and 1133 had similar grey gravelly loam fills and were 0.5 m and 0.25 m wide respectively.

Pits

Approximately 150 pits were identified during the course of the 1974 and 1976 excavations. Of this total 125 were excavated in 1974. Eighteen of these pits contained pottery similar to that from the ditch circles and seem likely to be contemporary with them. They are listed below with their coordinate references.

No.	*Reference*	*No.*	*Reference*
17	125-095	109	145-120
25	110-090	131	188-062
39	112-102	135	115-027
54	110-010	300	075-015
55	105-010	303	095-042
65	120-155	308	085-035
72	142-112	315	070-042
80	130-120	323	080-095
102	135-105	327	075-080

The dimensions of the pits are shown in Table I. They were all basically similar in shape and fill to the Period 1 pits (p. 00) and the only unusual pit was 25 which contained a fairly large amount of daub. Some Period 2 pit sections are shown in Figs. 11 and 21.

Post-holes

The most common feature recorded on the site as a whole was post-holes. The majority of the post-holes were concentrated in the south-east corner of the 1974 excavation inside penannular ditch 13 and its associated annexe 45, and to the east of 13. Fewer post-holes were recorded during the 1976 excavation but this is undoubtedly accounted for by the fact that c. 0.2m of gravel was removed by the contractors when stripping the 1976 area and any post-holes less than 0.2m into gravel would have been destroyed.

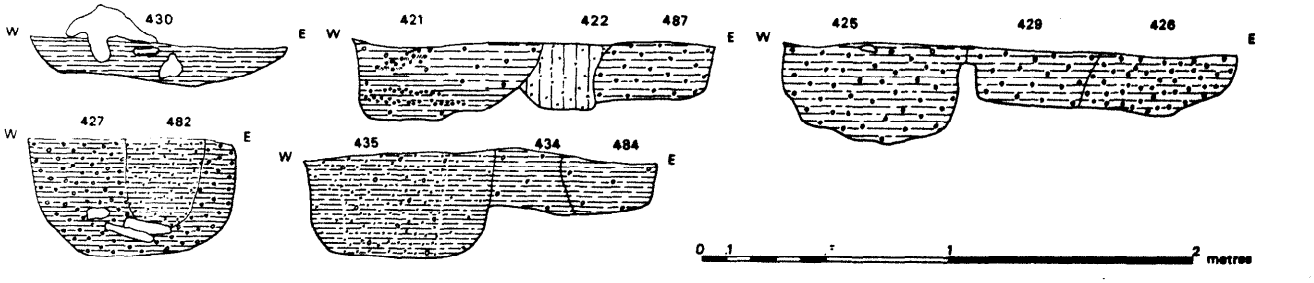
Very few of the post-holes contained any dating evidence but it is highly likely that most of them are contemporary with the Iron Age Period 2 settlement, and the post-holes inside the penannular ditches which form circular structures seem certain to be contemporary with their respective ditches. Most of the post-holes had a fill of dark brown gravelly loam similar to most of the other features on the site. Very few of them showed any evidence of post-voids and many were extremely shallow, surviving in some cases merely as a stain in the gravel.

Recut post-holes (Pl. IX)

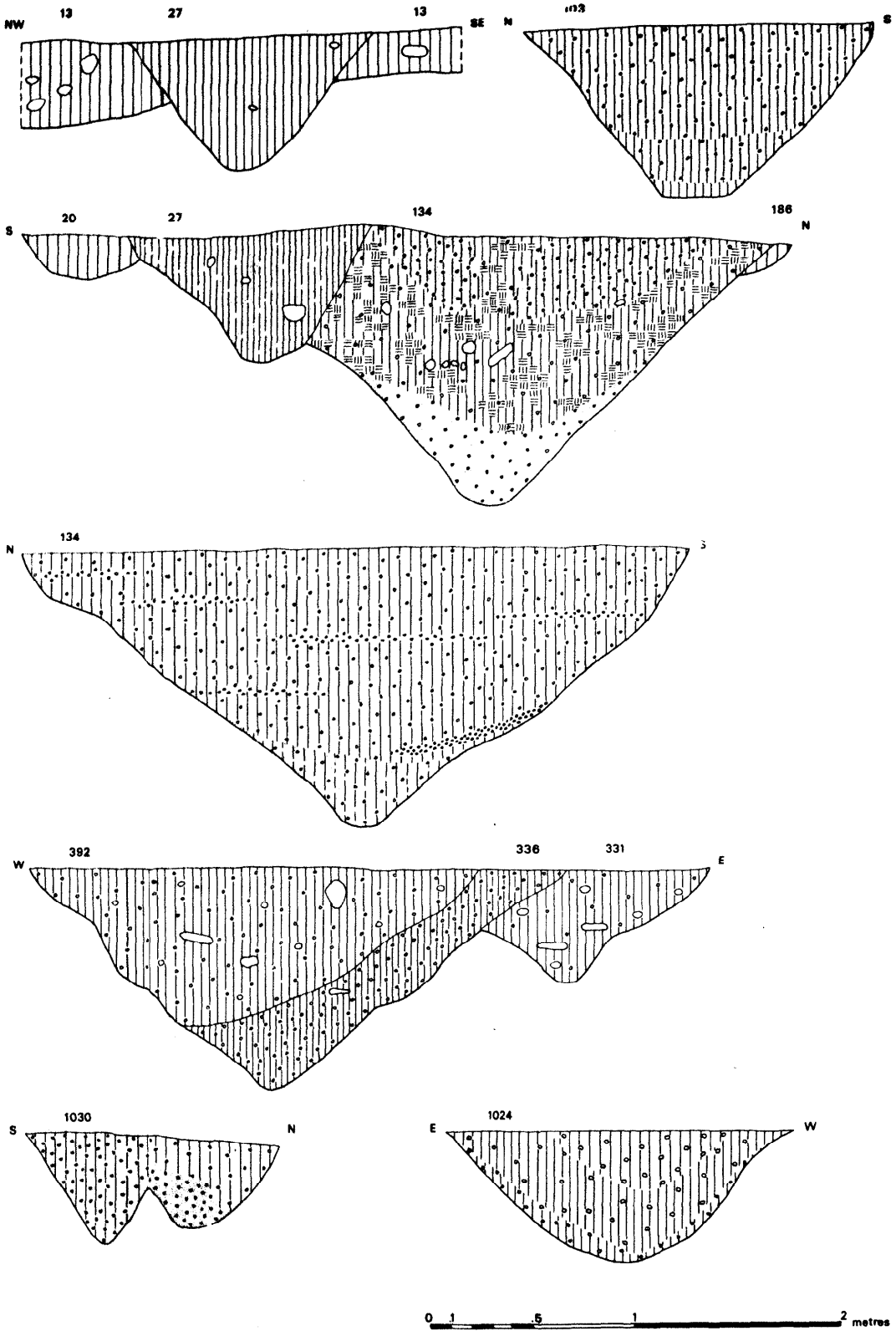
A number of more substantial post-holes were located in the south-west corner of the 1974 excavation (Fig. 4). All these post-holes had fills of grey gravelly loam and two of them (427 and 430) contained limestone fragments; 427 also had a post-void showing in section (Fig. 19). The post which occupied the void would have been 0.3-0.35m in diameter. Post-hole 427 was cut into the fill of an earlier post-hole, 482. To the east of 427 were three more post-holes (435, 434, 484). Post-hole 435 cut 434, and 434 was also cut by 484. Three more post-holes (425, 426,429) were located 2m to the south of 435. Post-hole 425 cut 429, and 429 cut 426. A single post-hole (430) was located to the west of 425. These four post-holes or groups of post-holes form a rectangular structure c. 2.5m east-west by 2m north-south. Three more post-holes (421, 422, 487) were located to the north of the structure. Post-hole 421 cut 422, and 422 cut 487. Two other post-holes (43 1,432) were in close proximity on the south side of the structure and may be associated, together with the three to the north. The sections of the above post-holes are shown in Fig. 19.

Iron Age Period 3

In the latest Iron Age phase the settlement of Period 2 was replaced by a number of linear ditches which were



19 Recur post-holes 421, 422, 425, 426, 427, 429, 430, 434, 435, 484, and 487 sections



20 Ditches 13, 20, 27, 103, 134, 331, 336, 392, 1024, and 1030 sections

laid out over the site. In addition to the ditches a number of pits which contained pottery similar to that from the ditch system are associated with this phase.

Ditch 134

The most substantial of the ditches was ditch 134 (Figs. 4 and 5), which ran across the site on a north-west/south-east alignment. The ditch terminated inside ditch 13 at its east end and was traced for 60m to the west, where it turned a corner and headed north and was picked up again in a contractors' trench 24m north of the corner. A ditch of similar fill and dimensions and on the same alignment was noted in another contractors' trench c. 50m north of the corner. Ditch 134 averaged 2.4m in width and was 1.3 m deep at its eastern terminal and c. 1 m deep at the west corner. The ditch was V-shaped throughout its length (Fig. 20) and had a fill of grey gravelly loam overlying c. 0.2m of clean gravel in the bottom of the ditch. In the area west of ditch 13 the topmost fill of 134 was a thin layer of very fine grey soil.

Ditch 103

Ditch 103 (Fig. 4) had a terminal 11 m east of 134 and was on the same alignment. Ditch 103 had a flat base and sloping sides (Fig. 20) and had a fill of dark brown gravelly loam overlying a 0.2m thick layer of clean gravel at the bottom of the ditch. Both 134 and 103 cut the hut circle ditch 13 and appear to be part of a contemporary ditch system with a wide entrance causeway.

Ditches 392 and 1030

Another major ditch was located in the west of the 1974 excavation area and was aligned at right-angles to ditch 134. This was ditch 392 (Fig. 4) which appeared to be contemporary with 134 and terminated 25m north of its junction with 134. To the south of 134 the ditch was traced for a distance of 20m to the south edge of the 1976 excavation, where it turned a corner to the west and ran parallel to 134 for a distance of 23m before it terminated just south of feature 1023 (Fig. 5). This section of the ditch was numbered 1030 and was recut to the south. The recut of ditch 1030 (Fig. 20) was V-shaped in profile and averaged 0.7m wide and 0.55m deep. The earlier ditch was similar in width but was shallower at 0.45 m deep and had a flat base. The fill of both ditches was grey gravelly loam which in the earlier ditch overlay clean sandy gravel. The north-south part of ditch 392 was similar in depth at 0.6m but was much wider at c. 1.2m. This portion of the ditch was also recut but owing to the similarity of the fills it was not possible to say which was the earlier. The ditch had sloping sides with a rounded base (Fig. 20) and had a fill of grey gravelly loam. Ditch 392 cut into the fill of ditches 32, 331, 460, and 1035. Ditch 1030 terminated 30m due south of the west corner of ditch 134.

Ditch 1024

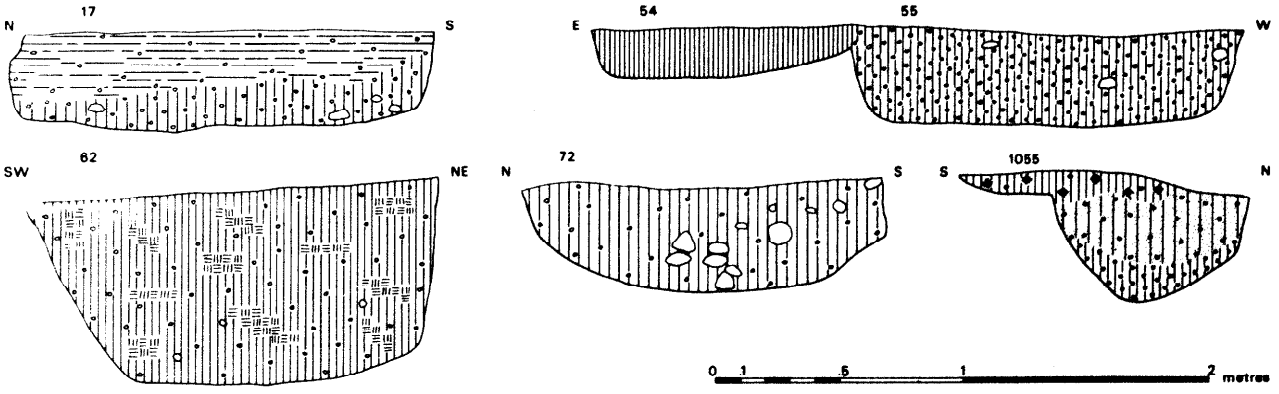
The space between 1030 and 134 was demarcated by the northern segment of another ditch, 1024 (Fig. 5). The southern segment of 1024 terminated 2m west of the western terminal of ditch 1030 at its north end and ran out of the trench on the south side. Ditch 1024 was V-shaped in profile (Fig. 20) with a fill of grey gravelly loam. Ditch 1024 cut 1023 and the northern segment of the ditch was located 4.5m north of the terminal. This segment was 22m long and was aligned north-south as was the southern segment. This stretch of ditch terminated 3.5m south of the west corner of ditch 134. The ditch was up to 2m wide and up to 0.7m deep.

Ditches 122 and 1134

In addition to these major components of the ditch system other portions of ditch which may be associated were recorded. Ditch 122 (Fig. 4) terminated 7.5m south of the terminal of 134. Although only a c. 2m long segment of the ditch was examined it appeared to be aligned at right-angles to 134. Ditch 122 was 1.4m wide and 0.7 m deep and had a grey gravelly loam fill. Another ditch, 1134, was parallel to 134 and had a terminal c. 11 m north of the northern terminal of 392 (Fig. 6). Ditch 1134 was V-shaped in profile with a fill of grey gravelly loam and had a depth of 1.4m. The width varied, averaging 2m and widening to 2.6m at the terminal.

Ditch 27

A later ditch (ditch 27, Fig. 4) ran parallel to ditch 134 and would seem to be a later addition to the ditch system. Ditch 27 had a terminal on the east side of the 1974 excavation which cut the terminal of ditch 103. The ditch ran across the entrance gap between 103 and 134 and cut the terminal of 134. The two ditches then diverged, 27 running to the south of 134 until it was cut by two later pits (333,337). Beyond this point the ditch was traced for a short distance to the west of pit 337 where it cut an earlier ditch (336). The ditch then ran into an unexcavated area and was not located again. Ditch 27 was V-shaped and had a fill of grey loam with some gravel (Fig. 20). The average width of the feature was 1.2m and the average depth 0.65m.



21 Pits 17, 54, 55, 62, 72, and 1055 sections

Ditch 1026

A curving ditch (1026) ran across the site in a north-south direction; it terminated at the west corner of 134 and to the south terminated 2m north of the terminal of 1030. The ditch had a grey gravelly loam fill and averaged 1 m wide; the depth and profile of the ditch was not recorded.

Most of the linear ditches described above contained wheel-turned pottery sherds in their fill. A number of the pits also contained wheel-turned pottery of late Iron Age type and, although some of them are demonstrably earlier or later than the ditch system by virtue of the fact that they cut or are cut by some of the ditches, they seem to be broadly contemporary with the ditch system. These pits are listed below with their coordinate references.

NO.	*Reference*	*No.*	*Reference*
62	140-140	333	070-055
75	167-159	337	055-060
121	195-070	347	052-129
130	188-068	354	060-052
		1055	

Pits 130 and 354 are included in this list because they both cut pits which contained wheel-turned pottery. The dimensions of the pits are shown in Table I. They all had a similar fill of grey gravelly loam and pit 62 contained a burial as described below. Some Period 3 pit sections are shown in Figs. 11 and 21.

Pit 62 (Fig. 4), along with the usual assortment of pottery sherds and animal bones common to most of the pits, contained the crouched skeleton of a mature adult male (p. 92). The pit was flat-bottomed with sloping sides and had the usual fill of grey gravelly loam (Fig. 21). The skeleton was lying on its left side along the east side of the pit with its head to the north (P1. X). The pit had been partially filled in to a depth of 0.25 m before the body had been placed in it and there were no obvious grave goods with the burial. The pit cut ditch 73 and was located in the entrance to the ditch circle annexe formed by ditch 73.

Romano-British period

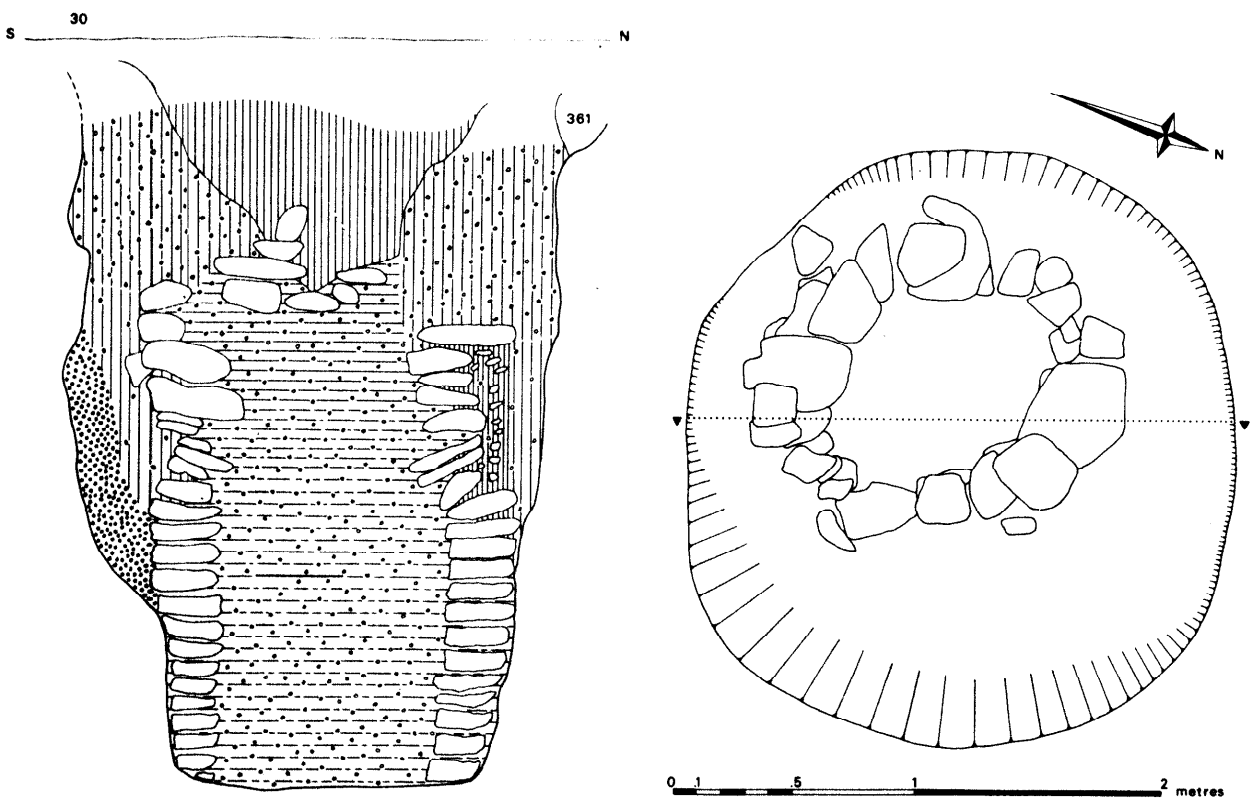
The Roman features on the site comprised two wells, a pit, and a few post-holes from the 1974 excavation, and a pit and a ditch system from the 1976 excavation.

Well 198

The earliest Roman feature was a well (198, Fig. 4, ref. 105-074). The well was cut by pit 197 and well 30; only a small portion of its stone lining survived at a relatively low level and about a third of its construction pit on the east side. Well 198 was identical in fill and construction technique to well 30. Because of their similarity only well 30 is described in detail.

Well 30

Well 30 (Fig. 4, P1. XI, ref. 100-090) consisted of an oval pit 2.5m wide east-west by 2.2m wide north-south and 2.7m deep with near-vertical sides. From a point c. 0.8 m below the level of the natural the well was lined with stone down to the bottom of the feature. The lining was oval measuring 1 m by 0.7m internally. The stones lining the well shaft were unmortared, varying in size from c. 0.3m to 0.5 m and were all Corallian rag. At the top of the well shaft the fill was grey gravelly loam and fragments of stone overlying a layer of darker grey loam which in turn overlay a layer of sticky grey loam which went down to the bottom of the well. Above the well shaft the layering consisted of a thick layer of grey gravelly loam around



22 Well 30 section and plan

the edge of the well pit with a layer of fine grey loam sloping down to the well shaft. Between the stone lining and the sides of the well pit there were layers of grey loam and gravel (Fig. 22).

Pit 197

Pit 197 (Fig. 4, ref. 100-080) was oval and was up to 3.8 m in diameter and 1.2m deep. The pit had sloping sides and a flat base and a fill of very gravelly grey loam overlying a charcoally layer at the bottom. Pit 197 cut well 198.

Pit 1047

Pit 1047 (Fig. 6) was located inside ditch 1034 in the northern part of the 1976 excavation. The pit was 1.3m wide and 1 m deep and had sloping sides and a rounded base (Fig. 23). The fill was grey gravelly loam with fragments of tile, slag, and daub and was slightly more gravelly towards the bottom.

Cobbled areas

Two areas of cobbling were identified on the site to the north of and overlying ditches 331 and 346. The cobbling (F398, Fig. 4) consisted of small limestone fragments and rounded pebbles compacted together to form a hard surface. A small patch of cobbling also overlay pit 389 (ref. 078-155).

Feature 116

Feature 116 consisted of a linear spread of Corallian limestone fragments overlying ditch 392 (Fig. 4, ref. 010-100). The stones were up to 0.7m long and averaged 0.3-0.4m in length. Similar stones were located above ditch 134 (ref. 070-065).

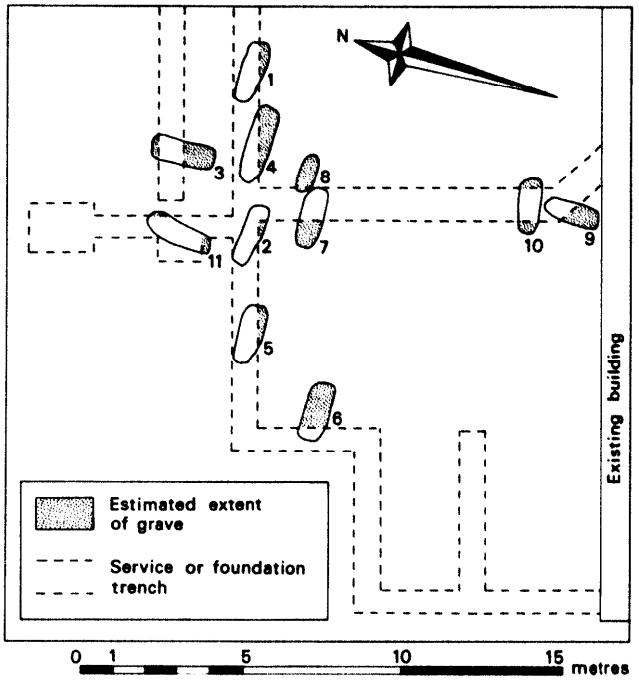
Burial 438

Burial 438 (ref. 014-088) was a shallow grave overlying ditch 134. The fill of the grave was grey loam and the remains consisted of the skeleton of an infant (p. 92) buried in a supine position with the head to the west.

Romano-British field ditches

In the western part of the 1976 excavation was a system of recut ditches of Romano-British date. These ditches consisted of a main north-south ditch (1018, Fig. 5) with three recuts becoming progressively later from east to west. The two earliest recuts turned at the south end of the ditch and ran east out of the trench (1028, Fig. 5) with the two latest recuts turning west and south-west and running out of the trench. At the north end of 1018 two parallel, seemingly contemporary ditches (1029) crossed the line of 1018 at right-angles and terminated c. 6.5m east of 1018 and ran out of the trench on the west side c. 14m west of 1018. Two further parallel ditches were located c. 11 m north of 1029 and ran into 1018. Ditch 1018 was traced in a contractors' trench 13m north of the northern edge of the trench and a similar ditch was noted c. 40m north of the trench in a contractors' excavation still on the same alignment.

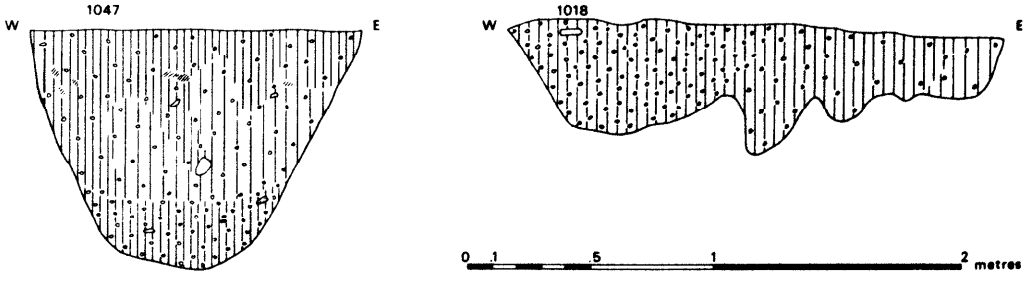
The latest recut of 1018 was on the west side of the ditch and was 1.05 m wide and c. 0.5m deep. The ditch had sloping sides and a rounded base and a fill of grey gravelly loam. The next recut to the east was V-shaped with an estimated width of 0.65m and a depth of 0.53 m. The next recut had sloping sides and an uneven base with an estimated width of 0.7m and a depth of 0.38m. The most easterly and earliest ditch had steeply sloping sides and a flat base with an estimated width of 0.45m and a depth of 0.25m. All four ditches had similar fills of grey gravelly loam (Fig. 23). The four east---west ditches in the north of the 1976 excavation were not examined in great detail and no information about their depths or shape was recovered.



24 Roman cemetery plan

The Roman cemetery

During building construction c. 200m south of the Ashville site in September 1974 human bones were discovered by a JCB driver digging foundations for a new building at the MG car factory (Fig. 2). After the initial



23 Ditch 1018 and pit 1047 sections

25 Ring ditches near Ashville (after Benson and Miles 1974) below: location of Grooved-ware pit. Appendix 1

discovery the mechanical excavations on the site were observed and a total of eleven graves recorded cut into the natural gravel to an average depth of 0.9m. Of the eleven burials it was only possible to excavate graves 4 and 11 in a controlled manner. Excavation of the remaining burials was restricted to the recovery of bones disturbed by the machine within the limits of the foundation trenches and the recording of the outlines of the graves. Consequently. the quantity and condition of the remains was dictated by non-archaeological factors.

East-west burials

Eight of the graves (Fig. 24) 1, 3, 4, 5, 6, 7, 8. and 10 were on an cast west alignment. At, far as could be ascertained seven of the graves contained supine skeletons with heads to the west. In the case of grave 5 ail the bones had been removed by the machine and only the outline of the grave was recorded.

North-south burials

I he three other burials were on a north south alignment (Fig. 24) and in a supine position. Numbers 9 and 11 had the head to the north and burial 3 was buried with the head decapitated and placed between the legs. The skull of burial 3 was under the section and by undermining the sides of the trench it was possible to establish that several neck vertebral were articulated with the skull but not to recover the skull. Burial 11 had grave goods in the shape of a small Oxfordshire Ware beaker (Fig. 56). A north south ditch was located 3.5m to the west of the most westerly grave. The ditch was c. 2m wide and 0.8m deep with a brown clayey loam fill. The graves too had a brown elayey loam fill and two abraded sherds of Roman grey ware were recovered from grave 9. The human remains from the cemetery are reported on by Eric Edwards on p. 25.

Post-Roman Features

One modern feature was excavated on the site. 199 (ref. 080 065). This consisted of a rectangular pit 2.3m north south by 0.7m east west. The sides of the pit were vertical and the maximum excavated depth was 1.4m. The fill was grey gravelly loam with lenses of clean gravel. The pit had fragments of clay pipe and decaying vegetation in its fill. It was assumed to be relatively modern and not fully excavated

Another feature of similar date was 1135 which was a rectangular pit cut trough 1051 and 1120. the pit had a grey loam fill with fragments of tile and was not excavated.

Other evidence of post-Roman activity consisted of a few fragments of medieval and post-medieval pottery recovered from the top-soil.

Interpretation

The Bronze Age features

By Christopher Balkwill

The discovery of two ring-ditches on the western edge of Abingdon adds further detail to a growing body of excavations which have taken place on monuments of this kind in the immediate vicinity of the town. Unlike the majority of those excavated in the Upper Thames, the Ashville ring-ditches had not previously been located by air photography, and were particularly unexpected in view of' the dense Iron Age occupation. This situation contrasts locally with ring-ditches not overlain by Iron Age settlement remains, e.g. at Radley. Corporation Farm, or Sutton Courtenay; it can safely be assumed that the names of Barrow Road and Barrow Farm, less than half a kilometre north and west of the Ashville ring-ditches, refer to other monuments in the vicinity which survived as earthworks into post-Roman times.

The ring-ditches were there fore first recorded at the level of natural gravel. leaving no possibility for examination of ancient surfaces, even if any had survived the effects of ploughing. Interpretation of stages in the construction and use of the features is therefore limited to comparisons for the grave-goods themselves. It remains uncertain whether an isolated cremation, 283, should be associated with the ring-ditches.

Ring-ditch 1006 (sections, Fig. 8)

Four transverse sections across the ditch gave little convincing indication of the original position of an adjacent bank or inner mound. In Section C', the greatest depth of layer 1 toward the interior of the ditch. and the slope of layers 4 and 5. suggests an outer bank: layer 5. a gravelly loam. may here represent a local collapse of the bank. as the bottom of the ditch was elsewhere filled with sand and gravel. Successive gravelly layers in the ditch were devoid of finds apart from a few flints and bone fragments: a few sherds of dark, hard, gritty potterry were present in layer 1.

Within the ovoid enclosure formed by 1006 were a number of cremations and related deposits. as follows:

IO 17: Cremation of young adult in central pit. Pyre material and bone intermixed and concentrated against south edge of feature. associated with ring-headed bone pin (Fig.26. No 1). A broken flint was also in the fill of the pit.

1032: Cremation of late adolescent in pit. Ash underlying pyre material: bone and broken biconical urn intermixed in both layers (Fig. 27. No. 6).

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1002: Shallow pit containing pyre material and collared 'urn' as accessory vessel (Fig. 27. No. 8).

1003, 1004, 1005, 1005, and 1016 were small pockets in the gravel. containing pyre material but no grave-goods

Chronology and comparisons

Burial 1017 is related to a group of Wessex graves in which the presence of a compact mass of cremated remains without ash. associated with a ring-headed pin. indicates deposition in a wrapped and sealed bag (Grinsell 1941. 99). A similar pin at Standlake (Oxon) accompanied a buriall from a pit within a ring-ditch. in which the burnt bone had been separated and piled centrally (Riley 1946. 32, fig. 8a). while at Stanton Harcourt a Wessex Culture burial included a broken pin lying on a pile of' cremated bone (Harden and Treweeks l945, 29). This grave provides associations for dating such pins to the Wessex II. Camerton-Snowshill phase: further associations, listed by Gerloff (1975, 251) are mostly contemporary. except No. 143. Winter-borne Came. whet-e an Armorico-British (Bush Barrow) dagger in a doubtful group suggests a derivation for ring-headed

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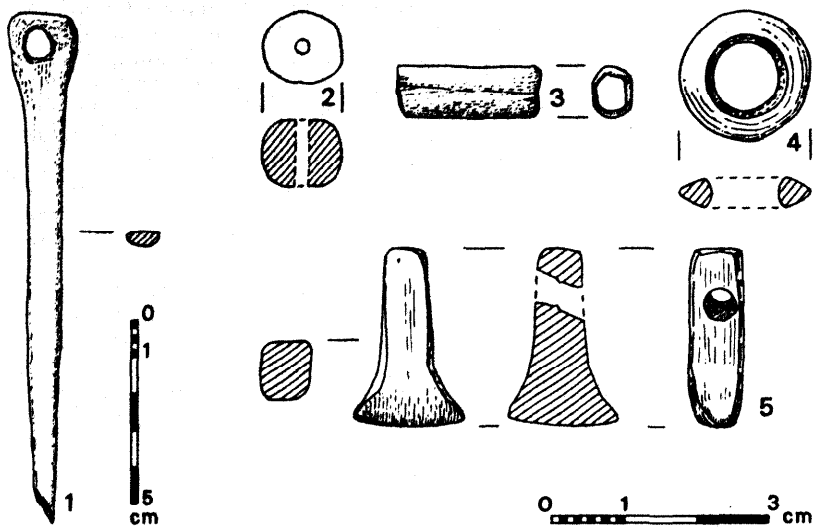
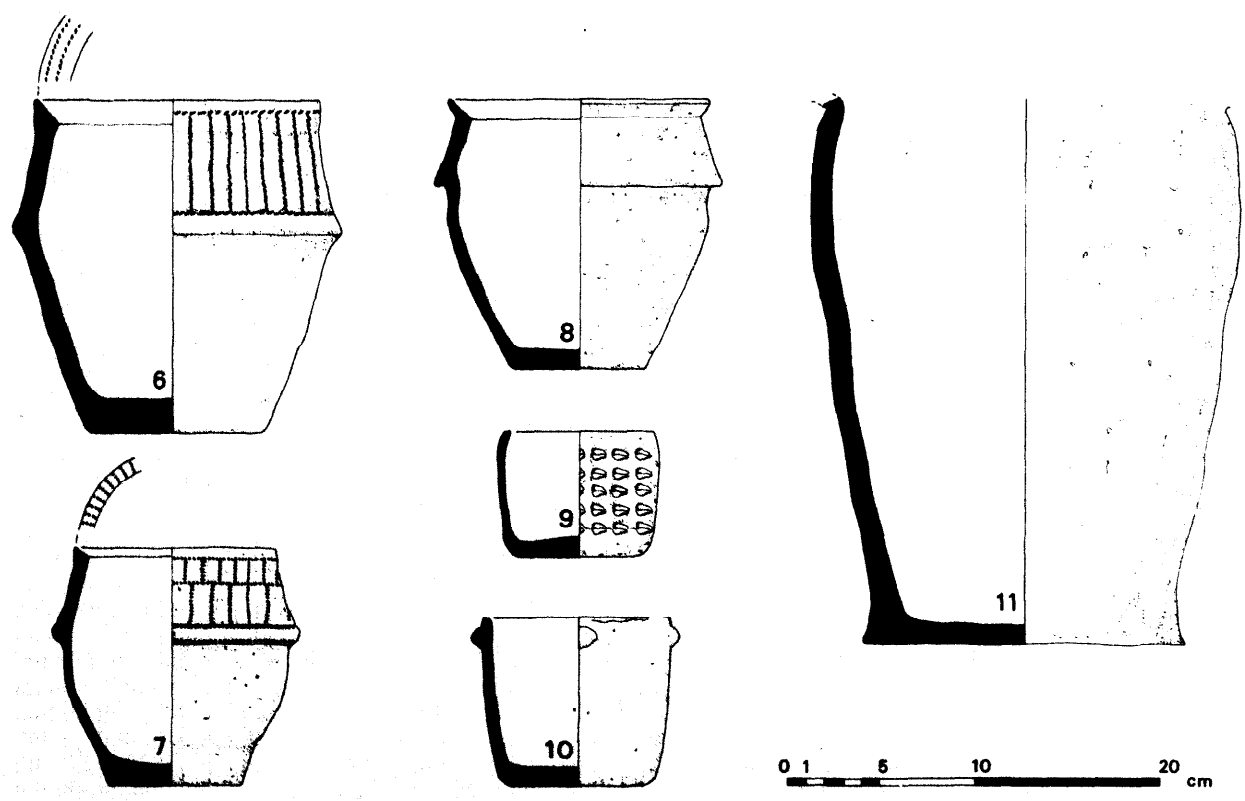


26 Bronze Age finds:
1 scale ½, 2-5 scale 1:1

pins in Wessex I. Gerloffs list includes an association with a biconical urn (No. 18, Bere Regis G.46b), which, following Smith (1961), might suggest continuation into a post-Wessex Middle Bronze Age.

The adjacent cremation-burial, 1032, contained a cord-impressed biconical urn only marginally different in form to the collared urn of 1001. This type of decoration is common on pottery associated with ring-ditches in the Upper Thames (e.g. the group at Site 3, Hanborough; pits A and 'D within ring-ditch 16, Radley; North Stoke; Long Wittenham, where no associated ring-ditch was recorded, but perhaps was not recognized; Sutton Courtenay pit D, enclosed within a ring-ditch inside the *cursus:* Case *et al* 1964/5, 66-71). Rectilinear zoning of cord impressions occurs in this group, but not on a biconical urn (listed for the region in Case *et al* 1964/5, 73-4). However, it is found on an unassociated vessel of similar form in pit 2, Ringwould (Kent), which belonged to a group of four burials beneath a barrow; in the same group, pit 4 included a small biconical urn as an accessory vessel with a pygmy cup and faience beads, and both burials were taken by Smith to represent an early stage in the development of Wessex biconical urns, viz. Wessex II (Smith 1961, 102, fig. 1.l, 1.3). Biconical urns



27 Broom Age pottery: 6-11 scale ¼

have been recorded stratigraphically in the Upper Thames at Hanborough Site 6 and Radley 14 in 'primary' contexts, but 'secondary in pit J, Radley 16.

The accessory vessel in pit 1001. a collared urn with comb-impressed decoration, is Longworth's form B1 (Longworth 1970). The form is represented frequently at Site 3. Hanborough, including pit 3/3 with a date of 1490 NC'; Long Wittenham. 4 miles (6 km) from the Ashville site, has the closest local parallel (Case *et al* 1964/5, fig. 28, 1). Comb-impressed decoration occurred at Site 2, Hanborough, on a pot associated with shale or jet fragments (Case *et al* 1964/5, fig. 26, 2/1), and the form is found in other contexts associated with jet, faience, and amber (Ox-settle Bottom (Sussex) together with bronze ring. Curwen 1954, fig. 42: Easton Down (Wilts), Stone 1933, pl. II; Lambourne 1C with ribbed knife and jet pendant, Gerloff 1975, 168 70, No. 304). In all these cases a Wessex II or 'faience horizon' date applies.

I he accessory vessel in pit 1002 is a collared urn of unusual form, developed from Longworth's B1. The everted rim may represent ;I borrowing from food vessels. while absence of decoration could be taken as a 'late' feature. The form is represented locally in the North Stoke miniature vessel. here with cord-impressions (Case 1951. fig. 19): at Stockbridge (Hants) a pit or shaft contained near the top a layer of associated Bronze Age sherds. in which an undecorated collared urn with everted rim occurred with cord-impressed sherds of 'carlier' character (Stone and Gray Hill 1938. figs. 3. 4a. 4d). Absence of decoration need not therefore be of chronological significance. and there IS no clear reason to separate this vessel from the hiconical urn in 1032.

Ring-ditch 460 (sections, Fig. 7)

As with ditch 1006, the four sections give no conclusive evidence for the position of a bank. Initial gravel deposits in sections B and C came from opposite sides of the ditch. but in A and D the lowest layers seem to have accumulated evenly Soil in the upper portion of the ditch. consisting of a reddish brown loam. probably corresponds to the characteristic material frequently remarked in Upper Thames ring-ditches although a high degree of fine slit was not noticeable (cf. Cornwall 1953). This layer had clearly formed well before the end of the Bronze Age. but could not have filled the ditch completely by the time of insertion of burials 1054. 1033. A contrast is thus presented by the filling of the two ditches: at the level of natural gravel. 1006 was still partially open at a time when sherds of Iron Age type and a more organic brown earth were accumulating in it. but 460 was full to this depth by a much earlier date. Conceivably. the former had been partially or totally cleaned out at a late stage perhaps in connection with additional burials inside the circle But a two-phase use cannot be demonstrated for 1006 from the grave goods alone.

Features associated with 460 are:

1043: Cremation of young adult in non-central pit, together with pyre residue. Associated grave-goods within pit: bone spacer. amber bead, jet or lignite miniature axe-pendant bored obliquely from both hides. ring-pendant of similar material (Fig. 26. Nos. 25).

1054: Cremation of infant, cut into ring-ditch 460. associated with two small bucket urns (Fig. 27. Nos. 9 10).

1033: Cremation of mature adult, cut into the ring-ditch.

Chronology and comparisons

The beads from 1043 are a group of pendants normally found in Wessex Culture contexts and associated with female burials. including miniature weapon-pendants in the form of halberds of continental pattern, and a double-axe of shale from the 'primary' burial of Wilsford G.7 (Piggott 1938, 84 85; Gerloff 1975, 258). The amber bead and the jet or lignite ring are not uncommon in Wessex groups: the poverty of goods places the grave in the Aldbourne series of female graves, or Wessex II (Gerloff 1975, 1978, 214). The bone spacer is an imitation of the conical type normally of shale. jet or amber. while the axe-pendant has the curious feature of an oblique boring. Although it appears to imitate a bronze form, it apparently has no contemporary parallets and several alternative explanations arc available. In the tradition of axe-hammers and battle-axes with beaker and Wessex I associations in Britain, shaft-holes were normally central on insular weapons and always transverse (i.e. at right-angles to the long axis): the square butt-end is highly unusual. though possibly matched on stone axes in Yorkshire at Garton Slack and Cowlam (Smith 1924/5, 78, 89). A second possibility is that the pendant copies Early Bronze Age flat axes. its perforation representing the angle of the shaft. Thirdly. however. it may copy a continental form: there had existed in the Scandinavian region a tradition of end-perforated stone axes. which in the Baltic area was continued into the Early Bronze Age in the form of Sprockhoff's massive bronze axe. with thick butt. spreading blade and (transverse) shaft-hole toward the end (Sprockhoff 1941. distribution fig. 29). Possibly this is one type represented in the Ashville pendant-form. reflecting those contacts with North Germany which were responsible for the halberd-pendants and some aspects of Wessex metalwork (Burgess 1974. 190).

The bucket urns in burial 1054 are an unusual combination; another association for a lugged vessel is that of three miniature pots of this type inside a plain, barrel-shaped urn containing a cremation from a small urnfield near Swindon (Wilts) (Piggott 1937/9. fig. 3). Also an accessory is that from pit E. Long Wittenham (Leeds 1929. 153-4: (Case *et al* 1964 5. fig. 28. Nos. 5. 7). The pot at Stanton Harcourt (Oxon) also accompanying burials in a ring-ditch. may have been an accessory, although circumstances of recovery could account for the ubsence of associated bones (Hamlin 1963. 11-12, 30. fig. 10). No direct comparisons have come to light for the finger-impressed vessel. Such decoration on local pottery from the Neolithic onward seems normally to consist of paired impressions, appearing later as single finger-tip impressions (e.g. Middle Bronze Age. Long Wittenham urns: Case *et al* 1964 5. fig. 28, 3 4, 8). But such extensive printing as that at Ashville is highly uncommon. unless overlooked (e.g. sherds in the fill of a ring-ditch at North Stoke. Case in Catting 1959, fig. 5; also at Sutton Courtenay in the top of the *Cursus* ditch and elsewhere. thought to be Saxon. Leeds 1947, 90. 92, pt. XXIII: all however paired impressions). Outside the region, possible comparisons are found at Rimbury and Puddleton Heath (Dorset) (Abercromby 1912, 2, pt. XC. Nos. 425g, 424a), but the source of such decoration might be represented by the *Ardleigh group* of Essex and Suffolk. for which a connection with Dutch Hilversum urns has been argued (Erith and Longworth 1960, 189; Smith 1961, 113 4). These comparisons serve only to confirm the stratigraphy of burial 1054, that the urns are post-Wessex Culture. but to what extent is unclear without independent dating evidence.

Cremation 283

Cremation of adult (upper parts of body only represented) in upright bucket urn in pit (Fig. 27, No. 11).

The chronology of this vessel is altogether obscure. It has some resemblance in form to burial urns from the Standlake (Oxon) cemetery (Atkinson. in Riley 1946. 42; Abercromby 1912, 2, pl XCV. 473: Leeds 1935, 30, pl. IV. 2). A bucket urn. originally accompanied by another vessel. from Yarnton (Oxon), has a similar form at least in the lower portion, as also a jar from a pit near Radley, 2½ miles (3 km) from Ashville (Bradford 1942. fig. 12. 36; Leeds 1935. pl . VII. 3a). Locally. coarse shell-gritted wares are very characteristic of the Early Iron Age. including fabric 1 at Ashville, but the use of shell is also attested for the Bronze Age in the Upper Thames (Cast *et al* 1964 5, 75), including sherds from the filling of a ring-ditch at Standlake (Riley 1946 7, 41). The Ashville urn stands more clearly in the tradition of Iron Ape forms and wares in the valley than of those from earlier periods, but may represent a connection between them (cf. sherds of A I ware at Itford Hill (Sussex) with splayed base, vertical finger-smearing and simple everted rim. occurring c. 1000 BC, uncalibrated: Burstow and Holleyman 1957, fig. 20, A. E: cf. also the plain jar with splayed base and vertical finger-smearing. with Upper Thames connections. in the post-palisade phase at Rams Hill (Berks). with *terminus post quem* of c. 1050 BC from three out of four samples: Barrett. in Bradley and Ellison 1975. 37. 103. fig. 3.5, No. 14).

The Bronze Age finds

Figure 26

1 Bone pin from cremation 1017. L. 140 mm
2 Amber bead from cremation 1043. Dia. 10mm.
3 Bone spacer-bead from cremation 1043. L. 20mm. diam. 7.5mm.
4 Jet or lignite ring from cremation 1043. Dia. 20mm.
5 Jet or lignite axe-pendant. bored obliquely from both sides. from cremation 1043. L. 25 mm.

Figure 27

6 Biconical urn from cremation 1032. Cord-impressed decoration on the upper half and on internal bevel Coarse grey fabric. limestone inclusions. About a quarter of the surface include sherds which are grey by comparison with adjoining buff ones. indicating that the pot was broken *before* deposition and part of it fired secondarily. A small area of the exterior is fire-blackened. 11t. 180mm.
7 Collared 'urn' (accessory) with comb-impressed decoration in rectangular zones on the upper half. from pit 1001. Inner and outer surfaces part grey. part orange buff. black core. Limestone flecks in fabric. Ht. 130mm.
8 Undecorated collared 'urn' (accessory) with slight neck and everted rim, from pit 1002. Outer surface grey, inner orange brown. black core. Inclusions of limestone and shell. All surfaces evenly coloured without trace of subjection to heat or earlier breakage. Ht. 145mm.
9 Tub-shaped vessel of miniature bucket urn type from cremation 1054. Slightly inturned rim. The outer surface is decorated over its full extent with fingertip impression\, tending toward vertical series but not entirely regular. Surfaces vary evenly from buff to grey, fabric orange with quartz inclusions. Ht. 65 mm.
10 Bucket urn from cremation 1054. Plain. smoothed surfaces. brown to grey, with four opposed. pinched lugs around rim of pot. Grey fabric with sparse limestone and quartz inclusions. Rim slightly rolled outwards in places. Ht. uncertain. about 80mm.
11 Bucket urn from cremation 283. Buff, fairly uniform exterior, grey interior with black patches. Probably coil-built: slight horizontal furrows inside, exterior has traces of vertical smoothing. The splayed base is smoothed on the outside. but only around the circumference , at which point it has fractured; this breakage seems due to the inner portion of the base being added after completion of the rest of the vessel. Very coarse fabric including small quartz and flint. 18 mm. and shell up to 20mm. The urn's rim is not complete. but only the outer edge Is missing. It is slightly bevelled inwards and was perhaps rolled over on the outside. If originally decorated below the rim. not ennough survives to indicate it. Ht. 295mm.

The ring-ditches and their neighbourhood

By Christopher Balkwill

When the information available from excavation and air photography is assembled, it can be seen that the ring-ditches found at Ashville are only two of an extensive, scattered cemetery whose full extent is quite uncertain (Fig. 25). Some at least must have delineated earth mounds which were visible until relatively recent times, as indicated by local place-names associated both with the Ashville site and with the Barrow Hills linear cemetery, east of Abingdon, The nearest ring-ditch known to have contained a mound is that truneated by Saxton Road the South side of the town, which produced no clear evidence for the date of its construction (Leeds 1936). Elsewhere in the Upper Thames, barrows known to have possessed substantial mounds nave also been found to cover rich burials of the Wessex Culture, including graves in the Barrow Hills cemetery (see Case 1963, 41, type 1) Evidence from the Ashville ditch-sections is inconclusive as to the type of earthworks originally associated with them Substantial mounds are unlikely, because of their small diameters and the fact that they were no respected by the later Iron Age settlement,. However, it may be noted that those pits regarded as earliest in the settlement are well to the east of the ring-ditches, so that some trace of them may still have existed at this stage (as at Standlake: Riley 1946, fig. 9). Most well recorded ring-ditch sites in the valley suggest that impingement of Iron Age settlements on them was very uncommon, especially where they stood in any number (a rare exception is that at Mount Farm: Myres 1937).

The ring-ditches are situated in an area which had already been occupied during the earlier and later Neolithic, although there is as yet no recorded evidence for a beacker phase on the south side of the town: those from Abingdon cluster in the area of the causewayed camp. Crouched inhumations without grave goods were found by Leeds beneath the Saxton Road barrow suggesting a flat-grave cemetery of the type known at Cassington. Eynsham. Abingdon Northcourt and Stanton Harcourt. Such burials are perhaps to be expected, in view of the recently discovered Class II henge. containing

Grooved Ware in the ditch, situated close to the Thames at Corporation Farm (Henderson 1973). There are several indications that the junction of the Ock and the Thames had a special and continuing significance, since within l¼ miles (2 km) of it are an alleged long barrow known only as a cropmark. the northern end of the Drayton *cursus,* the henge at Corporation Farm, a possible Class I henge on the south side of Abingdon Common, the causewayed camp beside Radley Road, an adjacent complex of enclosures, and a second, small *cursus* at Caldecott (see Fig. 25). This succession of monuments. generally regarded as of ritual rather than domestic function, may finally include the Iron Age henge and Roman temple at Frilford, 4 miles (6 km) distant but still adjacent to the Ock (Bradford and Goodchild 1939).

It has been argued that some henges acted as gathering places for those who built and used subsequent ring-ditches for burial (Case *et al* 1964 5. 54: Bradley and Ellison 1975, 193). Such a relationship may exist at Ashville, since a small single-entrance ring-ditch, which might be Interpreted as a Class I henge. lies ½ mile (800m) distant to the south, close to it in 1972, a single pit containing Grooved Ware pottery was truncated by roadworks (Fig. 25. point A: see Appendix 1). Such single-entrances ring-ditches frequently accompany barrow groups. as at Hanborough (Case *et al* 1964 5, Site 4) and Long Wittenham (Gray 1970). and may have served as foci for migrant people exercising a seasonally pastoral economy. In view of the presence of grain and weeds of cultivation in Bronze Age features at Ashville. this theory requires discussion.

Some supports for it is emerging as a result of air photography an fieldwork on the chalk of the Berkshire Downs, where extensive rectilinear field systems considered of Middle Bronze Age origin contrast with the few instances of similar arrangements which might be argued for the Thames valley (Bradley and Ellison 1975. 181 3). If such an early date for the systems is correct they suggest quite different use of the landscape on the chalk, but it is uncertain whether they are contemporary with or later than the barrows. A second problem is that of survival of such features in the Thames valley. Only two systems which might be compared with the rectangular and apparently double-ditched fields on the Downs can be suggested, One is the earlier system of linear ditches at Long Wittenham, of which part was excavated in 1969. No dating evidence was recovered from the ditches. which varied in depth from 0.60 to 0.85 m. and at one point showed only as staining on the gravel (Gray 1970. fig. 13. B and C: Benson and Miles 1974. pl. 6.) Comparison may also be made with the second phase of Site IX at Dorchester, apparently of Neolithic date (Atkinson 1951) where the ditches were shallow and incomplete. A small, shallow length of ditch with reddish fill at Ashville (F236) might be compared with those at Dorchester and Long Wittenham: it contained only unidentifiable fragments of pottery, but was cut by Iron Age Period I pits. It cannot therefore be excluded that other pre-Iron Age ditch systems will come to light in the Upper Thames. but there is no evidence at present for field ditches contemporary with Wessex monuments.

The chronological evidence for burial within and adjacent to the Ashville ring-ditches is not very firm. Circle 1006 resembles Site 3 at Hanborough. which Case compared with Radley 16. At Hanborough 3 accessory vessels and pockets of pyre material toward the south of an oval enclosure, together with Wessex II associations were found. although in terms of size the Ashville ring-ditch is closer to Hanborough 5. Case raised the possibility that Radley 16 contained a cord-impressed, conical vessel as accessory to the 'primary' burial, which has implications for the two accessory pots and two burials enclosed within 1006. The difficulty of establishing a chronology for post-Wessex burials, owing to absence of suitable metalwork associations, has been emphasized by Burgess (1969). There seems no reason to distinguish chronologically between any of the deposits within 1006: they could all be Wessex II indeed they could all be contemporary and this applies also to the single burial. 1043. enclosed by ring-ditch 460. In this context it is worth noting that none of the pockets inside 1006 were inter-cutting. nor were any of those twenty within the larger Site 3, Hanborough, where Case regarded the whole cemetery as primary. Perhaps the graves were marked, so that the south part of the circle could be filled progressively: or the building of the monument and the deposition of-graves took place at the same time.

Multiple burial within a single barrow, is known to occur elsewhere in Wessex-related contexts. and has recently been discussed by Petersen (1972): it remains uncertain. however, to what extent such deposits occurred over a long or a short period of time before being scaled by a mound. Examples may be quoted from West Overton (Wilts). where initially a beaker burial and three others were regarded as contemporary. and eight further cremations and inhumations were deposited before construction of a barrow. The excavators concluded that all twelve burials could have occurred within a few years. or a generation (Smith and Simpson 1966. 133). The group of burials at Ringwould (Kent) all appear related and perhaps of Wessex II (Smith 1961. 101 3). Burials under a single barrow at Upton Pyne (Devon) conformed similarly to a Wessex II horizon or slightly later. and were thought to have taken place within a century of each other, while two of the burials beneath Lambourne I now appear to fall within the Wessex II phase (ApSimon. in Pollard and Russell 1969. 66 7: Gerlolff 1975. Nos. 273. 304). Two Wessex-related barrows at Bedd Branwen and Treforwerth have been interpreted as 'cemetery mounds built for multiple simultaneous burial (Lynch 1971. 54) which later received further interments. Petersen. Smith. and Simpson have argued that such burials reflect recurrent use of the same grave by families or other kinship units over one or several generations.

The two ring-ditches at Ashville could thus have been established and used in the Wessex II phase; secondary use of the monuments. after a recognizable lapse of time, is attested only for 460 with burials 1033 and 1054 inserted into the well-silted ditch. The situation can be compared with that at Stanton Harcourt. ring.-ditch 4: in the absence of bigger urns stratified at either site, it is not certain that the large cemetery of such urns at Standluke can be regarded as contemporary. The lugged miniature vessels in a bucket urn at Swindon imply that this is likely. however. as also the occurrence of both types in the Long Wittenham urnfield. The isolated cremation at Ashville (283) could then belong to this second phase, but since its affinitics are unclear and since it is markedly different in fabric, finish. and decoration from the pots in 1054 it must be regarded as later than them.

In the light of palaeobotanical evidence provided by Martin Jones, consideration can be given to the subsistence economy of those buried at Ashville. A number of the Bronze Age deposits were sampled, and the results are summarized in the following table:

Feature	*Edible plant seeds/ tubers*	*Weeds*	*Cremation*	*Accessory* vessel
1001		15		X
1002		1		X
1003	11	142		
1004	4	3		
1006				
1017	18	12	X	
1032	3	5	X	
1043	11	16	X	
236	35	3		
460	3			

From these results, it appears that grain or edible roots accompanied the three burials; unburnt cattle bones also occurred in 1017. No cereals or tubers were found in the small pits containing accessory vessels, nor were any carbonized gains recovered from the sample of ring-ditch 1006. Ditch 460, however, produced three seeds. Finally, the, largest group of seeds came-from the short length of ditch, 236, which pre-dated pits of Iron Age period 1.

An association between grain and Bronze Age pottery in the Upper Thames valley was noted by Case for a biconical urn with a seed impression from Stanton Harcourt (Case 1951), and the Ashville evidence indicates that corn was grown in the Wessex II phase. Whether it was produced locally remains unclear. The possibility that grain was added to some deposits but not to those which contained accessory vessels cannot be excluded; it might imply that these vessels were conceived as liquid containers. Absence of carbonized seeds from ditch 1006 and the presence of three only in a sample from 460 contrasts strongly with results from Iron Age features on the site. The evidence implies that grain was transported to the ring-ditches in connection with ritual practices, rather than resulting from domestic activities nearby. This observation may be consistent with Fleming's suggestion that cremations could reach a barrow through the movements of nomadic groups (Fleming 1971, 160). But some cremations took place on the site, as indicated by the burnt features 1004 and 1032 at Ashville, and by similar occurrences at Radley 14 and 16.

Systematic excavation at Ashville to the south-east of the ring-ditches has confirmed what is apparent elsewhere in the valley, that settlement traces such as bone, pottery, daub, or hearths do not occur in close proximity to the circles (discussed by Case 1963, 35-52). The small paddock-like enclosure at Corporation Farm 1.5 miles (2 km) south-east of Ashville, which produced lugged pottery related to that at Long Wittenham, Stanton Harcourt, and in burial 1054, remains a possible exception (Henderson 1973: information from Mr and Mrs Henderson). The evidence of this site indicates that ring-ditches were not the only Bronze Age features in the valley, but the enclosure may be later in date than the main period of ring-ditch construction, as indicated by the occurrence of lugged pottery only with burials in clearly secondary contexts. It may be appropriate to assign different patterns of activity to the initial, constructional phase of ring-ditches, and to later phases in which bucket urns were in use.

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Appendix 1: A pit with Grooved Ware from. Abingdon

In June 1972 a single pit was noticed in the side of a drainage ditch during construction of the Abingdon by-pass. The site is located on arable land adjacent to the River Ock, formerly Abingdon Common, at a point where the new road passes between cropmarks of two ring-ditches and a penannular features, possibly a Class I henge. A small group of pits is located next to the ring-ditches, which are situated half a mile (800m) south-west of those at Ashville (Fig. 25. P1. XII). The single pit was located at point A, and no others were observed for the whole length of the ditch from this point to the Abingdon Marcham road to to north, or for about 200m to the south. Notification of the site was given by Mr W Skellington to Mr D Miles, and the pit was recorded and excavated for the Abingdon Excavation Committee.

About three-fifths of the pit was destroyed by the drainage ditch: the remainder was cut I m into gravel and was I m wide. Above the gravel was a layer of reddish brown clay, cut back further toward the top by the trenching machine (Fig. 9, layer 2). A very black layer of fine soil (3) at the base of which lay the remains of poterry described below was probably cut through layer 2. This relationship could not be observed, but layer 2 certainly contained no indication of a buried soil. It was therefore not a flood deposit, and is taken to be another local example of a post-glacial loam. The whole of the pit was lined with grey clayish earth containing pellets of chalk and larger stones which partially lined the base of the pit (layer 4). One large portion of pot 3 lay on a pocket of orange-brown grave (layer 5). A few fragments of burnt bone were found in layer 3, and of unburnt bone in layer 4.

The function of the pit is not known. Layer 3 may be cremation residual but there was no trace of a burial. The posts do not appear to have been urns, not to have formed a complete assemblage, unless some were broken and distributed in different parts of the pit. However, it cannot have been a domestic deposit. The lining of stones, the distribution of layer 4 and its chalk inclusions, and the homogeneous black layer above the pottery all indicate a deliberately formed deposit. The pottery seems too highly elaborate and fragile for daily use. Nor was it part of a kiln, for there were no traces of firing *in situ.*

The pottery (Figs. 28 and 29)

A minimum of four pots were present, nos, 1 4. Sherd 5 may have belonged with no. 2, but it seemed unlikely that the base, no. 6, could have been attached to pot no. 1. among a large number of other fragments, a second, thicker base was present, but this could have been associated with sherd no. 4. No further vessels were recognizably represented.

1 Flattened S-profile. Vertical cordons at 70mm intervals at top, moulded on to the surface and fleeked with crushed shell or chalk fragments up to 2mm. Fired to an orange-buff finish becoming grey toward the top, blackened in places above shoulder cordon. Matt while coating on body. In section the pot is laminated., resulting in the partial flaking of the inner surface away from the harder outer face: clay is coarse and grog-tempered.

2 Grey outer surface blackened above horizontal cordon. The vertical cordon is light grey and has several large limestone flecks embedded in it. The cordons have been moulded from the surface of the pot; that on the shoulder is discontinuous. Coarse grog-tempered fabric.

3 Close-set vertical cordons at 20mm intervals. Remainder as for no. 1 except that cordons are thinner and more prominent in relief, but show no sign of individual tempering.

4 Extremely thick-walled sherd, possibly from base of body. Outer surface and cordons as no. 3. A special feature of-the fabric is a smooth hollow channel within it. 20 mm in length and sectioned lengthwise by breakage of the sherd. This suggests the presence of small twigs or reeds in the temper.

5 Rim sherd with grey surface. moulded light grey cordons.

6 Portion of base with cordons at 50mm intervals. Surface and cordons as for no. 1. Slight raised moulding around base.

A broken flint (no. 7) of triangular cross-section was present in layer 4. The surfaces are partially damaged. possibly by heat.

The assemblage falls within the Durrington Walls substyle of Grooved Ware (Wainwright and Longworth 1971. 240 2). Characteristic components arc the horizontal cordon dividing the external surface into two parts. and plain vertical cordons (cf. pot no. I with fig. 34. p. 33 4. pot no. 3 with fig. 35. p. 48).

Eight other sites arc listed by Wainwright and Longworth for the Upper Thames, of which only no. 44. Stanton Harcourt. is of the same sub-style. The resemblance with Stanton Harcourt is confined to form and layout of cordons, since the Abingdon potterry is lacking in finer elements of body decoration.

The pit itself conforms to others in which Grooved Ware occurs. e.g. pits A and C at Stanton Harcourt with black loamy filling. and those at Woodlands (Wainwright and Longworth 1971. no. 62). These latter. situated 300m from Woodhenge. are similar in shape. size, and filling to that at Abingdon. and also seemed to have a non-domestic function.

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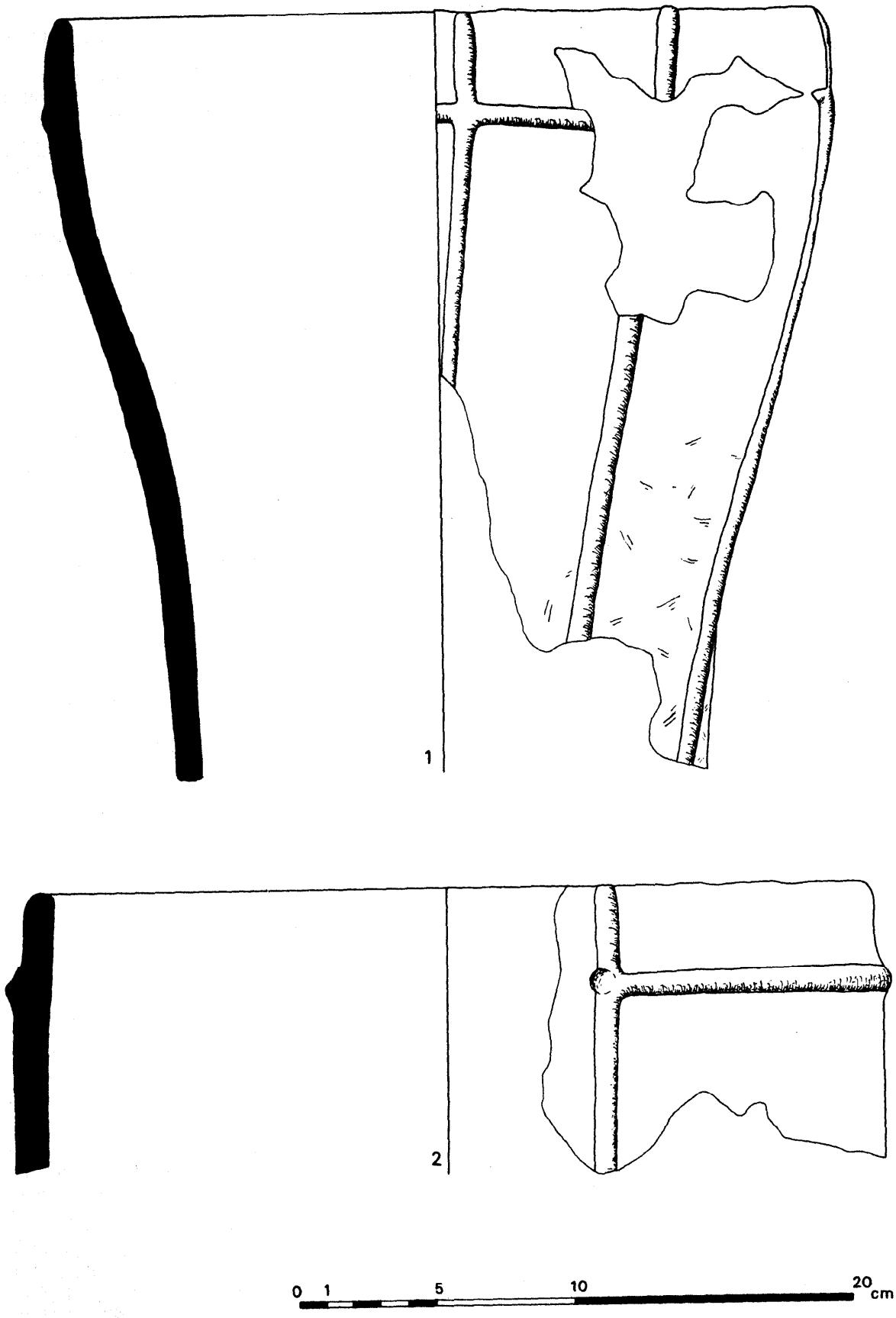
The Iron Age and Roman features

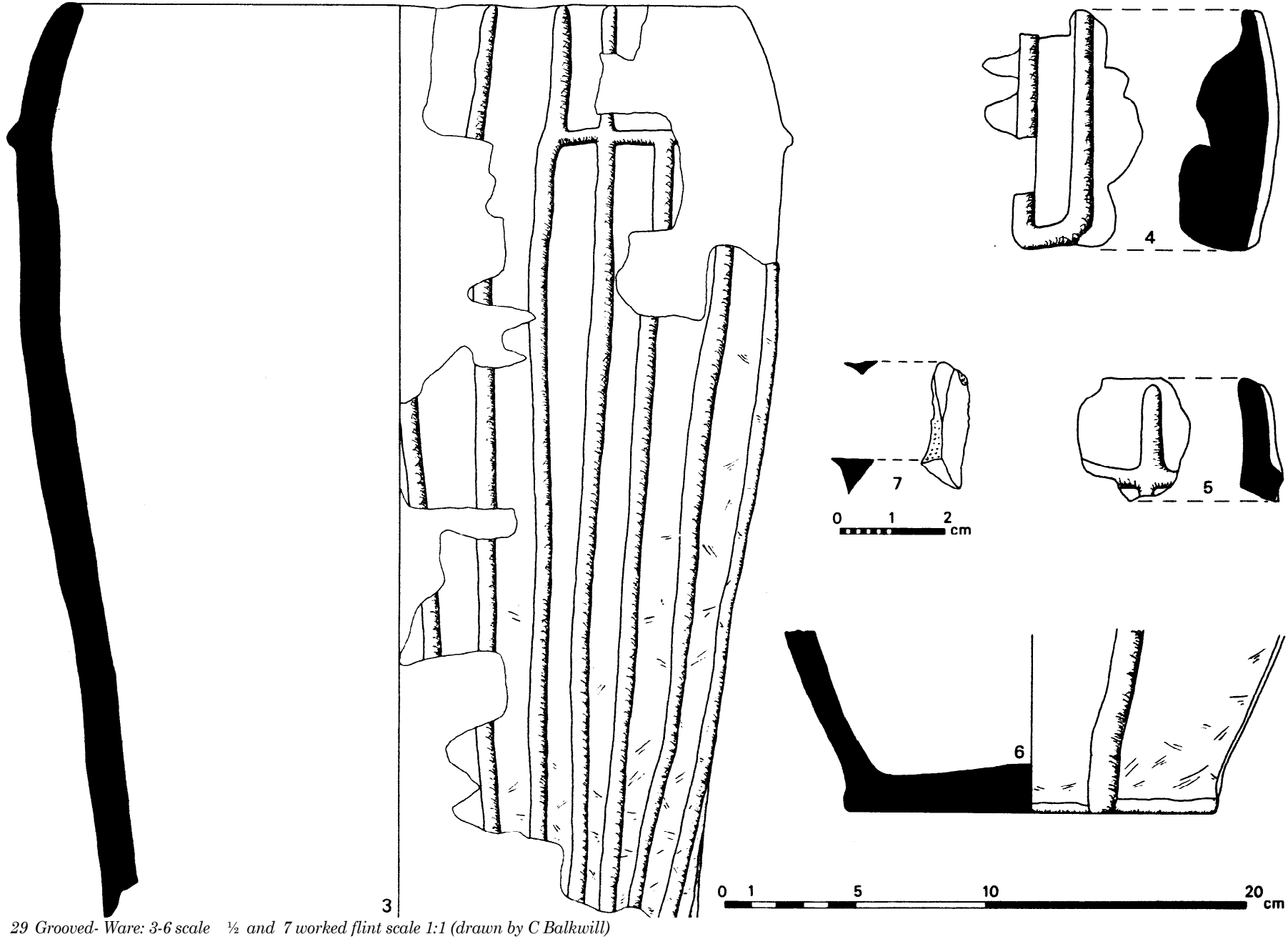
By Michael Parrington

Period 1

It seems improbable that the Period 1 pits and ditch 346 are the only features an the site which can be attributed to the earliest Iron Age phase. The presence of the pits suggest:, domestic occupation according to Bersu's interpretation of such pits as grain silos (Bersu 1940. 60 4) but little evidence of the structures associated with the pits was found. At City Farm a total of 152 pits apparently unassociated with any evidence of structures or other occupation features were excavated (Case 1964, fig. 17). On most sites however pits are found in association with house sites as at Beard Mill (Williams 1951, fig. 4) and Standlake Down (Riley 1947, fig. 9) or with other indications of land use such as ditches and gullies. as recorded at Purwell Farm, Cassington (Daw-



28 Grooved- Ware: 1-2 scale ½(drawn by C Balkwill)



29 Grooved- Ware: 3-6 scale ½ and 7 worked flint scale 1:1 (drawn by C Balkwill)

son 1962, fig. 2) and Stan ton Harcourt (Hamlin 1966. fig. 1).

The penannular ditch 346 which appears to be contemporary with the pits was much smaller than the other later ditch circles and enclosed a small rectangular arrangement of posts which in the absence of any dating evidence is assumed to be contemporary. A similar feature of smaller size was recorded during OAU excavations at Appleford where the excavator suggested it may have had a ritual function on the evidence of English and continental parallels (Hinchliffe. forthcoming). The function of these features has also been discussed by Harding where some penannular ditches with or without internal post-holes have been interpreted as shrines (Harding 1974. 96 112). Of the parallels quoted by Harding that of Winchester where a penannular ditch enclosed a four--post structure bears the strongest resemblance to F346 at Ashville despite being almost twice the diameter of 346 (Harding 1974. fig. 26. and Biddle 1965. pl. LXVIII).

Explanations other than 'ritual can be applied to the Ashville structure. however. The association of the feature with the Period I pits is more in keeping with domestic occupation than ritual practices and it seems possible that the structure is a hut site of small dimensions. Alternatively it may be that the structure is a granary surrounded by a storm-water gulley. This explanation seems the simplest one for the feature, especially as excavations at Danebury have demonstrated that they are found there in fairly large numbers (information from Professor Cunliffe). A further penannular ditch (1020) may be contemporary with the Period I pits although the pottery evidence is inconclusive. The ditch also had a large number of recuts and may have been in use during both Period 1 and Period 2. In view of this uncertainty the feature is both described and discussed under- the Period 2 heading.

The possibility also exists that further hut sites lie outside the confines of the excavated area. It is noticeable on the period p1an of the site (Fig. 3) that there is a concentration of Period 1 pits in the north-cast corner of the 1974 excavation which may indicate a hut site in that area. Several Period 1 pits arc also to be found in the south of the 1974 excavation on the same plan which may indicate another structure outside the trench in that area.

Period 2

This period represents the most intensive occupation on the site with evidence of at least eighteen penannular ditches with diameters varying from 11.5 to an estimated 26m. The widths and depths of the ditches were also variable ranging from c. 0.2 m deep and c. 0.4 m wide to c. 0.8m deep and c. 1.6m wide. One feature which most of the ditches had in common was an entrance gap on the east or south-east side of the ditch circle. In the case of ditch 13 an carlier ditch had no apparent entrance and the entrance into ditch 331 on the south-east side was disturbed by later features.

Similar Iron Age features have been excavated on numerous sites. notably at Mucking (Essex) where one hundred have been identified (Jones 1974, 186, fig. 2), at Little Waltham (Essex) where sixteen were recorded (Drury 1973, 11), and at sites as far apart as Colsterworth (Lines) (Grimes 1961, fig. 6) and Hod Hill (Dorset) (Richmond 1968, fig. 2). Such features were rarely identified in the Thames Valley until recently, with only a few examples being excavated, notably at Beard Mill, Stanton Harcourt (Williams 1951, fig. 4), Mount Farm, Dorchester (Myres 1937, fig. 3). and at Radley (Leeds 1931, 399 404) where three lengths of curving ditch have recently been reinterpreted as ditch circles (Harding 1972. 27 8. fig. 4).

More recently during excavations carried out on the route of the M40 in Osforshire at Heath farm. Milton Common, six ditch circles were identified varying in diameter from 8 to 23 m and all but the smallest having an eastern entrance grap (Rowley 1973, fig. 2) Features I was the only one of the six Heath Farm ditch circles to be excavated (Rowley 1973, (fig. 3) and was found t have been recut twice. each time on a slightly different aligment as was ditch 13 at. Ashville. a ditch circle was excavated at Appleford (Oxon) during excavations carried out for the Oxfordshire Archaeological Unit in 1973. Here a roughly circular enclosure was recut twice and had two succesive enclosure ditches added on to the north-east side of the ditch circle to form what may be termed 'annexes' (Hinchliffe, fortcoming). At another Oxforshire Archaelogical Unit excavation carried out at Farmoor (Oxon) a number of ditch circles with associated annexe ditches were recorded during excavations in advance of the construction of a reservoir (Lambrick and Robinson forthcoming).

The interpretation of the function of these ditches varies at Mucking it is thought they served to dram away surface water from structures located inside the ditches (Jones 1974) whilst at Little Waltham the ditches were interpreted as wall trenches. (Drury 1973. 11). At Heath Farm the ditch of the two recuts were interpreted as wall tranches on the evidence of their steep-sided, flat-bottomed profiles (Rowley 1973, 32). whilst at farmoor it is thought that the ditch circles were open drainage ditches on the evidence of environmental samples recovered from their fills (Lambrick and Robinson, forthcoming)> It seem clear from the above that two equally valid interpretations of the functions of the Ashville circular ditches are possible. The kind of environmental evidence recovered at Farmoor was not available on the Ashville site but likewise few of the ditches had the kind of profile capable of supporting wall timbers. In the more completely excavated circles (13, 18, and 19) the depths of the ditches were irregular varying by as much as 0.35 from one side to another which may indicate they were dug for drainage purposes rather than for timber uprights which would require a fairly level base all the way around.

On the south side of ditch 13 where cut pit 157, five slakeholes were recorded cut into the fill of pit 157. The stakeholes were very sight and no evidence of stakeholes was recorded elsewhere in the ditch although longitudinal section designed to locate them were excavated (Fig. 13) The ditch circle at Heath Farm also contained stakeholes in this case on the inside lip of the ditch (Rowley 1973, fig 3) The function of these stakeholes is not discussed in the Heath Farm report, but it does seem possible that the stakeholes are the survivors of a stake-wall round-house cut into the slightly softer fill of the earlier phase I ditch circle.

In a recent paper on Iron Age urban planning the problems of recognizing stake-wall structures have been discussed with reference to Danebury and South Cadbury where they survive in the hill-wash behind the ramparts and at Moel-y-Gaer where careful excavation in the unploughed interior of the hill fort has located twelve examples (Guilbert 1975, 214, 20). Such favourable conditions for survival seldom exist on gravel sites, an it may be that the only areas where they mat be found are in the softer fills of earlier features where the stakes would have been driven deeper. The five stake-

holes in the Ashville ditch may be part of the wall of the earlier phase structure associated with ditch 18 (Fig 12). this leads to the conclusion that the walls of the post-built huts were interspersed wit subsidiary stakes for additional support which is quite feasible on the Ashville site as some of the posts ate as much as 2m apart. In addition the post-holes of the phase 1 structure are missing on the south side, which might indicate that they followed the line of the later ditch 13 which would have removed them when it was dug

The fulls of all the ditch circles were remarkably similar being composed of uniformly grey loam and gravel with occasional fragments of limestone and in the case of ditches 13, 18 and 19, fragments of daub. There were no indications of an internal of external bank to the ditches which might have shown as a silt line in the ditch section The ditches contained a varied assortment of animal bones and pottery sherds which increased in number around the entrances to 19 and 13. An increase in finds around the entrance to ditch circles was noted at Mucking (Jones 1974. 194) and an from Ages site at Northampton (Williams 1974. 18). This would seem to indicate that domestic rubbish from the huts inside the ditch circles was thrown into the ditch by the entrance as the occupants emerged. This is a further indication that the ditches were open during the period of the occupation inside them.

Ditches 18 and 13 had additional areas defined by ditches to the south of them which ate interpreted as annexes enclosing subsidiary structures. A similar feature was recorded at Stanwick (Yorks) (Wheeler 1954, fig. 3) and at Hod Hill (Dorset) it was suggested that an annexe associated with hut 56 enclosed an additional area for stabling horses (Richmond 1968. 20 1). The post-holes inside the later of the two annexes ditch 45 indicate that structures stood inside it which may well have been for animals. Another ditch (180) which partially encloses the entrance to ditch circles 19 and 13 us too small to have contained structures. It is interpreted as the foundation for a lence which would have formed a windbreak around the entrance. A number of post-holes were located inside 180 and it seems possible that some of them may have formed an earlier or later windbreak whilst others may have been post-holes for an entrance gate Ditch 1020 had a length of ditch protruding from its south side (1120) which petered out c 3m south of the southern terminal of 1020. The propurse of this short length of ditch is difficult to interpret but it too may have been a foundation for a windbreak. Another length of ditch (1136) ran between ditch circle 1048 and ditch circle 1035. its relationship with these two ditches is unclear and it seems likely that it is associated with ditch 1049 as an annexe ditch

Post-Hole-Structures

large numbers of post-hole were recorded on the site with a concentration inside ditch 13 and its associated annexe. An interpretation of these post-holes is shown in Fig 12. this consists of a 10.5m diameter circular structure replaced by a 5.5m diameter circular structure which in turn is replaced by a similar structure on a slightly different alignment inside ditch 13 inside the annexe a circular 8m diameter structure us replaced by two successive rectangular structures. Few finds were recovered from the post-holes and any interpretation of the structures they represent us of necessity subjective. It would seem likely however that the 10.5m diameter hut with its post-holes around the inside perimeter of the circle be correctly associated with the first phase ditch 18. if the post-holes of this hut were related to the later smaller diameter circles 19 and 1.3 they would have been situated too near the lip of the ditch to have formed a secure structure.

The two smaller huts inside ditch 13 are located to the right of centre with a possible narrow entrance on the cast side. The hearth (feature 159) is located close to the north sides of the two smaller huts and it may be contemporary with just the earlier larger hut. A possible interpretation of the structures inside the annexe is also shown in Fig. 12, a circular building and two later rectangular buildings.

Evidence of other post-hole structures was found inside ditch circle 1020 (Fig, 5) and ditch circle 1035 (Fig. 17). None of the post-holes inside 1020 was excavated but it seems likely that some of them formed an oval structure measuring c. 6m cast west by 51m north south. The eight post-holes inside ditch 1035 form an oval building with a diameter of between 6.5 and 7m. The post-holes had the usual fill of grey gravelly loam (Fig. 18) with the exception of 1043 1 which had a charcoaly fill derived from the Bronx Age cremation into which it was cut.

I he noticeable feature of the structures discussed above is the variable width and depth of their post-hole. The variations in width may be explained by the recutting of post-holes leaving no trace in the sections or by variations in the diameter of the posts. The variation in depth may be the result of using differing lengths of timber for the major posts of the bullding on the principle that it is easier to dig a post-hole a little deeper than to cut all the posts to the same length.

In the south-west corner of the 1974 excavation a number of recut post-hole of similar dimensions were excavated sonic of which form a four-post structure c. 2 m square (Fig. 4). Since Bersu's interpretation of four post structure as above-ground granaries (Bersu 1940. 97 8) settings of four posts usually of large proportions and often recut have been accepted as being granaries. A survey of four-post structure has been published in reports on excavations at tollard Royal (Wilts) (Wain right 1968. 112 6) and at Grimthorpe (York) (Stead 1968. 157 9). and the Ashville four-post structure is similar to examples in the survey. Following excavations at Credonhill Camp (Herefs) it has been suggested that four-post structures found there were in fact houses (Stanford 1970. 108 13) and in a paper published in 1971 a number of alternative interpretations was suggested for the function of such structures including watch towers work sheds and fighting platforms (Ellison and Drewett 1971 185 9). These interpretations may be valid for some sites, but in view of the evidence for cereal production and processin g on the Ashville site (p. 108) the most straightforward interpretation for the structure is that it was a granary.

The absence of post-hole structures inside many of the ditch circle may be explained by the destructive action of ploughing on the archaeological features in the case of the 1974 excavation and by the removal of shallow features like post-holes during the contractor's stripping of the 1976 area. The fact that some post-hole structures survived both of these factors as in ditch circles 1020 and 1035 and inside circles 13. 18. and 19 may Indicate that these structures were more substantial with deeper post-holes than the others. Alternatively the other structures may have been constructed by methods which leave little or no archaeological trace such as sill beam or turf wall constructions. or as suggested for Heath Farm (p. 34) by stake-wall buildings. Another possibility is that when the circular ditches were dug the spoil from then was piled up inside to form a building platform as is common on deserted medieval village sites. If this was the case it

would raise the hut floor above ground level, removing the danger of flooding from surface water, and gravel from the ditch excavation could be used to form a floor surface. With the greater thickness of soil above natural there would be no necessity for the post-holes of the structure to penetrate into natural.

Period 3

This period of Iron Age activity is represented by a number of linear ditches which overlay the earlier ditch circles. These ditches define what appears to be a system of small squarish fields laid out on a NNE-SSW alignment. Similar features have been identified in great numbers on the Berkshire Downs and other areas from aerial photographs where the edges of the fields are usually defined by lynchets (Rhodes 1950. 2) and not by deliberately dug ditches.

In only two instances was it possible to define securely all four sides of a field on the Ashville site. One field bounded by ditches 134. 392, 1024. and 1030 enclosed a rectangular area c. 32 m by 27 m. To the north of this field was a quadrilateral field measuring c. 37m north south and over 40m east-west. Other fields were located to the south and east of these two but their dimensions could not be determined. The size and shape of the Ashville fields resembles the fieid form defined by Bowen as small square fields less than half an acre in size (Bowen 1961. 22). The shape of the fields is thought to be determined by the practice ofcross-ploughing with a light ard for which a squarish field is the most economic unit (Cunliffe 1974. 17). The remains of such an ard were excavated from Roman well 30 and arc reported on below (p. 83).

The most substantial of the ditches was 134 which was deeper and wider than the others and which showed some evidence of primary silting. For the most part the remaining ditches had an homogeneous fill and showed little evidence of silting. There was no evidence of hanks associated with the ditches, but it seems probable that the spoil excavated from the ditches would have been piled up along the edge of the ditches to form an additional barrier or boundary marker. The wide entrance gaps into some of the fields as. for example. between the northern terminal of 392 and the terminal of 1134 (Fig. 6) may have been necessary because of the existence of a bank on the south side of 1134.

The field system underwent changes during its period of use, as indicated by the recutting of some of the ditches and the blocking of the entrance gap between ditch 134 and 103 by ditch 27. These changes may have been caused by differing farming practices or possibly by a change of ownership. The contemporary pits indicate occupation in the vicinity of the excavated area but as the few late pits are found all over the site it is not possible to detect any bias which might indicate the direction of the settlement.

Romano-British period

The Romano-British features are similar to the late Iron Age features, consisting of part of a field system and a few pits and wells. In the west part of the 1976 excavation area more field ditches were laid out alongside the late Iron Age ditches (Fig. 5). Ditch 1018 was more or less parallel to the late Iron Age ditch 1024 and forked at its south end, one branch of the ditch running parallel to another late Iron Age ditch 1030. At the north end of ditch 1018 were two more ditches at right-angles to 1018, forming a small field 10m north--south by at least 15m east- west. It is evident that only a small portion of this field system was uncovered during the excavation and any interpretation of the ditches is based on incomplete evidence. What was uncovered bears a resemblance to Roman features uncovered at Berinsfield (Oxon) in 1974 where small paddocks were bounded by ditches (Miles. forthcoming). Excavations to the north-east of Abingdon during 1972 6 have uncovered similar small paddocks associated with several Roman buildings at Barton Court Farm (Miles, forthcoming). Other Roman features on the siteconsisted of two wells. two pits, and some patches of cobbling and a spread of stone which may be Roman in date.

Taken all together the Roman features identified during the excavations suggest fairly intensive Roman occupation in the neighbourhood of the carlier Iron Age settlement with the possibility of continuity of use of the fields as suggested by the similar alignment of some of the Iron Age and Roman ditches. Further evidence for Roman occupation is indicated by the presence of the Roman cemetery to the south of the site (Fig. 2 and p. 23) and Roman structures are indicated by the presence of Roman roof tiles in well 30.

The pottery evidence from the Roman features (p. 74) suggest that the romanization of the site commenced in the 1st century AD and occupation continued into the 3rd century AD

The Roman cemetery

The eight east west burials may be Christian because of their orientation and are probably 4th century in date. The three north south burials may be pre-Christian or simply non-believers!

Despite the difficulties experienced in recoding a site under salvage conditions it us possible to make a few comments on the cemetery. There are two rows of graves, on a east west axis and another burial (10) which may, have formed a further row to the south (Fig. 24). Four of the graves (1.2.4.5) are fairly evenly spaced, which may indicate that the cemetery was planned and that the graves were marked in some way, It seems likely from the plan of the cemetery that only a portion of the graves has been disturbed by the construction work and although the ditch to the west of the west of the graves may define the boundary on that side the full extent of the cemetery is uncertain.

The cemetery excavated at Barrow Hills. Radley, where the total number of burials was 35, seems comparable to the Ashville cemetery (Alkinson 1953, fig. 15), as does the cemetery excavated recently at Lynch Farm. near Peterborough. Where 50 inhumations were recorded (Jones 1975, figs. 3 and 4). At both these sites the cemeteries are associated with Roman field systems as at Lynch Farm or with field systems and a Roman villas. as at Barton Farm some distance to the south-west of Barrow Hills (Miles, forthcoming). In view of the north of finds made during the formal excavation to the north of the cemetery (p. 00) and the evidence for the association of small rural cemeteries with villas and farming establishments as discussed above and in the Lynch Farm report (Jones 1975, 135 6) it seems probable that the occupants of the Ashville cemetery were the late inhabitants of a villa which was located near the Ashville site.

Additional support for the suggestion made above that the three north south burials arc non-Christian is the presence of the small 'Oxfordshire ware' beaker (Fig. 54) carefully placed to the cast of the skull of burial 11 and obviously Intended for use in the afterlife. The other significant non-Christian practice is the mutilation of the

body by severing the head as in the case of burial 3. This practice is not uncommon in the Roman period and was noted at Bloxham (Oxon) (Knight 1938, 44n) and at Cassington *(ibid.)* during the excavation of small Roman cemeteries and two examples were recorded at Barrow Hills (Atkinson 1953, 32 4).

The pit burial

The burial in pit 62 represents a recurring phenomenon on Iron Age sites which sometimes has the appearance of a formal burial in a somewhat unusual setting as at Ashville or a less formal method of burial like Beard Mill. Stanton Harcourt, where the remains were dismembered and deposited in a partially filled pit (Williams 1951, 14). The problems of death and burial sites in the Iron Age have been discussed recently in two major works on the period (Cunliffe 1974. 287 95, and Harding 1974, 113 26) and both authors refer to the practice of pit burial.

Harding has suggested that this type of inhumation may have been reserved for criminals or social outcasts who were denied the normal funeral practice. whatever (that might have been (Harding 1974. 113). Cunliffe takes the view that such burials demonstrate a lack of' respect for the dead but in certain instances may have had a 'ritual significance' (Cunliffe 1974. 292). The positioning of the Ashville burial in a location where it partially blocked the entrance to the annexe defined by ditch 73 (Fig. 4) may be taken as indicating a ritual function for the pit burial as similar deposits in entrances have been noted in other sites *(ibid.* 292).

The ramains of over 50 individuals have so far been recovered from pits during the extensive excavations at Danebury (Hants) (information from Mr T Ambrose) and out of a total of 70 pits excavated at Christon (Som) during excavations in advance of motorway construction. thirteen containded burials (information from Mr D Miles). The evidence from these two sites of the rather casual disposal of the dead. together with the presence of odd fragments of human bone in pits 69. 72. 79.388, and ditch 392 on the Ashville sites suggests a lack of respect for the remains of some of the dead in the Iron Age period. although whether these were deliberately denied an elaborate funeral ritual for social reasons is uncertain.

The infant burial

Infant burials are not uncommon in the Romano-British period on rural sites. The classic example being the Roman villa at Hambledon where 97 Were recorded (Cocks 1921. 150). Excavations at Barton Court Farm. Abingdon. have also produced large numbers. the total currently standing at over 60 (Miles. Forthcoming). It seems that infant mortality was high in the Roman period and babies who succumbed were buried in the nearest convenient spot. The Ashville baby was buried in the top fill of the late Iron Age ditch 392 and although no finds were associated with the burial its stratigraphie position suggests it is Roman in date. If this is the ease the burial together with the evidence for Roman structures discussed on p. 36) is a further indication of Roman occupation in the vieinity of the site.

Animal bones

In certain instances the burial of complete animal skeletons and in particular animal skulls on Iron Age sites has been interpreted as having a ritual significance. At Blewburton Hill. Harding has argued that various horse skeletons buried in the hillfort entrance were 'foundation burials' (Harding 1972, 70) and the burial of two horses in a pit, minus their forelegs, was excavated during the Oxfordshire Archaeological Unit excavation at Farmoor (Lambrick and Robinson, forthcoming). During excavations in Abingdon two horse skulls were recovered from an Iron Age pit and here again it was suggested that the skulls represented a 'ritual' deposit (Mites 1975. 88). Other 'ritual' burials wet-c recorded at Twywell (Northants), comprising a dog and a pig in separate pits and two pigs and a dog together in one pit (Jackson 1975, 60).

At Ashville the notable animal burials consisted of a young dog in pit 63, a two-year-old dog in ditch 103, a ewe in pit 82, the skull of a bull in pit 114, and the skull of a bull or castrate animal in pit 71. In the case of the complete animal skeletons there seems no reason why they may not represent the remains of animals that died and were disposed of' in a convenient pit or ditch. The skulls may represent something more than just casual disposal of animal remains in view of the evidence for the cult of the buff in the Iron Age (Ross 1974, 384 90) and for the cult of the head *(ibid.* 94 171).

Other remains of cattle skulls were recovered from pit 233 and from ditch 392, and calf skull fragments wet-c found in pits 288 and 303. The skull from pit 71 was probably skinned and the horns removed from the cores, and the horns may have been struck of the skull from 233 which also had a knife cut on the muzzle. There were no signs of butchery on the skull from 114 but the skull from 392 did show evidence of butchery.

It is quite possible that the cattle skulls from the Ashville site were regarded as rubbish to be disposed of in a convenient pit as has been suggested for the animal skeleton. The evidence for skinning and butchery on the skulls suggests that they were not considered to have any special significance. Against this interpretation is the evidence for the careful positioning of the two most completely preserved skulls from pits 71 and 114. Cattle skulls in similar positions in disused pits are a notable feature of the excavations at Danebury (Hants) (Cunliffe. forthcoming). Where it has been possible to examine a much larger sample of pit\. If it had been practical to examine a comparable area on the Ashville site it might have been possible to say whether the skulls represent a recurring phenomenon with a ritual interpretation or merely a chance occurrence.

Domestic industry

The archacological evidence from Ashville suggests that, addition to farming, small-scale weaving. leather working and metal working were practised on the site.

As well as the illustrated objects associated with weaving other finds which were probably) used in the process are discussed below and consisted of two sheep metatarsal from) pit 16 and ditch 273 and four sheep metacarpals from ditches 26, 122, and 392, and pit 453. These bones were all highly polished and had grooves near each end as though caused by heavy wear. A typical example from ditch 392 is illustrated (Fig. 61. No. 39). Similar worn bones were recorded at Maiden Castle (Wheeler 1943. pl. XXXV A.4 and 5) and at Farmoor and Barton) Court (information from Mr R Wilson). Bones with similar grooves found on medieval sites are interpreted as pin-beaters (cf. Hassall 1971. fig. 6. No. 2). These implements were used to beat up the weft on to the warp during the weaving process and the medieval examples have pointed ends to facilitate their insertion

between the warp threads. The examples from Ashville are not pointed but with a vertical warp-weighted loom as used in the Iron Age the slight tension on the warp would have allowed easy insertion of the pin-beaters. The grooves are presumably caused by rubbing against the warp when the implement was being used to beat up the weft and the polishing is probably the result of constant handling.

Other items associated with weaving were fragments of triangular clay loom weights from ditches 13 and 273 and from pits 37, 43, and 233. (For an illustration of this type of weight and the method of use see Harding 1974, fig. 21). Some of the illustrated bone objects (Fig. 60, Nos. 34, 35) may have been used as shuttles and the spindle whorls (Fig. 59, Nos. 22, 23) were used in the spinning process. The three bone combs (Fig. 59, Nos. 24, 25, 26) were also probably used in textile production but their exact function is uncertain. Most probably they were used for combing out wool in preparation for spinning but they may also have been used as pin-beaters and possibly for plucking the wool from the sheep.

The small bone needles from the site (Fig. 60, Nos. 27-32) may have been used to sew the finished cloth into garments and may also have found a use in leather work. The bone awls (Fig. 60, Nos. 37, 38) were perhaps also used in leather working. There is certainly evidence of animals being skinned at Ashville (p. 137) and it seems likely that hides were processed into leather goods on the site.

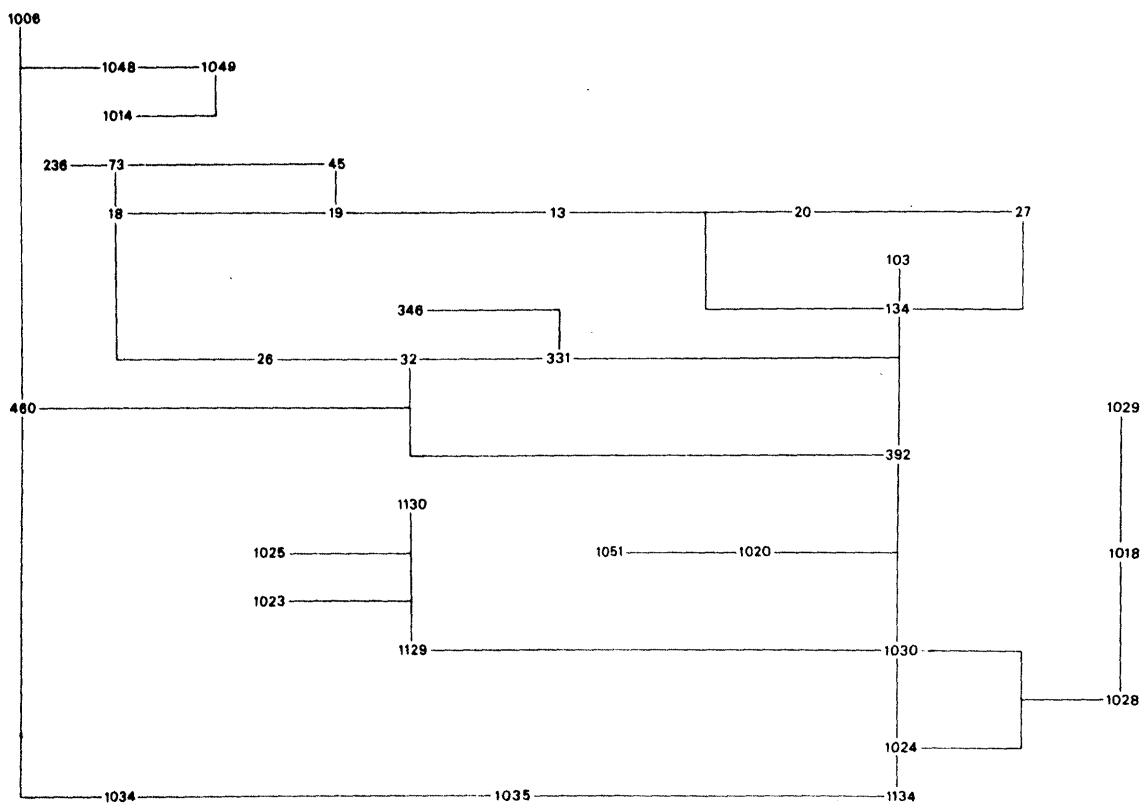
The evidence for metal working consists of two smiths" working hollows (features 60 and 313) and a number of fragments of slag of Iron Age and Roman date. Mr Henry Cleere has kindly contributed a report on these two features and the slag (p. 88).

Evidence of metal working was identified at City Farm (Oxon) where metal-working pits similar to those at Ashville were excavated (Case 1964, 42-4). Similar features were found at Cassington (Oxon) (note in *Oxoniensia* **2** (1937), 201) and at both sites the associated pottery dates the features to the early Iron Age. The two .Ashville metal-working features are also early, F60 having a radiocarbon date in the 6th century BC. The slag fragments indicate both iron and bronze working and it may be that some of the iron tools (Fig. 58, Nos. 5, 6, 7) were manufactured on the site. In addition various unidentifiable fragments of iron and bronze were recovered from the Iron Age features representing the remains of metal artifacts which may also have been made on the site.

If, as suggested in the pottery report (p. 69) the pottery requirements of the Ashville community were also home-produced it would seem that the inhabitants of the site were virtually self-sufficient, producing their own textiles, leather goods, metal and bone tools, and pottery, and perhaps producing a small agricultural surplus to trade for items they could not produce themselves.

The layout of the settlement

It is evident from the site plans (Figs. 3, 4, 5 and 6) and the flow diagram (Fig. 30) that not all the Period 2 ditch circles are contemporary. It has not however been possible to decide from the pottery evidence in what sequence the ditches were dug. The stratigraphic evidence indicates that some of them are early and some late, but not which of them are contemporary. If it is assumed that



30 Flow diagram showing stratigraphic relationships between ditches, earliest features on the left

ditches cut by other ditches are the earliest, ditches 13, 32, 280. 1014, 1023, 1025. 1034, and 1048 would be the earliest Period 2 features. In addition ditch 1020 with its large number of recuts may have been in existence at an early date. If the ditches which cut the earlier ones are then listed, this gives us ditches 273, 331, 1035, 1049, 1129, and 1130, which is probably a recut of 1129 or vice versa. This order, which may also include ditch 1020, leaves two anomalies. Ditch 20 which cuts 13 and is cut by 273 comes between the early and late phase and ditch 1051 is Inter than the late-phase ditches 1129 and 1130. The presence of the two anomalous ditches indicates that the sequence of occupation on the site is more complex than the two phases tentitively suggested so far. It also seems likely that the occupation of some of the ditch circles may overlap as the varying number of recuts indicates that they were in use for varying periods of time.

Some of the ditch circles seem to have a linear arrangement and it seems possible that they may have been laid out in rows on an approximate north south alignment. Ditches 273. 331, and 1035 form one such row with an earlier row consisting of ditches 32, 280, and 1034. A few metres to the west of these features are two more rows comprising ditches 1020, 1025, and 1048 with a later row on the same alignment consisting of ditches 1020 (again), 1025, and 1049. These 'rows' are separated by a c. 6-7m wide strip of ground which is relatively free of contemporary features, and it is tempting to regard this area as a road or trackway between rows of houses. Further support for this idea is added by the presence of ditch 392 (part of the Period 3 field system) which follows a similar alignment to the trackway and may be interpreted as following the line of a pre-existing boundary. An explanation of how the ditch circles which are not in rows fit into the scheme outlined above may be that a combination of planned and orgnic growth in the layout of the settlement resulted in regular rows of structures with earlier and later appendages.

Recent excavations on Iron Age site at Danebury (Cunliffe, forthcoming) and at Moel-y-Gaer (Guilbert 1975) have shown that planned settlements existed in the Iron Age. At both sites regular arrangements of rectangular structures were recorded and at Moel-y-Gear circular houses were laid out in two zones (or rows) separates by a broad space free of round-houses which may have served as a street or trackway (Guilbert 1975. fig. 1). This layout is similar in appearance to Ashville and supports the interpretation of part of the site as a planned settlement.

One possible parallel to the Ashville complex in the Thames Valley area is the Dyke Hills cropmark site 6 miles (10km) to the east of Ashville. This site is interpreted as an Iron Age promontory fort (Benson and Miles 1974, 91. fig. 17) and consists of a large number of penannular ditches; some aligned in rows and many with apparent eastern entrances (Harding 1972. pl. 36). The site is enclosed on two sides by a bend in the river and on the other side by the dykes which give the site its name. With the exception of a 19th century section through the Dykes no excavation has taken place on the site, but the interpretation of the features within the fort as comprising an Iron Age settlement seems likely.

The Ashville site has no natural river defences but did have an uninterrupted view of the Ock valley to the south, which would give good defensive control of that area. In addition a substantial bank was recorded to the north of the site in 1971 during fieldwork in advance of the construction of the Abingdon bypass. The bank was aligned in an east west direction c. 50m north of the most northerly hut site (Fig. 2) and when recorded was c. 6m wide and 1.2m high (information from Mr W Skellington). No evidence of the date of the bank was recovered and the remains of the feature were completely destroyed when the field was levelled in 1974. Despite the uncertain date of this feature it seems possible that it may be contemporary with the Iron Age settlement and perhaps have formed a northern defensive boundary.

The evidence of planned and intensive Iron Age occupation strengthens the resemblance between Dyke Hills and the Ashville site. It has been suggested that the Roman town of Dorchester was the 'urban successor' of the Dyke Hills Iron Age settlement (Benson and Miles 1974, 91). This suggestion provokes the thought that Abingdon, despite the uncertainties that surround its status in the Roman period (Parrington and Balkwill 1975, 14 16), may have been the Roman successor to the Ashville Iron Age settlement.

Having compared Ashville to the Dyke Hills complex, however, it should be reiterated that no excavation has taken place within the 'Dykes' and only excavation can demonstrate if the popular interpretation of the complex is correct.

The radiocarbon dates and relative chronology of the Iron Age features

In an endeavour to discover the duration of the Iron Age occupation and to put relatives dates to some of the ceramic assemblages. seven samples from the 1974 excavation were submitted to Harwell for radiocarbon dating. These dates are listed below in numerical order of feature. In view, of the lack of agreement on a satisfactory bristlecone pint calibration no attempt has been made to apply it here.

Harwell Ref.	*Feature No.*	*Age BP*	*Age BC/AD*	*5730 Half-life Calibration*
HAR-1248	13	3360 ± 130	1410 BC	1507 BC
HAR-1333	13A	1870 ± 80	AD 80	AD 26
HAR-1332	32	2050 ± 70	100 BC	159 BC
HAR-1100	37	2170 ± 70	220 BC	283 BC
HAR-1247	60	2470 ± 70	520 UC	592 BC
HAR-1249	73	2970 ± 80	1020 UC	1106 BC
HAR-1334	392	1900 ± 90	AD 50	5 BC

The samples from features 13A, 32, and 392 were of animal bone, the sample from 37 was carbonized grain. and the samples from 13, 60, and 73 were carbonized gain and charcoal. It is clear that there is quite a large disparity between two of the dates and the remaining five. The reason for the disparity is uncertain but It seems unlikely that 13 and 73 are so much earlier than the other features. The sample from 13 was rather small and gave an unsatisfactory result during combustion in the laboratory. As a check a sample of animal bone from the same feature (sample 13A) was sent for analysis and yielded a date c. 1500 years younger than the first date for feature 13. This then indicates that the first date for feature 13 may be safely disregarded, especially as the feature cut pit 37 which has a radiocarbon date in the 3rd century BC.

The other anomalous date, from ditch 73, creates more of a problem as the sample gave a good determination so far as the laboratory was concerned. It may be that material from the earlier Bronze Age features on the site have contaminated the sample or that variations in the atmospheric radiocarbon content combined with the possibility of contamination have created the disparate date.

The remaining dates combine more conventionally with the accepted chronological framework of the Iron Age. The 6th century date for feature 60 accords well with its pottery assemblage and the 3rd century date for feature 37 is in keeping with its ceramic content. The 2nd century date for feature 32 fits into the chronology of the site and the new half-life calibrated date for feature 392 is strengthened by its association with wheel-turned late Iron Age pottery (p. 67). The 1st century AD date for feature 13A is slightly anomalous but is within one standard deviation of feature 392 which is stratigraphitally later. The only other dating indicator for the Iron Age features is the bronze La Tène 1 brooch (Fig. 59, No. 11) from pit 79 which may have been in use in the 4th century BC (Cunliffe 1974, 144-6).

It would appear then, that Iron Age activity commenced on the site in the early Iron Age and may have been continuous until the Romano-British period.

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The Finds

The Iron Age pottery

By C D DeRoche

Introduction

The bulk of the Iron Age pottery from the Ashville site displays great variety in the manufacturing processes and in the finished products. The earlier phases especially lack standardization. As the sequence progresses, more careful clay preparation, vessel formation, and finishing techniques, and greater control of the firing process result in clearer and more numerous distinctions and fewer gradations between types of fabric, vessel form, and surface treatment. Both coarse and fine wares were produced locally to meet all the needs of the site's occupants. Imported vessels are not common until the last phase, when, under Belgic influence, shapes and fabrics foreign to the area appear.

Some 8000 sherds from 230 features have been examined and quantified according to fabric type (measured by weight and by number of sherds) and vessel form type. The pottery from selected, usually well stratified features is illustrated and described to provide a comprehensive representation of the ceramic tradition at Ashville. These assemblages have been used as standards of vessel form and fabric percentages for comparison with unstratified features. The sequence so established will, it is hoped, be of some value for comparison with other pottery of the period from this region.

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Hedges, of the Research Laboratory for Archaeology. Dr David Peacock's advice on the identification of inclusions in the fabrics was very helpful. Mr Roger Thomas brought to my notice the Abingdon material mentioned on p. 73. The guidance of Professor Barry Cunliffe on all aspects of the report has been invaluable. My appreciation extends to all of the above persons.

Definition of Types

Fabric

Attempts to identify the pottery fabrics found on the Ashville site were impeded by the great range of types, sizes, and amounts of inclusions in the clay, not all of which were readily identifiable. A two-fold division has been used, both categories of which may in future be further subdivided. based on the presence or absence of calcareous grit. The term 'grit' is used in this report to mean any inclusions in the clay body, regardless of source. Temper is defined as material deliberately added to the clay. In some cases it is possible to distinguish between the two. for example by the grain size or relative abundance (Shepard 1964, 161).

Fabric 1 includes all sherds with significant amounts of' calcareous inclusions. usually recognizable as shell Significant amounts are defined as abundant inclusions of' large size (5 to c. 15mm) or very dense distributions of smaller size (c. 2mm). Infrequently the full range of shell particles sizes is found in one sherd. It is more common to have either relatively large pieces which retain some of the original shell shape or a fairly dense distribution of flat and plate-like fragments. usually less than 3mm long. Fabric 2 cm braces all those sherds without these significant quantities of calcareous material and is usually, although not always. of a sandy texture because of' quart/ grains in the clay. Fabric 2 may contain calcareous material but not of' the amount defined as significant. fabric 1 may be difficult to recognize when the surface shell has leached out after deposition (Jope and Threlfalt 1959, 246). Surface pitting and plate-like voids are indicative in these cases.

Both fabrics may contain one or more of the following in varying quantities: grog (here defined as particles of fired clay. not necessarily derived from pottery). plant material (most of ten detected as voiced of characteristic shapes). grave pebbles. and very occasionally. angualr flint and limonite. It is on the basis of these inclusion that further division in the fabric types may be made.

Colour here is largely dependent on the clay, composition. tiring condition. and subsequent fate of the pot none of which factors was standardized at the ashville site.

Colours vary from buff through orange. red. and brown. to grey) and black. sometimes in one vessel. It is not unusual to find that because of incomplete oxidation the fabric core is a different colour from the surfaces. In descriptions of illustrations. Munsell Color designations are given for the exterior. interior. and core of each vessel. It would be misleading to apply colour as a criterion for classification here, especially in the earlier phases when bonfire or hearth firing was almost certainly, the norm (Hodges 1964. 36). Hardness and texture are also very Lariable and have therefore not been used in the fabric classification. As a reference sample. the sheds recovered from the topsoil have been divided into the the fabrics and are available for examination. Also in the archive are records of the number of sherds of each fabric and the total weight of each present in every pottery-yielding feature.

Vessel form

For purposes of form classification, the pottery has been tabulated by feature according to a vessel type series. Following are the 21 categories illustrated by examples from Ashville. There is quite wide variation, even within types, due to the lack of standardization in pottery production and possibly also because of insufficient divisions where types were not recognized. Therefore the examples should be considered, in conjunction with the definitions, as being *within the range of forms* represented by each type. Suffix 0 denotes a form which is not sufficiently distinct to be assigned to a subdivision of its class. In these and subsequent illustrations, none of the vessels arc wheel-turned unless so stated. Abbreviations used include E (exterior surface). I (interior surface), and Bk (the section seen in a break).

A0 Vessels with expanded rims. The rims are thicker than the pot walls and may be flat. convex, or grooved, perhaps possessing some plastic or finger impressed decoration. (There are no illustrations of this type because it has always been possible to assign A-form sherds to one of the sub-categories.)

A1 Rims expanded toward the vessel interior.

A2 Rims expanded towards the vessel exterior.

A3 T-shaped rims expanded both internally and externally.

B0 Coarse-ware jars. Their height exceeds their width, and surfaces are not especially even or smooth. They generally have some neck constriction but do not belong to the angular(C), bead rim (G), sharply everted rim (H). or storage jar (L) categories.

B1 Jar forms having a slack shoulder, perhaps emphasized by finger impressions along the line of the shoulder.

B2 Globular jars with rounded or baggy profiles and short. upright or everted rims.

B3 Barrel jars with profiles regularly convex or incurving at rim. Rims usually plain. (Harding, 1972, 99).

C0 Angular vessels with one or more sharp changes of direction in the profile.

C1 Jars with either a distinct. carinated shoulder. a flaring rim or both. usually of a coarse ware.

C2 Bowls with a sharp angle at shoulder or neck or both. The surfaces, especially the exterior, may be burnished.

D0 Fine-ware rounded or globular vessels. with carefully smoothed or burnished surfaces.

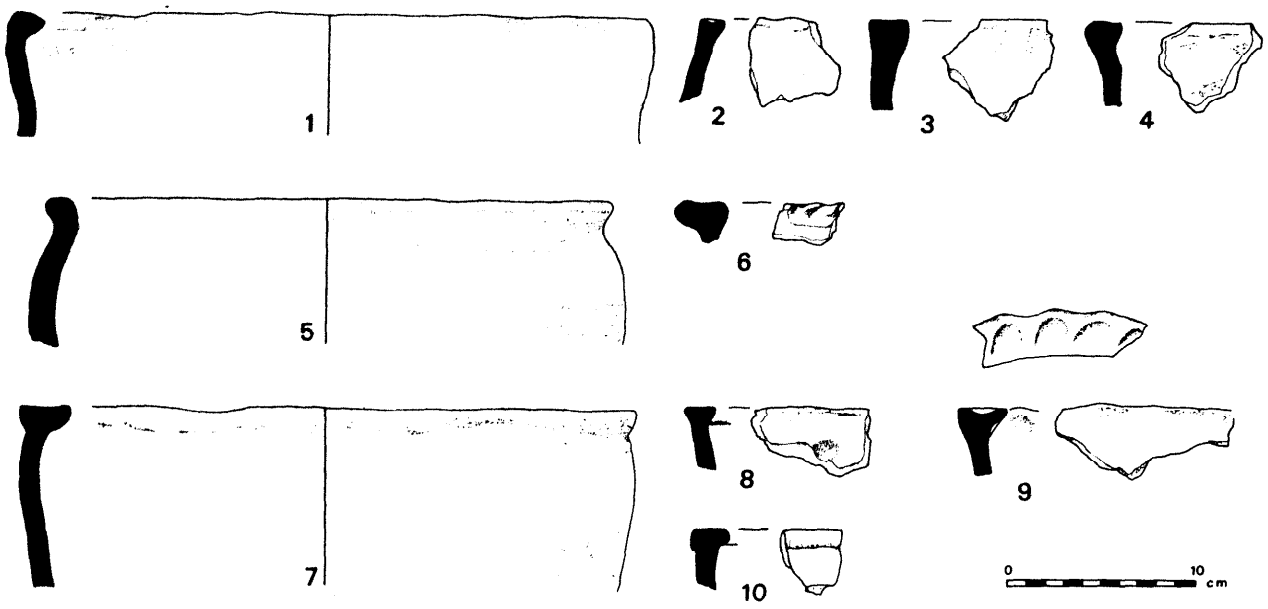
D1 Rounded bowls in which height is less than diameter but greater than one-third the diameter (Webster 1969. 9) with exterior and sometimes interior burnished. Incised or stamped decoration is sometimes present. Those D forms for which the height width ratio was unknown were assigned to category DO.

E Necked bowl with slightly rolled, sometimes everted rim. upright neck. high rounded shoulder, and sometimes horizontal neck cordons or grooves. These are usually well tired fine ware. nearly always wheel-turned, and often have footring bases.

F Butt-beaker. A tall beaker shaped like a butt or barrel, and having a small. everted rim; the vessel is usually decorated with cordons, rouletting, latticing, etc. and normally of' mid-1st century date. Some were Gallo-Belgic and others locally made (Webster 1969. 9).

G Bead-rim vessels with narrow mouth which are sometimes necked.

H Vessels with sharply everted rims, rolling out from short. constricted necks.



1 A1. Rim of a Coarse-ware jar with internal flange. Fabric 1 with abundant shell inclusions up to 8mm. E. weak red (10R 4/3) to very dark grey (5YR 3/1). I. reddish-yellow (5YR 6/6) and black (N2) with carbon deposits. Bk. black (N2). Pit 87.

2 A1. Inward-sloping rim with finger-impressed top, thickened internally. Fabric 1 with vegetable voids and shell fragments up to 7mm. E. reddish-brown (5YR 5/4). I. pink (7.5YR 7/4) and pinkish-grey (7.5YR 6/2). Bk. dark grey (N4). Surfaces wiped and with plant impressions. Pit 71.

3 A1. Rim, thickened internally, with flat top. Fabric 1 with abundant shell inclusions up to 10mm and some vegetable voids. E. mottled very dark grey (N3) over light reddish-brown (2.5YR 6/3) and roughly burnished. I. red (10R 5/6) and (2.5YR 5/6) and worn. Bk. grey (N5) core with surface layers as I. Topsoil.

4 A1. Flat-topped rim, internally expanded, on a slightly flaring neck. Fabric 1 with grog and abundant shell inclusions up to 7mm. E. reddish-grey (5YR 5/2) with carbon deposits. I. reddish-brown (5YR 5/3). Surfaces wiped. Bk. dark grey (N4). Ditch 32.

5 A2. Globular vessel with flat-topped, externally expanded rim. Fabric 1 with shell inclusions up to 10mm. E. light red (2.5YR 6/6) to reddish-brown (5YR 5/3). I. very dark grey (N3) and pitted. Bk. dark grey (N4). Pit 102.

6 A2. Flat-topped rim with external flange with diagonal finger impressions on external edge. Fabric 1 with shell inclusions up to 9mm. E. dark grey (5YR 4/1). I. light reddish-brown (5YR 6/3). Bk. as E. with surface layers as I. Pit 74.

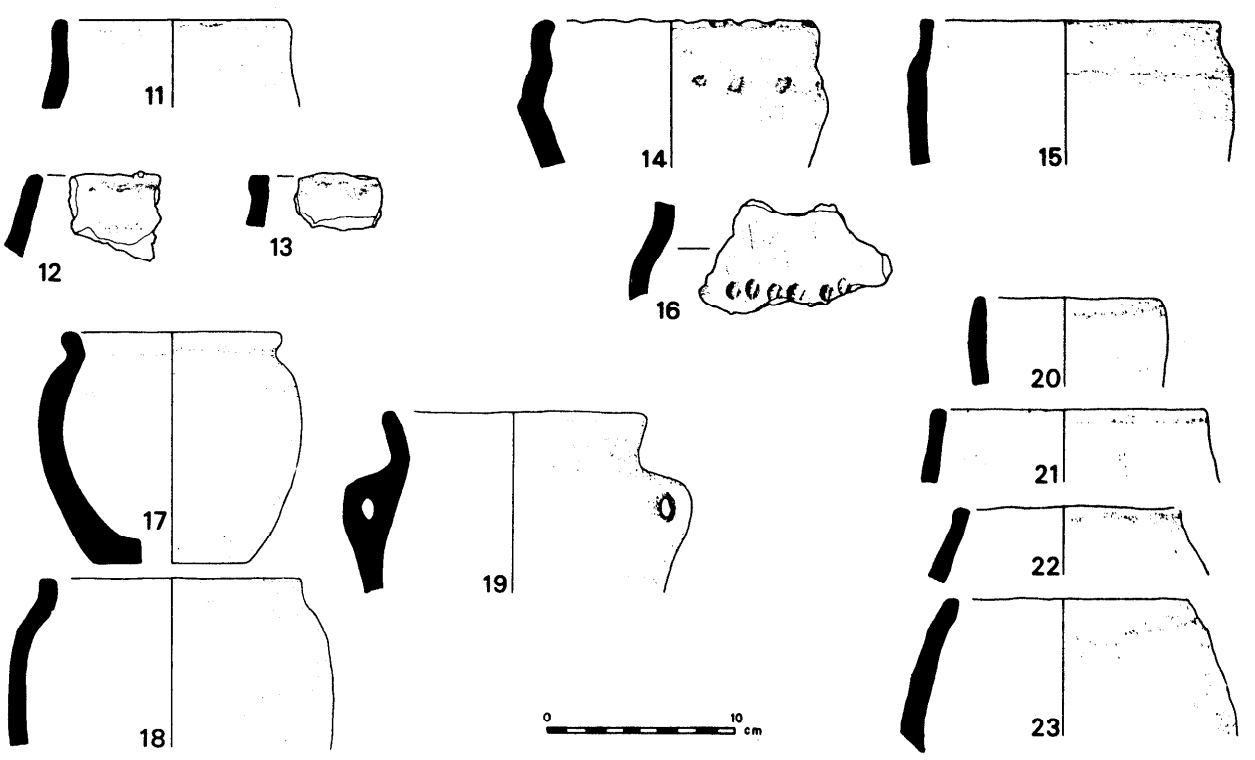
7 A3. Globular vessel with T-shaped rim. Fabric 1 with abundant shell and other calcareous inclusions up to 8mm. E. and I. reddish-yellow (5YR 6/6) with very dark grey (N3) areas externally. E. wiped, I. pitted. Bk. grey (N5). Pit 64.

8 A3. Flat-topped rim, expanded internally and externally, with a finger impression below the rim. Fabric 1 with shell inclusions and voids up to 10mm and some gravel inclusions. E. light red (2.5YR 6/6). I. and top of rim reddish-brown (2.5YR 4/4) to dark reddish-grey (10R 4/1). Bk. very dark grey (N3). Pit 16.

9 A3. Flattened rim, expanded externally with internal flange and thumb impressions on top. Fabric 1 with grog and shell inclusions up to 8mm. E. very dark grey (N3). Rim top light red (2.5YR 6/6. I. light reddish-brown (5YR 6/4). Bk. dark grey (N4).

10 A3. Flat-topped rim, T-shaped. Fabric I with shell inclusions up to 5mm and grog. E. and I. mottled reddish-brown (2.5YR 5/4), light reddish-brown (5Y R 6/3), and very dark grey (N3). Bk. dark grey (N4). Topsoil.

31 Iron *Age pottery: Form A (Iron Age pottery drawn by CD De Roche)*



11 B0. Upright, rounded rim of a coarse-ware jar. Fabric 1 with abundant crushed shell inclusions up to 4mm and some grog. E., I., and Bk. very dark grey (N3) with much visible shell on surfaces. Topsoil.

12 B0. Rounded rim of a coarse jar. Fabric 1 with shell and gravel inclusions up to 6mm. E. reddish-brown (5YR 5/4). I. and Bk. very dark grey (N3). Surfaces wiped. Pit 25.

13 B0. Upright, flattened rim of a coarse vessel. Fabric 2 with shell inclusions up to 11 mm. E., I., and Bk. dark grey (N4); surfaces wiped. Pit 25.

14 B1. Shouldered jar with slightly inturned rim. Finger impressions on shoulder and rim. Fabric 1 with shell particles up to 7mm, sparse gravel inclusions, and vegetable voids. E. mottled red (2.5YR 5/6) to very dark grey (N3). I. red (2.5YR 5/6). Bk. very dark grey (N3). Pit 79.

15 B1. Jar with shoulder pushed out from interior. Fabric 1 with calcareous inclusions up to 5mm. E. dark grey (10YR 4/1) to greyish-brown (10YR 5/2). I. dark reddish-grey (5YR 4/2). Surface smoothed. Bk. dark greyish-brown (10YR 4/2). Topsoil.

16 B1. Slack shoulder with finger-tip impressions. Fabric 1 with shell inclusions up to 6mm. E. greyish-brown (10YR 5/2) to light red (2.5YR 6/6). I. and Bk. dark brown (7.5YR 4/2). Topsoil.

17 B2. Globular jar with everted lip and thick wails. Fabric 2 with some calcareous inclusions under 1 mm. E. greyish-brown (10YR 5/2) to pale brown (10YR 6/3), vertically wiped and with carbon deposit at rim. I. greyish-brown (10YR 5/2) beneath carbon deposit. Bk. black (10YR 2/1). Pit 102.

18 B2. Globularjar with short, upright neck. Fabric 2, sandy with gravel inclusions u to 8 mm. E. and I. dark grey (10YR 4/1) with whitish deposit. Bk. very dark grey (N3). Dutch 1023.

19 B2. Globular vessel with rounded, everted rim and vertical lug handle. Fabric 1 with abundant shell inclusions up to 10mm. E. and I .: rim reddish-grey (5YR 5/2), body red (2.5YR 5/6) and worn internally. Bk. as surfaces. Pit 101.

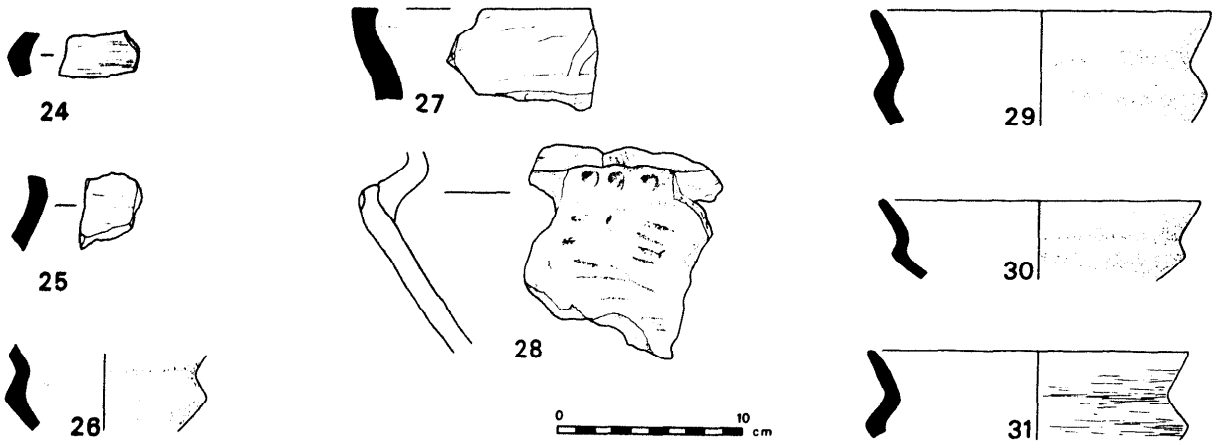
20 B3. Rounded rim of small barrel-shaped vessel. Fabric 2 with gravel inclusions up to 3mm. E. very dark grey (N3) with carbon deposits. I. very dark grey to light brownish-grey (10YR 3/1-6/2). Bk. dark grey (N4). Pit 327.

21 B3. Barrel Jar. Fabric 2 with gravel and infrequent shell inclusions. E. and I. very dark grey (N3) to pinkish-grey (7.5YR 6/2) and wiped. Bk. black (N2.5). Pit 80.

22 B3. Rounded, slightly swollen rim of vessel of incurving profile. Fabric 2 with sparse shell and gravel inclusions u to 10mm. E. dark grey (5YR 4/1). I. and Bk. very dark grey (N 3). Surfaces wiped. Pit 80.

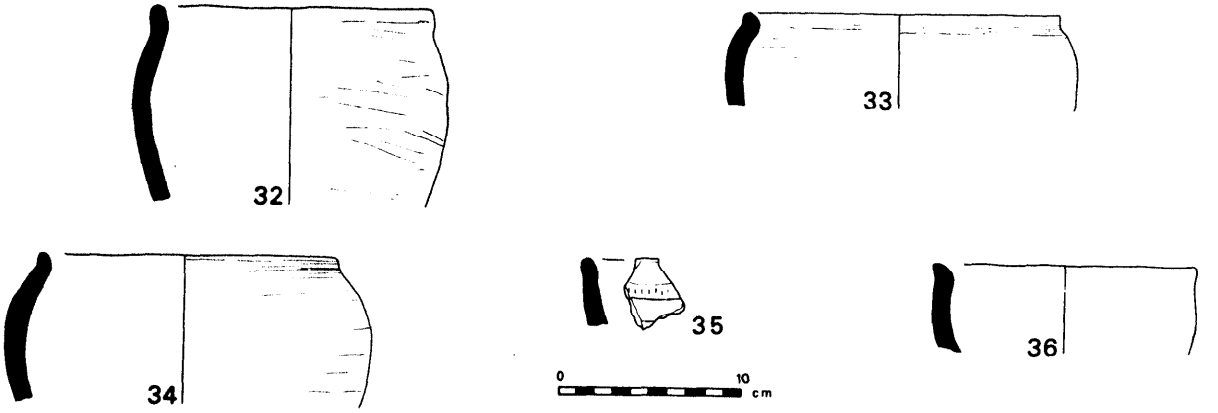
23 B3. Rounded, incurving rim of barrel-shaped vessel. Fabric 2 sandy with some plant voids. E. and I. light red (2.5YR 6/6). Bk. dark grey (N4) core with surface layers as E. and I. Pit 323.

32 Iron Age pottery: Form B



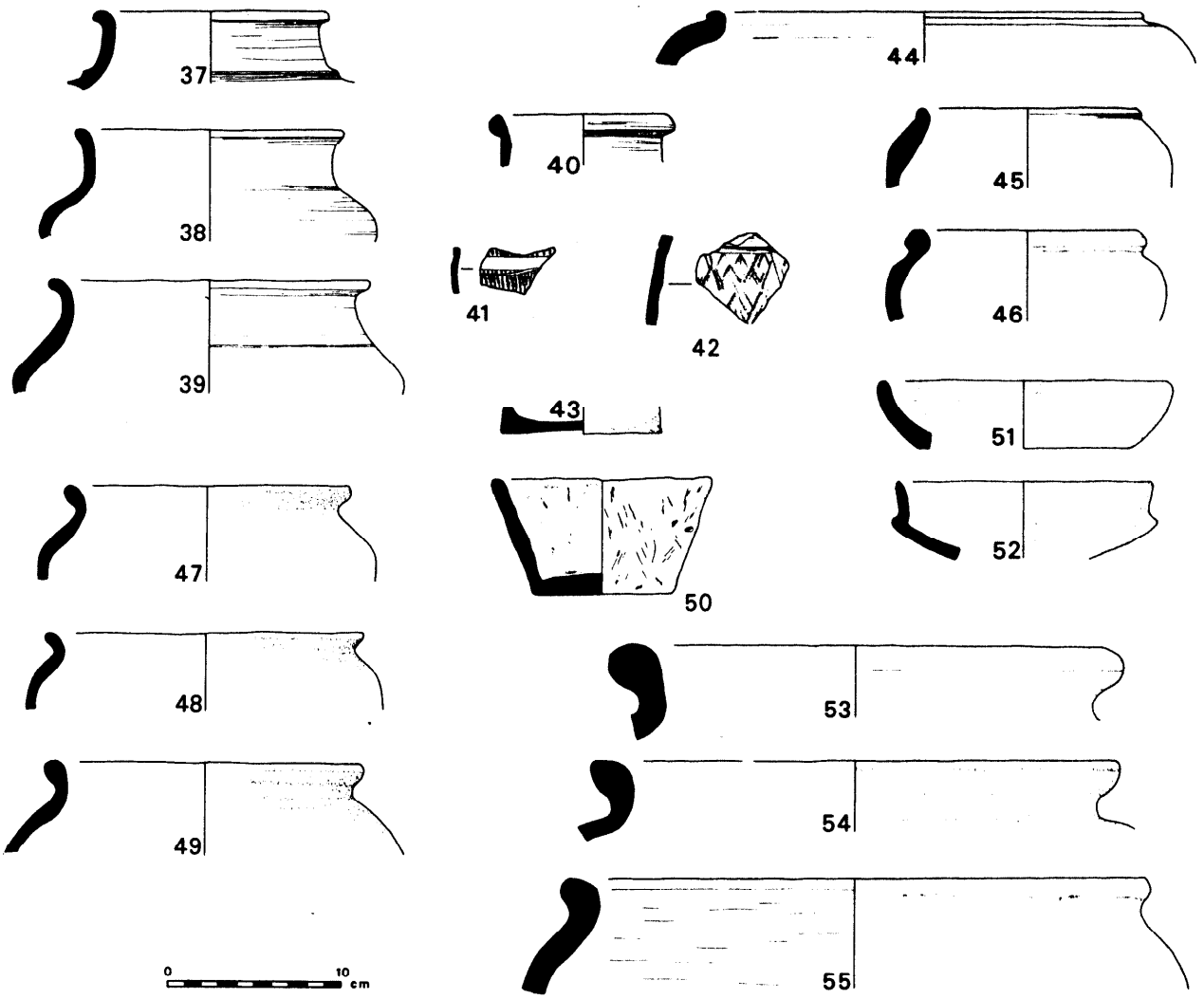
24 C0. Shoulder angle. Fabric 2 with grog and shell inclusions up to 2mm. E. very dark grey (5YR 3/1); burnished but worn. I. and Bk. very dark grey (N3). Pit 62.
25 C0. Neck of an angular vessel with flaring rim. Fabric 2, sandy with occasional grog particles. E. dark grey (5YR 4/1) and burnished. I. and Bk. dark grey (10YR 4/0). Pit 62.
26 C0. Neck and shoulder of an angular vessel. Fabric 2 with shell inclusions up to 2mm. E. and I. grey (10YR 6/1) and smooth. Bk. very dark grey (N3). Pit 16.
27 C1. Neck and rim, flat-topped and Baring, of large angular vessel with internal groove below neck. Fabric 1 with abundant shell inclusions, occasionally up to 5mm, and grog particles. E. reddish brown (2.5YR 5/4). I. weak reddish-grey (2.5YR 4/1). Surfaces wiped and with prominent shell. Bk. grey (N5). Pit 80.
28 C1. Shoulder and neck of large, angular jar, with finger-tip impressions along carination. Joining of clay visible in section. Fabric 1 with shelf inclusions up to 8 mm. E. reddish-brown (5YR 6/3) above shoulder, light brown (7.5YR 6/3) below and roughened with erratically slashed grooves. I. reddish-brown (2.5YR 4/4) to brown (7.5YR 5/3) and wiped. Bk. very dark grey (5YR 3/1) with reddish brown (2.5YR 4/4) external layer. Topsoil.
29 C2. Angular vessel with sharp shoulder and flaring rim. Fabric 2, fine sandy. E. and I. dark grey (5YR 4/1) an and smooth; I. burnished horizontally. Bk. dark grey (5YR 4/1) with reddish-brown (5YR 5/3) external layer. Topsoil.
30 C2. Shallow angular bowl with sharp shoulder. Fabric 2, fine sandy. E. red (2.5YR 4/8) worn away to reddish brown (5YR 5/3). I. dark greyish-brown (10YR 4/2) and worn. Bk. very dark grey (5YR 3/1). Topsoil.
31 C2. Angular bowl with sharp shoulder and flaring rim. Fabric 2 with grog and infrequent shell inclusions. E. dark reddish-brown (5YR 2.5/2) and burnished; rim and carination worn and reddish brown (5YR 5/4). I. reddish-brown (5YR 4/3); smooth but worn. Bk. dark reddish-brown (5YR 3/2). Topsoil.

33 Iron Age pottery: Form C



32 D0. Globular jar with rounded rim. Fabric 2 sandy. E. black (N2.5) to grey (5YR 5/1); burnished but worn. I. dark grey (N4). Bk. dark reddish-grey (5YR 4/2). Ditch 336.
33 D0. Globular vessel with external groove below rim. Fabric 2 with shell .fragments up to 1mm. E. and I. black (N2.5) with external area of reddish-brown (5YR 5/3); surfaces horizontally burnished. Bk. very dark grey (N3). Topsoil.
34 D1. Fine, globular bowl with short, rounded rim. Fabric 2 with calcareous inclusions under 1 mm. E., I., and Bk. very dark grey (N3). Surfaces burnished. Pit 453.
35 D1. Rounded rim of fine ware globular bowl with shallow tooled curvilinear decoration. Fabric 2 with quartz grains. E., I., and Bk. dark grey (10YR 4/1). Surfaces very worn, but with traces of burnishing externally. Pit 337.
36 D1. Slightly everted rim of a globular bowl. Fabric 2 sandy. E., I., and Bk. very dark grey (N3). Surfaces burnished but worn. Pit 1046.

34 Iron Age pottery: Form D



37 E. Everted rim and upright neck, with cordon at base, of a wheel-turned bowl, Fabric 2. E. and I. light reddish-brown (2.5YR 6/4) with external burnishing. Bk. grey (N6). Topsoil.

38 E. High-shouldered bowl with upright neck and rounded rim. Wheel-turned. Fabric 2. E., I., and Bk. black (N2) with burnished exterior and rim. Ditch 392.

39 E. Bowl with everted rim and groove at base of sloping neck. Wheel-turned. E. black (N2.5) to very dark grey (10YR 4/1) and burnished. I. and Bk. grey (10YR 6/1). Topsoil.

40 F. Butt-beaker rim. Wheel-turned. Fabric 2. E. reddish yellow (5YR 6/6) and burnished. I. white (10YR 8/2). Bk. layered as E. and I. Pit 333.

41 F. Body sherd of a butt-beaker with vertical combing interrupted by a horizontal burnished band. Wheel-turned. Fabric 2 very fine ware, possibly an import. E., I., and Bk. pinkish-grey to white (7.5YR 7-8/2). Pit 347.

42 F. Body sherd of a butt-beaker with chevron-patterned cord impressions below a burnished horizontal band. Wheel-turned. Fabric 2 with sparse grog particles up to 1mm. E. and Bk. reddish-yellow (5YR 6/6). I. pink (7.5YR 7/4). Pit 337.

43 F. Slightly omphalos base, probably of a butt-beaker. Wheel-turned. Fabric 2 with quartz grains. E. and I. pink (7.5YR 7/4). Bk. white (N8). Pit 337.

44 G. High-shouldered jar with small bead rim. Wheel-turned. Fabric 2. E. grey (10YR 5/1). I. and Bk. very dark grey (N3). Ditch 392.

45 G. Vessel with constricted neck and everted beadrim, burnished above shoulder. Wheel-turned. Fabric 2. E. and Bk. black (N2). I. grey (N6). Ditch 392.

46 G. Globular vessel with grooved neck and moulded rim. Wheel-turned. Fabric 1 with calcareous inclusions up to 5mm. E. very dark grey (N3). I. grey (5YR 5/1) and worn. Bk. very dark grey (N3) with light reddish-brown (5YR 6/3) internal layer. Topsoil.

47 H. Globular vessel with rim rolled outwards. Wheel-turned. Fabric 2. E. dark grey (N4). I. grey (N6). Bk. layered as E. and I. Pit 333.

48 H. Vessel with rounded, everted rim. Fabric 1 with occasional shell particles and plant voids. E. and I. reddish brown (2.5YR 4/4) to very dark grey (N3). Roughly burnished exterior. Bk. very dark grey (N3). Topsoil.

49 H. Vessel with swollen, everted rim. Wheel-turned. Fabric 2 with vegetable voids. E., I. and Bk. dark grey (N4) with carbon deposits on exterior. Pit 1055.

50 J. Small vessel with straight sides, sloping slightly outwards, and plain rounded rim. Fabric 2 with prominent grog and a few shell fragments and seed impressions. E. and I. very dark grey (N3) to reddish-brown (5YR 5/4) and wiped with plant material externally. Bk. very dark grey (N3). Pit 101.

51 K. Shallow dish with rounded rim. Fabric 2 sandy. E. dark grey (N3) and worn. I. very dark grey (N4). Surfaces burnished. Bk. dark grey (N3). Topsoil.

52 K. Carinated dish with slightly flaring rim. Wheel-turned. Fabric 2 with quartz grains; hard. E. and I. ink (7.5YR 8/4) beneath very dark grey (N3) deposits. Bk. light grey (N7) with surface layers as E. and I. Pit 333.

53 L. Bead rim of heavy storage vessel. Wheel-turned. Fabric 2 with voids. E. light grey (10YR 7/1) to dark grey (N4) and burnished. I. worn away. Bk. grey (N5). Pit 333.

54 L. Flattened, moulded rim of a storage vessel. Wheel-turned. Fabric 2. E. and I. light grey (10YR 7/1) to grey (N5). Bk. grey (N6) with surface layers of reddish-grey (5YR 5/2). Pit 75.

55 L. Storage jar with internally bevelled rim. Fabric 1 with sparse shell inclusions up to 5mm and grog. Unusually hard and smooth-surfaced. E. dark grey (5YR 4/1) to light reddish-brown (5YR 6/4). I. very dark grey (5YR 3/1); roughly burnished but worn. Bk. dark grey (5YR 4/1). Topsoil.

35 Iron Age pottery: Forms E-L

Table II Distribution of forms from features with four or more classifiable forms

Under each form category the first figure is for vessels of fabric 1, the second for vessels of fabric 2

Feature	A1	A2	A3	B0	B1	B2	B3	C0	C1	C2	D0	D1	E	F	G	H	J	K	L	M	Period	% Fabric 1 based on count
13			2	7 4	2	7 6	2 3	1		1	1 10	2			1					2 11	2	31
16	1		1		1	3	1	3		1	1									4	2	34
18	1 1		2	1 1		1	2 1	2 1		1	4	1								3	2	43
19	1 1				1 3	1	4 2		2	2	1									3 4	2	38
20						3					3	4								2	2	12
25				1 1	1	1		2												3	2	43
26					2 2	1 1	1		1 1	2	1									3 6		42
27	2 1					2 3			1		13	1	14	2	5	2				2 4	3	14
32	1	1			3 4	1			2	5	1 5	1							1	3 6	2	45
37					1			1		2										2 1	1	75
38					1				1	2											1	60
45				1	1	1					2									1	2	28
48			3		1	3	2													1 1	1	59
60	1		1	1	1			1	2	1										3 4	1	56
62			1	1	2		1	4					2							6	3	32
65								1		1	1	1								2	2	21
69					2			1			1									1	2	57
71	2							1			1									4 5	1	70
74	3 1			1			1		1	1	1									3 1	1	68
75		1			2											1		1	1	2	3	37
79		1	1		2	1														3 8	1	70
80					3	1			2 1 1	1	2									1 3	2	38
82	2							2												1 1	1	81
84	1			1 1	2				1											3	1	72
87	1	1						1			1									1	1	88
90		1 1						1 1	1	1	1									1 2	1	56
101	1			1	1	2											1			2 2	2	59
102		1				1					2									3	2	19
103						1		2		2	6								1	2 2	3	18
114				2	3 1			5	3											6 4	1	65
124					1 1			1		1										1	1	59
125	1			1	2	1		1	1 4											3 4	1	69
134		1 2		1 3	1					2	6		2	1	1					2 16	3	20
180	1					1			2		1									1 1	2	50
233			2	2 1	1			7			1									1 6	1	60
273				2		1			2		1	1			2					5	2	20
279							2				5 1										2	17
280		2			1		1													3	2	22
308					1						3									2 1	2	40
313	3			2		2 3		2		1										1 3	1	58
315				1		1					4									1	2	24
323						2				1	2										2	16
327						1 2	1 1	1			4									4 6	2	33
328	1	2			1	3 2	1		1 4 1	3	2	2								4 17		41
333						2		1			1	2 1		1	2	1		1	1		3	15
336		1			2						1									1 3	3	26
337					1							1	1	1						2 2	3	18
338			1			1		1		2										2	2	34
340						2	1	1	1	3										1 4		44
341					1			3		1										1 4	1	65
347								2 1			1		1	1							3	13
355					1	1	1	1		2	2									2 2	1	48
361				1				2		2	2									1 1	2	42
389				1	1							3								1	1	20
392	1					3					2		32	3	12	11	1	1		16	3	4
433						6					3				1				1	2	3	27
453				1		1					1	2										0
472													1	1	2				1	1		**0**
1023					1 1					1	1									1 1	3	59

J Cup or beaker of upright sides and relatively small size, suitable for holding in the hands.

K Dish or platter. These shallow vessels have less height than bowls of similar diameter.

L Storage jars of large size and especially thick walls.

M Unclassified vessels. These are most often rim sherds which are too small to indicate vessel form or those which did not fit any of the above categories but were too unusual to merit classification as a separate vessel type.

Forms A, B, and C are never wheel-turned. All examples of forms E and F are wheel-made, and those of G, H, J, K, and L generally are. Form D is usually hand-moulded but a few instances of possibly wheel-turned examples do occur. Assignment to the categories is based primarily on shape discernible in the sherds. Rim sherds are the most diagnostic, but body sherds and base angles are sometimes sufficiently recognizable to be classified by using a combination of shape, surface finish, and/or fabric. Sharp carinations, for example, are assumed to be from angular vessels. Finger impressions on rounded shoulders indicate B1 forms. Burnished exteriors generally indicate either C2 or D forms.

Ashville Assemblages

Table II lists in numerical order the Iron Age features which yielded four or more sherds that could be assigned to vessel form categories other than M. The number of vessels of each form in each fabric is shown, as well as the percentage of fabric 1, based on sherd count, from each feature. In the discussion of fabric proportions both the count and the weight values are considered. The period is given in instances where this is clear.

An attempt has been made to assess the value of two alternative methods of quantitative recording, sherd counting and weighing. The pottery content of each pit and ditch was divided into two groups by fabric type and a record made of the number and weight of sherds in each group. When the proportion of fabric 1 in each feature was calculated, the difference in values obtained using counts and weights was so slight as to be insignificant. Only rarely did sizeable samples (i.e. those with more than 25 sherds or more than 0.5 kg) produce greater than 20% difference in the two calculated values. The greatest variation resulted when features contained a great many light sherds or only a few relatively heavy fragments. There are several possibilities for extracting information from a combination of these two measurements (Solheim 1960, 325-9), but no more detailed analysis has been performed on the data from Ashville than to determine that the number of sherds per kilogram of pottery in a feature usually falls between 50 and 100. Much remains to be done in this area. Only by treating more ceramic assemblages in this manner can the value of taking one or the other or both of these measurements be evaluated.

The following assemblages, selected as being typical of the pottery from the site, are grouped by period in Table III. For each of the three periods the ceramic complements of several features are illustrated and described separately, after which the period in general is discussed. The three distinctive ceramic periods are then compared and related to pottery from other sites.

Period 1

Pit 37

Angular vessels of fabric 2 are the most common form from this pit. Coarse ware jars are also present. Fabric 1 predominates.

Pit 60

Although this pit is unstratified, its high percentage of fabric 1 (66%) and combination of expanded rims and angular vessels with coarse-ware jars places it firmly in Period 1. Incised lines as well as finger impressions were used for decoration.

Pit 114

No expanded rims were recovered from this pit. Angular vessels are the most abundant form, followed by coarse-ware jars. Seventy percent of the pottery is of fabric 1, one body sherd of which contained flint inclusions. Incised patterns and finger-impressed decoration were used on vessels of both fabrics.

Pit 125

Nearly three-quarters of this pottery is of fabric 1, including the lug handle and the only decorated sherds, three finger-impressed body sherds as well as the illustrated Al rim. Angular vessels and coarse ware jars dominate the forms.

Table III Features assigned to periods on the basis of their pottery

Pits on left, ditches on right in each group of two columns

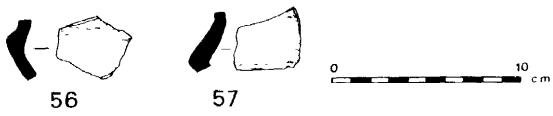
	certain		*probable*		*possible*	
Period 1	37		14	346	53	90
	87		38		66	1020
	59		56		77	
	60		70		87	
	64		78		124	
	71		84		194	
	74		91		237	
	79		119		281	
	82		128		287	
	114		129		288	
	125		233		348	
	157		341		355	
	313				359	
					379	
					389	
					400	
					1007	
					1008	
Period 2	25	13	17	361	16	42
	54	18	39	1023	50	180
		19	55	1025	57	280
		20	65	1034	62	295
		32	72	1035	69	1024
		45	80	1048	18	
		73	102	1049	112	
		273	109	1051	138	
		279	131		314	
		331	135		338	
			300		352	
			303		387	
			308		415	
			315		418	
			323			
			327			
			1046			
Period 3	75	27	62	334	378	336
	121	103	333		433	
		134	337			
		392	347			
		1030	1055			

Features placed in the *certain* columns possess all or most of the pottery forms indicative of the period to which they are assigned, none or very few of those typical of other periods. Fabric proportions are also considered to be important. Placement in the *probable* columns indicates slightly less strong evidence, perhaps the lack of a diagnostic form or fabric composition inconsistent with the period. Those features in the *possible* columns generally yielded small samples and are by no means irrefutably placed.

Pit 157

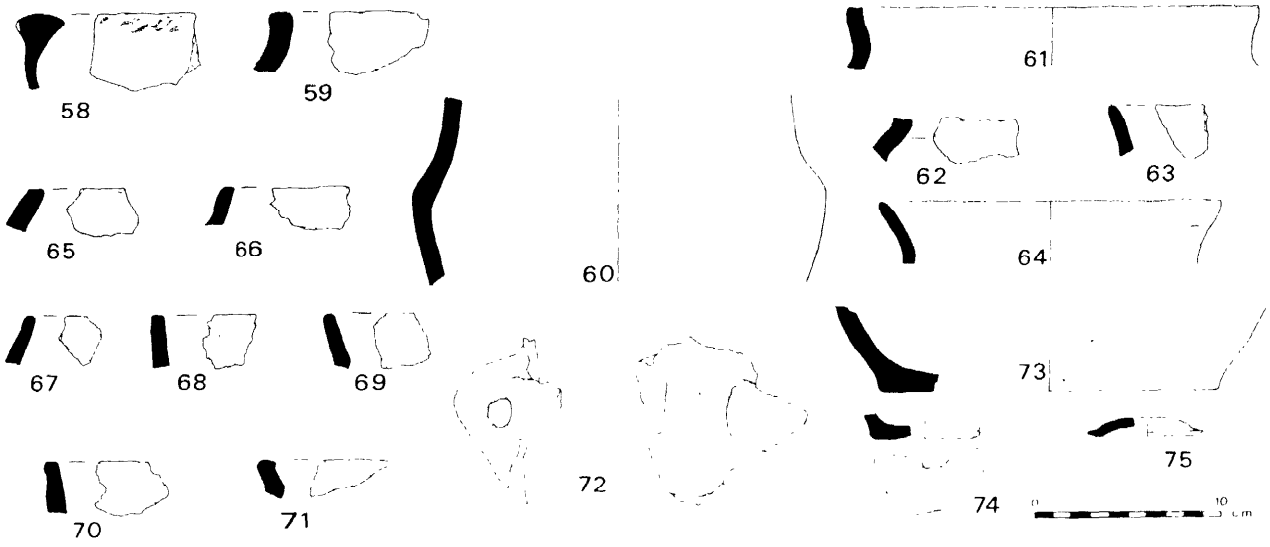
Although the percentage of fabric 1 here is less than usual for Period 1, it is still relatively high at about 55%. Expanded rims of AL type are notable.

In addition to these five pits, eight others can be definitely assigned to Period 1 on the basis of their pottery, while 31 other pits and two ditches may also belong to this phase (see Table III). Most of these features have high proportions of fabric 1 and some, if not all, of the early vessel forms: expanded rim (A) types, the angular vessels (C), and coarse-ware jars (B), especially slack-shouldered types (B1), which may be related to the coarser angular vessels (Cl) (see Harding 1972, 89 and pl. 43, 48, 52, and 53). Forty-one percent of



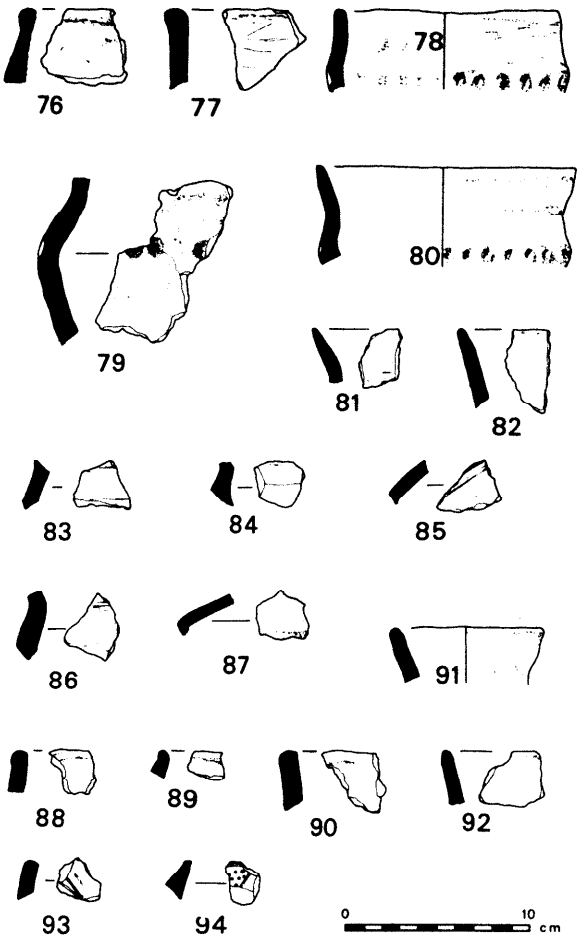
56 C2. Shoulder of a fine ware, angular bowl. Fabric 2 slightly sandy. E. and Bk. very dark grey (N3) and worn on shoulder, burnished above shoulder. I. dark prey (5YR 4 1) over a reddish-brown (5YR 5 4) surface.
57 C2. Neck to shoulder of fine ware angular vessel. Fabric 2 fine sandy. E. and I very dark grey (N3) with a very smooth exterior. Bk. grey (N5)

36 Iron age pottery. Pit 37



58 A3. Rim, expanded internally and externally, with diagonal impressions on exterior, of an unusually thin-walled vessel. Fabric 1 with grog and shell up to 13mm. E and Bk very dark grey (5YR 3 1) I. light rcddish-brown (5YR 6 4) to reddish-grey (5YR 5 2)
59 B0 Rim. with slight groove on top. of a coarse-ware jar Fabric 1 with limonite, grog and some shell up to 5mm. E. and Bk dark grey (10YR 4 1). I weak red (2.5YR 4 2)
60 Bl. Neck and slack shoulder of a coarse-ware jar Fabric 1. friable with grog and abundant shell up to 2mm and occasionally up to 8mm. F and I. reddish-brown (2.5YR 4 4) with areas of very dark grey (N3) Bk very dark grey (5YR 3 1).
61 C0 Flat rim and neck. probably of an angular vessel. Fabric 1 with grog and shell up to 8 mm. E.. I.. and Bk very dark grey (5YR 3 1). roughly burnished interior and rim.
62 C0. Neck and shouldcr of an angular vessel Fabric 2 F.. I. and Bk. very dark prey (N3) with burnished surfaces
63 C0. Tappered, flaring rim, probably of an angular vessel. Fabric 2 with plant voids. E. black (N2). I and Bk. dark grey (10YR 41).
64 C2. Flaring rim of a fine-ware angular vessel fabric 2. E. .I. and Bk. very dark grey (N3) with reddish-brown (5YR 5 3) rim. Surfaces burntshed.
65 M. Flattened, inward-curving rim. Fabric 2 with quartz grains. E, I., and Bk, dark grey (10YR 4 1).
66 M. Flattened rim. Fabric 1 with shell up to 6mm E. and Bk very dark grey (N3). I. very dark grey (N3) to reddish-grey (5YR 5,2).
67 M. Rounded rim Fabric 2 with grog and shell up to 2mm E. I. and BK very dark grey (N3). Surface burnished
68 M. Hat-topped rim Fabric 1 with shell up to 6mm B. I. and BK very dark grey (N3). Surface wiped
69 M. Rounded slightly flaring rim Fabric 2 with occasional shell up to 2mm. E light brown (75YR64) I brown (75YR 52) BK very dark grey (N3)
70 M. Rim of coarse vessel, pinched outward slightly Fabric 1 with shell up to 10mm E. I. and BK very dark grey (N3)
71 M Rounded rim with internal lip Fabric 2 with grog and sparse shell up to 2mm E and i reddish brown to weak red (25YR5442) BK weak red (25YR42)
72 Heavy lug handle Fabric 1 with shell up to 5mm. E and I reddish-yellow (5YR66) to light reddish-brown (5YR63) BK grey (N5)
73 Flat base of a course-were vessel fabric 1 with plant voids and shell up to 9mm pinkish grey (75YR62) to very dark grey (N3) I very dark grey (N3) to reddish-brown (5YR5 4) BK very dark grey (N3)
74 Flat base with post-firing perforation very worn externally Fabric 2 fine sandy E. I. and BK dark grey (N4) with reddish-brown (5RY53) areas
75 Omphalos base with well burnished surface fabric 2 E. dark reddish-brown (5YR32) I and BK very dark grey (N3)

37 Iron Age pottery. Pit 60



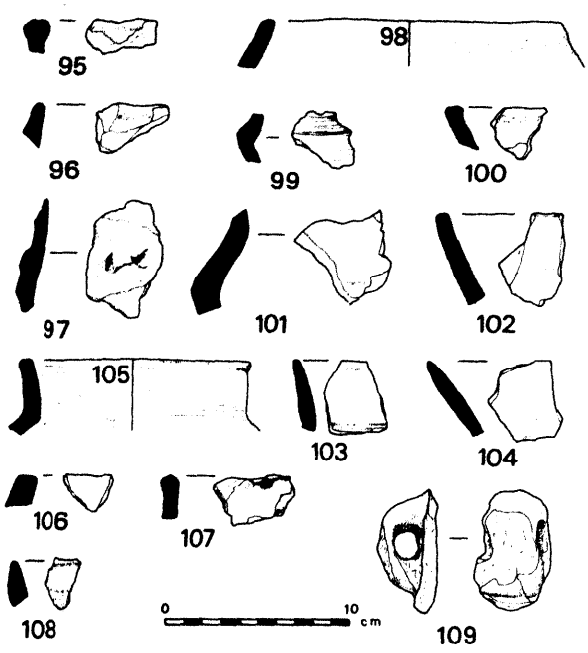
38 Iron Age pottery, Pit 114

76 B0. Rounded, thickened rim of coarse-ware jar. Interior surface missing. Fabric 1 with grog and shell up to 12mm. E. brown (7.5YR 5/4) and wiped. Bk. dark grey (5YR 4/1).
77 B0. Rim of coarse-ware vessel with slight external lip. Fabric 1 with plant voids and abundant shell up to 2mm. E. and Bk. very dark grey (5YR 3/1) with traces of burnishing. I. dark reddish-grey (5YR 4/2).
78 B1. Slack-shouldered jar with upright neck and row of finger-nail impressions on shoulder. Fabric 1 with shell up to 5mm. E. pale brown (10YR 6/3) with very dark grey (N3) and wiped. I. and Bk. very dark grey (N3).
79 B1. Finger-impressed slack shoulder of a jar of c. 260mm maximum diameter. Fabric 1 with shell up to 12mm. E. light brown (7.5YR 6/4). I. brown (7.5YR 5/2) under a whitish deposit. Bk. layered as E. and I.
80 B1. Slack-shouldered jar with tapered, slightly everted rim and a row of finger-nail impressions on shoulder. fabric 2 with shell up to 2mm and grog. E. light brown (7.5YR 6/4). I. and Bk. dark grey (10YR 4/1).
81 C0. Tapered, everted rim of an angular vessel with burnished surfaces. Fabric 2. E., I., and Bk. very dark grey (N3) with brown (7.5YR 5/2).
82 C0. Tapered, everted rim, probably of an angular vessel with burnished surfaces. Fabric 2 with quartz grains. E. brown (7.5YR 5/2) to very dark grey (N3). I. and Bk. very dark grey (N3).
83 C0. Neck and shoulder of an angular vessel. Fabric 2 with quartz and shell. E. and I. very dark grey (N3) and burnished. Bk, dark grey (N4).
84 C0. Neck and shoulder of an angular vessel. Fabric 2 with sparse shell up to 3mm. E., I., and Bk. very dark grey (N3) with traces of external burnishing.
85 C0. Shoulder of angular vessel with two parallel diagonal tooled grooves. Fabric 2. E. and I. very dark grey (N3) and burnished. Bk. layered dark grey (N4) internally and reddish-brown (5YR 5/4) externally.
86 Cl. Neck and shoulder of an angular vessel. Fabric 2 with grog and shell up to 1 mm. E., I.. and Bk. dark grey (5YR 4/1) with traces of burnishing on worn exterior.
87 Cl. Shoulder of thin, angular vessel. Fabric 2 with grog and occasional shell. E. reddish-brown (5YR 4/4) to very dark grey (N3). I. and Bk. very dark grey (N3).
88 M. Rounded rim. Fabric 1 with shell up to 6mm. E. reddish-brown (5YR 5/3). I. and Bk. very dark grey (N3).
89 M. Bead rim. Fabric 1 with shell up to 5mm. E. brown (7.5YR 5/2). 1. and Bk. very dark grey (N3).
90 M. Rounded rim. Fabric 1 with grog and shell up to 5mm. E. and 1. reddish-brown (2.5YR 4/4) beneath very dark grey (N3). Bk. reddish-brown as surfaces.
91 M. Rounded, everted rim of a small vessel. Fabric 2 with quartz grains up to 2 mm. E., I., and Bk. very dark grey (N3) with reddish-brown (5YR 5/3) areas.
92 M. Slightly everted rim. Fabric 2 with grog and shell up to 1 mm. E., I., and Bk. very dark grey (N3) with reddish-brown (5YR 5/3) layers just beneath surfaces.
93 Body sherd with roughly incised rays. Fabric 1 with shell up to 5mm. E., I., and Bk. very dark grey (N3).
94 Shoulder of a vessel with an incised triangle filled with deep stab impressions. Fabric 1 with grog and abundant shell up to 2mm. E., I., and Bk. very dark grey (N3).

the vessels could not be assigned to a form category. Two-thirds of the remainder were made up of angular forms and coarse-ware jars in equal proportions. Internal flanges are by far the most common of the expanded rim forms. Features 37, 38, 114, and 346 contained angular forms but no expanded rims, while the reverse was true of pits 48 ,64, 70, 78, 79, and 91. Their stratigraphy indicates that there is no chronological significance in this fact. All of these early form types (A, B, and C) have been found associated in pits 60, 74, 84, 125, 233, and 313. In addition, exclusively A and C forms come from five other pits.

Slightly more than two-thirds of the Period 1 pottery is of fabric 1. Shell inclusions range in size from less than 1 mm to 10mm or more. Grog is a common inclusion. Ten of the 27 features yielding pottery with flint inclusions belong to this period, as do nearly half of the 36 features with what are possibly hematite-coated sherds (see Appendix 1). Burnishing is not unknown but is not as common a surface treatment as is wiping with either the hand or plant material. Burnishing and hematite coating are found almost exclusively on vessels of fabric 2. Two-thirds of the features held pottery with some variety of finger-impressed decoration; this is generally along the shoulder and/or on the rim of fabric 1 vessels. There are several instances of slashed decoration (see pit 157, Fig. 40, 110) and of incised lines on body sherds as from pits 60 and 114 (e.g. Fig. 38, 85, 93, and 94).

The mottled appearance of many of the vessels' surfaces indicates a firing atmosphere under little control as would result from an unsophisticated form of clamp firing. The observed tendency towards red hues, produced when the iron in clay is oxidized (Shepard 1964, 103-4), shows that air was not excluded during the firing. The temperatures attained must have been below approximately 900°C as the calcareous material, and indeed in



39 Iron Age pottery, Pit 125

95 A1. Internally expanded rim, slightly flattened. Fabric 1 with shell up to 6 mm. E. light reddish-brown (5YR 6/4). I. very dark grey (N3) and sooty. Surfaces wiped. Bk. dark grey (N4.)
96 B0. Rounded, coarse ware rim. Fabric 1 with grog and abundant shell up to 3mm. E. and I. very dark grey (N3) to dark reddish-grey (5YR 4/2). Bk. dark reddish-brown (5YR 3/2).
97 B1. Body sherd of slack-shouldered jar with line of nail impressions. Fabric 1 with some grog and flint and abundant shell up to 3mm. E. reddish-brown (5YR 5/3) to dark grey (N4). I. very dark grey (N3). Bk. dark reddish-brown (5YR 3/2).
98 B2. Slightly flattened rim of globular jar. Fabric 1 with grog, quartz, and abundant shell up to 2mm. E., I., and Bk. very dark grey (N3) with wiped surfaces.
99 C0. Neck and shoulder of an angular vessel. Fabric 2. E., I., and Bk. dark grey (N4) with burnished surfaces.
100 C1. Flattened, everted rim, probably of an angular vessel. Fabric 1 with shell inclusions up to 4mm. E. reddish-brown (5YR 5/4). I. and Bk. dark grey (5YR 4/1).
101 C1. Neck and shoulder of angular vessel. Fabric 2 with quartz grains up to 2mm. E., I., and Bk. dark grey (10YR 4/1); burnished exterior.
102 C1. Flattened, everted rim of angular vessel. Fabric 2 with quartz grains up to 1 mm. E., I., and Bk. very dark grey (N3) with burnished surfaces.
103 C1. Tapered, everted rim with groove at neck angle. Fabric 2. E. brown (7.5YR 5/2) and burnished. I. and Bk. dark grey (N4) with whitish internal deposit.
104 C1. Tapered, everted rim of angular vessel. Fabric 2. E. very dark grey (5YR 3/1). I. and Bk. very dark grey (N3). Surfaces burnished.
105 M. Vessel with rounded shoulder and upright neck. Fabric 2. E., I., and Bk. very dark grey (N3) with reddish-grey (5YR 5/2) areas externally. Surfaces burnished.
106 M. Flat rim. Fabric 1 with shell up to 5mm and some quartz and limonite grains. E., I., and Bk. very dark grey (N3).
107 M. Wavy rim, pinched outward. Fabric 1 with shell up to 6mm. E. and Bk. dark grey (N4). I. reddish-brown (5YR 5/3).
108 M. Tapered rim. Fabric 2 with shell inclusions up to 1 mm. E. and I. pale brown (10YR 6/3). Bk. dark grey (N4).
109 Lug handle. Very worn. Fabric 1 with shell inclusions up to 6mm. E. and 1. dark grey (10YR 4/1) with reddish-brown (2.5YR 5/4). Bk. very dark grey (N3).

some instances the vegetable material, had not decomposed (Shepard 1964, 30). Some of the discoloration as well as the carbon deposits occasionally adhering to surfaces probably' resulted from use over an open flame. Vessels of this period were all made without the use of a wheel or even a turntable; in a few cases the joins between coils or slabs of clay are apparent, as in the illustration of vessel form type Cl (Fig. 33, 28).

Period 2

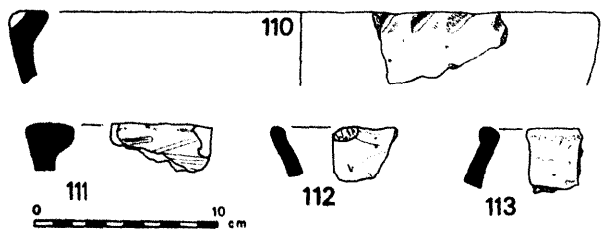
The following groups have been ordered according to their stratigraphical associations rather than by feature number.

Ditch 18

The ceramic assemblage from this ditch comprises mainly coarse-ware jars, half of which are of the barrel (B3) form. Expanded-rim forms (both A1 and A3) and angular forms (C) each account for one-fifth of the total vessels recovered. Smooth-surfaced globular jars and bowls (D), the characteristic ceramic of Period 2, make up a further 25%. The narrow-mouthed globular form 133 has only one parallel on the site, Fig. 42, 141, from ditch 73, an appendage of ditch 18. The moulded decoration of 134 is also unusual at Ashville. Slightly more than 40% of this group is of fabric 1.

Ditch 73

This annexe ditch contained 10% less pottery of fabric 1 and fewer sherds that could be assigned to form



40 Iron Age pottery; Pit 157

110 A1. Flat-topped rim, expanded internally with diagonal finger impressions on outer edge. Fabric I with shell fragments up to 10mm and calcareous lumps. E. very dark grey (N3). I. pink (7.5YR 7/4) and wiped below rim; rim top and interior light red (2.5YR 6/6). Bk. grey (5YR 6/1).
111 A1. Flat rim, expanded internally. Fabric 1 with abundant shell inclusions up to 1 mm. E. and I. light red (2.5YR 6/6) to reddish-yellow (5YR 6/6) and wiped. Burnishing strokes on exterior. Bk. dark grey (5YR 4/1).
112 Cl. Plain rounded rim. Fabric 1 with abundant shell up to 4mm. E. and Bk. very dark grey (N3). I. weak red (10YR 5/4) to dark grey (5YR 4/1).
113 M. Rounded rim above a slight constriction. Fabric 1 with shell fragments of c. 2mm, abundant grog, and some plant voids. E. reddish-brown (2.5YR 4/4) to very dark grey (N3). I. brown (7.5YR 4/2). Bk. black (N2.5).

categories than the associated ditch 18. However, the range of fabrics is similar and no vessel forms are present that do not occur in feature 18 also. One body sherd has finger-impressed decoration; two others have external hematite coating.

Ditch 19

Almost 40°$_0$ of the pottery of this first recut of ditch 18 is of fabric 1. Nearly half of the forms arc coarse-ware jars. barrel jars (B3) being most common. Decorative methods are plastic and include finger-lip and -nail impressions. for example 149, 154, and 155 and a boss. 157.

Ditch 13

Vessels from this second and last recut of ditch 18 are relatively more complete than those recovered from other features; thus only 20°$_0$ of the forms eluded classification. Coarse-ware jars, especially globulars, are very common. and fine-ware globular bowls and jars only slightly less so. Vessel 184 is the first occurrence of type G, an addition to the four basic form types. A D, of earlier phases. Some vessels are unusually small: five have diameters of 100mm or less. Bases are numerous and exclusively flat-bottomed: 183, 192, 193, and 196 have feet. Two body sherds of one externally burnished, red (2.5 YR 53) vessel have post-firing perforations, 3 5 mm in diameter and 8 12 mm apart. The three lug handles. 188 and two fragmentary example, are of fabric 2 but cannot be definitely associated with any vessel forms. Only one-third of the pottery is of fabric 1. Vegetable voids are noticeable in 189 and 197. Sherd 182 is distinctive not only for its grooved. apparently curvilinear decoration and uncommon rim form, but also for its abundant angular flint inclusions. It is not a local product but one typical in form, fabric, and ornament of the chalklands of the south-east (Cunliffe 1974, 329, 3). Finger-impressed decoration occurs as on the rim of 159, and on one sherd parallel lines have been incised. Hermatite coating is found only on body sherds which are not indicative of vessel form. Surface burnishing was often applied, especially externally.

Ditch 45

I tic postulated association of this annexe with ditch 13 is strengthened by the recurrence of the same two dominant form types. B and D. Surface burnishing is common and, apart from one instance of hematite coating, is the only special finish noted in this relatively small group of 53 sherds.

Ditch 32

The ceramic assemblage from ditch 32 has a high proportion of fabrie I (40 35°$_0$). Seven angular forms (C) and two expanded rims (A3) were recovered. Fine-ware globular jars and bowls are numerous, as are slack-shouldered jars. One lug handle was recovered. Decoration of finger impressions was found as well as more complex designs such as the circle and ray motif of body sherd 220. The horizontal line and dots on the carinated sherd 208 were apparently seratched on to the burnished surface after firing. There are examples of possible hematite coating on some body sherds. Burnishing is common on C2 and D forms and is not restricted to external surfaces. Only one body sherd with flint inclusions was noted.

Ditch 331

Only slightly more than half of the vessels from this feature could be assigned to form categories, chiefly because of the variety of unusual forms. Over one-third of those categorized were of angular type, usually coarse-ware jars (C1). Non-angular coarse-ware jars, mainly globular (B2) forms, account for another third of the total. The barrel jar 228 is distinctive for its size (210 mm rim diameter). its burnished surfaces, and for the abundance and size (up to 5mm) of the grog particles in its fabric. Fine-ware globular jars and bowls and expanded-rim vessels complete the range of defined forms. One omphalos base, 246, is known in addition to flat bases. One-third of the pottery is of fabric 1. Burnishing and wiping are common surface-finishing techniques. Several sherds have hematite coating, 245 for example. The only decoration consists of finger impressions along rims and on shoulders (224 225).

Ditch 20

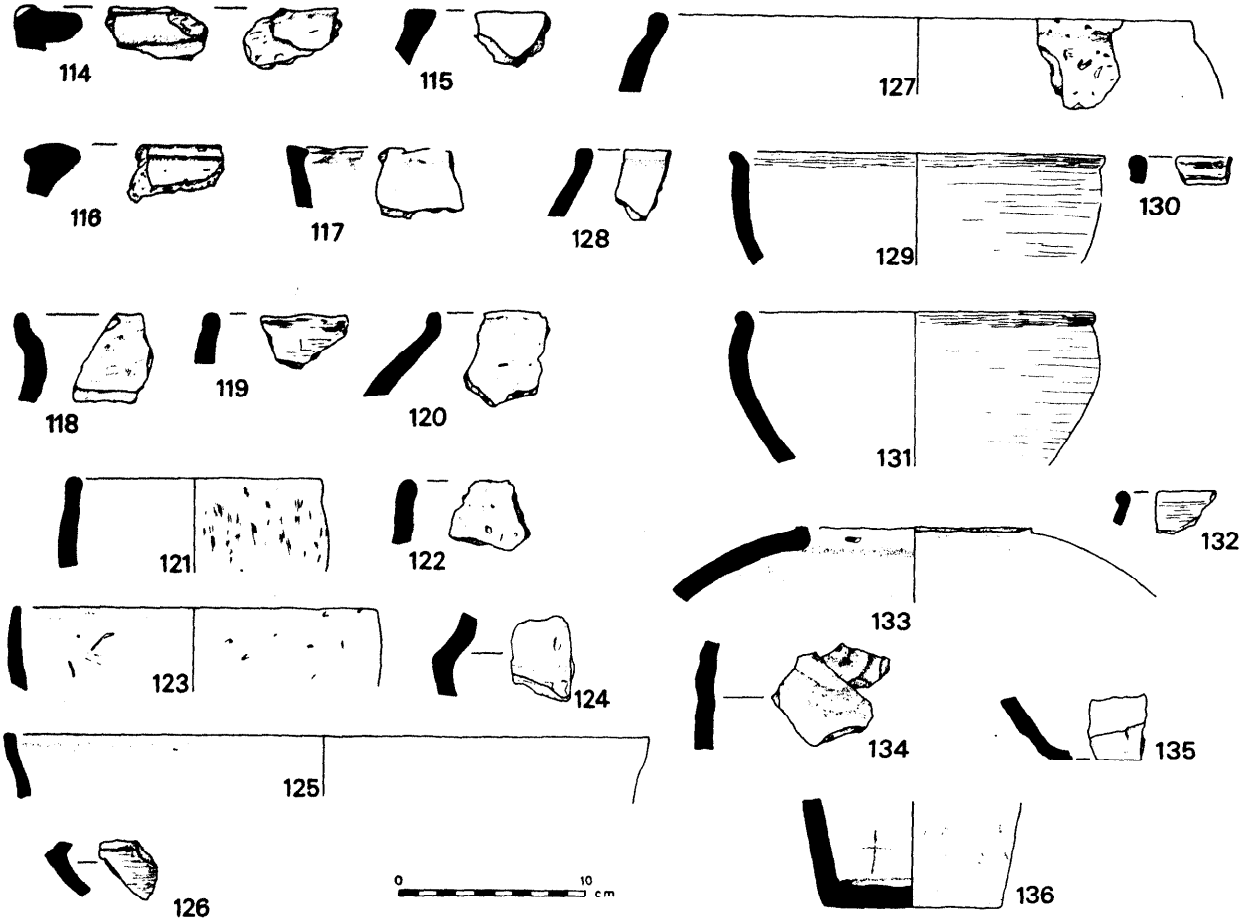
This ditch is more recent than 13 and may be contemporary with 331. although the very limited range of forms recovered makes comparisons of small value. Apart from the fine-ware globular vessels (type D: three jars and four bowls), coarse-ware jars, again globular (B2), are the only recognized types. Vessel 259 has the upright sides associated with 'saucepan pots' of a more southern distribution but not the usual bead-rim form or decoration. It is the only such form from Ashville. The lug handle 261 is unusually large and heavy. No decorated sherds were found. but burnishing, both internal and external. is common and there is one instance of possible hematite coating. Fabric 1 accounts for one-tenth only of the sample.

Ditches 273 and 279

The quantity of pottery recovered from ditch 279 and its recut 273 is small compared with that from most of the other features in the sequence. The forms comprise one-third fine-ware globular vessels and numerous coarse-ware jars. Two narrow-mounthed bead-rim forms were found of which 275 is an example. The complete absence of expanded-rim and slack-shouldered forms and of finger impressions is notable. Flat bases were recovered; 279 has a protruding foot and another base sherd (very worn and not illustrated) was perforated. More than 80°$_0$ of this pottery was classified as fabric 2. Surface wiping and burnishing are common. Vessel 273 is an unusual example of a burnished globular bowl in fabric 1. Hematite coating has been found only on sherds of uncertain form. The only decorated sherd is 269.

The main diagnostic trait of Period 2 is the appearance of burnished globular-jars and bowls. form types D0 and D1, almost exclusively of dark grey to black wares, and usually of fabric 2. Virtually unknown in Period 1, these forms now make p one-third of the classifiable forms. (Most of these D forms have been placed in the D0 category. it is rare to have sufficient of the profile to be able to distinguish between bowls and jars.) Although 12°$_0$ of the vessels of Period 3 are these tine-ware globular attributable in part to continuity of occupation and ceramic tradition on the site rather than wholly to rubbish survivals, other elements differentiate Period 3 from Period 2 (see pp. 68 71).

The above assemblages from the penannular ditches best illustrate the pottery of Period 2. Pits 25 and 54 also are unmistakably of this period. Seventeen other pits show strong similarities to these assemblages. Based on the scant amount of pottery recovered from the circular ditches excavated in 1976, these seem to belong to Period 2 as well. The possible exception to this is feature 1020. which produced 60°$_0$ fabric 1 and body sherds of a burnished angular vessel (C2) which suggests it may be of an earlier date. Ceramic evidence from the 1976 exca-



114 A1. Rim with slightly sunken internal flange and finger impressions on external edge. Fabric 1 with shell fragments up to 8 mm and grog particles. E. and above flange reddish-grey (10YR 5/1) to very dark grey (N3). I. and below flange red (10YR 5/6). Bk. very dark grey (N3).

115 A1. Flattened rim, expanded internally, of a smooth-surfaced vessel. Fabric 2 with abundant shell inclusions under 1 mm; relatively hard. E. and I. dark grey (5YR 4/1). Bk. black (N2.5).

116 A3.. T-shaped rim with convex top. Fabric 1 with shell inclusions up to 6 mm. E. light reddish-brown (5YR 6/4). I. very dark grey (N3). Bk. very dark grey (N3).

117 A3. T-shaped rim of vessel with flaring neck. Fabric 1 with shell inclusions up to 7mm. E. light red (2.5YR 6/6) to light brownish-grey (10YR 6/2). I. and top of rim light red (2.5YR 6/6). Bk. dark grey (10YR 4/1).

118 B0. Rounded, everted rim of jar with very irregular surfaces. Fabric 2 sandy. E. pinkish grey (7.5YR 6/2) to very dark grey (N3) near rim. I. and Bk. very dark grey (N3).

119 B0. Rounded rim of coarse-ware jar. Fabric 1 with abundant shell inclusions up to 6mm. E. reddish-brown (5YR 5/3). I. reddish-brown (5YR 5/4). Bk. dark grey (5YR 4/1).

120 B2. Coarse-ware globular jar with upright, rounded rim. Fabric I with shell inclusions up to 5mm and some plant voids. E. and I. dark grey (5YR 4/1) with external carbon deposits near rim. Bk. reddish-brown (5YR 5/3) near rim, dark grey (5YR 4/1) below.

121 B3. Slightly flattened rim of a barrel jar. Fabric 1 with shell inclusions and voids up to 4mm. E. brown (7.5YR 5/2) to very dark grey (10YR 3/1) and wiped vertically. I. grey (10YR 5/1) and pitted. Bk. very dark grey (10YR 3/1).

122 B3. Rounded rim of coarse-ware barrel jar. Fabric 1 with shellinclusions up to 3mm and limonite grains; relatively soft. E. dark reddish-grey (10YR 3/1) to weak red (10R 4/2) and irregular. I. very worn, red (10R 4/6). Bk. weak red (10YR 4/3).

123 B3. Barrel jar with slightly flattened rim. Fabric 2 with carbonized plant material and voids. E. dark grey (5YR 4/1). I. very pale brown (10YR 7/4). Surfaces wiped. Bk. very dark grey (5YR 3/1).

124 C0. Shoulder and neck of tripartite vessel. Fabric 2 with sparse shell flecks under 1 mm and abundant grog up to 5 mm. E. very dark grey (N3) to pinkish-grey (7.5YR 6/2) with traces of burnishing. I. and Bk. dark grey (N3). Parallel: Kimmeridge (Cunliffe 1974, 318, No. 13).

125 C1. Everted rim of coarse-ware jar. Fabric 1 with numerous shell inclusions up to 3mm and small but abundant grog. E. mottled very dark grey (5YR 3/) and light reddish-brown (5YR 6/4). I. dark brown (7.5YR 4/2) to greyish-brown (10YR 5/2). Bk. dark grey (N4).

126 C2. Shoulder angle of sharply carinated vessel. Fabric 2 fine sandy. E. and I. dark grey (10YR 4/1) and smooth. Bk. very dark grey (N3). Parallels: Long Wittenham (Harding 1972, pl. 50, R) and Allen's Pit (Harding 1972, pl. 54, F).

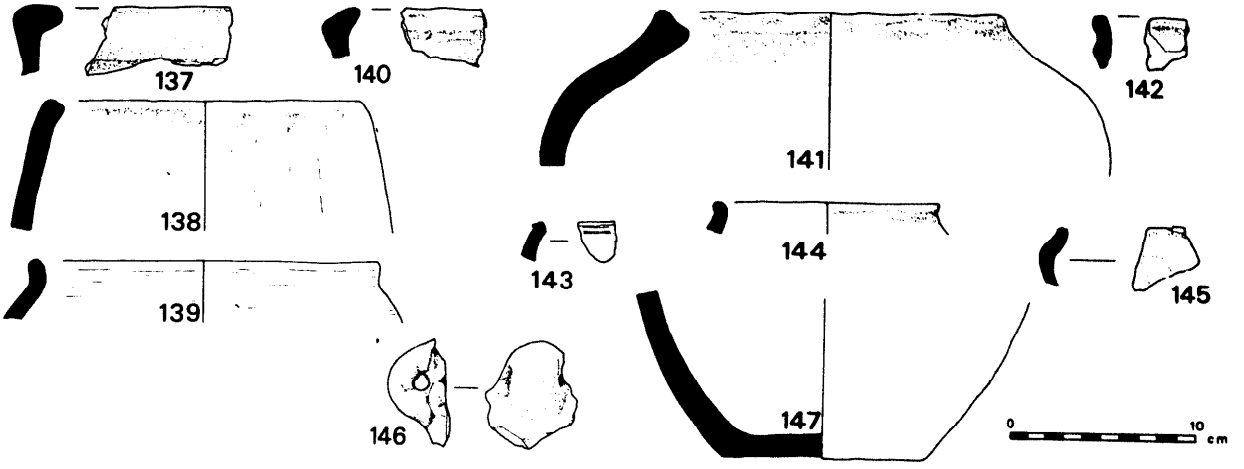
127 D0. Globular jar with thickened, rounded rim. Fabric 2 vesicular from burnt-out vegetable material. E. black (N2.5) to dark grey (5YR 4/1) and roughly burnished. I. dark grey (5YR 4/1) to reddish-brown (5YR 4/4) near rim. Surfaces pitted with vegetable voids. Bk. dark grey (5YR 4/1).

128 D0. Slightly flattened rim of globular jar. Fabric 2 sandy with shell flecks up to 1 mm and very numerous grog particles. E. very dark grey (N3) and wiped to an even surface. I. and Bk. reddish-brown (5YR 5/4).

129 D0. Fine-ware burnished vessel with short, sharply everted rim. Fabric 2 with abundant shell flecks under 1 mm, grog particles, and voids from vegetable matter. E. black (N2.5) to light reddish-brown (5YR 6/3) and burnished horizontally. I. reddish-brown (5YR 5/4) to dark grey (5YR 4/1) near rim, which is burnished. Surfaces pitted. Bk. dark grey (5YR 4/1).

130 D0. Rounded rim, slightly everted. Fabric 2 fine sandy. E. and I. very dark grey (5YR 3/1), worn with external burnishing. Bk. black (N2.5).

131 D1. Burnished bowl with bead-rim. Fabric 2 with grog and a few fine shell particles less than 1 mm. E. black (5YR 2.5/1) to reddish-brown (5YR 5/3) near rim. I. very dark grey (5YR 3/1) to pinkish-grey (7.5YR 6/2). Surfaces burnished. Bk. very dark grey (5YR 3/1).



137 A1. Flattened expanded internally. Fabric 1 with shell inclusions up to 12mm and some vegetable voids. E. weak red (2.5YR 5/2) to red (2.5YR 5/6) and very worn. I. pink (7.5YR 7/4) and wiped. Bk. dark grey (N4). Parallel: Blewburton (Harding 1972, pl. 45, D).

138 B3. Barrel jar with slightly flattened, inturned rim. Fabric 2 sandy. E. black (5YR 2.5/1) to very dark grey (5YR 3/1) near rim, roughly burnished with irregular vertical striations. I. weak red (10R 4/4) and worn. Bk. black (N2.5) core with red (2.5YR 5/6) surface layer. Parallel: Cassington N.W. (Harding 1972, pl. 62, H).

139 D0. Globular vessel with upright, rounded rim. Fabric 2 with shell flecks under 1mm and grog particles. E. reddish-brown (2.5YR 4/4) to black (5YR 2.5/1). I. black (5YR 2.51l). Bk. very dark grey (N3).

140 M. Rim, expanded internally, but angled upwards instead of flattened. Fabric 1 with shell inclusions up to 5mm. E. dark grey (10R 4/1) to reddish-brown (2.5YR 5/4). I. and Bk. very dark grey (N3). Surfaces wiped horizontally.

141 M. Narrow-mouthed, globular vessel with thickened and concave rim. Fabric 2 sandy with gravel inclusions up to 6mm. vegetable voids, and infrequent grog. E. dark grey (5YR 4/1) with patches of light reddish-brown (5YR 6/4) where surface has chipped away. I. very dark grey (N3). Bk. dark grey (N4) with external layer of light reddish-brown (5YR 6/4). Surfaces smooth but spalled.

142 M. Flat-topped, slightly everted rim of a jar. Fabric 2 sandy. E., I., and Bk. very dark grey to black (N2.5-3) with layer of light yellowish brown (10YR 6/4) externally.

143 M. Rounded shoulder of fine-ware vessel, probably with everted rim. Fabric 2, possibly hematite-coated. E and external layer of Bk. dusky red (10R 3/4) where burnished, red (2.5YR 4/6) elsewhere. I. and most of Bk. dark grey (10YR 4/1).

144 M. Slightly everted rim. Fabric 2 sandy. E. and Bk. black (N2.5); surface wiped. I. dark grey (5YR 4/1). Parallels: Cassing ton N.W. (Harding 1972, pl. 64, E and M).

145 M. Rounded shoulder of small, globular vessel. Fabric 2 sandy. E. reddish-yellow (5YR 6/6). I. dark grey (10YR 4/1). Surfaces worn but with traces of burnishing. Bk. layered as surfaces.

146 Vertical lug handle showing attachment method by which a peg on the handle was fitted into a perforation in the vessel wall and then smoothed to complete the join. Fabric 2 fine sandy. E. very dark grey (N3) and burnished. I. dark grey (N4). Bk. dark grey (5YR 4/1).

147 Flat-bottomed base of large, well made vessel. Fabric 2 with calcareous inclusions up to 1 mm. E. very dark grey (N3) mottled with light reddish-brown (5YR 6/4) and well burnished. I. and Bk. very dark grey (N3) with pitted surface.

42 Iron Age pottery, Ditch 73

132 M. Bead-rim and neck of a fine-ware vessel. Fabric 2; relatively hard. E. black (N2) and burnished in horizontal bands. I. dark grey (10YR 4/1). Bk. black (N2).

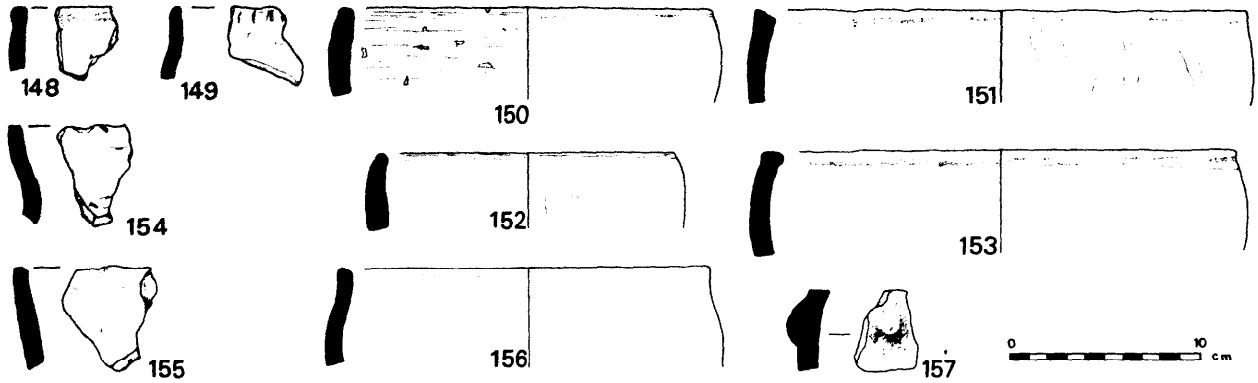
133 M. Well made, narrow-mouthed globular vessel with worn rim, probably slightly beaded, and smoothed surfaces. Fabric 2 with shell flecks (1 mm), some quartz grains, and a few vegetable voids. E. and Bk. dark grey (10YR 4/1). I. reddish-brown (5YR 5/4).

134 Two joining body sherds of a highly burnished vessel with moulded decoration of roughly concentric grooves. Fabric 2 coarse sandy. E. black (N2) and well burnished except where worn. I. dark grey (5YR 4/1) and worn. Bk. very dark grey (N3).

135 Flat, relatively thin base of a fine-ware vessel. Fabric 2 fine sandy with abundant grog particles up to 4mm. E. very dark grey (5YR 3/1), very smooth and highly burnished with angle chip away. I. very dark grey (N3) burnished, and slightly worn. Bk. very dark grey (5YR 3/1).

136 Flat base of probable jar with crossed lines scratched internally. Fabric 2 with shell inclusions up to 3mm and sparse grog. E. dark reddish brown (5YR 2.5/2). I. very dark grey (N3) to weak red (2.5YR 4/2). Bk. very dark grey (5YR 3/1).

(facing page) Iron Age pottery, Ditch 18



148 B0. Flat-topped rim of a jar with slight constriction below neck. Fabric 2 sandy. E. and I. very dark grey (5YR 3/1) and wiped. Bk. layered: dark reddish-grey (5YR 4/2) interior, red (2.5YR 5/6) core, and very dark grey (5YR 3/1) exterior.

149 B1. Neck of a slack-shouldered jar with vertical nail impressions along external edge of rim. Fabric 1 with relatively few shell inclusions up to 2mm. E. dark grey (5YR 4/1) near rim to reddish-brown (5YR 5/4). I. very dark grey (N3) near rim to light reddish-brown (5YR 6/3). Bk. very dark grey (N3) with surface layers of reddish-brown (5YR 5/4).

150 B3. Slightly flattened rim of barrel jar with shallow groove wiped internally just below rim. Fabric 1 with shell fragments up to 6mm. E. mottled light brown (7.5YR 6/4). brown (7.5YR 5/2). and dark grey (N4). I. light reddish-brown (5YR 6/4) with grey (N5) and horizontally burnished. Bk. very dark grey (N3) with interior layer of light-reddish-brown (5YR 6/4).

151 B3. Flattened inturning rim of a barrel jar. Fabric 1 with shell fragments up to 5mm abundant and grog particles. E. black (N2.5) with very rough vertical burnishing strokes. I. dark grey (5YR 4/1) to dark reddish-grey (5YR 4/2) near rim. Bk. very dark grey (N3).

152 B3. Tapering rim of a barrel jar. Fabric 2 with abundant small (up to 2mm) gravel inclusions. E. light brown (7.5YR 6/4) to very dark grey (N3) near rim with traces of burnishing. I. light pinkish-brown (7.5YR 6/3) and wiped. Bk. very dark grey (N3) core with light brown (7.5YR 6/4) surface layers.

153 B3. Rim, rolled internally, of a barrel jar with slight external groove wiped just below rim. Fabric 2 sandy. E. and Bk. very dark grey (N3) with pink (7.5YR 7/4) externally. I. grey (10YR 5/1).

154 C1. Flattened, flaring rim of an angular jar. Fabric 1 with grog and shell fragments up to 6mm. E. red (2.5YR 5/6). I. weak reddish-brown (2.5YR 4/3). Bk. very dark grey (5YR 3/1) with external surface layer as exterior.

155 C1. Flattened, flaring rim of a large angular vessel. Fabric I with shell fragments up to 8 mm. E. reddish-brown (5YR 5/4) to brown (7.5YR 5/2). I. red (2.5YR 5/6). Bk. dark grey (N4) core with surface layers of reddish-brown (5YR 5/4).

156 D0. Rounded rim and shoulder of globular vessel. Fabric 2 sandy. E. weak red (2.5YR 4/2) to very dark grey (N3). I. dark grey (10YR 4/1). Both surfaces worn but with traces of burnishing. Bk. dark reddish-brown (2.5YR 3/4) with red (2.5YR 5/6) external layer.

157 Body sherd with applied boss. Fabric 1 with shell particles up to 4mm and grog. E. light reddish-brown (5YR 6/3) with traces of burnishing. I. greyish-brown (10YR 5/2). Bk. dark grey (5YR 4/1).

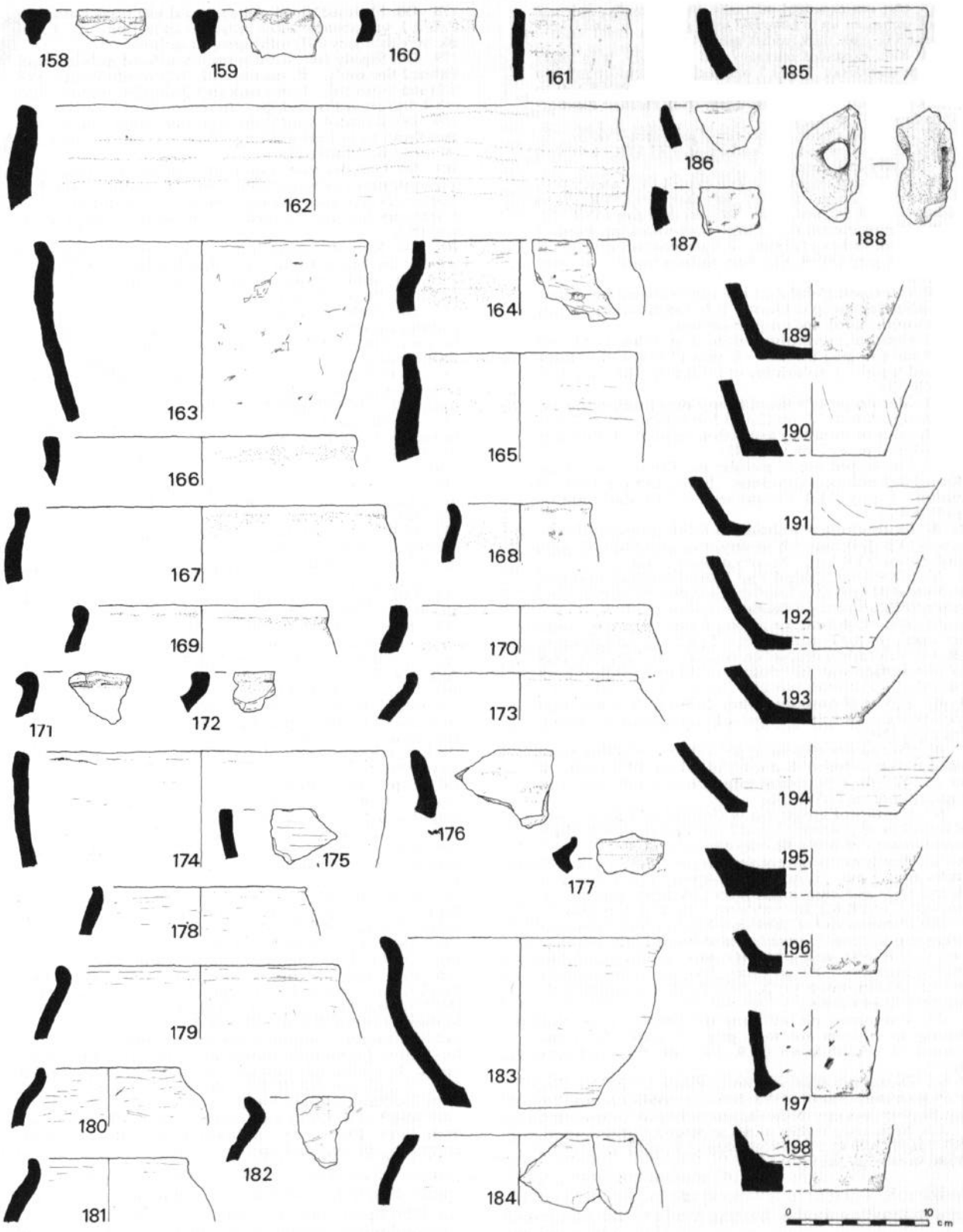
43 Iron Age pottery, Ditch 19

vations is of a lower quality and quantity than that from 1974. Consequently fewer and less certain conclusions can be drawn about these features. In spite of the small samples from the later excavations, the eight ditches and one pit from this area assigned to Period 2 each yielded D forms or dark burnished body sherds of fabrics appropriate to this type form. Eighteen other pits and ditches have been tentatively associated with Period 2 (see Table III).

Period 2's most abundant general form is the coarse-ware jar (B). Great increases in globular (B2) and more especially barrel (B3) forms account for a rise in the combined coarse-ware jar content of 150% from Period 1 to Period 2. Rim forms are most often plain and rounded (see Fig. 41, 121) or tending towards bead-rims (see Fig. 42, 144), although flattened and lipped rims are not unusual. The number of expanded rims declines sharply. Although early forms continue, the percentages of angular vessels (C) and of slack-shouldered jars (B1) are approximately halved. Close proximity to Period 1 features may help to explain the relatively large numbers of angular forms in features 18, 19, 32, and 80, but this explanation is less applicable to ditches 331 and 361, which are also high in angular components but further removed from the area of early pits to the east of the site. It would seem that angular vessels continued in use. Period 2 features have produced twelve lug handles of various forms (see Fig. 44, 188) and several perforated bases. Bases are generally flat, sometimes with a protruding foot. The angle formed by the base with the vessel wall varies from approximately 90° to the very obtuse.

The fabric types and range of inclusions found in Period 2 are with few exceptions the same as those of the earlier phase, but the proportions have altered significantly. Only 30% of the pottery is composed of the calcareous, usually coarse fabric 1, Forms A, B, and C maintain roughly the same fabric proportions as in Period 1. The shift is entirely due to the introduction of the fine-ware globular forms (D), which, over the site as a whole, are 95% of fabric 2.

Only two instinces of flint inclusions have been recorded for Period 2, one from pit 112 and the probable import, Fig. 44, 182, from ditch 13 (see p. 51). Ditch 1048 produced a DO form of fabric 2 with large (up to 15mm) angular, soft inclusions which contain mica as does the clay matrix. It is felt that these inclusions are previously hardened clay, incorporated in the body of the pot during manufacture. A unique occurrence at Ashville, it is slightly more common in the Iron Age pottery from Appleford (Hinchliffe, forthcoming). Grog inclusions are not unusual and may be very abundant, as in the coarse-ware jar, Fig. 47, 228. Voids left by burned-out plant material are also found. Shell inclusions may be as large as 10mm or 12mm but tend to occur chiefly as small



44 Iron Age pottery, Ditch 13 (for key, see overleaf)

158 A3. Flat rim expanded internally and externally Fabric I with shell inclusions up to 6mm and some gravel. E. and I. very dark grey (N3). Bk dark reddish-grey (10R 4, 1)

159 A3. Rim. expanded internally and externally, with finger impressions on exterior. Fabric 1 with shell inclusions up to 5mm and grog particles. E. and I. light reddish-brown (5YR 6 4) to very dark grey (N3). Bk. very dark grey (N3). Parallel. Blewburton (Harding 1972, pl. 45, H).

160 B0 Flattened. slightly everted rim of jar. Fabric 2 sandy. F black (N2 5) and wiped. I. pinkish-grey (7.5YR 6 2) and worn. Bk. very dark grey (N3).

161 B0. Small. straight-sided Jar with everted lip. Fabric 2 with shell flecks up to 2mm. E. and I. very dark grey (5YR 3 1) to reddish-grey (5Y R 5 2) and worn. Bk very dark grey (5YR 3 1).

162 B0. Slightly everted rim of large. thick-walled Jar. Fabric 2 sandy with shell flecks up to 1 mm. E. light brownish-grey (10YR 6,2) I dark grey (10YR 4 1). Both surfaces wiped. Bk. grey (10YR 5 1)

163 B0. Very coarse globular jar with slightly everted rim. Fabric I with shell inclusions up to 15 mm. E. I.. and Bk. very dark grey (N3) with worn. pitted. and irregular surfaces.

164 B1. Flattended. upright rim of globular jar Fabric I with shell up to 10mm and grog particles. E. pink (7.5YR 7 4) to black (N2.5) and wiped. I. reddish-brown (5YR 5 4) Bk very dark grey (5YR 3 1).

165 B2 Globular Jar with thinned rim. Fabric 1 with calcareous inclusions up to 6mm E red (2.5YR 5 6) to light brown (7.5k R 6 4) with traces of burnishing and carbon deposits I. dark grey (10YR 4 1) and pitted. Bk. grey (N5)

166 B2. Flat-topped rim of globular jar Fabric I with some gravel and shell inclusions up to 3 mm. F. very dark grey (N3) and burnished. I. prey (5YR 5 1) and smooth. Bk dark reddish-grey (5YR 4 2).

167 B2 Flattened rim of globular jar. Fabric 2 sandy E. light brown (7.5YR 6 4) near rim to very dark grey (N3). I light reddish-brown (5YR 6 3) Bk. very dark grey (N3).

168 B2 Everted rim of globular Fabric I with shell fragments up 10 4mm and large (up to 3 mm) grog particles E. and Bk. very dark grey (N3) with irregular surface. I brown (7 5YR 5 2).

169 B2. Rim of globular jar. Fabric 2 sandy with shell flecks under I mm. E. and I. reddish-brown (5YR 5 4) to very dark grey (5YR 3 1) with carbon deposits on exterior. Bk very dark grey (N3) with surface layer less than 1 mm thick of reddish-brown (5YR 5 4).

170 B2. Rim of globular Jar Fabric 2 sandy E. and I. light reddish-brown (5YR 6 3) and wiped. Bk. 14 surfaces for exterior. interior grey (N5).

171 B2. Everted rim of globular jar Fabric I with shell up to 6 mm. gravel up to 3 mm E. and top of rim red (2.5YR 5 6) I black (N2 5) Bk dark reddish-grey (10R 3 1) core with 2mm surface layers oft-cd (2.5YR 5 6).

172 B2 Flat-topped upright rim of globular Jar. Fabric I with shell inclusions up 10 4 mm E and I very dark grey (N3) to light reddish-brown (5YR 6 3) Bk very dark grey (5YR 4 1).

173 B2. Shghtly everted rim of globular Jar Fabric I with shell particles up to 8mm. E. light reddish-brown (5YR 6 3) to very dark grey (N3) with burnishing strokes and carbon deposits I pinkish-grey (7 5YR 6 3) and very worn. Bk dark grey (N4)

174 B3 Flattened rim of barrel jar. Fabric I with calcareous inclusions up to 2mm E and I. reddish-brown (5YR 5 4). light brown (7.5YR 6 4). and grey (N4): wiped internally slightly burnished externally Bk grey core (N4) with 1 2mm surface layer\ of reddish-brown (5YR 5 4). Parallel. Cassington E. (Harding 1971. pl. 62. H).

175 B3 Flat-topped rim of barrel jar Fabric I with shell inclusions up to 2mm and some grog F black (N2.5) and burnished. I reddish-brown (5YR 5 4). Bk very dark grey (N3).

176 Cl Flaring rim of angular vessel Fabric 2. F very dark grey(N3) to reddish-brown (5YR 5 3) I. reddish-brow (5YR 5 3) Bk. very dark grey (N3) with I mm surface layers as interior

177 C2. Neck and shoulder angles of smooth-surfaced vessel. Fabric 2 sandy with sparse shell inclusions E. and I. grey (10YR 5 1) and worn. Bk. dark grey (N4).

178 D0. Flattened rim of globular vessel with small everted lip. Fabric 1 with abundant shell inclusions up to 3 mm. E.. I., and Bk. very dark grey (N3) with burnished surfaces

179 D0 Slightly everted rim of smooth-surfaced globular vessel Fabric 2 fine sandy E. and rim black (N2) to reddish-grey (5YR 5 2) and burnished I, very dark grey (N3), Bk. reddish-yellow (5YR6 6) externally, dark grey (N4) internally

180 D0 Rounded. upright rim of globular Vessel. Fabric 2 with shell flecks up to 1 mm and grog E.1. and Bk very dark grey (N3) with burnished surfaces.

181 D0. Globular vessel with upright rounded rim. Fabric 2 with a few calcareous inclusions under 1 mm. E reddish-brown (5YR 5 3) to very dark grey (N3) and burnished. I reddish grey (5YR 5 2) to very dark grey (N3) and burnished on rim. Bk very dark grey (N3)

182 D0. Rounded. sharply everted rim of globular vessel with grooved decoration. Fabric 2 with abundant flint inclusions up to 2mm. E. and I very dark grey (N3). burnished externally Bk. grey (N5). Parellek Ossbury (Cunliffe 1974 329. 3)

183 D0 Globular jar with everted rim Fabric 2 with shell particles and gravel up to 2mm and some grog. F well burnished but worn. black (N2.5) Land Bk very dark grey (N3) with worn. vesticular surface.

184 G. Globular vessel with narrow mouth. flattened rim. and arched burnishing strokes externally Very abraded Fabric 2 sandy. E. very dark grey (N3). I and Bk dark grey (N4)

185 M. Thick-walled bowl form. Fabric 2 sandy E reddish-brown (5YR 5 3) and burnished. I. very dark grey (N3) to pinkish grey (5YR 6 2) Bk dark grey (N4) core between layers of surface colours.

186 M tapered rim Fabric 2 with grog particles and shell flecks up to 1mm. E and I burnished black (N2 5) Bk very dark grey (N3).

187 M. Rim with narrow groove and internal lip Fabric I with shell up to 6 mm F. dark grey (5YR 4 1) to dark reddish-grey (5YR 4 2) I and Bk very dark grey (N3) with worn areas of reddish-grey (5YR 5 3) on interior

188 Lug handle with traces of burnishing. Fabric 2 sandy F.1. and Bk. very dark grey (N3) with internal carbon deposits.

189 Base angle Fabric 2 sandy with some gravel up to 2mm and a few vegetable voids F. very dark grey (N3) to light reddish-brown (5YR 6 3). I. dark grey (5YR 4 1) and worn Bk. very dark grey (N3)

190 Sharp base angle Fabric 2 with shell flecks up to 1 mm E light reddish-brown (5YR 6 4) and burnished I grey (10YR 5 1) and smoothed. Bk very dark grey (N3)

191 Base angle Fabric 2 fine sandy with grog. F very dark grey (5YR 3 1) and burnished I grey (5YR 5 1) Bk. dark reddish-grey (5YR 4 2)

192 Base angle Fabric 2 with shell flecks up to 1 mm and grog. E and I. black (N2.5) to weah red (2 5YR 5 2) and burnished Bk very dark grey (N3)

193 Angle of flat-bottomed base with how tool Fabric I with shell inclusions up to 5mm E and I very dark grey (N3) with white deposit exterior well smoothed. interior very worn Bk very dark grey (N3)

194 Base angle with slight foot Fabric 2 coarse sandy, relatively hard with grog F and I very dark grey (N3) and burnished with reddish-brown (2 5YR 5 4) internally Bk very dark grey (N3)

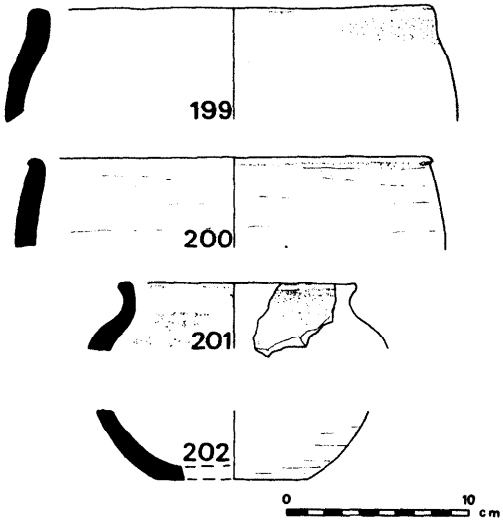
195 Angle of very thick base Fabric 2 sandy E and I dark grey (10YR 4 1) and smoothed Bk very dark grey (10YR 3 1)

196 Base angle with irregular thumb impressions around foot Fabric I with abundant shell fragments up to 8mm I black (N2 5) to weah red (2 5YR 5 2) with traces of burnishing I light brownish-grey (10YR 6 2) Bk very dark grey (N3)

197 Base angle of far with slightly convers sides and protuding foot. Fabric 2 sandy with vegetable voids and shell particles under 1 mm E mottled very dark grey (N3) and reddish-brown (5YR 5 3) I dark grey (10YR 4 1) Bk very dark grey (N3) with 1 mm thick surface layers of reddish brown (5YR 5 3)

198 Angle of very thick base. Fabric 2 sandy F and B very dark grey (N3) with pinkish-grey (7 5YR 6 2) areas externally Bk very dark grey (N3)

44 Iron Age pottery, Ditch 13 key (see preceding page)



199 BO. Thickened rim of a globular vessel. Fabric 2 with shell flecks under 1mm and abundant grog. E. and I. pinkish-grey (7.5YR 6/2) to light brown (7.5YR 6/4) with very dark grey (N3) and wiping marks internally. Bk. very dark grey (N4).
200 D0. Rim of globular vessel with very worn everted lip. Fabric 2 sandy. E., I., and Bk. very dark grey (N3) with burnished surfaces.
201 B2. Necked globular jar with flat-topped, slightly everted rim. Fabric 2. E. reddish-brown (5YR 5/4) with traces of burnishing. I. grey (N5) to black (N2). Bk. very dark grey (N3).
202 D0. Base angle of globular fine-ware vessel. Fabric 2 sandy. E. black (N2.5) and burnished. I. very dark grey (10YR 3/1) and worn, Bk. very dark grey (N3).

45 Iron Age pottery, Ditch 45

fragments of 3mm or less, often sparsely distributed in fabric 2. Quartzite grains and pebbles are common. Hard, dark, shiny grains in the fabrics of several vessels including Fig. 41, 122, and Fig. 47, 243, have been identified as limonite. Oolitic particles of c. 0.5mm, as in the globular bowl, Fig. 49, 273, are occasionally found.

Surface wiping is a common technique as in Period 1 and tends to be vertical on external surfaces and horizontal when found on the interior. Burnishing is confined almost exclusively to fabric 2 and is now much more frequent than in Period 1, as might be expected from the strong emphasis on D forms. Vessels of this form are often burnished inside and out (see Fig. 44, 178 and 180; Fig. 46, 209 and 210; Fig. 47,238; Fig. 48,258; Fig. 49, 273). Thirteen features produced sherds with possible hematite coating, which are mainly uninformative body sherds but include Fig. 47, 245 from ditch 331 and Fig. 42, 143 from ditch 73. This surface treatment remains almost as common as it was in Period 1 and is still restricted to fabric 2.

Finger-impressed decoration on rims and/or shoulders occurs in only seventeen groups from Period 2 and is much less common than in Period 1. Other plastic decoration includes the moulded design on Fig. 41, 134 from ditch 18, what is probably a dimple from pit 101, and a knobbed body sherd Fig. 43, 157 from ditch 19. Tooled or incised lines, often parallel, are another mode of decoration. Examples of this technique were recovered from ditches 13, 32, 273, and 361, and pits 80 and 287.

While a great variety of colours occur and many vessels have mottled surfaces, the globular jars and bowls (D) impose upon Period 2 a certain uniformity of surface appearance which was lacking in Period 1. Their burnished, usually dark, and often sandy fabrics are distinctive of this period's pottery. Although coarse, more irregular vessels are still common, it would seem that now more skill and attention were employed to produce at least one element of the ceramic complement, these fine-ware globular bowls.

Period 3

The assemblages illustrating this period are arranged in chronological order in preference to numerical.

Ditch 134

The chief element distinguishing this assemblage is the presence of wheel-turned vessels. Of the 38 rims and other sherds diagnostic of form, just under half could be assigned to categories other than M. Fine-ware globular vessels (D), none of which are wheel-turned, are the most common (e.g. 294 (decorated) and 289-293). Also hand-made are the coarse-ware jars (B) including 283-286 and the vessels with externally expanded rims (A2) such as 280-282. The two fine-ware angular bowls (C2), 287 and 288, are almost certainly contaminants from an earlier period. The wheel-turned vessels include a narrow-mouthed bead-rim form (G) of an extremely hard fabric (297), a fragment of butt-beaker, and two necked bowls (E), 295 and 296. Bases sometimes have footrings.

Fabric 1 comprises only one-fifth of this group, including some extremely worn sherds (e.g. 304) which are probably rubbish survivals. Fabric 2 is usually of sandy texture with grains of quartz in the paste and often contains grog and/or small calcareous inclusions. Flint inclusions and voids from plant material are present but rarely. Burnishing is not uncommon. The sole example of hematite coating almost certainly is debris of an earlier period incorporated in the fill of this ditch. There are a few instances of finger-impressed and incised decoration (e.g. 294, 306, 307), but parallel horizontal grooves and cordons are more usual (e.g. 308-310).

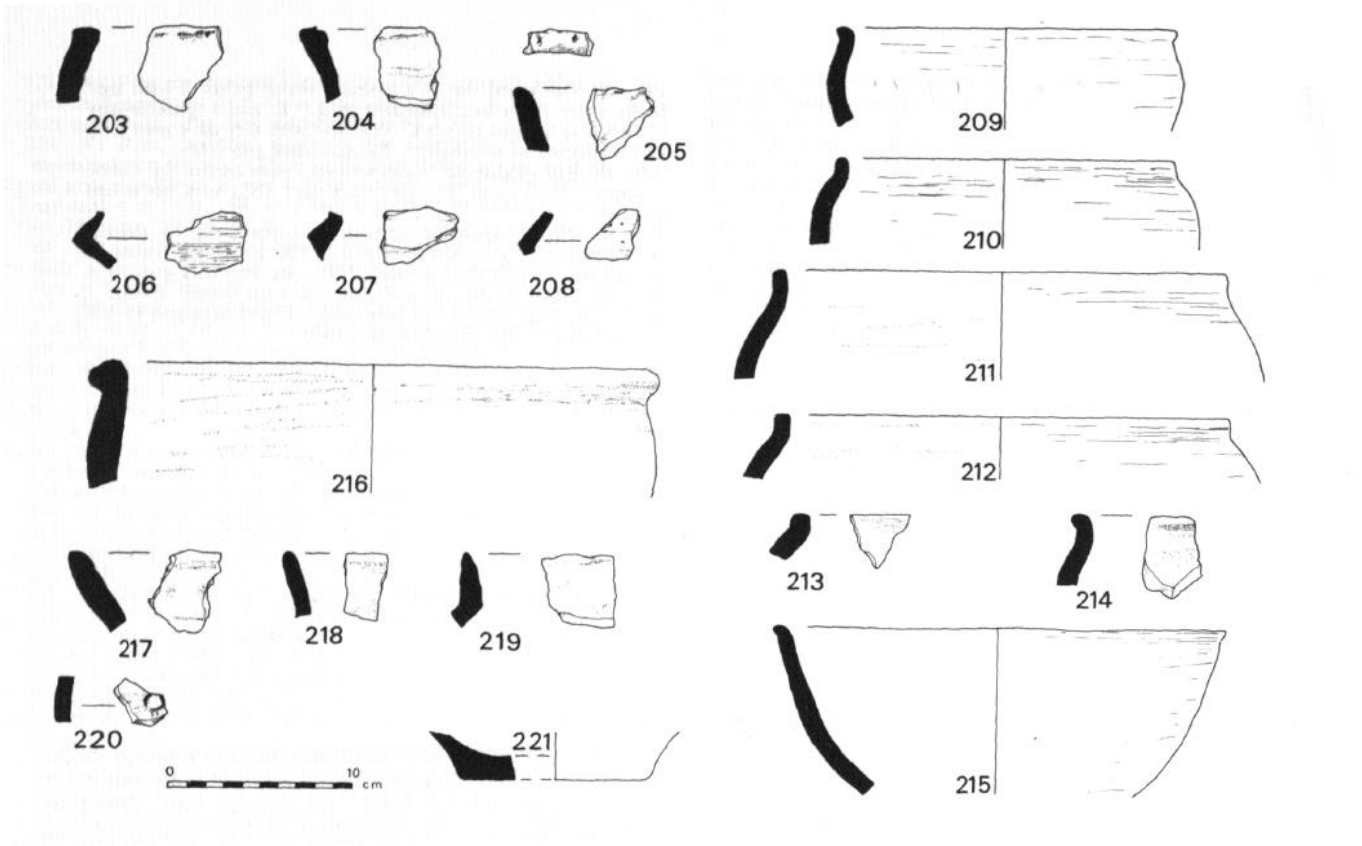
Ditch 103

This ditch, which is probably contemporary with 134, yielded less pottery and an even lower percentage of specific forms. Angular vessels (C) are nearly as numerous as the fine-ware globular jars (D). One heavy bead-rim probably belonged to a storage jar. Wheel-turned sherds recovered include the base angle 327.

Less than 20% of the pottery is of fabric 1. Burnishing is common, having been applied to both surfaces in some cases (e.g. 318,324).

Ditch 27

Over two-thirds of the forms present were assigned to categories other than M. With one exception, forms common in earlier periods on the site are very rare, including only three A1 rims (328-330), five globular coarse-ware jars (B2) (e.g. 331, 332), and one angular



203 B0. Thickened rim of a jar. Fabric 2 coarse sandy. E. reddish-brown (2.5YR 4/4). I. very dark grey (N3) and wiped. Bk. very dark grey (N3) with external surface layer as exterior. Parallel: Cassington N.W. (Harding 1972, pl. 63, H).

204 C1. Flattened Raring rim, expanded internally. Fabric 1 with shell inclusions up to 6mm. E. and I. red (2.5YR 5/6), dark reddish-grey (10R 4/1) on rim. Surfaces wiped but worn. Bk. red (2.5YR 5/6).

205 C1. Flaring rim with finger-nail impressions along top. Fabric 1 with shell inclusions up to 5mm. E. and I. mottled reddish-yellow (5YR 6/6), light reddish-brown (5YR 6/3). and very dark grey (N3). Bk. very dark grey (N3).

206 C2. Neck and shoulder angles of fine-ware vessel. Fabric 2 fine sandy. E. very dark grey (N3). I. weak red (2.5YR 4/2) and wiped. Bk. dark reddish-brown (5YR 3/2).

207 C2. Shoulder of fine-ware angular vessel. Fabric 2 fine sandy with grog particles. E. and I. very dark grey (N3) and burnished. Bk. very dark grey (N3).

208 C2. Sharp shoulder angle of fine-ware vessel with scratched dots and horizontal line. Fabric 2 fine sandy with grog. E., I., and Bk. very dark grey (N3) with external burnishing.

209 D0. Burnished vessel with everted lip. Fabric 2 with shell flecks up to 2mm and grog particles. E. reddish-brown (2.5YR 4/4) to very dark grey (N3). I. black (N2.5). Both surfaces burnished, Bk. very dark grey (N3) with a surface layer of reddish-brown (2.5YR 4/4).

210. D0. Upright rim of globular vessel. Fabric 2 with grog particles and scattered shell flecks up to 1 mm. E. black (N2.5). I. very dark grey (5YR 3/1). Surfaces burnished. Bk. very dark grey (5YR 3/1).

211 D0. Upright rim of globular vessel. Fabric 2 with a few grog inclusions. E. and Bk. very dark grey (N3) with reddish-brown (5YR 5/3) surface areas. I. dark grey (5YR 4/1). E. burnished; 1. wiped.

212 D0. Flat-topped upright rim of globular vessel. Fabric 1 with shell inclusions up to 4mm and grog. E. and I. very dark grey (N3); burnished on exterior and interior of rim. Bk. dark reddish-brown (2.5YR 3/4).

213 D0. Short upright rim of burnished vessel. Fabric 2 with sparse shell flecks under 1 mm. E. very dark grey (N3). I. dark grey (N4). Bk. dark grey (N4) with external layer of reddish-brown (5YR 5/4).

214 D0. Everted rim of globular vessel. Fabric 2 fine sandy. E. and I. light reddish-brown (5YR 6/3) with grey (5YR 5/1) rim. Surfaces burnished. I. worn. Bk. grey (5YR 5/1).

215 D1. Burnished bowl. Fabric 2 with shell flecks under 1 mm. E. black (N2.5) to reddish-brown (5YR 5/4) and burnished. I. weak red (10R 4/2) to black (N2.5); worn but with traces of burnishing. Bk. very dark grey (N3).

216 L. Thickened rim of a globular vessel. Fabric 2 with grog inclusions and some gravel particles up to 15mm. E. and I. light brown (7.5YR 6/3) and wiped. Bk. dark grey (N4).

217 M. Rounded, widely flaring rim. Fabric 1 with shell fragments up to 5mm. E. dark reddish-grey (5YR 4/2). I. light red (2.5YR 616) to reddish-brown (5YR 5/3). Surfaces wiped. Bk. very dark grey (N3) with external layer of red (2.5YR 5/6).

218 M. Rounded rim. Fabric 2 sandy. E. and Bk. very dark grey (N3) with traces of burnishing on E. I. dark grey (N4).

219 M. Tapering, flaring rim and neck angle. Fabric 1 with shell inclusions up to 5mm. E. and I. very dark grey (N3) to pinkish-grey (7.5YR 6/2) and wiped. Bk. very dark grey (N4).

220 Body sherd with incised circle and ray design. Fabric 2 sandy. E. and I. reddish-brown (5YR 5/3-4). Bk. very dark grey (N3).

221 Base angle. Fabric 2 coarse sandy. E. very dark grey (N3) and well smoothed. I. very dark grey (5YR 3/1) and very worn. Bk. dark reddish-brown (5YR 3/2).

46 Iron Age pottery, Ditch 32

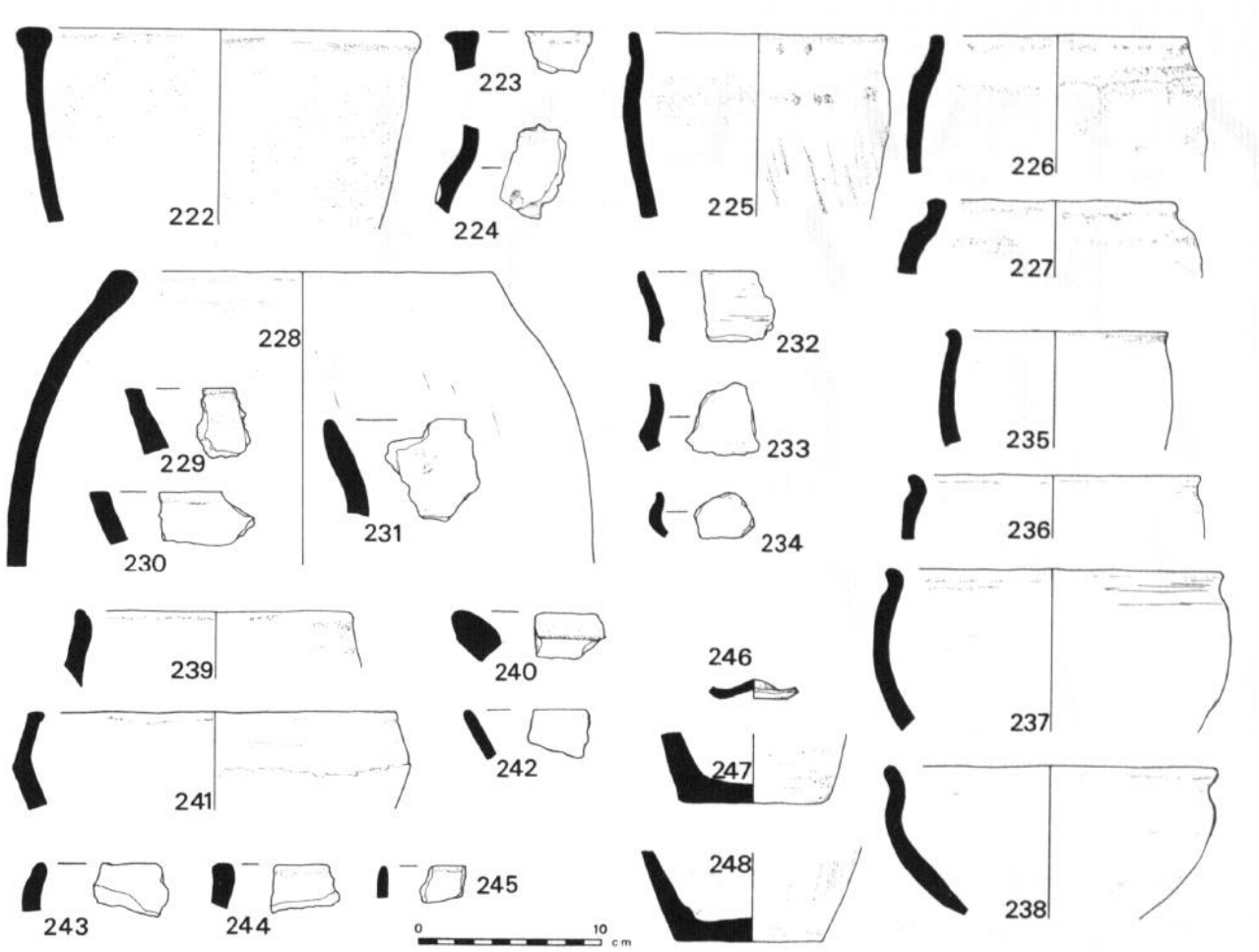
222 A2. Bowl with externally expanded, slightly convex rim. Fabric 1 with shell inclusions up to 6mm and a few grog particles. E. and I. wiped but irregular, black (N2.5) to reddish-prey (5YR 5/2). Carbon deposit externally, shell exposed internally. Bk. black (N2.5).

223 A2. Flattened, externally expanded rim. Fabric 1 with abundant shell inclusions up to 3mm. E. brown (7.5YR 5/2). I. and Bk. very dark grey (N3). Parallels: Standlake (Harding 1972, pl. 46, K and L).

224 B1. Neck and rounded, finger-impressed shoulder of jar. Fabrrc 1 with shell inclusions up to 3mm and grog. E. and I. pinkish-grey (7.5YR 612) to brown (7.5YR 5/2). Bk. very dark grey (N3). Parallel: Standlake (Harding 1972, pl. 47, C).

225 B2. Globular jar with thinned rim and slight shoulder with shallow finger-impressions externally. Fabric 1 sandy with some large (up to 8mm) shell inclusions. E. dark grey (10YR 4/1) and roughened with vertical wiping on lower portion. I. and Bk. very dark grey (N3) with carbon deposits.

47 Iron Age pottery. Ditch 331 (facing page)



226 B2. Globular jar with flat, upright rim and facets on shoulder from trimming at leather-hard stage. Fabric 2 sandy with some vegetable voids. E. very dark grey (5YR 3/1) with light reddish-brown (5YR 6/4). I. very dark grey (5YR 4/1). Bk. very dark grey (5YR 3/1) with light reddish-brown (5YR 6/4) external layer.

227 B2. Globular jar with neck groove. Fabric 1 with shell fragments up to 5mm and some gravel inclusions. E. light brown (7.5YR 6/4) to very dark grey (N3) and irregular. I. light reddish-brown (5YR 6/4) to very dark grey (5YR 4/1); wiped but worn. Bk. very dark grey (N3).

228 B3. Large jar with inturning, thickened rim. Fabric 2 with shell flecks up to 2mm and grog particles up to 5mm. E. dark brown (7.5YR 4/2) to reddish-brown (5YR 5/3) and burnished. I. and Bk. black (N2.5); surface worn but with traces of burnishing.

229 C1. Flattened, tapering, everted rim of angular jar. Fabric 1 with calcareous inclusions up to 3mm. E. and I. reddish-brown (5YR 5/4) to very dark grey (N3). Bk. very dark grey (N3).

230 C1. Flat, everted rim of an angular jar. Fabric 1 with shell inclusions up to 9mm and grog particles. E. and I. light reddish-brown (5YR 6/4) to dark grey (10YR 4/1). Bk. very dark grey (N3). Parallel: Allen's Pit (Harding 1972, pl. 52, B).

231 C1. Flaring rim of angular jar. Fabric 1 with shell inclusions up to 8mm. E. light reddish-brown (5YR 6/4) to pink (7.5YR 7/4). I. and Bk. very dark grey (N3).

232 C2. Flaring rim of angular vessel. Fabric 2 with shell inclusions up to 1 mm. E. very dark grey (N3) with traces of burnishing. I. grey (10YR 5/1). Bk. very dark grey (N3) with grey (10YR 5/1) surface layers.

233 C2. Angular shoulder of vessel with flaring rim. Fabric 2 sandy with shell inclusions under 1 mm and grog. E. dark grey (5YR 4/1) worn to reddish-grey (5YR 5/2). I. and Bk. very dark grey (N3); I. with white deposit. Bk. with external layer of reddish-grey (5Y R 5/2).

234 C2. Rounded shoulder of vessel with flaring rim. Fabric 2 sandy. E., I., and Bk. very dark grey (N3) with burnished surfaces.

235 D0. Globular jar with everted rim. Fabric 2 with grog and shell inclusions up to 1 mm. E. and Bk. very dark grey (N3) with burnished surface. I. dark grey (N4) with traces of burnishing. Parallel: Frilford (Harding 1972, pl. 68, A).

236 D0. Everted rim of burnished globular vessel. Fabric 2 with a few plant voids. E. and I. very dark grey (N3), burnished but worn. Bk. very dark grey with internal surface layer of reddish-brown (5YR 5/3).

237 D1. Globular bowl with everted rim. Very worn. Fabric 1 sandy. E. black (N2.5) and burnished. I. very dark grey (N3). Bk. very dark grey (N3) with reddish-brown (5YR 5/4) surface layers.

238 D1. Bowl with burnished surfaces and everted rim. Fabric 2 relatively hard. E. and I. black (N2) and well burnished. Bk. very dark grey (N3).

239 M. Rounded rim with internal groove. Fabric 1 with grog particles up to 4mm and shell fragments up to 3 mm. E. and Bk. very dark grey (N3). I. reddish-grey (5YR 5/2) and very worn.

240 M. Thick everted rim with external groove. Fabric 2 with plant voids and grog. E. and I. very dark grey (N3). Bk. grey (10YR 5/1).

241 M. Slightly expanded rim and shoulder angle of vessel with external surface largely worn away. Fabric 2 sandy. E. above shoulder pale brown (10YR 6/3) with surface missing. E. below shoulder and I. very dark grey (N3). Bk. very dark grey (N3).

242 M. Thin, rounded, faring rim. Fabric 1 with abundant calcareous inclusions up to 2mm. E. and I. very dark grey (N3) and smooth. Rim worn and brown (7.5YR 5/2). Bk. very dark grey (N3).

243 M. Rounded, slightly inturning rim. Fabric 2 with abundant limonite grains and a few vegetable voids. E. very dark grey (N.3) to reddish-brown (5YR 5/3). I. reddish-brown (2.5YR 4/4). Bk. reddish-brown (5YR 4/3) with internal layer as I. Parallels: Harding 1972, pl. 60, A-H.

244 M. Flattened, thickened rim. Fabric 2 sandy with shell inclusions up to 1 mm. E. and I. light brown (7.5YR 6/3) to grey (10YR 5/1) and smoothed. Bk. very dark grey (N3). Parallel: Cassington N.W. (Harding 1972, pl. 63, L).

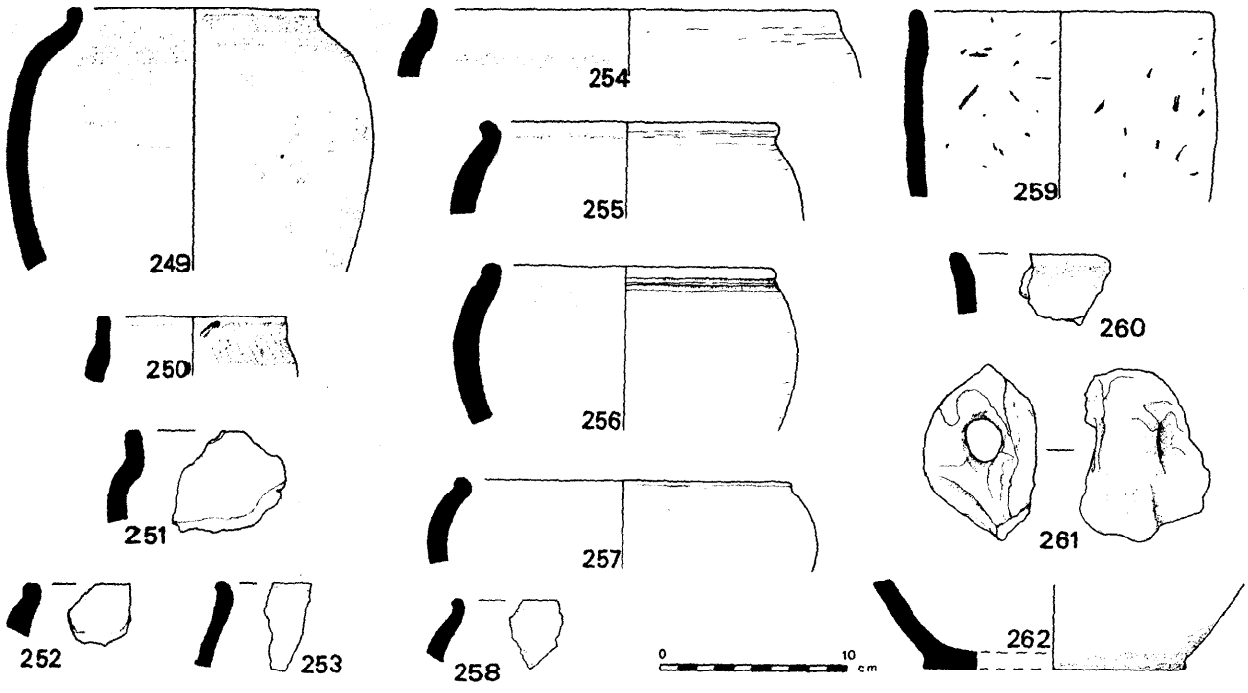
245 M. Thin, rounded, upright rim with hematite coating. Fabric 2 sandy. E. and I. reddish-brown (5YR 5/4) with coating of dull, weak red (10R 4/4) in places on E. Bk. very dark grey (N3) with surface layers as E. and I.

246 Omphalos base. Fabric 2 fine sandy. E., I.. and Bk. dark grey; E. worn along edge of indentation,

247 Flat, thick base. Fabric 2 sandy with gravel particles up to 2mm. E., I., and Bk. very dark grey (N3); I. very worn.

248 Flat base of a globular vessel. Fabric 2 sandy with gravel inclusions up to 2mm, grog, and some vegetable voids.

dark grey (N3); surface flaking off to reddish-brown (5YR 4/4). I. dark reddish-grey (5YR 4/2). Bk. dark reddish-brown (2.5YR 3/4).



249 B2. High-shouldered globular jar with short flattened rim. Fabric 2, sandy with abundant gravel inclusions up to 5mm. E. very dark grey (N3) to reddish-brown (5YR 5/3). I. dark grey (N4) and wiped with light grey (10YR 7/2) deposit. Bk. very dark grey (N3)

250 B2. Flattened, upright rim of globular jar with possibly knife-trimmed shoulder. Fabric 2 sandy. E., I., and Bk. mottled light reddish-brown (5YR 6/4), pinkish-grey (7.5YR 6/2). and very dark grey (N3).

251 B2. Globular jar. Fabric 2 sandy with limonite grains and some gravel up to 6nm. E. and Bk. very dark grey (N3). I. brown (7.5YR 5/2) to reddish-brown (2.5YR 5/4).

252 D0. Slightly flattened rim of globular vessel. Fabric 2 coarse sandy with a few gravel inclusions up to 1.5mm. E. and I. dark reddish-grey (5YR 4/2) with traces of burnishing. Bk. dark red (2.5YR 3/6).

253 D0. Slightly swollen rim with everted lip above sloping shoulder. Fabric 2 sandy, E. and I. mottled light brown (7.5YR 6/4), very dark grey (N3), and reddish-brown (5YR 5/4); burnished E. and rim I. Bk. mostly vet dark grey (N3).

254 D0. Rounded rim of globular vessel. Fabric 2. fine sandy. E., I. and Bk. very dark grey (N3); E. burnished and with light brownish-grey (10YR 6/2) areas. Parallel: Cassington, N.W. (Harding 1972, pl. 64, Y).

255 D1. Globular bowl with everted rim. Fabric 2 sandy. E. black (N2.5) and burnished. I. grey (10YR 5/1). Bk. very dark grey (N3) with 1 mm thick, brown (7.5YR 5/3) surface layers.

256 D1. Globular bowl with two parallel horizontal grooves below rim externally. Fabric 2 fine sandy. E. greyish-brown (10YR 5/2) to black (N2.5) and burnished. I. grey (10YR 6/1) to very dark grey (10YR 3/1) with traces of burnishing but worn: Bk. dark grey (N4) with clearly defined external layer (2mm) of dark brown (7.5Y R 4/2).

257 D1. Globular bowl with external groove just below rim. Fabric 2 with shell flecks up to 1 mm. E. black (N2.5) and burnished. I. very dark grey (N3) and pitted with traces of burnishing. Bk. very dark grey (N3).

258 D1. Slightly everted rim of a globular bowl. Fabric 2 with a few shell inclusions up to 2mm. E. very dark grey (5YR 3/1) to reddish-brown (5YR 5/4). I. brown (7.5YR 5/2). Surfaces burnished. Bk. very dark grey (N3).

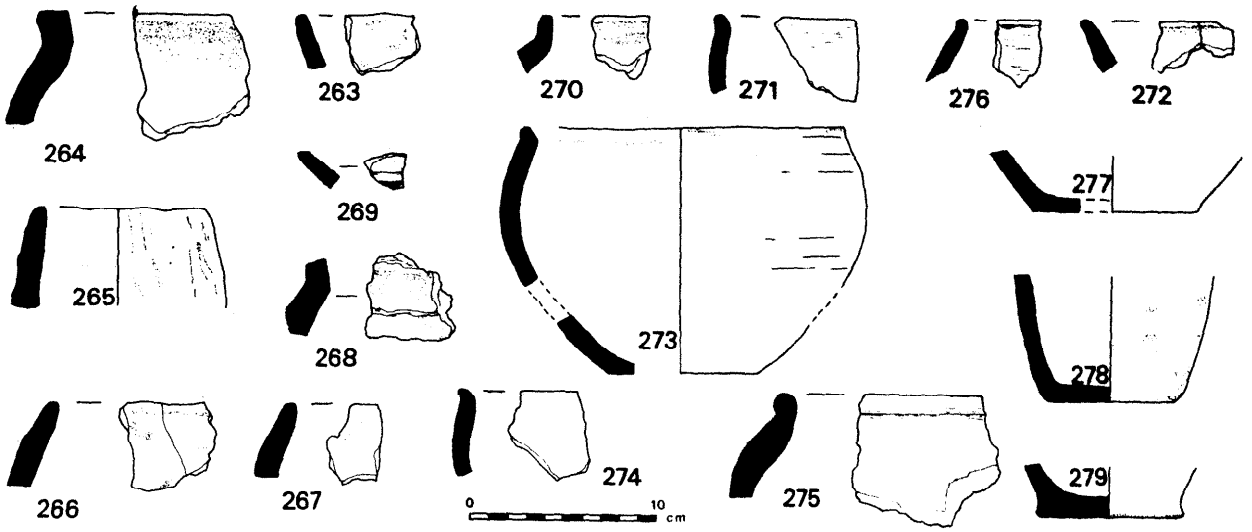
259 M. Straight-sided vessel with rounded rim, resembling 'saucepan' pottery in form. Fabric 2 sandy with plant voids, E. black (N2) and burnished. 1. greyish-brown (10YR 5/2) to very dark grey (N3). Both surfaces slightly pitted. Bk. very dark grey (N3).

260 M. Rounded rim slanting slightly outwards. Fabric 2 with shell particles under 1 mm and grog particles. E.. I., and Bk. reddish-brown (5YR 5/3) to dark grey (N4) with traces of internal burnishing.

261 Heavy lug handle. Fabric 2 with a few shell flecks less than 1 mm. E. and I. very dark grey (N3) worn to reddish-brown (5YR 5/3) in places. Bk. dark grey (N4).

262 Base angle with slightly protruding foot. Fabric 2 with shell flecks under 1 mm and abundant grog particles up to 2mm. E. and Bk. very dark grey (N3). I. very worn, dark grey (5YR 4/1).

48 Iron Age pottery, Ditch 20



263 B0. Rounded, slightly tapered jar rim. Fabric 2 sandy with rounded quartz inclusions up to 2mm. E. and I. irregular and very dark grey (N3) with weak red (2.5YR 5/2) area I. Bk. very dark grey (N3).

264 B2. Flattened, slightly everted rim of thick-walled globular jar. Fabric 2 sandy with shell flecks up to 2mm and a few grog particles. E. and top of rim light reddish brown (2.5YR 6/4) with dark grey (N4) blotch and wiped. I. black (N2.5) with traces of burnishing. Bk. very dark grey (N3).

265 B3. Slightly tapering rim of barrel jar with very thick walls, made of poorly joined, flattened coils. Fabric 2 fine sandy with some plant voids and some grog. E. and I. very dark grey (N3) and wiped vertically on E., horizontally I. Bk. very dark grey (N3).

266 B3. Rounded rim of barrel jar. Fabric 2 sandy with a few shell inclusions. E. and I. reddish-yellow (5YR 6/6) to red (2.5YR S/6) near rim, grey (5YR 4/1) to black on body. Bk. dark reddish-brown (5YR 2.5/2).

267 B3. Rounded, tapering rim of barrel jar. Fabric 2 sandy. E. reddish-brown (5YR 5/4) with grey (N4). I. dark reddish-grey (5YR 4/2) to reddish-brown (5YR 5/4). Bk. very dark grey (N3).

268 Cf. Neck and shoulder of coarse-ware angular vessel. Fabric 1 with shell inclusions up to 5mm. E. pink (7.5YR 7/4). I. light brown (7.5YR 6/4) and wiped. Bk. reddish-brown (5Y R 5/4).

269 C2. Angular body sherd of fine ware with three parallel horizontal grooves on burnished exterior. Fabric 2 sandy with grog particles; relatively hard. E. dark grey (5YR 4/1). I. very dark grey (N3) and wiped. Bk. very dark grey (5YR 3/1).

270 D0. Upright rim of globular fine-ware vessel. Fabric 2 with calcareous inclusions and grog particles up to 2mm and a few plant voids. E. very dark grey (N3) and weak red (2.5YR 4/2). I. and Bk. very dark grey (N3). Surfaces burnished.

271 D0. Slightly everted rim of globular fine ware vessel. Fabric 2 sandy with a very few large (4mm) calcareous inclusions. E. very dark grey (N3). I. dark grey (5YR 4/1). Surfaces horizontally burnished. Rim worn. Bk. very dark grey (5YR 3/1) with 2mm reddish-brown (5YR 5/3) surface layer E.

272 D0. Everted rim of a fine-ware vessel. Fabric 2 with some shell flecks under 1 mm. E. reddish-brown (5YR 4/3) to very dark grey (5YR 3/1) with traces of burnishing. I. weak red (2.5YR 4/2) and smooth. Bk. weak red (2.5YR 4/2) with external 1 mm layer of reddish brown (2.5YR 5/4).

273 D1. Fine-ware globular bowl with slightly everted rim and flat base. Fabric I with abundant calcareous inclusions. mostly under 3mm, some of which are distinguishable as shell, but most of which are 0.5 mm ovoids. E. and I. very dark grey (5YR 3/1) with pinkish-grey (7.5YR 6/2). Surfaces burnished but worn. Bk. dark grey (N4).

274 D1. Fine ware globular vessel with worn, everted rim with slight lip. Fabric 2 sandy. E. black (N2.5) and well burnished. I. very dark grey (N3); worn with traces of burnishing. Bk. very dark grey (5YR 3/1).

275 G. Thick-walled vessel with narrow mouth, bead rim, and rounded shoulder. Fabric 2. E. and I. very dark grey (N3) and burnished with reddish-brown (2.5YR 4/4) on rim. Bk. core dark grey (N4) with 2mm layers of very dark grey at surfaces.

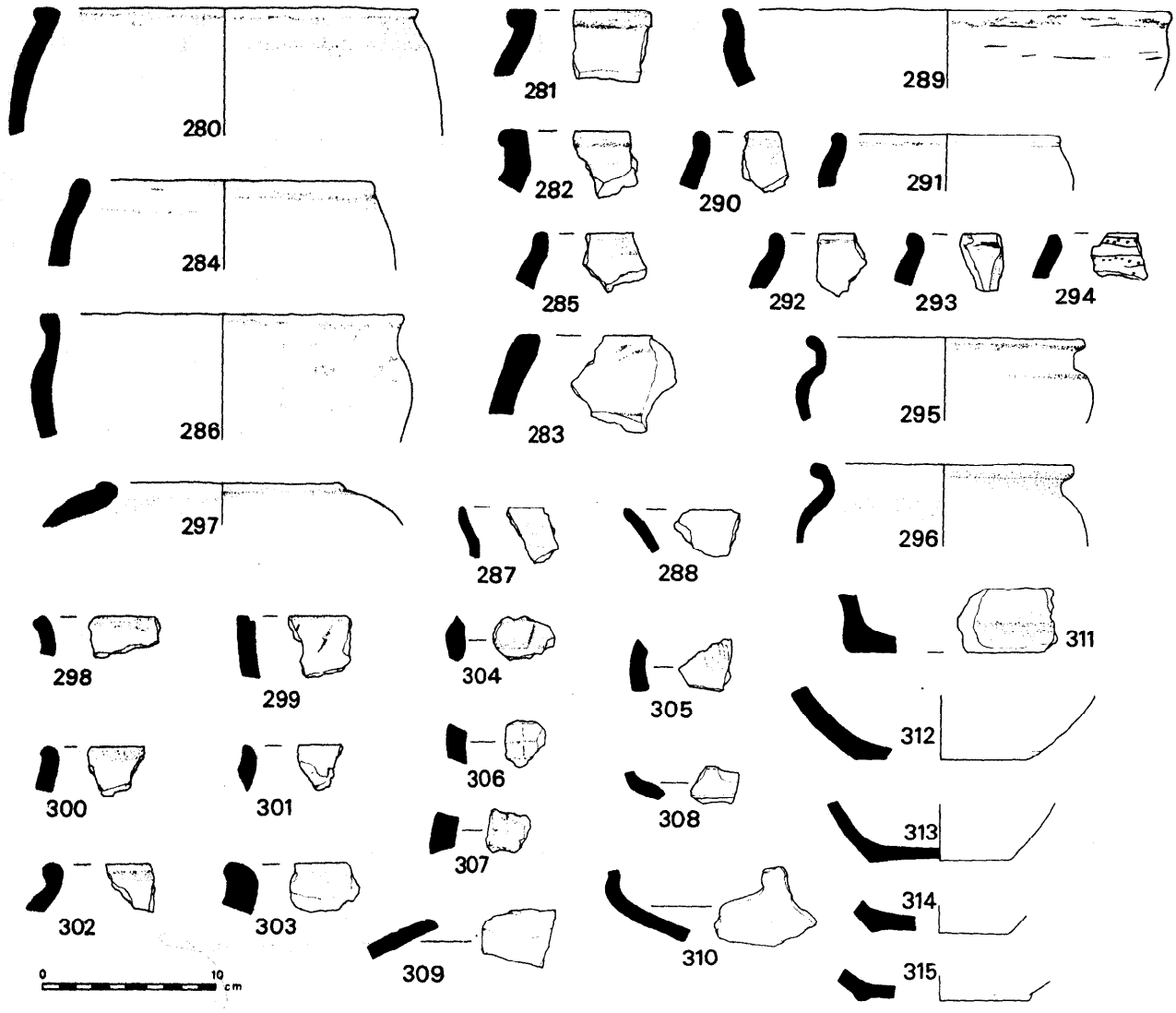
276 M. rounded, slightly everted rim of a vessel with sloping shoulder. Fabric 2 sandy and relatively hard. E. and I. black (N2.5), with very dark grey (5YR 3/1) exterior, and well burnished on both surfaces. Bk, dark grey (5YR 4/1).

277 M. Base an e. Fabric 2 with shell flecks less than 1 mm. E. black (N2.5) and burnished but worn to reddish-grey (5YR 5/2) on angle. I. dark grey (10YR 4/1). Bk. very dark grey (N3).

278 M. Flat base and slightly convex side of vessel. Fabric 2 sandy. E. black (N2.5) to dark reddish-brown (5YR 3/2). I. very dark grey (N3), Bk. very dark grey (N3).

279 M. Base angle with slightly protruding foot. Fabric 2 fine sandy. E. very smooth, black (N2.5) with erratic, mostly diagonal. burnishin marks, worn and ink (7.5YR 7/4) on base. I. dark grey (N4). Bk. black (N2.5).

49 *Iron Age pottery, Ditches 273 and 279*



280 A2. Globular jar with nearly flat rim, expanded externally. Fabric 2 with shell inclusions under 1 mm and grog particles under 2mm. E. weak red (2.5YR 4/2) with carbon deposits. I. brown (7.5YR 5/2) to reddish-brown (2.5YR 5/4) and wiped. Bk. very dark grey (N3).

281 A2. Flattened rim, expanded externally, probably of a globular jar. Fabric 2 sandy with abundant grog up to 3 mm. E. and top of rim reddish-brown (5YR 5/4) and roughly burnished. I. light reddish-brown (5YR 6/4) with horizontal wiping marks. Bk. reddish-brown (5YR 5/4).

282 A2. Flattened rim, expanded externally, of vessel with upright neck. Fabric 1 with shell inclusions up to 5mm. E. light brown (7.5YR 6/4). I. and Bk. very dark grey (N3).

283 B0. Flattened, thickened rim of coarse-ware jar with wiped surfaces. Fabric 2 with shell inclusions up to 3mm and grog. E. very dark grey (5YR 3/1). I. dark reddish grey (5YR 4/2) to very dark grey. (5YR 3/1) at rim.

284 B0.. Rounded, slightly thickened rim of jar with external groove. Fabric 2 with occasional gravel inclusions. E., I., and Bk. very dark grey (N3) surfaces smoothed,

285 B0. Rounded, upright rim of coarse jar. Fabrio 2 with abundant shell inclusions up to 2mm. E. dark grey (5YR 4/1) and smoothed. I. reddish-brown (5YR 5/3) with traces of burnishing. Bk, very dark grey (N3).

286 B1. Jar with rounded shoulder and flattened rim, thickened externally. Fabric 1 with shell inclusions occasionally up to 6mm and eruptive surfaces due to very abundant grog particles up to 3mm, E. and Bk. very dark grey (N3). I. weak red (2.5YR 4/2).

287 C1. Constricted neck and rounded, flaring rim of angular vessel with very worn traces of hematite coating on rim. Fabric 2 with calcareous inclusions under 1 mm and occasional grog. E. and I. light reddish-brown (2.5YR 6/4) to dark grey (5YR 4/1) and black (N2.5) with traces of burnishing. Bk. very dark grey (N3).

288 C2. Rounded, widely flaring rim. Fabric 2 fine sandy with calcareous inclusions up to 1 mm. E., I., and Bk. very dark grey (N3) with parallel horizontal grooves I., worn burnishing E.

289 D0. Rounded, everted rim, very worn, of fine-ware globular vessel. Fabric 2 sandy with shell inclusions under 1 mm, E. black (N2.5) and burnished. I. very dark grey (N3) and worn. Bk. very dark grey (5YR 3/1).

290 D0. Rounded, slightly everted rim. Fabric 2. E. and I. dark grey (10YR 4/1), smooth but much worn. Bk. dark grey (N4).

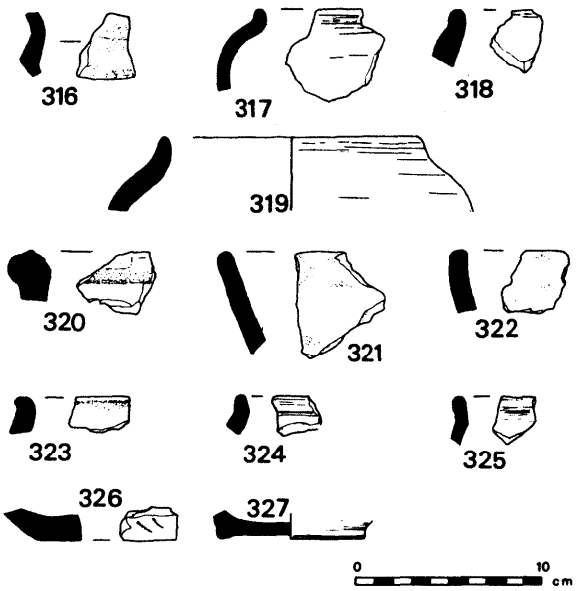
291 D0. Rounded rim of globular vessel with slight internal groove. Fabric 2 with shell inclusions up to 1 mm. E., I., and Bk. very dark grey (N3), burnished E.

292 D0. Rounded rim of fine ware globular vessel. Fabric 2 fine sandy. E. and I. burnished black (N2). Bk. dark grey (5YR 4/1).

293 D0. Bead-rim of fine-ware globular vessel. Fabric 2 sandy with abundant shell inclusions up to 1.5 mm. E. burnished black (N2) but worn. I. dark grey (N4) and worn. Bk. very dark grey (5YR 3/1).

294 D0. Rounded rim, thickened internally, of a globular vessel with lightly incised, wavy horizontal lines and deep punch marks. Fabric 2 sandy. E., I.. and Bk. very dark grey (N3).

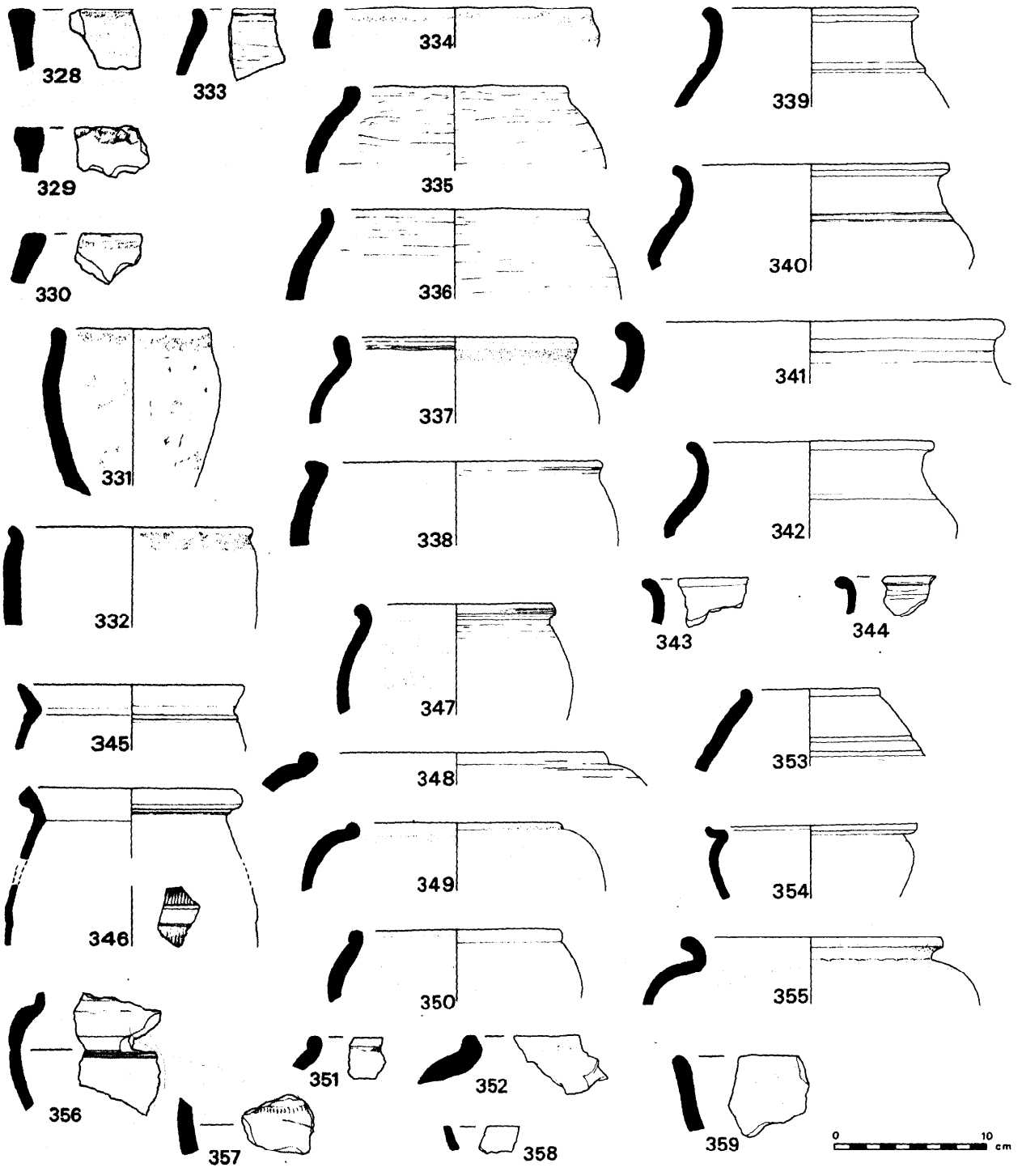
50 Iron Age pottery, Ditch 134



51 Iron Age pottery, Ditch 103

316 C2. Neck and shoulder angle of fine-ware bowl. Fabric 2. E. and Bk. very dark grey (N3). 1. greyish-brown (10YR 5/2). Surfaces well smoothed.
317 D0. Fine globular vessel with short upright rim. Fabric 2 with shell particles up to 1 mm. E. and I. dark grey (10YR 4/1) with reddish-brown (5YR 5/4) rim. Very smoothly burnished exterior. Bk. very dark grey (N3).
318 D0. Rounded rim of globular vessel. Fabric 2 sandy. E. and I. very dark grey (N3) to reddish-brown (5Y R 4/4) and burnished. Bk. dark grey (10YR4/1).
319 D0. Globular fine-ware vessel with rounded rim. Fabric 2 sandy. E. and I. very dark grey (N3); I. very worn, E. burnished. Bk. dark grey core (N4) with brown (7.5YR 5/2) surface layers 1 mm thick.
320 L. Heavy bead-rim, probably of a storage vessel. Fabric 2 with shell inclusions up to 1 mm. E. and 1. pinkish-grey (5YR 6/2) and very worn. Bk. very dark grey (5YR 9/1),
321 M. Rounded flaring rim. Fabric 1 with shell inclusions up to 10mm. E. light brown (7.5YR 6/4) to light red (2.5YR 6/6). 1. reddish-brown (5YR 5/4) and burnished. Bk. very dark grey (N3) with red (2.5YR 5/6) external layer 1 mm thick.
322 M. Slightly flattened intuming rim. Fabric 1 with shell inclusions up to 5mm. E. and Bk. very dark grey (N3) and burnished. I. dark reddish-grey (10R 3/1) and worn.
323 M. Slightly flattened rim with everted lip. Fabric 2 sandy. E., I., and Bk. very dark grey (5YR 3/1).
324 M. Everted rim with slight external groove. Fabric 2 fine sandy. E. and I. black (N2.5) and burnished. Bk. dark greyish-brown (10YR 4/2).
325 M. Slightly thickened, upright rim. Fabric 2. E., I. and Bk. very dark grey (N3) with burnished E.
326 Base angle. Fabric 2. E., I., and Bk. very dark grey (N3).
327 Base, wheel-turned, with slight footring. Fabric 2, relatively hard with calcareous inclusions up to 1 mm. E. and I. black (N2.5), burnished E. Bk. dark grey (N4).

295 E. Bowl with upright neck and rounded, everted rim; probably wheel-turned. Fabric 2 with quartz grains and grog particles under 1 mm. E. weak reddish-brown (2.5YR 4/3) to very dark grey (2.5YR 3/1), burnished below neck. I. weak reddish-brown (2.5YR 4/3) with horizontal striations. Bk. very dark grey (2.5YR 3/1) to weak reddish-brown (2.5YR 4/3). Parallel: Linch Hill (Harding 1972, pl. 70, B).
296 E. Necked bowl with rounded, everted rim; wheel-turned. Fabric 2 relatively hard. E. very dark grey (N3). I. pinkish-grey (7.5YR 6/2) with very dark grey (N3) patches, especially along rim. Surfaces eruptive and horizontally striated. Bk. dark grey (N4) to light grey (N7).
297 G. Bead-rim of narrow-mouthed vessel; wheel-turned. Fabric 2 very hard. E. reddish-brown (5YR 5/3). I. grey (10YR 5/1). Bk. fight grey (10YR 7/1) with 1 mm external layer of reddish-brown (5YR 5/3).
298 M. Grooved, everted rim.‘ Fabric 2 sandy. E., I., and Bk. very dark grey (5YR 3/1). Surfaces wined.
299 M. Flat-topped, upright rim with diagonal slashes externally. Fabric 2. E. pinkish grey (5YR 6/2). I. dark grey (5YR 4/1) and smooth. Bk. reddish-yellow (5YR 6/6) external layer. dark grey (5YR 4/1) internal layer
300 M. Rounded rim with slight external lip. Fabric 2 sandy. E. pink (7.5YR 7/4). I. and Bk. very dark grey (N3).
301 M. Everted rim, slightly tapered. Fabric 1 with shell inclusions up to 9mm. E. black (N2.5). I. reddish-brown (5YR 5/4). Bk. dark grey (N4).
302 M. Bead-rim, ever-ted, probably wheel-tuned. Fabric 2. E. grey (10YR 6/1) burnished. I. dark grey (N4) and worn. Bk. dark grey (N4) with reddish-grey (5YR 5/2) layet below rim.
303 M. Thick, slightly everted rim. Fabric 2 sandy with some gravel inclusions up to 2mm. E. and I. grey (5YR 5/1) and smoothed. Bk. dark grey (N4).
304 Body sherd with low, wide cordon which has been slashed, Very worn. Fabric 1 with shell inclusions up to 5mm. E. reddish-brown (2.5YR 5/4). I. and Bk. weak red (2.5YR 4/2).
305 Body sherd with an area of vertical combing; probably wheel-turned. Fabric 2. E., I., and Bk. very dark grey (N 3).
306 and 307 Two small body sherds with crossing incised lines. Very worn. Fabric 2 sandy. E., I., and Bk. very dark grey (N3) with traces of burnishing on exterior.
308 Wheel-turned body sherd with grooves and cordon. Fabric 2 sandy. E., I., and Bk. very dark grey (N3) with burnished exterior.
309 Body sherd with tooled, horizontal lines; wheel-turned. Fabric 2. E. grey (10YR 5/1). I. very dark grey (N3). Bk. 1 mm thick internal layer of dark reddish-grey (5YR 4/2), core grey (N5) grading to very dark grey (N3) at external surface.
310 Doubly curved body sherd with two slight horizontal moves; wheel-turned. Fabric 2. E. dark grey (N4) and burnished. I. and Bk. very dark grey (N3).
311 Base angle. Fabric 2 with shell inclusions u to 1 mm and grog particles. E. and 1. reddish-brown (2.5YR 5/4) to very dark grey (N3); worn but exterior smooth. Bk. dark reddish-grey (5YR 4/2).
312 Flat base of globular vessel, Fabric 2 sandy. E., I., and Bk. very dark grey (N3), smooth I., burnished E.
313 Base angle with very low footring: possibly wheel-turned. Fabric 2 with abundant calcareous inclusions up to 1 mm. E. black (N2.5) and burnished. I. dark grey (5YR 4/1) and pitted. Bk. very dark grey (N3).
314 Base angle with low footring. Fabric 2 with grog and shell inclusions up to 1 mm. E. burnished reddish-brown (2.5YR 4/4) worn to light reddish-brown (5YR 6/3). I. brown (7.5YR 5/2). Bk. light reddish-brown (5YR 6/3).
315 Base angle with footring; wheel-turned. Fabric 2 with angular flint inclusions. E. v dark grey (N3) and burnishad. I. and Bk. dark grey (5YR 4/1).



52 Iron Age pottery, Ditch 27

328 A L Slightly flattened rim. thickened internally. Fabric 1 with shell inclusions up to 6 mm and a few grog particles. E reddish-brown (5YR 5/4) L reddish-brown (5YR 4,3). Bk. very dark grey (N3).

329 Al. Flat-topped rim, internally thickened, with finger impressions along external edge Fabric 1 with shell inclusions up to 7mm. E and I. light red (2.5YR 6 6) overlain by very dark grey (N3) in places. Bk dark grey (N4).

330 A I Flattened rim. expanded internally. Fabric 2 with shell inclusions up to 1 mm E. and I. light reddish-brown (5YR 6 3) with areas of very dark grey (N3) overlying. Bk. dark grey (N4).

331 B2. Globular jar with rounded rim. Fabric 1 with shell inclusions up to 6mm. E. mottled light brownish-grey (10YR 6/2) and very dark grey (N3). I. dark prey (N4). Bk. very dark grey (N3)

332 B2 Globular jar with thinned. everted rim. Fabric 2 sandy. E. and I dark grey (N4) with carbon deposits E. Bk. very dark grey (N3).

333 DO. Slightly everted rim of globular fine-ware vessel. Fabric 2 sandy E and I black (N2 5) and burnished with worn areas internally Bk dark prey (N4) with 1 mm thick layer of reddish-brown (5YR 5 3) beneath E.

334 DO Rounded rim of fine-ware globular jar with slight external groove Fabric 2 with shell inclusions up to 1 mm. E. very dark grey (N3) to reddish-brown (5YR 5 3). I dark reddish-grey (5YR 4 2). Bk. very dark grey (N3)

335 DO Fine ware globular vessel with slightly everted rim. Fabric 2 Sandy. E. and I. black (N2 5) and well burnished with roughly horizontal overlapping strokes Bk grey (5YR 5 1)

336 DO Fine-ware globular vessel with rounded rim Fabric 2 with giog particles and shell inclusions up to 1 mm. E very dark grey (N3) to reddish-brown (5YR 5 3) and burnished. I very dark grey (N3) with traces of burnishing near rim Bk. very dark grey (N3)

337 DO Thickened, elongated, rounded rim of fine-ware globular vessel. wheel-turned. Fabric 2 with abundant calcareaus inclusions up to 2 mm E, I. and Bk very dark grey (N3). Parallels profile as Langford Down (Harding 1972, pl 71. J. Ashmolean Museum 1952, 562f)

338 DO Fine-ware globular vessel with everted lip Fabric 2. E very dark grey (N3) with pinkish-grey (5YR 6 2) area and burnished I reddish-brown form with cordon at base of neck.

339 I Rim and neck of a bowl form with cordon at base of neck. Wheel-turned Fabric 2 sandy E... I.. and Bk. very dark grey (N4) with external burnishing.

340 I Everted rim and founded shoulder of necked bowl with two horizontal grooves at base of neck, wheel-turned, Fabric 2 with abundant calcareous inclusions up to 1 mm. I very dark grey (N3) and 0reddish-grey (5) R 5 2) with horizontal burnishing. I. very dark grey (N3) and pitted Bk very dark grey (N3) Parallel Langford Down (Harding 1972. pl. 71.()

341 I Rounded rim of unusually large neck bowl with grooved neck, wheel-turned Fabric 2 with calcareous inclusions occasionally up to 3mm E. grey (N5) to light brownish-grey (10YR 6 2) I very dark grey (N3) to pinkish-grey (7 5YR 7 2) and pitted Bk grey(N5) Parallel I inch Phill (Harding 1972. pl. 70. J)

342 E Rim to shoulder of necked howl with two parallel horizontal grooves at base of neck. Wheel-turned Fabric 2 with calcareous inclusions less than 2mm. P very dark grey (N3) I reddish-grey (5YR 5 2) Rim reddish-brown (25YR 5 4) Bk very dark grey (N3)

343 I Rounded, everted rim of necked howl with lights ridged neck. Wheel-turned Fabric 2 b and I grey (N5) Bk grey (10YR 6 1) with light grey (10YR 7 2) Core. 3mm thick.

344 b Rounded. everted rim. probably of a necked howl wheel-turned Fabric 2 I. I. and Bk. black (N25) with burnished suitaces

345 F. Rim of butt-beaker with two horizontal grooves at neck and one below: wheel-turned. Perhaps a local copy of a finer vessel. Fabric 2 sandy with a few grog particles E. and I. pink (5YR 8/4) to light reddish-brown (5YR 614). Bk. light red (2.5YR 6/6) with a pinkish-grey (5YR 6/2) core at thickest points.

346 F. Butt-beaker rims and body sherds of very fine ware. imported. Burnished exterior and rim interior. Horizontal burnished band between areas of vertical combing. Wheel-turned. Fabric 2 very fine-grained with scattered grog particles smeared along the surface as the vessel was thrown. E. reddish-grey (5YR 5/2) I. pinkish-grey (5YR 6/2) except for l5mm wide band of pink (5YR 7, 3) along rim. Bk. pinkish-white (7.5YR 8 2).

347 G. Globular vessel with band of horizontal grooves below bead-rim. probably wheel-turned. Fabric 2 sandy with occasional vegetable voids. E and I.grey (10YR 5 1). Bk pale brown (10YR 6/3) with 1 2 mm core of grey as surfaces.

348 G. Bead-rim of high-shouldered vessel, wheel-turned. Fabric 2 with calcareous inclusions up to 2mm. E. very dark grey (N3) and burnished. I. light grey (10YR 6 1). Bk. grey (N5).

349 G Vessel with very high shoulder, narrow mouth. and bead-rim. Fabric 2 with abundant calcareous inclusions up to 2mm. E and I light grey (10YR 6/1) with dark grey (N4) areas E. Bk. pinkish-grey (7.5YR 6 2).

350 G. Bead-rim of globular vessel; wheel-turned. Fabric 2 with calcareous inclusions under 2mm. E. very dark grey (N3) and burnished. I. reddish-brown (5YR 5 3). Bk. very dark grey (N3) with 1 mm thick internal layer of reddish-brown (5YR 5 3).

351 G. Bead-rim of narrow-mouthed vessel Fabric 2 with abundant calcareous inclusions up to 2mm. E. and I light reddish-brown (5YR 6 3) to dark grey (N4) with E burnished. Bk. dark grey (N4).

352 G Vessel with narrow mouth and upright, rounded rim. tupcred internally Fabric 2 fine sandy with occasional gravel inclusions up to 2mm. E. very dark grey (N3) with traces of burnishing. I. very dark grey (N3) to light reddish brown (5YR 6 4). Bk dark grey (N4).

353 H Narrow-mouthed vessel with bead-rim and sloping shoulder on which is a cordon between two grooves. Fabric 2. E very dark grey (N3) to reddish grey (10YR 5 1): burnished with carbon deposits below rim and in groves. I very worn. light reddish-brown (2.5YR 6 4). Bk red (10YR 5 6) with external layer 1 mm thick of very dark grey (N3).

354 L. Globular vessel with constricted neck and sharply everted rim with concave top. Wheel-turned fine ware. probably an import Fabric 2. F.. and I light reddish-brown (5YR 6 4). burnished on rim and E. Bk. light grey (5YR 6 1).

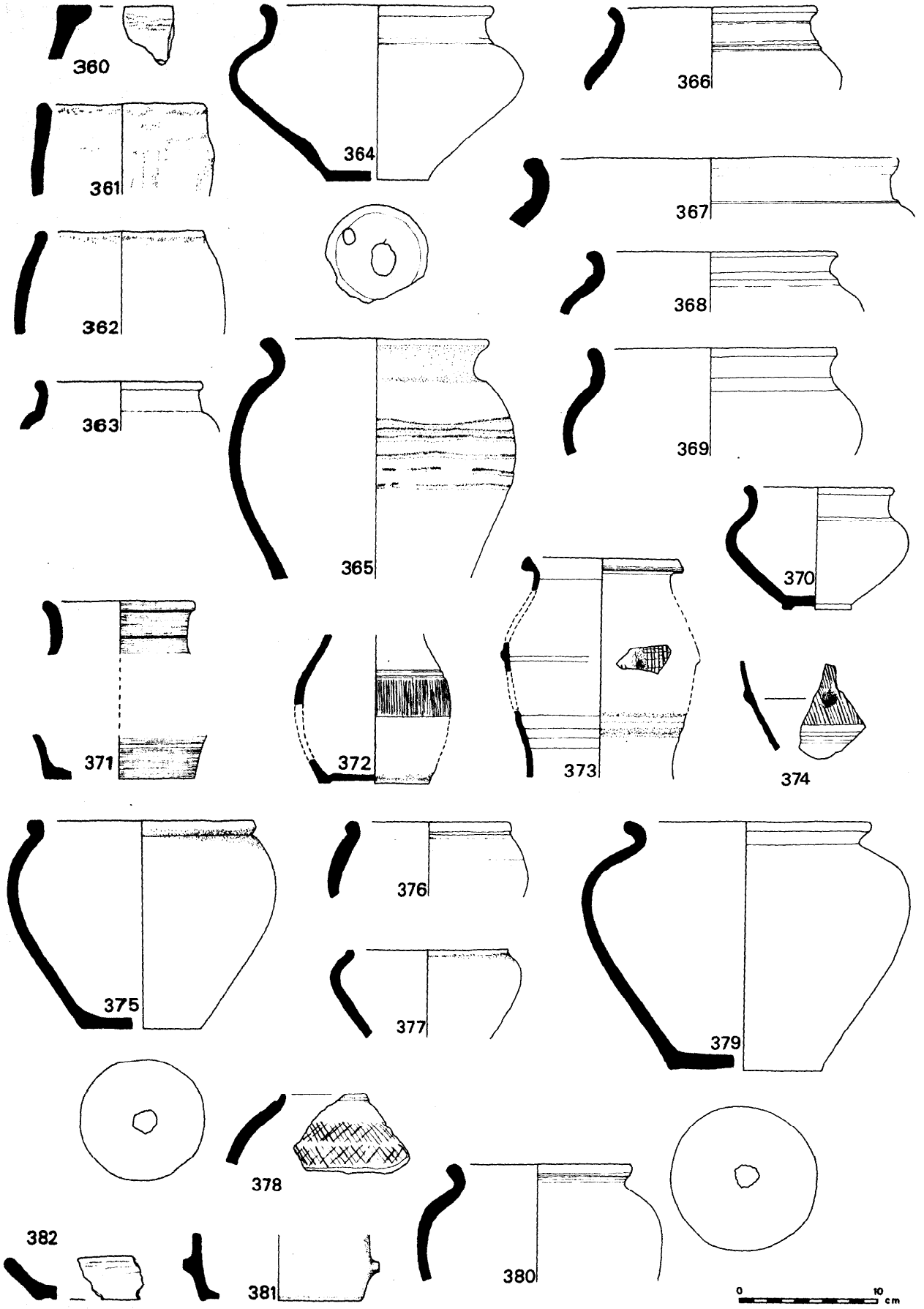
355 Rim. sharply everted. and shoulder of globular vessel with constricted neck: wheel-turned Fabric 2 with calcareous inclusions up to 3 mm causing surface irregularities. E. very dark grey (N3) to pinkish grey (5YR 6 2). I dark grey (N4) worn in places to red (2.5YR 5 8). Bk variable layers of very dark grey (N3) and red (2.5YR 5 8)

356 M. Bulging shoulder with horizontal groove: wheel-turned Fabric 2 with calcareous inclusions up to 2mm. E. black (N2) and burnished. I. dark grey (N4) Bk reddish-brown (2.5YR 5,4) Parallel Grim's Ditch. N Oxon (Harden 1937. fig 21. 4)

357 Body sherd with curvilinear decoration of three tooled lines. two of which are parallel and form the borders of a row of stamped crescents Fabric 2 fine sandy. E. black (N2.5) and burnished. I dark grey (N4) Bk grey (N3) Parallel Frilford (Harding 1972. pl 67. F).

358 M Flattened. flaring rim Fabric 2 fine sandy. E., I., and Bk dark grey (5YR 4 1)

359 M Rounded rim. slightly everted. Fabric 2 with shell Inclusions under 1 mm E very dark grey (N3). I and Bk dark grey (5YR 4 1)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form (C). The notable exception is the fine-ware globular (D) component, the fourteen examples of which include 333 338 and probably 357. Vessel 337 is wheel-turned and has a slightly unusual rim form. Necked bowls (E) also occur fourteen times (e.g. 339 344) and arc all wheel-turned. Their shoulders and/or necks frequently bear horizontal grooves and or cordons. The butt-beakers (F) are forms peculiar to Period 3. Narrow-mouthed bead-rim vessels (G) (e.g. 347 353) and forms with constricted necks and sharply everted rims (H) (e.g. 354, 355) complete the assemblage.

Between 85º and 90º of this pottery is of fabric 2, including all the D H forms. Grog, gravel pebbles. quart/ grains. plant voids, and small calcareous particles are the inclusions represented. Burnishing occurs, but seldom on both surfaces. Decoration consists mainly of the grooves and cordons mentioned above with a few examples of tooled or incised lines (e.g. 357. where the lines are combined with a row of stamped crescent impressions). The very regular vertical combing on 346 and finger impressions as on rim 329 are rare.

Ditch 392

This is the largest assemblage of pottery from the site with over 14kg and nearly 700 sherds. It gives a comprehensive picture of the latest pre-Roman ceramic period. Four-fifths of the vessels were assigned to established form categories, half of these being necked bowls (E). Various narrow-mouthed bead-rim forms (G) and vessels with sharply everted rims above constricted necks (H) account for most of the remainder apart from four butt-beakers(F) (371 374), a girth-beaker(M) (383), a cup (J) (381). a dish (K) (382), and a few forms characteristic of Period 2. Most of the vessels arc wheel-turned. Bases are generally flat or have low footrings. Some are peforated (e.g. 364, 375, 379, 392). The girth beaker has the only recorded pedestal base from the site. At least two vessels had handles. the cup (381). on which only a stump of the handle remains, and a larger vessel which once bore the rceded handle 390.

The few body sherds of fabric 1 amount to only 4º, of the total. Fabric 2 sherds possess a variety of inclusions

360 Al Hattened rim. expaned internally. Fabric 2 with shell inclusions very occasionally up to 5mm I and I light reddish-brown (5YR l 4) to very dark grey (N3) with traces of burnishing Bk very dark grey (N3)

361 B2 Globular vessel with the thiekenedet. rounded rim Exterior possibly knife-trimmed and I motiled reddish-brown (5YR 5 4) black (N25). Bk. very dark grey (N3)

362 B2. Globular far with rounded rim. Fabric 2 sandy E. and I very dark grey (N3) Bk black (N2.5).

363 I Neckd bowl with rounded shoulder, upright neck, and rounded, everted rim. wheel-turned I Fabric 2 I: very dark grey (N3) and burnished I and Bk grey(N5) with 1 mm thick weak red (25YR 42) layer externally Parallel Blew burton (Harding 1972. pl 69.1)

364 I Necked bowl with two grooves at base ol neck and flat base with low worn lootring and two post-firing perforations. wheel-turned Fabric 2 F black (N25) and horizontally burnished I dark grey (N4) and rilled Bk weak red (10YR j 3) Parallel Welwyn Garden City (stead 1967. fig 8.23).

365 I Necked bowl ot jar with band of irregular horizontal grooves an girth. Wheel-turned Fabric 2 time sandy with caleareous inclusions under 1mm and occasional gravel inclusions reddish-brown (5YR 5 3) to very dark grey (N3) I grevish-brown (10YR 5 3) to very dark grey (N3) Bk dark grey (N4) with 1 2mm thick internal layer of reddish-brown (5YR 5 3) Parallels Stanton Harcourt (Harding 1972, pl 69. II) and Wheathampstead (Wheeler 1936. pl I No 15).

366 P I verted rim and shoulder of a necked bowl with two grooves at base of neck Wheel-turned. Fabric 2 with occasional quartz grams up to 3mm I. I... and Bk very dark grey (N3) with external burnshing

367 I Rounded everted rim of relatively large necked howl with cordon at base of neck Wheel-turned Fabric 2 with calcareous inclusions up to 1mm I light brownsish-grey (10YR 6 2) with horizontal burnished lines I dark grey (N4) Bk grey (N6) with 1mm thick external layer as I

368 I Necked bowl with law cordon at base of neck, wheel-turned. Fabric 2 with calcareous inclusions up to 1 mm E and I very dark grey (N3) Bk grey (N5).

369 I Necked bowl with ridge on neck, wheel-turned, Fabric 2 with shell inclusions occasionally up to 2mm I very dark grey (N3) and burnished I grey (10YR 5 1) Bk as E

370 E Necked bowl with two slight horizontal grooves at base of neck and a footring base; wheel-turned. Fabric 2 sandy. E dark grey (N4) and smoothed. I light grey (10YR 7 2) Bk two approximately equal layers as surfaces. Parallel Watlington (Harding 1972. pl 72.0)

371 P Rounded. everted rim and flat base of a butt-beaker. wheel-turned Fabric 2 fine sandy with a few grog particles. E. red (2 5YR 5 6) and burnished I light reddish-brown (5YR 6 4) and rilled Bk light red (2.5YR 6 6)

372 F. Neck to shoulder and base with low footring of a butt-beaker. Band of vertical combing below two grooves around shoulder: wheel-turned Fabric 2 sandy E., I.. and Bk light reddish-brown to reddish-yellow (5YR 6 4 6 6). Interior Worn.

373 F Rim and two body sherds of butt-beakcr, rilled internally Below a band of cross-hatched incised lines. on which is a pinched-up boss.are two parallel horizontal grooves. wheel-turned Fabric 2. E light reddish-brown (5YR 6 4) and worn to reddish-yellow (5YR 7 6) in places. I. reddish-yellow (5YR 7 6) Bk grey (N5). 1 mm thick core between reddish-yellow (5YR 7 6) surface layers Parallel Dorchester on Thames (Frere 1962. fig. 12. 9. and p 133)

374 F Body sherd of bult-beaker with a pinched-up boss on band of combed decoration and two parallel. horizontal grooves Internal rilling. wheel-turned. Fabric 2. E. dark grey (N4). I. reddish-brown (2.5YR 5 4). Bk. grey (N5) With 1mm thick surface layers as I. Parallel Dorchester on Thames (Frere 1962. fig. 12.9 and p. 133)

375 G Bead-rimmed jar with high rounded rounded shoulder and flat base perforated after firing. wheel-turned. Fabric 2 with calcareous inclusions up to 1mm. F. mottled black (N2 5). dark grey (N4) and light grey (10YR 7 2) and burnished. I. and Bk. grey (N5).

376 G Bead-rim and high shoulder of globular vessel. wheel-turned. Fabric 2 sandy E and rim very) dark grey (N3) with light brown (7 5YR 6 4) area and burnished. I grey to dark grey (10YR 6 1 6 4) Bk grey (N6)

377 G Bead-rim jar with high rounded shoulder: wheel-turned. Fabric 2 I reddish-grey to grcy (5YR 5 2 5 1) and burnished I grey (10YR 5 1). Bk light grey (N7). Parallel. Oare. Wilts (Cunliffe 1974. pl. A28. 8)

378 G Thinned rim of bulbous. small-mouthed vessel with two horizontal bands of incised diagonal cross-hatching on shoulder. wheel-turned Fabric 2 fine sandy E., I . and Bk. very dark grey (N3) with carbon deposits in meisions

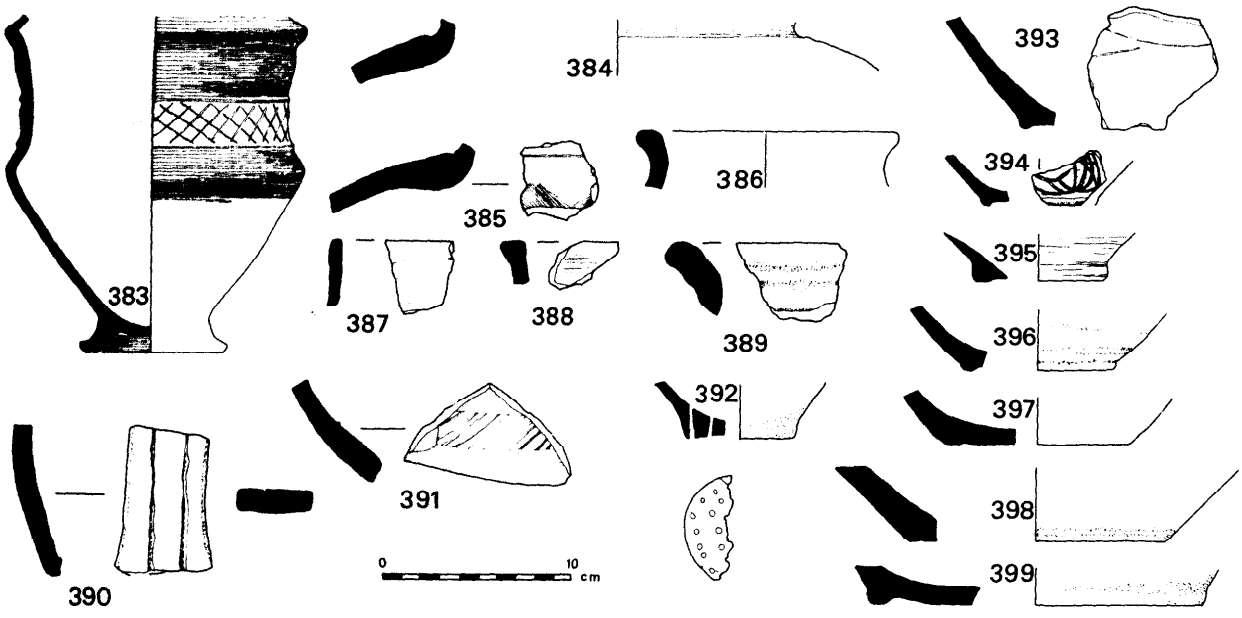
379 H Jar with high rounded shoulder and everted rim and flat base with post-firing perforation. wheel-turned Fabric 2 with abundant calcareous inclusions up to 2mm E. mortled dark grey (N4). black (N2) and light brown (7 5YR 6 4) I dark grey (N4) Bk light brown internally (7.5YR 6 4) and dark grey (N4) externally

380 H. Globular vessel with everted rim on which are external grooves. Wheel-turned Fabric 2. F... I.. and Bk. very dark grey (N3)

381 J. Cup with slightly convex walls, small footring, and stub of a handle Fabric 2 with calearous melusions up to 1 mm. E very dark grey (N3) I grey (10YR 5 1). Bk. grey (N5) with 1 mm thick light reddish-brown (5YR 6 4) surface layers.

382 K. Shallow dish with flaring sides, rounded rim. and groove near edge of base, wheel-turned. Fabric 2. E. and I very dark grey (N3) with reddish-brown (2.5YR 5 4) near rim, and burnished. Bk. very dark grey (N3)

53 Iron Age pottery, Ditch 392 (facing page)



383 M. Girth beaker with band of incised diagonal cross-hatching between burnished bands; pedestal base with post-firing perforation. Fabric 2 sandy. E., I., and Bk. light reddish-brown (5YR 6/4). E. very worn. Parallel: Verulamium (Frere 1972, fin. 100, 35, and p. 268).
384 M. Neck angle with external groove; wheel-turned. Fabric 2 with calcareous inclusions up to 1 mm. E. mottled grey (N6) and dark grey (N4) and burnished. I. grey (N6) and worn. Bk. light grey (N7).
385 M. Neck to shoulder of a bulbous vessel with solid burnishing above a band of burnished diagonal lines in alternative directions; wheel-turned. Fabric 2 with calcareous inclusions. Very worn. E. mottled grey (N4 and N7). I. grey (N5). Bk. light grey (N7).
386 M. Thickened everted rim of vessel with broad, shallow internal groove; wheel-turned. Fabric 2 with sub-angular flint inclusions up to 3 mm. E. and I. grey (N5) with external burnishing. Bk. light grey (N7).
387 M. S lightly flattened upright rim. Fabric 2 with calcareous inclusions up to 1 mm. E. and I. dark grey (N4) with external burnishing strokes. Bk. grey (N6) with 1 mm thick external layer of light brown (7.5YR 6/4).
388 M. Flat rim externally thickened. Fabric 2 sandy. E. and I. very dark grey (N3) and burnished. Bk. dark grey (N4).
389 M. Rounded, everted rim with two shallow external grooves; wheel-turned. Fabric 2 with calcareous inclusions up to 2mm and voids. E. grey (N5). I. dark grey (N4). Surfaces burnished. Bk. grey (N6).
390 Lower portion of reeded handle with two grooves on the external, burnished surface. Fabric 2 with calcareous inclusions under 1mm. E. and I. light brown (7.5YR 6/4). Bk. grey (N6) with 1 mm thick surface layers as E. and I.
391 Body sherd with two areas of burnishing joined by diagonal burnished lines. Thick edge secondarily worked or worn smooth. Fabric 2 with calcareous inclusions up to 3mm. E. light grey (10YR 7/1), but grey (10YR 6/1) where burnished. I. and Bk. light grey (10YR 7/1).
392 Omphalos, perforated base. Surfaces worn. Wheel-turned. Fabric 2 sandy. E. grey (10YR 6/1) to dark grey (N4). I. and Bk. grey (10YR 6/1).
393 Base with low footring and two external curved grooves; wheel-turned. Fabric 2. E. brown (7.5YR 5/2) and burnished. I. pale brown (10YR 6/3). Bk. grey (N5).
394 Angle of base with low footring and burnished, irregular loops on exterior; wheel-turned. Fabric 2. E., I., and Bk. very dark grey (N3).
395 Base angle with low footring; wheel-turned. Fabric 2. E. black (N2.5) and burnished. I. missing. Bk. very dark grey (N3).
396 Base angle with low footring, of globular vessel; wheel-turned. Fabric 2 sandy with calcareous inclusions under 1 mm. E. very dark grey to grey (N3-5). I. light reddish-brown (5YR 6/4) and worn. Bk. grey (N5).
397 Angle of Bat base with slight groove near edge. Worn externally; wheel-turned. Fabric 2 sandy. E. and I. grey (10YR 5/1). Bk. light reddish-brown (2.5YR 6/4).
398 Base angle with shallow groove near edge; wheel-turned with internal rilling. Fabric 2 with abundant calcareous inclusions up to 2mm. E. light reddish-brown (2.5YR 6/4) and burnished. I. light greyish-brown (10YR 6/2) to very dark grey (N3). Bk. internal 2/3 dark grey (N4); external 1/3 as E.
399 Base with footring; wheel-turned. Fabric 2 with abundant calcareous inclusions up to 2mm. E. and I. dark grey (5YR 4/1). Bk. very dark grey (N3).

54 Iron Age pottery, Ditch 392

which are in many instances calcareous but relatively small (1-2mm). The sandy texture imparted by quartz grains is common. Grog was apparently used more sparingly than in previous periods. Several instances of flint inclusions have been noted, including rim 386. Burnishing is still used as an all-over surface treatment (e.g. 375, 377, 382, 388) but is also employed to produce decorative patterns (e.g. 384, 385, 391, 394). Plastic decoration was no longer produced by making finger impressions but by pinching the clay into small bosses, as in 373 and 374. Cordons and grooves were used extensively (e.g. 365, 367-369, 384). Incised lines form bands of cross-hatching on 373, 378, and 383. Vertical combing decorated the girths of vessels 372 and 374.

Most of the pottery by which Period 3 was defined came from ditches 27, 103, 134, and 392. It includes wheel-turned vessels for the first time, many of which are of necked bowl (E) form. Three other ditches and nine pits have also been tentatively assigned to this period on the basis of their pottery (see Table III).

One-fifth of the total forms are necked bowls, often with horizontal grooves and/or cordons around the neck. The next most common form is the fine-ware globular (D) type with 12%. Coarse-ware jars (B) and angular forms (C) continue but in proportions much smaller than in Period 2. Narrow-mouthed bead-rim vessels (G) and vessels with constricted necks and sharply everted rims (H) are the only other forms present in significant

numbers. Butt-beaker fragments were recovered from seven features (Table II). Bead-rims are common. One reeded and two lug handles have been recovered. Base forms have altered and now include footrings, slightly concave forms, and one pedestal base (Fig. 54,383) in addition to flat bases. Bases with perforations, sometimes multiple, are numerous. Internal rilling, horizontal striations from dragged inclusion particles, and generally thinner wares result from the wheel-turning introduced in this period. Forms are more distinct now and more easily classified.

Ditches 103 and 134 have fewer of the new forms introduced in this period and a smaller proportion of wheel-turned sherds than ditches 27 and 392, which are stratigraphically later. The two neeked bowls from 134 (Fig. 50, 295 and 296) are of slightly different form than the site's standard type, lacking the well defined upright necks and any form of decoration. Fabric I proportions decrease in the later phase. The proportion of fabric 1 in Period 3 has fallen to one-fourth of its Period 1 level. Forms C L are almost exclusively of fabric 2. Angular (C) and fine-ware globular (D) types continue to be made of fabric 2. The generally fine fabrics of forms E L, which are mainly wheel-turned and first appear in this period, suggest that the use of clays with large calcareous inclusions (fabric 1) and the use of the wheel are mutually exclusive. Wares are now generally harder and more evenly and completely fired. While the range of colours has not contracted. specific vessel forms seem to occur in more standardi/ed colours. Necked bowls are usually grey to black. The few butt- beakers tend to be orange or butt Mottled surfaces are less frequent. A greater control over the temperature and atmosphere during firing could account for these traits. If higher temperatures were now attainable. the calcium carbonate content of fabric I would make it unsuitable (Shepard. 1964. 30). Certain of the fabrics are so different from the majority at Ashville as to indicate that they were imports rather than the products of a local potter. The hardness of fabric of some vessels such as Fig. 50. 296 and 297. Fig. 53. 373 and 374 and Fig. 54. 384 and 390 places them in this category.

Fabric 2 is most often of a sandy texture. Other than quartz grains. the most common inclusion are grog_ and calcareous particles, booth usually small and sparse compared to the earlier periods. Numerous sherds with flint inclusions of small size. under 2 mm. were recovered from eight of the sixteen features. External surfaces frequently show signs of having been wiped with plant material. A few sherds which may have had hematite coating came from ditch 134 and pits 75 and 337 but were probably rubbish survivals. The few instances of finger-impressed decoration are also likely to have been incorporated in Period 3 features as intrusives from earlier features. Sherds with incised decoration are rather too numerous to be accounted for in this way, indicating a continued use of this technnique. Burnishing is used over entre surfaces and to form patterns. Grooves and cordons are often used on neeked bowls and other wheel heel-turned forms. Vertical combing and pinched-up bosses complete the range of decorative techniques.

Discussion of Ashville ceramics

During the apparently continuous occupation of the site. changes occur in various aspects of the ceramic assemblages including paste preparation, forming methods and shapes produced, surface finishing. and firing processes, which will now be described.

The vast majority of Iron Age pottery recovered at Ashville appears to have been locally produced. Several clay deposits were found in the gravel at the site which could have been used to produce pottery of the standard recovered. These and similar deposits from the gravel terrace and the River Ock's floodplain would have provided ample raw material for the site's potters. Of the variety of natural inclusions identified in the fabrics, all could have been obtained from the gravel (Briggs 1975, 11 13). Some may even have been present in the clay deposits. This is particularly likely in the case of the fine rounded grains of quartzite and oolite. Shell is frequently found in the gravels of this area. The limonite grains identified in a few shards could have come from hardpans precipitated in the gravel (Cornwall 1958, 88-9). This may also be a possible source of' the red colouring material applied to produce the hematite coating (Hamer 1975, 182). Plant material and grog could have been incorporated into the clay as it was being produced in domestic work areas. Because of the quantity and large particle size of these common inclusions. it is assumed that they are temper, having been deliberately added to the clay to make it less plastic and more 'open', facilitating drying and decreasing shrinkage and the risk of cracking (Shepard 1964, 161 and 25).

Some of the Fabrics, especially in Periods 1 and 2. seem to have resulted from addition to the raw clay of whatever non-plastic material was at hand which would make the clay workable and suitable for firing. The very coarse shell inclusions. a preference for which characteri/es Period 1. were no hindrance to formation or firing of the thick-walled vessels for which they were used. The ability to produce finer vessels of a more uniform fabric. such as those used for C2 forms, was present as well. Clay preparation for these vessels included elimination of impurities and addition of carefully graded temper particles.

The main chronological change in fabrics is a steady) decrease with time in the use of Fabric 1 from upwards of two-thirds on average of the Period 1 pottery. to less than one-fifth in Period 3 (see Table IV). Most of the pits have a higher proportion of fabric 1 than of fabric 2. Some pits do have more fabric 2 pottery however. Ditches tend to have a higher proportion of fabric 2. Thus the decreasing proportion of fabric 1 with time is in accord with the fact that Period 1 is represented almost wholly by pits while the vast bulk of the Period 3 pottery comes from -large ditches.

There is less definitely recognizable shell in the later two periods. Here the calcareous inclusions are often of' ton small a size to show the structure by which shell can be identified. Although often plate-like. these particles can also take subangular or rounded (oolitic) shapes. Also in the later periods. sherds with flint inclusions are more common. even though the number of features in which they occur does not increase. The very few flint-gritted sherds from Periods 1 and 2 are generally too small to indicate vessel form. Period 3 has flint inclusions in necked bowls (E) and storage-type vessels (L). The flint is more abundant and of' a more uniform. it' smaller. size than that of' the previous periods, suggesting deliberate tempering (Shepard 1964, 161). Contacts with areas where flint is more readily available, such as the Berkshire Downs and the Chilterns. may have occurred.

There seems to have been a certain degree of selectivity exercised by the potters in 'choosing the temper to be added or in choosing the clay (if the inclusions were present in the source deposit) for the manufacture of' specific vessels. While few of the forms are confined to one fabric, most are much more commonly found in one or the other. Only seven of the nineteen defined forms occur exclusively in fabric 2. Of the remaining twelve

Table IV

Percentage of vessel forms	Period 1	Period 2	Period 3	Site totals fabric 1	fabric 2	both
A1	9	2	1	32	9	41
A2	<1	1	1	12	9	21
A3	4	1	0	20	1	21
All A types	13		2	63	19	83
B0	6	6	2	23	30	53
B1	9	5	2	49	14	63
B2	5	13	4	31	71	102
B3	1	6	<1	13	19	32
All B types	21	30	8	116	134	250
C0	14	3	4	11	64	75
C1	5	4	<1	21	12	33
C2	4	5	3	0	57	57
All C types	23	12	7	32	133	165
D0	1	18	11	7	124	131
D1	0	4	1	1	25	26
All D types	1	22	12	8	149	157
E	0	0	20	1	56	57
F	0	0	3	0	11	11
G	0	1	7	0	46	46
H	0	0	6	0	1	16
	0	0	< 1	0	3	3
K	0	0	2	0	6	6
L	0	< 1	1	0	6	6
M	41	30	29			
			272			
Total vessels	223	387	272			
Percentage of fabric 1						
by count	66	32	13			
by weight	71	29	18			
count and weight combined	68.5	30.5	15.5			

forms, eight have over 70% of their examples in one fabric. This marked preference for certain form fabric combinations indicates that the potter followed some guidelines. which were perhaps traditional and gained by cumulative experience with the problems of productton. but not rigidly restrictive as to the type of inclusions allowed.

There is a similar correspondence between fabrics and some surface treatments. Surface burnishing is more common on fabric 2 but sometimes occurs on fabric 1 even where very coarse inclusions interrupt the smooth surface. The burnished surfaces on types of fabric 1 which have smaller inclusions may be so smooth that the fabric is unrecognizable except by looking at a break. Hematite coating, which was always burnished, is almost exclusively confined to fabric 2 but does not become more frequent with time as does fabric 2. Wiping or smoothing of vessel surfaces, particularly exteriors and rims, is common in all periods and may have been done with the bare hands, a bunch of plant material, or a piece of cloth or leather. One instance of knife trimming was noted—Fig. 47, 226 from ditch 331. Sometimes surfaces appear to have had no treatment beyond the handling needed to form the vessel, and may preserve finger depressions and other irregularities. There is some coordination between surface finish and certain vessel forms. Forms D and C2, for example, are usually burnished, while this is rare for A forms. In general more care was taken over surface finishing in the later periods. This is especially noticeable on the burnished globulars of' Period 2 and the wheel-turned vessels of Period 3.

Decoration in Period 1 consists mainly of finger impressions or slashes on rims and or shoulders. The instances of incised line decoration are few and rarely, reveal a pattern. Pit 114 contained two notable exccptions, one body sherd with incised rays and one with a stab-filled, incised triangle (see p. 47 and Fig. 38). Finger impressions continue into Periods 2 and 3 but become less common. Moulded decoration. both raised and depressed, occurs as well, but incised lines in definite patterns (lattice, parallel straight and curved, rays, and chevrons) are the most distinctive decoration of Period 2. Period 3 vessels often bear cordons and grooves. Some are burnished in horizontal bands or in patterns. Incised lines and combed decoration have also been used.

Vessels were formed in Periods 1 and 2 by modelling. coil, ring, or modified slab building, or by combinations of these techniques.

Several instances were noted where vessels had broken between poorly joined pieces of clay. In Fig. 49, 265 from ditch 279 only slight surface smoothing joined the rings but most vessels must have been more thoroughly worked to secure each piece of clay to the adjacent. As time progressed, wall thicknesses became more even. In the wheel-thrown vessels of Period 3, except where affected by rilling, the maximum and minimum thick-

nesses of each pot are very close. Wheel-turning, which was introduced into Britain during the Belgic period, allowed an elaboration and standardization of forms that was never achieved in hand-made vessels (see Table IV and Scott 1954. 389). Worn sherds, such as Fig. 54, 391 from ditch 392, may have been used to smooth surfaces of vessels being turned on a wheel (Scott 1954. 390).

There is also more uniformity of vessel colour as the sequence progresses (see pp. 57 and 69). The range of hues remains much the same but reds become fewer and greys more prominent. There is more clustering and somewhat fewer mottled surfaces occur. Colour in primitive pottery is largely dependent on the iron content of the clay body and on firing conditions (Rosenfeld 1965. 174-6) or on the application of such colouring agents as slips. Most of the site's vessels were local products and the clay sources available would not have changed over the time span of Iron Age production. However there is no guarantee that those selected for exploitation over this period remained the same or even of the same type. Analysis of the clays' compositions might reveal significant differences. It is more likely that changes in firing conditions produced the observed trend to fewer hues. This process does not seem to have been closely controlled until later periods, except for certain vessel types such as the dark, often burnished fabric 2 pots of C2 and D forms. Even these often exhibit differences of surface colour.

It was not lack of skill in handling fire that resulted in this variety of colours. Evidence of metal-working on the site (see p. 38) indicates that high temperatures were within the capabilities of craftsmen of all three periods. Such high temperatures would have been unsuitable for most of the fabric 1 vessels (see p. 49). A further clue to the method of firing the ceramics comes from Period 1. pit 313. Recovered from layers of burnt clay and charcoal in this deep pit were fragments of flat slabs. perforated before firing, which possibly formed part of the floor of a kiln. Reconstruction of a Northamptonshire kiln excavated in 1837 includes similar slabs (Artis 1847. 164-5). although the shape of the Ashville slabs is not clear. Other perforated slabs of tired clay have been reported, notably the pierced brick from Belgic layers at Verulamium (Wheler. 1936, 1801 and pl. LVI B) and pierced clay cooking floors in IA B and early Belgic contexts at Maiden Castle (Wheeler 1943. 321 and pl. XXXVII). Poorly controlled firing conditions are more probably due to lack of concern for this detail of the process than to inability to control it. The colour of most of the coarse-ware forms of Periods 1 and 2 seems to have been unimportant to their function and not dictated by tradition. The coordination of certain colours with firms (see p. 69). paralleling the Period 3 production of more distinetive wheel-thrown forms, was probably achieved by more careful control of the firing atmosphere and to a lesser extent by more care in selecting and preparing the clay and perhaps by applications of surface slips.

The hardness of fabrics generally increases over this period of time. Fabric 1 is usually more friable than fabric 2. As fabric 1 proportions decrease, the hardness of the pottery increases. Higher firing temperatures also produce harder fabrics. other conditions being the same. The inclusions usually occurring in fabric 2 do not preclude the use of high temperatures. If local clays of similar type were used throughout the sequence, as has been postulated. the harder fabrics of Period 3 almost certainly result from higher firing temperatures (Shepard 1964. 113 4).

Whereas only the proportions of the fabrics change with time, each period has one or more distinctive vessel form types (see Table IV). Period 1 is dominated by angular forms with coarse-ware jars, mostly slack-shouldered, and expanded-rim vessels. These last vessels are not here defined as cauldrons (Myres 1937, 26; Harding 1972, 76) because no profile of length sufficient to suggest such an interpretation was found. Indeed, there are numerous flat sherds, often with plant impressions on one side, of fabric like the expanded rims, which might easily have been part of the flat bases of such expanded rim forms. This suggests a storage rather than a cooking function. A and C forms are more often associated than are A and Bl forms. The percentage of angular forms is halved in Period 2 and expanded rims are much less frequent. Angular vessels continue to be important longer than expanded rims as in the Period 2 features 18, 19, 32, 80, 331, and 361 (see Table II). Coarse-ware jars of slightly varying types are now the most abundant form. In both Periods 1 and 2 approximately half of the forms classifiable as other than M are of coarse-ware jars. if angular (C 1) coarse-ware forms arc included. The most distinctive vessels are the globular jars and bowls of fine ware. By Period 3 the expanded rim and angular components are much reduced. and the coarse-ware jars seem to have been largely replaced by the newly introduced wheel-turned vessels. mainly necked bowls. D forms remain in use but are less strong than in Period 2 (see Table IV).

All the A forms belonging to Period 1 come from pits. In Periods 2 and 3 some A's come from pits, but more are from ditches, either because A's are functionally associated with pits only in the early period or (and this is the more likely explanation) A forms are early and all but one of the recognizably early features are pits. The reverse holds true for Period 2 where most of the pottery was recovered from ditches; ditches yielded three times as many storage-type vessels as did pits. Again in Period 3 the bulk of the pottery of possible storage function came from the large productive ditches. Therefore these storage-type vessels were not associated exclusively with pits as might be suggested by Period 1 alone. Comparison of total numbers of these storage-type vessel forms from the site's ditches with those from the pits suggests that A and Bl forms. which occur more frequently in pits. are early since the majority of the early features are pits. B3 forms and to a lesser extent B2's are more often from ditches. These vessels perhaps assumed the function of storage when the A's and B Bl's of Period 1 declined and were probably replaced by E and L forms during Period 3.

Use of the wheel seems to result in more clear-cut. easily recognizable forms. Period 3 has a total number of eighteen forms compared to fourteen for Period 2. and eleven for Period 1. The percentage of forms able to be assigned to categories other than M also increases from Period 1 to 3 (see Table IV). This may result from the need for more varied types of pottery to fulfil more specialized functions. This could in part reflect the fact that forms become increasingly easy to recognize from smaller and smaller sherds in the later periods. It could however be largely due to the incorporation of early forms in later features as rubbish survivals. It is the elaboration and standardization of wheel-thrown types (noted above) that enables more vessel forms to be distinguished and defined.

Other fired clay objects from the site include burnt daub from various features. fragments of loom-weights, red friable fragments of 'Belgic brick' (see Wheeler 1936, 178 80, and pl. LVI A) from features 27. 32. 134, 337. and 392, and several flat slabs, 25-40mm thick. some with smoothed surf-aces. others with plant impressions on one or both surfaces. Edges and corners

when recovered were swollen and rounded. These last slabs. found in features 27, 134. and 392. have parallels which have been variously referred to as lids, trays. stands, and working surfaces.

Comparisons with other sites

The Ashville assemblages closely resemble pottery from other sites within and on the border of the Upper Thames valley. No other site from this area however provides the continuous stratified sequence of closed groups covering almost the whole of the Iron Age period. The Ashville sequence confirms the basic outline proposed for the region by Harding in 1972, after his analysis of pottery from many less extensive sites. (Permission to examine Dr Harding's thesis has been unobtainable. My interpretations of his views have therefore been based on the presumably less detailed information set forth in 1972 in *The Iron Age in the Upper Thames Basin.)*

The Period 1 assemblages at Ashville match those from Leeds's early excavations of pits and ditches at Radley (Leeds 1931 and 1935) 2.5 miles (4 km) away. Seven of the largest pit assemblages, when subjected to the same fabric analysis as the Ashville pottery, proved to be 60% or more of fabric 1. the shell fragments t-caching l5mm. Crushed shell. grog. and quartz inclusions are also present. The finer fabric 2 vessels arc usually of form C2 and are occasionally hematite-coated. A variety of very heavy expanded-rim forms. some globular jars, and 'bucket-shaped vases often with finger-impressed shoulders complete the range. These are the same forms as Ashville Period 1. Here too angular and expanded rim forms are found both separately and together (see p. 49).

The use of finger-impressed decoration on coarse-ware jars. as seen on many of the Ashville vessels, becomes widespread in southern Britain after the 7th century BC (Barrett 1975, 107). Harding. in discussing the pottery from Twywell (Northants) (Jackson 1975, 70) finds that finger-impressed decoration on shoulders precedes its use on rims. The Ashville pottery shows no such chronological change.

There is great similarity between material from Kirtlington (Benson and Harding 1966). which was placed in the 6th or 5th century BC and some of the earliest Ashville Iron Age: assemblages, especially that from pit 114 (Fig. 38). The slack-shouldered jars with finger impressions (Benson and Harding. fig. 14c and f, and Ashville Fig. 38, 78 80) and the slightly over-fired shelly fabrics in particular arc close parallels. The biconical form does not occur at Ashville. Expanded rim forms and more numerous angular vessels distinguish the Ashville group from such early assemblages as Kirtlington and Standlake (Bradford l942b fig. 4; Harding. 1972. pl. 46 and 47).

The Ashville pottery is perhaps not of the earliest Iron Age in the area if the progression from externally expanded rims to those with internal flanges proposed by Harding (1972, 77-8) is correct. He has dated the internally flanged rims, of which there are approximately twice as many as of externally expanded and T-shaped forms at Ashville, to c. 550 450 BC. Ashville's features with externally expanded rims are not in stratigraphic relationship with those Period I features which yielded internally expanded rims. Period 2 features yielded twice as many of these A2 forms as did features of Period I The proportions of internally expanded rims declined while those of externally expanded forms remained constant. However, this small number of rims is an insufficient base for drawing conclusions. Expanded rims had a long period of use in this region. Mount Farm, Dorchester (Myres 1937) and Blewburton Hill (Harding 1972) produced many examples. usually with coarse shell temper but sometimes containing flint. Forms from nearby Appleford, excavated during 1973 (Hinchliffe, forthcoming), are close to those of Ashville but there Hint inclusions are prominent. The early phase of occupation excavated recently at Farmoor (Lambrick and Robinson, forthcoming) is much like that of Ashville's Period I. Some of the Mount Farm groups, such as those from pits x. ν., ν. μ. and g and ditch 8, comprise the same forms as Ashville's Period I. Fabric I accounts for only about one-fifth of those sherds preserved in the Ashmolean Museum (1966. 1186 1200). but it is likely that fewer of the coarse undecorated shapeless sherds of fabric I were preserved. distorting the fabric proportions. The types of inclusions are much like Ashville's. Harding places the initial occupation of Mount Farm in the early 6th century BC (Harding 1972. 77). This site. and two others nearby, Allen's Pit (Bradford 1942a) and Long Wittenham (Savory 1937), all less than 10 km downstream from Ashville, have very similar assemblages. Cunliffe illustrates one regional group for the Upper Thames valley with vessels from these three sites. omitting the expanded rim forms of Mount Farm. and suggests that they span the 5th to 3rd centuries (Cunliffe 1974, 38 9). The angular vessels of Ashville seem to be best paralleled at Long Wittenham (Savory 1937, fig. 2,1,2,6 9, 11 16).

Sites in the Chilterns have yielded pottery of form very similar to Per-rod 1 at Ashville. which probably dates from the mid-5th century (Saunders 1971, 9 17). Fabrics of both fine and coarse wares are also like those of Ashville with the addition of some flint inclusion\ in the coarse wares.

The Chinnor assemblages especially are close parallels (Richardson and Young 1951. 132 48), although the fine-ware bases are usually of pedestal form. a type which hich does not occur at Ashville. The incised decoration at Chinnor is more prolific but of the same traditon as the few early examples at Ashville. The stab-filled triangle on the shoulder of a carinated fine ware vessel from pit 114, Fig. 38. 94. has numerous parallels at Chinnor (see Richardson and Young 1951, fig. 7 and 8) and Bledlow (Head and Piggott 1946. fig. III). Incised rays and straight parallel lines have come from the Chiltern sites. Standlake. Allen's Pit, and Blewburton Hill as well as from Ashville. The sherd with part of a depressed disc from pit 101, although in a pit that may be of Period 2, has parallels at Mount Farm (Myres 1937. fig. 7 and 6) where depressions are combined with diagonal lines. and at Allen's Pit (Bradford 1942a. fig. 11. 5, 6 and 16) where linear decoration also, features. Unfortunately Ashville lacks complete profiles of these angular forms so that comparisons must be tentatlve.

Hematite-coated sherds are known from Appleford. Blewburton Hill, Mount Farm, Wittenham Clumps, New Wintle's Farm. Hanborough, Radley, and Frilford as well as from Ashville. The earlier pottery from Frilford (Bradford and Goodchild 1939) which is less than 5 km west of Ashville up the Ock valley. also parallels Ashville's Period I forms of both coarse and fine ware, with expanded rim types and angular bowls being especially significant. Finger-impressed decoration is much less common than at Ashville, however.

Pottery of Period l at Ashville probably dates from c. mid-6th century BC and continua to c. 300 BC when it was gradually replaced by assemblages of the Period 2 type.

Again in Period 2 the Frilford pottery affords close parallels to Ashville. The fine-ware bowls and jars with

rounded and everted or incipient bead rims and flat bases (Bradford and Goodchild 1939, fig. 7) are of the same forms and fabrics as those from Ashville. The decoration illustrated (fig. 7, 78, 81. 83, and 85) compares well with the tooling and stamping techniques and curvilinear patterns used at Ashville. Several unpublished sherds recovered from pits in the centre of Abingdon arc from vessels of this burnished globular type and three have rows of crescentic punch marks, which on one sherd fill the area between two curved parallel lines. Also at Blewburton I Hill these burnished bowls occur, both as globular forms and as the relatively straight-sided saucepan pots more common to south central England (Harding 1974. 196). Only one vessel at Ashville approaches this latter form, Fig. 48, 259, from ditch 20, and it is of an unusual black fabric. made vesicular by plant voids. Blewburton (Harding 1972, pl. 66 and 68) also has tooled and stumped decoration in addition to plain vessels. The incised or scratched lattices on sherds 306 and 307, fig. 50, may indicate a vessel like one of the Blewburton saucepans (Collins 1953, fig. 12, 1). but as the sherds are small and worn and come from a Period 3 ditch, it is possible that they were counters made from a broken vessel by scratching lines on the sherds.

Undecorated smooth dark ware is common at Ashville throughout Period 2. In addition to Frilford. Mount Farm (Myres 1937) offers close parallels, especially fig. 9, A II I and 10 A II 3. which have rims almost identical to fig. 48, 256 from ditch 20. At Blewburton also shallow tooling such as this was used in place of a true bead rim on some vessels (Harding 1972. 106 and pl. 68H). Some undecorated dark burnished globular forms were also recovered from Radley (Leeds 1935, fig. 2b). Pit assemblages from City Farm. Hanborough (Case *et al.* 1964. fig. 32. 1 and 2) now in the Ashmolean Museum (1965. 499 567 and 1966.199). yielded a few of these plain globulars as well. bitt most of' that pottery is closely related to the coarse-ware jars of Ashville's Period 2. including barrel and globular forms. also undecorated. The fabrics do contain calcareous material but of smaller size than was common in earlier periods in the area. This trend lo finer inclusions. which has been noted at Ashville. seems to apply to the Iron Age B coarse pottery of' the Upper Thames and may indicate improved firing processes from this time (Harding 1972, 98 9). As a whole the City Farm group has a higher proportion of fabric I than Ashville as is expected since it is deficient in Ashville's principal fabric 2 component, fine-ware globular bowls and jars.

Asville's wide variety of B2 globular and B3 barrel coarse-ware vessels find their best parallels at Beard Mill. Stanton Harcourt (Williams 1951, fig. 8 and 10) specifically from pits 6, 12, 17, 30,. 153, and 156, gully 4, and the enclosure ditch floor. and at City Farm (Case *et al.* 1964, fig 32 34).

Coarse-ware vessels of like character are known from Yarnton. Wytham, and Hatford (Bradford 1942a. fig. 12 and 13) and the middle Iron Age features at Farmoor (Lambrick and Robinson. forthcoming). Decorated fine wares were also recovered from Farmoor, Yarnton. and Wytham.

Saunders's Chiltern Iron Age phase 3 closely resembles Period 2 Ashville assemblages (Saunders 1971, 17 20). To the north the sites of Hunsbury (Northants) (Fell 1936) and Rainsborough (A very 1967) produced both coarse and fine wares that clearly belong to the same broad tradition as Ashville's Period 2.

Harding places the adoption of smooth dark wares and undecorated forms in (the second half of the 3rd century BC (Harding 1972, 103). He dates such forms as Ashville's fine-ware globular bowls and jars between the first half of the 2nd century (Harding 1972, 105) and the advent of Belgicized types in the 1st century BC (Harding 1972, 116). Further support for these dates comes from Elsdon's dating of quasi-rouletted patterns between tooled lines to the early 2nd and 1st centuries (Elsdon 1975, 13). It can be said that Ashville's Period 2 pottery was produced during the last three centuries BC.

The Iron Age C pottery from Ashville's large Period 3 ditches extends the area of known settlement by users of Belgic traditions to the southern side of the Upper Thames. Unlike Frilford. where it is felt (Harding 1972. 123) that the strong Iron Age B culture deterred the adoption of new ceramic techniques, Ashville was producing wheel-turned vessels of shapes derived from Belgic prototypes perhaps from the mid-1st century BC. Excavations at Barton Court Farm (Miles, forthcoming) on the opposite side of Abingdon indicate another such settlement in this area. Further investigations may alter the view that in the Upper Thames use of the area south of the river was restricted to that of a route between centres to the east and west (Harding 1972, 124).

Frilford now diverges in pattern from Ashville. continuing in the B tradition with only minimal Belgic influence (Bradford and Goodchild 1939. 16). Site 8, Linch Hill, Stanton Harcourt' (Grimes 1943) is the nearest site with comparable pottery. There Period II, like Ashville's ditches 103 and 134. lacks Roman forms and so is placed by Grimes in the late 1st century BC or early 1st century AD. Butt-bakers and other late forms arc introduced in a subsequent stage which probably corresponds to Ashville's ditches 27 and 392. Here and at Langford Down, Lechlade (Williams 1951), the necked bowl is the common Betgicized form. The preponderance of necked bowls at Ashville also indicates a preference in this area for this one form out of the whole range of Belgic types. Hand-made coarse wares in the native tradition form significant parts of the assemblages at all three sites.

Some parallels have been cited with material from Dorchester (Frere 1962) (Fig. 53, 373 and 374 from ditch 392: Fig. 52, 346 from ditch 27). Grim's Dyke. North Oxfordshire (Harden 1937) (Fig. 52. 356 ditch 27), Watlington (Case 1958) for the butt-beakers and necked bowls. and Welwyn Garden City (Stead 1967) for necked bowls. Verulamium vessels closely resembling some Ashville forms from the later ditches. 27 and 392. have been assigned dates of prior to AD 75 (see Frere 1972, 268 and fig. 101, 35 and. for the necked bowls, fig. 100, 67 76). Ditches 103 and 134 may be pre-10 BC as this is the date given to rapidly filled drainage ditches at Wheathampstead which similarly lack imports or imitations from southern Gaul or Italy such as butt-beakers. girth-beakers, and Arretine-type platters (Harding 1972. 123). The early Bagendon pottery also offers some useful parallels (Clifford 1961), all of which belong to the period A 10 60 (see especially the beaker forms, Fig. 49, 50, and 62. necked bowls, Fig. 52, 65, and 66, and cooking and storage vessels. Fig. 54 57 and 67 69).

Although there is no firm 'evidence on which to establish a date for the introduction of wheel-turned Belgicized pottery at Ashville. on the basis of the above comparisons it would seem to have been in the late 1st century BC. The change to these new types was gradual. many vessels in the native tradition continuing in the assemblages. The latest types for which dated parallels are known place the last pre-Roman pottery on the site within the first half of the 1st century AD.

Appendix I

Using the technique of X-ray fluorescence, preliminary trials were run on selected sherds with the reddish burnished surfaces usually described as hematite coating. The iron content of the surface of the three Ashville sherds (one each from features 120, 134, and 237) was clearly higher than the iron content of their matrices, but not as concentrated as on the surfaces of sherds of similar appearance from Appleford (Berks) (Hinchliffe, forthcoming) and Mount Farm, Dorchester (Oxon) (Myres 1937). The Appleford and Mount Farm sherds were however of clay with a similar iron content. Both the surface and matrix iron contents of the Ashville sherds were within the same range as those of sherds from All Cannings Cross (Cunnington 1923, 145), the type-site of hematite coating.

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The Roman pottery

By David Miles

Introduction

The Ashville site produced a relatively small quantity of Romano-British pottery from features which seem to span the 1st to 4th centuries AD.

In view of the limited sample and the very mixed deposits no attempts have been made to deal with the fabric types and quantities in a systematic way. Instead, vessels representative of the range present are illustrated to indicate the likely date of the various features.

The colour descriptions refer to Munsell Soil Color Chart notation.

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Samian

Pit 1047

Single base sherd in hard glossy Lezoux fabric, 1st century type.

Well 30/4

Ten sherds from the lowest level of the well. One sherd of hard glossy Lezoux type, ? Form 27, but rest are soft abraded mid-late 2nd century or even 3rd century forms where identifiable, e.g. Form 38.

Appendix I

Using the technique of X-ray fluorescence, preliminary trials were run on selected sherds with the reddish burnished surfaces usually described as hematite coating. The iron content of the surface of the three Ashville sherds (one each from features 120, 134, and 237) was clearly higher than the iron content of their matrices, but not as concentrated as on the surfaces of sherds of similar appearance from Appleford (Berks) (Hinchliffe, forthcoming) and Mount Farm, Dorchester (Oxon) (Myres 1937). The Appleford and Mount Farm sherds were however of clay with a similar iron content. Both the surface and matrix iron contents of the Ashville sherds were within the same range as those of sherds from All Cannings Cross (Cunnington 1923, 145), the type-site of hematite coating.

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The Roman pottery

By David Miles

Introduction

The Ashville site produced a relatively small quantity of Romano-British pottery from features which seem to span the 1st to 4th centuries AD.

In view of the limited sample and the very mixed deposits no attempts have been made to deal with the fabric types and quantities in a systematic way. Instead, vessels representative of the range present are illustrated to indicate the likely date of the various features.

The colour descriptions refer to Munsell Soil Color Chart notation.

Acknowledgements

I am grateful to David Brown for his helpful comments on the pottery and also to Patricia Roberts who produced the illustrations.

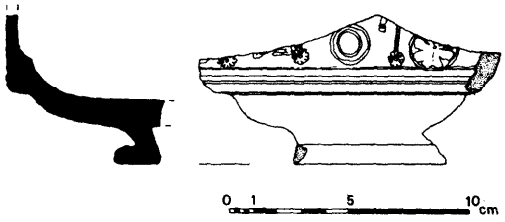
Samian

Pit 1047

Single base sherd in hard glossy Lezoux fabric, 1st century type.

Well 30/4

Ten sherds from the lowest level of the well. One sherd of hard glossy Lezoux type, ? Form 27, but rest are soft abraded mid-late 2nd century or even 3rd century forms where identifiable, e.g. Form 38.



55 Decorated Samian: Well 30. Scale $\frac{1}{3}$

Decorated samian

Well 30 (Fig. 55)

Soft late Lezoux fabric. Decoration consists of panel bordered by a bead row with a ten-petalled terminal rosette. Inside the surviving panels is an eight-petalled rosette, a double ring and single astragalus, and probably the hindquarters and front paws of a hare.

All these elements fall within the repertoire of Censorinus, dated 150-180 by Stanfield and Simpson (1958).

The coarse pottery

Pit 1047 (Fig. 56)

The pottery forms and fabrics from this pit are consistent with a date in the later part of the 1st century AD.

1 Cordoned jar, in hard micaceous grey (7.5 YRN5). Wheel-thrown Romano-British fabric but 1st century native form.

2 Rim of large jar, in hard fabric, large limestone and rounded quartz inclusions up to 4mm across; lumpy surface texture, dark grey. Unevenly burnished below neck. Common 1st century AD type in Upper Thames area.

3 Jar with cordon on shoulder; hard, quartz inclusions, light grey (2.5 YN7). Burnished on neck.

4 Base with illiterate potters stamp on inside. Hard grey (7.5 YRN/5) ware.

5 Shallow dish; hard quartz inclusion, very dark grey (5YR3/1) burnished exterior surface and light reddish brown (5YR6/3) in section. Handmade; uneven burnished cross-hatching on exterior base. Fabric is characteristic of local 1 st century AD native vessels.

Ditch 1018 (Fig. 56)

The small quantity of pottery from this ditch suggests that the upper fill accumulated in the first half of the 2nd century AD.

6 Oxford ware mortarium; hard pinkish-white fabric (7.5 YR8/2) and rounded quartz grits. Large flange with a minimal internal rim is characteristic of earliest Oxfordshire types (Young 1973, 109 and fig. 2, 1).

7 Beaker; hard, few obvious inclusions, dark grey (N4). Cordon or shoulder, barbotine dots form lozenge-shaped zones. Common late 1 st century type in Upper Thames area (Miles 1975, 90).

Welt 198 (Fig. 56)

The pottery from this, the earliest feature in the well complex, unfortunately forms a rather mixed group. Although much of the pottery appears to be 1st or 2nd century, several sherds are consistent with a mid-3rd century date for the upper fill of the feature.

8 Bowl, hard, micaceous, reddish brown (2.5 YR5/4) burnished exterior surface and reduced interior section. Cordon around belly. Late 1st-early 2nd century type.

9 Cordoned jar; hard fine grey (7.5 YRN4) ware.

10 Wide-mouthed jar; hard, lumpy surface texture, many inclusions of flint, quartz, and limestone. Very dark grey surface (7.5 YRN/3), light brownish-grey interior section (10 YR6/2). Common 1st century native fabric and form in Upper Thames area.

11 Thin-walled sherd of black burnished category 1 cooking pot. Oblique cross-hatching above a well-burnished lower zone may indicate a later 3rd century date.

12 Black burnished category 1 pie dish; unevenly fired, black to light red (2.5 YR6/6). Burnished lines on body and outer base.

13 Lower half of jar; hard micaceous grey (5YR3/3) ware. Burnished around lower part of body. Cross incised on outer base after firing.

14 Cooking pot; very micaceous grey (10YR5/1) ware. Wheel-thrown, unevenly burnished, acute cross-hatching. 2nd century type.

15 Vessel in fine ware; some mica but few other inclusions, reddish-yellow (5YR6/6) fabric; rouletting and cordon around body. Probably a late 1st or early 2nd century type.

16 Indented beaker sherd; some mica and shelly limestone inclusions, light brown (7.5YR6/4) surface and reduced grey section. Burnished lower zone. 3rd century.

17, 18 Cordoned' sherds; hard fabric with quartz inclusions, reddish-brown (25YR5/4). 18 is burnished on exterior.

19 Body sherd of carinated jar; hard, mica and some shelly limestone inclusions, grey (2.5YRN3) ware. Burnished zones on outer body. Local 2nd century type, possibly a product of the Overdale kilns (Harris and Young 1975, fig. 8, 15-19).

20 ? Platter with wavy, reeded rim. Hard fabric, many rounded quartz inclusions giving sandy texture; reddish-yellow (5YR7/8).

Grave 11 (Fig. 56)

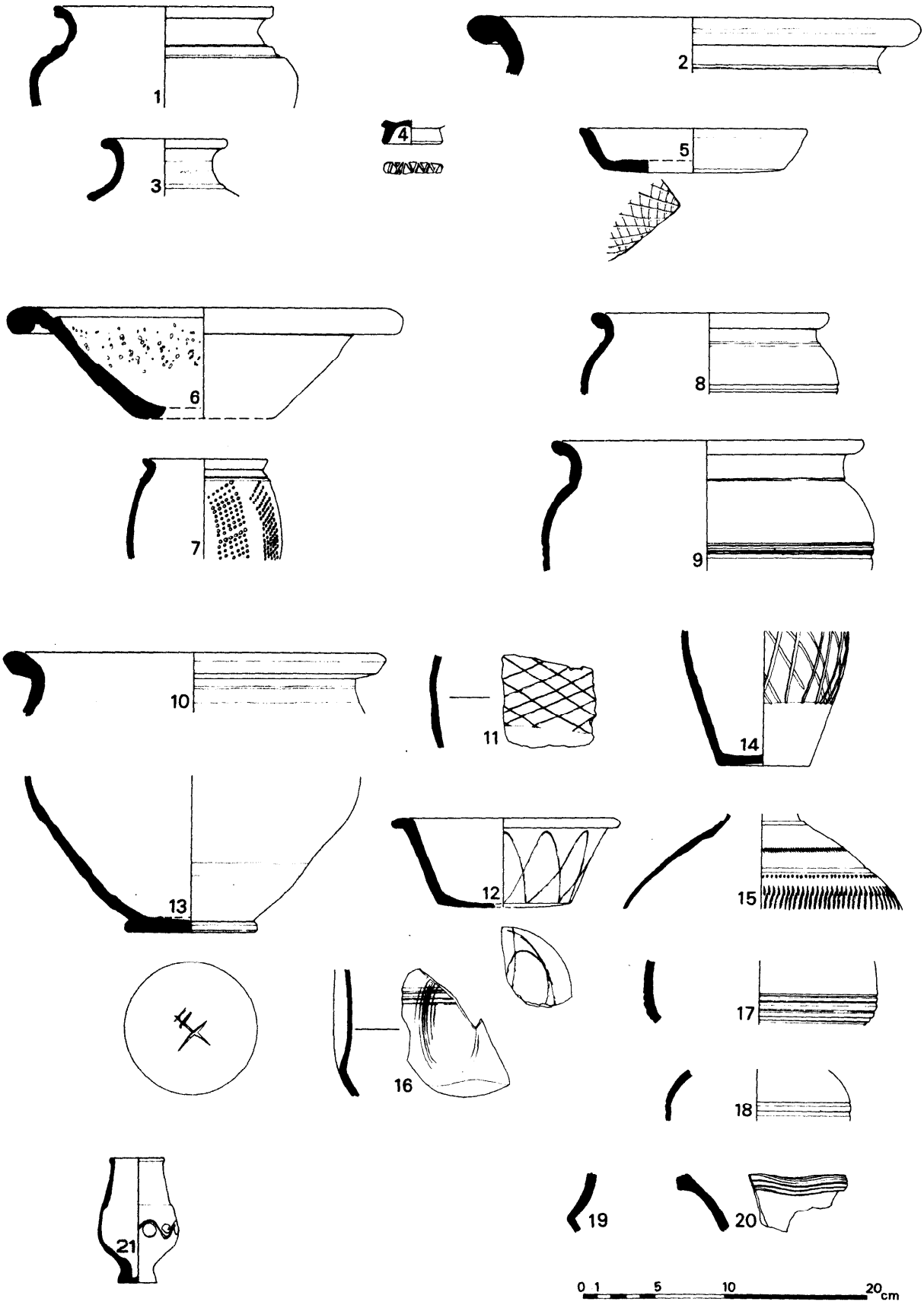
21 Narrow-mouthed beaker in Oxfordshire ware, All-over colour coating in grey (10YR6/1); white decoration of wavy line around dots. Late 3rd to 4th century. A beaker of similar but slightly larger form and light red (2,5YR6/8) fabric and colour-coat was found in a grave at Radley (Atkinson 1953, fig. 16).

Well 30

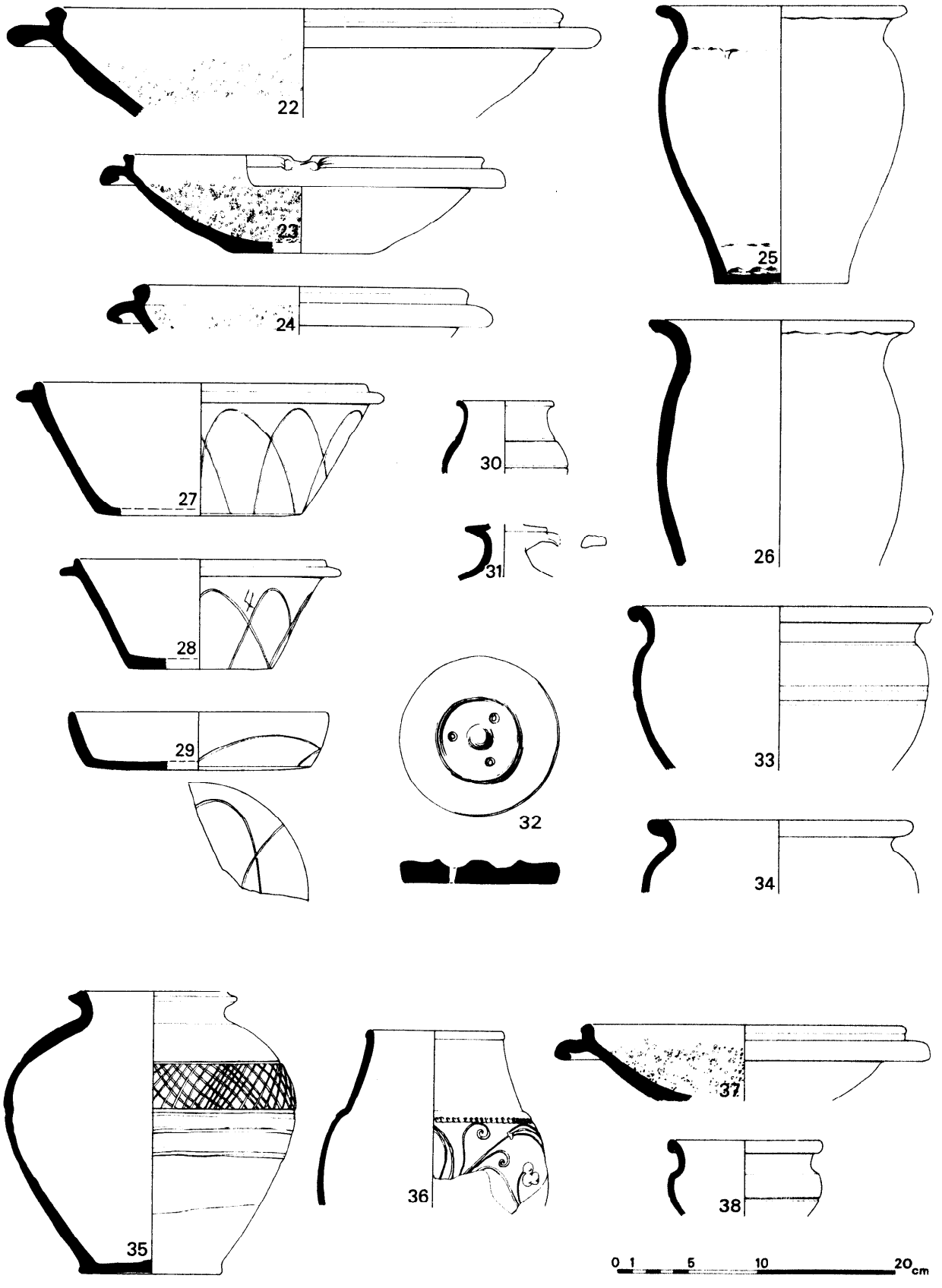
The pottery from the latest feature in the well complex is also rather mixed but although the lowest level, 30/4, contained a relatively large quantity of Samian, some of the pottery, notably the red-colour-coated Oxfordshire wares, seems to indicate a date in the second half of the 3rd century for the earliest filling of the well.

Well 30 Layer 4 (Fig. 57)

22-24 Oxfordshire ware mortaria with upright rims, All in 'white' fabric, though colour varies from white (10YR8/2) and pinkish-white (7.5YR8/2) to greyish brown (10YR5/2).



56 Roman pottery: 1-5 Pit 1047; 6-7 Ditch 1018; 8-20 Well 198; 21. Grave II. Scale ¼



57 Roman pottery: 22-34 Well 30 layer 4; 35-38 Well 30, layer 1. Scale ¼

These white mortaria are not well dated but sherds of 'red' colour-coated Oxfordshire mortaria also occur in this layer which should post-date the mid-3rd century (Young 1973, 110). There is also a single sherd of Nene Valley colour-coated ware.

25, 26 Jars in soft, shell-gritted fabric (often referred to erroneously as calcite-gritted ware). Unevenly fired, colour varying from brown (7.5YR5/2) to pinkish-grey (7.5YR7/2) or even black. Hand-made. Shell-gritted wares occur throughout the Roman period though they are commonest in the Upper Thames area in the later 3rd and 4th century. They do not indicate sub-Roman occupation.

27, 28 Black burnished category 1 pie dishes. 27 is burnished on rim, 28 all over-in uneven facets and has a sgraffito swastika between the arcade decoration.

29 Black burnished category 1 dish; smoothed interior and exterior with burnished arcades on outer wall and base.

30 Beaker; soft fabric, few inclusions, grey (10YR5/1) ware.

31 Flagon; medium-hard, micaceous grey (10YR5/1) ware.

32 Pottery disc; hard, some limestone inclusions, dark grey (7.5YRNS). Wheel thrown to form disc with central boss and three holes 5mm in diameter. Possibly the lid of a cheese press. Atkinson (1941) illustrates a similar lid from Cowley but implies that it is a base. An unpublished 'cheese-press' base in the Ashmolean Museum was found at Shotover Hill.

33 Wide-mouthed jar; medium-hard micaceous grey (10YR5/1) ware.

34. Wide-mouthed jar; in soft micaceous grey (7.5YRNB) ware.

Well 30: layer 1 (Fig. 57)

35 Jar, with fluted rim; hard micaceous fabric. Grey (2.5YN3) exterior and light brownish-grey (2.5Y6/2) interior surface. Well burnished zone on shoulder with uneven burnished cross-hatching below.

36 Beaker, probably a Nene Valley product. Hard reddish-yellow (5YR6/6) fabric, metallic dark-grey (5YR4/1) colour coating inside and out; rouletting on shoulder and fine-quality white (actually yellow, 10YR8/6) scroll decoration.

37 Oxfordshire ware mortarium in 'white' fabric

38 (pale yellow 2.5Y7/4).
Small Jar; Oxfordshire ware 'red' (2.5YR3/6) colour-coat on red (2.5YR5/6) body.

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Small finds

By Michael Parrington

Iron objects (Fig. 58)

1 Iron spike from Roman padlock, square in section with point at one end and folded over loop at the other. Length 280mm, from Roman well 198 (cf. Brown 1973, fig. 6, 28).

2 Iron holdfast, square in section with a strip of iron riveted on one end. Length 75 mm. Found during the initial top-soil stripping, Roman (cf. Shakenoak IV, fig. 56,357).

3 Iron key from common type of Roman lock. The two strips of iron which are riveted on to the main part of the key form the locking mechanism. Length 120mm. From Roman well 198. (cf. Shakenoak II, fig. 51, 93; Brown 1973, fig. 6, 28; ARB 1964 fig. 41 for illustration of model of this type of lock).

4 Iron adze-hammer fragment. The hammer head is broken through the socket and the adze blade has been broken and bent over in antiquity. Length 50mm. From Roman well 198 (cf. ARB 1964, fig. 41, 13).

5 Iron knife with curving blade and iron tang. Length 240mm, from Iron Age pit 313 (cf. Harding 1972, pl. 76, D for a smaller example from Standlake, Oxon).

6 Iron knife handle with rivet for fixing a handle. Length 115mm, from Iron Age pit 315.

7 Iron reaping hook with rivet for fixing handle. The impression of the handle which was slotted on to the tool has survived. Wood remains from the handle have been identified as a species of field maple by Mr P Franklin, Department of Forestry, Oxford University. Length 135mm, from Iron Age pit 315 (cf. Cra'ster 1961, pl. VIIIb, for a similar tool which also had wood impressions adhering).

8 Iron rivet, square-sectioned with flattened square head. Length 30mm, from Iron Age hut circle ditch 13.

9 Iron object very badly corroded, possibly the remains of an annular brooch. Diameter 25 mm, from Iron Age pit 70.

10 Iron object, square in section and tapered at one end, possibly a nail? Length 50mm, from Iron Age ditch 346.

Bronze objects (Fig. 59)

11 Bronze La Tène brooch, low bow with coiled bronze spring. The terminal foot of the brooch is broken off just above the catch-plate and the bow is decorated with a vesisca shaped ornament. Length 30mm, from Iron Age pit 79 (cf. Harding 1972, pl. 74, E and G for examples from Woodeaton, Oxon. For a parallel from London and a discussion of this class of brooch, see Hodson 1971, pl. XII, D, 50-7; for the typology of brooches see Fowler 1953, 88-105).

12 Small bronze disc with concentric design on one side and the remains of a broken pin on the other. Diameter 10mm, unstratified. This object

These white mortaria are not well dated but sherds of 'red' colour-coated Oxfordshire mortaria also occur in this layer which should post-date the mid-3rd century (Young 1973, 110). There is also a single sherd of Nene Valley colour-coated ware.

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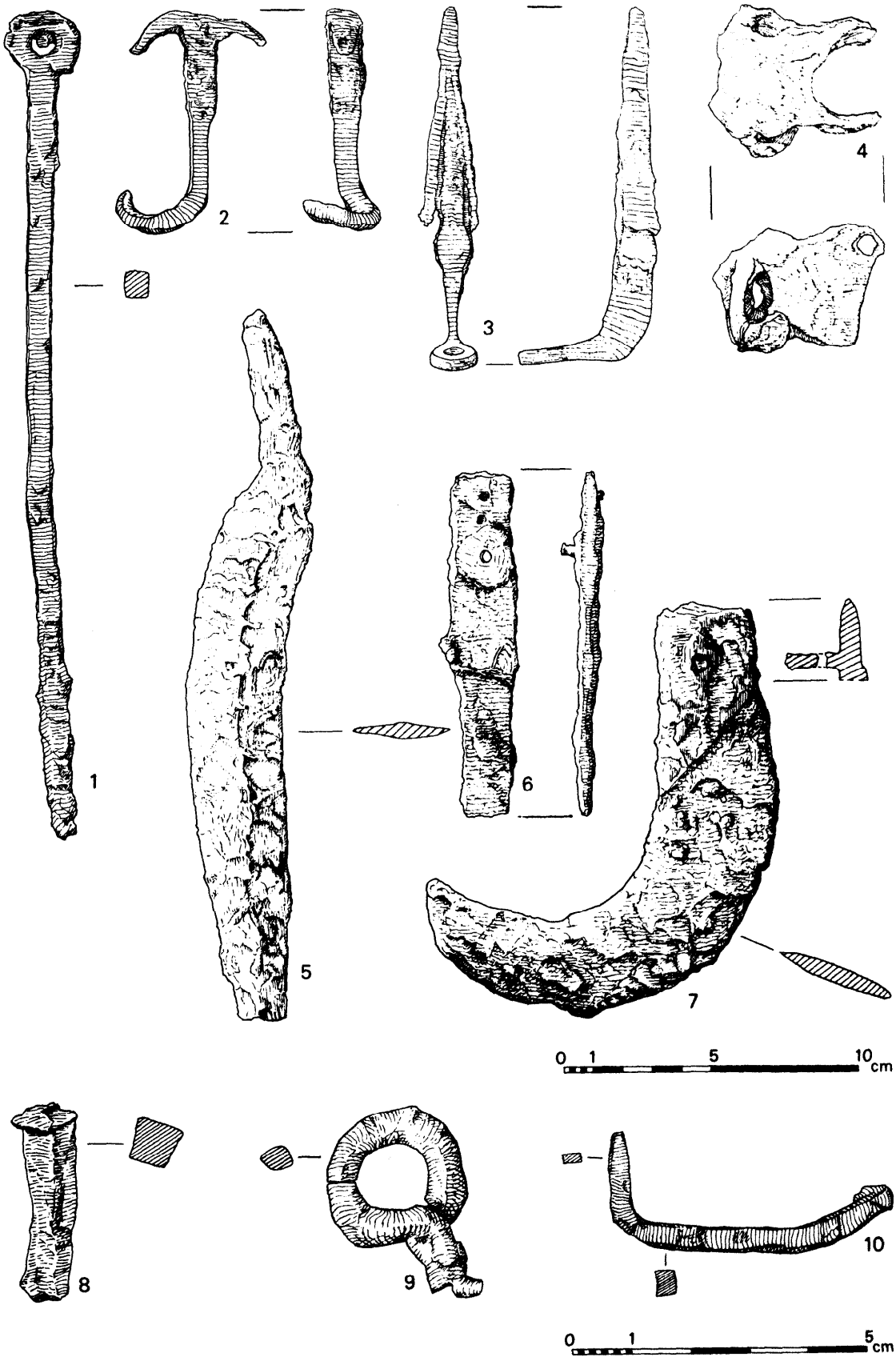
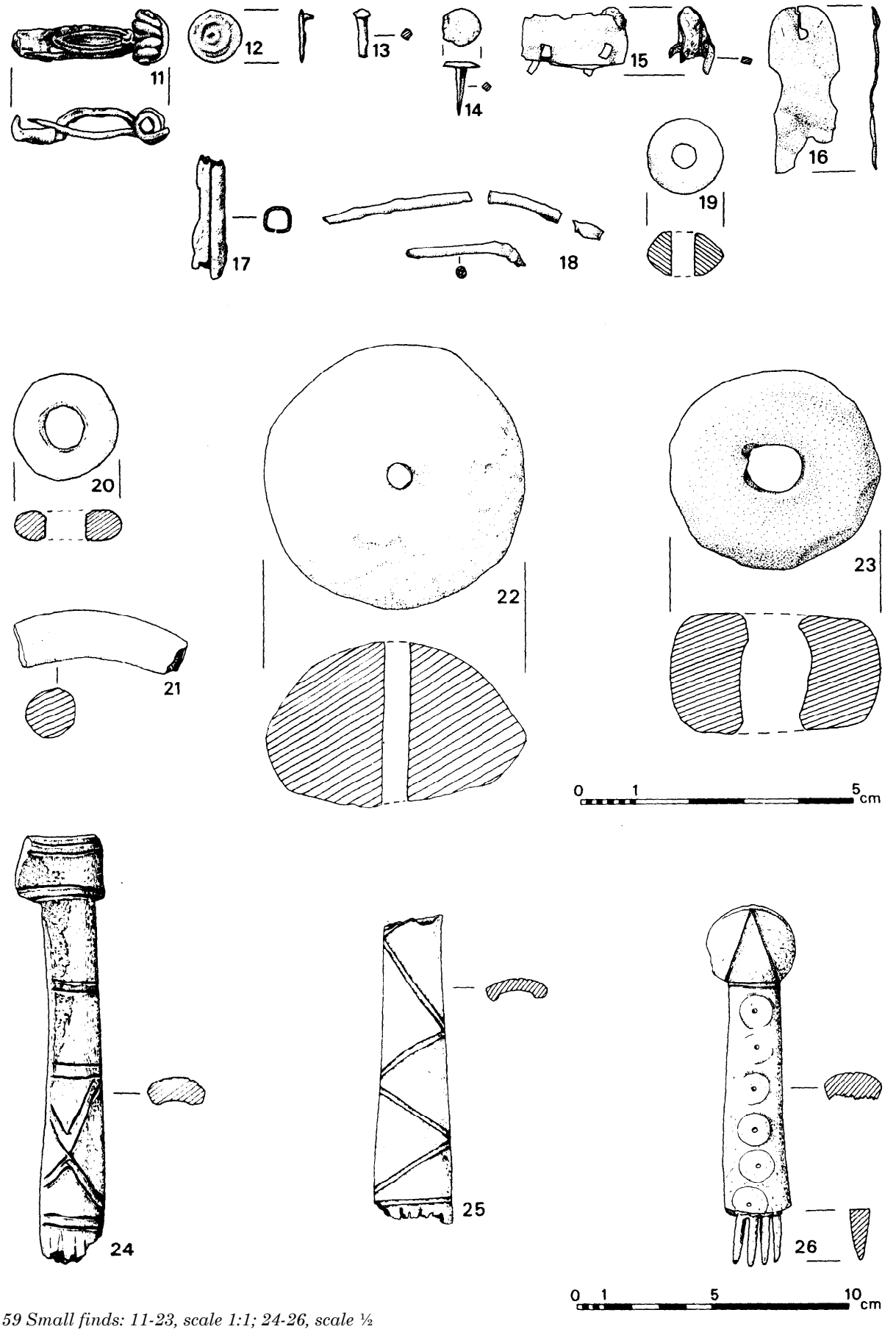


58 Small finds: 1-7, scale ½; 8-10, scale 1:1



59 Small finds: 11-23, scale 1:1; 24-26, scale ½

may be the broken-off terrninal foot of a La Tène 1 brooch as no. 11 above probably originally had.

13 Bronze rivet. square in section, square head. Length 9mm. from post-hole 447.

14 Bronze stud or rivet, round-headed with square shank tapering to a point. Length 9mm, from Iron Age ditch 346.

15 Folded bronze strip with two bronze rivets clenched on cach side of the strip. Length 20mm. from Iron Age ditch 330. Probably a strap-end or belt fitting.

16 fragment of sheet bronze, rounded at the end and with cut-outs on each side. There is a 2 mm punched hole at the rounded end. Length 30mm. from post-hole 461 Probably a mount of some description: may be Iron Age or Roman.

17 Fragment of tubular bronze. Length 20mm. from Iron Age hut circle ditch 13.

18 Several fragments of tubular bronze of smaller diameter than 17. Overall length 140mm. from Iron Age ditch 273.

19 Bronze bead. Diameter 15 mm. diameter of hole 5 mm from Iron Age pit 347 (ef Hodson 1968. pl. 5. 8b. for a continental parallel from Munsingen-Rain).

Stone, shale, and baked-clay objects (Fig. 59)

20 Stone bead. Diameter 20 mm. diameter of hole 9mm. from Iron Age pit 347.

The two beads 19 and 20 above were found together and probably represent a charm or amulet

21 Shale bracelet fragment. Length 30 mm. from Iron Age ditch 180. A similar fragment came from pit 82. There was a shale-working industry at Kimmeridge (Dorset) during the Iron Age and Roman period (Calkin 1955) and finds from Eldon's Seat (Dorset) have demonstrated the way m which these trinkets were made (Cunliffe 1968. fig 13b). Examples of shale bracelets from an Iron Age context in this region have been recorded from Northampton (Williams 1974. fig. 25, 227) and from Whitechurch (Oxon) (Wood 1954, fig. 4)

22 Fired clay spindle whol. shelly fabric. Diameter 50mm. diameter of hole 6mm. from Iron Age pit 338.

23 Stone spindle whorl. Diameter 40mm. diameter of hole 10mm. from Iron Age pit 87

Bone combs (Fig. 59)

(Animal species identified by Bob Wilson)

24 Bone comb with imersed ornament consisting of a diagonal cross and horizontal lines. There are traces of a reddish-brown substance (paint or dye) adhering to the comb along the left side. The decorated side of the comb is highly polished and worn. Made from a large limb-bone fragment of a horse or a cow. Length 155mm. from Iron Age ditch 13.

25 Bone comb fragment with incised decoration consisting of double diagonal lines and double horizontal lines at teeth end. Highly polished and worn on the decorated side. Possibly made from posterior surface of a cattle tibia. Length 115mm. from Iron Age ditch 331.

26 Bone comb with incised ornament consisting of compass-inscribed circles and a triangular design on the terminal. Highly polished and worn on the decorated side. Made from a large limb-bone fragment of a horse or cow. Length 130mm. from Iron Age pit 433.

Bone implements (Fig. 60)

27 Bone needle. highly polished and broken at each end. Length 60mm. from Iron Age pit 59.

28 Bone needle. highly polished. Length 55mm. diameter of hole 2mm. from Iron Age pit 341.

29 Bone needle, highly polished and one end broken. Length 35 mm. diameter of hole 3mm, from Iron Age pit 37.

30 Bone needle, highly polished and broken at each end. Length 50mm. diameter of hole 2 mm, from Iron Age pit 308.

31 Bone needle. highly polished and broken at one end. Made from a pig fibula. Length 60mm. diameter of hole 3 mm. from Iron Age ditch 20.

32 Bone needle. highly polished. Possibly made from a pig fibula. Length 65mm. diameter of hole 2mm. from Iron Age pit 315.

33 Object of uncertain use consisting of an oval flat terminal with two bored 8mm holes in it. Below the terminal is a tapered stem which thickens below the terminal. The end of the stem is notehed out and there is a 3mm bored hole in the notched part. The object is highly polished on each side and may be made from a red deer antler. Length 70mm. from Iron Age pit 46. Possibly the handle of a mirror?

34 Bone implement. highly polished and square in sect ion. There is a 4 mm hole in one end and the other is broken off. Possibly made from a sheep metatarsal. Length 95 mm. unstratified. Possibly part of a shuttle'?

35 Bone implement. highly polished with partially bored hole in head. Made from a sheep tibia. Length 165 mm. from Iron Age pit 125.

36 Bone implement. highly polished. Made from a sheep metatarsal. Length 105 mm. from Iron Age pit 37.

37 Bone awl. highly polished. Made from a sheep metatarsal. Length 105mm. from Iron Age ditch 346.

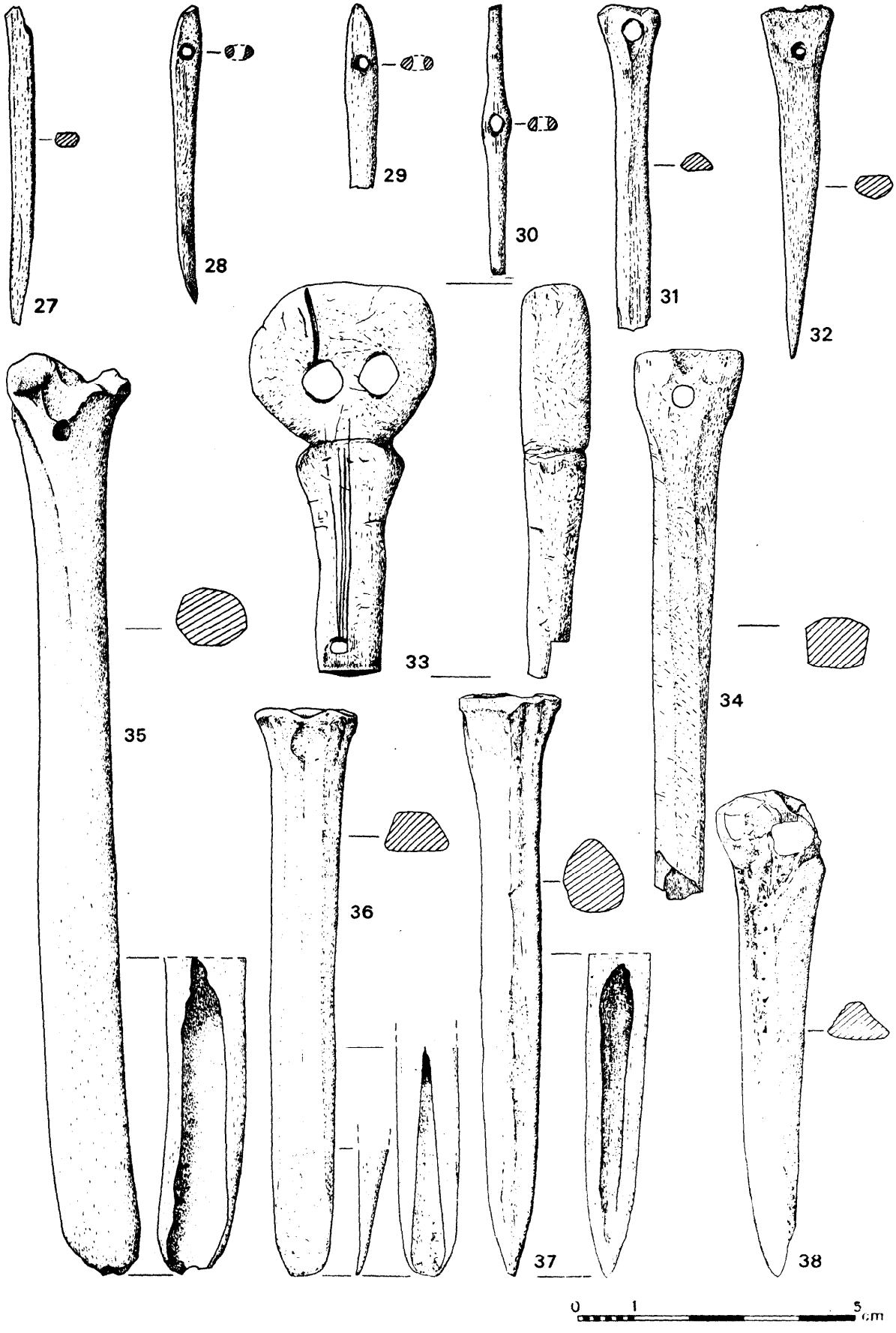
38 Bone awl. highly polished. Possibly made from a second metatarsal of a horse. Length 85 mm. from Iron Age ditch 18.

(Fig. 61)

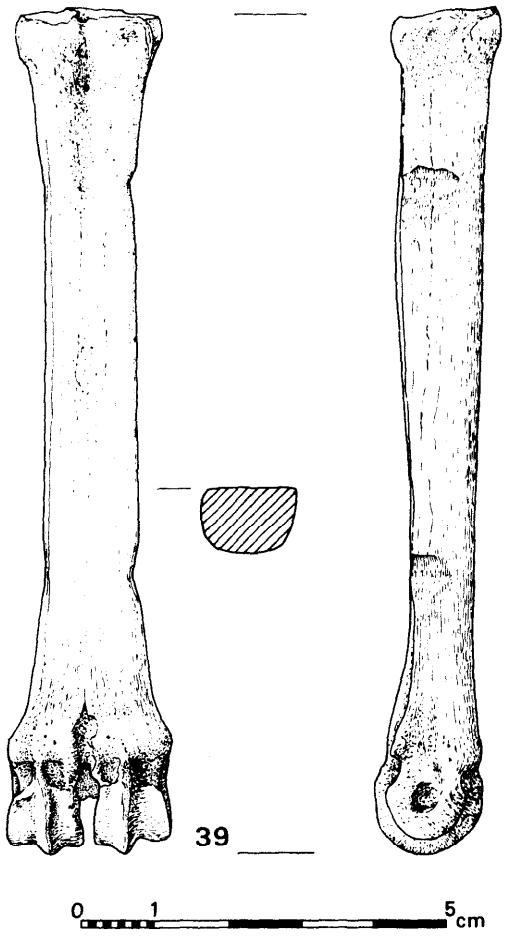
39 Bone implement,. highly polished with grooves near each end. Made from a sheep metacarpal. Length 115mm. from Iron Age ditch 392. May have been used as a pin beater.

Coins

Two coins were found during the excavation. both of which were unstratified. They have both been identified



60 Small finds: 27-38, scale 1:1



61 Small find: 39, scale 1:1

by members of the staff of the Heberden Coin Room, Ashmolean Museum:

1	Roman coin of Tetricus I *Obv.* IMPC TETRlCVS PFAVG *Rev.* SPES PVBLICA Date AD 270-274
2	French-type jetton, 14th century

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The Abingdon ard-share
(Pls. XIII-XIV; Figs. 62, 63)

By P J Fowler

Introduction

The ard-share was excavated from a stone-lined Roman well on the Ashville site during the 1974 excavation. The well is described on p. 22, and the plan an&section are shown in Fig. 22. The share was upright when found, its pointed end resting on the gravel on the bottom of the east side of the well 3.1 m below the modern ground surface. It was the only wooden object to be recovered from the well filling, the remaining finds consisting mostly of pottery and bone. The wood from which the ard-share is made has been identified as oak by Mr P Franklin, Department of Forestry, Oxford University. The pottery is discussed on p. 75, where the latest pieces are dated to the second half of the 3rd century AD. Some of this material came from the lower filling of the well and there is no reason to doubt the association of the ard-share with it or a 3rd century date of deposition.

Acknowledgements

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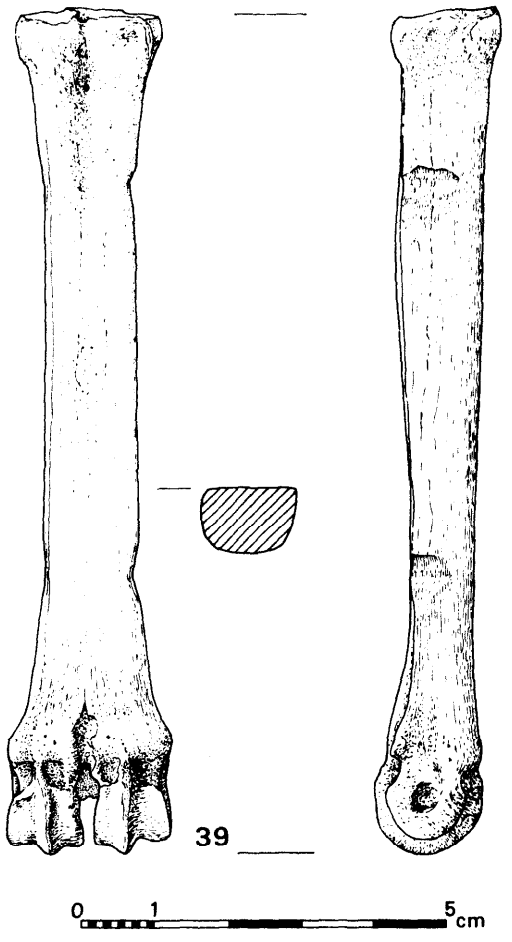
Description

The piece of oak is 369mm long from the end of a broken tang to the opposite, rounded point ('tang', 'point', 'waist', and 'shoulder', and surfaces A-D are defined on Fig. 63). It is 40mm thick near the tang, 32mm thick in the centre, and 25mm thick 30mm from the point. It is 83mm broad at its shoulder below the tang, narrowing only slightly between almost parallel sides to a waist width of 78mm. Where it begins to taper symmetrically 35mm from the point, the object is almost square in section with slightly rounded corners; it becomes more oblong in section as it widens to the waist, at the same time tending to asymmetry across surface B. From the waist to the shoulder this surface is markedly curved, giving the object in section the shape of a right-angled triangle with a convex hypotenuse. The opposed surface D is flat and in the same plane from the tip of the tang to the line at which it begins to be cut away to form 'the point.

The waterlogged state of the object when discovered, and its soft spongy nature at the times of inspection before conservation, demanded minimal handling. As far as was possible, however, a detailed macroscopic study was made of its exterior surface, noting and distinguishing between surfaces which had been *cut, worn,* and *broken.* These are shown diagrammatically on Fig. 63 where the drawings of the object are deliberately *shown* point upwards, since this makes discussion of the surfaces more understandable in terms of function.

Cut surfaces

There were no natural surfaces at all, the shape of the object being entirely an artefact. The original cut surface of the finished object was best preserved over most of



61 Small find: 39, scale 1:1

by members of the staff of the Heberden Coin Room, Ashmolean Museum:

1	Roman coin of Tetricus I *Obv.* IMPC TETRlCVS PFAVG *Rev.* SPES PVBLICA Date AD 270-274
2	French-type jetton, 14th century

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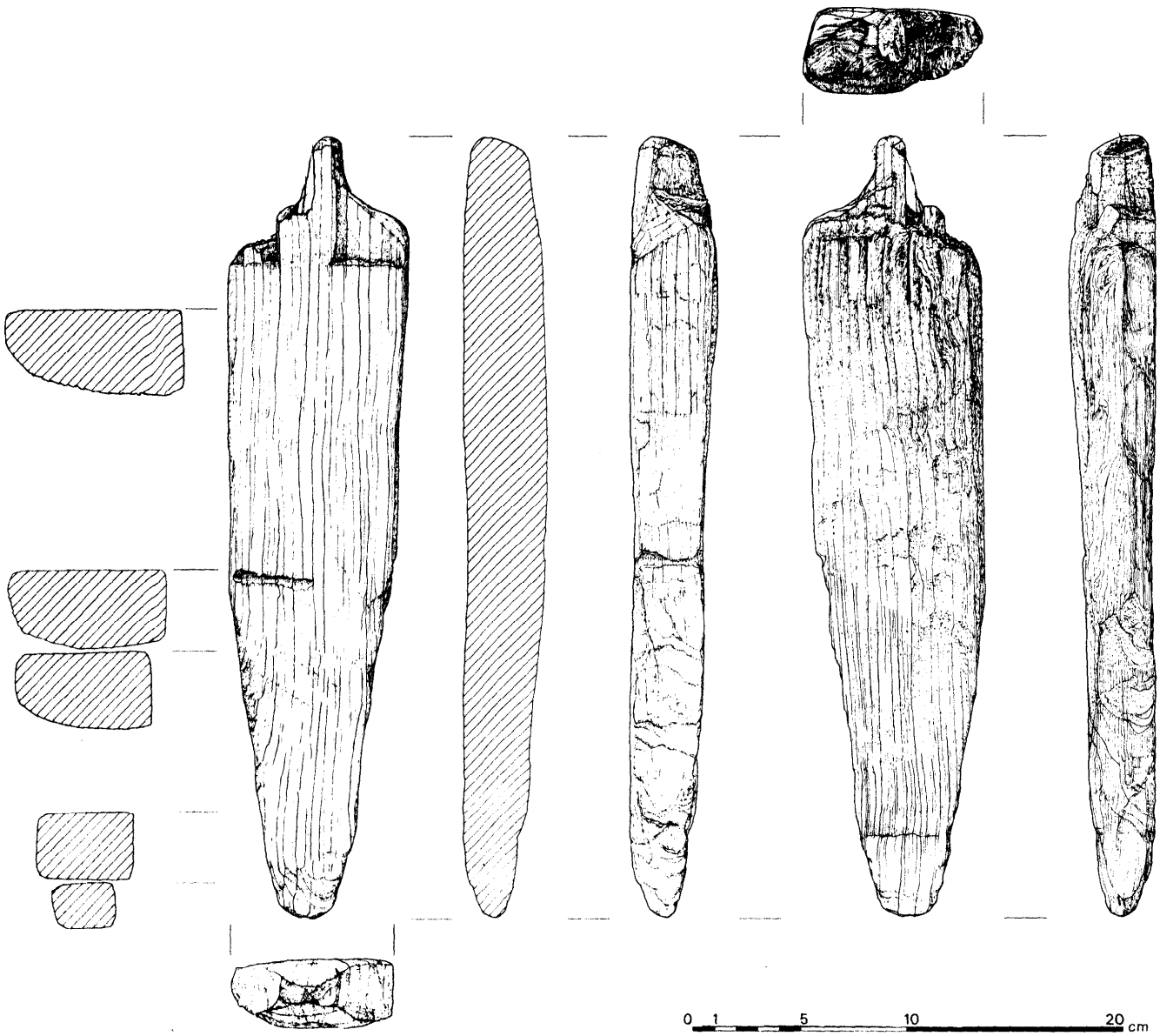


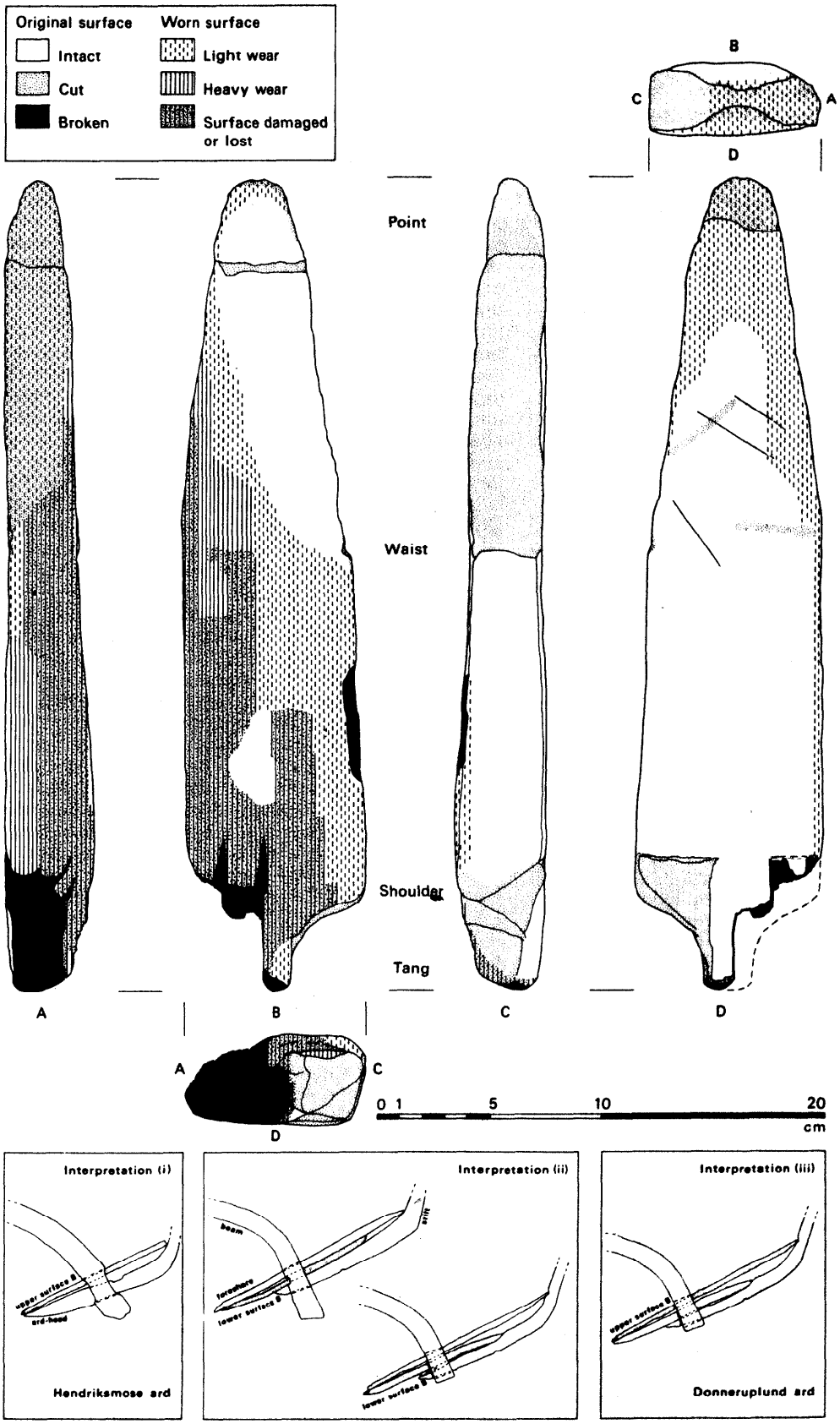
62 Wooden ard-share from Well 30

surface D and its continuation on to the tang and over surface C towards the shoulder. Although cut, these surfaces are left blank on Fig. 63 to distinguish them from the secondarily cut surfaces, notably on surface C, where the existing surface has been prepared by cutting through the rain of the wood between the waist and the point.

The shoulder and tang were also formed by being cut to shape. Only one side of the shoulder remained complete. A cut dividing flat surface D from the three-dimensional rounding of the shoulder itself survived to either side of the central zone where one side of the tang ran straight out of that surface. Damage to the equivalent area on surface B prevented certainty about the thickness of the tang there. Judging from surface D, however, its width was c. 25mm and its thickness minimally c. 30mm. The undamaged side of the stump of the tan was slightly rounded in the vertical plane, and curving slightly in the horizontal plane, so it is unlikely to have been originally straight-sided and rectangular in section.

The waist was defined by a slightly irregular cut across half of surface D and down surface C; it did not appear to have continued across surface B and would probably have been worn away on surface A had it existed. A projection of the line of its surviving parts around the object shows that it was not cut in the same plane, as indeed its slightly diagonal line on surface D indicates: this is a mistake that is very easy to make when trying to cut a line round a hand-held object-the 'end' tends not to join the 'beginning' unless the line is carefully marked out first. The 'cut' is actually more a rough groove and could well have been made by a knife-blade gouging out the wood across its grain.

The point was defined similarly with a slight notch across surface B. Its line, as at the waist, was continued asymmetrically down surfaces A and C and across D. While the edge nearer the waist was definitely cut, it looked as if the feature might well have been accentuated by pressure applied from the point.



63 Diagrammatic drawing of the ard-share

Into surface D were also lightly cut three straight thin incisions, looking like knife-marks cut diagonally across the grain of the wood. The central line cut across a slight mark scored rather than cut into surface D from the end of the parallel outside line nearer the point. These marks occur about the division between the essentially four-sided shape of the object and the beginning of the point which has been shaped by rounding the wood in all planes.

Worn surfaces

More than half of the surface of the object had been worn or abraded after bring cut to shape. Surfaces A and B were markedly worn and/or damaged. corresponding with the 'convex hypotenuse in section described above. On surface B, the wear ended at a line running roughly diagonally from the groove defining the point to the groove across the waist, leaving the original cut surfacc intact towards the point. What appeared to bc a small intact area also occurred in the centre of surface B towards the tang. Otherwise. the whole of the surface was worn, much of it heavily so. The whole of surface A was worn in varying degrees except where the shoulder tang had been broken off.

In marked contrast. surface D was mostly unworn. A narrow zone of light wear at the junction with surface A between the tang and the waist broadened between the waist and the point, occurring slightly asymmetrically to either side of the centre with the bias towards the heavily worn surface A. In contrast to A. surface C was completely unmarked on the taper between the waist and the point. The point itself was only lightly worn. showing no abrasion commensurate with that on surfaces A and B.

Broken surfaces

These are clearly shown in solid black on Fig. 63. Though one side of the shoulder and tang were broken off after the heavy wear on surfaces A and B. the figure really demonstrates the near-complete state of the object.

Interpretation

The shape and size of. and the wear-pattern on. this piece of oak indicate that it is a share from an ard. The wear-pattern in particular poses questions of interpretation. however, about which sort of share it was on what sort of ard and. therefore, how it functioned. These questions focus on which of surfaces B and D were the upper and lower respectively, on the point and on the tang.

Surfaces B and D

This alphabetical notation has been used so far without prejudice to which surface was uppermost in use since three different interpretations are possible:

(i) If surface B was uppermost, its wear pattern can be attributed to an ard consistently used by tilting to the left. The main contact zone would then be along the heavily worn surface A, with considerable quantities of soil moving diagonally across the upper surface B with increasing intensity towards the right-hand edge. In fact the diagonal line formed by the forward edge of the wear on surface B would give some indication of the angle at which the ard was tilted. This interpretation also covers the lack of wear on the underside, surface D, which would travel along in the relative 'vacuum' behind the 'bow-wave' caused by the point and angle of tilt of the share (as illustrated in Hansen 1969, pl. IVe). Some abrasion would nevertheless occur, and the pattern of asymmetrical light wear biased to surface A could be explicable in these terms, A split socketed iron tip covering the point of surface B but not its underneath on surface D would fit this interpretation, The fact that the share id broken in its left might be covered by this interpretation too. If used in this way the share would technically be a foreshare since it would have to fit through a mortice in the end of the bean above a probably pointed ard-head at the end of the stilt (Fig, 63 inset). The protection this would afford to the underside of the foreshare could explain the non-wear on surface D.

(ii) If on the other hand surface D was uppermost the ard must have been tilted during cultivation to its right to explain the wear-pattern on what would now be the under-surface B. Furthermore the large unworn area of surface D demands a protection of some sort and therefore raises the possibility that the share fitted beneath a foreshare. The way in which surface D continues in the some plane into the upper surface of the tang is entirely appropriate for such an interpretation but the absence of any means of attachment (e.g. mortice holes) could be significant. Judging by Scandinavian analogies and by experiment (Glob 1951: Aberg and Bowen 1960. Hansen 1969) such a foreshare would have covered at least the central area, perhaps more of surface D between the tang and the point and might have projected slightly in front of the latter. Such a foreshare rather than the mainshare might be expected to have worn and iron tip but no such fitting are known in the surviving parts of early Scandinavian wooden ards (Glob 1951.123). Nevertheless a small iron tip was fitted over the point of the foreshare in early British ard-cultivation experiments (Aberg and Bowen 1960.145). since however the Abingdon share almost certainly was fitted with an iron tip (see below) and two protected share points would be unlikely on one ard interpretation (ii) requires a composite ard with a wooden foreshare on top of a tipped mainshare, the tip being fitted on to the point with an annular not a split socket to protect the unworn undersurface B immediately behind the point. Abrasion of the tip on the upper surface (D) of the point could explain in this interpretation the light wear noted there Both shares would fit through a mortice towards the lower end of the beam. The intact area near the centre of the otherwise much- worn surface B could well have been protected by a wedge jamming the two shares into this mortice above the ard- head end of the stilt or by the ard-head itself (Fig 63 inset)

(iii) Interpretation (ii) raises the possibility that the Abingdon share is itself a foreshare of the bar variety as fitted on the Donneruplund type of ard (Glob 1951 figs 28 31). Its arrowhead shape suggests otherwise in comparison with Scandinavian examples (e. g. Glob 1951 figs. 37 and 40) but it could nevertheless have fitted surface D downwards over the top of a mainshare. It so the arguments about its wear-pattern apply as [resented in (i) above

The point

The point is remarkably unworn for the 'business end of a share, particularly in view of the considerable wear over much of the rest of the share. i. e. the condition of the point cannot be explained by little use of the share. The fact that the point is not worn asymmetrically is particularly significant (cf. Hansen 1969. pl. VIa and b). It is therefore virtually certain that the point was capped or shoed by some form of protective covering, probably an iron share-tip. The detail of the surface condition around the tip suggests the share may have been used a little, surface D uppermost. before such a tip was fitted or after it was removed. The tip Itself would appear to have

covered surface B and C as far back as the notch defining the point; the 'light wear' on surfaces H and C could well have been caused by fitting the tip (or tips and certainly one must have been taken off at least once) or by bruising of' the wood by the tip while the share was in use. The pressure at the point of such a share is considerable and would also tend to force the tip back against and accentuate the notch defining the point. It is difficult to be certain but the implication of the wear-pattern is that the socket by which the tip fitted over the point was annular rather than split. The evidence of the point alone is inconclusive about which surface was uppermost since so much depends on which of interpretations (i) (iii) above is accepted for the function of the share.

The tang

The tang is little more than a stump but its presence clearly indicates that the share is from a composite ard. Its length is critical to the interpretation in (i) (iii) above but it cannot be reconstructed from what survives. Its original thickness (Fig. 63. D showas a reconstruction) of only c. 20mm where broken, however. hardly suggests the strength necessary in the long tang needed for a foreshare though of course whether the share is a foreshare or mainshare the tang could thicken up on the stilt side of the mortice through the beam. Not that there would be much advantage in such a shape since the greatest strain on a share is where it enters the mortice This is precisely where this share has broken (cf. Hansen 1969. 3). There is no evidence that it was subsequently re-cut or re-used.

On balance it seems most probable that the Abingdon share was the mainshare of a bow beam. or composite type of ard consisting principally of a beam with a mortice through which passed a foreshare a mainshare and the ard-head on the end of the stilt. The type IS best exemplified by the near-complete example from Donner-uplund. Denmark (Glob 1951. 29 34. 114). If accepted this lnterpretation ((ii) above) means that the share came from an ard consistently tilted to the right during its use (i.e. it was a two-way ard). that surface D was uppermost beneath a foreshare and that the iron tip on the share completely enclosed the point. It must be cautioned however that this interpretation is not certain and that. while it is estremely unlikely that this object is a foreshare from a Donneruplund type of ard (inter-pretation (iii) above it could be the foreshare from a variant of the bow ard exemplified by the Dostrup and Hendriksmose ards (Glob 1951, 36 41, 114 15, inter-pretation (i) above). If so then it has to be postulated that the hypothetical Abingdon ard unlike the originals at I)ostrup and Hendriksmose. was fitted with an arrow-shaped foreshare and not a bar share as was done successfully in the early experiments at Lejre (Hansen 1969, 23 5).

Discussion

Although analogies have been sought so far in the abundant late prehistoric Scandinavian and modern experimental information on early European ploughs. the fact is that the date of the Abingdon share is in the middle of the Roman period in Britain. The possibility that it might be a survival from the 1st century AD or even earlier has been carefully examined and rejected. By usual archaeological criteria the share was deposited in the well in the 3rd century AD. perhaps after rather than before say AD 250. At the other extreme though badly worn the share could easily have been reduced to its discarded state by a week's work (personal observation) so the 3rd century date seems reasonably secure. Presumably therefore, whether a foreshare on a Hendriksmose-type ard or a mainshare on a Donner-uplund-type ard, it represents the continued use in the heavily romanized Abingdon area of a prehistoric type of wooden ard. This conclusion need occasion no surprise since it has long been postulated that the bow ard was the common type of cultivating implement in the Romano-British countryside and indeed in the Roman west (Bowen 1961, 9 11; Manning 1964, 57, and 1966, 55: but cf. White 1967, 213 6).

In attempting to study the plough in Roman Britain, hitherto we have been 'forced to rely on the surviving iron shares and coulters' (Manning 1964, 57). In this context the wooden share from Abingdon is a notable addition to the available evidence, now also supplemented by part of a share from Usk (W H Manning, personal communi-cation) and the re-identification of an oak 'spear-tip' from Walesland Rath (Pembs) as an ard foreshare (Manning 1975, 114 commenting on Wainwright 1971, 94-9). Nevertheless, wooden parts of ards are very rare indeed in British archaeology, the only two indisputable pre-historic pieces being a beam of a bow-ard from Loch-maben. Dumfries. and a combined plough-head and stilt from Milton Loch Crannog (Fenton 1963, 269, fig. 3 and pl. XLIV. 1). The latter has recently been given a radiocarbon age estimate of 400 BC ± 100 and the former of 80 BC ± 100 (Guido 1974. 54). making the point. since either piece could typologically have come from the same ard as the Abingdon share. about the conservatism in the development of early cultivating implements (cf.. gen-erally Payne 1947 and 1957).

This appears to be true in some respects in Roman Britain. Two well known bronze models of ploughs from Roman Britain. both in the British Museum are distributionally outliers of a concentration in the Col-ogne area (Manning 1964. 1966) and chronologically probably broadly contemporary with the Abingdon share. Both models. one almost certainly from Sussex and the other including a ploughman and a two-ox team. from Piercebridge (Co. Durham) (Manning 1971). are apparently of ards rather than of more sophisticated implements: certainly the Sussex example shows an arrow-shaped share without a foreshare above it, though the casting could imply that the pronounced share itself is a foreshare above a main share on the ard-head. The part beneath the arrow-shaped share has usually been re-garded merely as a 'keel . . . to give the ard stability' (Manning 1966. 55) but. apart from this being un-necessary, no such device is referenced by White (1967, 123 45). The Lejre experiments with a replica of the Hendriksmose ard fitted with a share shaped like that on the Sussex model also suggest this tentative re-lnterpretation. just as they suggested interpretation (i) abole (p. 86). For present purposes. however, the significance of the bronzes is that they show con-temporaneously the type of ard required by the Abing-don share.

Unfortunately no such share has yet been found with an iron tip fitted over its point; indeed. the Abingdon share seems to provide the first reasonably good direct evidence of this having been done. Yet small iron tips. usually called shares. are not uncommon in British Iron Age and Roman contexts. The earliest have recently been found in the first phase (mid-lst millennium BC) of the settlement at Gussage All Saints (Dorset) (Wain-wright and Switsur 1976. 35-6); a corpus of the later examples running on into the large and sometimes wringed shares of the Roman period. has already been assembled (Payne 1947, 110 --2. fig. 1; Fenton 1963, fig. 4:

Manning 1964, figs. 5 and 6). All that was needed for the Abingdon share was a small shoe or sheath to fit over the point as far back as the notch: this type and of the right size is provided by two of the examples from Gussage All Saints (drawings provided in advance of publication by Dr G J Wainwright) and by examples from The Caburn, Hunsbury (Payne 1947. fig. 1, nos. 2, 3 7). Blackburn Mill and Traprain Law (Fenton 1963. fig. 4, nos. I, 3). With its small size and rounded section. the point of the Abingdon share would not have fitted the more common flatter and broader Romano-British shares. exemplified by two in Reading Museum from the Abingdon area itself (Manning 1964. fig. 5. nos. D and E), nor would it have provided enough purchase for a socketed bar-share like that from Woodcuts (Dorset). It is conceivable but unlikely that it might have been fitted with one of the short bar-tips of the type exemplified at the same site or at Brading villa (Manning 1964, fig. 6, nos. A D). On balance. however, all 'Iron Age' type tip on the point is all that is suggested by the share itself and by the type of prehistoric ard envisaged for it. The ard-marks recorded on Overton Down (Wilts). which could be of Roman date, and elsewhere in probable Romano-British contexts, indicate that such an interpretation is possible (Fowler 1967; Fowler and Evans 1967).

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The quern stones

By Michael Parrington

Twenty-three rock samples which showed signs of wear possibly associated with corn grinding were examined by Mr HP Powell, University Museum. Oxford. The geological identifications in' the following report arc based on information supplied by him,

Fourteen of the samples were Calcarcous Grit or Limestone derived from local Corallian Beds. These were all smallish fragments of undeterminate shape and may have been saddle-quern fragments. The remaining samples seem likely to have bean imported from various sources: four of them were Millstone Grit possibly from Derbyshire or South Wales. and the other five were all imported from uncertain provenances except for one sample of Oolitic Limestone from the Cotswolds.

Three fragments of rotary querns were recovered from the site. Of these, one was Roman, one was unstratified but probably Roman, and one was from Iron Age Period 2 pit 55. The fragment from pit 55 was composed of coarse quartz grit, grains well rounded but poorly sorted. not obviously felspathic. possibly imported from eastern South Wales. The fragment is worn smooth with a slight inward curvature on the grinding surface (Fig. 64, A).

The unstratified quern was found in top-soil which had been removed by the machine and consists of three joining fragments and a non-joining fragment which form a triangular shape. The fragments are coarse sandstone or grit composed of fairly well sorted grains of clear quartz about 5mm in diameter and 30% or so of pink or dark red clay mineral representing decalyed felspar. The stone seems to be Millstone Grit. One side of the quern has a slight curvature and there are the remains of three bored c. 20mm holes 50 mm apart along the edge. The curved edge of the quern is worn very smooth and the other two sides are much rougher, with the remains of tool marks where the edges have been trimmed. One surface of the quern is 'pecked' with regular spaced holes c. 8mm in diameter and c. 5mm deep which formed the grinding surface (Fig. 64. B). It would appear that the stone was part of a large quern which was cut down for continued use after the complete quern broke.

The remaining quern fragment was from post-hole 450 which contained Roman pottery. The stone consisted of very coarse grit composed of' poorly rounded ill-sorted grains of white quartz and 20-30º, decomposed felspar. mainly pink Millstone Grit, possibly from the Pennines. This fragment had one curved side and one very smooth worn surface. The other surface was less smooth and had been 'pecked' as was the unstratified quern (Fig. 64, C).

The slag and crucible fragments

By Henry Cleere

The samples submitted fell into three groups. as follows

A Materials associated with bronze working. There were three fragments of crucible, made of clay c. 40mm thick and coated on the outer (convex) surface with fused and vitrified slag. from features 16. 327. and 129. The interiors (concave) are heavily impregnated with slag, and there is a small fragment of bronze, completely corroded, adhering to and partly embedded in the surface of one piece (16). There were also four specimens of light vesicular bronze melting slag from features 27, 157, 392, and 1047.

Manning 1964, figs. 5 and 6). All that was needed for the Abingdon share was a small shoe or sheath to fit over the point as far back as the notch: this type and of the right size is provided by two of the examples from Gussage All Saints (drawings provided in advance of publication by Dr G J Wainwright) and by examples from The Caburn, Hunsbury (Payne 1947. fig. 1, nos. 2, 3 7). Blackburn Mill and Traprain Law (Fenton 1963. fig. 4, nos. I, 3). With its small size and rounded section. the point of the Abingdon share would not have fitted the more common flatter and broader Romano-British shares. exemplified by two in Reading Museum from the Abingdon area itself (Manning 1964. fig. 5. nos. D and E), nor would it have provided enough purchase for a socketed bar-share like that from Woodcuts (Dorset). It is conceivable but unlikely that it might have been fitted with one of the short bar-tips of the type exemplified at the same site or at Brading villa (Manning 1964, fig. 6, nos. A D). On balance. however, all 'Iron Age' type tip on the point is all that is suggested by the share itself and by the type of prehistoric ard envisaged for it. The ard-marks recorded on Overton Down (Wilts). which could be of Roman date, and elsewhere in probable Romano-British contexts, indicate that such an interpretation is possible (Fowler 1967; Fowler and Evans 1967).

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The quern stones

By Michael Parrington

Twenty-three rock samples which showed signs of wear possibly associated with corn grinding were examined by Mr HP Powell, University Museum. Oxford. The geological identifications in' the following report arc based on information supplied by him,

Fourteen of the samples were Calcarcous Grit or Limestone derived from local Corallian Beds. These were all smallish fragments of undeterminate shape and may have been saddle-quern fragments. The remaining samples seem likely to have bean imported from various sources: four of them were Millstone Grit possibly from Derbyshire or South Wales. and the other five were all imported from uncertain provenances except for one sample of Oolitic Limestone from the Cotswolds.

Three fragments of rotary querns were recovered from the site. Of these, one was Roman, one was unstratified but probably Roman, and one was from Iron Age Period 2 pit 55. The fragment from pit 55 was composed of coarse quartz grit, grains well rounded but poorly sorted. not obviously felspathic. possibly imported from eastern South Wales. The fragment is worn smooth with a slight inward curvature on the grinding surface (Fig. 64, A).

The unstratified quern was found in top-soil which had been removed by the machine and consists of three joining fragments and a non-joining fragment which form a triangular shape. The fragments are coarse sandstone or grit composed of fairly well sorted grains of clear quartz about 5mm in diameter and 30% or so of pink or dark red clay mineral representing decalyed felspar. The stone seems to be Millstone Grit. One side of the quern has a slight curvature and there are the remains of three bored c. 20mm holes 50 mm apart along the edge. The curved edge of the quern is worn very smooth and the other two sides are much rougher, with the remains of tool marks where the edges have been trimmed. One surface of the quern is 'pecked' with regular spaced holes c. 8mm in diameter and c. 5mm deep which formed the grinding surface (Fig. 64. B). It would appear that the stone was part of a large quern which was cut down for continued use after the complete quern broke.

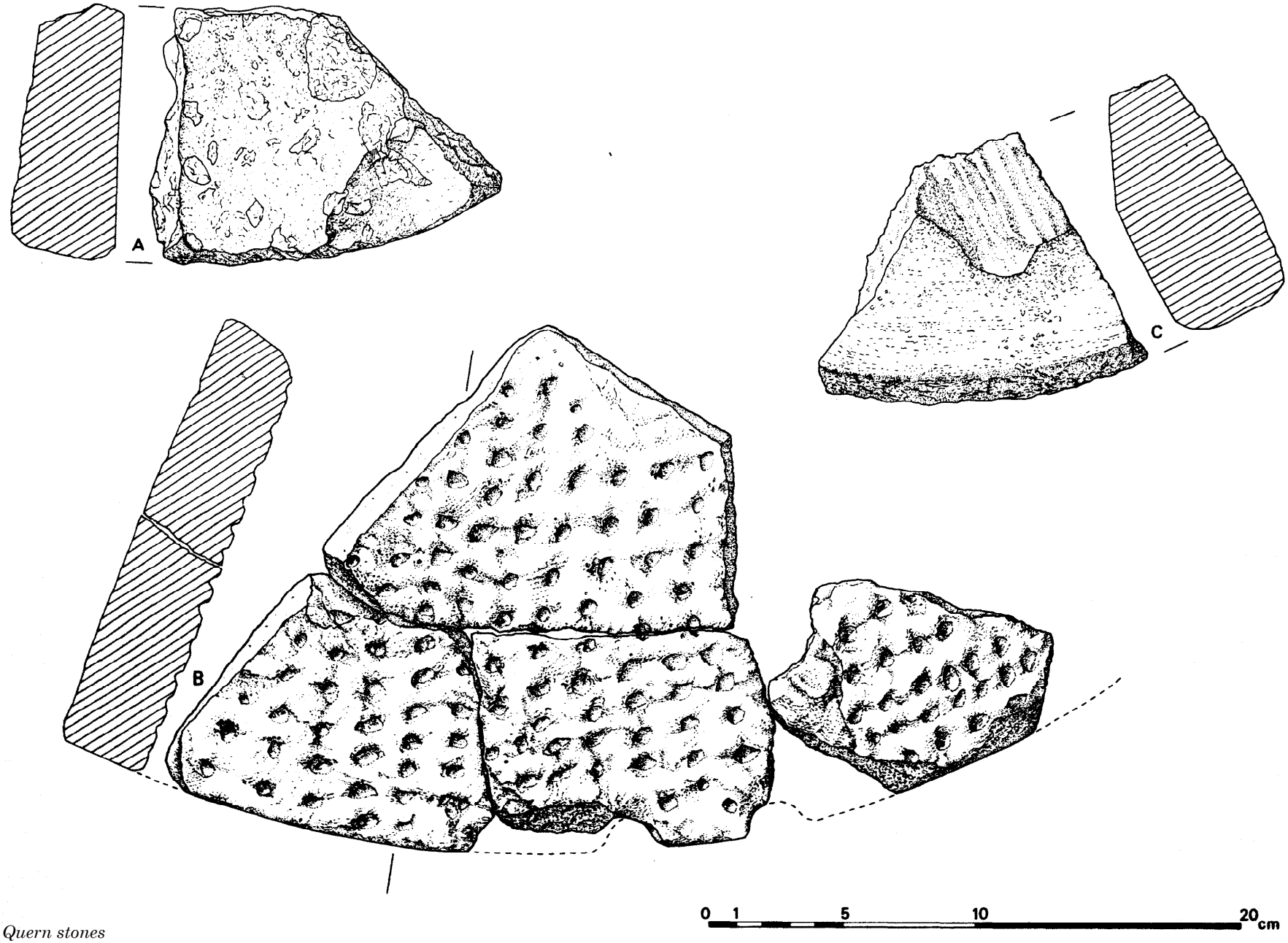
The remaining quern fragment was from post-hole 450 which contained Roman pottery. The stone consisted of very coarse grit composed of' poorly rounded ill-sorted grains of white quartz and 20-30º, decomposed felspar. mainly pink Millstone Grit, possibly from the Pennines. This fragment had one curved side and one very smooth worn surface. The other surface was less smooth and had been 'pecked' as was the unstratified quern (Fig. 64, C).

The slag and crucible fragments

By Henry Cleere

The samples submitted fell into three groups. as follows

A Materials associated with bronze working. There were three fragments of crucible, made of clay c. 40mm thick and coated on the outer (convex) surface with fused and vitrified slag. from features 16. 327. and 129. The interiors (concave) are heavily impregnated with slag, and there is a small fragment of bronze, completely corroded, adhering to and partly embedded in the surface of one piece (16). There were also four specimens of light vesicular bronze melting slag from features 27, 157, 392, and 1047.



68

64 Quern stones

B Materials associated with iron working. All the specimens examined were of forging slag, from features 13, 48. 233, 320, 103, 1023, 1047. and the top soil. One (103) was a massive cake of fused slag which would have formed at the base of the hearth. Another specimen (1023) of fused slag showed the curvature of the bowl of the hearth, which may have had a diameter of 0.3-0.5 m and have been 70-100mm deep.

C Natural formations. One specimen was of a natural iron-stained sand concretion from feature 114. There were two samples of a similar material, but stained black from features 68 and 174; this may represent partial reduction by heat of the more familiar rust-coloured concretion.

The two features associated with burning (60 and 313) appear to have been smiths' working hollows, consisting of clay-based hearths on which bronze crucibles and iron semi-products would have been heated.

The features and samples indicate that metal working (both ferrous and non-ferrous) was carried on at this site on a relatively small scale, presumably for purely domestic or local consumption.

The worked flints

By W A Skellington

Introduction

The 1974 site produced a total of 213 flints. most of which came from the excavation and a few from field-walking beforehand. Of the 213 flints, 20 are unworked fragments of gravel flint, a few are natural fractures from the gravel. and a small number appear to be pieces of the 'gravel flint which have been worked into implements. The flint comes in various colours. 151 pieces in varying shades of brown. 47 pieces in grey, four honey-coloured pieces. a single piece of black flint which almost looks like obsidian, and ten pieces in indeterminate colours. Nine of the flints were heavily patinated. a few had a light patination, and nine were fire damaged.

Working techniques

Of the total of 213 flints. 113 have secondary working or retouching. Most of these have been struck as flakes but there are four blades. One, a heavily patinated blade of 40mm length with a broken point has a very fine and even inverse retouch down one complete edge. The bulb of percussion is very diffuse. implying a soft hammer or punch technique. This piece is most certainly not contemporary with the rest of the flint and is probably a Mesolithic microlith. The other three blades are un-patinated, thick. and heavy and are retouched along the edge.

Apart from the blades the majority of the pieces have been struck off as flakes. Some, judging from the prominent bulbs of percussion, were struck with a hard/heavy hammer. The cores also display the same flake technique characteristics. Another notable feature of the flints is the high proportion of pieces with secondary working (52%).

The flint implements from the 1974 site (Fig. 65) are listed below:

Axe fragment	1	Gunflint	1
Burins	5	Knives	18
Combination tools	5	Saws	8
Cores	10	Scrapers	13
Cutting and graving tools	41	Spokeshaves	4
Arrowheads	3		

Two *petit tranchet* derivative arrowheads were recovered. One was a long transverse bird arrow of brown unpatinated flint, length 46mm. transverse edge length 23mm, maximum thickness 4mm. Neolithic in date. The other was a heavy transverse arrowhead of grey flint. length 34mm, transverse edge length 32mm. maximum thickness 10mm. Neolithic in date.

One other arrowhead was found; this was a barbed and tanged arrowhead of pale brown almost transparent flint. length 23mm, width of base 16mm, late Neolithic Early Bronze Age in date.

Discussion

As none of the pieces was found in an identified feature that predated the Iron Age features. they must be considered for the most part to be from an earlier surface scatter. The flints arc certainly not all contemporary since one piece is a Mesolithic microlith and most of the others are probably Neolithic or Early Bronze Age. Having said that, however. it is possible that a few pieces may be contemporary with the Iron Age site. Whilst it is not possible to identify these pieces positively it may be that some of the implements worked from the 'gravel flint' are in fact Iron Age in date.

The 1976 flints

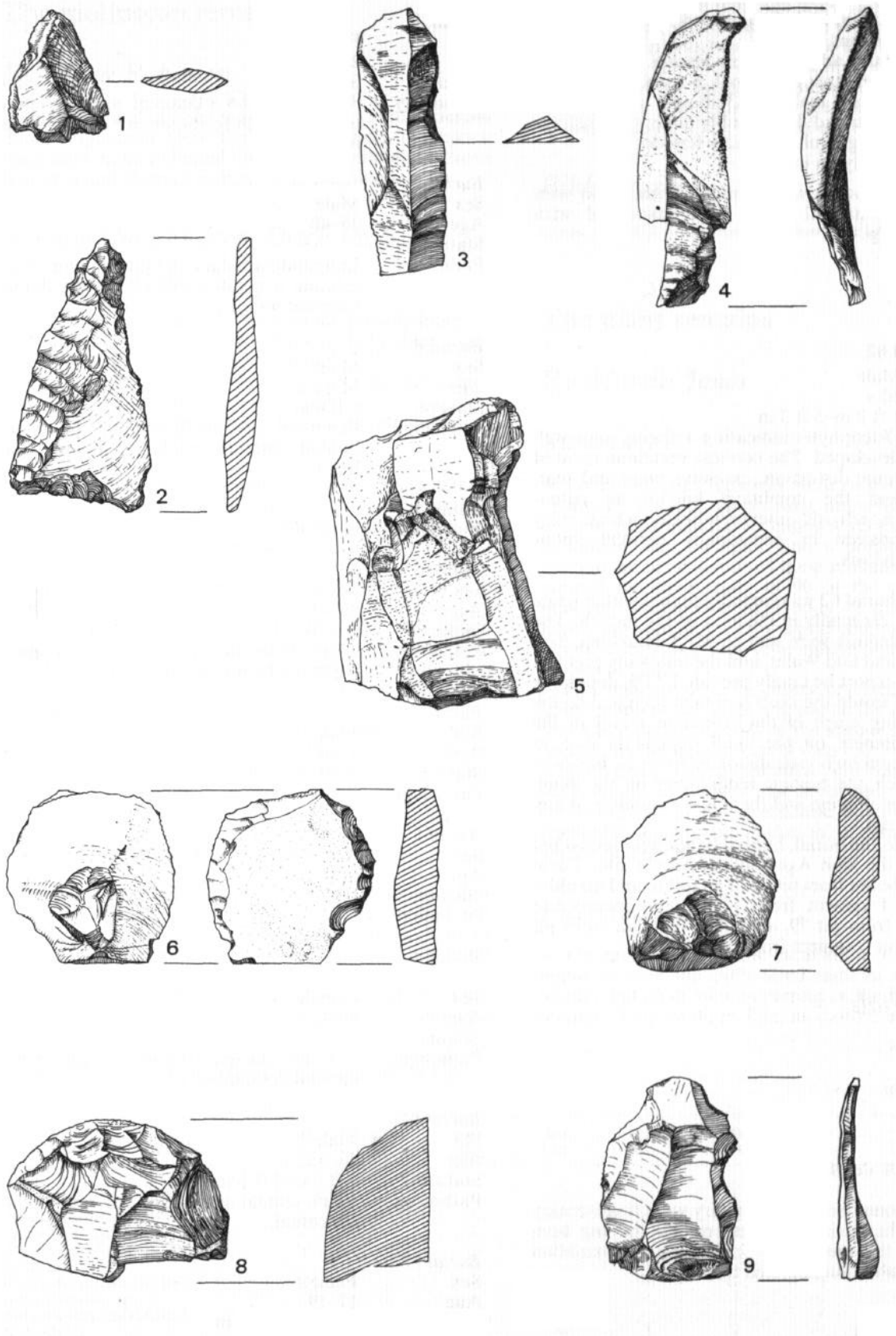
The flints from the 1976 excavation were all recovered from Bronze Age features and comprised nineteen pieces from ring-ditch 1006 and one piece from cremation 1017. These flints consisted of' three cores two end scrapers fourteen flakes. and one transverse arrow head of *petit tranchet* derivative type. This batch of flintwork is very variable in both flint type and workmanship and dates from the Late Mesolithic to the Early Bronze Age.

The human remains

By Eric Edwards

Bronze Age

The Bronze Age remains consist of six cremations features 283. 1017, 1032. 1033, 1043. and 1054. In all of these the condition of the bone indicated variable temperatures during the cremation process. The quantity of cremated bone was also variable some cremations containing only a few fragments while others were more complete. All the cremations had been subjected to post-process pounding during which many of the bone fragments had been shattered, making identification and analysis difficult. The results of the identification and analysis are summarized below:



65 Worked flints, scale 1:1

283	An immature individual, possibly an adolescent male.
1017	A young adult, possibly female.
1032	An immature individual, possibly an adolescent male as 283 above.
1033	A mature adult, probably male.
1043	A young adult, probably female.
1054	Probably an infant.

Unburnt cattle bones were found in association with 1017 and burnt animal bones were associated with cremation 1043 (p. 00).

Iron Age

Burial from Pit 62

Sex	Male
Age	50+
Stature	5 ft 2 in-5 ft 3 in
Pathology	Osteophytes indicating arthritis were well developed. The cervical vertebrae showed some distortion, excessive wear and tear, and the condition known as osteochondrosis intervertebralis which may precede or accompany cervical spondylosis.

The skull of burial 62 was partially coated with a white clayey deposit, especially in the area of the mouth. The skull and the deposit were sent to Mr J Hazelden, Soil Survey of England and Wales, and the following account is based on the report he kindly provided: 'The deposit in the mouth and inside the skull is almost identical to the deposit overlying much of the limestone gravel in the area. The whiteness on the skull deposit is due to secondary calcium carbonate dissolved from the bones or the gravel which has become redeposited on the skull. This is a natural process and there is no evidence of any imported material.'

In addition to the burial, human bones were recovered from some of the Iron Age features on the site. These consist of two bones from pit 69 of an infant and an older child, a tibia fragment from pit 72, an incomplete occipital bone from pit 79, a lumbar vertebra from pit 388, and a femur fragment from ditch 392.

Roman burials

Baby burial 438
Sex Female?
Age 18 months

The Roman cemetery

Many of the bones from the cemetery were fragmentary and most of the burials were incomplete, having been disturbed by the mechanical excavator. Information about the burials is summarized below:

Burial 1

Sex	Male
Age	40-50
Stature	
Pathology	Evidence of arthritis and rheumatoid conditions and possible fractured fibula.

Burial 2

Sex	Female
Age	25-35
Stature	Short
Pathology	Ridges on the calcaneal surfaces may indicate rough footwear or habitual barefoot walking.

Burial 3

Sex	Male
Age	35-40
Stature	
Pathology	Longitudinal ridges on foot phalanges may indicate uncomfortable shoes or habitual barefoot walking.

Burial 4

Sex	Male
Age	Mature
Stature	5 ft 6 in
Pathology	Extensive osteophytic outgrowths on the lumbar vertebrae indicate advanced arthritis.

Burial 5
No remains recovered.

Burial 6

Sex	Male?
Age	35-45
Stature	
Pathology	Osteophytic development on vertebrae indicates developing arthritis.

Burial 7

Sex	Male
Age	25-40
Stature	5 ft 4 in
Pathology	

Burial 8

Sex	
Age	6-8
Stature	
Pathology	

Burial 9

Sex	Female
Age	60-65
Stature	
Pathology	Evidence of slight arthritic changes on two cervical vertebrae.

Burial 10

Sex	Male
Age	25-35
Stature	5 ft 4 in-5 ft 6 in
Pathology	Thick cranial bones but not regarded as abnormal.

Burial 11

Sex	Female
Age	17-19
Stature	5 ft 0 in-5 ft 1 in
Pathology	

More detailed information on the Ashville human remains is available in the site archive.

The molluscan remains

By Mark Robinson

A column of soil samples was taken from a section across Bronze Age ditch 1006 (Fig. 8). In addition, molluscan specimens hand-collected during the excavation from Iron Age and Roman features were examined.

Sample Column from Ditch 1006

Layer No.	*Depth below surface (mm)*	
	0-420	Grey-brown gravelly loam
1	420-500	Red-brown sandy loam with some gravel
3	500-640	Brown gravelly sandy loam
4	640-660	Yellow gravel
	660-740	Fine brown gravelly loam
6	740-750	Yellow gravel

5lb of each sample was water-sieved to a mesh size of 0.5mm and the residue sorted for molluscan remains. The minimum number of individuals in the samples for each species is given in Table V.

The poor fauna of this ditch is dominated by *Ceciliodes acicula,* a burrowing species which is typical of dry deposits on the calcareous gravels of the Thames. Dry open conditions are indicated by *Helicella itala,* which does not occur in shaded places or marshes (Evans 1972, 180-1). It can be presumed that these conditions also prevailed in the vicinity of the ditch during the time that it was open.

The presence of *Helicella caperata,* perhaps a recent introduction (Evans 1972, 179) could be the result of the action of burrowing animals as it was only found in Layer 1, the uppermost layer.

The hand-collected molluscs

Three species of snail, *Helix nemoralis, H. aspersa,* and *Helicella itala,* were found from thirteen Iron Age and Roman features. *H. aspersa,* regarded as a Roman introduction (Evans 1972, 175), was confined to Roman deposits.

Single valves of the swan mussel *(Anodonta* sp.) were recovered from layers 15, 74, 338, and 1047 and two found from 125, all Iron Age layers. It is a flowing-water species which could not have lived in these features. Presumably it was brought to the site for consumption. This liking for shell-fish continued into the Roman period but with better communications the freshwater swan mussel was replaced by the marine oyster (Ostrea edulis), shells of which occurred in most Roman features.

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The plant remains

By Martin Jones

Summary

A variety of plant remains were recovered from excavation of the site, comprising impressions in pottery, charred plant material including a very large number of carbonized seed samples, and a possible fragment of charred bread. Analysis of these remains, which centred around the close study of 90 of the carbonized seed samples, produced a large body of quantitative data, which was analysed with a digital computer, and a plant record containing four crop species and over 60 other species of plant.

The remains of crop plants revealed some detailed information on the cereals in use on the site, and implied that the genetic make-up of the species present was not necessarily the same as that of their modern counterparts.

Qualitative and quantitative information from the plant record as a whole was developed into ideas about the evolution of the prehistoric environment, and in particular about the evolution of arable agriculture within that environment.

Introduction

In the early stages of the excavation of the site, it was apparent that the carbonized remains of cereal grain, weeds, and chaff were occurring in the backfill of every feature. They were, in fact, as customary a part of the

Table V Mollusca from ditch 1006

Depth below surface (mm)	740–750	660–740	640–660	500–640	420–500	320–420	220–320	120–220	120–120
Vertigo pygmaea (Drp.)	—	—	—	—	—	—	2	—	—
Vertigo sp.	—	—	—	—	—	1	—	—	—
Pupilla muscorum (L.)	—	—	—	—	—	2	—	—	—
Vallonia costata (Müll)	—	—	—	4	—	5	3	—	—
V. excentrica Sterk.	—	—	—	1	—	—	1	—	
Vallonia sp.	—	—	—	—	—	2	2	3	—
Cecilioides acicula (Müll)	—	1	—	24	59	12	6	9	1
Helix (Cepaea) sp.	—	—	—	—	—	1	—	1	—
Helicella caperata (Mont.)	—	—	—	—	—	—	1	—	1
H. itala (L.)	—	1	—	6	1	2	—	—	—
Helicella sp. (cf. caperata)	—	—	—	—	—	1	2	—	—
Arion sp.	—	—	—	—	✓	✓	✓	✓	✓
Vitrea sp.	—	—	—	1	—	—	—	—	—
Vitrina pellucida (Müll)	—	—	—	—	—	1	—	—	—
Limax or *Agriolimax* sp.	—	—	—	—	1	—	—	—	—

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Vertigo sp.	—	—	—	—	—	1	—	—	—
Pupilla muscorum (L.)	—	—	—	—	—	2	—	—	—
Vallonia costata (Müll)	—	—	—	4	—	5	3	—	—
V. excentrica Sterk.	—	—	—	1	—	—	1	—	
Vallonia sp.	—	—	—	—	—	2	2	3	—
Cecilioides acicula (Müll)	—	1	—	24	59	12	6	9	1
Helix (Cepaea) sp.	—	—	—	—	—	1	—	1	—
Helicella caperata (Mont.)	—	—	—	—	—	—	1	—	1
H. itala (L.)	—	1	—	6	1	2	—	—	—
Helicella sp. (cf. caperata)	—	—	—	—	—	1	2	—	—
Arion sp.	—	—	—	—	✓	✓	✓	✓	✓
Vitrea sp.	—	—	—	1	—	—	—	—	—
Vitrina pellucida (Müll)	—	—	—	—	—	1	—	—	—
Limax or *Agriolimax* sp.	—	—	—	—	1	—	—	—	—

Table VI Synopsis of the carbonized seeds and fruits

	Ecological preference		Total Iron Age	Iron Age 1	Iron Age 2	Iron Age 3	Total Romano-British
CEREALS							
Triticum (wheat)							
T. spelta (spelt wheat)			6.9(16)	(2)5.7(12)	(1)3.5(7)	(3)7.3(11)	6.6(16)
T. aestivocompactum (bread/club wheat)		*	* *	*	**		
Hexaploids NFI		*	(1)10.5(29)	(3)11.3(29)	(2)9.8(25)	(8)13.0(25)	(4)14.4(44)
T. dicoccum (emmer)			**	*	**	*	*
NFI		*	12.9(31)	(3)11.1(25)	(4)11.4(28)	(9)21.0(31)	(9)17.4(28)
Total *Triticum*			(4)30.3(66)	(14)28.1(42)	(13)24.7(40)	(23)41.3(66)	(26)38.4(61)
Hordeum (barley)		*	(6)31.1(82)	(10)31.0(75)	(20)30.8(40)	(15)27.5(37)	(7)20.0(49)
Cereals NFI		*	(12)38.5(57)	(12)40.0(52)	(32)43.9(53)	(19)31.2(53)	(24)41.0(53)
OTHER SPECIES							
Boraginaceae							
Lithospermum arvense (corn gromwell)	A		3.8(66)	*	(1)4.0(8)	(1)17.3(66)	(3)10.2(31)
Caryophyllaceae							
Agrostemma gigatho (corn cockle)	A						*
cf. *Arenaria* sp. (sandwort)	A		*				
Cerastium holosteioides (mouse-ear)	A + G	*	*			*	
Scleranthus annuus (annual knawel)	Ad1		*	*			
Silene alba (white campion)	A		*				
Stellaria media (chickweed)	A	*	**		**	*	
Stellaria palustris (marsh stitchwort)	Mb		*		*		
NFI		*	**		**	*	
Chenopodiaceae							
Atriplex patula (common orache)	A		0.7(7)	1.5(6)	1.1(3)	2.0(7)	0.6(2)
Atriplex patula/hastata (orache)	A		0.4(13)	*	*	3.3(13)	*
Chenopodium album (fat hen)	A	*	0.6(5)	*	*		*
Chenopodium polyspermum (all-seed)	A		*			*	
Chenopodium urbicum (upright goosefoot)	A		*				
Chenopodium sp.		*	1.7(9)	*	1.8(7)		*
NFI			2.6(8)	2.4(11)	*	3.8(7)	2.5(6)
Compositae							
Anthemis cotula (stinking mayweed)	Awbh		*		*		
Artemisia vulgaris (mugwort)	D		*				
Centaurea cyana/nigra (cornflower/knapweed)	A/G						*
Cirsium arvense (creeping thistle)	A + G		*		*		
Cirsium/Carduus (thistle)	A + G		*				
Triplrurospermum maritimum (L.) Koch (scentless mayweed)	A		1.5(7)	0.9(4)	1.6(7)	1.5(3)	(1)2.0(4)
Cruciferae							
Brassica/Sinapis sp.	A	*	*	*	*		*
Thlaspi arvense (pennycress)	A						*
Cyperaceae							
Carex nigra (common sedge)	Ma	*	*	*	*	*	
Carex sp. (sedge)	M		1.2(8)	1.5(5)	1.6(8)	1.8(6)	*
Eleocharis palustris (spike rush)	M + G w b		3.9(15)	4.8(14)	6.3(14)	*	1.8(8)
Isolepis setacea (bristle scirpus)	M		*				
Fumariaceae							
Fumaria offcinalis (fumitory)	A1		**	*	*	*	

	Ecological preference	Bronze Age	Total Iron Age	Iron Age 1	Iron Age 2	Iron Age 3	Total Romano-British
Graminae							
Avena sp. (wild oat)	A		3.2(11)	*	3.7(11)	3.0(9)	2.2(9)
Bromus mollis (soft brome)	D	*	17.6(37)	(7)15.4(29)	(5)14.0(23)	(5)12.8(18)	(3)8.2(18)
Bromus secalinus (chess)	A }						
Bromus sterilis (barren brome)	Ad						
Festuca gigantea/pratensis (fescue)	Gw	*	0.8(7)	*	1.4(7)	1.8(5)	2.2(5)
cf. *Poa* sp. (meadow grass)			**		1.0(4)	*	
NFI		*	8.9(20)	9.4(20)	(3)8.2(14)	(1)7.5(16)	(6)10.8(14)
Juncaceae							
Luzula sp.			*		*		
Labiatae							
Mentha sp. (mint)	Gw		*				
Prunella vulgaris (self-heal)	Gb		*				
cf. *Stachys* sp. (woundwort)			*		*		
Leguminosae							
Medicago lupulina (black medick)	G		*			*	*
Trifolium cf pratense (clover)	G	*	3.0(10)	2.7(10)	1.3(6)	3.0(6))	(2)7.2(17)
Vicia + Luthyrus (vetch)	A + G	*	9.0(26)	3.9(9)	9.2(26)	(8)10.5(15)	(4)14.8(34)
Malvaceae							
Malva sylvestris-type (mallow)	D		*			*	
Plantaginaceae							
Plantago lanceolata (ribwort plantain)	A	*	**		**	*	1.4(4)
Polygonaceae							
Polygonum aviculare (knotgrass)	A	*	1.2(6)	*	0.7(5)	*	
Polygonum convolvulus (black bindweed)	A	*		1.1(5)	1.2(5)	*	*
Polygonum sp.		*	1.8(7)	0.9(4)	0.8(5)	1.5(4)	2.0(5)
Rumex acetosella (sheep's sorrel)	Aa	*	*				
Rumex sp. (dock, sorrel)			7.3(21)	2.0(8)	11.1(21)	(1)6.0(14)	4.6(11)
Portulacaceae							
Montia fontana subsp. chondrosperma (blinks)	M+Gwa	*	**		*		*
Ranunculaceae							
Ranunculus acris/bulbosus/ repens (buttercup)	Gw		**	*			*
Ranunculus flammula subsp. flammula (lesser spearwort)	M		*		*		
Rosaceae							
Aphanes arvensis L. (parsley piert)	Ad		*				
Potentilla sp. (cinquefoil)	G		*				*
Prunus spinosa (blackthorn)	See text	*					
Rubiaceae							
Galium aparine (goosegrass, cleavers)	A	*	7.9(34)	15.0(34)	(2)5.1(10)	(1)3.8(7)	1.6(4)
Galium palustre (marsh bedstraw)	Mb		*	*	*		*
Galium sp. (bedstraw)			**	*	*	*	
Sherardia arvensis (field madder)	A	*	**		*		
Scrophulariaceae							
Euphrasia/Odontites sp. (eyebright/bartsia)	G/A		0.4(3)	*	0.5(3)	*	*
Veronica hederofolia (ivy-leaved speedwell)	A		*				*
Umbelliferae							
Torylis/Anthriscus (hedge/cow parsley)	A/D		*		*	*	
NFI			*				

	Ecolog-preference	Bronze Age	Total Iron Age	Iron Age 1	Iron Age 2	Iron Age 3	Total Romano-British
Urticaceae							
Urtica urens (annual nettle)	A1		*			*	
Valerianaccae							
Valerianella dentata var. mixta (lamb's lettuce)	A		*			*	
Valerianella dentata (lamb's lettuce)	A		*		*	**	*
NFI			(3)18.0(37)	(7)30.9(37)	(8)17.0(23)	(3)15.0(22)	(16)20.8(33)
No. of cereal grain per 100 seeds			(18)61.6(100)	(46)74.9(94)	(33)52.2(84)	(18)36.8(51)	(29)44.4(61)
Total no. of seeds in the sample (c. 40 litres of soil)			(39)366(4,380)	(66)582(3,290)	(59)415(932)	(110)1,233(4,380)	(128)229(453)

Key to abbreviations in Table VI

A = weed of arable land and disturbed places
D = plant of disturbed places on field margins and waysides
G = plant of grassland
M = plant of marshy or very damp ground
a = preference for acid soil
b = preference for basic soil
l = preference for light soil
h = preference for heavy soil
w = preference for wet soil
d = preference for dry soil

NFI = not further identifiable

Iron Age and Roman debris as were pottery and animal bones.

It is difficult to assess the extent to which this situation is unusual, From the archaeological literature it would appear that, in general, grain deposits occur rather infrequently, only once or twice on a single site, if at all. This, however, may be illusory; charred seeds are not normally discernible in the soil by the naked eye, and in the majority of cases are almost certainly overlooked. On this site, for instance, had a technique of water-flotation sorting not been employed, it is unlikely that more than two deposits of charred seeds would have been observed. So in terms of the abundance of seeds, it is only reasonable to compare this site with the few others that have employed a flotation-sorting procedure for an extended period of the excavation.

Two such sites, the Iron Age enclosure at Gussage All Saints (Dorset) (Evans and Jones in Wainwright, G, forthcoming), and the multi-period farmstead complex at Barton Court Farm, Abingdon (Jones in Miles, forthcoming), produced a number of seed deposits, but no more than 10% of the features yielded seeds. So the present site may indeed be a particularly rich site in this respect, and it has certainly yielded many more charred seed deposits than any other site yet excavated. However, it seems likely that where flotation-sorting procedures are adopted many other such sites could also yield numerous deposits of carbonized seeds.

With these points in mind, it was decided to conduct a thorough survey of these plant remains, not only to gain information concerning the environment and economy of this particular site, but also in the hope that the results might indicate the most efficient and productive ways of dealing with similar sites in the future.

The report has been arranged in four sections. The first section deals with the site and laboratory procedures, the second with the data and its statistical manipulation, the

Table VII Synopsis of the other carbonized plant remains (excluding charcoal)

	Bronze Age	Total Iron Age	iron Age 1	Iron Age 2	Iron Age 3	Total Romano-British
Triticum glumes		100	100	100	100	100
Triticum internodes (brittle rhachis type)		20	13	10	33	40
Triticum internodes (tough rhachis type)		8	13	20		
Triticum awns		8		20		20
Hordeum internodes		58	38	50	100	60
Cereal straw fragments		4				
Arrhenatherum elatius var. bulbosum (onion couch) tubers		3				
Avena sp. awns	44	50	25	60	100	80
Avena fatua floret bases		7				
Rumex subsp. Rumex perianth tubercules		1			33	
Salix/Populus bud		1				

third with the botanical information, and the fourth with the archaeological implications.

Acknowledgements

I should like to pay thanks to Mrs D G Wilson, without whose extensive help the identification of the non-graminaceous species would not have been possible. Thanks are also due to Dr U Korber-Gröhne of the Universität Hohenheim for help with the wild grasses, Mr Richard Thomas for identifying the charcoal, St Cross College, Oxford, for the use of their computer, Dr AD Petford for his assistance with programme preparation, the Cambridge University sub-department of Quaternary Studies for the use of their seed reference collection, Mr R J Chancellor of the Weed Research Organization for his ideas on the weed ecology, and to members of the Oxford Archaeological Unit for reading through the text, and making helpful suggestions.

Site and laboratory procedures

Site procedure

A flotation procedure was adopted on site for the entire duration of the 1974 excavation. The flotation equipment was very simple, and involved mixing the samples of earth with water delivered via hosepipe, in a plastic dustbin, decanting the water and suspended material through a 500 μm mesh, and repeating the process until the residue in the dustbin appeared from its light colour to be relatively free of carbonized plant material. The main advantage of this method is the ease with which the equipment may be thoroughly cleaned between samples, which is considered important as, the soil residues are never entirely free of carbonized material. It is difficult to assess the relative efficiency of this method as compared to others, in terms of how much of the total carbonized material in the soil is successfully extracted, since there are many variables, such as the texture and dampness of the soil and the nature of the carbonized material itself. From examination of the soil residues it would appear to be a fairly efficient method. However, with the type of quantitative analysis applied to these samples, which is based on comparing values from different samples rather than drawing inferences from individual samples, the critical-factor is not the level of efficiency of the flotation method itself but the consistency of that level.

A known volume of earth, normally three buckets (approximately 40 litres) was taken from each pit, and similar samples were taken from ditches at recorded points along their length. All these samples were floated, and the floated material was allowed to dry at normal temperature and subsequently packed in tissue paper.

When the area of the site was greatly extended at the end of 1975, it was unfortunately impossible for practical reasons to take samples from every newly exposed feature, and a smaller number of samples was taken, with a view to ascertaining whether the high occurrence of seed deposits continued into the new area, or whether it was peculiar to a particular part of the site. Samples were also taken from every one of the Bronze Age features exposed in the new area.

Impressions of various plant fragments were observed in some of the Iron Age pottery sherds. These were identified and have been summarized in Table IX.

Table VIII Charcoal fragments from the Bronze Age features

Feature No.	1001	1002	1003	1004
Quercus sp. (oak)	12		20	5
cf. *Prunus spinosa/Craetagus* sp. (blackthorn/hawthorn)	4	20		1
No. of fragments examined	16	20	20	6

Table IX Synopsis of grain impressions in Iron Age pottery

Plant part	Feature No.	Length (mm)	Breadth (mm)	Depth (mm)
Triticum (wheat)				
Triticum cf. spelta grain (threshed)	306	5.6	2.5	2.3
Triticum spelta grain (enclosed in husk)	198	8.6	3.1	
	uns.			
Triticum glume	198		1.63	
	295	6.5	1.20	
	303	6.6	0.80	
	328		1.27	
	uns.	8	0.84	
	uns.		1.63	
	uns.		1.60	
	uns.		1.05	
	uns.		1.52	
Hordeum (barley)				
Hulled grain	322		2.6	
	333	6.8	3.2	
	392	7.9	2.8	
	413	5.7	3.2	
Internode	uns.	2.98	1.23	
Other species				
Avena sp. (oats), empty spikelet	273	23		
Bromus cf. secalinus (chess) caryopsis	459	8.3	1.7	

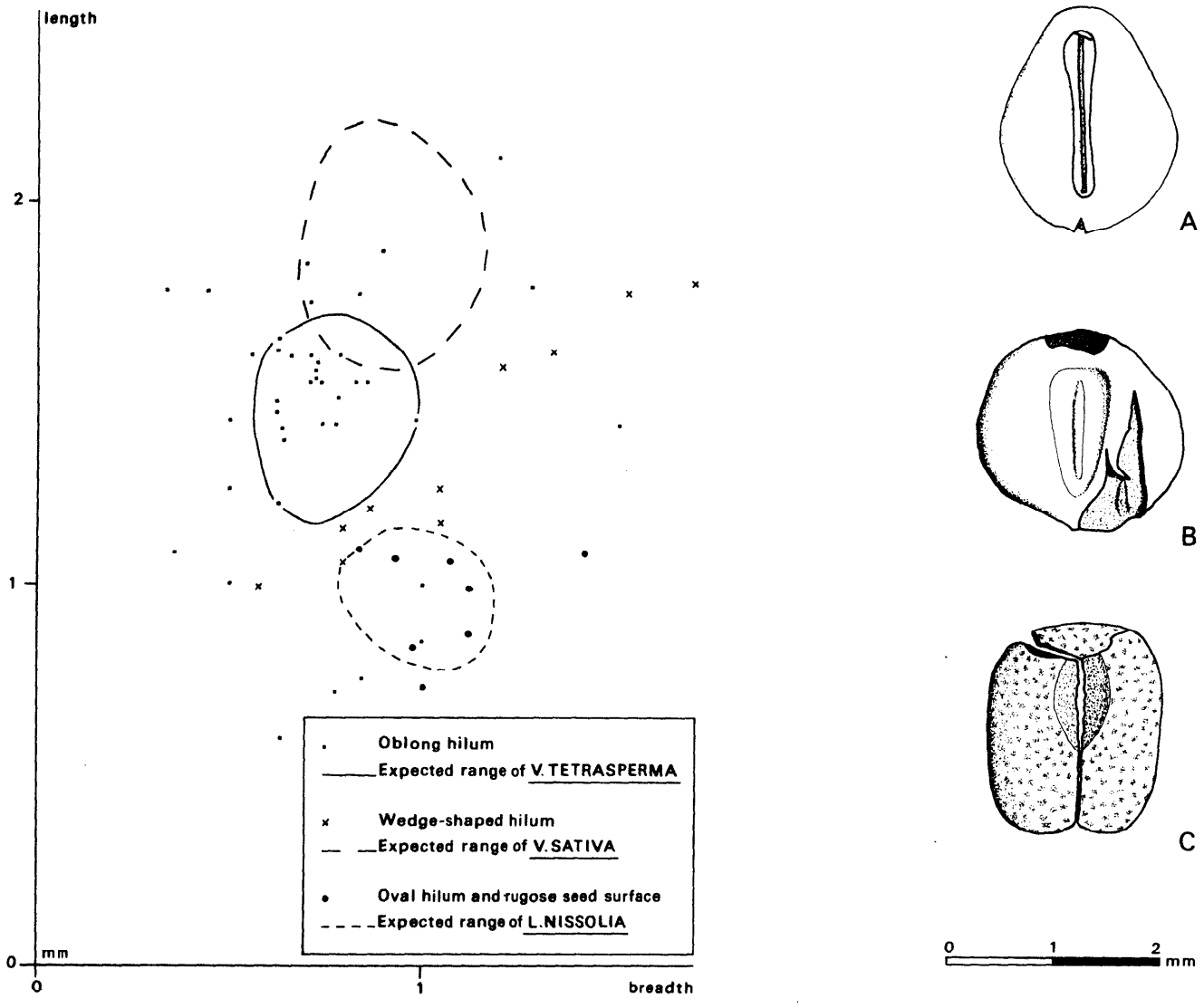
uns. = unstratified

Laboratory procedure

The laboratory analysis of the seed samples was by far the most time-consuming part of the whole operation; each sample, though only requiring a few hours' preparation on site, required anything up to a few days of examination in the laboratory.

In total nine Bronze Age samples, 76 Iron Age samples, and five Romano-British samples were analysed. The Iron Age features sampled included eight features securely phased in Period 1, nine in Period 2, four in Period 3, and a number of other Iron Age features which had been allotted to individual periods on the grounds of evidence other than stratigraphy. The Iron Age samples studied were selected randomly from the complete group. This was achieved by allocating a random number to each sample, and studying the samples in order of their random numbers until a sufficiently large number of samples had been analysed.

The samples were examined under a Meopta G11P stereo-microscope. In the initial scanning, x 20 magnification was used, but for identification and measurement of particular items, magnifications of up to x 100 were employed. Normally the whole sample was scanned, but some of the richest samples were subdivided, and a smaller quantity, of known proportion by weight, was analysed.



66 Vicia *and* lathyrus: *Above left, scattergram of hilum dimensions (hilum widths have been measured across their broadest points) (all seed drawings by Marlin Jones): A, seed of* V. tetrasperma, *showing roughly oblong hilum; B, seed of* cf. V. sativa, *showing wedge-shaped hilum; . C, seed of* L. nissolia, *showing oval hilum and rugose seed surface*

To check the validity of taking quantitative data from samples of this size, certain samples were analysed in 20% fractions, and as each further subsample was scanned the resulting change in the numerical data estimated. It was normally found that after all subsamples had been scanned the major plant categories had stabilized to within 10% of their final values.

All carbonized plant remains, other than fragments of charred wood, were picked out, identified as far as possible, and counted. The cereals were identified by comparison with the author's own reference collection, and the remaining species by comparison with the Cambridge University reference collection in the sub-department of Quaternary. The non-graminacious spies were identified under the guidance of Mrs DG Wilson and the wild grasses identified with the help of Dr U Korber-Gröhne. Samples of charred wood from the Bronze Age features were identified by Mr Richard Thomas, in the hope that they might shed some light on the nature of the Bronze Age environment.

Features whose dimensions are held to be taxonomitally significant were measured by means of an eyepiece graticule. Measurements were thus made of the dimensions of barley internodes, of leguminous hilums, and of the spikelet fragments of wheat. They were not made of the dimensions of naked cereal grain, for which evidence of taxonomic significance is slight and whose dimensions often change unpredictably during carbonization.

Since pottery impressions are believed to preserve the original dimensions of plant material (Helbaek 1952), measurement was also taken of these, wherever possible, and has been recorded in Table IX.

A fragment of approximately 2 cm^3 of carbonized material was recovered from F52 and tentatively identified, on the basis of its general appearance and the presence of charred fragments of chaff on its surface, as being a piece of charred bread. As yet, this item has received no further treatment, but it is hoped to subject it to close analysis in due course.

The data

The records of carbonized seeds and fruits have been condensed into Table VI. Only data from securely phased features have been included under Iron -Age 1, 2, and 3, whereas all the Iron Age features are included under Total Iron Age.

The cereal categories are expressed as a percentage of the total number of cereal grain, and the non-cereal categories as a percentage of the total number of non-cereal seeds. The central figures in each column are the mean percentages, and these figures are flanked by maximum and minimum percentages for individual samples in brackets. Where it is left unstated, the minimum percentage is zero. Occurrence as a trace is indicated with a single asterisk when found in only one or two of the samples, and with two asterisks when found in a number of the samples.

Seeds of *Vicia* and *Lathyrus* species have been combined as a single category in Table VI, as it is normally considered impossible to take the identification further without the hilum (Helbaek 1964) and the majority of these seeds retain no trace of their hilums. Many samples do however contain one or two seeds with discernible hilums, and when present, their dimensions and shapes, together with the nature of the seeds' surface, were recorded and plotted in Fig. 66. By comparison with these parameters on modern legumes, it would appear that the majority of seeds in this group belong to *Vicia tetrasperma* (smooth tare) and a smaller number to *Lathyrus nissolia* (grass vetchling). There are a number of seeds present with wedge-shaped hilums (see Fig. 66B) and although their size range does not fit the modern expected range, this distinctive shape suggests that the seeds are of *Vicia sativa* (common vetch). Many seeds have hilums whose dimensions are in the expected range of a variety of other species, but much of this variation may be due to distortion during carbonization. The division of *Vicia* and *Lathyrus* seeds from this site into discrete species was by no means as straightforward as the situation described by Helbaek (1964) for the seeds from the Roman fort at Isca (Caerleon), and it may well be necessary to look for other morphological criteria by which securely to identify *Vicia* and *Lathyrus* seeds from carbonized deposits.

The presence of plant parts other than seeds and fruits has been summarized in Table VII. The figures given are the percentages of samples in each category in which the plant parts are present. Further details on the wheat glumes and barley internodes are given in Figs. 69 and 70.

The composition of the Bronze Age charcoal is summarized in Table VIII, in which each figure represents the number of fragments. The impressions of plant material in Iron Age pottery are summarized in Table IX.

The statistical manipulation of the data

The collection of the large body of qualitative data tabulated here makes it possible not only to seek out trends of archaeological interest, but also to subject some of those trends to statistical tests and estimate their statistical significance.

The main parameter studied in this way was the relative age of the sample. This parameter may only be measured indirectly, in terms of either the stratigraphy which, though reliable, is only securely applicable to a small number of samples, or by the composition of the associated pottery, which is subject to a certain amount of error. Apart from this degree of error, however, the composition of pottery lends itself very well to mathematical analysis, as the relevant information for the Iron Age samples can be expressed by a single figure, the percentage by weight of fabric 2 pottery, and a figure can be derived for the majority of Iron Age features. As long as there is no obtrusive non-temporal relationship between the quantity of this fabric and the proportions of the different types of plant material, the error in equating the percentage of fabric 2 with time will only obscure relationships; it will not produce spurious relationships.

Relationships were looked for between the percentage by weight of fabric 2 pottery in each sample and botanical factors that might be expected to change with time. These were the wheat to barley ratio, the glume to grain ratio in wheat, the proportion by number of cereal grain among the seeds, and the proportion of each of the main weed groups that occurred in the majority of the samples. These weed groups are as follows:

Avena sp.
Bromus sp.
Carex Sp.
Chenopodiaceae
Eleocharis palustris
Euphrasia/Odontites sp.
Festuca sp.
Galium sp.
Lithospermum arvense
Polygonum sp.
Rumex sp.
Trifolium sp.
Tripleurosperm maritimum (L.) Koch
Vicia and *Lathyrus*

They were measured as a proportion of the total number of non-cereal seeds in the samples, and samples with less than 50 non-cereal seeds were ignored.

Relationships were also looked for between the proportions of these weed groups and the wheat-to-barley ratio in each sample, to determine whether any particular weed was associated with either main crop, and between the proportions of cereal grain and the glume to grain ratio in wheat. These last two parameters are both measures of crop purity: the former measures the quantity of weeds, the latter the quantity of chaff. In estimating the latter parameter, the unidentified cereals were partitioned between wheat and barley, according to the wheat-to-barley ratio in each sample.

The method used for evaluating the relationships was regression analysis, with the aid of a PDP8 digital computer. Where only two variables were concerned (for example, in the relationship between the age of a sample and the proportion of cereal grain), the numerical translations of these terms, percentage by weight of fabric 2 pottery and the percentage by number of cereal grain among the seeds, became the two variables x and y, in the linear regression equation:

$$y = ß_0 + ß_1 x$$

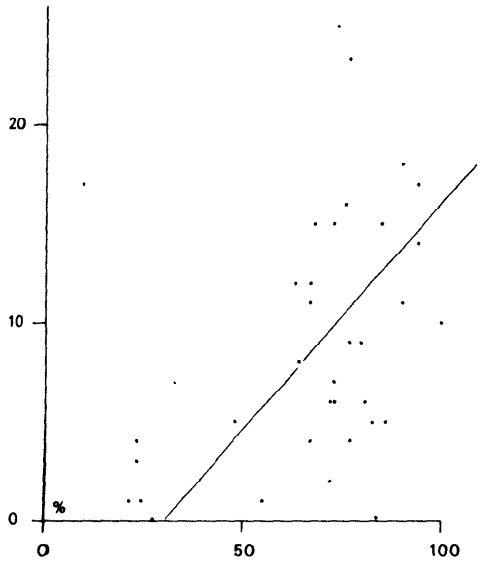
$ß_1$, the regression coefficient, indicates the magnitude and direction of the relationship, and its statistical significance may be estimated from the variance of $ß_1$, using a simple T-test.

Where a whole range of variables were concerned (for example, in the relationship between the age of a sample and the proportions of all the main weed groups in the sample), multiple regression analysis was used. This logical extension of the above analysis gives the equation:

$$y = ß_0 + ß_1 x_1, + ß_2 x_2 + ß_3 x_3, \text{ etc.}$$

$ß_n$, the partial regression coefficient, again indicates the magnitude and direction of the relationship with x_n; in this case whilst all the other variables are theoretically being kept constant.

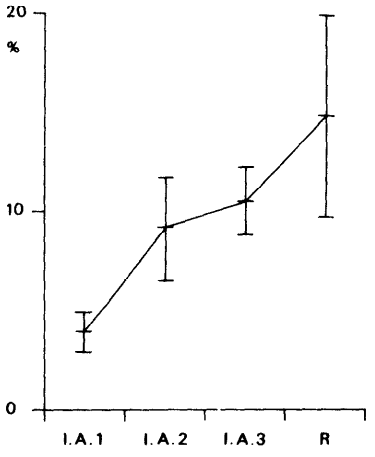
percentage by number

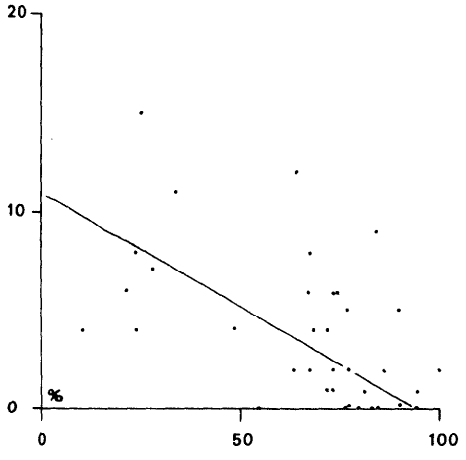


VICIA & LATHYRUS

(VETCHES & TARES)

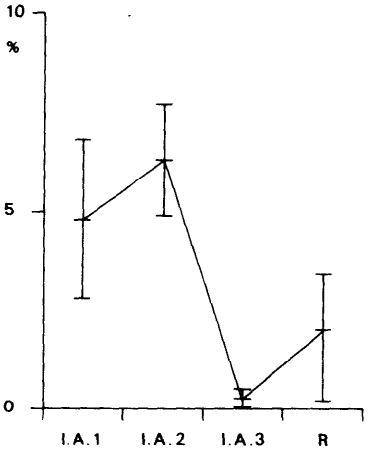
percentage by number

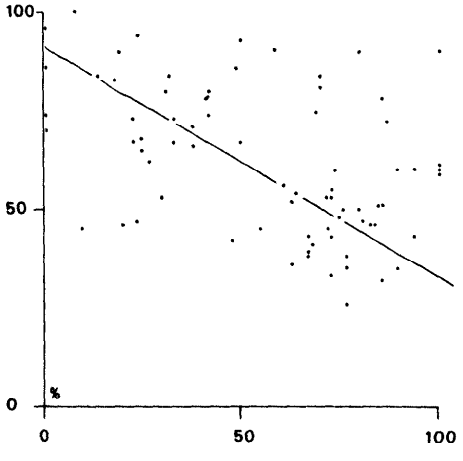




ELEOCHARIS

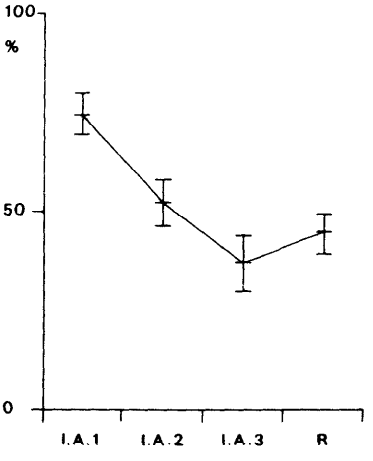
(SPIKE-RUSH)





PROPORTION OF

CEREAL GRAIN



The program used for the above analysis was the Mercury Autocode library program 1003, which supplies the range of coefficients and the constant, their individual variances, the covariances of pairs of coefficients, and the total and residual sums of squares.

The insignificant variables were eliminated in the manner suggested by Bailey (1959, 136-49). After the program had been carried out on a group of data, the significance of each regression coefficient was estimated. The program was then carried out again, this time using only those variables whose regression coefficients had proved to be significant. This procedure was continued until every regression coefficient in the final equation was statistically significant.

As a result of this process, it was found that four relationships were statistically significant at the 95% level; the proportion of fabric 2 was positively correlated with the proportion of *Vicia* and *Lathyrus* seeds (95%;) and negatively correlated with the proportion of *Eleocharis* seeds (95%) and the proportion of cereal grain in the sample (99.9%). These results imply that the proportion of *Vicia* and *Lathyrus* amongst the weeds increases with the passage of time through the Iron Age, and both the proportion of *Eleocharis* amongst the weeds and the proportion of cereal grain in the sample decrease during that period. The proportion of cereal grain was also found to be negatively correlated with the glume-to-grain ratio in wheat (99.9%), implying that a high quantity of weeds is associated with a high quantity of chaff.

The first three parameters have been plotted against the percentage of fabric 2 in Fig. 67. Lines have been fitted to the scatters to indicate the direction of each trend, but the results do not imply that the relationships are necessarily linear. For comparison, the means and standard errors of each parameter have been plotted against the stratigraphic periods, and these figures differ in that they include the Romano-British samples.

It can be seen from these figures that the stratigraphic data lend support to the existence of these trends in the Iron Age. They also suggest that the increase in *Vicia* and *Lathyrus* continues into the Romano-British period, and apparently suggest a slight reversal in the behaviour of the other two parameters during the period. However, neither reversals are statistically significant, and there is therefore no significant evidence for a change in either parameter between period 3 of the Iron Age and the Romano-British period. The stratigraphic figures further suggest that the decrease in *Eleocharis* occurs abruptly, between periods 2 and 3 of the Iron Age. The implications of these trends are considered in the final section.

Review of the botanical information

The crop plants

The recognition of the economic plants in a sample of charred seeds is normally based on the relative quantities with which seeds of the various species occur and a knowledge of their suitability for food. Cereal grains form the largest single component of almost all the samples, and would appear to be the main crop associated with the site. The only other species present with a long history of cultivation is the common vetch, *Vicia sativa,* which only occurs sporadically in the samples, and is nowadays more common as a wild plant than as a cultivar. There are only two features from the Iron Age and Romano-British periods in which cereal grain is outnumbered by another single component. As well as outnumbering cereals in feature 50, the seeds of *Bromus* sp. are the most plentiful non-cereal on the site as a whole, although not every sample contains *Bromus* seeds, and some have them only in small quantities. It is also one of the only non-cereal species in evidence as impressions in pottery (see Table IX). This genus does have some history of collection; in the early 20th century, its seeds were gathered by Danish farmers when the rye crop failed (Hjelmqvist 1955, 175) and it may have been used in a similar way by Iron Age and Roman farmers.

In feature 202, there are over three times as many seeds of *Lithospermum arvense* (corn gromwell) as there are cereal grain. Large concentrations of this seed were also recovered from occupation deposits from an early site at Can Hasan, Turkey (French 1973). Its only recorded uses are medicinal (Grigson 1958) and, being unsuitable for flour, it would not have been collected to bulk up the cereal crop. These seeds are known to survive carbonization at high temperatures because of their hardness and high mineral content. Consequently, a possible explanation of their abundance in this feature is that they were derived from a more typical sample that had been carbonized at an unusually high temperature, and that differential survival had produced the high proportion of *L. arvense.* This explanation would require that a surprisingly large quantity of grain infested with *Lithospermum arvense* had been burnt down to produce the deposit, as it is not a plant that produces seed prolifically, and therefore the possibility of its collection for medicinal use must also be considered.

Some of the Bronze Age features contain large fragments of amorphous carbonized material which could well be the charred remains of large compact bodies of starch. Among them arc the recognizable charred tubers of onion couch *(Arrhenatherum etatius var. bulbosum)* (see Fig. 68, E), which have also been recovered from a late Bronze Age ditch on Rockley Down (Wilts) (Godwin 1975). Cremation pit 1017 in particular contained many of these tubers and the remaining carbonized material was composed mostly of the amorphous fragments described above. The possibility of its being cultivated was considered by Godwin and its occurrence in the cremation pits certainly suggests that it was purposely gathered and added to the cremation fire.

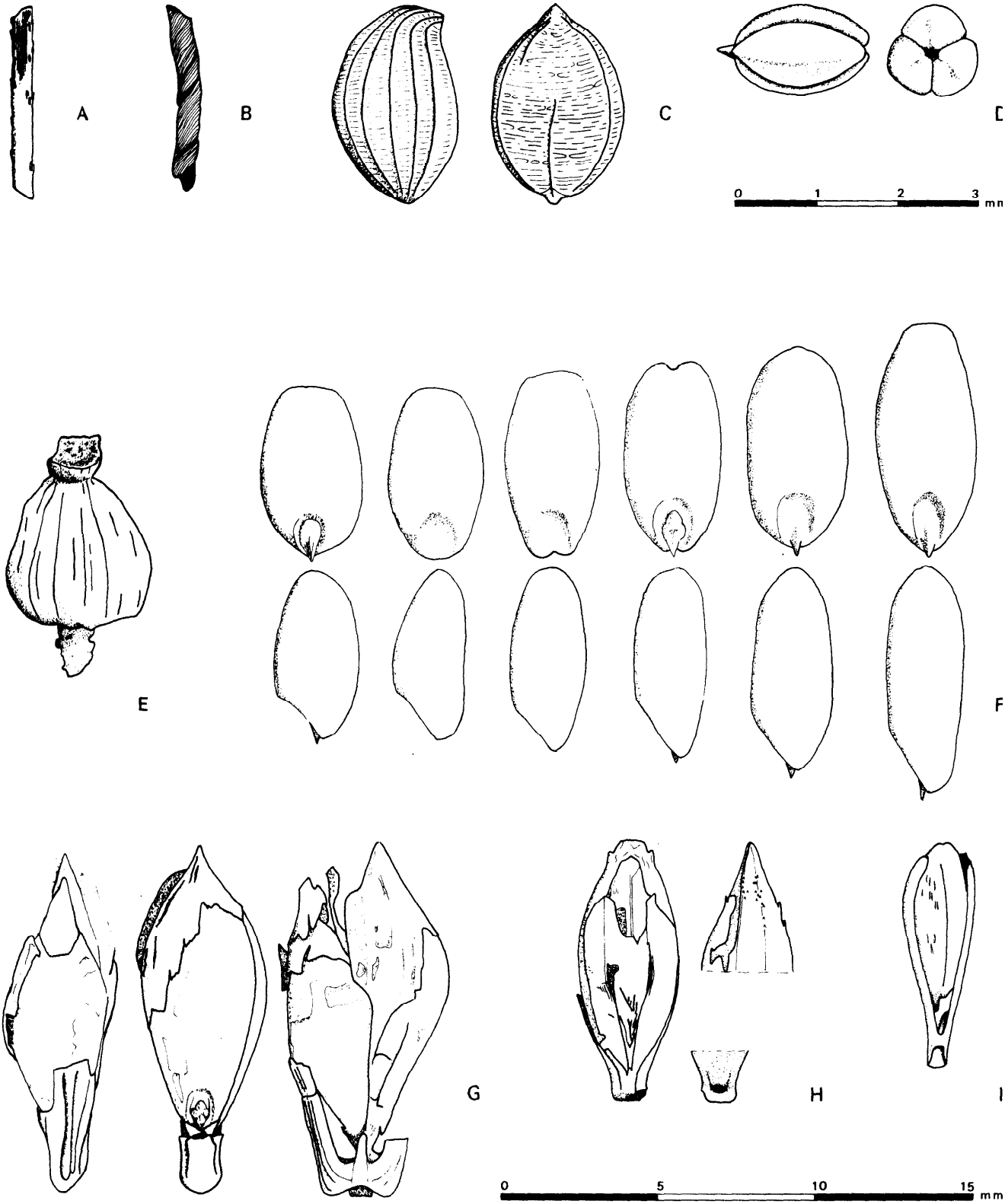
It may be that the amorphous fragments constituting the remainder of the carbonized material are also derived from roots and tubers, but that only the onion couch tubers remained recognizable after carbonization. There is, however, no morphological evidence from the amorphous fragments to ratify this possibility.

Returning to the cereal grains which are undoubtedly the main economic plants in the samples, the study of a large quantity of cereal remains from this site have revealed a fairly extensive body of botanical information, which is here reviewed in detail.

67 Significant temporal trends: Above left, percentage by number of each plant category, plotted against percentage by weight of Fabric 2 pottery for each adequately large sample; above right, the mean percentage of each plant category, and its standard error represented as a vertical line, in the various stratigraphic periods

Triticum (wheat)

The wheat remains include the grains themselves, fragments of internodes and awns, the bases of glumes



68 Selectedplant remains: A, Triticum *sp. awn fragment; B,* Avena *sp. awn fragment; C, ignotum; D, ignotum; E, onion couch tuber; F, range hexaploid wheat grain from feature 287, showing continuum between bread wheat and spelt wheat types; G,* Triticum spelta, *complete spikelet from feature 61 in lateral and abaxial views, showing persistent glume buses and a pair of grains, each with the-flaking remains of their palea and lemma; H, complete barley floret from feature 37, showing the long silky rhachilla in ventral view (left), the spiculation of the lemma in lateral view (above right) and the basal scar in dorsal view (below right); I,* Avena fatua, *complete floret showing the rhachilla and the horseshoe-shaped articulation scar at its base. The upper scale refers to A-D, the lower scale to E-I*

and spikelets. and one complete spikelet from feature 61 (see Fig. 68, G).

Only those grains which were fairly complete and showed no visible signs of distortion, such as blistering or bursting, were assigned to a species, and this was done on the basis of grain shape. These identifications should best be considered as probability statements, subject to substantiation or negation by the evidence from fragments of other parts of the cereal ear. The majority of wheat grains were most similar to *Triticum spelta* (spelt wheat), and smaller components resembled *T. dicoccum* (emmer wheat) and *T. aestivocompactum Scheim.* (bread/club wheat). The shapes of well preserved wheat grains from feature 287 suggest a continuous cline between bread/club wheat and spelt wheat (see Fig. 68, F). This may be a result of distortion during carbonization, but it is surprising that these particular grains show no visible signs of distortion. These two species are fairly interfertile, and growing them together on the experimental farmstead at Butser Hill has produced a large number of 'rogues' showing intermediate characteristics (PJ Reynolds pers. comm.). The only cereal remains from the Bronze Age features were grains, some of which resembled hexaploid wheat grains, and three of which were of the bread/club wheat type.

The widths of the glume fragments at the level of spikelet articulation are summarized in Fig. 69. According to the figures given by Helbaek (1952) these ranges correspond to spelt wheat, with a small component of the narrower glumes of emmer wheat. The glume dimensions of each species, as given by Helbaek, are incidentally rather smaller than each of the corresponding dimensions in many modern specimens of the cereals, even allowing for shrinkage during carbonization, which has been found to be not normally more than 10%. Some of the narrow glumes show the venation normally associated with emmer wheat, a pair of prominent veins on an otherwise smooth surface (see Fig. 69, B), whereas the commoner pattern of venation on the glumes in general is a single prominent vein with a number of secondary veins (see Fig. 69, A), which is the pattern associated with spelt wheat (Percival 1921). It is difficult to be sure whether or not the glumes possessed hairs, a character considered by Korniche (1873) to be of importance in subdividing spelt and emmer into varieties. Whereas one might expect hairs to be obliterated during carbonization, experimental carbonization does not normally burn them off, and hairs are commonly found on carbonized archaeological material, for example on oat grains, the apex of wheat grains, and the margins of barley internodes (see Figs. 68, H and I, 70). Since none of the glumes examined, which totalled nearly 4000 in all, showed any signs at all of the presence of hairs, it is tentatively suggested that the glumes were glabrous.

A number of fragments of awn were recovered and identified as wheat awns. They bore small clusters of barbs at various positions on their surfaces, and were distinguished from barley awns by the absence of two prominent marginal rows of large single barbs (see Fig. 68, A).

Internode fragments were of two kinds. A small number of stout fragments occur which are firmly attached at their nodes to the proximate internodes and which always lack the remains of glumes (see Fig. 69, F). In contrast the majority are fairly slender, are always detached from the proximate internodes, though occasionally attached at their basal node to a spikelet base which frequently bears the persistent remains of spelt-like glumes (see Fig. 69, C and E). The former type corresponds to a free-threshing wheat with a non-brittle rhachis, and the lengths of the more complete internodes correspond to club wheat, *T. compacturn.* The latter type is slightly unusual; it certainly corresponds to a close-glumed brittle-rhachis wheat, and from their small size these internodes correspond best to emmer wheat, *T. dicoccum.* When they are found attached to spikelet bases, however, they are always attached basally, in the manner of spelt wheat, *T. spelta,* and glumes arising from these spikelet bases also normally possess the venation and width characteristics of spelt wheat.

Combining the above information, it would appear that spelt wheat is the predominant wheat throughout the Iron Age and Roman periods, with emmer wheat as a minor constituent. Bread/club wheat occurred in the Bronze Age, and was a minor constituent in Periods 1 and 2 of the Iron Age (in this case, it would appear from the internode fragments to be club wheat), but had disappeared by Period 3 of the Iron Age. As far as can be assessed, the minor wheats genotypically resembled their modern counterparts, whereas the main species, spelt wheat, would appear to differ in some respects from modern varieties; it resembled modern spelt in its brittle-rhachis close-glumed habit, large oblong grain, multiple-veined glumes, and arising internodes, but differed in that its internodes were very much smaller and its glumes slightly narrower. From the evidence it is also tentatively suggested that its glumes were glabrous and its lemmas awned.

Hordeum (barley)

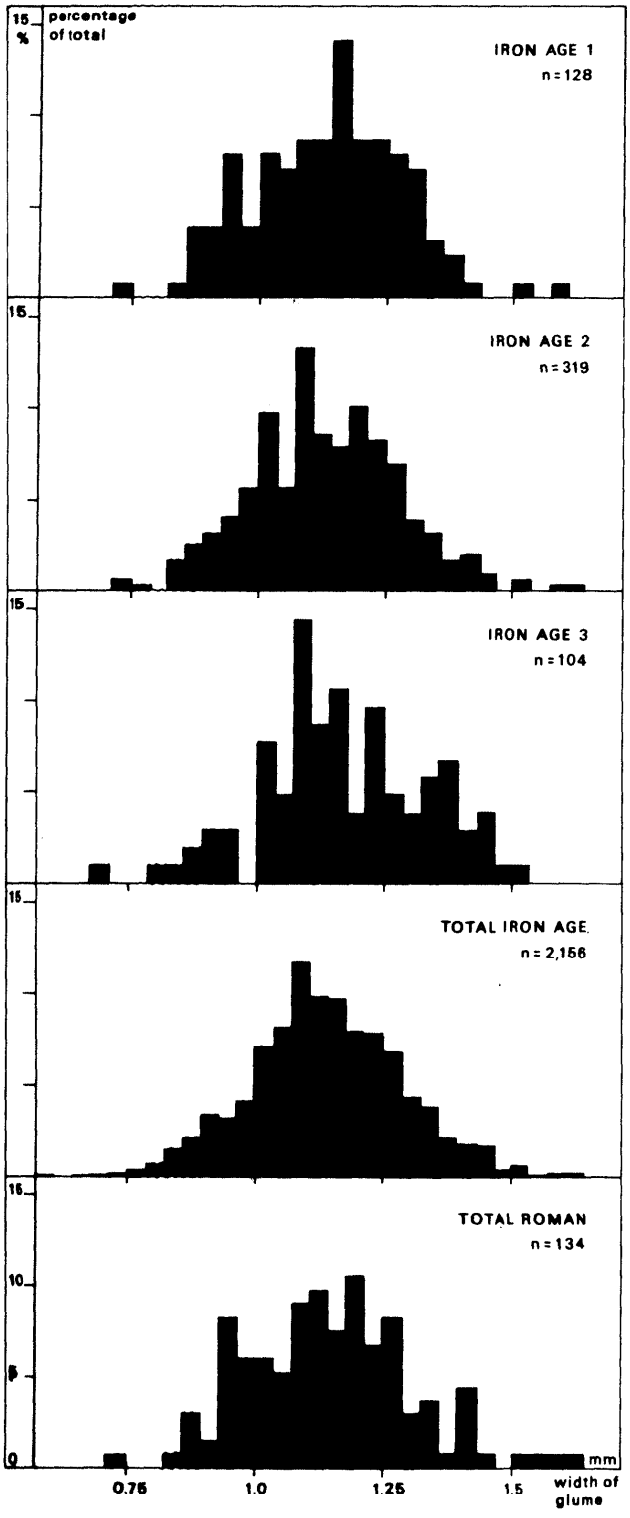
The barley remains include the grains themselves, fragments of palea and lemma adherent to the grain, the internodes, and two complete florets from feature 37. Surprisingly, no awns were found.

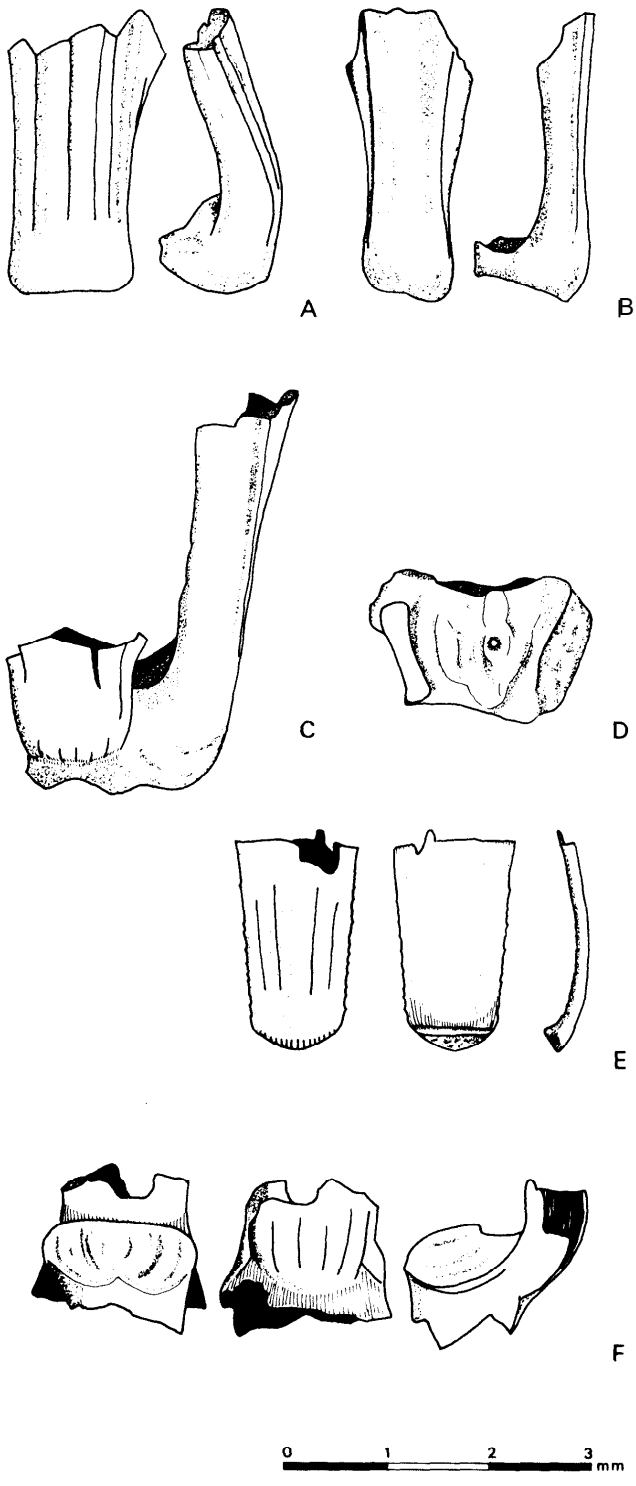
Among well preserved grain it is possible to distinguish between the symmetrical grains that occur in both 2-row barley and the central rows of 6-row barley, and the twisted grain that are only found in the lateral rows of 6-row barley. Thus the theoretical ratio between symmetrical and twisted grain in 2-row barley is 1:0 and in 6-row barley 1:2. The ratio between types from this site is 1:1.94, implying that the barley is all of a 6-row variety. The better preserved grains also bear two parallel ridges on their dorsal surfaces, and certain of them retain fragments of palea and lemma, especially within the ventral furrow. Both these features are indicative of a hulled variety of barley.

The two complete florets from feature 37 bear a number of small barbs, along and between the veins of their lemmas (see Fig. 68, H). One of the florets also possesses the remains of a rhachilla bearing long straight hairs (see Fig. 68, H) and similar hairs occur on the margins of a number of the internodes (see Fig. 70). These features are considered by Atterburg (1889) to be of importance in sub-dividing barley species. The basal scar on each of the florets was horseshoe-shaped (see Fig. 68, H) suggesting that they were borne on a lax ear.

Ear laxity can be measured directly from the internode fragments, and a scattergram of the dimensions of all the measurable internodes is displayed and the range of sizes illustrated in Fig. 70. Measurements of length were made between corresponding points on consecutive internodes, and measurements of width across the base of each internode.

In modern varieties, one would expect a concentration of measurements in one part of the scattergram, with a small number of shorter internodes derived from the base of the ear. The internodes from this site do not conform to this pattern. The range of measurements covers the ranges of all three types described by Atterburg (1889)—





69 *Wheat glumes and internodes: Above left, histograms of glume-widths, measured at the level of spikelet-articulation (n indicates the number of glumes measured for each histogram); A,* Triticum spelta *glume: B,* T. dicoccum. *glume; C,* T. spelta, *spikelet base with adherent glume and rising internode; D,* T. spelta *spike/et base viewed from above, with points of attachment to the glumes showing clearly, and those to the floret bases showing faintly; E, internode from brittle-rhachis wheat, showing clean breaks at either node; F, node from tough-rhachis wheat showing course fractures within the adjoining internodes*

lax, intermediate, and dense and there is no sign of any concentration of measurements within the scattergram, or of trends with factors such as time. From this evidence there is no reason to suppose that 6-row barley was subdivisible into gonetically meaningful varieties in terms of car-laxity. The evidence suggests rather that there was a continuance of types with respect to this factor.

The above lines of evidence suggest that the barley grown in both Iron Age and Roman periods was a hulled 6-row form, genetically similar to modern counterparts in the spiculation of its lemmas and the form of hairs on its rhachis and internode margins. With respect to ear laxity, however, the evidence indicates that a far greater range of genetic diversity existed in Iron Age and Roman barleys, and suggests that a differentiation into dense-eared and lax-eared forms may not as yet have completely occurred.

The weeds and wild species

The non-cereal species represented in the samples are a mixture composed mostly of weeds of cultivated ground and partly of a small number of grassland plants and plants of damp ground. this group of ecotypes is the same combination found i rim Age and Romano-British samples from Barton Court Farm, Abingdon (Jones, in Miles, forthcoming) and in Romano-British samples from tow small sites in Abingdon (Jones, in Parrington *et al,* 1975) and and a site a Farmoor (Oxon) ((Jones, in Lambrick and Robinson, forthcoming), and it seems likely that this may become a recurrent combination among carbonized seed samples taken from Iron Age and Romano-British sites in the Upper Thames Valley.

One might expect that the seed impurities accidentally gathered in with the grain harvest would be entirely of the habitual weeds of cultivated ground. It is not unusual. however. for plants normally associated with other habitats to occur in small quantities in arable fields. normally as intrusive species, annually invading by roots and rhizomes from adjacent unploughed fields and baulks, but also occasionally as residual species, persisting from the vegetation that existed before the area was cultivated. The seeds of these species may also be accidentally gathered in with the cereal crop. and this is considered the most likely origin of the seeds of grassland and damp-ground species in the samples from this site and the other sites mentioned above.

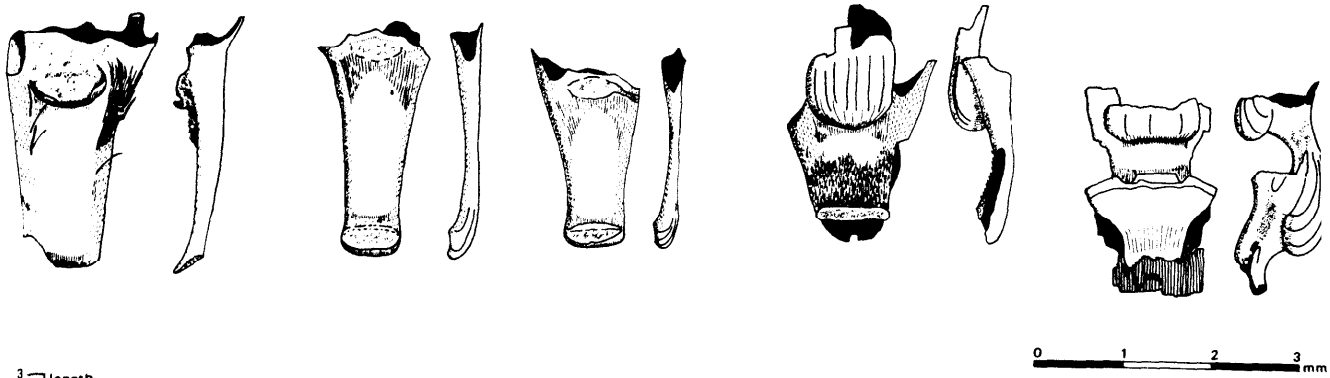
The species of damp ground most commonly represented in the samples is *Eleocharis palustris* (spike rush), a rhizomatous perennial herb that requires shade-free conditions and a very high watter-table in the spring when the rhizomes are dveloping and is commonly associated with grazed damp meadows (Walters 1949) It has been found in quantity in waterlogged deposits from sites on the first gravel terrace at Appleford and Farmoor (Robinson, pers. comm.) and was probably a common constituent of wet meadows on the lower ground. *Montia fontana subsp. chondrosperma* (blinks), which occurs in a small number of the samples. also requires marshy condition in the spring. preferably on light gravels (Walters 1953) A number of other species that occur as traces in the samples. *Galium palustre* (marsh bedstraw), *Isolepis setacea* (bristle seirpus). *Raminculus flammula subsp. flaminula* (lesser spearworth) and *Stellaria palustris* (marsh stitchworth). *are normally associated with even* damper conditions and prefer a high water table all year round. Seeds of Cares (sedge) occur in many of the samples there are a number of species of sedge present. the only one that was identified further being C. *nigra* (common sedge), which is associated with wet grassy places on acid or sometimes basic soils. the pH requirements of these damp grounds dam ground species vary: *Eleocharis palustris and Stellaria palustris* prefer alkaline *conditions. montia fontana* acid conditions, and the rest can occur in both.

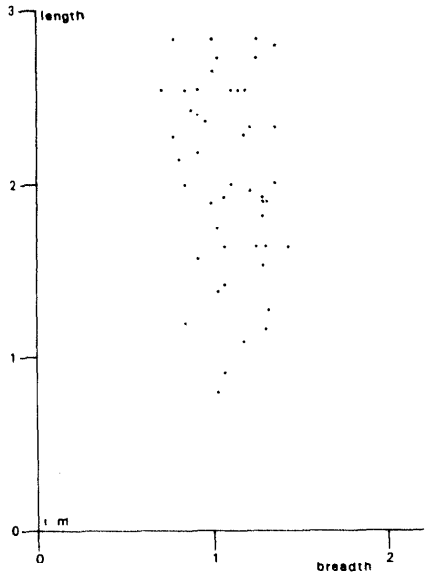
Some of the grassland species present also tend towards damp habitats. It is difficult from the seed morphology alone to tell whether the species of *Festuca* present is *F gigantea* (grant fescue) a grass of damp open woodlands and shady places or F *pratensis* (meadow fescue) a grass of waler meadows. often occurring on heavy soils. The latter would be more ecologically consisten with other species in the samples the samples, but either way, the species of *Festuca* present has a preference for damp ground. *Mentha* sp. (mint) and *Ranunculus* sp. (buttercup) are also commonly associated with damp grassland Amongst the other grassland species. *Trifolium pratense* (red clover) and *Prunella vulgaris* (self-heal) can grow in both damp and dry grassland, and the latter species has a preference for basic soils. *Lathyrus nissolia* (grass vetchling) is normally associated with tall grass (Clapham. Tutin and Warburg 1962).

A number of these grassland and damp ground species could be bone on a poorly drained. grazed meadow that was flooded in the spring. Fescue and spike-rush would be dominant plants with buttercups, red clover self-heal,. blinks, and sedge growing amongst them. the very damp parts would also support marsh bedstraw, mash stitchwort, lesser spearwort, and bristle scirpus. The land on the first terrace to the south of the site would be pefectly suitable for such a plant community and no equally suitable location exits further from the river. It thus seems likely that the present site of Abingdon Common bore the damp grazed meadow described above. This area is potentially excellent land for the gazing of cattle. a fact borne out by the rents charged around 1800 on meadowland on the Common, which were amongst the highest in the Vale of the White. Horse at the time (Hammond 1974-11).

The majority of arable weeds present do not have specific ecological requirement outside their adaption to disturbed ground. but a number of exceptions appear in small quantity in the samples. *Anthemis cotula* (stinking mayweed), which occurs in a number of Romano-British samples from the area, and in abundance in a sample from a 4th century corndrier at Barton Court Farm (Jones, in Miles, forthcoming is represented on this site by single seeds from tow Iron Age features. This species is associated wit cultivated ground on heavy alkaline poorly drained clay soils, and is exclusive to these soils in the region of Oxfordshire and Berkshire (Kay 1971). Cultivated soils without these characteristics bear another kind of mayweed, *Tripteurospermun maritmum subsp. modorum* (scentless mayweed), the seeds of which occur far more frequently in the carbonized samples, and which is one of the commonest categories of seed from this site. These species of arable weed which have not been encountered in samples from other sites in the area, that have a preference for particular dry or well drained soil are also reprensented by a trace in a few of the samples. the fruits of *Seleranthus annuus* (annual knawel) occur in features 77 and 416, the seeds of *Aphanes arvensis subsp. arvensis* (parsley piers) in features 65 and 442 and fragments of the seeds of *Bromus sterilis* (barren brome) in features 194, 287, 300, and 442. *Fumaria officinalis* (common fumitory), whose seeds occur individually in a number of the samples, and *Urtica urens* (annual nettle) occurring in features 30 (of Romano-British date) and 65, both prefer light soils

Three species in the samples. though associated with diturbed ground, are normally found on baulks and





70 Barley internodes: Above, a range of internodes, showing continuum between lax and dense-ear forms; below, scattergram of internode dimensions, the length taken between corresponding points on successive in ternodes, the width across the basal node

waysides along field margins, rather than in the heart of the cultivated fields themselves. These are *Artemisia vulgaris* (mugwort), which occurs as a trace in feature 65, cf. *Malva sylvestris* (mallow), which occurs sparingly in a number of the samples, and *Bromus mollis* (soft brome), which together with the related species *B. secalinus* (chess), a weed fully adapted to the cultivated field, forms the most plentiful non-cereal category in the samples. Like some of the grassland and damp ground species, *Bromus mallis* can be expected to invade the cultivated field itself to some extent, although its prefered habitat is the field margins. Long grassy margins along the edge of the fields would also be a favourable habitat for the grass vetchling *Lathyrus nissolia* and other related species of legume.

In summary, the weed flora suggests that the area under arable cultivation extended at some stages from ground dry enough to support *Aphanes arvensis, Scleranthus annuus,* and *Bromus sterilis,* to ground wet and heavy enough to support *Anthemis cotula. It* also suggests that the area of cultivation extended far enough on to unfavourably damp ground to receive intrusive elements from the poorly drained grazed meadow, located on the present site of Abingdon Common, and also received intrusive elements from the tall grassy vegetation on the field margins.

A further interesting aspect of the weed flora is the presence of cleavers *Galium aparine* as a major component of the majority of the samples, together with traces of other species of *Galium, Cerastium holosteioides,* and *Veronica hederofolia.* These species normally germinate in the autumn rather than the spring, and therefore tend to occur as weeds in autumn sown, rather than spring sown crops (Fryer and Evans 1968, 15). Traces of these species have also been recovered from Iron Age and Romano-British samples from Barton Court Farm, Abingdon, and Farmoor (Oxon), but only in the samples from the present sites does *Galium aparine* occur in quantity, as a major recurrent component of the samples. It therefore seems likely that much of the cereal crop was sown in the autumn.

The presence of *Anthemis cotula, Chenopodium polyspermum, Luthyrus nissolia,* and *Valerianella dentata* and the possible presence of *Vicia Sativa* in Iron Age samples from this site are of interest as Godwin considered them all to be Roman introductions (Godwin 1975).

The majority of unidentified weed seeds were either badly preserved or nondescript in appearance. The two most striking exceptions, which both have very distinctive morphologies, have been illustrated in Fig. 68, C and D. Single seeds of C occur in features 333 and 442, and seeds of D occur in features 442 and 68, fairly numerously in the latter feature.

The deposition of the plant remains

Before relating the primary and secondary data from the plant remains to the environment and economy of the site, the nature and origin of the plant remains needs to be established as far as is possible from the available evidence.

The Bronze Age plant remains include fragments of charred wood, tubers, cereal grain, and other seeds recovered from the cremation pits. The two species of wood arc presumably those used in the cremation fire; the blackthorn or hawthorn would have been suitable as brushwood to start the fire and the oakwood to sustain it. The cereals and other seeds may have arrived accidentally, but the edible tubers of onion couch could hardly be carried far by natural agencies, and their presence would suggest that the sample of food plants was purposely added. Thus it seems reasonable to suppose that the Bronze Age plant remains are composed of the remains of fuel from the cremation fire, together with what is possibly a ritual offering of food.

The Iron Age and Romano-British plant remains include a greater number and variety of seeds, and are associated with refuse deposits rather than cremations.

The samples are qualitatively very consistent with one another; every sample is composed almost entirely of a mixture of wheat grains, wheat glumes, barley grains. and some of all of the fourteen main non-cereal categories listed on p. 99. Quantitatively, however. the samples are extremely variable: the number of seeds in unit volume of soil varies by a factor of over a hundred. the proportion of cereal grain amongst them by a factor of over five, and other plant categories are also very variable (see Table VI). The only consistent numerical feature is that. with the exception of the two features mentioned on p. 101, cereal grains are always the largest single seed component.

A small part of this variability has been rationalized as being related to plant categories that are changing with the passage of time. Other parts are presumably related to random variation and multifarious causes for which we have insuficient information to clarify them. Nevertheless. a large part of this variability can be ascribed to variation in 'sample purity'. The results of the statistical examination indicate that a high quantity of weeds is closely correlated with a high quantity of chaff. and that the samples can therefore be considered as occurring on a spectrum. with 'pure. samples relatively free of both weeds and chaff at one end. and 'impure' samples rich in weeds and chaff at the other. It further seems reasonable to suppose that the samples represent the charred ashes of refuse from different stages in a system of crop-processing. in a manner similar to that suggested by Dennel (1974). Impure samples would be expected to derive from crop-cleaning activities such as threshing, winnowing, and sieving. whereas pure samples would be expected to derive from crops in their final stage of proccessing. being prepared for cooking and domestic use.

As well as accounting for much of the quantitative variability, the scheme agrees with qualitative consistency of the samples, as all the samples would be derived from the same starting material. the harvested crop and its associated weeds. and would be expected to have the same components. only in varying proportions. A sample from an individual features need not be envisaged as being derived from a single specific activity. It more likely represents a mixture of different types of refuse, with a bias to wards those types derived from the particular activities going on in the vicinity of that feature in the period in which it is being filled with refuse. In this way, the continuous spectrum between pure and impure samples would arise.

The results of the statistical examination also indicate that sample purity decreases very significantly with the passage of time during the Iron Age (see Fig. 67). At first this would appear to run contrary to the above argument, as one would not expect crop-processing activities to vary in such a way as to produce this drop in purity. It would seem rather to favour a change in harvesting method; grain harvested just below the ear is expected to be virtually free of weeds, whereas grain harvested at ground level. a later development associated with larger harvesting implements (Applebaum 1954, 105 6) tends to contain a variety of weeds. However, this decrease in purity is not only in terms of weeds, but also in terms of chaff which does implicate crop-processing rather than harvesting method. A satisfactory explanation may possibly be found in terms of changes in the crop processing activities taking place on the site, as the topography of the settlement changes with the passage of time.

Period 1 of the Iron Age, the functional area of the site is difficult to establish, as the only features associated with it are a group of pits scattered around the eastern part of the site which. with the exception of feature 79, all yield very pure samples both in terms of weeds and chaff. It may be speculated that a centre of habitation was nearby, and that the pits were receiving the domestic ashes which included traces of fully processed grain.

Apart from the samples from Period 1 features, the relatively pure samples are confined to an area lying north and west of ditch 73. They include pits 69, 75. 113, 365, 374, 375, and ditch 73 itself. The mean proportion of cereals in the samples from this group is 86.3^{0}_{0} and the mean glume to grain ratio 0:24. compared to mean values for stratified features of Periods 2 and 3 in general of 52.2^{0}_{0} and 1.48 and 47.8^{0}_{0} and 1.15 respectively. It seems reasonable to suppose that when Period 2 features in this area came to be used for the disposal of refuse, they received the domestic ashes from the hut within feature 13 18 19. whereas features over the rest of the area of the 1974 excavation were receiving ashes of the debris from crop cleaning activities. However. with the exception of features 69 and 73. the pottery data offers no positive evidence that the features with pure samples cited above were necessarily associated with feature 13 18, 19.

All features in the area of the 1974 excavation that are stratigraphically later than ditch 13, and the fill of ditch 13 itself, yielded impure samples. suggesting that in the latter part of the Iron Age and in the Romano-British period. the purely domestic cereal debris was being deposited outside that area. a point that ties in with the absence of any indication from the site plan of houses in that area during those periods.

Thus it does seem possible to explain the drop in crop purity in terms of the changing use of the site; as the domestic settlement moves' away from the area of the 1974 excavation. less domestic debris with ashes of fully processed grain and more agricultural debris rich in weeds and chaff is deposited in the area.

It should be emphasized that all carbonized plant remains are derived from a fire of some sort, and this must enter into any theory concerning their deposition. Whether or not the burning of various kinds of refuse is the correct explanation of these plant remains, as suggested above, they were certainly not deposited by natural agencies directly from the wild.

In conclusion. a degree of order is apparent amongst the plant remains; certain fluctuations and trends may be discerned and related to archaeological f-actors. and a very consistent species list appears from the data. However. even with the large number of-samples studied, much of the quantitative data remains unresolved.

The remainder of the section will deal with the synthesis of the qualitative data and resolved fluctuations and trends into information on the environment and economy of the Ashville site.

The environment and arable economy of the site

The Bronze Age

The first piece of environmental information that emerges from samples associated with the earliest phase of the site is that the community associeted with the Middle Bronze Age cremations produced at least two cereal crops. bread/club wheat and some form of barley, and that at least eleven species of arable weed had established themselves. Very little data exists with which to compare this information. The only other records of bread/club wheat in the Bronze Age are two grain impressions in Early Bronze Age pottery from the Lambourne Downs in Berkshire. and from Acklam Wold, Hull (Jessen and Helbaek 1944). and two records of charred grain of uncertain reliability from a Middle Bronze Age deposit at Theale, Berkshire (Curwen 1938). and a deposit from Culbin Sands, Edinburgh (Jessen and Helbask 1944). Bronze Age records of barley arc more numerous and are reviewed in Godwin (1975).

The cremation pits also produced evidence of the collection of edible roots and tubers, including the tubers of onion couch. This plant is incidentally a weed of cultivated ground, which is very susceptible to frost. and whose presence indicates a well aerated soil with a high level of fertility (fitzenmeyer 1962).

The charcoal from these pits is of interest in that one of the two species recorded is probably either hawthorn or blackthorn. and the additional presence of blackthorn seeds in pit 1001 quite strongly suggests that the charcoal is also of that species. Before thorny hedgerows were a common feature of the landscape. these species were plants of a transient environment; they normally colonized land that had been cleared, disturbed. and then abandoned, and was in the process of reverting to woodland. Thorny scrubland was an early stage in this reversion and was especially inclined to develop where there was a certain amount of animal grazing. By a maximum of 80-100 years, the thorn thicket, if undisturbed. would have become so dense and impermeable to light that it would deteriorate. and unless the scrub was reclaimed it would normally be succeeded by hazel scrub (Tansley 1939).

The use of thorny species as brushwood in the cremation fire suggests that it was the most readily available wood suitable for the purpose and that thorny scrub was a prevalent vegetation in the area. Such a vegetation would arise from either free-ranging pastoralism or shifting agriculture, and the simplest explanation of the data is that such a system was being operated in the Middle Bronze Age. However. this explanation presumes that the Middle Bronze Age landscape did not already include extensive hedgerows, and since so little is known of the agricultural landscape of that period, all possibilities should be entertained until evidence appears of a more conclusive nature.

Iron Age Periods 1 and 2

Various lines of botanical evidence would suggest that by the earliest period of Iron Age activity on the site cereal agriculture had reached a high level of development. A variety of crops were being grown: spelt wheat and hulled six-row barley on a large scale, as well as smaller quantities of emmer wheat and club wheat (fully identified, through the presence of internode fragments in addition to grain), and a diverse weed flora had become established, indicating a mature arable environment. It was suggested on p. 106 that the presence of *Galium aparine,* whose seeds occur frequently and in quantity, was indicative of the autumn sowing of crops. This practice, which is nowadays commonplace, is used in addition to spring sowing in order to get a greater yield out of the land in a given period of time (Bland 1971, 9) and this practice was presumably introduced in order to step up cereal production.

The cultivation of spelt wheat is possibly an associated factor. Spelt wheat is a frost-hardy slow-growing wheat, which is particularly well adapted to autumn sowing (Percival 1921) and it has been suggested by Applehaum (1954) that its introduction into Britain is associated with the introduction of the autumn sowing practice. The presence of fragments of the characteristic husks of spelt wheat in feature 236 is consequently of interest as this feature is cut by a number of Period Iron Age features and its fill is rather similar in appearance to the fills of the Bronze Age ditches 460 and 1006. It is unfortunate that no secure dating evidence was recovered from excavation of this feature. as the husk fragments may constitute one of the earliest records of spelt wheat in the country. Nonetheless, the husk fragments do indicate that spelt wheat, and therefore possibly the autumn sowing practice, was introduced before the first main period of Iron Age activity on the site.

The recurrent appearance of cereal debris in the refuse deposits may be considered as indicative of the importance of cereal agriculture to the settlement. It is impossible to deduce anything from the absolute quantities of cereal grain in the deposits, a single celtic field' on the experimental farmstead at Butser Hill can quite easily produce in the order of four million grains in a single season (PJ Reynolds, pers. comm.), which is probably more grains than are deposited on the whole site. The factor of interest is not the quantity but the ubiquity of cereal debris. and often of the weed-infected chaff-rich debris that has been associated with preliminary crop-proccessing activities. Such an ubiquity of debris would be expected to arise from a situation in which a large part of the human activity on the site was devoted to the processing and handling of cereal crops.

The most popular explanation of the presence of pits on Iron Age sites is that they were used for the storage of grain crops (Bersu 1940, 60 4) and so the predominance of pits among the Iron Age features, especially of Periods 1 and 2. may be considered as additional evidence for the importance of cereal agriculture. Whether or not the concentration of pits in the northern end of the 1974 excavation means that activities associated with cereal agriculture were concentrated in that part of the settlement, and possibly with the hut within ditch 13 18 19. is a question not fully resolved by the plant remains. The samples taken in the area of the 1976 excavation also contained cereal debris of a similar nature to those taken from the original area. huggesting that this was not the case. For purely practical reasons it was not possible to undertake the detailed statistical survey of the distribution of cereal debris over the whole site that would have resolved the question with a greater degree of certainty.

On pp. 105 106, it was deduced from the weed floras of Iron Age Periods I and 2 that the area under cereal agriculture at that time included a variety of contrasting soil types. The site is indeed located in an area where the soils are fairly diverse (Jarcis, 1973) and it is to some extent possible to match up certain of the species in the weed floras with particular soil types in the area.

The site itself is located on an island of second terrace gravel of approximately 70 acres (20 ha) in extent. overlying the Kimmeridge clay (see Fig. 1). Within half a

mile (0.8 km) to the north of the site, the ground begins to rise up on to a ridge of Corallian limestone, and within a quarter of a mile (0.4km) to the south of the site, the land falls away onto the damp grounds of the first terrace and floodplain of the river Ock. To the west of the site is a large expanse of Kimmeridge clay, and to the east the islands of second terrace gravel continue through Abingdon to Radley, divided by small streams.

Hearing in mind the probable level of agricultural technology in the Iron Age. the area most suitable for the cultivation of cereals would be the easily tractable well-drained soils which overly the gravel terrace on which the site itself is located. Largely because of its drainage qualities this terrace is also the most favourable for habitation, and by analogy with areas of second terrace better documented by aerial photography. the possibility must be considered that it substantial part of the 70 acres of gravel terrace was covered by areas of habitation and was consequently not available for the growth of cereals.

The soils covering the higher ground to the north of the site, and which all spread over a large part of the Kimmeridge clay west of the site. are shallow and stony and subject to drought (Jarvis 1973). However. it would certainly have been well within the means of Iron Age technology to grow cereals on them. but they are only likely to have done so as a second choice when areas of second terrace were no longer available.

The lower ground south of the site and parts of the Kimmeridge clay are overlaid by a variety of poorly drained soils (Jarvis 1973). These wet soils would be the most difficult soils to cultivate and are likely to be put under cereals only when the soils further north were no longer available.

The weed floras of the first two phases of the Iron Age include species that would be expected to be associated with each of these habitats. The species of very light and dry soils would occur on parts of the gravel terrace and on the light stony soils to the north and west of the site. In a predominantly alkaline environment the two species with a preference for damp acid conditions would occur on those parts of the first terrace with a pH below 7 *Anthemis cotula* is most likely to have gown on the heavy alkaline gleyed soils that occur just north of Abingdon Common, and the variety of intrusive species of damp ground probably indicate that the southern limits of the arable acreage were pushed as far as possible towards the damp grazed meadow that it has been argued on p. 105 existed on the present site of Abingdon Common.

thus the weed floras of the first two periods of the Iron Age present a picture of the agricultural landscape in which the fields associated with the settlement spread beyond the edge of the second terrace on to the dry stony ground north and west of the site. and even on to some of the damp ground least suitable for arable agriculture south and south-west of the site. beyond which lay the damp grazed meadow land.

Within this period. two temporal trends are apparent: the increase in vetches and tares was interpreted as a sign of the gradual depletion of soil nitrogen, once again an indication of the intensity of arable agriculture and the decrease in crop purity was tentatively associated with the changing economic use of the area studied in the 1974 excavation.

Iron Age Period 3 and Roman-British Period

Between Periods 2 and 3 of the Iron Age. there is a considerable change in the appearance of the site: a group of hut circles. small enclosure, and pit clusters is replaced by a system of extensive linear ditches (see p. 36). This transition is accompanied by two abrupt changes in the plant remains. The occurrence of the main species of damp ground in the samples, *Eleocharis palustris*. which comprises up to 14% of the samples from Periods 1 and 2, is reduced to a trace, and club wheat, which occurs in small quantities in a number of the earlier samples, is not recorded at all from samples later than this transition.

This would appear to be the major period of environmental change within the Iron Age and Romano-British periods. Neither the plant remains nor the arrangement of features on the site give an indication of any major break in continuity between later periods.

The most plausible explanation of the changes associated with transition is that between the middle and late Iron Age the agricultural landscape around the site was rearranged in such a way as to reduce the amount of damp ground under cereal cultivation considerably.

It may be further suggested that club wheat was the cereal that had previously been grown on the damper arable plots. a quite plausible hypothesis in the light of the present-day ecology of the various kinds of wheat (Percival 1921) and that it disappeared as a result of this rearrangement.

There are two possible causes of this reduction in the area of damp ground under cultivation: either the community reduced its arable acreage, and consequently moved the limits of the cultilzated area back from the very damp ground. or the community greatly improved the drainage of the area. and consequently moved the limits of the very damp ground back from the cultivated area. The possibility of a climatic change being responsible was incidentally not entertained. as this would involve a considerable natural lowering of the water-table. which the excavation of contemporary wells and sumps in the area, as well as general views on the contemporary climate, would suggest did not occur.

It could be argued that the abandonment of the Period 2 Iron Age settlement. evident from the site plan. implies a change in economic direction rather than an improvement in the existing economy and therefore favours a reduction in arable acreage as an explanation. It should also be pointed out that *Eleocharis* and other damp-ground species are well represented in later Romano-British samples from the area. but this may conceivably be a result of an even greater expansion in arable acreage rather than an absence of sufficient drainage. a possibility corroborated by other species in the samples (Jones. in Miles. forthcoming.)

Conversely. there are a number of factors favouring the alternative explanation, an improvement in land drainage. It does appear from crop-marks and excavation in the region that from this date. and especially in the Romano-British period. extensive ditches became a more prominent feature in the landscape (Benson and Miles. 1974). It also appears from waterlogged deposits on the lower ground that by the Romano-British period *Eleocharis* was only abundant on the floodplain. rather than the whole of the first terrace (M Robinson. pers. comm) and in fact this species is known to be very susceptible to improved drainage (Salisbury 1961. 230 1). It should also be pointed out that cereal debris continues to occur in the later deposits. and the behaviour of legumes suggests that the nitrogen level in the soil continues to drop (see Fig. 67) and that the late Iron Age is anyway a period in which one would expect arable production to be stepped up rather than reduced.

Hence the evidence available at present does seem to favour the second alternative; that the rearrangement of the landscape in the late Iron Age was associated with an extensive improvement in land drainage. However. some of the supporting evidence has as yet been fully ratified

only for the Romano-British period, and there does exist an argument in favour of the alternative explanation.

In conclusion, the plant remains indicate that the arable economy of the site, which had its origin at least as early as the Middle Bronze Age, developed to a fairly intensive level in the first two periods of the Iron Age, and a variety of cereals, of both winter and spring-sown forms, were being cultivated in an area spreading out over a range of soil types and even on to some very damp ground. Between Periods 2 and 3 of the Iron Age this economy underwent the change discussed above. Whereas there is some indication of a linkage with a great improvement in land drainage, full understanding of this change and its significance must await further environmental and archaeological research in the region.

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The animal bones

By Bob Wilson, Julie Hamilton, Don Bramwell, and Philip Armitage

Summary

A riverland environment is indicated with little evidence of nearby scrub or woodland. An abundance of sheep bones makes this village site unusual when compared to sites in upland Britain and to other farmstead sites on the Upper Thames River terraces. Elucidation of the pastoral patterns proves difficult especially in assessing the sex and age structures of flocks and herds. In part this is due to sampling problems.

The sheep and pigs appear to have been slaughtered relatively young and meat production seems important. Small-sized cattle and horses were kept to later stages of maturation and dairying and draughting roles are possibilities. Their grazing may have been on the damper meadows, while sheep seem to have been kept more on the higher ground.

The animals eaten include horse, dog, and duck. Butchery marks are recorded but are often open to interpretation. Articulated remains are informative on aspects of mandible ageing, butchery, and bone deposition.

Methods and results of bone analysis

By Bob Wilson

Introduction

Nearly 9600 bones were examined from the Ashville site 94% of them being of Iron Age date and most of the rest Romano-British. This report on methods and results is followed by three more on other specific aspects of the bone sample before the general discussion. A consolidated bibliography is given on pp. 138-9.

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Sample condition

A third of the Iron Age bones were marked by breakage during excavation. Such new breakage was defined as any which would prevent measurement of the length of an anciently broken fragment or of a complete bone. New breakage is recorded for 26% of the identified bones from the pits and 33% of the identified bones from the ditches (sample number $n > 1000$). It was recorded in 34% of the unidentified pit remains and in 42% of the unidentified ditch bones ($n > 2500$).

The percentages of identified and unidentified fragments are not strictly comparable because of mixed objectives in recording fragment numbers (p. 111).

only for the Romano-British period, and there does exist an argument in favour of the alternative explanation.

In conclusion, the plant remains indicate that the arable economy of the site, which had its origin at least as early as the Middle Bronze Age, developed to a fairly intensive level in the first two periods of the Iron Age, and a variety of cereals, of both winter and spring-sown forms, were being cultivated in an area spreading out over a range of soil types and even on to some very damp ground. Between Periods 2 and 3 of the Iron Age this economy underwent the change discussed above. Whereas there is some indication of a linkage with a great improvement in land drainage, full understanding of this change and its significance must await further environmental and archaeological research in the region.

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However in either portion the ditch samples show 7-8% more new breakage than the pit samples and the methods of excavation seem involved. The interest of recording new breakage still can be demonstrated by the slightly inconsistently recorded data from two other local rescue sites. At Appleford (Wilson, unpublished) Iron Age pits and ditches show 36% and 48% new breakage while at Farmoor (Wilson, forthcoming) it exceeds 50%. The reasons for this (e.g. soil intractability) are less important than the validity of attempting to compare fragment number data for different sites, although the definition given will exaggerate the effect of such breakage on site comparisons.

Since there was no sieving control over bone recovery and the condition of the bone was sometimes difficult to assess, percentages of weathering, dog gnawing, and burning (given where $n > 50$) have limited value but occasionally may indicate site activities. Almost all of the following observations relate to the 1974 site.

Most of the bone was well preserved; 3-4% of the Iron Age sample was noticeably weathered, adjacent pits F74 and 75 with 10-12%, although classified as early and late features. Eight of the sixteen bones from the top of the Bronze Age pit F1017 were conspicuously more weathered or broken than the Iron Age bones.

Dog-gnawed bone was often difficult to distinguish, 2-5% of debris obviously being marked, more commonly on identified bones from the ditches, e.g. F73, 103, 180, and 6-8% in adjacent pits F16 and 17.

About 6% of the sample was burnt—n the pits 6% and in the ditches 2-3%; this comparison excludes pit F313 where 50% was burnt black, bluish, or white and was distributed throughout the feature. With pits F48 and 157 this may represent an early focus of burning or burnt rubbish dumping and pits F60 (22%), 71, 74, 79, and 125 indicate a lesser focus. Almost. no burnt bone occurred in pits inside annex ditch F73 except for the earlier F79 and two stratigraphically later pits F62 and 101. The latter with pits F16, 17, 25, and 327 indicate a wider and later deposition of burnt debris outside the previous area at least between ditches F13/15 and 32. Only F180 shows even a moderate level (8%) among all the ditch samples and such samples may be unreliable indicators, although one might expect burnt debris to occur away from thatched buildings or animal enclosures and, to a lesser extent, in the later 'field' ditches.

Species identification

It is assumed that goat is present in minimal quantities among the sheep/goat remains. No horn cores were identified but a distal humerus has a slightly different morphology to the rest of the 'sheep' and the foramen nutricum is in the position where determination of *Capra* 'is easy' (Boessneck 1969). *Arvicola terrestris* refers to the water vole and *Apodemus* is probably the field or wood mouse, *A. sylvaticus* which is common in the locality and burrows in the features are numerous.

Species Fragment Frequency

The fragment numbers given in the following Tables alter the actual but less meaningful frequencies in the sample. Where newly broken fragments fitted together they were counted as a single fragment so that the results were closer to the ancient fragmentation pattern. However, this was less scrupulously applied to the unidentifiable portion, since it was to relatively minor and time-consuming purpose. The identified and unidentified portions are therefore not uniformly recorded and should be regarded warily in this respect.

The fragment numbers in these Tables include bone shafts, epiphyses, cranial fragments and loose teeth, i.e. all skeletal elements except ribs and those making up three dog burials, one sheep burial (p. 123) and one of *Arvicola terrestris*. 38% of the recorded sample is classified in Table X and with the animal burials 40% was identifiable.

In Table X the unassigned Iron Age remains should be mostly of the second period of occupation, and the percentages of these groups are very similar. At face value Table X indicates a relative increase, then a decline in the abundance of sheep remains over the three Iron Age periods with opposing fluctuations in abundance of the other three species. The Romano-British sample is small; the 2nd century ditch Fl018 indicating a lower proportion of sheep to cattle than in the 3rd-4th century well.

Table XI subgroups the Iron Age period samples by feature types. There are noticeable interspecific differences in the fragment frequencies of bones that were recovered from pits and ditches. Here the sizeable subgroups of the second period allow the best comparison and the pits were clearly dispersed among the ditches. The pit samples contain 16% more sheep bones

Table X Bone and shell fragment frequency

	Bronze Age	Iron Age										Romano-British	
		Period 1		Period 2		Period 3		Unassigned		Total			
	f	f	%	f	%	f	%	f	%	f	%	f	%
Sheep/goat	1	242*	51	727	58	334	44	539	57	1841*	54	91	44
Cattle	5	157	33	366	29	290	39	259	27	1072	31	64	31
Pig	1	47	10	112	9	86	11	81	9	326	9	18	9
Horse	—	19	4	47	4	37	5	41	4	144	4	10	10
Dog	—	7	1	7	1	3**	—	5*	1	22***	1	6	3
Apidemus sp.	—	†		3		—		25	3	28	1	—	
Arvicola terrestris	—	2*		—		—		—		2*	—	—	
Red deer	—	—		A		A		—		2	—	—	
Cat	—	—		†		—		1		1	—	4	2
Hare	—	—		—		—		—		—	—	1	
Oyster	—	—		—		—		—		—		3	1
Total	7	473		1263		751		951		3438		207	

* excluding part skeleton, † possible period of unassigned material, A antler fragment

Table XI Bone fragment frequency in Iron Age features

	Pits										Ditches										Postholes
	Period 1		Period 2		Period 3		Unassigned		Total		Period 1		Period 2		Period 3		Unassigned		Total		
	f	%	f	%	f	%	f	%	f	%	f		f	%	f	%	f	%	f	%	f
Sheep/goat	241*	52	218	70	45	48	255	62	759	59	6		509	54	289	44	263	56	1067	51	15
Cattle	152	33	59	19	35	38	96	23	342	27	5		307	32	255	39	152	32	719	34	11
Pig	47	10	26	8	9	10	50	12	132	10	-		86	9	77	12	31	7	194	9	-
Horse	17	4	8	3	3	3	11	3	39	3	2		39	4	34	5	21	4	96	5	9
Dog	7	2	1	-	1	1	2	-	11	1	-		6	1	2**	-	3	1	11	1	-
Total	464		312		93		414		1283		13		947		657		468		2085		35

* excluding part-skeleton

then do those of ditches. In total, sheep bones are 8% less common in the ditch sample (51%), than in the pit sample (59%). The pig percentage is 1% less, while those of cattle and horse are 7% and 2% more in the ditch samples.

Table XII contrasts the percentages of skeletal elements in the grouped pit and ditch samples of the main species. Differences range as much as 9% within a species. Skull debris seems more abundant in ditch samples, and in cattle and sheep this is partly contributed to by greater quantities of loose teeth as well as a greater proportion of sheep mandible remains. Other differences emerge on comparison of the lower limb bones of sheep and cattle. Sheep metapodial fragments are relatively common compared to cattle metapodials, while the phalanges and the bones of the joints amount to 2% in ditch samples and 7% in pit samples, whereas those in cattle are 9% (ditches) It can be argued that since bone fragments in the

It can argued that since bone fragments in the 0-50mm length range tend not to be collected (Watson 1972) more skeletal elements of sheep than of cattle fall into this category (Payne 1972a). As the proportions of sheep bones in ditch samples are less than those in pit samples at both Ashville and Appleford (Wilson, unpublished) there may be more non-recovery of sheep bones from ditches. This seems supported at Appleford by the mean length of anciently broken sample fragments being eater in ditch then in pit samples, although the overall argument seems too simple (p. 113).

Table XIII contrasts the broad groupings of skeletal elements for the main species at the three river-terrace sites. Moderately comparable results are shown considering the small size of some of samples and the variation between ditch and it samples at Ashville but, of course, such differences will be partly nullified in examining site totals. Although we consider that the survival and recovery of sheep bones varies a lot, it is to be doubted that the proportions of their skeletal elements at Farmoor are much different from Ashville.

Minimum numbers of individuals

A comparison of the left and right side fragments of each skeletal element (including those of the skeletons) and taking the greatest number derived from any element of a species gave the minimum number of individuals (Chaplin 1971). These are shown in Table XIV for the various period samples. In the total Iron Age sample these are derived from the mandible (sheep and dogs), humerus (cattle), scapula (pig), and tibia (horse).

Minimum number estimates might be thought to differ considerably when using these different skeletal elements, particularly if tooth eruption and wear are used to distinguish between individuals. Yet a disproportionate number of individual sheep were not differentiated when left and right side elements were compared. For instance, in the total Iron Age sample of sheep bones a minimum of 117 individuals were represented by the diaphyseal area of the left side mandibles. Only 18 could be added to this number after a close matching of the right side mandibles to those of the left, because of the incompleteness of most mandibles.

Two sets of mandibles (F13 and 82) and possibly two more (F13 and F72, 397) appeared to be from single individuals. The mandible pair from F82 (p. 123) are very similar in all aspects including wear, whereas in the older mandibles (Stages G-H, Payne 1973) the tooth wear is more variable. One small foramen differs on the almost certainly related pair from F13.

In the early period pit sample the minimum number of

Table XII Percentages of skeletal elements in Iron Age features

	Cattle		Sheep		Pig		Horse
	Pits	Ditches	Pits	Ditches	Pits	Ditches	Ditches†
Sample number *(n)*	342	717	750	1066	131	194	96
	%	%	%	%	%	%	%
Cranium mandible and loose teeth	112	41	32	40	42	44	28
Carpal and hock joint, manus, and pes	18	18	23	23	12	13	38
Other body body except rib	49	41	46	45	46	43	34
Loose teeth	9	15	8	12	15	8	19
Vertebra	10	8	7	3	5	4	5
Carpal and hock	6	5	3	1	2	3	3
Metapodial	6	9	16	13	6	7	15*
Phalanx	6	4	4	1	5	3	13

* excluding second and fourth metapodial elements
† for horse bones in the pits $n = 39$

Table XIII Percentages of skeletal elements in three site samples

	Cattle: Iron Age			Romano-British			Horse: Iron Age	
	Ashville	Appleford	Farmoor	Ashville	Appleford	Farmoor	Ashville	Farmoot
Sample number *(n)*	1072	198	89	64	189	204	144	71
	%	%	%	%	%	%	%	%
Cranium mandible and loose teeth	38	38	29	39	37	40	35	45
Carpal and hock joints, manus, and pes	18	26	22	28	23	22	32	24
Other body bone except rib	44	36	48	33	40	29	33	31

	Sheep: Iron Age			Romano-British			Pig: Iron Age	
	Ashville	Appleford	Farmoor	Ashville	Appleford	Farmoor	Ashville	Appleford
Sample number *(n)*	1841	99	69	91	53	96–168*	326	55
	%	%	%	%	%	%	%	%
Cranium mandible and loose teeth	36	40	36	29	51	56–47	43	62
Carpal and hock joint, manus, and	18	19	20	23	19	11–24	13	7
Other body bone except rib	45	40	43	48	30	32–29	44	31

* Including part-skeletons in F15 and F34
Iron Age $n < 50$ for horse at Appleford and pig at Farmoor

cattle is given as 11, from the scapulae, but might be 13 if two more scapulae, which were used as tools (p. 123), were to be counted.

The main trend of the results in Table XIV is apparently a greater abundance of sheep in the second than in first or third Iron Age period Samples. Minimum numbers and fragment numbers are inconsistent in indicating change to Romano-British times but the species samples are small.

Sample problems

The primary objective of fragment number counts and minimum number estimates is to obtain an idea of the relative abundance of animal populations. Limitations of these methods have been discussed by Chaplin (1971), Payne (1972b), Clason (1972), and Uerpmann (1973).

At Ashville the minimum number percentages of the total Iron Age sample indicate 13% fewer cattle, but 8% more sheep, 2% more pig, and 3% more dog than do their fragment number percentages. It is the percentages of the medium-sized mammals which increase (Wilson 1975), horse and dog being less comparable here. An individual was determined on average every 27 cattle bones, sixteen of horse, fourteen of sheep, and two of dog (fifteen if skeletons are included). These averages are consistent for the four sheep and two cattle pit and ditch sub-samples which exceed 200 fragments in number. Below this number (cv. 300 fragments, Gjevall 1962) minimum number estimates over-represent the relative abundance of a species (e.g. horse and dog) in the total Iron Age sample. Thus the average number of fragments/individual of horse would be greater if its sample size was similar to cattle or sheep. The relative greater abundance of dogs than of other species seems subject to chance discovery of their burials.

However, where the sample size is large the relatively low average fragment number/individual of the medium-sized mammals could be explained by a bias against the recovery of their bones and fragments. This bias need not be considered only as a consequence of the method? of excavation (p. 111) but of ancient fragmentation patterns as well (p. 119–23).

Epiphyseal fusion data

Table XV records the fused and unfused epiphyses for the domestic animals. Those of the ewe skeleton in F82 are

Table XIV Minimum numbers of individuals

	Bronze Age	Iron Age Period 1		Iron Age Period 2		Iron Age Period 3		All Iron Age		Romano-British	
		Pits	Ditches	Pits	Ditches	Pits	Ditches				
		%		%	%	%	%		%		%
Sheep/goat	1	17* 50	1	14 56	42 64	8 57	21 50	135*	62	6	40
Cattle	1	11 32	2	5 20	12 18	3 21	10 24	40	18	4	27
	I	4 12	—	4 16	7 11	2 14	7 17	25	11	2	13
Horse	—	4 12	1	4 1	3 5	1 7	2 5	25	4	2	13
Dog	—	1 3	—	1 4	2 3	— —	2* 5	9*	4	1	7

All Iron Age features sample: *Apodemus* 8, *Arvicola terrestris* 2
Other species 1 each; Also R–B Oyster 2.

* Includes skeletons: Two dogs in Period 3 ditches, and 3 in total Iron Age sample.
One sheep in F82

Table XV Epiphyseal fusion record

	Sheep		Cattle		Pig		Horse		Dog	
	fused	unfused	fused	unfused	fused	unfused	fused	unfused	fused	unfused
scapula	10	8	23	5	3	1	1	—	—	—
pelvis	22	4	17	11	6	—	4	—	1	—
d. humerus	33	8	24	7	3	2	4	—	1	—
p. radius	29	10	27	1	7	—	3	—	1	—
1st phalanx	22	7	26	2	5	1	6	—	—	—
2nd phalanx	6	1	6	2	2	2	3	—	—	—
d. metacarpal	5	18	9	2	3	3	5	—	—	—
d. tibia	28	20	29	9	5	4	11	—	—	—
d. metatarsal	11	16	11	7	2	6	5	—	—	—
olecranon (ulna)	3	11	3	—	1	5	1	—	1	—
calcaneum	4	9	7	4	2	1	—	—	—	—
p. femur	1	10	6	4	—	2	—	—	1	—
d. radius	3	13	7	4	—	—	3	—	1	—
p. humerus	2	8	4	7	—	1	—	—	—	1
d. femur	1	8	10	5	—	2	2	—	1	—
p. tibia	2		8	7	—	—	3	—	—	—
	182	159	217	77	39	30	51	—	7	1

Table XVI Percentages of epiphyseal fusion for different age stages of three species

Modern age stage (months)	Sheep epiphyses fused	unfused	% fused	Modern age stage (months)	Cattle epiphyses fused	unfused	% fused	Modern age stage (months)	Pig epiphyses fused	unfused	% fused
6-10	32	12	73	7-10	40	16	71				
10	10	62	18					12	21	5	81
13-96	28			12-18	83	12	87				
18-24	33	33	28					24	13	8	
20-28	11	16	41	24-36	49	18	73	24-30	4	7	36
30-36	8	30	21	36-42	13	8	62	36-42	1	10	9
36-42 (including d. radius)	8	37	18	42-48	32	23	58				
Total	182	159			217	77			39	30	

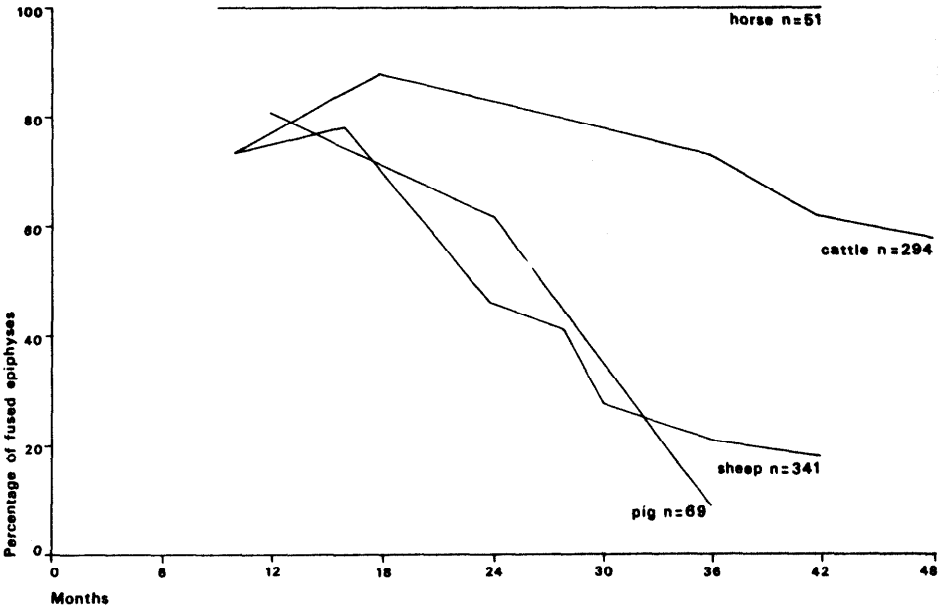
Table XVII Percentage of fused epiphyses in Ashville samples

	Period 1		Period 2 pits		Period 2 ditches		Period 3		Romano-British	
	n*	%		%	n	%		%		%
Sheep	25	64	58	45	82	59	46	57	22	59
Cattle	47	73	18	61	69	77	70	83	15	93
Pig	10	40		22	55		18	61	9	0

n = sample number of epiphyses

Table XVIII Percentage of fused epiphyses on Upper Thames Valley sites

	Iron Age								Romano-British							
	Appleford		Ashville		Barton Court Farm (provisional)		Farmoor		Appleford		Ashville		Barton Court Farm (provisional)		Farmoor	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Sheep	23	61	341	53	62	58	8	33	4	100	22	59	147	69	11	82
Cattle	64	78	294	74	57	74	39	87	69	83	15	93	434	81	57	96
Pig	4	50	69	57	16	31	2	0	1	100	9	0	90	28	1	0
Horse	11	82	51	100	21	90	17	76	8	75	5	100	142	94	19	95



71 Comparison of grouped epiphyseal fusion data at the end of each modern stage of fusion

included and make up 5% of the sheep sample number. Those of the three dog skeletons are omitted. In Table XVI these are grouped into convenient age stages according to their approximate period of epiphyseal fusion, the percentages generally decreasing for the older age stages of each species.

Examination of these results shows many discrepancies in the abundance of different epiphyses, even those of the same fusing stage, and these are undoubtedly produced by the unique features of some epiphyses, e.g. the tripartite acetabulum, interacting with the processes of fragmentation and recovery. Unfused epiphyses should be more vulnerable to destruction but this may be offset by an increased chance of recovering separated portions. Species slaughtered at. late stages of maturity should give most reliable information. Finally, any comparison of species in Fig. 71 depends upon the fusion rates in prehistoric animals having a similar interspecific relationship to those amongst modern animals.

Although there is considerable difficulty in interpretation, the similarities of local site and period samples of the species can be seen in Tables XVII and XVIII. Some bias in bone recovery may be indicated by the comparison of data from pits and ditches of the middle period at Ashville.

Sex determination

(a) *Pelves:* pelves of three species were sexed using a variety of comparative material including some of the reference collection in the British Museum (Natural History). Identification was assisted by Boessneck (1969) and Sisson (1910) and discussion with Philip Armitage confirmed the determination of cattle and sheep pelves. Some uncertainty lay in distinguishing between some immature castrates and males, but the major limitation to identification was the absence of the pubic portion which often was caused by breakage and loss during excavation. Results from several Iron Age sites are listed here to assist the discussion.

Sheep: Ashville, female 5, including F82 (2, p. 123) probable 4, male 4, male/castrate and castrate; Appleford (unpublished data) female and probable; Barton Court Farm, female and male; Guiting Power (Glos) (unpublished data) female 2. Totals of 9 female and 5 probable, 5 males, a castrate and a male/castrate pelvis. Two male pelves have unfused acetabulae and the bone surfaces and features of the others indicate less mature animals than those of the females.

Cattle: Ashville, female and 4 probable, male and 3 probable and a probable castrate; Appleford, castrate; Farmoor, female and probable; Barton Court Farm, female and 3 castrates; Guiting Power, probable castrate. Totals of 3 females and 5 probable, 1 male and 3 probable, and 4 castrates and 2 probable castrates. At Ashville two of the male pelves have unfused acetabulae and fusion is incomplete in the other two.

Horse: Ashville, 2 female and a male; Appleford, one male.

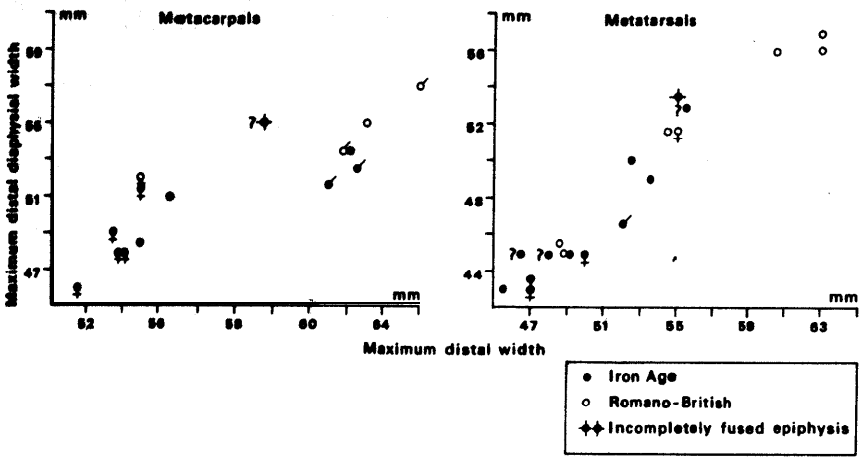
(b) *Metapodials of cattle:* Howard's (1963) DBL and MBL indices were used for several sets of site data to determine the tertiary sexual character of the metacarpals and metatarsals. Where the sexes overlapped on one index they often did not on the other and the latter determination was used as the probable sex. The results are shown below:

	Iron Age				*Romano-British*			
	Cow		*Castrate/male*		*Cow*		*Castrate/male**	
	mc	*mt*	*m c*	*m t*	*mc*	*mt*	*mc*	*mt*
Ash	3	3	2	2	1	–	1	–
	1	–	–	–	–	2	–	–
Far	3	3	–	1	1	–	1	–
Cro	7	1	3	2	–	–	–	–
Sha					4	1	3***	1

Site abbreviations in Table XIX
* indicates bull; 2 from Shakenoak may be from the same individual,

Higham and Message (1969) used different dimensions on cattle metacarpals to indicate sexuality, so the available Iron Age and Romano-British bones were measured in the same way. These data are shown diagrammatically in Fig. 72. Sex symbols show where both of Howard's indices were consistent and question marks where the index ranges overlapped.

Sample numbers are small, but the Iron Age data do not indicate two equal-sized groups as do the Neolithic Troldebjerg metacarpal data. Both methods show that the smaller-sized metapodials are likely to be from cows,



72 *Scattergrams of Upper Thames Valley cattle metapodials*

'cow question marks' now marking non-differentiation of sex on one of three indicators. The Romano-British metatarsal datum points may indicate a considerable size range of cows during this period (see cattle size ranges, p. 117) and need mot contradict the Iron Age determinations of sex. The male/castrate groups are also variable. Epiphyseal fusion is sometimes incomplete. 0ne metatarsal (queried) may be of a bull, since the depth of shaft is considerably greater than in any other metatarsal. It was not differentiated by Howard's method (castrate/cow!) but she did not establish an index range for prehistoric bulls.

The combination of both methods removed some uncertainty about sexing a further 12 metapodials:

	Iron Age				*Romano-British*			
	cow		*Castrate/bull*		*cow*		*Castrate/bull*	
	mc	*mt*	*mc*	*mt*	*mc*	*mt*	*mc*	*mt*
Ash	4	3	3	5 *	2	-	1	-
App	1	-	-	-	-	2	-	3
Far	3†	4	-	1	1	2	1	-
Total	15 or 14		9		7		5	

* indicates one possible bull
† two from same individual

The table above indicates a greater proportion of castrates in the Romano-British samples but it also shows that 33% of the metacarpals and 45% of the metatarsals indicate male/castrates; large samples should indicate the opposite trend with their sequence of epiphyseal fusion. However the size of both of these groups indicates an earlier onset of the differential slaughtering of male/castrates and females that occurred among the Neolithic Troldebjerg cattle.

(c) Distal radii of cattle: slightly different measurements to those used by Higham and Message (1969) were taken of the distal radii in order to increase the sample size; A scattergram of these data is shown in Fig. 73.

Three Romano-British datum points again indicate a size increase over Iron Age cattle but both sets of data separate into two groups in a similar way to Troldebjerg data. Fusion is incomplete in the two Iron Age radii and appear likely to be those of steers or bulls. The small distal radii are probably of cows although the ranges of the sexes require confirmation.

Bone measurements

Tables XIX-XXI present comparisons of selected bone dimensions. Standard deviations are given where $n > 10$. However some distributions are probably skewed for late-fusing bones (Hodgson 1969) and possibly that of the distal humerus of sheep.

A paucity of published site data is available for comparison; t-tests of significance were done where $p < 0.05$. These showed that the lengths of the cattle astragali at Ashville, Barley, and Croft Ambrey are not significantly different, but all three samples were significantly smaller than the Romano-British Shakenoak sample ($p < 0.01$). For the distal humerus of sheep the measurements at Barley are significantly smaller than those at Ashville and Croft Ambrey which do not differ significantly.

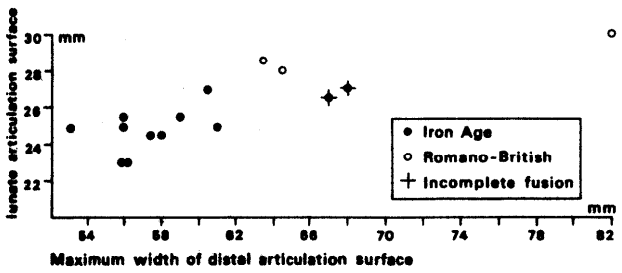
Jarman, Fagg, and Higgs (1968) considered the cattle and sheep at Barley to be smaller than those at Grimthorpe, although 11 of their 14 cattle bone measurements and 4 of 7 sheep bone measurements were not significantly different at the 5% level of probability. The samples of cattle astragali at the five tested Iron Age sites do not show significant length differences between them.

Height estimates

(a) *Cattle:* Following the tentative sexing of the cattle metapodials an idea of their shoulder heights was obtained using the factors of Fock (1966):

	Cow			*Castrate*			*Bull*	
	n	*r* (m)	*m*	*n*	*r* (m)	*m*	*n*	*m*
Iron Age								
Ash	6	1.00-1.11	1.07	3	1.07-1.11	1.08	1	1.18
App	1	-	1.03	-	-		-	-
Far	5	1.01-1.13	1.06	1	-	1.18	-	-
Romano-British								
Ash	-	-	-	2	1.12-1.18*	1.15	-	-
App	2	1.21-1.25	1.23	-	-		-	-
Far	1	-	1.13	1	---	1.18	-	-

*steer?



73 Scattergram of Upper Thames Valley cattle radii

Table XIX Site comparison of selected cattle bone measurements

	Length of astragalus					Length of metacarpal					Length of metatarsal	
	n	*r* (mm)	*m*	s.d.†		*n*	*r* (mm)	m	s.d.		*n* (mm)	*m*
Iron Age												
Ash*	18	53–64	58.5	3.4	Ash	5	167–183	175.4	—	Ash	5 197–213	204.6
App	8	55–60	58.0	—	App	1	174–182	171.0	—	Far	4 188–216	203.3
Far	1	57	57.0	—	Far	4	174–182	177.8	—	All	24 182–208	—
Bar	13	54–62	58.5	2.4	All	14	164–185	—	—	Bar	8 179–226	198.4
Cat	14	51–63	57	—	Cat	6	155–184	176	—	Cro	3 193–204	197.7
Cro	20	55–63	57.7	1.3	Cro	10	162–178	171.8	1.8	Gla	16+ 185–206	194
Gri	8	56–61	59.5	—	Gla	12+	158–181	169.5	—	Gri	5 200–216	208.7
Romano-British												
App	4	58–70	64.3	—	Ash	2	183–192	187.5	—	App	2 226–233	229.5
Far		59–75	65.2	—	Far	2	189–192	190.5	—	Por	108 183–240	—
Cor	9	53–63	58	—	Cor	93	157–203	182	—	Sha	2 208–210	209.0
Sha	11	56–66	62.8	3.5	Sha	8	174–190	184.1	—	Tri	6 205–217	210.7

* site abbreviations for Ashville, All Cannings Cross, Appleford, Barley, Catcote, Corstopitum, Croft Ambrey, Farmoor, Gadebridge, Glastonbury, Grimthorpe, Porchester, Shakenoak, and Tripontium.
† standard deviation if known, not given where the sample numbers less than 10.

The average heights of Iron Age site cows are nearly identical, although their average metacarpal height is 1.05 m compared with 1.08 m from their metatarsals.

(b) *Sheep:* The withers heights have been calculated from metacarpals and metatarsals (Teichert 1975).

	Iron Age			*Romano-British*	
	n	*r* (m)	*m*	*n*	m
Ash	14	0.53–0.64	59	1	63
App	2	0.60–0.63	61	1	61
Far	—	—	—	1	67

Measurements of a Soay ewe's bones (p. 124) indicate a consistent estimate to 4% of any other limb bone. The above estimates do not necessarily represent sheep which grew to full size.

(c) *Horses:* Shoulder heights (in m) were calculated from the metapodials using their lateral lengths and Kiesewalter's factors (Boessneck and von den Driesch 1974):

	Iron Age						*Romano-British*					
	meta-carpal			*meta-tarsal*			*meta-carpal*			*meta-tarsal*		
Ash	1.27	1.29	1.42	1.20	1.26	1.31	1.41			1.41		
Far		1.28			—		—			1.22	1.24	1.41
App		—			—		1.28			—		

Table XX Site comparison of selected sheep bone measurements

Length of metacarpal

	n	*r* (mm)	*m*	s.d.
Iron Age				
Ash	3	109–120	115.3	—
App	2	123–128	125.0	—
Cro	2	108–125	116.5	—
All	2 +	112–128	—	—
Gla	10+	104–134	—	—
Romano-British				
Gad	3	126–133	130.6	—
Tri	3	122–123	122.3	—

Length of metatarsal

	n	*r* (mm)	*m*	s.d.
Iron Age				
Ash	7	122–140	133	—
All	2 +	122–141	—	—
Gla	110	109–136	—	—
Romano-British				
Ash	1	139	139	—
App	1	134	134	—
Far	1	147	147	—
Gad	6	128–144	135.0	—
Tri	6	125–137	131.2	—

Width of distal humerus

Iron Age				
Ash	30	23–32	26.3	1.4
App	3	25–28	27.0	—
Bar	26	23–28	25.4	1.5
Cro*	18	24–30	26.8	1.2
Gri	3	27–30	28.7	—
Romano-British				
Ash	2	23–28	25.0	—
Far	3	30–31	30.3	—
Gad	5	25–28	—	—

Width of distal metatarsal

Iron Age				
Ash	7	21–24	22.3	—
App	2	22–23	22.5	—
Far	1	24	24.0	—
Bar	18	18–20	19.3	1.0
Gri	3	20–22	21.2	—
Romano-British				
Gad	4	21–23	22.0	—
Tri	6	20–24	21.8	—

* a 19th measurement of 37mm gives a mean of 27.4, s.d. 2.8.

Table XXI Site comparison of selected horse and pig bone measurements

Horse

Length of metacarpal

	n	*r* (mm)	*m*	*s.d.*
Iron Age				
Ash	3	204 231	214. 3	—
Far	1	208	208	—
All	7+	191 212	—	—
Gla	8+	183 204	—	—
Romano-British				
Ash	1	227	227	—
App	I	206	206	—
Tri	8	205 217	210. 9	—

Horse

Length of metatarsal

	n	*r* (mm)	*m*	*s.d.*
Iron Age				
Ash	4	233- 258	247 .5	—
Gla	8+	227- 248	—	—
Rai	1	265	265..0	—
Romano-British				
Ash	1	270	270.0	—
Far	4	238 -286	258.9	—
Gad	2	252 -280	266.0	—
Tri	8	245 -260	52.3	—

Pip

Length of 3rd molar

Iron Age				
Ash	8	30 -35	32. 0	—
Far	1	31	—	—
Gla	3	29 -33	30. 3	—
Bal	3	30- 41†	34. 3	—
Dur*	25	31- 38		
Romano-British				
Far	1	30	30	—
FlS	53	28- 44†	c. 33	c 2.8

Pig

Distal width of humerus

Iron Age				
Ash	4	36	36.0	—
Gla	3	29- 33	30.5	—
Cro	14	25- 40	32.1	1.9
Dur*	122	27- 35	—	

* Bal = Balksbury Camp Dur = Durrlngton Walls (Neolithic). Fis = Fishbourne. Rai = Rainsborough
† Possible presence of wild pig

Kiesewalter's factors give inconsistent result. On p. 125 the height estimates differ by 6%. The two Romano-British bones at Ashville are from F30 and possibly the same individual.

(d) *Dogs:* Calculated shoulder heights of the late Iron Age skeletons are 0.485 and 0.605m. A radius of 0.157 m and a femur of 0.172 m from early pits give shoulder heights of 0.52 and 0.53 m (Harcourt 1974b).

Pathology notes

(a) Lesions of mouth *and teeth*

(i) Symmetrical and slightly out-turned exostoses on the diastemas of a horse mandible. The incisors indicate a horse 12 18 years of age (Silver 1969). The mandible is broken after the anterior root of the P2. This tooth has been worn down almost to bone level (F481. P1. XVIb). Such tooth wear might have been caused by the working of a horse bit (cf. Bökönyi 1968) and the exostosis may have a similar cause. However, the incompleteness of the mandible and the horse's age make this interpretation inconclusive. Four other horse mandibles do not show either the above tooth wear or exostosis.

(ii) However, exostoses occur on the canines below gum level on the mandible of a horse (F 18).

(iii) Dog skull with all teeth missing or broken off at the roots. Canines, some premolars, and one M1 probably lost after death, but the sockets of the other teeth are bone-filled and the right molar area seems abcessed (F48, PI. XVIa).

(iv) Dog mandibles: with anterior incisor sockets bone-filled and a broken canine (p. 135): socket filled P4 (F15); and anciently broken P3 (F413).

(V) Periodontal disease: 10 of 153 moderatly intact Iron Age sheep mandibles, not always with teeth. indicate this disease chiefly between P3 and M 1. Two seem severe infections: P2 M 1 of a stage G; (Payne 1973) mandible and M I M2 of a stage E mandible.

(b) *Osteoarthrosis*

(i) Horse metatarsal completely fused with the subsidiary second metatarsal and the three largest tarsal bones below the astragalus. Exostosis on the anterior surface of these fused bones. (Romano-British. F30.)

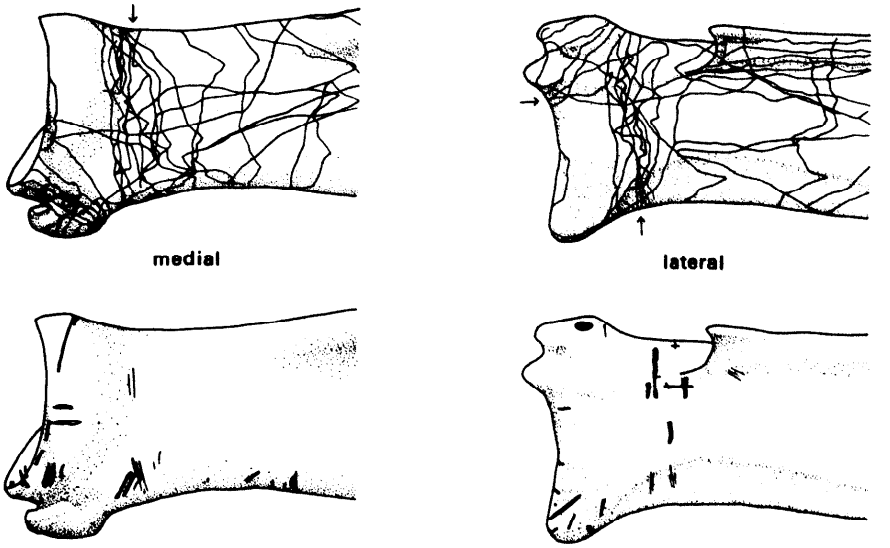
(ii) Fused third and central tarsals (navicular and lateral cuneiform) of horse (F430. p. 125).

(iii) Partial Fusion of cuneiform and navicular cuboid cattle bones (F136).

(iv) Mild lesions occur on the anterior proximal articulation surfaces of three metatarslas and the medial proximal articulations surfaces of two metacarpals of cattle.

(v) Cattle metatarsal (probably castrate: Howard 1963) with marked lateral extension of the distal articulation surfaces by bone deposition. Lateral side eburnation shows along the axis of the joint flexure (F27. P1. XVg). This may result from the prolonged stress on the back legs when an animal is used for draught purposes (Uerpmann, pet-s. comm. 1975).

(vi) Slight lateral bone deposition on distal epiphysis of cattle metacarpal (probable castrate), cf.,(v) but not pathological (F103).



74 Breakage and cutting on proximal scapula of cattle

(c) Osteitis

(i) Cattle metatarsal (castrate or possibly cow); surface inflammation of the shaft along the entire medial surface, exostoses largely flattened under the skin surface and/or with chafing or scraping of the injury. On the distal shaft this exostosis extends anteriorly with a relatively smooth surface to lip over the vascular groove (F180, Pl. XVd, e).

(ii) Cattle metatarsal (probably cow) with bone deposits raised either side of probable injury site on the lower medial shaft. Possibly healed (F63, P1. xvf).

(iii) Slight exostoses on distal medial side of probable cow metatarsal. Healed (F453).

Butchery notes

(a) *The skull*

Cattle: Any signs of poleaxing (F27) or medial cleavage are doubtful. At least two skulls were largely intact except for mandibles (p. 125). No severance marks on occipital condyles. There is a tendency to cut around or chop through the anterior maxilla as far back as P2 (cf. cuts on a sheep maxilla). Some cutting occurs along the medial and lateral tooth row of the maxilla and a parallel cut occurs on the posterior palatine. Few cuts around the orbit but some across the frontal.

On the mandible, transverse cuts are common below the posterior and lateral condyle. Below this on the lateral aspect the cuts and the occasional chop are laterally directed toward the tooth row, some cuts occurring along it and toward the lower forejaw, which bears mainly transverse ventral or vertical lateral cuts. A hyoid is cut near its basal attachment to the skull.

Cattle horn cores are sometimes chopped off (3 ventral direction, also posterior and dorsal blows) or sawn around (2) or through, or cut around 10-20mm from the base (2).

In sheep the horn cores are frequently broken but chopping is not evident. The skulls seem divided in the midline (6) by dorsal chops but not invariably (2). Cuts on the remainder of the skull are uncommon but seem similar to those described for cattle. Additional medial cuts occur at the meeting of the mandibles, indicating their separation from the rest of the skull, as well as from each other.

At least two pig skulls are medially cleft, one being associated with an atlas fragment. Cuts on the mandible are similar to those for sheep and cattle, but at least one symphysis has been cleft through (posterior blow). Single cuts occur on a horse premaxilla and on mandibles beside the canine and medially below the tooth row.

(b) *The vertebral column: atlas and axis*

Ventral and dorsal cuts on anterior condyles of two cattle atlases. (cf. transverse cuts on dorsal condyle (cutting from ventral side) of two sheep atlases). Lateral trimming and knife cuts on atlases of cattle sheep and pigs, but only one cattle axis is broken more or less medially while other atlases remain complete.

Therefore, there is little evidence of the medial division of the atlas, and the dorsal division of the sheep skulls contrasts with the evidence of decapitation between the atlas and the occipital condyles from the ventral side. Grant (1975a) reports decapitation of cattle heads, but it may not always be clean-cut as several atlas fragments have been associated with pig and cattle skulls, and the trimmed anterior of one pig axis may indicate a more posterior severance of the head.

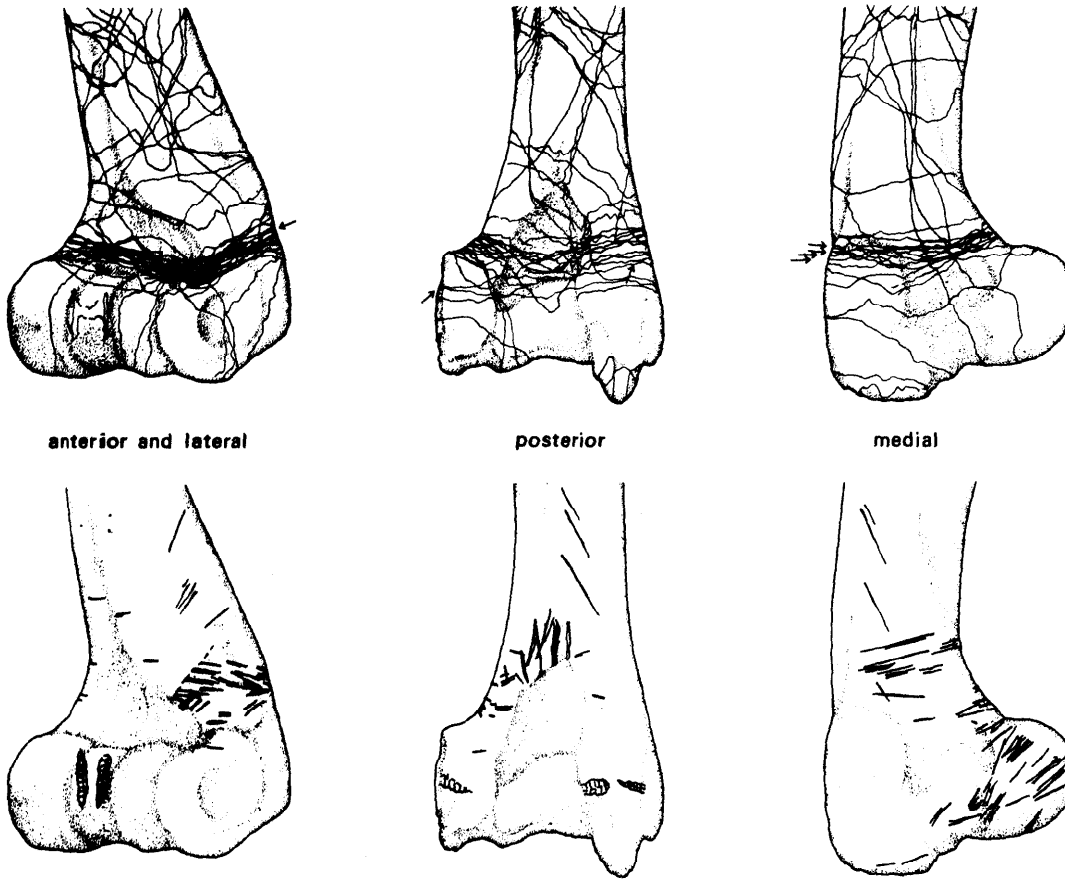
Cervical vertebrae: Seven complete cattle and horse vertebrae, sheep 2, medial breakage in one cattle, and chopping in 2 sheep vertebrae.

Thoracic vertebrae: No medial, but ventral (2) and transverse chopping or cutting in cattle. Sheep vertebrae often nearly complete, occasional lateral trimming and transverse cuts or breakage.

Lumbar vertebrae: Four sets of a few cattle vertebrae either articulated or probably from the same beast (3 ditches and an early pit). Sheep lumbar vertebrae trimmed off laterally or knife-cut (3 with additional knife cut, 3 from F82) across the lateral processes cutting from the ventral (3, F82) and posterior directions. Two similarly cut pig vertebrae (posterior and ventral cuts).

Sacrum: Cattle: midline breakage, transverse trimming of anterior and also lateral trimming. In sheep ventral cuts on one appear continuous with those on lumbar vertebrae, and 'cuts (from posterior) on one anterior medial ilium. Also dorsal and lateral breakage, the latter may match breakage or chopping on the anterior ilia (2).

In sum, chopping or cutting of the lateral edges is nearly as common as butchery marks on all other aspects



7.5 Breakage and cutting on distal humerus of cattle

of the vertebrae. Transverse, dorsal, and ventral marking are each as common as medial breakage. Complete vertebrae are not unusual and therefore any completely equal division of the carcass is unlikely.

(c) The rib cage

Sheep ribs are occasionally knife-cut or broken at the vertebral condyles usually on the ventral side (cf. cattle: Grant 1975a) and suggest a continuation of the lumbar process cuts. This may mark the separation of the flanks and not meat removal since most cuts should occur on the dorsal side of the ribs where most of the meat lies. Dorsal cuts, however, were noted at Guiting Power (Glos) (Wilson, unpublished). It is noted that the sheep in F82 did not have the rib cage removed (p. 124).

A sheep sternum segment has been chopped through in the midline and three others similarly broken, one of which has cuts parallel to the break; all indicating division of the brisket. Since this did not occur in F82, butchery may have been incomplete or different on this carcass,

(d) *The limbs and limb girdles*

In the diagrams, knife cuts and ancient breakages are recorded on drawn aspects of various bones. The arm was to depict major break and cutting areas rather than attempting an analysis in detail. Accuracy is limited by the manner of recording, by size, and by minor morphological variations of the bones. Arrows show the likely direction from which the bone was fractured on partlcular specimens. All illustrated bones are of cattle except part of a sheep's hock joint.

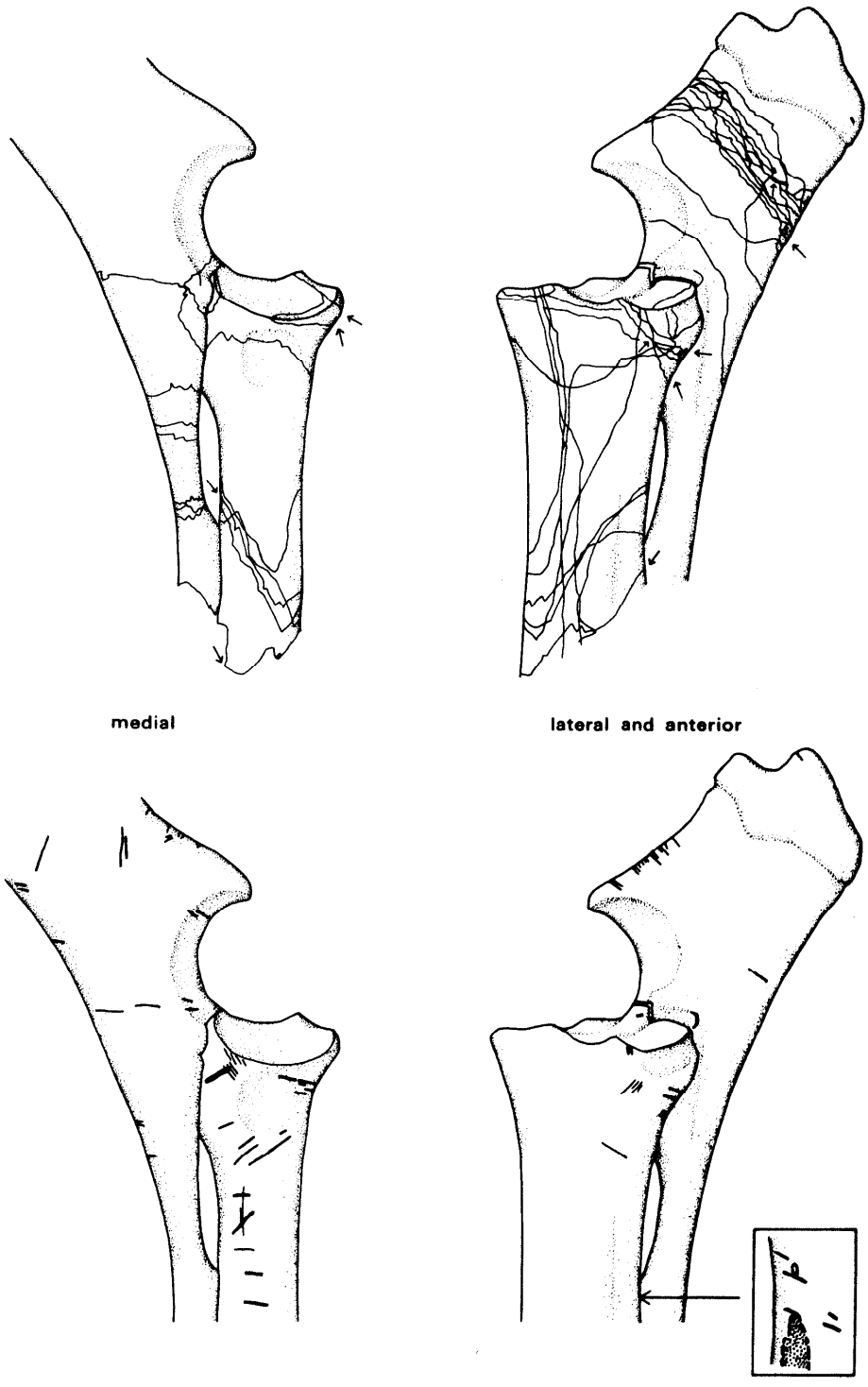
Shoulder joint (Fig. 74): On proximal cattle scapulae ancient breakage is most common 10-20mm behind the glenoid cavity, secondly through the anterior edge of the tuber scapulae which also tends to be broken on the ventral side, and thirdly along the spine, which is relatively fragile. Butchery is likely to have caused the first two breakages. Some knife cuts occur around the first breakage area and others on the edge of the glenoid cavity.

On the few surviving proximal humeri the medial (blow direction unknown) and lateral tuberosities (dorsal, anterior, and medial blows) are broken. In sheep and pigs cuts occur on the tuber scapulae and around the glenoid cavity and also breakages of the scapula neck are common.

Elbow joint (Figs. 75 and 76): The two most frequent breakages are seen to be through the olecranon fossa above the epiphysis of the distal humerus (some posterior blows) and through the olecranon of the ulna below the epiphysis (some lateral and possibly some posterior blows). Chops away from the joint broke two radii in the midshaft. Other blows toward the joint trimmed off the anterior and lateral edges of the proximal radius.

Two breaks through the radius truncate cuts so are subsequent to them. Knife cuts on the posterior of a radius (inset, Fig. 76) must have followed the removal of the ulna shaft. Note that cuts particularly those on the medial humerus often parallel the major breakages. Other cuts on the shafts are notably different in their orientation.

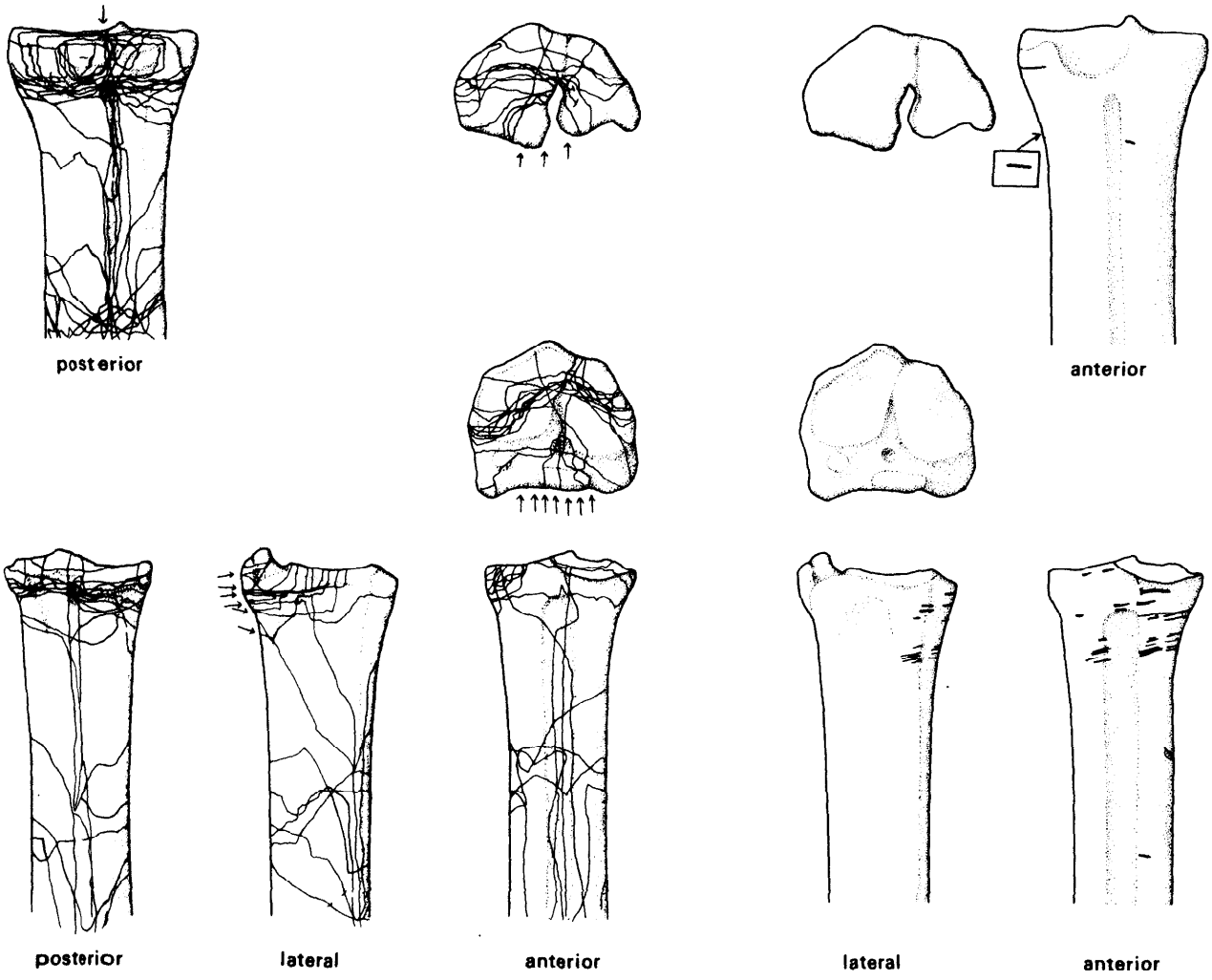
Carpal joint: A few transverse and oblique cuts on the anterior distal radius and two transverse cuts on the



76 Breakage and cutting on proximal radius and ulna of cattle

posterior articulation surface. Some breakages seemed more related to the midshaft. Most common breakage of the proximal metacarpal occurred posteriorly 1-2 cm below the articulation surface. Apparently blows from the posterior broke the bone transversely and upward, removing various parts of the articulation surface (Fig. 77). This pattern is quite distinct on cattle metatarsals. Metapodials show midshaft breakage and some are split longitudinally, while others show no marks at all. An occasional transverse cut occurs on the anterior proximal metacarpal, but seem more common on the equivalent area of the metatarsal.

Pelvic joint: The pelves are rarely intact because of breakage through the acetabulum (mainly ventral or lateral blows, one dorsal) and occasionally through the mid ilium. The medial dorsal edge of the central pelvis is sometimes nicked or trimmed off. One femur head is chopped off (anterior-dorsal blow) and another break indicates a dorsal blow as if chopping is also directed across the edges of the acetabulum (cf. Rixson 1973).



77 Breakage and cutting on proximal metapodials of cattle

Knee or stiffle joint: Few of the relevant epiphyses are represented. Breakages of the distal femur occur on the lateral side of the lateral condyle (4) and the medial ridge of the trochlea (3). On the proximal tibia breaks occur on the medial (4) and lateral (3) sides of the tuberosity and on the edges of the lateral (4) and medial (4) condyles. Knife cuts on a femur occur above one medial condyle and on the medial side of the medial trochlea.

Hock joint (Fig. 78): The most important breakage for cattle appears to be that of the distal calcaneum (posterior 3, lateral 2 and anterior blows)—cf. the olecranon (Fig. 76). Breakage of the distal tibia is related to the midshaft; that of the metatarsal is already described (carpal joint).

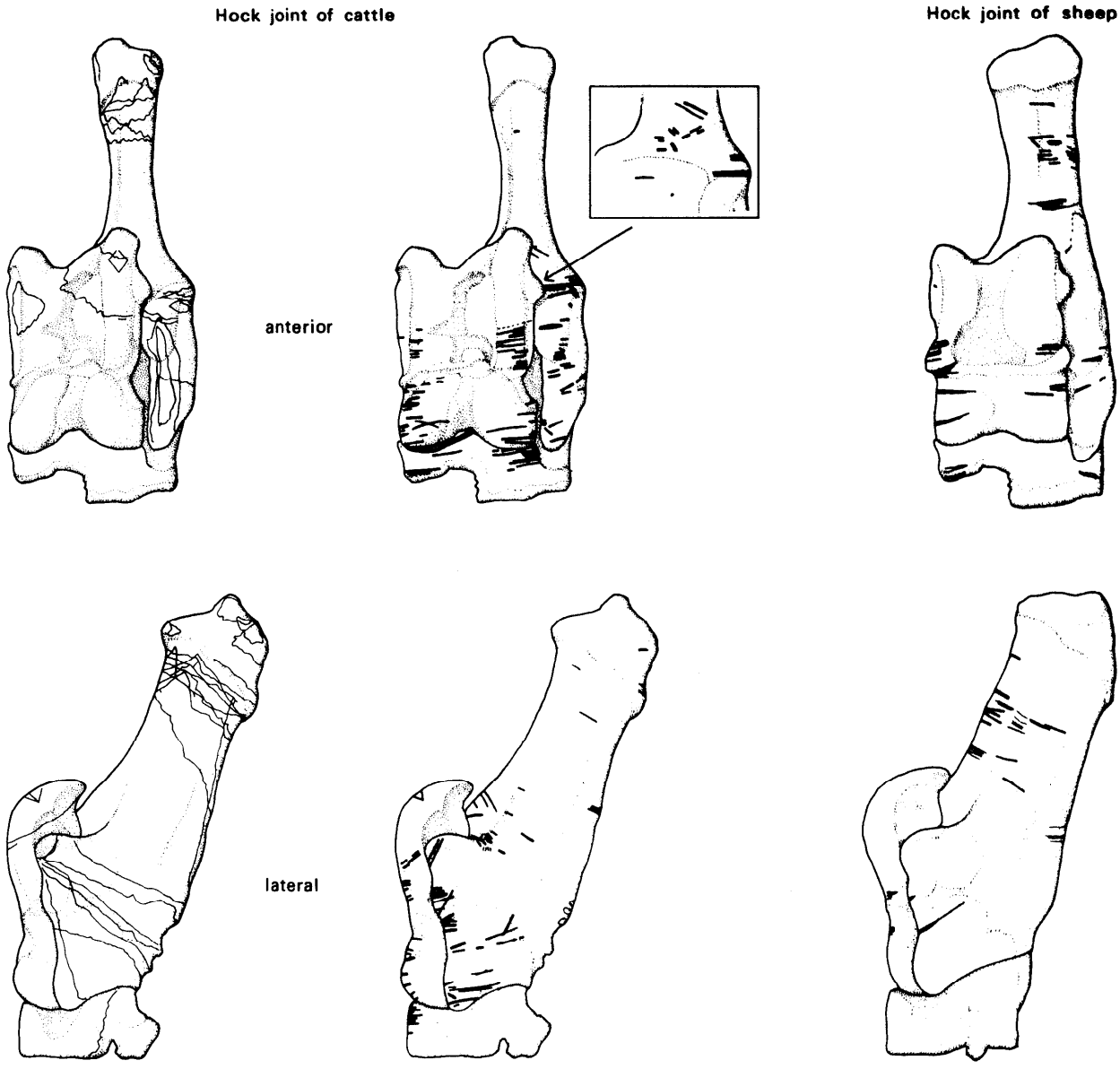
Transverse cut marks are prolific *on* the anterior of the astragalus (parallel to those on the cuboid and metatarsal) and also on' the lateral side of the calcaneum. Where the astragalus would be covered by the distal tibia there are virtually no cuts. Some cuts on the distal astragalus indicate an unflexed joint at this juncture in butchery. The inset in Fig. 78 shows cuts on the anterior calcaneum, which indicate that the joint must have been more flexed for cutting between the tibia and calcaneum.

Similar cuts to these occur on the hock joint bones of sheep, except that the cuts on the anterior calcaneum are made more distally. Recorded breakages are too few to assess. In both sheep and cattle rare cuts on the articulation surfaces between the astragalus and the calcaneum, (e.g. inset, Fig. 78) and between the cuboid and the astragalus indicate the taking apart of the joint.

Other butchery marks: Time prohibited an equivalent survey of sheep and pig bones, and several other aspects of cattle butchery have also been neglected (e.g. the extremities of the limb bones). However, it is noted that occasional transverse knife cuts occur on dorsal and lateral sides of first phalanges of cattle (3) and horse, and another of cattle and one of pig seem affected by deliberate chopping.

Some horse limb bones have similar marking and breakage to those in cattle, e.g. anterior cuts on the astragalus (F180), breakage of the distal calcaneum (F430), broken tuber scapulae (F65), and trimmed or nicked lateral proximal radius (F 134).

A humerus of an immature dog has medial knife cuts on the shaft (P1. XVIc: cf. Fig. 75, F125). A dog ulna has transverse cuts on the lunar notch which continue on the lateral side, clearly indicating the disjointing of the elbow (PI. XVId F46).



78 Breakage and cutting on astragalus and calcaneum of cattle and sheep

Horn and bone working

Cattle horn cores were often crudely removed by chopping around the base and on the horn core itself. Two cores were sawn around, one 40mm from the base (PI. XVa) and one tip completely sawn through. The width of the saw cuts are 1.8 (F13) and 2.5mm (F327). The position of these marks indicate a preference for the distal horn sheath, the basal younger horn tending to be discarded.

Animal bone was used for various implements (p. 81) but some bone oddments can be added. These include those rounded by abrasion as though used in digging (e.g. the coronoid process of an intact cattle mandible (F65)) and more specifically shovelling of soil or grain (e.g. the ramus of a horse mandible (F 125) and two cattle scapulae (F48, P1. XVb, c)). Of bone working, a splinter of sheep bone, perhaps a radius, is partly shaped, perhaps for a pin (F26), and a distal horse metacarpal is sawn through (with knife/chop marks parallel to the saw cut) and is an offcut from the use of the shaft (F84).

Site distribution of bones

Average densities per cubic metre of both identified and unidentified bones were calculated for the essentially cylindrical shape of each pit where it was not truncated by later features. The distribution of these densities ranged from zero to 64 identified fragments per cubic metre and to 115 unidentified fragments per cubic metre. These distributions were significantly different from Poisson curves ($p < 0.05$) for their average densities of 9.5 identified and 18.8 unidentified fragments per cubic metre.

Period 1 Iron Age ewe sheep—pit F82

Both forelimbs including the scapulae were missing from this articulated skeleton. The surviving horn and the

pelves indicate a ewe sheep. although the pubic portions are more slender than in other female pelves in the sample. The tuber calcis is the last-fused epiphysis. while the femur and the proximal tibia have unfused epiphyses. In the mandibles and the maxilla p2 M2 are in wear. M3 is visible in the crypt. Tooth wear is nearly identical in the mandibles. Slight bone outgrowth occurs on the distal medial side of a first phalanx. Long bone total lengths are: both immature femurs 156mm. immature tibiae 182. 183 mm. calcanea 48. 49 mm. and both metatarsals 126mm; approximate outer curvature of the horn 78 mm. Three lumbar vertebrae bear transverse ventral cuts on both lateral processes, and three others are anciently broken through. The sacrum, ribs, and a sternal segment are unmarked. Transverse cuts occur on the anterior of the left astragalus.

Discussion

The metatarsals indicate a withers height of 0.57m while the calcanea indicate 0.55 0.56 m (Teichert 1975). Unimproved sheep have relatively short upper limb bones. and this is shown by a Soay ewe skeleton from the Iron Age Experimental Farm on Butser Hill (Hants). Estimates from its bones indicate a height of 0.53 0.56m. the metapodials giving the greater figure. Its estimated average height is 0.55 m. The average height from the stiff immature upper limb bones and metatarsals of the Ashville sheep is 0.56m. The error within Teichert's method may be about 3°。 when applied to Iron Age sheep bones.

The mandibles are at Stage D, perhaps 1 2 years of age (Payne 1973); 18th century tooth data suggests 21 30 months (Silver 1969). An estimate from tooth wear based on the latter data indicates an age of 21 23 months (mandible M2 31 mm. M1 20mm: amended Table I. Carter 1975).

However. cross-bred epiphyseal fusion data suggest 30 36 months of age. For early maturing sheep this could be as low as 15-18 months given a high plant of nutrition and shelter (Silver 1969). which seems unlikely.

By comparison. the Butser ewe is about 3½ years old (P Reynolds. pers. comm.) which agrees with the cross-breed epiphyseal fusion data (tuber coxae yet to fuse. limb bone epiphyses all fused). Its mandibles are Stage E. perhaps 3-4 years old. The Stage E series at Ashville would rank it neither early nor late. The canines area visible in the crypts, i.e. 36 48 months on modern eruption data. 42 50 months on 18th century data. and on Hirta 48 60 months (Benzic and Gill 1974). Carter's method ages it as29 34 months (mandible M1 20mm. abnormal?. M2 28mm. and M3 34mm: maxilla M1 20mm. M2 27mm. and M3 31 33mm), i.e. about 8 13 months too early.

For the Ashville ewe the difference between the epiphyseal age and the age estimate from Carter's method is 7 15 months. The moderate consistency of these results and the likelihood that tooth wear should be more rather than fess in Iron Age sheep suggest that the real ages are underestimated by the wear sequence of Carter.

Payne's method for Turkish sheep ages the Butser Soay quite well but gives an age 6-24 months fess than the epiphyseal fusion age for the Ashville sheep. Little evidence exists about the Soay's epiphyseal fusion rate in England, but about 5 years pass before it is completed under severe environmental conditions on Hirta (Benzic and Gill 1974). i.e. apparently up to 1½i years after the Butser ewe had virtually attained skeletal maturity. This ewe received supplementary feeding; it is debatable whether prehistoric sheep did so, but the point is that epiphyseal fusion was likely to be later rather than earlier, if not as modern cross-breed data indicate. Therefore the mandible age estimates are questionable.

The different age estimates based on the incisors of the Soay show that tooth eruption is restricted by unfavourable environmental conditions. It should not be surprising if teeth are found to erupt more slowly in prehistoric times. It would be confirmed by 18th century information even if the given ages will be more variable than listed by Silver.

A Butser Soay ram skeleton in the possession of Peter Reynolds died about 15 16 months of age. Its epiphyseal data indicate 13 16 months but the M2 had yet to crupt Modern eruption data age it at least 3 months too early. Eighteenth century data are not inappropriate. The milk teeth are still present and the permanent incisors unerupted i.e. modern data are almost inappropriate. 18th century data indicate less than 18 months, and Hirta data 12 24 months.

The meagre indications are that in England 18th century data offer a better guide to prehistoric sheep ages than modern data. It is however, doubtful from toothwear that the M3 of the Butser ewe crupted later than 36 months of age. At the moment one can only conclude that the age of the Ashville sheep was 30 36 months. more if epiphyseal fusion was delayed and if the eruption of M3 usually occurred much after 36 months.

The carcass was probably skinned and certainly was gutted. Cuts on the astragalus may indicate skinning but not disjointing as similar cuts on disarticulated astragali might indicate. Absence of the complete forelimbs shows that they were removed by cutting underneath the shoulder blades. Apart from this and perhaps the tail, the skeleton remained articulated. Ventral vertebral cuts indicate that some if not most (p. 119) of the meat was stripped off but the marrow bones. the brain. and possibly the head meats were not exploited

Period 1 Iron Age ram, part-skeleton—pit F82

Six limb bones. two matching pelves. and a matching maxilla and mandible appear to be from one individual. The pelves indicate a ram sheep. The acetabulae are fused. the epiphyses of a first phalanx and of the other bones are unfused. On the mandible and maxilla the milk premolars and M 1 are in wear while M2 is visible in the crypt Total lengths of bones immature femur 150mm est., immature tibia 164mm. and immature metatarsal 119mm. Transverse knife cuts occur on the ventral ilium adjacent to the sacral articulation, and other ventral cuts parallel to the medial articulation of the pubic portions and one cut on the lip of the acetabulum of one pelvis.

Discussion

A withers height from immature bones is dubious but these indicate an average height of 0.52 m. The mandible is at Stage C. perhaps 6 12 months of age, or 6 18 months on 18th century data. Tooth war indicates 11 13 months (p4 12mm. M1 27 mm). Cross-breed epiphyseal fusion data Indicate 6 16 months. With the first molar in wear the age is possibly between 11 16 months.

The knife cuts Indicate meat removal from around the pelves, perhaps the disjointing of the femur: other disjointing signs are not evident. The pelves are virtually intact but the absence of vertebrae is noted. The bones represent the hind part and the head of a young ram but do not suggest a high degree of articulation.

Iron Age puppy—pit F63,

Thirty-nine bones excluding ribs seem to represent a completely articulated skeleton. None of the post-natal

epiphyses are fused. Milk teeth arc missing except for p3 which is nearly ejected, canines are just erupting, and PI and 2 perhaps about to erupt. M1 and M2 erupted but not in wear, M3 in crypt. Total lengths of immature bones: radius 103mm, femur 122mm est., and tibia 117 mm est.

Discussion

The tooth eruption sequence agrees with that given by Silver (1969) and the modern age equivalent is just over 5 months of age. A shoulder height is suspect; perhaps about 0.35m.

Period 3 Iron Age dog–ditch F392

Twenty-eight bones excluding ribs doubtfully representing a complete skeleton, since it was partly disarticulated by ancient breakage. Both distal femora are broken off as are the trochanter major regions, possibly chopped from the anterior. A cut occurs on the anterior surface 25mm from one of the latter breakages. A posterior cervical vertebra (6th.) has been chopped through (lateral-ventral blow.) and the dorsal surface bears transverse cuts.

Both proximal femurs are fused and M3 has erupted. Total length of radius: 184mm msd index 8.1. Skull measurement XI (Harcourt. 1974b) 71 mm.

Discussion

Although the pubic bones are unfused medially, Silver (1969) does not say if they do, so this dog was mature or nearly so. The length of the radius is outside the upper range and two standard deviations from the mean of Iron Age dogs (n=59) and 1.4 s.d. from the Romano-British mean n=154 (Harcourt 1974b). so at present this dog is unusually tall but not of unusual build for its period. The esteimated shoulder height is 0.605m.

A single skull rneasurement and the gap of the missing Ml indicate a skull size within the range of Iron Age dogs, and this individual is unlikely to be wolf.

Dismemberment and possibly meat removal occurred. Although the neck was severed part of the skull occurs with the deposit. Yet the anciently broken bones and Those which are missing are also suggestive of in wide seatter of debris.

Period 3 Iron Age dog-ditch F103

Fifty bones. no ribs. and only one vertebra. All the ageable epiphyses including the tuber coxae are fused. On the only mandible the incisors are missing and their sockets are filled with bone. The canine is broken off and the base shows wear on the lateral side. Lateral and dorsal breakage occurs on the thoracic vertebra. Limb bones and pelves are intact. Total length measurements are: both humeri 148mm. radius 145 (R). 146mm. ulna 171 (R). 173mm. both femuri 161mm. tibia 162 (L). 163mm. both calcanea 41mm. Mean msd index 7.8. There is no sing of butchery.

Discussion

This dog has an estimated shoulder height of 0.48 0.49m, only slightly less than average for Iron Age dogs. It was mature, more than 2 years old, evidently living for some time after the loss of the incisors and the breaking of the canine. This damage might have been caused by a blow on the mouth rather than by more general altrition since tooth wear is slight and not indicative of as old a dog as some mandibles (p. 135)

Iron Age horse hind leg—posthole F430

Unfortunately the JCB carried away the femur above the fused distal epiphysis. Total length of tibia 318mm, lateral length 291 mm distal width 61 mm. Total length of metatarsal 233 mm. lateral length 225 mm. and the minimum shaft width (breadth) is 22mm. Third and central tarsals (navicular and lateral cuneiform) arc completely fused but there is little sign of osteoarthrosis elsewhere. At least three small cuts occur on the tibia shaft and the tuber calcis is broken probably chopped off (cf. p. 122). Puncture marks, probably from dog gnawing, mark the distal femur and the distal metatarsal.

Discussion

This horse was at least 3 years old. which is of interest in the onset of osteoarthrosis, which here seems unlikely to have hindered joint movement much. No method appears suitable for shoulder height estimates. Kiesewalter's factors (Boessneck and von den Driesch 1974) indicate 1.2 m 'from the metatarsal and 1.27m from the smaller tibial measurement. Meat was cut off the leg and the bones were partly gnawed before the still articulated bones were buried in the posthole.

Period 2 Iron Age calf, part-skeleton-pit F303

Remains of a skull including a mandible with an atlas arch. scapula. humerus, and-tibia likely to be from the same individual. All epiphyses are unfused. Milk premolars are crupted. p4 is in wear. Ml unerunted. Total lengths of immature bones: humerus 110mm est., tibia 150mm est.

Discussion

Almost certainly less than 6 months old. and both the unfused atlas arch and milk premolar eruption indicate 2 6 weeks old.

Period 1 Iron Age immature cattlebeast, part-skeleton-pit F288

Basal and posterior end of skull, lacking mandibles: lower left hind leg. i.e. distal tibia with anciently broken midshaft, calcaneum, metatarsal. and phalanges. All epiphyses unfused. Milk teeth and M1 in wear. M2 visible in crypt. About 5mm of incipient horn core on skull. Length of metatarsal 166 mm est.

Discussion

Epiphyseal fusion data are unhelpful-less than 18 months; 18th century eruption data indicate the same. Allowing 3 months for M1 to come into wear, it was at least 9 months of age. An estimated shoulder height of 0.91m (Fock 1966) is possibly excessive. The skull might have been moderately complete on entering the pit and the lower limb was noted as being articulated.

The cattle skulls

Three adult bucrania appear to be of a similar form. but in the immature skull in F288 the sagittal profile is very obtuse, less than rounded. and far less than the pointed profile of the adults. The frontal profile is convex or convexly bossed, and the intercornual ridge seems more similar to a high double-arch rather than a low double-arch form. Together these characteristics of the skulls do not correspond to those of any particular breed described by Grigson (1976).

The skull in F71 is moderately complete although lacking mandibles and the horn tips are broken. partly through ancient breakage. It appears to be of a castrate or male (p. 126). All the molars arc present and are moderately worn. The right side horn core has cuts around the base. indicating horn removal. More or less transverse cuts occur medially between the horns. between the orbits (4) and on the nasal bones.

In F114 the horn tips are broken and the lower jaws and the maxillae teeth are missing. However, the M3 had erupted and this was a mature beast, and a bull. There are no obvious butchery marks.

The posterior half of a skull in F27 has suffered considerable ancient breakage of the horns, anterior brain case, and lateral and basal portions. Transverse cuts occur on the frontal between the horns and orbit.

Any ritual implications about the presence of nearly complete skulls ought to be made considering that a continuum of cranial debris in varying degrees of intactness can be shown, e.g. F27 and what appears to be a chopped up cranium in F392. It should be noted that the most complete skulls occur in pits (F71, 114, and 288) not ditches. The presence of butchery marks indicate that skinning and horn removal occurred on most skulls and an absence of complete mandibles indicate that head meat removal also took place.

The sex of the cattle horn cores

By Philip Armitage
(British Museum (Natural History))

The results record the feature number first followed by measurements in millimetres of the basal circumference (unbracketed figures) and the outer curvature (bracketed) of the horn core. Measurements were made by R Wilson and found difficult to take consistently.

Iron Age cores

(a) Short-horned group. Male; F13 115 (115 est.), F27 120 (95 est.), F48 113 (89), F180 105 (120 est.), F392 115 (107). Castrate; F27 (skull) 144. Castrate/male; F71 (skull) 122, 124 (-).

(b) Medium-horned group. Male; F114 (skull) 174, 177 (165 est.), F392 165 est. Castrate; F413 175 est. Medium/short -horn castrate; F15 163.

Romano-British cores

(a) Medium-horned group. Castrate; F197 183, possibly F30 185 est. Medium/short horn male; F30 (150 est.).

A comparison of the age structure at mortality of some Iron Age and Romano-British sheep and cattle populations

By Julie Hamilton

Introduction

Three methods of recording tooth eruption and wear sequences were used to examine the mortality age structures of Iron Age and Romano-British sheep populations at the Ashville Trading Estate site, Abingdon. One method was used to record the cattle mandibles. The Ashville age structures were compared with the preliminary results from Barton Court Farm, Abingdon, and with those from the sites examined by previous authors.

The sheep mandibles

A sample of 226 sheep mandibles and mandible fragments was available from Ashville, and 91 from Barton Court Farm (excavation in progress) (Table XXII). Not all the Ashville material was suitable for examination, as some mandibles lacked recordable teeth, so that the actual sample examined in each case was smaller. Since only 84 could be assigned reasonably reliably to one of the three Iron Age periods or to the Romano-British period at the site, comparisons between different periods are based on even smaller samples. The actual sample numbers used are given in the relevant tables and diagrams. At Ashville at least two pairs of mandibular rami appeared to be from single individuals and it is possible that a few goat mandibles were present (see p. Ill). It was assumed that these factors would not affect the results significantly.

The sample from Ashville was analysed separately by each of three methods (Ewbank *et a/* 1964; Grant 1975b; Payne 1973). It has been possible to equate the stages used by each of the three authors, to compare the results, and to make some assessment of the usefulness of each method. The methods as described by each author were followed as closely as possible, to ensure comparability with results by other workers.

The eruption sequence of the teeth: the method of Ewbank et al (1964)

191 mandibles and mandible fragments of Iron Age sheep from Ashville were studied by the method of Ewbank *et al (* 1964).

The sequence of tooth eruption obtained was generally similar to that found at Barley, but there seemed to be more variability within those from Ashville and the sequence differed in detail. For these reasons it was found rather difficult to fit the Ashville sequence into the stage terminology suggested for Barley. There are several possible reasons for this variation. It may be that my

Table XXII Stage distribution of Iron Age sheep mandibles from Ashville

Stages as in Ewbank *et al* (1964)
IA: all Iron Age
IA2: second period of Iron Age only

Suggested age	Stage	No. (IA)	No. (IA2)	Stage	No. (IA)	No. (IA2)
	d	2				
	e	10	5			
3m	*f*	2	1	f-e	8	2
	g	1				
	h	2	2			
6m	*i*	10	2	i-k	1	1
	j	1		j-k		8
				j-n		1
				j-p	8	1
				j-q	13	2
	k	13	5	k-p	1	
	l	3		l-q	11	
12m	*m*	1				
	n	1	1			
15m	*p*	2	1	p-q		3
	q	14	6	q-r	2	
				q-t	3	
18m	*r*	1				
	t	4	4			
21m	*u*	1		u-w	1	
24m	*w*	4	1	w-y	2	
	x	8	4			
	y	4	1			
	z	57	21			
Total		141	54		50	18
					191	72

Table XXIII

Site	Stage	Jaw	M1	P2	M2	P3	M3	P4	M11	M12	M21	M22	M31	M32	M33	No(IA)	No(IA2)
Barley	*k*		W	–	W	–	W	–	W	W	V	C	–	–	–		
Ashville	*k*	1	W	–	W	–	W	–	W	W	V	C	–	–	–	4	2
		2	W	–	W	C	W	–	W	W	V	C	–	–	–	3	1
		3	W	C	W	C	W	–	W	W	V	C	–	–	–	1	1
		4	?	?	W	C	W	C	W	W	V	C	–	–	–	1	0
		5	?	?	?	?	W	–	W	W	V	V	–	–	–	1	1
												Total (excluding attributions)				10	5

criteria for judging the tooth eruption stages (especially E–U) were not identical to those used by Ewbank *et al.* If this is the case, it is a pity that the stages were not more closely defined in the original report to ensure comparability of results between different workers. Nevertheless, the classification of each jaw was found to be consistent when checked, so that any deviation due to this cause is systematic and should not affect the overall result greatly. The ages suggested by Ewbank *et al.* should perhaps be applied with some caution to the Ashville material, however.

The variability in the eruption sequence might be due to the lumping together of sheep mandibles from the three different Iron Age periods at the site. This does not account for it completely, however. If one takes stage *k* at Ashville, for instance, five variations were observed (see Table XXIII).

Of the five variations (four of which were not reported from Barley) four were present in Iron Age mandibles of the middle period at Ashville. Thus, the sheep population of this period at Ashville was not homogeneous, which could be due to various factors, nutritional or genetic. It was not possible to say whether this variability was related to specific differences between sheep and goats.

Apart from this variability, there are differences in the eruption sequence of the teeth between the sheep at Barley and at Ashville.

The premolars seem to begin eruption earlier in relation to the molars than at Barley (stage *k* onwards) and to come into wear in the order P4–P3–P2, whereas at Barley, P4 and P3 appear simultaneously (stage p onwards) with P2 appearing later (stage *s).* Nevertheless there is considerable variability at Ashville, for in some jaws the eruption of the premolars is delayed relative to Barley. Examples of these variations are given by jaws 2, 3, 4 (Table XXIII) and in Table XXIV. There also seems to be some variation in the eruption of the third molar, with the second cusp appearing slightly earlier than expected; it is possible that this last is an observational difference. Examples showing these variations and the extent of variability are drawn from Ashville stage *q* (Table XXIV).

Jaw 7 shows an interesting anomaly observed in five of 191 mandibles: the absence of P2 and any visible trace of its socket. It was observed also in the Iron Age and Roman sheep from Barton Court Farm (2/32, 1/59 respectively) and in the Roman sheep from Ashville (1/7). This anomaly is discussed by Andrews and Noddle (1975).

Later stages show the same types of variations from the Barley sequence, with the premolars consistently ahead (Table XXV).

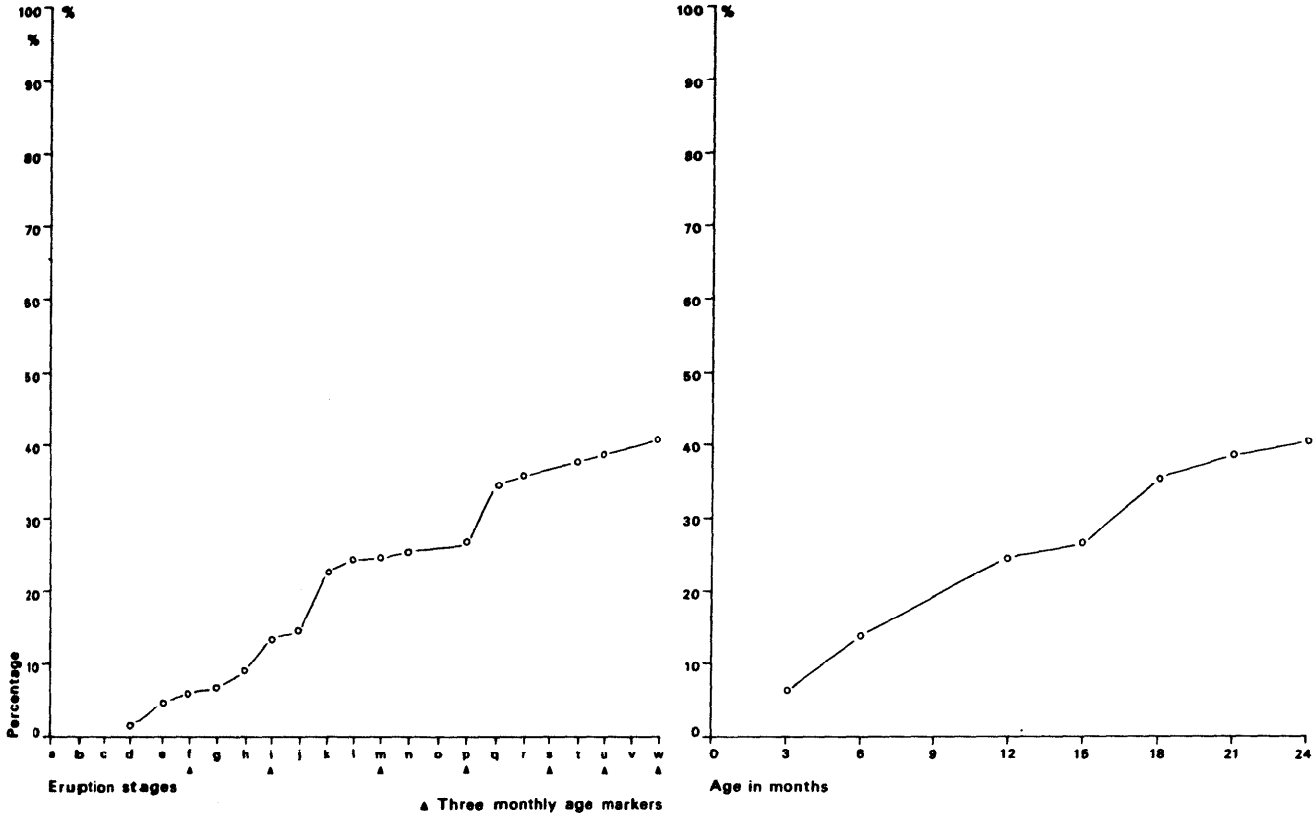
The variation shown in jaw 13 is the same as that found in the Anglo-Saxon jaws from Cox Lane (Ewbank *et al.* 1964), and that in jaw 10 the same as variation found in the Iron Age jaws from Croft Ambrey (Whitehouse and Whitehouse 1974) but apart from these no other parallels for the Ashville variations are known to this author.

Table XXIV

Site	Stage	Jaw	M1	P2	M2	P3	M3	P4	M11	M12	M21	M22	M31	M32	M33	No(1A)
Barley	*q*		W	–	W	V	W	V	W	W	W	W	V	–	–	
Ashville	*q*	6	W	–	W	C	W	C	W	W	W	W	V	C	–	1
		7		X	W	C	W	V	W	W	W	W	V	V	C	1
		8	–	C	W	C	W	V	W	W	W	W	V	C	–	1
		9	W	C	W	V	W	E	W	W	W	W	V	?	–	1

Table XXV

Site	Stage	Jaw	M1	P2	M2	P3	M3	P4	M11	M12	M21	M22	M31	M32	M33	No.
Barley	*t*		–	V	–	E	–	E	W	W	W	W	½	E	–	
Ashville	*t*	10	–	V	W	E	W	E	W	W	W	W	½	E	C	1
		11	–	½	–	W	–	W	W	W	W	W	½	E	–	1
Barley	*u*		–	E	–	½	–	½	W	W	W	W	U	½	E	
Ashville	*u*	12	–	J	–	W	–	W	W	W	W	W	U	½	?	1
Barley	*w*		–	U	–	J	–	J	W	W	W	W	W	J	½	
Ashville	*w*	13	–	J	–	W	–	W	W	W	W	W	W	J	½	1
		14	–	W	–	W	–	W	W	W	W	W	W	J	E	1
		15	–	–	–	W	–	W	W	W	W	W	W	J	E	1



79 Cumulative percentage graphs of Iron Age sheep killed at Ashville from Ewbank et al. *'s method of ageing the mandible*

The great majority of the Ashville jaws show variation from the sequence found at Barley, principally in the eruption of the permanent premolars and possibly in the eruption of M3. Apart from this, the jaws correspond well to the Barley sequence, and there are jaws which correspond exactly to stages *g*(1), *h*(2), j(1), *k*(2), *m*(1), *x*(4), *y*(4), and *z*(57). The data were fitted as well as possible to the stage terminology of the Barley sequence (Table XXII) in order to compare the results from the two sites.

Cumulative frequency graphs were prepared (Fig. 79) to compare with those given by Ewbank *et al.* The Ashville sample shows peaks in mortality at stages j-k and q-t (about 6-9 months and 16-20 months after birth). When this graph is redrawn using age estimations, it is somewhat smoothed, particularly in the 6-12 month range, as no stage is given as corresponding to 9 months, but there is nevertheless a discernible peak in mortality in the 15-18 month region. This is in contrast to the results at Barley, where mortality was considered to be steady throughout the year. There was no significant difference between the stage distribution in the middle period of the Iron Age and the overall distribution (Kolmogorov-Smirnov test, $p > 0.05$). It was not possible to compare the Barley results statistically as figures were not given.

Tooth-wear stages: the method of Grant (19756)

154 Iron Age and 7 Romano-British sheep mandibles and mandible fragments from Ashville were studied by the method proposed by Grant (1975b). This sample is somewhat smaller than that studied by the method of Ewbank *et al.* ; it was principally young mandibles which could not be closely fitted into the sequence, and thus there is probably a bias towards older jaws. 32 Iron Age and 59 Roman Jaws from Barton Court Farm were also studied for comparison. The results are displayed as histograms (Fig. 80). The Romano-British sample from Ashville was too small to draw any conclusion from; in Fig. 80 it has been included with Roman material from Barton Court Farm, to give a general Roman period-Iron Age comparison.

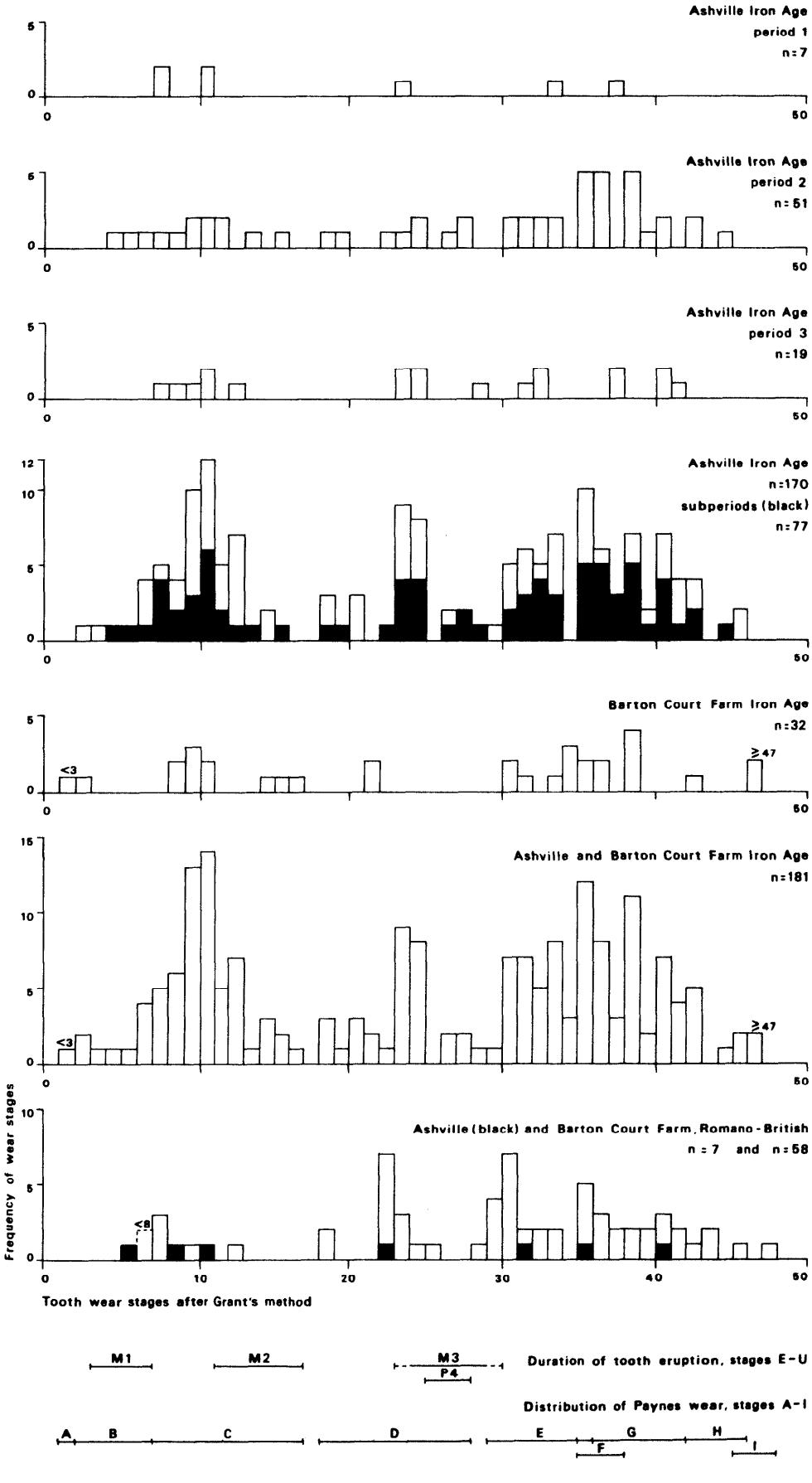
77 mandibles could be assigned to the first (7), second (51), and third (19) Iron Age periods at Ashville. There was no significant difference between the stage distributions at each period or between these and the overall distribution (Kolmogorov-Smirnov test, $p > 0.05$). This to some extent may be due to the small sample size, particularly for the first and third periods. The stage distributions of the dated jaws are very similar to the overall distribution by the same test. For the purpose of comparison, then, we are justified in taking the overall stage distribution as representative.

This shows peaks in mortality around stages 9-13, 24-25, 31-34, 36-37, and 39-41.

Tooth-wear stages: the method of Payne (I 973)

170 Iron Age sheep mandibles from Ashville were studied using the method proposed by Payne (1973). Of these, 77 could be assigned to the first (7), second (51), or third (19) periods of the Iron Age at Ashville. 96 mandibles from Iron Age and Roman contexts at Barton Court Farm were also studied for comparison. The results are given in Table XXVI.

There was no significant difference between the stage distribution of the sheep mandibles of different periods of



80 Tooth eruption and wear stages of sheep mandibles from Ashville and Barton Court Farm

Table XXVI Stage distribution of Iron Age and Roman period sheep mandibles from Ashville and Barton Court Farm

Stages as in Payne (1973)
IA1 : first Iron Age period at Ashville
IA2: second Iron Age period at Ashville
IA3: third Iron Age period at Ashville
no : final corrected count

Stage	Suggested age	Ashville IA1		Ashville IA2		Ashville IA3		Ashville 1+2+3		Ashville all IA		BCF IA		BCF Roman	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
A	0-2 m	–	–	–	–	–	–	–	–	–	–	1	2.6	–	–
B	2-6 m	–	–	3	5.9	–	–	3	3.9	8.4	4.9	1	2.6	–	–
C	6-12 m	3	42.9	9	17.6	6	31.6	18	23.4	63.8	37.5	13.1	34.5	4	6.9
D	1-2 y	2	28.6	10	19.6	5.4	28.4	17.4	22.6	39.5	23.2	2.4	6.3	14.3	24.6
E	2-3 y	–	–	7	13.7	2.2	11.6	9.2	11.9	11.3	6.6	6.6	17.4	16.3	28.1
F	3-4 y	1	14.3	3	5.9	–	–	4	5.2	4.2	2.5	3.3	8.7	7.7	13.3
G	4-6 y	1	14.3	16	31.4	4.4	31.4	21.4	27.8	34.4	20.2	6.6	17.4	9.0	15.5
H	6-8 y	–	–	3	5.9	1	5.3	4	5.2	7.4	4.4	3	7.9	3.7	6.4
I	8-10 y	–	–	–	–	–	–	–	–	1	0.6	1	2.6	3	5.2
	Total	7	100.1	51	100.0	19	100.1	77	100.0	170	99.9	38	100.0	58	100.0

the Iron Age at Ashville nor between the stage distribution of the dated jaws and the overall distribution (Kolmogorov-Smirnov test, $p > 0.05$). There was, however, a significant difference between the stage distribution of the middle Iron Age period and the overall distribution ($p < 0.05$). The number of mandibles in stages *C* and *D* is more or less equal in all the samples assigned to period, whereas in the overall sample the number of mandibles in stage C is considerably greater: this difference is not significant for the first and third Iron Age periods, probably because of the smaller samples. It seems, then, that a disproportionately great number of stage C mandibles could not be related to one or other of the periods of the Iron Age. It is unlikely that this is related to any economic factor, and no such discrepancy between the second Iron Age period and the overall distribution is revealed by either of the other methods.

Recording

The recording method proposed by Payne is both detailed and flexible and has the advantage that unusual wear states can be recorded. The record can be related directly to the wear stage terminology proposed by Grant. The method of Ewbank *et al.* requires more detailed recording of the tooth eruption stages, but it would not be difficult to modify Payne's recording method to include this information. If such a detailed record were made, the information could be analysed by any of the three methods and the sample need only be examined once: thus economy of time and detailed information could both be achieved.

Scope

The method of Ewbank *et al,* divides the sequence into 26 stages according to the eruption stage of the teeth. Stages *a-w* cover the first two years of life, while all dentally mature 'aws fall into stage *z.* Thus the method provides fine differentiation, perhaps to within a month, for the young jaws, but gives no information about the older laws.

The method proposed by Grant divides the sequence by criteria of tooth wear as well as tooth eruption, and can therefore differentiate the older jaws as well as the younger ones. There seems to be some bias against the younger jaws, however: these were often broken in such a way that they could not be accurately placed in the wear sequence. There is also some difficulty in the division of the later stages. In some cases different states of tooth wear can give the same wear stage number, e.g.

Jaw	M1	M2	M3	WS
1	*g*	*e*	*v*	24
2	*g*	*f*	*c*	24

Judging by the eruption of M3, 1 would be older than 2. Such overlaps (which may be due to abnormal wear, or variation in rates of tooth eruption) also occur in the regions 28-30 and 35-40, and can be observed also in the sample from Portchester studied by Grant (1975a). It is also worth noting that Grant's wear stages are, as she says, by no means equivalent in length. Jaws in which two or three of the permanent molars are in their mature wear stage (g) are likely to be more common simply because this wear stage persists longer. Thus peaks in stages 30-40 are not necessarily due to differential mortality over time.

Payne's method divides the sequence into nine stages on the basis of tooth eruption and wear. The division of the earlier stages is thus considerably less fine than that of the other two methods. This is compensated by the easier attribution of incomplete jaws to the correct stage, thus reducing the bias against more fragile jaws. The division of the older stages is less fine than that of Grant, but may in fact be more effective. The detailed results given by the two methods do not correlate well in this region (Fig. 80): in terms of Grant's stages, Payne's stage Foverlaps with *E* and *G.* This occurs in the region 34-37 and can be accounted for by the relative length of these wear stages (Grant) and their possible overlap. Thus, Payne's method is probably consistent in this region and is therefore the best for dividing the later part of the sequence.

Results

Up to the point where M3 comes into wear, it is possible to correlate the stages used by the three authors (Table XXVII).

Silver (1969) gives ages for the eruption of the various teeth in modern cross-bred sheep and 18th century hill sheep. Ewbank *et al.* adopted the former, and Payne's estimation of tooth eruption ages in modern Turkish

Table XXVII Comparison of the results of three methods of analysis of Ashville Iron Age sheep sample

		Ewbank *et al.*			Grant		Payne			Silver	
		Stage	Suggested age	Cumulative % mortality	Stage	Cumulative % mortality	Stage	Suggested age	Cumulative % mortality	Age (1)	Age (2)
Eruption	M 1	*c - d*	<3m		4-7		*B*	2-6m		3m	Text
of	M 2	*l - n*	10-13m	38.9	12-17	35.7	*C*	6-12m	42.4	9-12m	18m
(E - J)	M 3	*r - u*	17-24m	62.8	24-30	56.0	*D*	1-2y	65.6	18-24m	3-4y

(1) Ages of tooth eruption in modern cross-bred sheep
(2) Ages of tooth eruption in 18th century hill sheep (Silver 1969)

sheep also agrees more closely with the younger ages. For convenience, these results are discussed in terms of Silver's younger set of ages.

The results of each method of analysis show similar percentages killed by 12 months and 24 months of age, particularly when the probable bias against younger jaws inherent in Grant's method is taken into account.

The stages in which peak mortality occurred also show correspondence:

	Ewbank		*Grant*		*Payne*	
	Stage	*?Age*	*Stage*	*?Age*	*Stage*	*?Age*
Peak	*i - k*	6-8m	9-13	<9-12m		6-12m
mortality	*q - t*	16-20m	24-25	18-24m	*D*	12-24m
at:	*z*	>2y	36-41	?	G	4-6y

Ageing

If it proves that the older tooth eruption ages given by Silver (1969) for 18th century hill sheep are more appropriate to British Iron Age sheep, the correspondence between the stages given above is not altered, but the ages at which peak mortality apparently occurred would be different. Our estimate of the age structure of the population would be considerably modified, and the economic implications would differ. Ewbank *et al.* consider the earlier set of ages more appropriate, and Payne's independent investigation on modern Turkish sheep also agrees with the earlier set of ages. Modern Turkish sheep may differ as greatly from Iron Age British sheep as modern cross-bred sheep, however, so this is not conclusive. Carter (1975) found that Silver's older set of ages for tooth eruption in 18th century hill sheep gave more plausible results when applied to his direct measurements of tooth wear in Iron Age sheep jaws. No conclusive evidence is yet available as to the ageing of the stages of tooth eruption and wear in British Iron Age sheep.

The sheep at Ashville

There was no significant difference between the stage distribution of mandibles from the first, second, and third Iron Age periods at Ashville (Kolmogorov-Smirnov test $p > 0.05$). The overall distribution is therefore taken as representative (though see above, p. 128, the 'Payne' section).

This shows peaks in mortality at certain stages, as set out in TabIe XXVII.

Using Silver's early set of ages, the first two peaks are about a year apart. If we assume with Ewbank *et al.* that lambs are born in February-March, they fall in August-November of the first year of life, June-November of the second year of life, and 65% of the mortality in the first two years falls within these periods. For reasons discussed above, it is not likely that mortality peaks a ear apart would be discriminated for dentally mature sheep, even if they occurred.

On the face of it, there is evidence for increased seasonal slaughter of one-and two-year old sheep with a high proportion of post-natal mortality occurring in one later part of the year.

Higgs and White (1963) have questioned the interpretation of this type of evidence in terms of autumn killing, on the grounds that when the jaws which could only be attributed to a group of stages are taken into account, such peaks are smoothed out. Payne takes a different view, assuming that such jaws will show the same distribution as precisely staged jaws (this is implicit in the calculation of the 'Final Corrected Count'). Carter (1975) also implicitly assumed the existence of yearly peaks in mortality when he selected Silver's older set of ages as more appropriate.

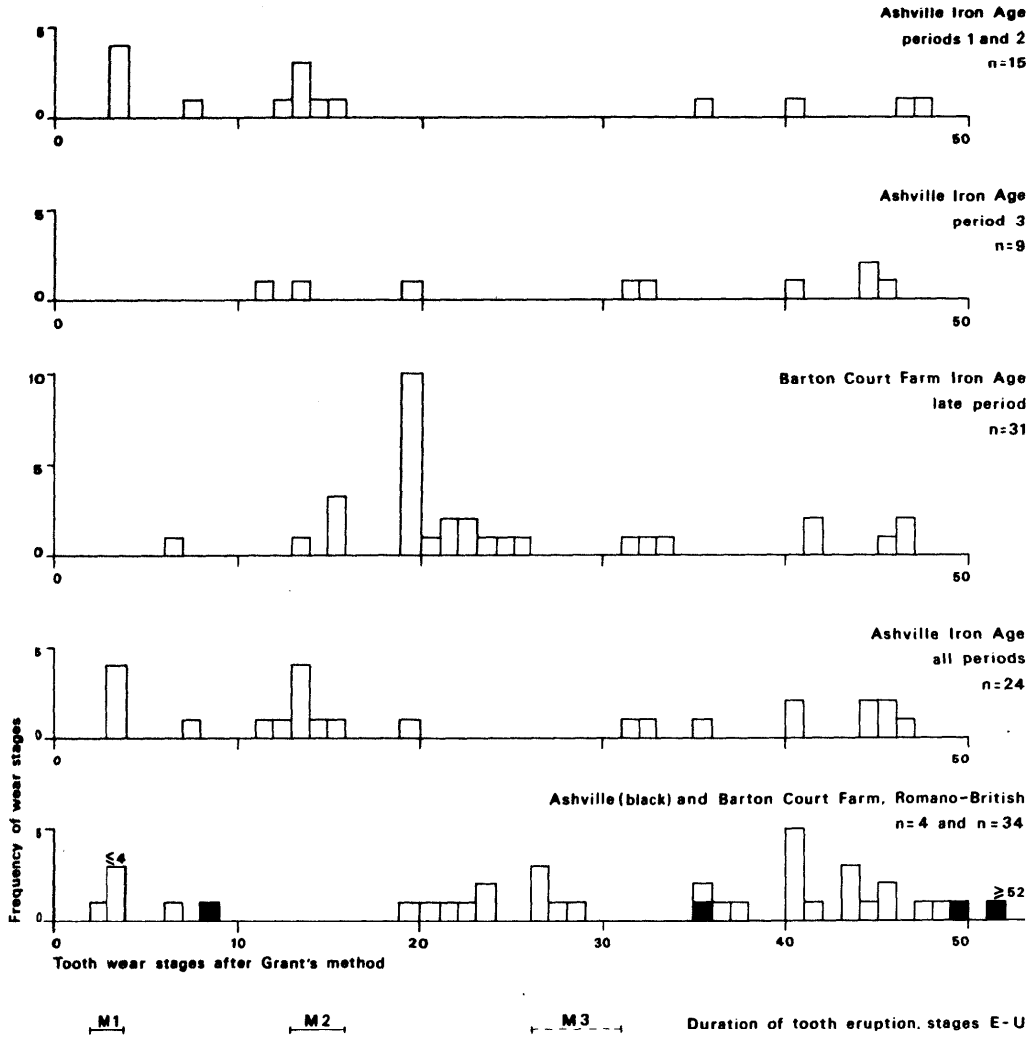
The Ashville data should not be taken as showing the occurrence of massive autumn killing--after all, a out 60% of the sheep were overwintered once, and about 35% at least twice (Table XXVII)--but they could suggest that a high proportion of slaughter took place in the later part of the year.

If Silver's older set of ages is used, the first two mortality peaks are about 18 months apart, at about 1-1½ years and about 3-4 years of age. Interpretation in terms of seasonal killing would be difficult. A greater proportion of animals would appear to have survived at least two winters (c. 60%); in short, the economic implications of the observed 'stage structure' would be quite different.

Comparison of Ashville Iron Age sheep with Iron Age and Roman sheep form other sites

The stage distributions of Iron Age sheep mandibles from Ashville and Barton Court Farm (by either Payne's or Grant's method) were not significantly different (Kolmogorov-Smirnov test, $p > 0.05$). However, when the stage distribution of all the Iron Age mandibles is compared with that of all the Roman mandibles from the two sites, there is a significant difference (Kolmogorov-Smirnov test, $p < 0.05$). There is a much lower proportion of young mandibles in the Roman period sample (Fig. 80). The difference between the Iron Age and Roman periods at Barton Court Farm is also significant ($p < 0.05$). This could suggest that most sheep were kept to a greater age in the Roman period, or that young sheep were marketed and slaughtered elsewhere.

Samples of sheep mandibles from a few other sites have also been analysed by these three methods. The greater variability in the tooth eruption sequence of the Ashville sample, compared to the results from Barley (Ewbank et *al.)* and the evidence for peaks in mortality at Ashville, have already been noted.



81 Tooth eruption and wear stages of cattle mandibles from Ashville and Barton Court Farm

At the Iron Age hill fort of Croft Ambrey (Whitehouse and Whitehouse 1974) the tooth eruption sequence was found to be similar to that at Barley, except for a consistent local variation in stages o-t, and the sequence was not nearly so variable as that at Ashville. The stage distribution at Ashville and Croft Ambrey was significantly different (Kolmogorov-Smirnov test, $p < 0.05$). A higher proportion of young mandibles was present at Croft Ambrey with a higher percentage of sheep dying in their first year (ageing as per Ewbank *et al.).*

The sample of sheep mandibles from the Roman fort at Portchester was analysed by Grant (1975a). She distinguished four groups from different features at the site, of which the first three are similar, but differ from the fourth group, which has a significantly higher proportion of very young animals (Kolmogorov-Smirnov test, $p < 0.05$). This group consisted of animals of all periods found in the wells, and thus is unlikely to be representative of the overall age distribution on the site. The stage distribution of the Iron Age sheep mandibles from Ashville differs from that of the first three groups and of the fourth group from Portchester, while the Roman period sheep mandibles from Barton Court Farm resembled those of the first three groups but not the fourth group from Portchester (Kolmogorov-Smirnov test, $p < 0.05$). A higher proportion of young animals was killed at Ashville in the Iron Age periods, compared to the first three groups from Portchester; this parallels the difference observed between the Iron Age and Roman period samples from Ashville and Barton Court Farm. In the case of the fourth group from Portchester, it was the high proportion of very young animals that differed from the other samples. The comparison is of interest in that Barton Court Farm and Ashville were farming settlements, while Portchester was a Roman fort.

Samples of sheep mandibles from Asvan Kale, a Hellenistic/Roman and medieval site in Turkey, were examined by Payne (1973). The stage distribution Iron Age sample from Ashville and Barton Court differs significantly from the Hellenistic/Roman sample but not from the Medieval, while the Romano-British sample differs significantly from the Medieval but not from the Hellenistic/Roman sample from Asvan Kale (Kolmogorov-Smirnov test, $p < 0.05$). The difference is, again, the higher proportion of young animals killed in the British Iron Age samples and the medieval sample from Asvan Kale. Payne tentatively suggests an economic interpretation in terms of the relative importance of meat, milk, and wool for the kill-off patterns he found at Asvan Kale, though marketing of certain age groubs

would also affect the stage distribution of samples from these sites.

The cattle mandibles

A sample of 28 cattle mandibles from the Iron Age and Roman periods at Ashville was analysed by the method of Grant (1975b). 32 Iron Age and 34 Roman cattle mandibles from Barton Court Farm were also studied for comparison.

The results are displayed as histograms in Fig. 81.

Of the 28 mandibles from Ashville, eight were from the first, nine from the second, and seven from the third period of the Iron Age: the remaining four were from the Roman period. No significant difference was found between the stage distributions of the Iron Age samples (Kolmogorov-Smirnov test, $p > 0.05$). The overall sample shown a peak at stage 3 and stage 14, with no mortality between stages 20 and 30 and a fairly steady mortality between 30 and 50.

Tooth eruption stages can be correlated with wear stages as shown in Fig. 81 and this is our only basis for age estimations:

		Stage	*Age* *Silver* (1)	*Silver* (2)
Eruption	M 1	3-4	6m	6-9m
(E-U)	M 2	14-16	15-18m	30m
	M3	27-33	24m	4-5y

Silver: (1) age estimations for modern breeds
(2) age estimations for 19th century breed.

Taking Silver's earlier set of ages, the first two peaks are at 6 months and 15-18 months, about a year apart, whilst in cattle most of the remainder of the mortality takes place at over 2 years of age. Taking the later ages, the first peak still represents animals dying in the first year of life, but the second peak is at c. 2½ years old and the remaining mortality takes place at over 4-5 years. The first peak accounts for c. 16% of the total mortality, the second peak (12-16) for c. 33%; on the earlier set of ages, c. 40% of the animals are overwintered at least twice, and on the later set of ages at least 70%. In either case, a fairly high proportion of animals is kept till dentally mature: this may reflect the use of oxen for traction, though a significant proportion are slaughtered when young, presumably for meat.

The stage distribution of the Iron Age cattle mandibles from Barton Court Farm was significantly different from that at Ashville (Kolmogorov-Smirnov test, $p < 0.05$). The principal difference is a large mortality peak at stage 20 (32% of all mortality), lower mortality in stages 1-20, and some 25% mortality in stages 21-26 at Barton Court Farm. About 25% of animals were killed after reaching dental maturity, compared with c. 40% at Ashville. Thus, mortality of the young animals is greater, but occurs later, at Barton Court as compared with Ashville. The major mortality peak would occur in the second or in the third year of life, depending on whether Silver's earlier or later ages apply.

The stage distributions of the Iron Age cattle mandibles from Ashville and Barton Court Farm were both significantly different from the stage distribution of Roman cattle mandibles from the two sites (Kolmogorov-Smirnov test, $p < 0.05$). A lower proportion of young jaws was present in the Roman sample, with over 60% of the cattle killed after dental maturity. The oldest jaws observed (stage 50+) occurred in the Roman sample. Most of the mortality of young cattle in the Roman sample occurred before stage 19 (probably during the first year of life) and after stage 20 (the second or third year of life).

The Iron Age and the Roman samples from Ashville and Barton Court Farm also differ significantly from the sample of cattle mandibles from Portchester studied by Grant (1975) (Kolmogorov-Smirnov test, $p << 0.05$). The Portchester cattle showed an extremely low proportion of young jaws: the great majority of the animals were dentally mature when killed.

The bird bones

By Don Bramwell

Iron Age

Early period:	House sparrow, upper beak F48
	Duck cf. mallard, 2 both burnt F313
Middle period:	Heron, r. prox, tarsal F32
	Duck cf. mallard, 4, F13 and F327 (2)
	Duck cf. domestic, radius F73 (transverse knife cut on prox. end)
	cf. Redshank, r. ulna F308
	Jackdaw, 1. coracoid F17
Late period:	Duck cf. mallard, 2 F27, 103
	Duck cf. domestic, 2 F27, 136
	Domestic fowl, 1. dis. ulna F134
Unphased:	cf. Hawfinch, 10 F139, also F348 (1)

Romano-British

3rd-4th century AD: Domestic fowl, 9 F30

Discussion

The chief interest lies in the number of water birds-heron, mallard, and larger duck, while redshank prefers marshy meadows and muddy river banks or shores. House sparrow is not often recorded so this occurrence is important. Remains of two birds resembling hawfinch are the only immature bird bones in the sample, may be from the same nest, and may also represent 'hedgerow' or woodland species, The domestic fowl in the Romano-British well may be of hen and cock birds. No more than one individual seems to be represented by the bones of each other species.

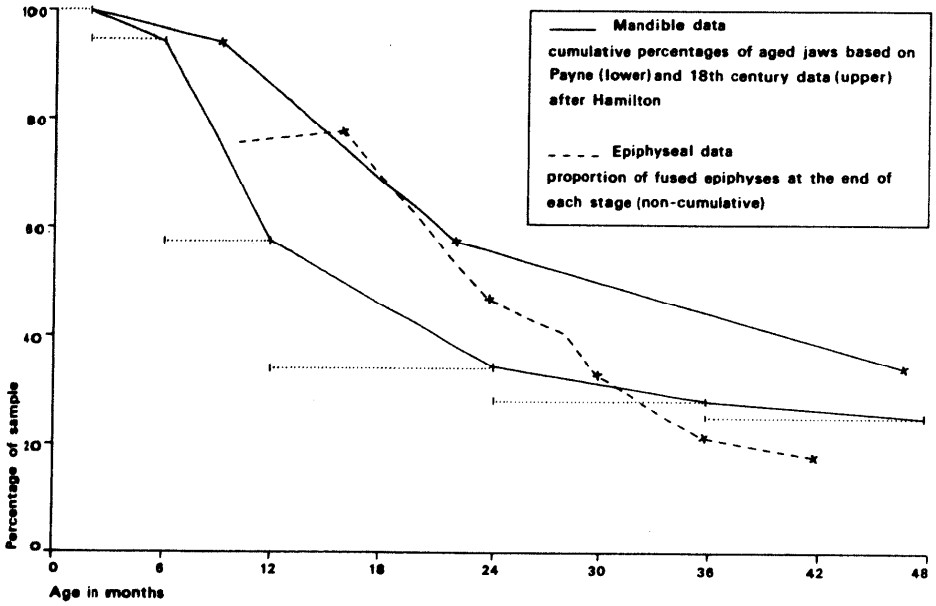
General conclusions and discussion of the bone sample

By Bob Wilson

The animal species at Ashville

Sheep: These are envisaged as being closely comparable with the Soay breed, i.e. small-sized, horned, short-tailed sheep with a primitive brown woolled fleece (Ryder 1964). At Ashville their withers height ranges between about 0.53 and 0.64m, which on metapodial comparison is nearly as wide in range as observed on Iron Age sites. Sheep at Barley may have been smaller than those at Ashville, Croft Ambrey, and Grimthorpe. In Romano-British times the size range increased, some individuals at Farmoor standing to 0.67 m at the withers.

No hornless or scurred skull remains were observed. Ewe horns survived destruction better than ram horns; those of castrates were not obviously present. Castrate pelves seem relatively less common than in a sample of late Romano-British and Saxon pelves from Barton Court Farm (Wilson, in preparation). This, with the



82 Age data for Iron Age sheep at Ashville

apparent immaturity of the male pelves, suggests that rams were killed off from early stages of development. After the fusion of the acetabulum at about 6-10 months of age, the proportions of the pelves suggest that an Iron Age flock cohort might consist of about 74% ewes and 26% rams and wethers. Unfortunately differential preservation may over-represent the proportion of ewes.

Normal farming practices would kill or castrate most rams rather early. This assumption implies a high slaughtering rate of males represented by unaltered pelves (16-18%?). Wethers must have died after their pelves had sufficient time to differentiate their distinctive form (8-11%? of a flock cohort).

Estimates of the overall survivorship are diverse. Firstly, up to 10% variation in the cumulative mortality rate may depend upon which mandible ageing method is used, and possibly on the investigator (see the table on p. 131). Secondly, there is an unresolved problem over which set of eruption dates should be applied to age immature mandibles. The discussion of the skeletons indicates that .18th century data may be more appropriate in spite of inconsistencies in the eruption sequence.

Results from Payne's method (1973) will be considered here since it includes a greater number of young mandibles than the results of the other two methods (p. 130) and the mandible groups are assigned a useful time scale, albeit for Turkish sheep. Lastly, the definition of age stages *B, C,* and *D* by the presence of the unworn M1, M2, and M3 allows an amended curve (Fig. 82) to be drawn based on 18th century eruption dates and a 3-5 month allowance for each molar to come into wear (Silver 1969).

The grouped epiphyseal fusion data are also included in Fig. 82 and appear to be poorly related to the mandible curves. It should be in advance of the correct mandible curve if epiphyseal fusion is delayed more than tooth eruption by poor environmental conditions. Both mandible curves involve cumulative error whereby the proportion of older animals is almost certainly over-represented, i.e. mortality is underestimated. For example, no stage A mandibles (0-2 months by Payne's method) were recorded and a small percentage of lambing deaths would be expected.

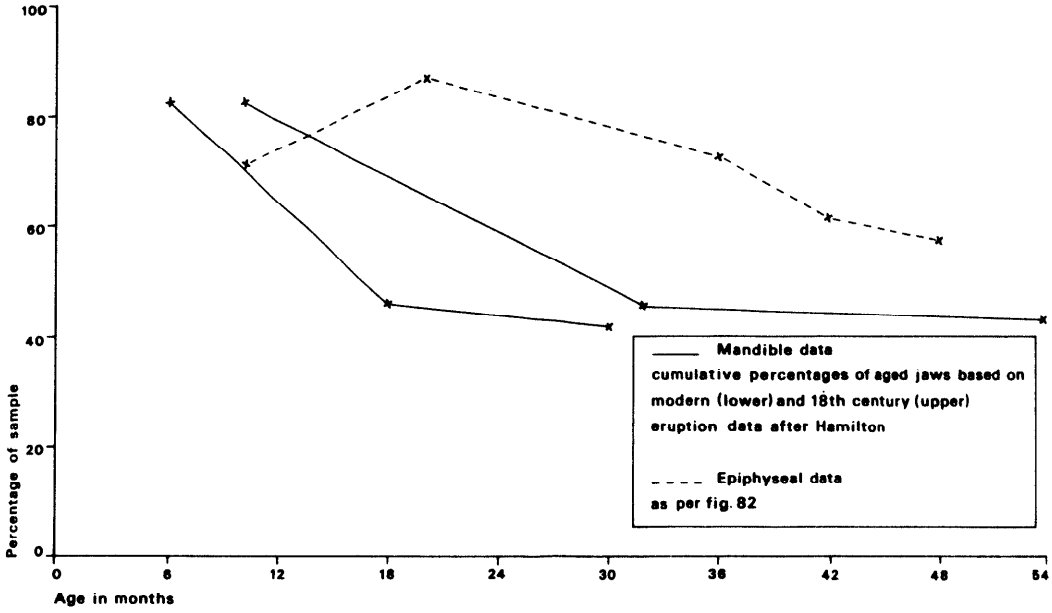
Secondly, the partial survrval/recovery of male pelves on four sites might suggest that as much as one-third of a representative mandible sample was missing. Immature mandibles do appear to be more vulnerable to breakage than old ones. We seem unable to measure what must have been a considerable death rate of at least 20% of the cohort/year for the first three years of life.

Change within the Iron Age is uncertain: it is doubtful that the Period 2 Iron Age mandibles (p. 129) and epiphyses (p. 114) are from animals younger than those in early and late period samples. In Romano-British times there appears to be a reduction in the killing rate of immature sheep (Table XVIII, p. 114, and p. 131). These trends depend on sample consistency, and whether immature sheep were being marketed or slaughtered away from these Romano-British sites.

Cattle: Their breed is unknown. Iron Age cattle are now well known to be relatively small beasts (Jewell 1963; Hodgson 1968). On local river terraces cows stood some 1.00-1.13m at the shoulder, castrates and bulls a little taller. In Roman times some of the cows ranged up to 1.25m at the shoulder. The Romano-British Shakenoak astragali were significantly larger than those from Ashville, Barley, and Croft Ambrey.

Seven bull and three castrate horn cores (including two skulls)' but no cow horns are identified (p. 126). A Romano-British deposit at Kingston Bagpuize (Oxon) also gave a similar result (Armitage 1976). However, sexing of the pelves indicates a predominance of cows in the herd at Ashville. Although a polled skull is known from All Cannings Cross (Jackson 1939) there is no experimental evidence of sex linkage in the inheritance of hornlessness which is produced by a dominant gene in modern cattle. Horn has been stripped off some, if not all, of the cores; horn size may be an economic reason not to use cowhorn (Armitage and Clutton-Brock 1976), but some of the recovered cores are not large either. Decorative use of male horns or skulls does not explain the Kingston Bagpuize proportions; this deposit was perhaps hornworkers' waste. Alternatively, the horn sexing method may be less appropriate for Iron Age and Romano-British cores.

It is tempting to suggest the sexual structure of each population cohort as it dies or is killed off by comparing the ratios of the sexed bones at different age stages (the unfused bones of the sexed pelves are excluded from this estimation):



83 *Age data for Iron Age cattle at Ashville*

Modem age of fusion	*Cows*	*Castrates*	*Bulls*
7-10 months (acetabulum) $n = 16$	50-53%	33-38%	12-13%
24-36 months (metapodials) $n = 7$-15	60-88%	12-30%	5-10%
42-48 months (distal radius) $n = 12$	83-86%	14-17%	1-3%

The separation of castrates and males in the last group is guesswork. As in modern farming, it is possible that most males were killed or castrated relatively early but it is possible that over-emphasis of this point could be illusory, since the pelves are often from older animals and therefore need not represent the proportion of males castrated by this early stage.

The metapodial ranges given in the table above are extensive chiefly because the small Farmoor sample differs. It is doubtful that a high proportion of cows in the herd was established earlier than at Ashville or Croft Ambrey (Appleford being uncertain) since the degree of epiphyseal fusion on the river terrace sites is greatest among Farmoor cattle bones in both Iron Age and Roman periods (Table XVIII, p. 114).

Age data from cattle bones should be less affected by breakage and non-recovery than that from sheep. Both the sex and the age data indicate that cattle were killed off much more slowly than sheep, even allowing for the difference in maturation time. Figure 83 still shows disparate and uncertain results. Modern tooth-eruption data seem least appropriate but the merits of the other curves are dubious also.

Pigs: The length of the third molar indicates domesticated or semi-domesticated animals, while the four distal humeri indicate somewhat stouter, possibly taller individuals than average at Croft Ambrey or Neolithic Durrington Walls.

Epiphyseal fusion data points to a relatively high slaughtering rate but considerably less than at Durrington Walls, Barton Court Farm (Table XVIII), and medieval Abingdon, where 66% of the sample is unfused in the early fusing group (Wilson 1975), 37% of 30 rather fragmented mandibles at Ashville have the M3 in wear cv. 27% in medieval Abingdon. Croft Ambrey data appears unusable.

Horses: In the Iron Age horses seem to have stood between 10½ and 12½ hands (1.20-1.43m) high at the shoulder, while in Roman times the size range increases slightly on the large side.

Horse epiphyses indicate a low mortality rate of young animals at Ashville. Four mandibles indicate modern age equivalents of less than 2½ years, 3½-5 years, 'mature' (i.e. more than 4 years), and 12-18 years old. Two Romano-British jaws indicate ages of less than 2½ years (mandible) and 2-2½ years (maxilla), but Romano-British mortality rates also are generally low elsewhere (Table XVIII),

Dogs: A few measurable bones indicate animals of average Iron Age size—0.48-0.53m, apart from the Period 3 Iron Age dog some 0.60m high at the shoulder.

No abnormal mortality is indicated by the skeletons and the epiphyses. Of the disarticulated mandibles, one is from a relatively longer individual (cf. F63, p. 124) about 5-7 months old (F102), but six others are from dentally mature dogs. Of a site total of seven such mature mandibles, five have well worn teeth and three, as well as a skull, show ancient tooth loss, severe in two cases (p. 118) indicating a long life or a rough diet. A coprolite from ditch F1007 contained numerous bone fragments to 15 mm in size. These appeared to include three rib, three vertebral, and skull and limb bone fragments of sheep.

Environmental factors

Wild animal remains are unhelpful. Arguably *Apademus sp.* is intrusive, and it and the water vole could have had a wider distribution before the introduction of possible competitors such as house mice, rats, and rabbits. An absence of deer bones compared to their presence in smaller samples at Farmoor and Appleford indicates little adjacent wood or scrubland. No wild pig is obvious either but the presence of goat may indicate some browsing was available.

Possibly hunting restrictions existed, although some bird bones indicate otherwise. If shed antlers were rare locally, there is not much sign of trading.

On the abundance of the three main species of domestic animal (Whitehouse and Whitehouse 1974), Ashville does not relate well to other Iron Age sites in

northern and western Britain, except Glastonbury. Most similar sites are Eldons Seat (Dorset) and Hawks Hill (Surrey); Rainsborough figures are not comparable here (Banks 1967). Upper Thames Valley site samples usually have a high proportion of sheep remains:

	Ash	*App*	*Cit**	*Gui**	*Far*
Sheep	54	*25*	62	64	32
Cattle	32	50	28	28	42
Pig	10	11	8	2	9
Horse	4	13	2	6	17
n	3383	393	367	253	213

*Cit = City Farm, Gui = Guiting Power.

Minimum number percentages give better estimates of the abundance of sheep and probably pigs, except that the small samples from most sites produce an overestimate of the abundance of horse and possibly pig (p. 113):

	Ash	*Asp*	*Cit*	*Gui*	*Far*	*Rai**
Sheep	65	43	47	62	32	48
Catt e	19	29	19	19	36	36
Pig	12	14	23	10	18	12
Horse	4	14	12	10	14	4

* Rai = Rainsborough

The ratio of sheep to cattle increases from Farmoor, the lowest-lying river site, through Appleford (first terrace) to City Farm (Jones, unpublished) and Ashville on the second terrace. Provisional fragment numbers from Barton Court Farm suggest that this second terrace site would rank between Appleford and City Farm. Therefore the topography could be related to the distribution of cattle and sheep on the gravels. A similar pattern does not emerge readily from sites on and around the solid oolitic limestones of the higher land, Guiting Power (Wilson, unpublished) and Shenbarrow Hill Camp (Jackson 1961) contrasting with Rainsborough (Banks 1967) and Bagendon (Jackson 1961) in the abundance of cattle and sheep. Since sheep survive a considerable degree of exposure on Hirta and in the Welsh mountains it seems unlikely that topographic and climatic factors are directly important in upland-lowland contrasts of sheep and cattle. Land drainage, pasture availability, and animal husbandry seem to be more critical factors in the pastoral ecology.. Woodland and lack of clearance would limit the size of sheep flocks, e.g. possibly at Croft Ambrey (Whitehouse and Whitehouse 1974). However, while deer bones at Farmoor and Appleford indicate the proximity of scrub or wood cover, this is unlikely to have been with half a mile of the enclosures (Robinson, in preparation) and these vegetational types seem to be unlikely limiting factors for sheep on the gravels.

Socio-economic complications are largely guesswork but Clark's (1947)contention, which may be partly in this category, is unhelpful here. At Ashville the proportion of sheep does not appear to increase toward historical times, and Rainsborough (Early Iron Age) hardly contrasts with Bagendon (Belgic period). These three sites are probably the most populous of those listed in this region, yet Ashville's animal economy might imply the existence of social as well as environmental differences between them.

Organization of farming

In spite of the overall regional problem above of isolating environmental or social determinants from site samples, it still appears valid to say that a greater proportion of cattle were reared on the first terrace than on the second. Given some choice of grazing as expected at Ashville, sheep seem likely to have been raised on the higher ground even if the topographic difference is slight. At present the soil (Sherbourne series) north and north-east of Ashville is shallow and tends toward droughtyness (Batey and Jarvis 1971) and if not in cultivation would suit the creation of and preference for short turf by sheep. Any disease factors such as liver fluke (Robinson, in preparation) and footrot, which are most infectious on wetter land, could reinforce any differentiation of grazing territories. Cattle are less susceptible to these diseases and do not like to feed on short turf, but would have been useful with goats in land clearance and in preventing any pasture reversion on the higher land. It would seem, then, that most of the cattle would be pastured on the damn lands of the Ock River and its tributaries (p. 105).

Superficially the percentages of sheep and cattle at Ashville indicate that the grazing territory of the village did not extend very far on to the Ock River meadows. This is doubtful since cattle require more fodder than sheep. Also neither the extent of the sheep grazing nor of their seasonal dispersion are known. The distribution of cattle and sheep remains, however, is similar to but far less clear than might be predicted by Case's model (1963) for a late Neolithic-Bronze Age summer dispersal of these animals.

Horse remains are less abundant on the second terrace: small samples of epiphyses at Farmoor and Appleford (Table XVIII) could indicate their being reared on the lower meadows. Traditionally cattle and horses, but not sheep, were kept on Port Meadow, Oxford (Baker 1937).

The actual size of flocks and herds is unknown but those around isolated farmsteads could be smaller, unless sites like some at Farmoor are centres of summer grazing and not permanent settlement. There the proportion of cows could be significant, emphasizing dairying, but the bone debris of the other investigated sites indicates that the presence of steers and beef raising, or perhaps herd-size prestige may have been important.

Since mortality appears high in the sheep, meat or milk production is indicated (pp. 131-2 and Payne 1973). Although wool processing is indicated (p. 37) sheep and cattle skins may often have been used for clothing. Soay ewes appear to have better quality wool though a less heavy fleece than the rams (Doney *et al.* 1974). If wool was in demand a greater degree of castration might be evident and, from the longer retention of the wether sheep, a lower mortality rate. These seem to be trends in local late Romano-British and Saxon times (p. 133, table on p. 114, and Wilson in prep.). However, the woollen needs of a village may have been met by the possession of large flocks of sheep, even if they were slaughtered at a high rate.

From the tables of fragment numbers and minimum numbers of individuals above and from Banks (1967) it is debatable if there was much variation in the numbers of pig eaten on the gravel sites. In the absence of woodland and any exchange of pigs, the roughest, least useful land would have been used as pannage.

Butchery

Any reconstruction of the butchery sequence is limited by ignorance of whether the carcasses were hung up or laid out on the ground to be butchered. There is no direct evidence of hanging. Rixson (pers. comm. 1975) considered the medial or longitudinal division of the backbone and the carcass into equal halves to be the most specific indication of hanging. However, for instance, this does not appear to happen during Hottentot butchery of hung goat carcasses (Brain 1976) and medial halving of the carcass may be a relatively late development in butchery techniques; it would require firm attachments

like hooks through the back legs, it is easy to hang small carcasses, but the weight of large animals like cattle probably forced their initial butchery on the ground (Rixson pers. comm.).

The removal of the entire front limbs at Ashville (p. 124) and Romano-Brithis Farmoor Wilson, for theoming) seems to be the first stage of carcass dismemberment simply by cutting under the shoulder blade. In cattle and horses the hind legs may also have been removed complete (p. 125). Some of this skeletal evidence indicates that meat was stripped off the entire articulated limb (i.e. steaklike for cooking). but other evidence (e.g. at the elbow) suggests meat removal from more convenient sized joints before of after cooking

There is little evidence of an equal division of the carcass (p. 119). and in two articulated cattle back bones at City Farm the vertebrae show only lateral and dorsal breakages (Banks 1964). In sheep a common line of cutting seems to occur, sometimes from the posterior end, along the lateral vertebral processes between the anterior pelvis and some point in the rib cage or neck (p. 120). This cutting line and the City Farm back bones suggest the removal of the flanks, which in some cases were also separated by dividing the sternum. Flank removal may have included the backstakes to denude the backbone of meat. However, transverse breakage does show occasionally to indicate transverse sectioning of the carcass (Rixson 1973) or that it may have been chopped up like neckscrag from sheep at other times.

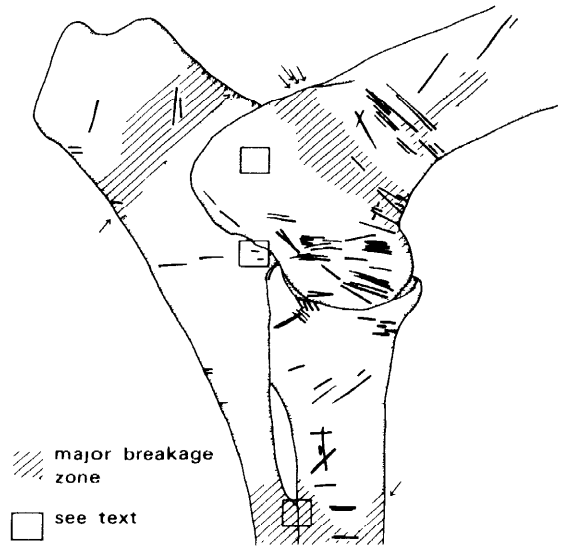
Probably the head was taken off while the backbone was largely intact. Severance may have been chopped axis in some cases (p. 119. cf. Brain 1976). Two intact adult cattle skulls were not associated with mandibles, and a variety of cutting evidence indicates that check and tongue meats were cut out (cf. Grant 1975a). In pigs and horses the symphysis was probably smashed to do this. Often the skulls of sheep and probably pigs were neatly cleft along the midline by dorsal blows, and similar access to the brain of cattle, sheep, and pigs was recorder at Glastonbury (Dawkins and Jackson 1917). Brain's mention of the smashing and discarding of goat horns gives insight to the common breakage of sheep horns at ashville.

Interpretation of the butchery marks in Figs. 74 78 is difficult without much experience or experiment, and their sequential order is only guesswork at present

Above the carpal and hock joint meat lies in quality so that fine cuts above these joints imply disjointing, meat removal, possibly bone working, but not skinning. However, cuts the upper limb bone shafts indicate meat removal. On the limb extremities cuts could represent skinning, hoof removal, bone working, or some stripping of meat. In sheep, pigs, and dogs skinning below the carpal and hock joints seems unworthwhile, but items like pig trotters (cuts on fourth metatarsal and first phalanx) would not be disregarded for other reasons. Cots are noted on the phalanges of cattle and horse but not of sheep.

In some locations breakage is consistent enough to indicate butchery of bone working rather than subsequent destruction by scavenging and trampling etc. Such deliberate breakage could facilitate meat removal, cause dismemberment and disjointing of the carcass, expose the marrow, and to a lesser extent provide bone for working.

Marrow exploitation might seem distinguished from other butchery breakages by being a haphazard destruction of the midshafts of the larger bones, e.g. radius and tibia. However excess unpleasant bone fragments might have been avoided by more specific destruction like



84 Butchery marks on the medial aspect of the elbow in cattle

that on the distal humerus which might be otherwise explained as a disjointing breakage. For this reason bones such as the radius and the metacarpal may have been split for marrow, and also for bone working. Unwelcome bone fragments could, of course, be avoided by deferment of most breakage as late as possible during butchery (cf. Brain 1976).

Disjointing seems a reasonable explanation for the transverse breakage of the scapula neck, the head of the femur, possibly the distal humerus and the proximal metapodials, and implies it at the knee. Disjointing, of course, facilitates the stripping of meat from the bone as steaks, or allows the cooking or preserving of convenient-sized portions without removing the bone.

Any disjointing by breakage at the elbow appears to avoid the immediate joint, and this seems at least partly true for hock, shoulder, and carpal joints. Two of the most obvious breakage regions are on the olecranon and the distal calcaneum. Both areas of bone project from their respective limbs and destruction would free some of the larger muscle groups and need not be part of any disjointing. In the elbow (Fig. 84) the olecranon breakage occurs outside the position of the humerus and indicates that the joint was not disarticulated at this sequential point in butchery. This may be supported by the general alignment of cuts on the joint (Fig. 84). In addition, the common breakage on the distal humerus barely overlaps onto the intact area of the ulna, so that least hindrance was offered to blows being made from the suspected posterior direction (arrows).

If disjointing through the distal humerus is confirmed, it need not be the only means of disjointing of was only one stage in the destruction of the joint. The uppermost of the rectangular areas in Fig. 84 indicate two parts of the ulna which are protected by the articulated distal humerus but which bear fine cuts. Such cut indicates that a knife-like tool was used in disjointing as well as for meat removal. Another part of disarticulation is indicated by the lowest rectangle in Fig. 84. As noted on p. 120, one ulna shaft appears to have been removed before meat was cut off the radius. A further breakage area is indicated on the humerus, where a small number of spiral breakages

overlap, and these seem most related to marrow extraction.

On the hock joint the chopping of the posterior proximal metatarsal indicates the most common point of disarticulation, although rare cuts on other articulation surfaces indicate knife-cut disarticulation also. Disarticulation did not occur always (e.g. calf, 'horse, and sheep legs, pp. 124-5). Interpretation of the cuts is uncertain although Coy (pers. comm.) considers those on the anterior astragalus to be skinning cuts.

Diet

There is as yet no adequate method to relate the meat yields of all the animal species. Although sheep are most dominant numerically, about half the meat eaten would be beef, perhaps a quarter mutton, and the remainder would be horse rather than pig meat in one form or another. Horses seem rarely slaughtered before maturity so that they served other communal purposes first. This applies partly to cattle, but far less to sheep and pigs.

Bird remains are rare, except of duck. Egg-shell from the Romano-British well F30 seems unidentifiable at present. Little direct sieving was undertaken at Ashville, although soil samples floated for carbonized remains also yielded bones of small birds, frogs, and *Apodemus* but not of fish. One pike bone at Barton Court Farm and one of chub at City Farm were identified by Wheeler (pers. comm.; Jones, unpublished). Celtic myth and ritual probably protected the hare until Roman times (F30) and perhaps some fish and birds (Ross 1974), so that meat may not have been plentiful at times; indeed the sheep killing rate and the occasional consumption of dog suggest otherwise. At other times there may have been some excess as attested by whole bones (e.g. F82 or the cattle skulls).

Bone destruction and deposition

Although there is reason to suspect that the recovery rate of bones from pits and ditches is not the same (p. 111) the differing proportions of species bones for these feature types also may be a result of differential fragmentation and preservation. The scavenging processes described by Brain (1976) should resemble those at Ashville (e.g. the dog coprolite, p. 135). Local field studies indicate that scavenging is a rapid and dispersive process, taking days rather than weeks. Scatters of fragments are left, but much bone disappears, probably being eaten by dogs and carried off by birds such as rooks and crows. Bones on exposed surfaces are more liable to scavenging than those which are dumped or quickly scattered into deep features or other concealment.

The reasons for the non-random distribution of pit debris (p. 123) are not understood and analysis is planned to assess some of the factors involved. Apart from the articulated remains and the skulls, the it contents do not indicate the direct dumping of rubbish into them. Even pit F327, which contained the extreme bone densities, had at least five individuals represented among 100 sheep bones, one-third of which were lamb. But it seems likely that these remains were dumped nearby. The bones in pit F303 indicate dumping in its vicinity (p. 125), while those in pit F313 indicate deliberate back-filling from a superficial deposit of soil and burnt debris (p. 111).

The ewe skeleton at the bottom of pit F82 is tentatively given an age of 30-36 months while the less articulated bones of the ram indicate an age of 11-16 months (p. 124). Possibly the latter was a skeleton which was disrupted by the prehistoric digging of F75 and 76, but alternatively these bones may have been dumped adjacent to the pit before entering it. However, no scavenger marks are evident on either skeleton and burial seems not far delayed. Slaughtering and burial could have taken place at different times so there is no real check on the ages. The best overlap suggests they are about 1 and 3 years old, which implies that the ewe was a lambing fatality.

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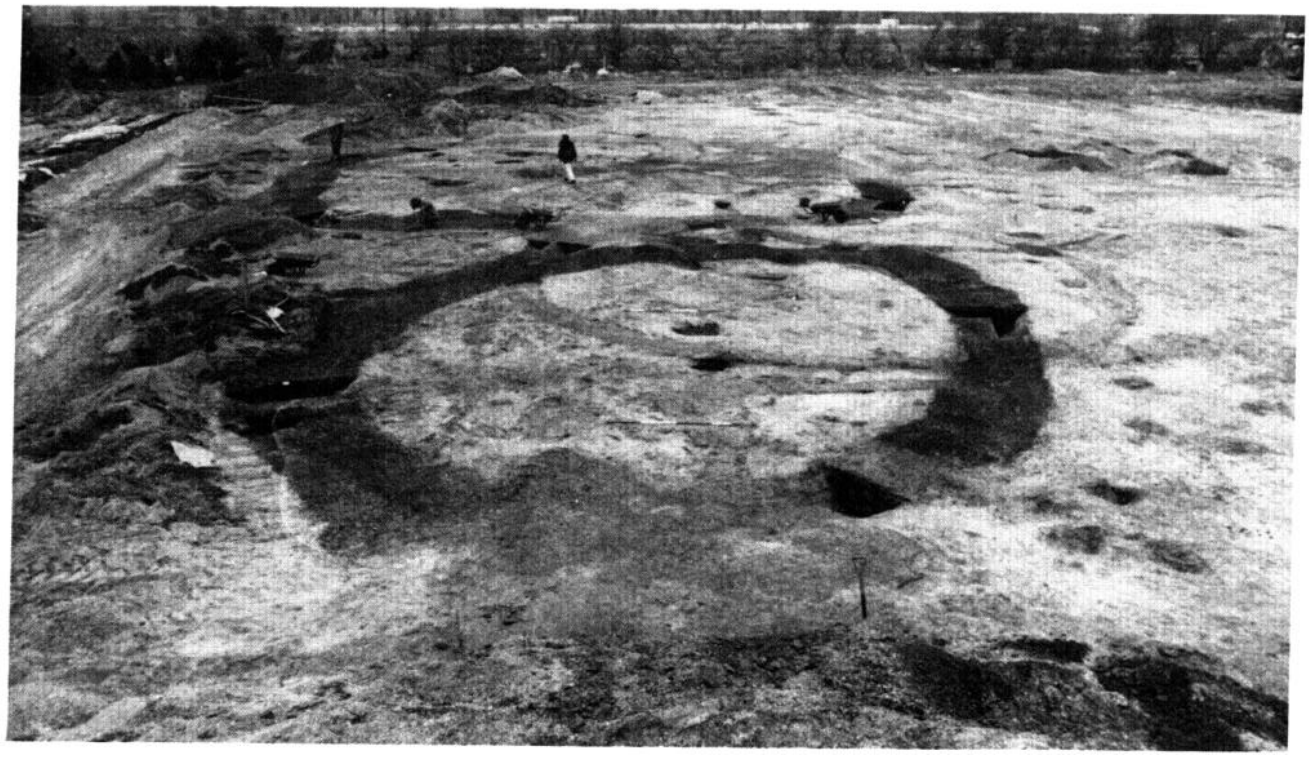
I Aerial view of the 1976 excavation site, showing soil marks of archaeological features cut into natural gravel

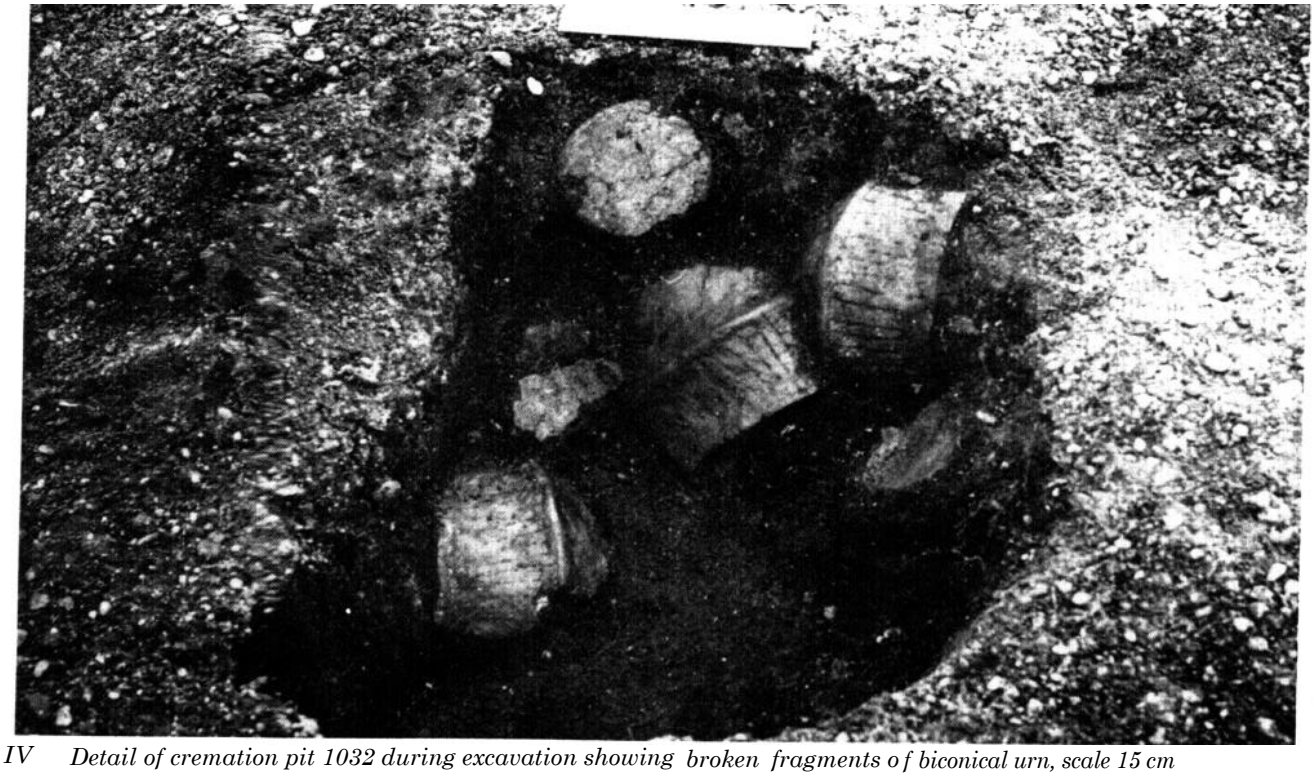
[Ph.: M. Parrington]

II View of ring ditch 460 from the east with Iron Age ditch 1035 and its internal post-hole structure

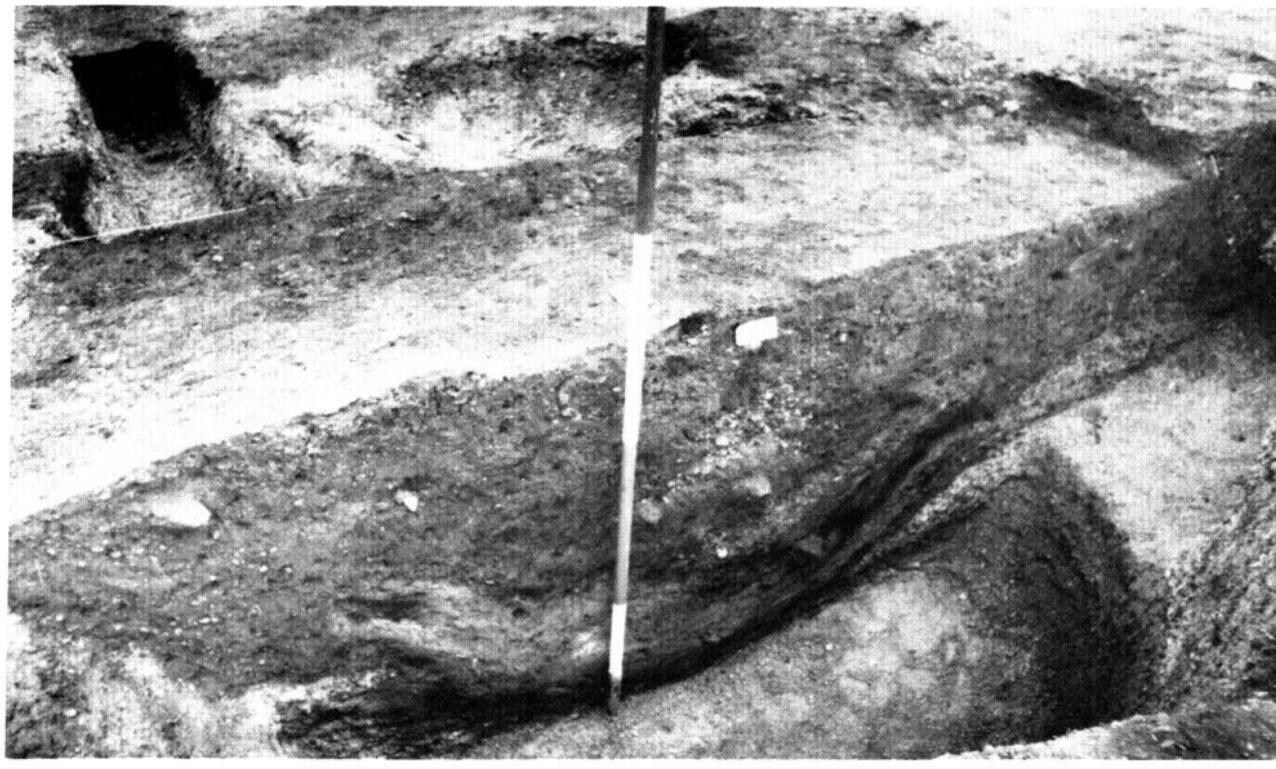
[Ph.: M. Parrington]



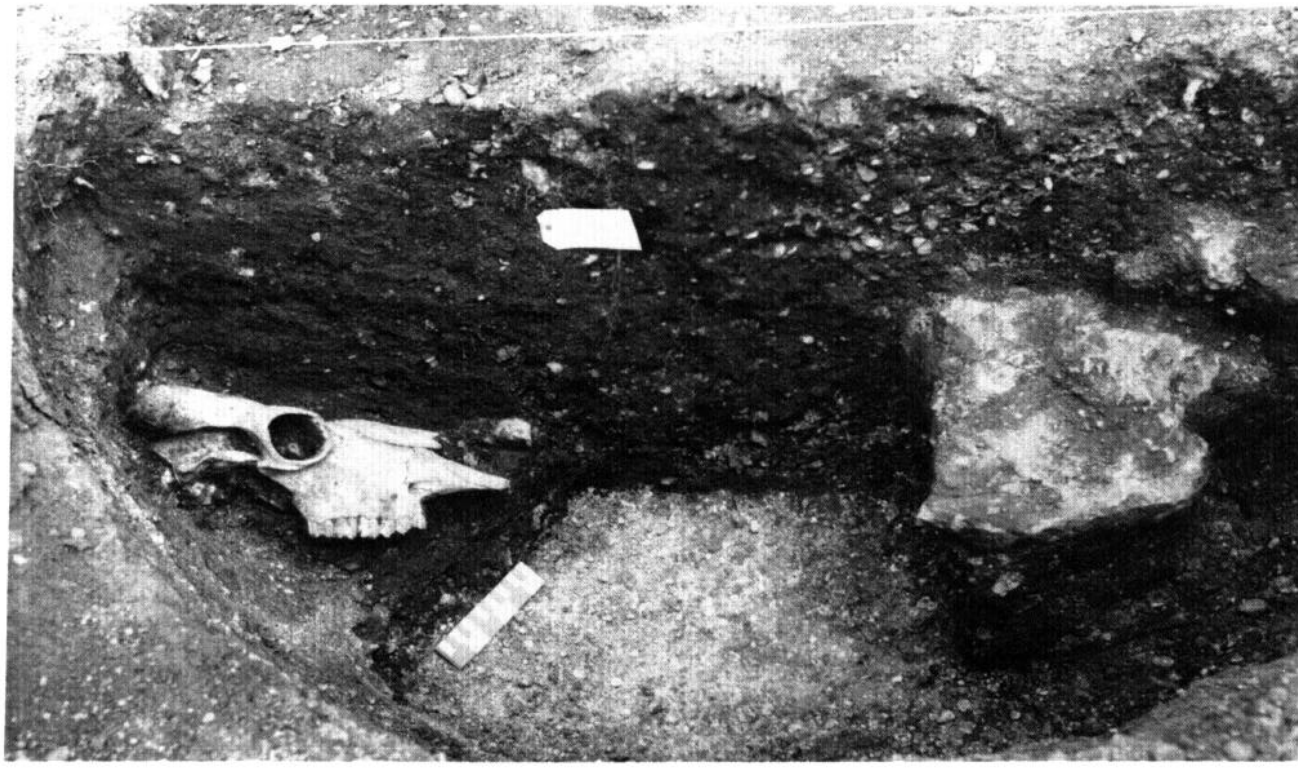
III View of ring ditch 1006 from the west with cremation pits 1070 and 1032 between the two 2m scales
[Ph.: M. Parrington]



IV Detail of cremation pit 1032 during excavation showing broken fragments of biconical urn, scale 15 cm
[Ph.: M. Parrington]



V Section of iron-working pit 313 showing bands of charcoal and clay, scale 2m *[Ph.: M. Parrington]*



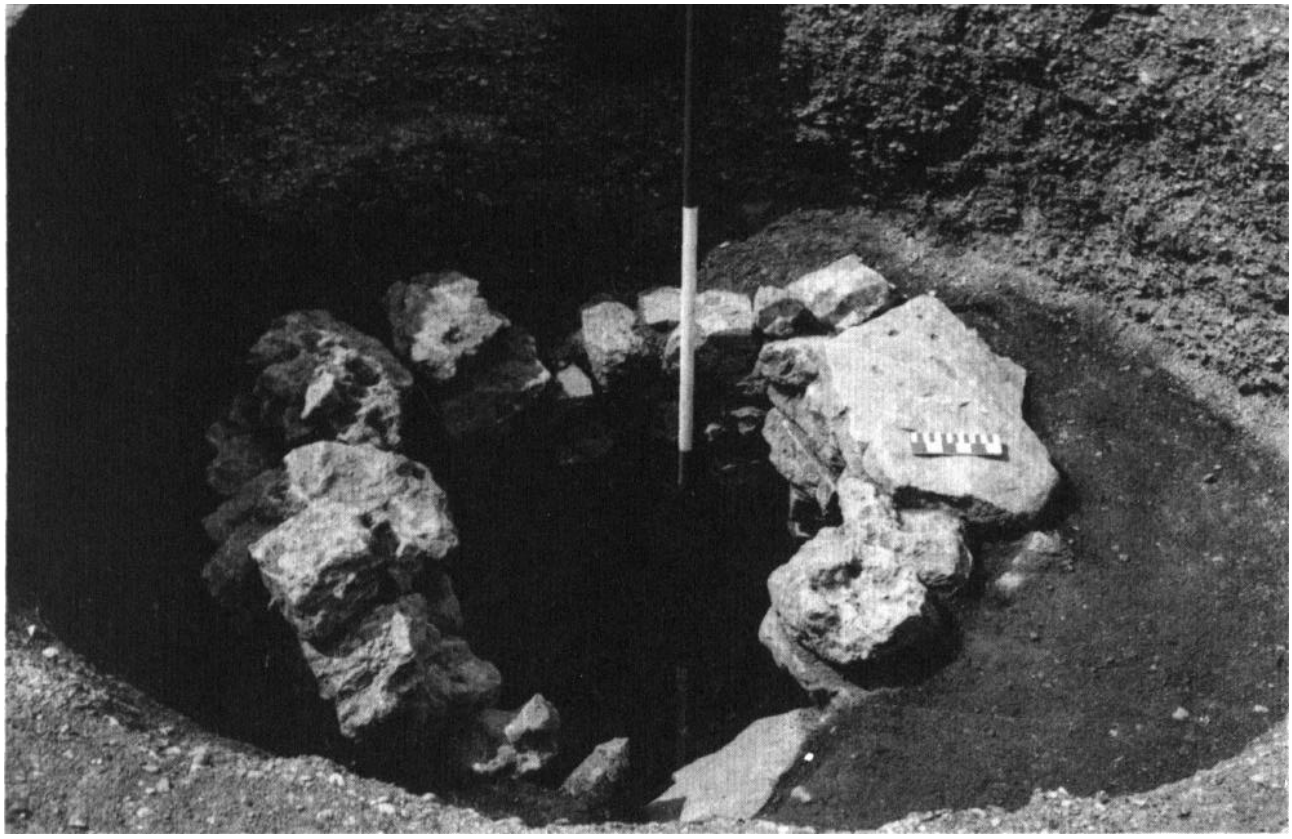
VI Pit 71 under excavation showing cattle skull, scale 15cm *[Ph.: M. Parrington]*

VII View of 1974 excavation from south-east showing ditches 13-18-19 in foreground, scales 2m
[Ph.: M. Parrington]

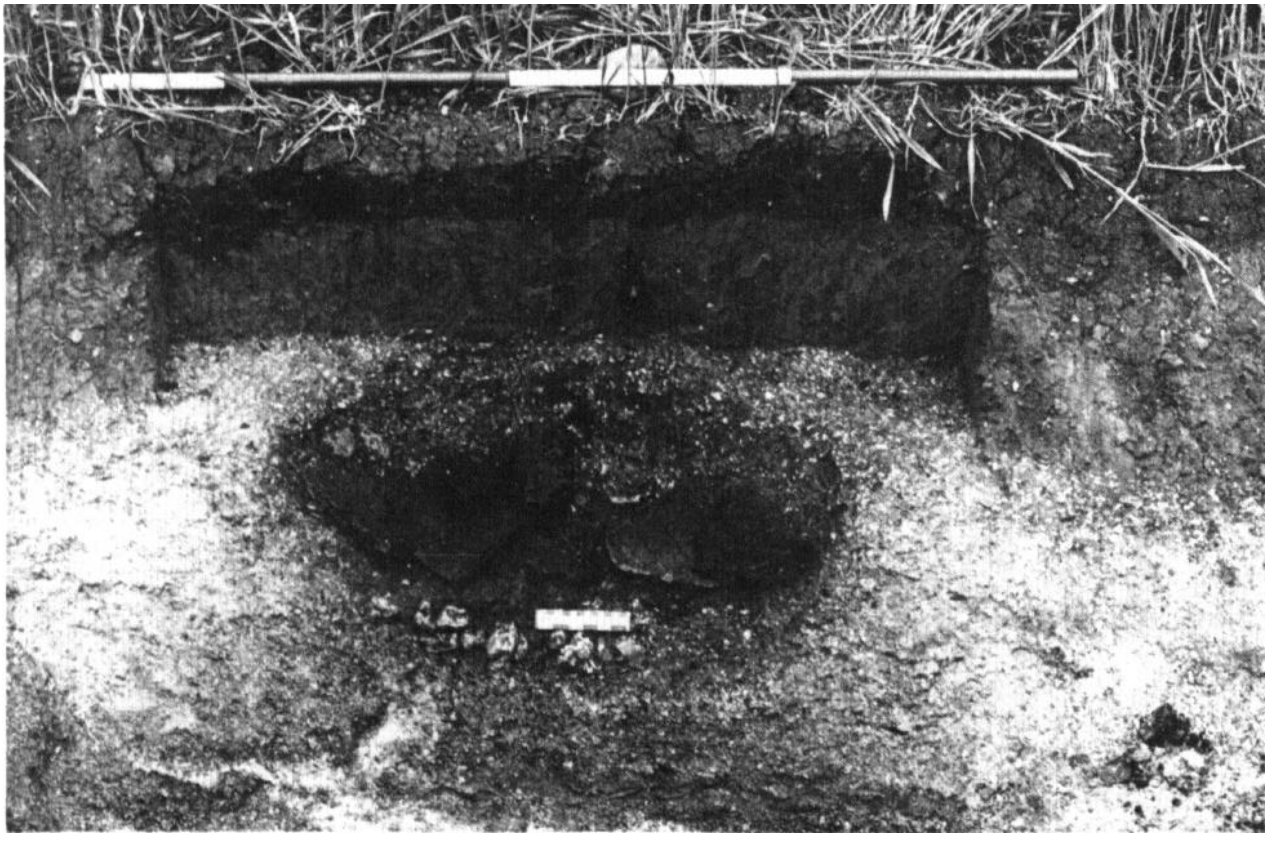
VIII Ditch 1020 from north-west with ditch 134 overlying it
[Ph.: M. Parrington]

IX View of 1974 excavation from west with recut post-hole structure in foreground *[Ph.: M. Parrington]*

X Burial in pit 62, scale 15cm *[Ph.: M. Parrington]*

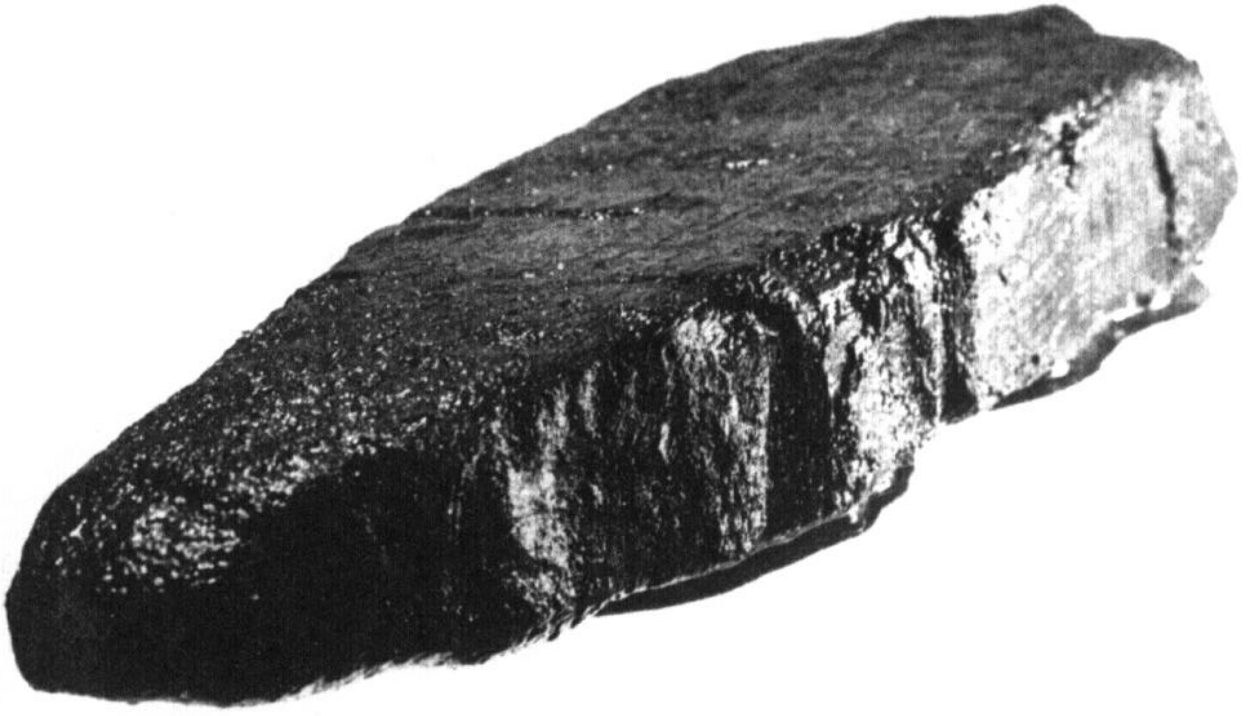


XI Roman well 30, scales 2m and 15 cm *[Ph.: M. Parrington]*

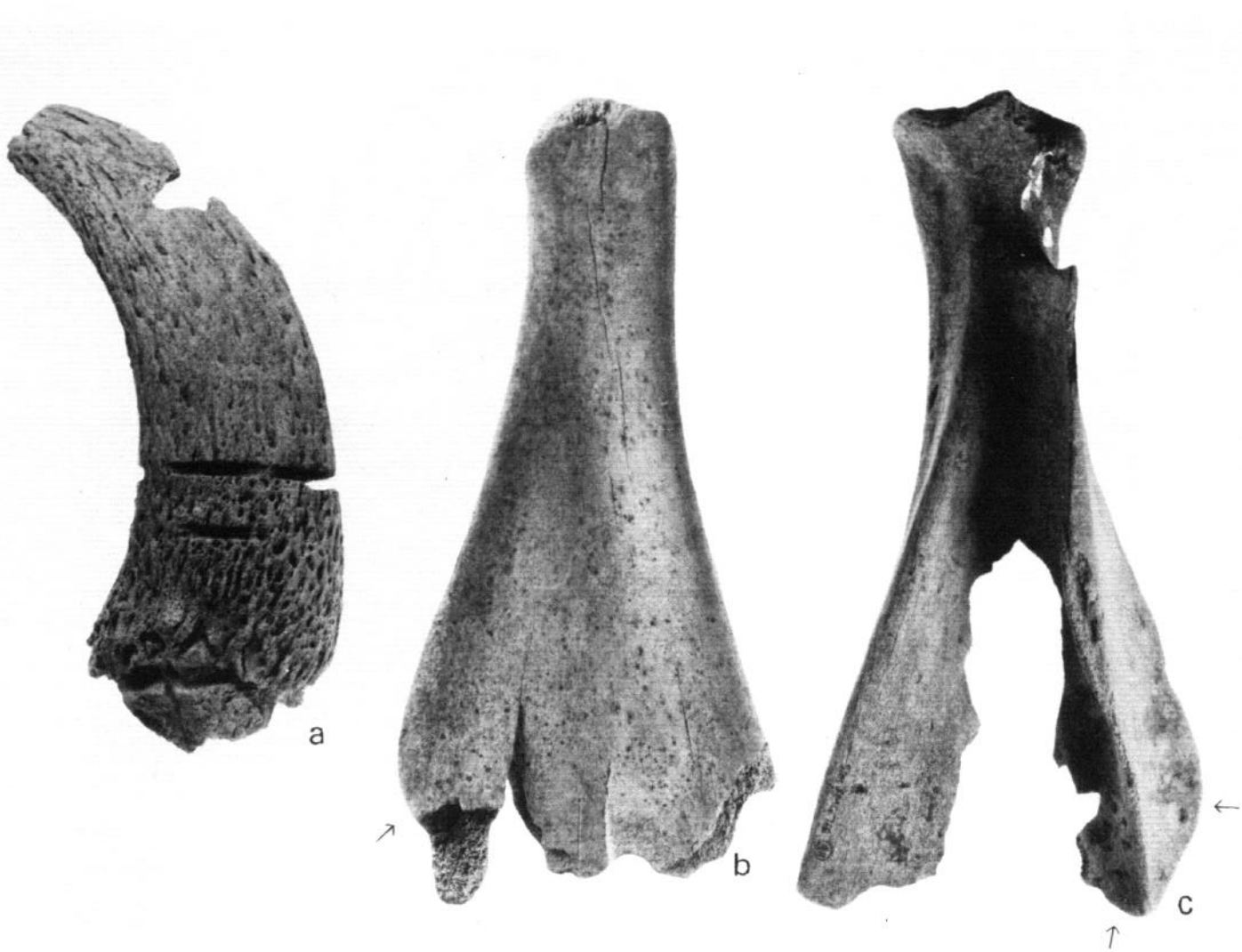


XII Grooved-ware pit. scales 2m and 15 cm *[Ph.: D. Miles]*

XIII *View of Roman ard-share from well 30 showing surface D; length of ard is 37cm*
[Ph.: J. Peacock for Oxfordshire Archaeological Unit]

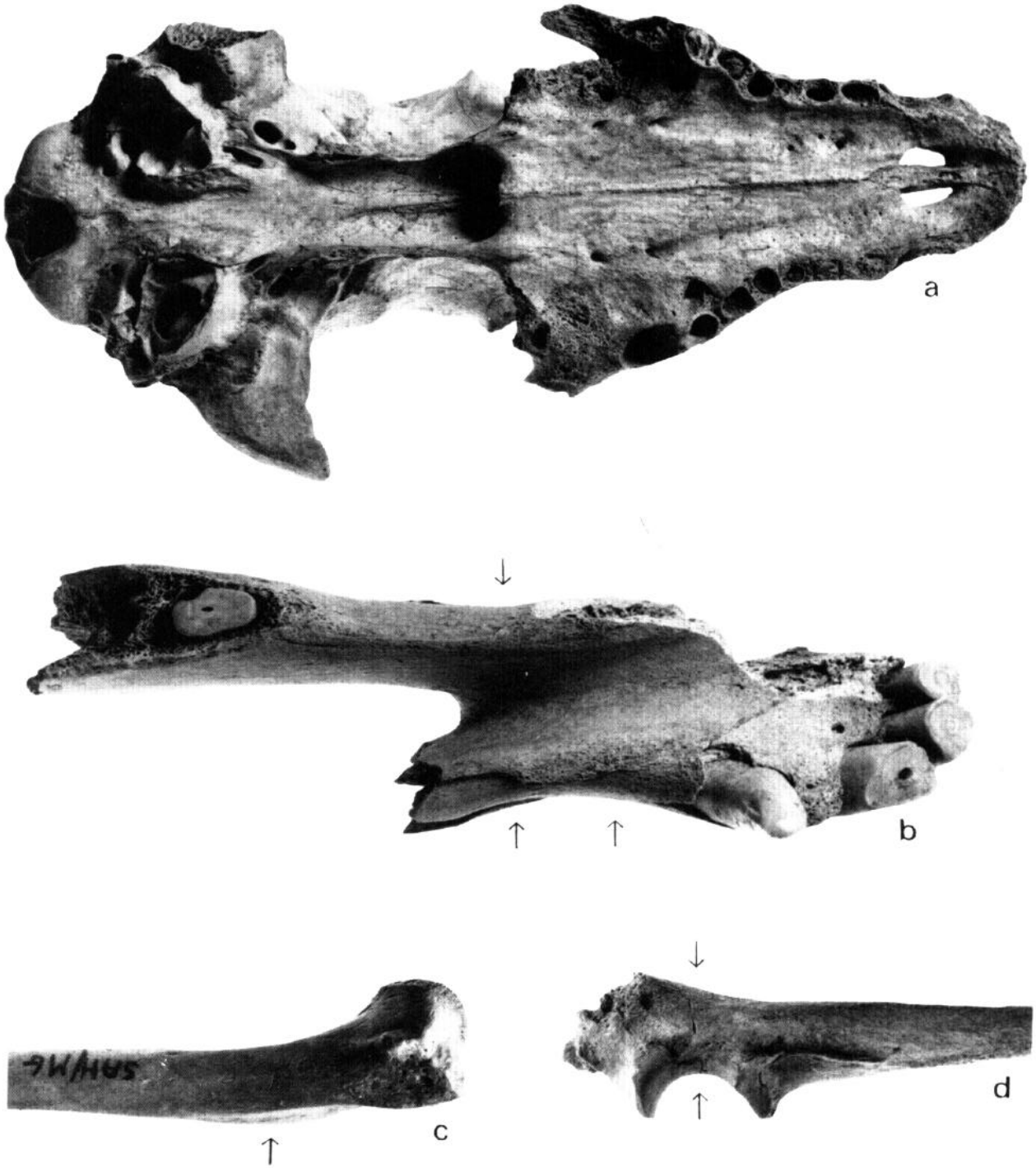


XIV *View of Roman ard-share showing surfaces C and D* *[Ph.: J. Peacock for Oxfordshire Archaeological Unit]*



XV Animal bones: a, saw-cut horn; b, c, abraded cattle scapulae (p. 123); scale approx. 2/3 *[Ph.: R. Wilkins for Oxfordshire Archaeological Unit]*

XV (cont'd) Animal bones: d-g, pathological cattle metatarsals (p. 118-9); scale approx 2/3 *[Ph.: R. Wilkins for Oxfordshire Archaeological Unit]*



XVI Animal bones: a, dog skull showing ante-mortem tooth loss particularly of the incisors, b. horse mandible with worn P2 exostoses on the diastema (p. 118)) c, d, knife-cut humerus and ulna of dog (p. 122); scale approx. 1/1 *[Ph.: R. Wilkins for Oxfordshire Archaeological Unit]*

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