SMALL FINDS CATALOGUE

Small finds recovered from the excavations are classified by function within the material categories of copper alloy, iron, silver, glass, shale, jet, bone, clay and stone. Assistance given by specialists in the drawing of compiling the catalogue is gratefully acknowledged. Only in exceptional cases where it was thought that an individual object was of great intrinsic interest has partially been quoted. The stratigraphical position of each find is given. Measurements where given are of maximum dimensions. The use of microfiche has permitted the publication of all objects recovered from the excavations – thus providing as full and as comprehensive a catalogue as possible of all the materials in the Level III archive.

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THE COINS
by
Richard Reece

As so few of the coins are actually associated directly with the bones of the various burials they are all listed here by stratigraphical groups, and in chronological order. This is not the place to deal in detail with some of the interesting numismatic points which the coins raise for many details depend on coins from other sites in the town and these will be much better dealt with as a whole at a later date. Numismatic chronology has therefore been kept to a minimum, and in most cases the simple reference number has sufficed. One coin, which I think, foreign to British experience is the Sestertius of Septimius Severus formed from copper plates over an iron core. This class of trophy has recently been studied in the Danube Frontier area in Austria by Demsky and was the subject of a paper by him at the International Numismatic Congress in Borne, 1979. It is hoped that his findings will be published in due course in the Acta of that Congress.

In listing the coins the following references have been used:

RIC = Roman Imperial Coins, Mattingly, Sydenham, Sutherland and Carson, London 1923 ff.

DC = Late Roman Bronze Coins, Carson, Hill and Kent, London 1986, part I.

CK = The same, part II.

PRE-CURSORY

Period I - Pre-building
1. Domitian
   As reverse illegible
2. Hadrian
   RIC as 610
3. Septimius Severus
   RIC 266, Sertorius reverse illegible
4. Gallo-Romans
   RIC as 263
5. Barbarous radiates
   Reverse illegible
6. House of Constantine
   UK copy of 93 (probably intrusive)

Period II - No coins

Period III - Use of Building
1. Antoninus Pius
   RIC as 499
2. Marcus Aurelius
   RIC 1239
3. Lucilla
   RIC (M. Aurel.) 1750
4. Tetricus I
   RIC 90
5. Radiate
   Otherwise illegible
Period IV - After use of building
1  Commodus  RIC 548
   Severus Alexander  RIC 221
1  Valerian I  RIC 140; Valerianus Joint reign 691 but legend and portrait of Valerian I
2  Postumus  RIC 37, revolved corroded
1  Claudius II  RIC 57
3  Victorinus  RIC 57, 112; very good copy of Silius
3  Tetricus I  RIC 90, as 160, 440
7  Barbarous radiates  Reverse from Invictus, Salus, Speus, illegible (4).

Period V - Cobble layer
1  Barbarous radiates  Reverse Illegible
1  Constantine I  RIC 6; Trier 899

USE OF CEMETERY

Period VI
(a) Coins associated with burials
1  Helena  HK 43, 112 (Burial 214)
1  Constans  HK 1105 (Burial 264)
2  3rd-4th C.  Illegible (Burials B and I)

(b) Coins in grave fill - CT
1  Valerian  RIC 100
1  Gallienus  RIC 152
2  Claudius II  RIC 261, 266
1  Aurelian  RIC 135
3  Tetricus I  RIC 104, 112, illegible
1  Tetricus II  RIC 120
2  Barbarous radiates  Reverse from Altar, Fides, Hilaritas, Pax, Illegible (3)
2  Carausius  RIC 98, 978
3  Constantine I  RIC 7; Trier as 76 but obverse erased; Lyon 15; HK copy as 48
2  Constantineopolis  RIC 594, 97
1  Constans  HK 140; overstruck on the same issue?
1  Valens  CK 502
3  3rd-4th C.  Otherwise illegible

(c) Coins in grave fill - CS
1  Vetranian  RIC as 545
1  Carus  RIC 138a
1  Valerian  RIC 86
2  Gallienus  RIC (Joint) as 31 but legend (Note) 538
1  Salomina  RIC (Joint) 93
2  Claudius II  RIC 70, 79
1  Tetricus I  RIC as 144
2  Tetricus II  RIC 254, 260

5  Barbarous radiates  Reverse from Pax (2), illegible (2)
and gilded obv. GATT-TOPPFIE, beardless head of Tetricus II
Carausius rev. GATT... CLAVIT, S prior with flower walking 1
RIC 7 London 94, 111; Trier 60, 254, 429; Lyon 15; Arles as 72; Narbona 64
2  Constantine I  RIC 7 London 292, 58 203
1  Urbs Roma  HK copies as 52 (2)
2  Constantineopolis  RIC 115
1  Constans  RIC 17; CK 606
4  Constantius II  RIC 56, as 89, 181; CK as 292
10  House of Constantine  HK as 48, copy as 48, copy of 56, copies as 87(3), as 137, as 180; hybrid obv. as 51/rev. as 48; CK copy as 25
2  Magnentius  CK 54, 55
2  Valens  CK as 282
1  Honorius  Clipped siliqua reverse VIRTVS... ROMABOVIRG
1  3rd-4th C.  Otherwise illegible

(d) Coins in grave earth - CT
1  Hadrian  RIC 603, as 1297
2  Antoninus Pius  RIC 603
1  Marcus Aurelius  RIC (Ant. Pius) 1246
1  Lat. 2nd C.  Asse otherwise illegible
1  2nd C.  As other otherwise illegible
1  Septimius Severus  RIC 49
2  Julia Domna  RIC 546, as other otherwise illegible
1  Seuerus Alexander  RIC 59(3)
1  Oescoria Severa  RIC 179, 19(2), as 210 but nn.11, 221, 226, 236, 357, 358, revs. overstruck on Lactitia but reverse illegible.
2  Salonina  RIC 32, 86
14  Claudius II  RIC 14(3), as 32, 44, as 34, 45, 68, 79, 85, 96, as 108, 109, 1(2), 176
5  Quintillus  RIC 17
1  Aurelian  RIC 213
1  Postumus  RIC 64; as 78 in style of septemviri, 229, illegible (2)
9  Victorinus  RIC 42 as 61(3), 72, 78, 112, 114, 116
21  Tetricus I  RIC 32, 68, 71, 79, 85, 87, 88, 90(2), 95, 100(2), 130, 136(2), 14(2), illegible (6)
6  Tetricus II  RIC 247, 258(2), 272, illegible (6)
7  Radiates  Otherwise illegible
43  Barbarous radiates  Reverse from Altar (2), Deer, Donkey, Fortuna, Invictus, Lactitia (2), Pax (10), Sacrificial Implement, Salus (4), Spea (4), Virtus, illegible (15)

A06
21 Carapinus  
   RIC 69, 98(2), 101(5), 115, 118, 121(2),  
as 149, 289, 78(2), as 878, 947, as  
982 but Salus holds anchor, 1686,  
illegible  
3 Allectus  
   RIC 73, as 33 but spiky style and mm.5/0/mL, 55 
2 Constantine I  
   RIC 7 London 44, 48; Trier 60  
10 Constantine II  
   RIC 6 London 153; Trier 911  
   RIC 7 London as 6, 92(2), 155, 224, 281,  
Trier 209, 386(2), 371; Lyon 1  
   Obverse: 3) 30 reverses illegible  
2 Constantine II  
   HK 60, 367  
6 Constantine II  
   RIC 7 London 237(2); Trier 251, M2, "320"r  
   HK 229  
1 Constantius II  
   HK as 89  
3 House of Constantine  
   HK copy of 54; copy as 87; hybrid obv.as  
   SIV/rev. as 52  
7 Ursos Roma  
   HK copy as 51, 65, 200  
4 Constantinoplis  
   HK copy as 52, 66, copy of 66, 71  
8 Constantinoplis  
   HK (121), 160  
3 Magnentius  
   HK copy as 8  
1 Valentine I  
   CX 300  
1 Valens  
   CX 483  
1 Arcadius  
   CK as 164  
9 J3d-4th.C.  
   Otherwise illegible  
(c) Coins in grave earth - CS  
1 Hadriam  
   As reverse illegible  
2 Claudius I  
   RIC copy as 96  
1 Vespasian  
   As reverse illegible  
2 Domitian  
   RIC 272, As reverse illegible  
1 Tetricus I  
   Sestertius reverse illegible  
5 Antinous Pius  
   As obverse illegible  
2 Faustina I  
   RIC (Ant. Pius) 384, Denarius reverse  
   illegible  
2 Marcus Aurelius  
   RIC 886, Sestertius reverse illegible  
1 Commodus  
   RIC (M.Aurelius) 611  
1 Late Indevidible  
   Sestertius otherwise illegible  
7 Septimius Severus  
   RIC 49, 88, 150, as 150, as 32b but  
   blundered legend and variant design,  
   70d; Sestertius of iron core copper  
   plated, Denarius otherwise illegible  
1 Julia Domna  
   RIC 559  
2 Caracalla  
   RIC as 4, 82  
1 Elagabalus  
   RIC 100  
1 Severus Alexander  
   As otherwise illegible  
2 Gordian III  
   RIC 63, Radiate otherwise illegible  
1 Valentinian I  
   RIC 5, 12, 46, 106  
1 Galienus  
   RIC (Joint) 10, 38, as 53  
7 RIC (Solo) 159, as 176, 178, 179, 193,  
   207, 282  

1 Salomon  
   RIC (Joint) 5  
12 Claudius II  
   RIC as 17, as 27, 74, 48(2), 52, 61, 86,  
   88, 261, 268(2)  
2 RIC 8, 78, 13  
1 Aurelian  
   RIC 241  
5 Postumus  
   RIC 83, 89, 90, 279, 308  
4 Victorinus  
   RIC 56, 71, Virtus Augs. illegible  
11 Tetricus I  
   RIC 71, as 74, 95, as 86, 89, 90, 124, as  
130, 133(2), 156  
8 Tetricus II  
   RIC as 254, 255, 264, 266, as 270(2), 272, 274  
9 Carausius  
   RIC 98, 101, as 101, 287, as 747, 880, 952,  
   263, illegible  
8 Maximian  
   RIC Carausius/Maximinus 34  
9 Constantius II  
   HK as 89  
50 Barbarossa radiates  
   Otherwise illegible  
7 Tetricus I  
   RIC 6 London 121(2), 126, 234, 280; Trier  
   862, 890(3); Lyon 313  
9 RIC 7 London 6, 10, 113, 154, copy as  
135, 158, 161, 168; Trier 42, 47(2),  
303(2), 368, 449, 504; Arles 17, 291  
10 HK 61, 62, 106, 253a, 378, 398, 422  
7 RIC 7 London 134, 143, 174, 275; Trier  
   copy of 307  
1 Fausta  
   RIC 7 Trier 459  
2 Constantine I  
   RIC 7 London 237(2), 284; Trier 382, 512;  
   Arles 102; Aquileia 77  
15 HK good copy of 49, 50, 63(2), 82, as 87,  
   as 94, 187(2), 228a, 369, 379, 427(2)  
30 HK as 51(3), copies as 51(8), 50(3), 62(3),  
   copy of 70, 76, copy of 83, 184(2), copy  
   of 184, 190(2), copy of 190, 200, copy of  
   200, 382, 389  
15 Constantine II  
   HK copies as 52(8), 66 copy of 68, 75; copy  
   of 105; copies of 193(3), copies of 191(2),  
   201, 536; obv. breakage as 52.  
28 HK 90, as 90(3), 95, 130(2), as 116, 146,  
   148(2), as 148, 149(3), 150(2), 154, 155,  
   160, 253(2), 381, 456, 457(2).  
15 CX 3(2), 40  
19 Constantine II  
   RIC 7 Trier 491, HK obv. breakage as 50, 89,  
   as 89(3), 115(2), 126, 139, 145, 204, 242(2),  
   as 242, 354, 425, 539, 567  

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<td>House of Theodosius</td>
<td>Arcadius</td>
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<td>3rd-4th C.</td>
<td></td>
<td>Otherwise illegible (20)</td>
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**TOPSOIL**

| 2 | Antoninus Pius | Septimius Severus |
| 2 | Faustina II | Julia Mama |
| 2 | Gallienus | Claudius II |
| 3 | Valerian | Tetricus I |
| 2 | Victorinus | Tetricus II |
| 2 | Radiate | Barbarous radiate |
| 4 | Constantine | Sestertius reverse illegible |

**REVERSAL**

| 2 | Crispus | Britanniae |
| 2 | Constantine II | Britanniae |
| 1 | Theodosius | Britanniae |
| 4 | House of Constantine | Britanniae |
| 1 | Valentinian I | Britanniae |
| 1 | Valens | Britanniae |
| 1 | Theodosius I | Britanniae |
| 1 | Arcadius | Britanniae |

**DISCUSSION**

With the listing of these coins in stratigraphical deposits it is no longer possible to see all the coins in this report as one single group. The coins which are associated with the building has a little to common with those which accumulated later during the life of the century. The coins in the grave earth are doubtfully referred to the other groups. This therefore gives us several fairly small groups of coins none of which permit detailed comparison and the commentary will therefore be qualitative, not quantitative.

The first point for discussion is the dating of the building on site and its subsequent disuse, purely from the evidence of the coins. The latest coin in the pre-building group I, a barbarous radiate if the coin of the House of Constantine is regarded as intrusive, which from the later coins seems unlikely. This suggests that the building belongs to the very end of the third century. From the coins alone there is no obvious difference in the date of the construction of the building, its use, and its disuse, because all of these deposits contain coins which could go up to about the year 300. All three of these deposits contain coins of the period up to 230, and this argues for a date nearer 270 than 300. For, by the end of the century, the earlier Bonnai and Sestertii had virtually disappeared from use and circulation.

The coins from the cubbled layer suggests a date of about 310 to 320, although this depends on only two coins they do agree together, they follow deposits which seem to end by 300, and coins of the 310s and 320s are the most commonly found coins are absent. On site C therefore, the coin evidence suggests that the cemetery may spread in the first quarter of the fourth century.

Only four being are recorded as part of the grave goods. Two of these are not legible, but the other two belong to the years 335-345. This shows that the cemetery was in use perhaps in the 340s and 350s, after which such coins would be unusual, but not unknown. The other coin which has actual dating value in the will of Honorius, for which a round date of 400 may be suggested. Since this lay physically under the last vertebral of burial F it is possible to say that burial continued after 400.
This leaves us with the large number of coins which were either
associated with the burials in a general sense, or part of the earth into
which the burials were dug. Coins in grave fills on site CT begin with
Valerian I around 250 and conclude with the coins of Valens. On site CT
the list is similar but starts earlier, with the coin of Valens associated
with the excommunication 293, ends later with the Silicus of Honorius,
and has a greater concentration of coins of the House of Constantine
in the middle of the fourth century. The coins in the grave earth form
the greater numbers of coins found, but are unfortunately less well associated
with burials, disease or cause of death or the building or the cemetery. On site CT
there is a good collection (comparatively speaking) of coins of the
middle of the third century, a peak of radiates at the end of the century,
and less fourth century coins than might be expected from the general
picture of coin finds in Gloucester. On site CT there is again the
excellent representation of coins from 260 to 268, the expected radiate
peak but then a more unusual number of coins of the fourth century continu-
ing strongly up to the House of Theodosius. In all these deposits here
is a good number of coins of 317 to 330, probably above normal. The
topsoil shows simply a mixture of coins commen to elsewhere.

No clear cut divisions are obvious in this description. Dating
provides us that the cemetery was in use in the fourth century; the
general run of coins cannot add to this. Site CT has a few late coins
associated with burials, but site CS has the greater number of late coins
found in the grave earth. The unexcavated coins are obvious throughout the different deposits, the first containing coins of c. 200 to 268, the second, coins of c. 310 to 330. It seems likely that
these burial groups are of different origins for the base of burials
and radiates of the first half of the third century are presumably too
early in the building and cemetery sequence to represent a major phase
of burial. Their origin is presumably to be found in the general rubbish
levels which formed the sub-soil of the later cemetery and they have
therefore a bearing on rubbish removal from the town, rather than
intensity of burial on this site. It is all the more remarkable that
these coins are, in general, rare in deposits inside the town, or, for
that matter, inside any of the towns of southern Britain. The only
other deposit in which similar numbers of these coins have been found
is the Balkerne Lane deposit at Colchester where Philip Crummy and the
Colchester Archaeological Trust excavated outside the walls of the town
in advance of ring-road construction, and were able to empty considerable
stretches of the city ditch. They have already used these two deposits of
what I take to be third century town refuse dumped outside the walls to
argue that this shows considerable organization and some prosperity
inside the towns in the first half of the third century, and this argu-
ment need not be repeated here (Hence 1991 forthcoming).

The coins of 310 to 330 must come from a different source if the
cemetery was in use at the beginning of the fourth century, since that
would have precluded the tipping of rubbish. These coins would then
suggest a phase of cemetery use, and, presumably, the deposition of coins
with the burials, or in the grave fills. Whether or not the beginning
of the putative burial phase can be pinned down is interesting. The
coins which occur in unusual numbers are coins which normally occur on
any site in Britain; what is unusual is their number compared, say to
the coins of the preceding and following decades. The earlier coins
which I picked out as unusual are not in this class for they are
distinctly uncommon even in large groups of site finds from inside
towns. The second peak is therefore an intensification of coin deposition
of the normal pattern rather than an abnormal pattern.

If we look, for a moment at earlier coins, struck and used before
310 the different patterns emerge. The coins of 260 to 275 are not
commonly found everywhere that their presence can say little. Coins
from sites in Italy struck between 270 and 294 are unusual as site finds
anywhere in Britain, and again, their absence from this site is simply
a conformation to the general pattern. The larger silvered bronze
coins struck after Diocletian's reform of 294 do occur all over Britain,
but always in small numbers. As these large coins gradually all in
weight they are much more commonly found on sites, until by 320 a final
reduction makes them a very commonly lost coin. If we apply this to
the cemetery finds the absence of coins of the first tetradrachm (Diocletian,
Maximian et al. 294 to 305) is strange; one or two might well be expected
for they occur rarely but consistently as site finds. Their absence is
the more remarkable when the larger numbers of coins after 310 are
remembered. In general summary this would seem to suggest an absence
of use of the site for any purpose, whether as rubbish dump or as
cemetery, in the two decades around 300, and a fairly sudden rise in
burials involving coins soon after 310. These points are, of course
subjective, for they could equally be replaced with a theory of non-
coin burial from 290 to 310, and then a change of fashion around 310
involving the deposition of coins; at least an attempt has been made
to interpret this coin pattern.
THE BROOCHES
by D. P. Mackreth

All items are made from a copper alloy, unless otherwise stated.

Colchester Derivatives

1. "CS 71 3." The spring is held to the body of the brooch by means of an axis bar which passes through the coils and the lower hole in a plate projecting behind the head of the bow; through the upper hole passes the chord. Each wing is curved and has a groove at its end. The bow is thin and has, down its centre, a ridge which is a continuation of the plate behind the head. The lower bow, with the catchplate, is missing.

2. CT 73 118. The upper bow along with the pin-fixing arrangement is lost. The surviving part of the bow is thin, tapers to a pointed foot and has two cross-grooves at the top. Due to corrosion, it is not clear whether or not there had been other cross-cuts at the foot.

Although only part of each is preserved, both of these brooches probably belong to a type found in southern England with what seems to be a concentration in Gloucestershire and Wiltshire (cf. Atkinson, 1916, 37, pl.XI A). The date of the type is obscure as none from a dated context seems to have been published, but it probably belongs to the first century A.D.

Unclassified

4. CR/71 Road 1 T. The spring, with an internal chord, is mounted on an axis bar passing through pierced plates at the ends of a half cylinder housing the spring. On the head is a cast-on loop mounted on a pedestal. The front of the half cylinder has a central hole of unknown function and a framing rectangular groove with a white metal finish in it. The main part of the brooch consists of a flat plate cast to the shape of a disc with a fantail foot. This disc has a wide recessed zone with mid-blue enameled while, in the centre, is the remnant of a stud riveted through the plate. The fantail has three recesses, the middle one in the shape of a crude leafy form filled with a discoloured enamel, the outer ones containing mid-blue enamel. The catch-plate is squashed. The surface of the metal framing the enamel on the main plate appears to have traces of a coating of white metal.

In appearance, the brooch looks like a member of the Rosette family, with the profile of the Aucissa might reflect a parallel dating. In which case, the period from c. A.D. 30-50 might be appropriate but close parallels from Saalburg and Zugmantel show that the floruit persists into the latter part of the first century at least. (Böhme, 1972, 14-5, 79, Tafl. 4-5, 310-8) as both sites were founded c. 85-90 (ibid., 9) and Böhme notes that a few specimens were buried as grave-goods with coins of Trajan (ibid., 16). In Britain it is hard to demonstrate satisfactorily that any Kastheim Derivative persisted into the second century and the possibility that this example may have done should perhaps be considered.

Parallels in Britain are not helpful in determining the date range: one may come from Scotland (Hull No. 2944; National Museum of Scotland) and another comes from the Peterborough area (Peterborough Museum, L 293/6). Two come from Augst (Müller, 1979, 62, Tafl. 3,13b-31 and are described as belonging to Almgren's type 16, which may be considered to be a perennante designation, the only points in common within the grouping being the profile and the spring system (Almgren, 1923, 106-7, Tafl.1,16). The numbers of the type given by Almgren strongly suggest that the type and its variants should be created as being of continental origin. The dating is not well fixed and its apparent affinity

I am grateful to Dr. Grace Simpson for the information in advance of the publication of the late M.R. Hull's Corpus.
Hod Hill

5. CT 71 IV Road T-1, north side. The axis bar of the hinged-pin is housed in the usual rolled-over head. The upper bow has a pronounced central ridge with a flute on either side running out to slight bordering ridges. The lower bow is flat, triangular, tapering towards the foot, and it separated from the upper by a cross-molding. The foot-knob is missing.

There is as yet no Hod Hill published from a pre-Conquest context. Apart from a short typological stage in which the foot-knob is made separately as in the parent type, the Ascissa, there appears to be no satisfactory chronological division amongst the varied designs of Hod Hill. The type came in at the Conquest fully developed and its distribution suggests strongly that it continued in use until the 60's of the first century, but had largely passed from use by c. A.D. 70 as the small number recovered from the lands taken into the Province by Petilius Cerialis shows.

Plate

b. CT 76 354. Now in several pieces, the brooch is circular with a ridge round the edge and the remains of six small equi-spaced projections around the periphery. In the centre is a boss mounted on a cone with an oval-curve divided profile. The boss is dished and has, in its centre, a small knob. At the base of the cone are two incised grooves which may have been used to key enamel of which traces may remain as parchy silicate deposits. The pin was hinged.

The type is well known and is, on present evidence, as common in Gaul as it is in Britain, but it is not clear on which side of the Channel it was made. However, its wider distribution on the continent, running down to the Mediterranean, should indicate manufacture there as it is unlikely that an insular product would have enjoyed such wide sales abroad. Present dating evidence suggests that the type only began in the second century, but may have run into the third, possibly only as survivors in use: Dura Europos - a site occupied by the Roman between A.D. 165 and 255 (Priche and Piri, 1949, 40, pl. IX, 21); Wroxeter: before A.D. 120 (Bache-Fox, 1916, 25, pl. XVI, 12); Cadewright - second half of the second century (Osval, 1924, 128, Fig. 55, 29); Gowerland - A.D. 212-222 (Wheeler and Wheeler, 1928, 186, Fig. 14, 20).

Pl. N. 7

My thanks are due to N.H. Fergus for the information in advance of his publication of his doctoral thesis.
7. CS 70 4. The pin is sprung with an internal chord. The plate is circular, with twelve half-round equi-spaced projections, and an inner annulated rim which follow the shape of the plate. The annule is now discoloured, but the differences in the greens suggest a different colour in each element of the design. Not illustrated.

There seems to be little doubt that the type to which this brooch belongs is a British one. Unfortunately, the number of examples recorded by the writer is few and none is dated by its context. The main period of use was probably in the second century.

8. CS 70 1. Shaped like a boot or shoe sole, the plate has a single recess filled with enamel, now green, in which is set a series of small, dark circles representing hob-nails. The pin, largely missing, is hinged. Not illustrated.

The type is common both in Britain and on the continent where it was probably made. There are several designs although the present is the commonest, but the existence of sprung-pin examples suggests that more than one factory produced the type and it is possible that the latter may represent a British manufacture; the use of a sprung-pin may be a more British trait than continental. However, this point has yet to be established. As for dating, intentionally unannulled ones may be earlier than those which were: August (Riba, 1979, 203, Taf. 66, 1727) - Roman-early Flavian. Otherwise the general dating would seem to support a second century date, with a possible continuance in use into the third century (Friede, Taylor, 1979, 138, fig. 63, 478; Riba, 1979, 203, Taf. 68, 1749, 1752, 1753).

9. CS 73 136. A fragment of what was probably a circular plate with repousse ornament. There is a raised border, within which are two decorative elements the inner of which could be described as being a 'comma' with a dot within the lobe, and the outer as a more complex moulded shape, but much less distinct in form. Both curve in to the centre from the outside. If the plate had been circular, then there would have been space for three or four repeats of these elements.

It is tempting to see in this ornament part of the design from a plate brooch with an applied repousse plate (cf., B.M. Guide, 20, fig. 11, 39). However, no example recorded by the writer displays a design sufficiently close to the present specimen for the identification to be accepted without doubt. Had it been part of a brooch, the most likely date would have been within the second century (Goodchild, 1974).

10. CS 71 3. The pin is hinged and, judging from the corrosion products, mounted on an iron axis bar. Each wing is plain and has a round section. On the head of the bow is a knob on a waisted pedestal. The bow has a triangular section and, in profile, a concavity at top and bottom marked off from the rest of the bow by a step. The foot is plain and has a chamfer down each side and a simple projecting moulding at the base. The pin slot is on the right. The brooch was tinned or silvered. Not illustrated.

11. CS 72 8. The pin is hinged. Each wing has a circular section and a roughly rounded knob at its end. At the junction of the wings with the bow is a squared 'block' from which rises a knob mounted on a double moulding divided by a flue. The bow has a flat back, vertical sides and a profiled front. At the bottom end of the bow is a strongly projecting rounded plate. The profile of the bridge has a step at each end and a concave surface between. The foot has a rounded front and the pin-slot on the right. The brooch was once completely tinned or silvered.

These two brooches show traits which are not to be found on fourth century Crossbows: the treatment of the feet, the style of the knobs on the heads, and the generally slight sections of bow and wings. On the other hand, there are no good grounds for supposing that they belong to the earlier third century. The only reasonable dating which is available consists of the presence of similar items at sites such as Duro Europos, Niederbieber, Salzburg and Zugmantal which ceased to be occupied in A.D. 256 for the first and c. A.D. 260 for the rest. The assessment of the dating of such brooches is largely typological in that their development is continuous from the third into the fourth century and it is based on the frequency of occurrence of various ornamental details in large collections with a good terminal date. For present purposes, only the last two sites are really useful, although Niederbieber provides a useful check in another direction: both Salzburg and Zugmantal were built c. A.D. 85-90 (Bilham, 1972, 9), but Niederbieber was not constructed until c. A.D. 190 (Gehrer, 1985, 590) thus the bulk of second century brooches is not present save for those which survived in use. At the first sites two out of 125 brooches which can be seen to be Crossbows, only about ten can be described as belonging, typologically, to the series which carries on beyond the end date of the sites (Bilham, 1972, 27, 39, Taf. 121, 15, 209-622 PASSIM). The chief characteristics distinguishing later brooches from nos. 10 and 11 are the presence of knobs with basal moulding; the absence of the central bridging section between bow and foot; the presence of either wire or a moulding at the base of the bow; the absence of a forward projecting moulding at the bottom of the foot; the presence of ornament on the foot other than a simple swell or plain chamfering. In other words, such brooches display features which clearly lead to, or are present on, brooch nos. 12 and thus set nos. 10 and 11 in typologically earlier stages. Of the two, no. 10 is likely to be the earlier: plain wings and a simple junction with
the bow compared with the three knobs and the 'block' at the junction of wing with bow on no. 11. While the tendency of development can be detected at these sites, it is not possible to be certain that brooches nos. 10 and 11 must be dated to the third century before c. A.D. 360 for some may well have carried on in use afterwards, but the analysis carried out by Keller (1971, 45-53, Abb.12) suggests that they are unlikely to have persisted in significant quantities into the last decade, if as late as that.

12. CS 71 5. The brooch was made up of several hollow pieces, chiefly from sheet metal, soldered or brazed together. The hinged pin is a wire wrapped round a cross-bar running through the hexagonal-sectioned wings and joined at each end to a separately made onion-shaped knob. On the head of the bow is another onion-shaped knob fastened by means of a pin through the bow. The base of the knob is encircled by wire and the other two may once have been similarly treated, there being space, however, it is to be noted that the gliding runs up to the wings and does not reveal any sign of having been interrupted. The bow is plain and has a transversal section. The junction of the bow with the wings is fitted, on each side, with a separately-made triple-lobed bracket. The bow narrows at the bottom to a half section before joining the foot. The start of the constriction is bound by a piece of wire which slits into the bow. The foot is cast with three sharply defined C-shaped moldings on each side, rising from a chamfered edge with a terminal decoration at the bottom. The pin slot lies on the left and is formed by bending a cast flat round behind the foot, and the bottom of the slit tube so formed is sealed by a shaped plate. The brooch had been heavily gilded, but most of this has worn off unprotected surfaces. The base metal is most likely to have been a relatively pure copper so that the mercury gliding process could be used.

Belonging to Keller's type 5 (Keller, 1971, 41-52, Abb.11), the brooch is dated by him to c. A.D. 370-400 (Ibid., 53). However, while his dating scheme, based upon graves with coins, functions reasonably well for his types 1 to 4, the coins found with type 5 brooches do not allow such a neat forward movement as he proposes and it would perhaps be better to widen the date range to cover the whole of the second half of the fourth century. In Britain, dating is sparse, but one from the Larkhill cemetery, Winchester, comes from a grave dated c. A.D. 350-40 (Clarke, 1979, 118-9; 260, fig. 32, 278).

13. CS 71 2. The ring has an oval section with cross-cuts round it on one side. The surviving terminal is curved to a spiral at right angles to the plane of the ring. The pin has a very slight bump and, at the start of the wrap-round, three cross-cuts.

14. CT 76 377. The ring has an oval section and is plain. Each terminal is returned along the top of the ring, has a groove across each end with a crenellae in each side between. The pin is missing.

15. CS 72 8 3. The ring is a flat, rectangular, section. Each terminal is turned back as on brooch no. 18 with two notches cut into each side. The pin is missing. Not illustrated.

16. CS 72 8 3. Made of iron, the corrosion hides the details. The ring appears to be round in section and each terminal returned along the ring either as a curl or as a not well flattened plain return. The pin is also of iron.
brooches re-used at Pilgrims, Oxon., surely were (Aberman, 1857, 141, fig. 142). Parallel for no. 14 show that the type was present in the middle years of the first century A.D. and had, very probably, evolved before the Conquest; two from Had Hill are as likely to have derived from the Iron Age site as from the Roman fort (R.M. Guide, 22, fig. 12, 39; Brailsford, 1962, 13, fig. 11, 21B). It should be borne in mind that penannular brooches were easy to make and a mistake in using a tool could change the apparent character of a terminal: the type to which no. 14 belongs can be altered if one of the cross-grooves had been omitted, or if the concavities are so close as to appear to be a hollow running right across. As such, the writer has not been able to determine how significant some of these small changes may be. The writer is not prepared to assign no. 15 to one of Fowler's types, and has not been able to isolate a large enough set of parallels to be convinced that it is more closely datable than the general proposition that it is likely to belong to the first two centuries A.D.

Fragments


18. CS 73 4 1. A pin whose curve suggested that it might have come from a brooch. Not illustrated.

OBJECTS OF COPPER ALLOY

by

Linda Viner

19. Fibrec with stamped lozenge decoration on both arms. CT 118.
20. Fibrec, undecorated. CS 701. A similar example, length of narrow neck, from CT 121, not illustrated.
21. Hall cleaner with suspension loop in the same plane as the blade. CT 69 (b) 1.
22. Hall cleaner, CS 70 1.
23. Hall cleaner with the suspension loop at right angles to the plane of the blade which has been decorated on one face only with three scored parallel lines with a St. Andrew's Cross occupying one of the panels. CT 55 1.
24. Probe with dropper at one end, and pointed at the other end. CT 69 (b) 5 2.

Two fragmentary scoops, with oval bowls were found in CT 107, and CT 121. Not illustrated.
25. Needle with a rectangular eye, CT 36 2.
A second incomplete example, surviving shaft length of 96 mm, broken below the eye, but with enough surviving to suggest a rectangular eye, was found in CT 154. Not illustrated.
26. Fine copper alloy pin with spherical green glass head. CS 72 8 4, from the grave shaft of burial 205.
27. Pin with faceted head. CS 70 1.
29. Ring made of fine copper alloy, the ends have been looped together in a decorative double spiral. CS 73 4 1. Cf. London in Roman Times, 1930, fig. 30, 15, found in Lothbury, probably late Roman.
30. This would appear to be very similar to no. 29, with additional spiral loops around the terminals. CS 72 4 1.
31. Ring with simple ribbon loop formed from sheet copper alloy. CS 72 8 3, from the grave shaft of burial 191.
32. The setting has been lost from the circular bezel of this ring. CS 74 10 4.
33. The oval bezel is filled with an unidentified stone, flanked by circular flat discs. CS 73 4 4.
34. The ring is circular. CS 72 9 4.
35. Ring with raised oval bezel with a green glass inset. CS 72 4 6.
36. A flat circular plate forms the centre-piece of the ring, flanked by circular cups which once contained enamel. CS 72 9 4. A very similar ring is illustrated by Bushell-Fox, 1949, p1. XXXIV, 104, where a date is given as probably third century.
37. Ring with an oval bezel flanked by rectangular mouldings. CT 304.
38. Key ring. CS 72 8 3.
39. Key ring. CS 72 4 1.
40. Key ring, CT 309.
Fig. 53: Objects of copper alloy

Fig. 54: Objects of copper alloy
41. The form of this ring closely resembles those of the previous three examples. They, however, is missing, and from corrosion products within the bronze loop would appear to have been iron.
CS 73 2 2.
42. Simple plain ring. CS 71 3. Three further examples were found:
CS 70 3, diameter 17 mm.; CS 116, diameter 25 mm.; and CS 378, diameter 20 mm.
43. Penannular bracelet, decorated with diagonal lines in imitation of the twisted wire type of bracelet. The decoration is faint in places indicating prolonged wear. CS 72 4 ditch.
44. Flat bracelet, with the width perpendicular to the wrist. In plan the decoration is castellated, with rectangular projections, the intervals between the projections being notched. C.f. Kenyon, 1948, fig. 83, 3. CS 72 8 3.
One further example was found in CS 72 8 1.
45. Flat bracelet decorated with alternating V-shaped notches, to give a zig-zag effect. CS 72 8 3.
Three further examples were found: CT 69 (b) 1; CS 71 1, 2.
46. Flat bracelet with decoration comprising groups of three notches, CT 106.
47. Bracelet of copper alloy wire, the outer edges cut by transverse grooves, with additional decoration in the form of irregularly spaced raised rings. CS 71 2.
A fragment showing an area of transverse grooves only was found in CS 73 2 2, close to burial 278. Not illustrated.
48. Single strand of wire with remains of terminals wound around each other. CT 100.
49. Two strands of wire of oval section twisted together, with one strand extended to form a hook. CT 300.
Further examples came from CT 70 1; CT 71 2 (2); CT 103; and CT 113. Not illustrated.
50. Fragment of bracelet with three alternating decorative bands. CT 379. A similar, less well-preserved fragment was found in the grave shaft of burial 3, CT 69 (b) 4, 1, not illustrated.
51. Two fragments of a bracelet whose decoration comprises lozenges divided by pairs of vertical grooves. CT 379. A second example, not illustrated, from CS 10 1.
52. Ribbon-strip bracelet. Decoration consists of a line of punched dots along the length of the strip. CS 74 10 1. A second example was found in CS 71 1.
53. Oval escutcheon or mount for a bowl. CT 136.
54. Leaf-shaped escutcheon or mount for a bowl. CT 116. C.f. Susa-
Fox, 1949, pl. XI, 156, for a similar example from the Inner Stone
Fort Ditch, Richborough.
55. Lid from a jug, the top of which is in the shape of a duck.
CS 74 10 1. This piece was found lying near the left elbow of
burial 312.
56. Flattened strip handle which tapers to a hook of circular section.
CT 300.
57. Length of handle with a knob terminal. CT 304.
58. Handle? CT 212.

Fig. 55 objects of copper alloy
59. Rare and dog folding knife. The handle comprises a naturalistic representation in copper alloy of a running hare seized from behind by a pursuing dog. The complete triangular iron blade is joined to the copper alloy handle by an iron rivet. CS 71 2.

Max C. Lloyd-Morgan in his study of hare and dog knife handles cites the following parallels for this her Group II:

- Duston, Northants. (personal correspondence); Hadstock, Essex, length 65 mm.; (Smith C.R., 1850, 206-7); Chesters Museum, length 70 mm.; (Budge 1905, 378, no. 453, Mus. 10900) pl. 653; Corinum Museum, accession number C 100, length 63 mm.; and Richborough, Kent, incomplete. (Buch-Fox 1949, 125, no. 148, pl. XXXVI).

60. Looped handle of wire, terminals decorated with incised grooves. CS 72 8 3.

61. Sheet of copper alloy, rolled into a tube, turned at one end to form a loop. Pressure from use has denatured the loop. CS 70 1.


63. Fragment of a pendant with a conical terminal. CS 72 4 1.

64. The lower part of a small pendant with a conical terminal, it has three asymmetric openings and has fine punched decoration round the edge. (Lehner, 1909, pl. XXXIV for general types). CT 121. For illustration see Webster, 1982, fig. 39, l.6).

65. Belt plate crudely decorated with what was intended to be a fretted design of the kind in use in the army in the second century (Fox, 1940, fig. 6, no. 19; Nash-Williams, 1936, fig. 31, nos. 12 and 13, pl. 11). The plates of the first century are normally solid with niello decoration. This example could be a poor civil copy. CS 70 4. (For illustration see Webster, 1982, fig. 38, l.20).

66. Decorative knob with iron shank surviving; CS 70 1, possibly used as a coffin decoration.

67. Similar to no. 66 with iron shank surviving. CS 70 1.

68. Knob, the centre hollowed and filled with lead and with remains of the iron shank attachment surviving. CS 72 8 3, from the grave shaft of burial 191.


70. Studded with decorated flat head. CT 69 (5) 4/5 7. Two similar examples were recovered from CS 73 4 3; and CT 118. Not illustrated.

71. Dome-headed tack, CS 71 2. Other examples were found in CS 70 1; 2 examples; CS 70 4; CS 74 10 1; CT 356; CT 118. Not illustrated.

72. Tack with small rounded knob head; CS 71 2. Three other examples were found: CT 69 (5) 4/5 7; CS 73 8 7; and CT 221.

73. Tack with small flattened head, CS 72 8 2. Similar examples found in CS 116; CT 117; CT 140; CT 377; CS 72 8 2; CS 73 4 1; CT 121; CT 161; CT 347; CT 96 4; and CT 377.

74. Stud with flat top, and concave centre. CT 74 1.

75. Studs with flat heads as illustrated, CS 70 1, were the most common form found during the excavations. With varying diameters.
of heads and length of shank, examples were recorded from the following contexts: CT 89 (6) 4 1; CS 70 1, 5 examples; CS 70 4; CT 71 1; CS 71 3; CS 72 8 2; CS 73 4 1, 3 examples; CS 72 8 1; CS 72 8 3, 3 examples; CS 72 8 7; CS 74 10 1; CS 74 10 4; CS 74 10 2; CT 112; CT 126; CT 160; CT 110; CT 115; CT 122; CT 209; CT 254; CT 226; CT 143; CT 74 4; CT 304; CT 300; CT 354; CT 111; and CT 143.

76. Flat-topped stud. CS 73 4 2, from the grave shaft of burial 249. A second example came from CS 70 1.

77. Stud with shell decoration. CT 73 April observations.

78. Hexagonal piece of sheeting, with two sides folded towards the centre. CS 73 9 4. Cf. Gaddbridge (Neal, 1974, fig. 39, 105-6) purpose uncertain, but probably improvised split pins or rivets for leather work. They occur on many sites but are rarely published. See also Brough (Wood, 1969, fig. 38, 26).

79. Sheet of copper alloy cut in the form of an isosceles triangle, all edges are well smoothed. CS 72 4 1. Cf. Gaddbridge (Neal, 1974, fig. 39, 105), with suggested use as inlay for a box or piece of furniture.

80. Thin sheet cut in the shape of a diamond. CS 70 1. Possibly cut for use as inlay.

81. Cone formed of twisted sheet copper alloy. CT 238.

82. Cone-shaped decorative fitting, with shank of rectangular section, pierced for attachment, possibly to wood. CS 73 8 4.

83. Arm of a steelyard balance, with graduations marked on two opposing sides of the rod. CT 260.

84. Spen with an oval bowl, attached to one handle by a horseshoe loop. CT 200.

The oval bowl of a second example was found in CT 73 4. The junction between handle and bowl of a third example was uncovered in CT 195.

85. Strip, pierced twice with remains of an iron stud in one hole. CT 226.

86. Sheath pierced for attachment to wooden bar? CT 110.

87. Sheath pierced for attachment. CT 300.

88. Folded fragment with three studs. CT 204.

89. Fragment of a buckle. CS 73 4 4.

90. Plate from a buckle or belt fitting to be attached to a leather strap by means of pins through the four small holes in the plate. CS 71 3.

91. Belt plate, CT 304.

92. Two strip bindings. CT 246.

93. D-shaped buckle loop, lacking tongue and plate. CS 71 3.

94. Tongue from a buckle. The flattened strip which was looped round the bar of the buckle is ornamented. CS 70 1.

95. A plain tongue from a buckle was found in CT 300.

96. Fragment of sheet copper alloy with incised decoration on one side only. The original form of the object is difficult to imagine. CT 226.

97. Coiled strip of copper alloy, broadening from the narrower underlying terminal to a broader overlapping end. CT 377.

98. Thimble. CT 130.

99. Strip binding. CT 181.

100. Sheet cover. CS 71 3.
101. Length of rod, the surviving terminal in the shape of a stylized
snake head. CS 71 3.
103. Spiral of wire. CT 76.
104. Fragment of an arm from a spear? CT 69 (b) 1. Cf. Bushe-Fox,
1932, pl. X, 30.
106. Tube, one end of which is serrated. CS 70 1.
107. Ring of rectangular section with intertwined overlapping terminals.
CT 231.
Two further examples, not illustrated, were found in CS 70 1 and CS 71 1.
108. Fragment of a cocherel, from平板 of a tap on a spigot. ?Medieval.
CT 377.
A total of 42 fragments of copper wire of varying lengths, and
widths were recovered from 33 contexts.
Twenty-five pieces of sill - found and fire-distorted fragments of copper alloy - were recovered from 78 contexts.
Nine fragments of sheet metal which had been deliberately pierced
but for which a function is indiscernible were found in 8 contexts.
In contrast over 234 fragments of indiscernible sheet metal were
recorded from 14 contexts in CT and 2 or 6 CS.

OBJECTS OF IRON
by
Linda Viner
109. A very intricate and decorative mounting of a stylus with a
copper ferrule decorative band near the pointed end. The style
and form suggests a translation from bronze into iron. CS 70 1.
110. Stylus. CT 300.
111. Stylus. CS 72 9 1.
112. Stylus. CT 211.
113. Stylus. CT 226.
114. Stylus. CT 113.
A second, very corroded example was recovered from CT 375.
Five further styli were recovered from the following contexts:
CT 118; CT 31; CT 192; CT 146; and CT 237.
115. Ox-goad formed from a thin rod coiled three times to give a
spiral binding with an upturned end to produce the spike. CT 125.
Four further examples are of the same form: CT 243; CT 233;
CT 273; and CT 244.
117. Shoe cleat. CT 242.
118. Shoe cleat. CS 71 4 4.
110. Shoe cleat. CT 73 4 4.
111. Shoe cleat. CT 74 4 3.
112. Shoe cleat. CT 89 3 1.

Others were recovered from CT 102; CT 242 (2); CT 254; CT 124; CT 260; and CT 142.

112. Socketed tripod candlestick, with two legs surviving. CT 107.
113. Similar to no. 122 but with shorter legs. CT 107. This is a common form of candlestick, with parallels quoted by Manning, 1972, fig. 65, 31.
114. Socketed tool, the socket emerging from a tang of square section. Function indiscernible. CS 72 8 3.
115. Handle of a spoon or ladle. The object as it survives consists of a bar of square section, perforated at one end, with the remains of a splayed spoutlike projection at the other. A scoop with circular bowl is illustrated in Brodribb et al., 1971, fig. 35 no. 33. CS 70 1.
116. Rod with loop twisted midway along its length, the ends hooked in opposing directions. CT 227.
117. Shovel head. The top is expanded and pierced for suspension, whilst the other end has the remains of a bifurcated hook. CT 362.
118. Fragment of a spade iron, comprising the straight arm of rectangular section with a paired lug, pierced to take nails to securely fix the iron to the wooden spade. CS 71 2.
129. Spade iron, with a square mouth. The blade has a V-shaped groove in the inner edge to receive the wooden blade. The corners of the mouth are rounded, possibly due to wear. The arms are short, with only part of one lug surviving. CS 73 4 4. For a discussion with parallels see Manning, 1972, fig. 62, 19.
130. Rim and handle of a shallow iron bowl. CS 72 8 4.
131. Two links — 7 part of snaffle bit. CT 102.
133. Barb-spring padlock mechanism. CT 100. For a discussion of the working of this type of lock see Manning, 1972, 181.
134. Similar mechanism to no. 133, CT 118, with the shift key also surviving.
135. Barb-spring padlock mechanism, with three sprung teeth. CS 73 8 7.
136. I-shaped lift key, two teeth surviving, the stem ends in a loop. CS 70 1. Similar example found in CT 108.
137. Key, medieval. CS 70 1.
138. Tumbler lock slide-key. CT 304.
139. CT 118.
140. Tumbler lock slide-key, CT 252.
141. Spring bolt, of a barb-spring padlock. CS 71 2.
142. T-shaped lift key, with an anchor-shaped bit, and turned over loop at the end of the shank. CT 221.

Similar examples were found in CS 72 8 14 and CT 266.

Fig. 64 Iron objects
A variety of arrowheads were recovered from topsoil levels.

143. CS 71 2.
144. CS 72 4 1.
145. CS 72 8 1.
146. CS 74 10 1.
147. CS 70 1.
148. CS 70 4 2.
149. CS 71 1.
150. CT 115.

It is difficult to assign a date to them on form alone, and their provenances would argue for a medieval date, particularly when taken in conjunction with the documentary evidence which describes the presence of archery butts in the Athelney meads.

151. Artillery bolt-head with tapering square-sectioned point separated from the socket by a short neck. The type is present in Britain from the conquest onwards, and probably continued to be used throughout the Roman period. The use of artillery enabled the Roman army to use heavier arrowheads than was possible with the hand-drawn bow. (Manning, 1974, 21). CS 70 1.

152. Socketed spearhead. CT 149.

153. Blade from a large butcher’s knife with a triangular blade. CT 116.

154. Knife with straight-edged blade. The back of the blade is curved with a tang handle. CS 71 2.

155. Knife blade with tang handle. CT 226.

156. Knife with the blade and tang handle made in one piece. The end of the handle is curved round to form a loop. The cutting edge of the blade is curved, with a straight back continuing the line of the handle. CS 73 4.

157. One arm of a pair of shears. CS 72 4.

158. One arm of a pair of shears. CS 73 4 2. From grave shaft of burial 296.

159. Knife blade. CS 73 9 1, from grave shaft of burial 280.

Fragments of knives similar to the illustrated example were found in CS 72 4 2; CS 74 10 1 (2 examples); CS 75 7; CS 73 4 1; (2 examples); CT 115; CT 117; CT 195; CT 74; CT 206; and CT 221.


161. Triangular tip from the blade of a sword or spearhead. CS 72 4.

(See fig. 56 no. 59, for an iron bladed knife with bronze handle depicting a hunting dog and hare).

162. Two links of rectangular outline. CS 70 1.

163. Chain link with a figure-of-eight outline. CS 70 5.

Other examples from CT 303; and CT 302. Not illustrated.

164. A chain made up of three figure-of-eight links. CT 226.


Further examples were recovered from CS 71 3; CS 72 8 4; CS 73 8 7; CT 207; and CT 226.

166. A waisted V-shaped buckle with a circular, cross bar. The form would appear to be non-Roman. CT 115.

167. Split-spine loop with straight arms. CS 71 2.
168. Split spike loop. CT 207.
Further examples, not illustrated, were found in the following contexts: CS 70 1; CS 71 1; CT 74 1; CT 74 10 5; and CT 244.

169. Handle attached to a plate of crescent-moon shape, originally curved suggesting it was once attached to a bucket. CS 70 1 8.

170. A second handle of the same shape was found in CT 354.

171. Blinding, consisting of a rectangular plate, with one hooked end, and the other pierced with a flat-topped nail in situ. CS 73 8 7.

172. U-shaped drop hinge. The surviving arm is a flat rectangular sheet pierced to take two nails, and narrows into a round-sectioned bar at the curve of the U. CS 71 2.

173. Bracket. CT 74 260.

174. Loop hinge fragment, consisting of a narrow, broken plate ending with a turned-over loop with evidence to suggest one nail hole at least. It would appear to be one plate from a loop hinge, though it might just possibly have been part of a drop hinge. CS 73 9 3.

See Manning, 1972, fig. 66, 60-64.

175. A bar of iron, bent back upon itself, and pierced. CT 241.

176. Bar of rectangular section, with both ends looped at right angles to one another. It may have functioned as a hinge. CT 131.

177. Bucket handle mount, CS 72 8 3. Similar mounts were recovered from CS 72 4 1; and CT 192.

178. Bucket handle mount. CS 71 2. Parallels are given by Manning, 1972, fig. 66, no. 54.

179. Handle or hinge attachment. CT 73 120.

180. Box or coffin fitting, with the remains of two nails driven through the plate. Wood impressions on the reverse were not identifiable. CS 72 8 4.

181. Function is difficult to assign to this rod of rectangular section tapering to a broad flat edge, but it may be part of a pick. CS 72 8 3.

182. U-shaped wall hook, CT 235.

Similar hooks were found in CS 71 2; CS 72 4 1; CT 111; CT 117; CT 235; and CT 74 1. T-tapules are known to have held borflue tiles and other tiles in place, but they could have a very wide range of other functions, see Manning, 1976, 60.

183. The largest of the nails found on the site, with square-section shank. CT 143.

184. Bolt, formed from a rod of square section, one end flattened and headed centrally to take a nail or rivet. The opposite end is flattened as for a nail-head. CS 73 8 7.

185. Rod of square section, tapering to a point. Possibly a tanged awl. CS 70 5.

A second example was found in CT 375. Not illustrated.

186. A nail CS 71 3, from the grave shaft of burial 35.

187. Tapering rod, one end of rectangular section tapering to a square section. It may have been used as a punch or awl, or represent unworked smith's stock. CS 72 8 1.

188. L-shaped bar of square section, with a flat rectangular plate at right angles. CT 74 1.

189. Punch or awl, of rectangular section, widening to a sub-rectangular section. CS 70 1.
191. T-shaped bracket. CT 266.
192. U-shaped binding. CT 226.
193. Ring. CT 226.
Circular rings of a variety of diameters were recovered from the following contexts: CS 70 1 (2 examples); CS 71 1; CS 71 3; CS 72 4 (5 examples); CS 72 4; CT 142; CT 244; CT 244; CT 230; and CT 371.
194. Binding from the angle of a box or coffin, formed from a rod of U-section. CT 226.
Similar clamps or bindings were found in CS 72 6; CT 69 (b) 5 2; CS 71 2; CT 222; and CT 74.
195. Strip of unknown function. CS 73 8 7.
196. Large nail. CT 226.
197. U-shaped bracket. CT 253.
A total of 67 amorphous lumps of iron of indiscernible function were recovered from 42 contexts.

INTAGLIO
by
Martin Henig

198. CS 70 4.
The intaglio is cut on red cornelian, oval and convex, 16 x 12 x 4 mm., and depicts Mars striding towards the right carrying a trophy over his left shoulder and a spear in his right hand. He is naked apart from a scarf (subligaculum) around his loins. His right foot rests on the base line.
The front surface of the stone is somewhat abraded and a large chip at the top has obliterated all trace of the god's head, the handle of the trophy, and part of the spear.
There are a large number of parallels on gems:
a) from Britain:
Charterhouse Old Newip, Somerset (Communications Cambridge Antiquarian Society, IV, 1870-80, 290; VHSM Somerset, Fig. 93. Bristol Museum Acc. no. F. 2110). Red jasper.
Verulamium, Herts. (Unpublished; Verulamium Museum). Red jasper.
b) from the continent:
Ruticul, Portugal (Gardoz, 1962, 155, no. 28). Red stone.
Shineland (Henkel, 1913, 1524, pl. XXI, 91). Red jasper. It is set in a ring pl. LVIII) dated 'to the early empire' and which is certainly not later than the second century.
Xanten (Steiner, 1911, pl. XV, 20).
Cologne (Miessen, 1911, 5411, 5412; Cologne Museum 55411, 55412).
Romchester
Augsburg (Steiger, 1966, 155, no. 13, pl. 8, no. 12). Red jasper in iron ring. 1st century A.D.
It is interesting to note that Red stones are usually, although not exclusively, used for Mars (just as green stones are employed for Venus and milky chalcedony for Jupiter). They account for some 90% of the gems recorded in this note. There was evidently some amuletic virtue ascribed to stones of specific colour engraved with appropriate devices (cf. Bonner, 1950, 61).

Chiesa, in her study of the numerous products of the Aquileia workshops (1966, 43 and 150-4) sees a connection between the appearance of this gem-type and the market for intaglios amongst the troops in the ‘Normanni period. It is tempting to speculate that the Gloucester gem originally belonged to a soldier, although this is not an assertion based on any external evidence, as it is in Gloucester.

The stone, which is relatively large and convex, and shows some degree of wear, is unlikely to be later in date than the second century a.d.

This report was submitted by Dr. Martin Heng, in August 1970.

The intaglio has since been published Heng, 1974, Plate Series A, no. 104).

199, p. 207.

Cornelian intaglio, 7 mm. in length by 5 mm. wide set in a silver ring of late second or third-century type, (Marshall, 1907, 103, and pl. xxix, no 1174). The ring is 19 mm. in diameter.

The ribbon-like hoop is 7 mm. wide at the bezel and 4 mm. across at the narrowest point which comes just before the point furthest removed from the stone, as there is an exceptional knot-like swelling here.

The intaglio depicts a crustacea, perhaps a langoust, swimming towards the right, its ‘tail’ curving round below its body, (Amer, Blumer and Keller, 1899, no. 23. Also Chiesa, 1966, no. 1394). A similar creature is shown on a gem from York, (Heng, 1974, 94, pl. xxii, no. 715 — a shrimp as stated) Other crustaceans depicted on gems (notably a second-century Jasper from Beardslen, near Glasgow) have longer ‘whiskers’ and are probably shrimps, (Breeze, 1974, 10, pl. iii. See also Chiesa, 1956, no. 13881).

OBJECTS OF SILVER
by Linda Viner

200. Ring formed of a strand of silver wire, the bezel consists of a thread of blue twisted bead. CS 73 9 1, from grave shaft of burial 289.

201. Fragment of a necklace clasp, lacking its terminal fastening. CT 277. The clasp is similar to one in copper alloy from Lambhills, grave 40, fig. 69, no. 50, dated to A.D. 135-9 (Harkes, 1970).

Footnotes

1 "A reference to Mars as the Marching God (GRADIVUS) in Ovid, Fasti, III, line 1677, is probably significant, although some authorities do not accept the designation 'Mars Gradivus' for our figure".

2 Pictor suggests the name 'Mars luxans'.
202. A biconical moulding separates a transverse and a conical moulding to form the head of a pin of rectangular section. CS 72 8 4.

See also fig. 63, 198, a silver ring with inscription, and fig. 80 for a necklace clasp found associated with burial 196.

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GLASS BEADS

by

Margaret Guido

A necklace consisting of 161 beads with a silver clasp found associated with burial 196 is discussed p. 132, fig. 80.

201. Rich semi-translucent blue biconical. Diameter 7 mm. CS 70 1. A second example was found in CT 105, with a diameter of 5 mm.

202. Not illustrated. Similar to no. 203, but smaller. CS 72 8 3.

203. Not illustrated. Minute opaque grass-green biconical bead exactly similar to many on the necklace, fig. 80. CS 72 4 1.

204. Narrow cylindrical bead of mixed reddish glass with signs of winding. This mixed glass is unusual. Incomplete, its existing length is 9 mm. CS 71 2.

205. Apparently thick, this bead is, in fact, made of light translucent pinkish mauve glass. It is the end portion of a segmented bead, and consists of a very regular end and one segment retaining signs of a broken collar leading to the next. The form of this bead is not uncommon, but the colour of the glass is most unusual before the mid-fifteenth century. CS 71 3.

206. Not illustrated. A broken segmented bead of colourless glass enclosing gold foil partially exposed. These beads have been studied by G. C. Boon (Boon, 1966, p. 104, p. 109, 1977, 1983-204). They are widely distributed in date and provenance, and a later mean date is not unexpected. CS 72 8 3.

207. Not illustrated. Apparently a segment broken off a small translucent green wound bead. CS 70 1.

210. Not illustrated. A very small translucent greenish-blue section of a segmented bead. Typically Late Roman with striations along the glass, and the remains of a slight 'collar' where the bead has broken away from the next segment. CS 72 8 3, from the grave shaft of burial 174.

211. Half a bead comparable at no. 212. The colour of this bead could be very dark greenish yellow, but appears black. The trailed zig-zag is in opaque white glass. CS 70 1.

212. Large long tubular bead, widening in the centre, it appears to be shiny opaque black glass with an irregular opaque yellow trailed zigzag. The perforation is wide and regular. Length 23 mm. Both nos. 211 and 212 must have been imported. CS 70 1.

213. Long hexagonal bead in striated slatey-blue translucent glass. Existing length 17 mm. and width 5 mm. These beads with unpolished surfaces are generally late in the Roman period or even post-Roman. CS 72 4 1.
Evidence is increasing that "intrusive" beads became common in late Roman times, and it is of interest, therefore, to note the unusual character of the necklace. As described, this had a clasp of a type identical to one from Lankhills, Winchester, belonging to approximately A.D. 350-370. The Leicester necklace also includes coral beads (of Mediterranean or Black Sea origin) not very commonly found, crystal beads (more frequently associated with Anglo-Saxon necklaces), and a faceted bead of a type particularly common in Romania and other East European countries. In addition, it should be noted that bone armlets of the kind also associated with this burial, are abnormal in Roman contexts. The pink translucent glass used in no. 107 is without a known parallel. Moreover, although the beads of this glass occur in two Anglo-Saxon necklaces, possibly of fifth century date, from Lyminge (Marshut, 1955, grave 16 and Alfredson, Sussex Arch. Coll. 59, 16, pl. 1, fig. 1). The small opaque green beads can be paralleled from another grave at Lankhills, Grave 336, post-dating a coin of A.D. 353-370, though in Grave 337 they appear to have been several decades earlier, so they may have remained popular for some time.

About this period in the second half of the fourth century, traders, soldiers, and craftsmen may have brought glass beads to Britain in increasing numbers, and this is not surprising, for a town as important as Corinium would have housed retired soldiers and their families, as well as metal-workers, mosaicists, and other craftsmen from many parts of the Roman world. Exactly where individual bead types came from can only be known when Continental beads are better described and illustrated, and recognised for the cultural and chronological information which they are often capable of yielding.

Editorial Notes

Miss Dorothy Charlesworth, whilst studying the vessel glass, found two pieces which she suspected to be unfinished beads. Each has an irregular bulbous shape with a hole at one end but not pushed right through the object. Both are in natural green glass from CT 117, and CT 116. These were noted after Mrs. Guide had finished her report and she has not seen them to make comment. They are included here as being in the most appropriate section.
225. Cylindrical bead of jet, highly polished. CS 72 4 section cleaning.
   A second example, diameter 6 mm., length 4 mm., was recovered
   from CT 226.
226. Small chip from a jet bead, the original outline indiscernible
   but possibly wedge-shaped, decorated with U-shaped nicks around
   the rim. Remains of the drilled perforation discount it being a brace-
   let. CS 72 4 ditch fill.
227. Semi-circular wedge with two borings. This jet bead comprises
   two matching fragments from CT 121 and CT 237.
228. Fragment from a similar bead to no. 227 from CT 237.
229. Incomplete jet spacer bead, with broad flat back, with grooved
   upper surface. Double-bored longitudinally, the length is 30 mm.
   CS 71 3.
231. Shale bracelet fragment with a faceted outer edge decorated with
   a pair of grooves. Possibly originally octagonal. Vaugh and Good-
   burn, 1972, fig. 26, 218, dated A.D. 280-315, from occupation layer
   in cellar. CS 71 2.
232. Decorated shale bracelet, four grooves with faceted edging.
   CS 78 8 4.
233. Fragment of shale bracelet, outer section rounded, with one
   large and one small internal facet. CS 78 4 2.
234. Similar to no. 233. CT 226.
235. Similar to no. 234. CT 237.
236. Similar to no. 234. CS 72 83.
   A similar example was found in CT 121, not illustrated.
237. Jet bracelet, circular in section.
238. Plain jet bracelet with oval section. CS 71 2.
   CT 190 produced a second example.
239. Fragment of plain jet bracelet with circular section.
   Examples in shale were found in CT 228, and CT 230.
240. Fragment of shale finger ring. CT 107.

OBJECTS OF BONE

by

Linda Viner

241. Ring-headed pin. CT 238.
242. Conical-headed pin. CS 70 1.
   Other examples were found in CS 73 1 1, and CT 242.
243. Flat-topped pin with tapering shank. CT 244.
   Other examples CS 73 8 7; CS 74 10 5; CT 195; CT 207; CT 252; and CT 371.
244. Oval-headed pin, complete, well finished. CS 73 4 ditch fill.
   A total of 27 examples of this type of pin were recovered from
   the excavations: CS 70 1; CS 71 1; CS 71 2; CS 71 3 (3);
   CS 72 4 1 (2); CS 72 8 4 (2); CT 73 +; CT 73 + (2); CT 143 (2);
   CT 73 190 (2); CT 195; CT 201; CT 187; CT 207; CT 226 (3);
   CT 74 + CT 221; CT 76 +; CS 381; and Observations April 1977.
245. Bulbous head drawn up to a pointed tip. CT 69 (b) 2 1.
246. Spherical-headed pin surmounted by a small knob. CS 71 2.
247. Bulbous pointed head surmounting a single collar moulding below. CS 70 1. Other examples: CT 73 116; CS 71 2; CS 74 10 5.
248. CS 71 3.
249. Conical-headed pin with a single collar moulding below. CT 69 (b) 2 1. Other examples: CT 73 111; CS 73 118.
250. 'Pagoda' pin, decorated with one disc surmounted by a flat top. CS 72 8 3. A second example was found in CT 73 116.
251. Head formed of concentric plates on top of the other. CT 107.
252. Conical-headed pin with multiple collar mouldings well executed. CS 72 8 3. Five examples with three mouldings were found: CT 72 8 4; CT 69 (b) 6 3; CT 187; CT 253; and CT 231.
253. A rather debased form of no. 232. CT 69 (b) 2 1.
254. CT 375.
255. Flat disc head with knotted edges. CS 71 2.
256. Flat-topped pin with hemispherical base. CT 74 226. A second example was found in topsoil CT 76.
257. Pin with cuboid head and faceted corners. CT 116. A second example was found in topsoil CT 76.
258. Head carved in the form of a bird, with small drilled holes to represent the eyes. CS 70 1.
259. Shank of a bone pin with copper alloy sheet moulded around the head, resulting in green staining of the shaft. CT 139.
260. Conical-headed needle with a long narrow slit eye. CT 237.
A second example with a similar eye was found in CT 264.
261. Conical-headed needle the eye comprising a single drilled hole. CT 253.
262. Shank of a pin, decorated with bands of three grooves. CT 347.
Pin shanks, heads missing, were found in the following contexts:
CS 72 8 4; CT 69 (b) 1; CS 70 1 (4); CS 71 2; CS 72 8 3;
CS 71 4 1; CT 117; CT 106 (2); CT 112; CT 172; CT 253; CT 207;
CT 224; CT 238; CT 226 (3); CT 178; CT 222; CT 347 (3);
CT 380 (2); CT 379 (2); and CT 378.
263. Counter with concave depression in the upper surface, CT 227, with incised numbers IIII, VI and VIIII around the circumference, and a series of intersecting scratches on the base.
Four further examples of this form of counter (without graffiti) were found: CS 70 1; CT 150; CT 69 (b) 4/5 2.
264. Counter with incised concentric grooves on the upper surface. CS 71 1.
Two further examples were found: CT 347 and CS 71 1.
265. 'Counter with flat top and base, undecorated. CT 146.
A second example found in CT 146.
266. Bone hinge with one perforation and corresponding slight scar in the opposite internal wall. All surfaces are highly polished, with a shallow triangular channel leading from one edge to the perforation. Cf. Naugh and Goodburn, 1972, p. 54, 186-192.
CS 70 1.
Bone hinge spacer, with the cylinder pierced longitudinally. Unlike no. 266 the outside is roughly cut, and unfinished. CS 72 8 3.

Decorated fragment of a tubular handle. CT 111.

A length of long bone, perforated longitudinally, of hexagonal or octagonal section, decorated with three ring-and-dot incisions. CS 71 3.

Plaque of bone, in the form of a human head, the features and hair lightly incised on one surface only. CT 69 (b) 4 1 in the grave shaft of burial 91. A similar face has been recorded at Wroxeter (Usborne, 1914, 28, pl. xxil, 3), of a male, full-faced bust, crudely worked. It was suggested that it may have been a piece of inlay.

Fragment of worked handle? Flat back and rounded top with remains of three ring-and-dot incisions as decoration along the medial ridge. CS 74 10 1.

Heart-shaped plaque, upper surface decorated with three ring-and-dot incisions. CS 71 2.

Triangular plaque, the upper surface decorated with double ring-and-dot motif. CS 71 3.

Shaft of a long bone, side flattened, the end pierced. CT 378.

Fragment of a square handled bone, decorated with small incised ring-and-dot motifs placed haphazardly on the upper surface. CS 71 2.

This particular piece was found in the grave shaft of burial 38.

Rectangular plaque upper surface decorated with two lines incised parallel to all edges. CS 70 1.

Flat disc, decorated with concentric circles. A large central perforation with four smaller holes around the outer border. CT 116.

Two bone bracelets found associated with burial 196 are illustrated fig. 80. Two stray fragments of bracelet similar to that worn on the right wrist of burial 196 were recovered from CS 72 4 1, not illustrated. They may have been part of the same bracelet, although this cannot now be substantiated.

Fig. 80 also illustrates a double-sided bone comb found in association with burial 175. CT 105 produced a segment of comb with remains of teeth of two sizes, not illustrated. A similar fragment, with a hole to take the central rib, attachment was found in CS 71 1, not illustrated.

Glass

by

Dorothy Charlesworth

Vessel and window glass

A. Material recovered from area to the south of the Fosse Way

There is a considerable quantity of very fragmentary glass, about 200 different vessels, mostly natural green glass of first and second
century date, which is generally abraded and has clearly been redeposited on the site of the cemetery. There is some window glass and unidentifiable fragments partly fused in fires.

One complete jar was found - associated with burial 357, fig. 81. A squarish-edged 'pickle jar' (Isingens type 62) which can be dated to the second century. Its base marking is a line round the edge with a St. Andrew's cross in the centre, largely obscured by the pontil mark. Two fragments from the shoulder of similar vessels also occurred (CS 73 4 (1); CS 73 6 (1)) bringing the total of such vessels from the Cinecephala cemetery to four. Other flat fragments of bottle glass would come from vessels of this type but are generally assigned to the much more common square bottle with a narrow neck and handle. There are some examples of moulded base markings from square bottles. One, CT 69 4/5 (2) no. 279, has a similar marking to that on the complete jar but with a circle round the edge and the St. Andrew's cross in the centre. Other fragments are too small to give more than the circle round the edge (CS 73 8 (7), no. 289; CS 73 7 (7)). Small unguent bottles are certainly represented by two fragments (CS 70 no. 289; CS 73 8 (7), no. 282; CS 70 11 (1)). These probably date from the first or second century.

Two fragments of good quality glass, one from a mid-first century vessel in millefiori glass, a small chip of deep blue with flecks of white and yellow (CS 70 (1), the other from a deep blue pill-shaped vessel a.d. 50-100 (CS 72 6 (3), no. 289), are probably the earliest pieces on the site. A small flat fragment of glass with a plain edge, possibly from a base or plate, could be a mid-first century piece, or considerably later, even third century (CT 69 5 (2)). Another small fragment, CS 72 8 (3), no. 289, is decorated with a broad base or plate, a late second or third century decoration. Other vessel, glass is more commonplace. Several fragments are from straight-sided bowls with a rounded rim and decorated with a coiled base ring of Hadrianic-mid third century date (Isingens form 85b) (CS 72 8 (3), no. 285; CS 72 8 (4); CS 70 4 (1); CS 72 6 (1). Two similar rings in blue-green glass (CS 73 9 (1); CS 73 8 (3)), no. 286) may be contemporary with these pieces or could belong to the fourth century. The poor quality of the metal of the latter suggests the later date for that piece.

Fragmentary vessels of fourth century date worth recording are rim of beakers slightly everted, knocked off and unworked (Isingens form 106a), (CS 71 (2), no. 287; CS 73 4 (2), no. 287), and bases, one with an opaque white-mottled trail (CS 72 4 (3), no. 287) in poor quality metal with striations and pinched hillocks typical of the late fourth century, a concave base with two trails round it (CS 73 8 (4), no. 290) and one with a plain base (CS 73 4 (2), no. 294). The small fragment from the foot of a stemmed goblet (Isingens form 111) is an unusual find in Britain. The type is more common in the Mediterranean area.

Many fragments of a first-century flask with a flattened, inflected rim, bulbous body and concave base with a high 'ride' and pontil mark were found in 1975 accompanying burial 356, fig. 81. Other fragments must belong to similar vessels, but cannot be securely identified. A third century cylindrical vessel is represented by a base fragment (CS 72 4 (1), no. 293).

The high proportion of utilitarian glass and very low proportion of good quality tableware in a collection ranging in date from the mid-first to late fourth century on a town site is somewhat surprising.

b. Material recovered from area to the north of the House Way

About 200 fragments of glass were found on this site, unfortunately in poor condition with not a single restorable vessel among them. The range of date is wide, from the second century to the end of the fifth or early sixth century.

As usual the fragments of square or angular bottles are the most easily identified among those of natural green glass of first and second-century date and this gives us a fairly good impression of the proportion of this type to other vessels in similar material.

Twenty-four bottles can be identified, some with moulded necks on the base, a fragment from CT 107 with part of a circle on the base; CT 107 (this may be a Mercury flask of mid third century date) CT 158, 187 (2 examples), CT 186, CT 377, part of a circle on the base; CT 207, 235, 242 with a moulded circle on the base; CT 277, 283, 253 part of the base with 2 concentric circles and a base of a bowl; CT 271, 267 (2 examples), 267 part of base and side; CT 226 (2 examples), 221, 354, 362 part of a base with 2 concentric circles; CT 371, 293 part of a base with 2 concentric circles and a broad base, an early third century cross at the centre. Examples of this marking but with a single circle may be quoted from widely distant sites, Venetia (Charleworth, 1966, 34), Armenia (Alram, 1975, 49, 51). Tongres (Vanderhoeven, 1962, no. 42). All three publications illustrate various combinations of circles in squares with the central St. Andrew's cross, including one at Tongres (Vanderhoeven, 1962, no. 44) with a letter in each corner, and 2 concentric circles round the cross.

Two flanks of the same period, late first century, can be recognised from handle fragments, one in aubergine glass from the top of the handle CT 172, the other from CT 304 blue-green glass from the horizontally ridged lower sticking part of the handle of a conical-bodied flagon. (For characteristic shapes see Charleworth, 1959, 26-40).

Outstanding, rounded at the tip and very short neck, the fragment curves in at a sharply at its base but not enough to indicate whether this is merely a constriction or the edge of the base of the vessel CT 190, no. 294. It is probably a small jar (for complete examples see Freyerdorf, 1958, 94 (bottom 2 vessels). There is another jar rim from a larger vessel, CT 187, no. 295.
Two rim fragments are from spouted vessels (CT 153, 193) of 2nd or 3rd century date, presumably small jugs. There are in addition rim and neck fragments with a small diameter from flasks or bottles which cannot be assigned to any type (CT 158, 181, 244, 237, 362).

Base fragments are equally difficult to identify. One which stands out in any collection of fragments is the double concentric coil base ring in a colourless glass which is associated with straight-sided bowls of 2nd-3rd century date. (CT 233, no. 298).

This is generally associated with a rounded, thickened rim (CT 233, 235 (2 examples)). A typical example was found in Airline (Thorpe, 1940, pl. VI b).

A small fragment of good quality colourless glass of a polished base (CT 244, no. 299) - outplayed rounded and slightly thickened at the tip - are the only 2 pieces of high quality glass of this type.

Convex fragment with spiral trailing from a flask, 2nd-3rd century, CT 263, no. 297. This could be either a long necked flask or a bath-flask with short neck and cypsel handles.

CT 76 - no. 300 and CT 303, no. 30) are bases of a similar type but one is in better quality glass than the other and may indicate a difference in date; both are from bowl.

Another colourless fragment of a flat or slightly concave base and straight side CT 233, no. 302 and a side fragment with 6 faint horizontal wheel-cuts, CT 226, are probably from cylindrical flasks, with or without rim and handles (Hardon, 1962, fig. 89, 106, 184, 113 and fig. 90). 3rd-4th century. A handle fragment in CT 227 may be from a similar small cylindrical flask.

Rim fragment of a large flask or flagon, slightly outplayed, rounded at the tip with a coil below made of colourless glass, CT 179, no. 303. This is a typical 3rd-4th century rim (see Hardon, 1962, fig. 11), 106, 184, 113 and 90). A fragment from CT 195 could be the base of this vessel.

The upper sticking part and piece of the neck of a flagon of 3rd-4th century date (see Hardon, 1962, II 12), was recovered from CT 226.

No. 294, from CT 226, a tooted side-like vertical rib in good colourless glass with three pinched-out projections is from a beaker of 3rd century date. This is the strongest part of the vessel and often survives when the body is completely fragmented. A complete indented beaker with similar ribs, found in Koin, is illustrated in Doppelfeld, 1966, T.95. 2nd-3rd century.

A number of fragments of thin, poor quality colourless bubbly glass date from the end of the 4th century. There are two rim fragments typical of this period, an unworked, cut rim slightly everted, CT 120, no. 305, a similar rim but ground to a smooth edge, CT 118, no. 306, undecorated side fragments (CT 107, 3 examples; CT 191; CT 231, 2 examples); and a side fragment with trailing.
Many of these beakers are conical but with a small flat base; in others the base is wider and the sides, consequently more nearly vertical (e.g. Kinhill beaker, Harden, 1960, 52). Two rims in greenish metal are rounded and thickened in the flame (CT 116, no. 208; and CT 190, no. 209) a later development as far as can be judged early 5th century of the conical beaker which merges into the cone-beaker of the 6th century. Rim fragments are known from late Roman and native sites, but the dating in every case is lacking precision (Harden, 1956, Fowler et al., 1966, fig. 9.1 and further material unpublished).

Both late-2nd century window glass and blown cylinder fragments 3rd-4th century were found.

Moulded fragments were recovered from the following contexts: CT 116, CT 136 (with some mortar for fixing the pane attached), CT 172 (2 examples), and CT 76.*

The majority are blow - CT 116, 156, 172 (2 examples), 107, 111, 118, 121, 190, 238 (2 examples), 251, 224, 246, 271, 300. One piece of blow glass, from CT 107 has a slightly curved edge. The edge of a cylinder when opened out-flat should be straight and the possibility should be noted that this might be a piece of crown glass. Unfortunately the piece is too small to decide whether it is the edge of a disc or merely an irregularity in a square pane. From glass is extremely rare in the late Roman period (Boon and Rule, 1975). The technique of making window glass is discussed by Harden, 1959, 32K; and Boon, 1961, 41.

Glass objects

A total of 9 monochrome counters were discovered during the course of the excavations, all with flat bases and smooth, rounded tops. CT 70 1, black, illustrated.

The remainder came from the following contexts: CS 70 1, green glass, diameter 15 mm.; CS 70 1, green, diameter 14 mm.; CS 70 1, black glass, diameter 13 mm.; CS 70 1, black, diameter 13 mm.; CS 70 1, black, diameter 22 mm.; CT 116, black, diameter 14 mm.; CT 4, black, diameter 16 mm.; and CT 379, black, diameter 17 mm.

311. CT 377, blue glass.
312. Fragment of a ring of black glass, the upper surface decorated with incised lozenges. CS 72 54.

Two opaque blue tesserae were noted by Miss Charlesworth while examining the vessel glass. These could have been used in mosaic pavements or wall decoration. CT 111, and CT 118, not illustrated.

OBJECTS OF CLAY

311. Pinchbeck based upon Loeschcke Type IX. Probably first half of second century, perhaps late Flavian. However, it is of British manufacture. CT 69 (b) 4 (2). Information kindly provided by Mr. H.W. Bailey, British Museum.
319. Spindlewhorl. CT 256, not illustrated.
Tile Stamps

Three tile stamps were recovered: TP. P.A from CT 107, T.Y.P.P.A from CT 1, and LHS from CT 226. The LHS stamp has been analysed by Tim Darvill and is from stamp group LHS (A), fabric group 1. (Tim Darvill, A Petrological Study of LHS and TYP Stamped Tiles from the Cotswold Region, in Roman Brick and Tile, ed. A.D. McSherr, BAR International Series 68, 1979, 309-309.)

Crucible Fragments

Examined by Justine Bayley, Ancient Monuments Laboratory.

Five sherds were examined under a binocular microscope and surface deposits on them qualitatively analysed by energy dispersive x-ray fluorescence (EDXRF).

The one sherd from period 1 (CT 37), no. 315 was a reduced fired base sherd with much very fine quartz temper. Most of the inner surface and part of the fracture had a glassy covering and there were small vitreous patches on the outer surface too. EDXRF failed to detect any elements except those of the pottery fabric. This supports the visual impression that the sherd had accidentally fallen into a fire and had been "glazed" by the fluxing action of the ash on the pottery at high temperatures. The rest of the sherds were from period VI. All were of similar grey, fairly fine, refractory wares and all from smallish vessels.

The two bases, CS 72 8 7, no. 315, and CT 300, no. 316, were of pedestal form with external diameters of 24 and 21 mm, respectively.

The dark green to black crucible slag inside CS 72 8 7 gave XRF signals for zinc and copper suggesting that the crucible had been used to melt brass. CT 300 had a thin outer vitreous coating but no elements other than those of the crucible fabric were detected inside or out. It had probably been used as a crucible but there was no evidence to suggest that it had been melted in it.

The two rim sherds were less similar than the bases in both fabric and form. CS 72 5 4, no. 317, was from a vessel with a plain rim with an internal diameter of about 8 cm. The inside of the sherd was mainly covered with a thin layer of crucible slag coloured buff and red and containing many tiny copper alloy blobs which had corroded to a green colour. EDXRF detected copper, zinc and lead suggesting the alloy melted was brass containing some lead. The outside of the crucible had been protected by an applied layer of less refractory clay which was vitrified and vesicular. The outer surface of this layer was coloured red in patches by traces of copper. CS 72 5 4, no. 318, was from a smaller vessel. This rim had an internal diameter of 6 cm and was thickened and slightly iourned. For about 3 cm, below the rim on the inside there was a thin layer of crucible slag which contained metal blobs but stopped at a fairly definite line, probably the level of molten metal in the crucible. EDXRF found a wide range of elements: silver, copper, zinc, lead and possibly a trace of gold. The crucible was probably used to melt silver. The presence of other elements would just be due to deliberate alloying or impurities.

Pigments

320. Base of small jar or unguent bottle with maroon pigment remaining in the bottom. CT 74 243, not illustrated.
321. Base of black-burnished jar with maroon pigment covering the base, CT 74 187, and CT 74 207, not illustrated. Although from different layers, and no exact edge matches it would seem from appearance that the two sherds come from one and the same pot.

OBJECTS OF STONE

Flint

Fragments of worked flint, recovered from the excavations will be discussed at a future date in conjunction with all such finds in this medium.

The provenances of six worked flint objects from the present excavations are as follows: CS 73 8 7; CS 74 10 1; CT 207; CT 233; CS 74 10 5; CT 254.

Whetstones

Similarly, whetstones will be considered in detail at a future date when all examples recovered from excavations have been analysed.

Contexts: CT 136; CS 71 2; CT 74 207; CS 69 (b) 5 1; CS 73 8 4; CS 73 4; CT 207; CS 70 1; CT 70 1; and CT 209.

All the whetstones are incomplete, and the majority came from topsoil and contain unstratified levels. A cursory examination in hand-specimen would suggest that a dark grey sandstone has been utilised for most of the examples, exhibiting a variety of degrees of "wearing.

Pivot stones

Three examples of pivot stones for a door post, made from roughly shaped blocks of limestone were found in CT 207; and two from CT 213.

322. One illustrated from CT 74 215. Inlay

123. Marble inlay, 1.1 mm thick. CT 237.

Two fragments (not illustrated) from a decorative slab of inlay, 11 mm thick were found in CT 226. No finished outer edges survive to indicate size or shape of the original inlay.

Quernstones

Lump of Wiesendahl lava, presumably once part of a quernstone. Very faint trace survive of tooled grooves on one face. CT 375, not illustrated.

Fragment of a quernstone of conglomerate sandstone with radial cracks and Carboniferous. The size and shape of the specimen is not sufficient to allow for a decision as to whether this is the top or bottom stone. CT 103, not illustrated.

334. Fragments were recovered from CT 226 and CT 215.

Stamps

Fragment of a free-standing statue, of oolitic limestone, with flat base, and curved and rounded sides and back. The right foot and part of the left foot of a seated figure protrude from beneath stiffly carved drapes of a long tunic. The fracture has removed all traces of the figure from the knees upwards. The suggestion of a right hand survives in the area of the lap of the seated figure.

In similar figures from Cirencester the seated female, either singly or in groups of three, holds either fruit, leaves or a baby. Four such groups of three figures have been found in Cirencester. The most notable for its completely classical, naturalistic treatment, showing mothers seated in easy relaxed postures, accompanied by their offspring, was found in Ashcroft in 1899, (Toynbee, 1976, 69 and no. 2 – Corinium Museum C 2756.) The closest parallel, assuming only one figure is intended, was also found in Ashcroft, and depicts a veiled mater-dea seated on a high-backed armchair, (Toynbee, 1976, no. 1 – Corinium Museum C 2759). CT 107 appears in comparison to be the work of an even more provincial carver than C 2759. The feet are very angular and the folds of the garment stiff and rigid.

LEAD

Fragments of lead statuettes, of various sizes and thicknesses, were recovered from the following contexts: CS 70 1, 2 examples; CS 71 2, 2 examples; CS 72 4, 3 examples; CS 72 8 3; CS 73 8 4, 2 examples; CS 73 8 6; CS 74 10 3, 2 examples; CS 75 9 4; CS 75 9 4; CS 75 9 7; CS 75 8 7; CT 105, 2 examples; CT 173; CT 239; CT 263; CT 252; CT 253; CT 244; CT 226; CT 237; CT 300, 2 examples; CT 304; CT 347.

WALL PLASTER

Red, CS 71 2; CS 73 8 7; CS 73 8 7; CS 73 8 3; CS 73 8 7; CS 72 8 3; CS 71 24; CS 73 8 8; and CS 73 8 7.

Red on a section of quarter-round moulding, CS 72 8 (2), and CS 72 8 4.

White, CS 72 8 3; and CS 72 8 4.

Green-blue, CS 73 8 6.

Yellow, CS 72 8 4.

Patchy survival of red wash over white, CS 72 8 3.

CS 73 8 7; and CS 72 8 3.

Fragments which show adjacent red and white panels or stripes CS 72 8 4; and CS 72 8 3.

Fragment of adjacent red and white panel with an intervening overpainted dark blue line 5 mm wide. CT 375.
GRAFFITI AND INSCRIPTION

Graffiti:

a) Samian shard with graffito of one letter incised with the point of a sharp instrument: B. CS 73 8 6. Not illustrated.

b) Three sherd from one or more morto-deckers. All in dark red fabric with black colour-coat, found in Period IV, CT 190. Not illustrated. The letters painted in white slip read:

...1 B [...]
...1 F [...]
...1 V [...]

Hassall & Tomlin, 1974, 433, no. 74. See also 1/5 Fl, no. 152.

c) Samian shard with graffito: T072, CT 260. Not illustrated.


e) Shallow black-burnished dish with external face scratched with graffito: 'MCI. CT 316. Not illustrated.

Funerary inscription by Mark Hassall

The following discussion has been published previously (Hassall, 1973, 213-214, no. 6) but because of its bearing and relevance to discussion of use of the area it has been reprinted in full.

Part of the left-hand side of an oolitic limestone funerary inscription, 23 cm wide by 48 cm high and up to 10 cm thick, and on the site of the projected offices of Christian, Diom (part of the Phoenix Way development area), in 1973. The stone had been re-used in the foundations of the Roman building lying just to the north of the road leading from the town towards the amphitheatre. The back of the stone is rough as if broken or built into some structure; the text, cut regularly in fine lettering, reads:

-] VLM
ABNOR (IN)
H(S[C] ST)YS
K(S)T
C/VIA(N) M A(GENT(E)
-] VLA C/DNV(CE)

The original width of the inscribed part of the die of 40 cm, is given by the third line where the restoration of H(S[C] ST)YS K(S)T is certain. The inscription was set out with the beginnings of lines 2 to 4 arranged vertically, and the lines themselves will presumably have been of equal length. In wording and layout the text is closely similar to (for example) H[.L.]B. 380 (Caractacus) even to the omission of the of CYRM.
THE ANIMAL BONES
by
Clare Thosley

1 EXCAVATION OF CT 74 - 74 and CT 76

The total number of animal bone fragments discussed in this section of the report were:

<table>
<thead>
<tr>
<th>Species</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>787 (111)</td>
<td>381 (56)</td>
</tr>
<tr>
<td>Sheep/Goat</td>
<td>129 (48)</td>
<td>33 (14)</td>
</tr>
<tr>
<td>Pig</td>
<td>59 (22)</td>
<td>30 (9)</td>
</tr>
<tr>
<td>Horse</td>
<td>8 (7)</td>
<td>8</td>
</tr>
<tr>
<td>Dog</td>
<td>2 (2)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Red Deer</td>
<td>2 (1)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Birds</td>
<td>26 (19)</td>
<td>4 (3)</td>
</tr>
<tr>
<td>Total</td>
<td>1013</td>
<td>453</td>
</tr>
</tbody>
</table>

The two sets of figures shown for each species are: the fragments recovered, and, in brackets, the minimum number of individuals per species calculated on the assumption that each layer, within the group as a whole, is discrete.

None of the bone fragments were associated with the occupation of the building, and apparently consisted of general refuse from elsewhere, showing no signs of having originated from any particular trade.

Six hundred and eighty-six bone fragments were found in period VI layers, but as these were not securely stratified they have been omitted from the detailed analysis of this report. The bones from these layers comprised:

<table>
<thead>
<tr>
<th>Species</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>559</td>
<td></td>
</tr>
<tr>
<td>Sheep/Goat</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Pig</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Horse</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Red Deer</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fallow Deer</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Rabbit</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>686</td>
<td></td>
</tr>
</tbody>
</table>

In addition there were 274 unidentifiable fragments. The occurrence of both Fallow Deer and Rabbit amongst the bones suggests either that there had been post-Roman disturbance, or that these layers were partly of post-Roman origin.

For a full list of the bones found grouped by species, see Table 19.

Table 18 - Bird Remains (fragments)

<table>
<thead>
<tr>
<th>Species</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Fowl</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Goose</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Buck</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Raven</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>4</td>
</tr>
</tbody>
</table>

The bones found comprised:

<table>
<thead>
<tr>
<th>Bone</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia</td>
<td>Pigeon</td>
</tr>
<tr>
<td>Ulna</td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td></td>
</tr>
<tr>
<td>Talus</td>
<td></td>
</tr>
<tr>
<td>Metacarpal</td>
<td></td>
</tr>
</tbody>
</table>

Table 19 - The species represented in each group

<table>
<thead>
<tr>
<th>Species</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>787 (111)</td>
<td>381 (56)</td>
</tr>
<tr>
<td>Sheep/Goat</td>
<td>129 (48)</td>
<td>33 (14)</td>
</tr>
<tr>
<td>Pig</td>
<td>59 (22)</td>
<td>30 (9)</td>
</tr>
<tr>
<td>Horse</td>
<td>8 (7)</td>
<td>8</td>
</tr>
<tr>
<td>Dog</td>
<td>2 (2)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Red Deer</td>
<td>2 (1)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Birds</td>
<td>26 (19)</td>
<td>4 (3)</td>
</tr>
<tr>
<td>Total</td>
<td>1013</td>
<td>453</td>
</tr>
</tbody>
</table>
Of all these bones, only one shows any sign of butchery: a tibia of a fowl with superficial cuts near its distal end. The birds most likely to have been eaten would be fowl, goose, and duck. The presence of a raven on this site may be an indication that they were kept as taming pets, and therefore not eaten, similar to dogs and horses.

Sieving was not carried out on the site, so the nature of the smaller bird bones (e.g. ribs, vertebrae, toes and wing "fingers") may be attributed to this, as may also the lack of other small vertebrate bones, and the smaller bones of the domestic animals shown in Table 20.

It can be seen from Table 20 that the greater the number of fragments from a particular group, the greater the diversity of the species present, but also the variety of bones found. Bones from most parts of the body occur. In the larger animals, such as cattle, the bones would often become fragmented, especially if they were cut up by butchers to provide joints of a manageable size. In smaller animals too, so much fragmentation is necessary. For the species from this site, the following percentages of complete bones were recognized:

- Ox: 85.6% - predominantly feet and tail bones
- Sheep: 9.0% - predominantly feet and limb bones
- Pig: 4.52% - feet bones
- Horse: 0.07% - feet bones
- Dog: 31.5% - varied limb bones
- Deer: 30.3% - foot bone
- Fowl: 71.0% - varied bones from most parts of the body.

Not all the fragmented bones have been butchered, of course. A large number are broken, and unless there are definite butchery marks on the break, it is impossible to determine how the bones broke. However, these figures show that the species with the least whole bones is the ox, while the species with the most is the domestic fowl.

The presence of the feet of cattle and sheep suggests that to some extent butchers' waste was dispersed all in this area, since these parts of the body could have been utilised for the production of glue, but all of the bones found on this site are in a very good condition, not symptomatic of bones which have been heavily boiled.

### Table 19

<table>
<thead>
<tr>
<th>Bones</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coracoid</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Humerus</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Radius</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Ulna</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Femur</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Tibia</td>
<td>7</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Metatarsus</td>
<td>3 (1)</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>3</td>
<td>24</td>
</tr>
</tbody>
</table>

### Table 20 - Maximal Bone Fragments

<table>
<thead>
<tr>
<th>Group</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Ox</td>
<td>Sheep</td>
</tr>
<tr>
<td>Skull</td>
<td>55</td>
<td>4</td>
</tr>
<tr>
<td>Horns/antlers</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Vertebrae</td>
<td>163</td>
<td>21</td>
</tr>
<tr>
<td>Teeth</td>
<td>59</td>
<td>10</td>
</tr>
<tr>
<td>Pelvis</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Axle</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Cervical</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Thoracic</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Lumbar</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sacral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coccygeal</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ribs</td>
<td>165</td>
<td>18</td>
</tr>
<tr>
<td>Scapula</td>
<td>36</td>
<td>6</td>
</tr>
<tr>
<td>Humerus</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Radius</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Ulna</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Carpals</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Metacarpals</td>
<td>55</td>
<td>12</td>
</tr>
<tr>
<td>Phalanges</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>Pelvis</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>Femur</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Patella</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tibia</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Fibula</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Tarsals</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Metatarsals</td>
<td>91</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>787</td>
<td>129</td>
</tr>
</tbody>
</table>

### Table 21 - Ages of domestic animals at death (fragments)

<table>
<thead>
<tr>
<th>Group</th>
<th>Species</th>
<th>Juvenile</th>
<th>Prime</th>
<th>Old Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ox</td>
<td>5</td>
<td>778</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Sheep</td>
<td>7</td>
<td>121</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Pig</td>
<td>59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Ox</td>
<td>6</td>
<td>1155</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Sheep</td>
<td>10</td>
<td>149</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pig</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The age groups chosen in Table 21 are based on the dates of epiphyseal fusion and tooth eruption given by Silver (1969) for modern animals:

<table>
<thead>
<tr>
<th></th>
<th>Juvenile</th>
<th>Prime</th>
<th>Old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>0-1 years</td>
<td>1-5 years</td>
<td>5 years +</td>
</tr>
<tr>
<td>Sheep</td>
<td>0-1 years</td>
<td>1-3 years</td>
<td>3 years +</td>
</tr>
<tr>
<td>Pig</td>
<td>0-1 years</td>
<td>1-4 years</td>
<td>4 years +</td>
</tr>
</tbody>
</table>

It is known that the bones of ancient livestock fused later in life than they do today. To avoid the mistake of dividing these bones up according to the "exact" (modern) year in which death occurred, they have been divided into three general groups, to include the "prime" age bones all the bone fragments which bear no epiphyses or teeth, but which are obviously from an adult (judged by both their size and texture).

Table 21 shows a very small proportion of fragments of very young animals (0.3% in cattle, and 0.32% in sheep). This could be due to the fragility of such bones, although of the complete bones found, calves accounted for 2% of the cattle, and lambs for 27% of the sheep. However, the low number of young animals could reflect an agricultural policy of keeping livestock for a few years before selling. The majority of the bone fragments came from animals in their prime, which would have produced the maximum amount of edible meat per individual, before the flesh became too old and unpalatable.

Of the other species present on this site, all were from adults, and one horse was 5-10 years (based on modern data) at the time of death. (All the birds were adults when they died.)

SEX DETERMINATION

Very few bones from this site could be sexed accurately, and are only being included here for general interest rather than for any scientific purpose. Of the pig teeth, three were from females, and seven from males. Two foul metatarsal bone spurs, which occur on the male, and there was one Red Deer antler fragment, which would also have been from a male.

There were only three metapodial of cattle that were sufficiently complete to carry out the measurement of the metapodial indices described by Howard (1963). If the species of cattle found on this site was Bos taurus longifrons then the metapodials could be from a cow, a bullock and a cow or bullock. A much larger number of complete metapodials would be required to carry out any statistical estimations of the proportions of females to males. The horn cores of the cattle were all measured, and none showed a more flattened basal section than others and were possibly from bulls, as described by Arnall and Glatto-Drock (1970).

CRANIAL BONES

Bones gnawed by dogs were found in both groups, accounting for the following proportions:

Group A 8.1% of all bones were gnawed
Group B 14.3% of all bones were gnawed

The types of bone most frequently gnawed were: grosgon epiphrases, the blade of the ilium and the corona of the occiput, with fewer mandibles, maxillae, ribs, the proximal ends of scapulae and phalanges.

The species whose bones had been gnawed were: Ox, Sheep, Pig, and Fowl. No horse, dog or deer bones were found to have been gnawed, possibly because of the extremely small number of bones found from these three species. Dogs must either have had access to domestic waste in the bones, or had access to this area of refuse, and were probably more abundant than their physical remains suggest.

STAINED BONES

Two types of stain were found: those from copper alloy objects, leaving a green stain; and those from iron objects, leaving a ferric stain or pieces of ferric matter adhering to the bones. Where a strong copper alloy stain occurred, it was often circular, and probably caused by the bone being juxtaposed to a coin during burial.

<table>
<thead>
<tr>
<th>Group</th>
<th>Copper/Aloy stains</th>
<th>Iron stains</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>46 fragments</td>
<td>8 fragments</td>
</tr>
</tbody>
</table>

CALCIFIED AND CHARRED BONES

Calcified fragments came from Group A, and were unidentifiable chips of bone, rather typical of the degree of fragmentation associated with cremation. These calcified bones could have been of either human or animal origin. All the identifiable charred bones were those of cattle, and came from both groups.

Table 22 - Calcified and Charred Cattle Bones (fragments)

<table>
<thead>
<tr>
<th>Group</th>
<th>Diastema</th>
<th>Mandible</th>
<th>Maxilla</th>
<th>Phalange</th>
<th>Metatarsus</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

The charred bones divide themselves neatly into two separate groups, from opposite ends of the body: from the snout, and from the hind foot. The charring is consistently around a rough break in each respective bone, and does not extend beyond that break. Although the total number of charred bones is only 16 (1.2% of all
the bone fragment), the number of charred fragments from the diastema region is 22.1%, which is quite a high proportion. The reason for this charring is a mystery. The bone either side of the diastema is not charred, suggesting that charring either accompanied the breaking of the bone, or followed it. It would seem unlikely that this charring and breaking would have much to do with meat removal, since there is virtually no meat, other than the tip of the tongue, in that area. Perhaps the charring was associated with skinning activities, or sterilisation of the uman.

**PATHOLOGY**

Diseased bones occurred in both groups. Of the 22 diseased bones, 17 were from cattle, two from sheep, and one each from a horse, a goat, and a dog. These are shown in Table 24.

**Table 24 - Dental Anomalies**

<table>
<thead>
<tr>
<th>Species</th>
<th>Abscessing</th>
<th>Toothless</th>
<th>Congenital Absence</th>
<th>Irregular Toothwear</th>
<th>Mesial Slip</th>
<th>Rotated/Slipped Tooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandible</td>
<td>✓</td>
<td></td>
<td>N1</td>
<td>P2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandible</td>
<td>✓</td>
<td></td>
<td></td>
<td>P2</td>
<td>P3</td>
<td></td>
</tr>
<tr>
<td>Mandible</td>
<td>✓</td>
<td></td>
<td>P2</td>
<td></td>
<td></td>
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<tr>
<td>Mandible</td>
<td>✓</td>
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<tr>
<td>Mandible</td>
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<tr>
<td>Sheep</td>
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<tr>
<td>Mandible</td>
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<tr>
<td>Dog</td>
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<tr>
<td>Mandible</td>
<td></td>
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</tr>
</tbody>
</table>

The congenital absence of ruminant P2 is described by Andrews and Middle (1973). Some of these bones are shown in Figure 75. In addition there are some bones showing extra bony deposits around joints, and may have arisen from joint infections.

- Ox: metatarsals with proximal joint infections - 4
- Ox: phalanges II with irregular articular surfaces - 1
- Ox: metatarsus with extra bone around the diaphysis distal end - 1
- Fowl: tibia with a bony deposit around its distal end - 1

There are two ribs of cattle which have extra bony growth, one resulting from a clean break. Finally, there is one ox mandible with a slight indentation on the ventral edge of the angle.
BREEDS

The measurements of the mammals are set out in Table 25, and the birds in Table 26. Of the mammals, all species except the Red Deer are of domesticated breeds.

Table 25 shows that most of the cattle were of small stature, of the size of Bos taurus longipes, the "Celtic shorthorn", and whose sizes coincide with measurements given by Jewell (1963). All of the skulls remain hornless; no animals had been deliberately polled. The cleft skull fragment bore the rudiments of horns.

Most of the cattle long-horns that could be measured were from small individuals, giving an approximate height of the back (shoulder or rump) of just over a metre. Some of the bones, within the range of Table 25, were quite broad and could either have been from more stockily built bulls of the Celtic shorthorns, or from a larger breed reared in the area, perhaps introduced by the Romans.

The cattle bones from period VI were about the same size as those from groups A & B, although there were a few bones larger in size, such as metatarsals (all being greater in length than the one shown in Table 25), horn basal girdles and metacarpals. These bones are, however, those normally displaying sexual dimorphism, manifested in size differences, so the larger bones could either be from bulls or from larger breeds.

Some outlines of the intercostal ridges of the cattle skulls are shown in Figure 26, and according to the qualitative classifications of this ridge suggested by Grison (1976), these animals all show a "low single arch".

The sheep bones were nearly all from small individuals, showing very little variation in the sizes of the bones. There was only one metacarpus which could be described as from a larger breed, or individual. Three fragments of skull were recovered from the horn region and all three showed different types of horn. One was completely devoid of a horn, one had a small horn stump and could have been manually polled and a third had the base of a fully developed horn, which had then been torn off. There could have been two breeds of sheep present, one of a naturally-polled type, and one horned. Two of these skulls are shown in Figure 37.

The pig bones were all of a small and delicate type, rather similar to the wild pig, but because there were so few bones that could be measured, the ranges shown in Table 25 are rather narrow.

Table 25 - Mammal Bones. Long-bone measurements: ranges given in millimetres, number of specimens within that range in brackets. Measurement method after von den Driesch (1976)

<table>
<thead>
<tr>
<th>Bones</th>
<th>Length GL</th>
<th>Proximal Rr</th>
<th>Others</th>
<th>Shaft SD</th>
<th>Distal Rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>102-263 (1)</td>
<td>L7, 48.3-66.4 (5)</td>
<td>SLG 37.6-51.3 (4)</td>
<td>28.3-33.5 (2)</td>
<td>19.4-28.1 (17)</td>
</tr>
<tr>
<td>Humerus</td>
<td>53.4-67.3 (6)</td>
<td>28.3-33.5 (2)</td>
<td>18.8-22.7 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalange I</td>
<td>12.7-41.8 (9)</td>
<td>28.4-1.4 (9)</td>
<td>18.6-22.7 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalange II</td>
<td>13.3 (1)</td>
<td>28.4-1.4 (9)</td>
<td>18.6-22.7 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcaneus</td>
<td>13.3 (1)</td>
<td>28.4-1.4 (9)</td>
<td>18.6-22.7 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuboid</td>
<td>13.3 (1)</td>
<td>28.4-1.4 (9)</td>
<td>18.6-22.7 (9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bone</td>
<td>Length GL</td>
<td>Proximal Bp</td>
<td>Others</td>
<td>Shaft SD</td>
<td>Distal Bd</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
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<td>--------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Metacarpus</td>
<td>161(1)</td>
<td>46.5-62.6(15)</td>
<td>DC 36.8-44.4(6)</td>
<td>27.4-37.8(16)</td>
<td>49.3-71.4(39)</td>
</tr>
<tr>
<td>Femur</td>
<td>162(1)</td>
<td>47.5-63.6(15)</td>
<td>DPA 29(2)</td>
<td>13.7-16.3(4)</td>
<td>29(7)</td>
</tr>
<tr>
<td>Tibia</td>
<td>197.5-310.5(2)</td>
<td>40.3-61.3(33)</td>
<td>DC 20(3)</td>
<td>12.4-13.9(2)</td>
<td>21.5-27.0(11)</td>
</tr>
<tr>
<td>Horse</td>
<td>125(1)</td>
<td>41.3-45.7(2)</td>
<td>DC 20(3)</td>
<td>12.4-13.9(2)</td>
<td>21.5-27.0(11)</td>
</tr>
<tr>
<td>Sheep</td>
<td>107.8(1)</td>
<td>58.0(1)</td>
<td>DC 20(3)</td>
<td>12.4-13.9(2)</td>
<td>21.5-27.0(11)</td>
</tr>
<tr>
<td>Pig</td>
<td>95.2(1)</td>
<td>54.4(1)</td>
<td>DC 20(3)</td>
<td>12.4-13.9(2)</td>
<td>21.5-27.0(11)</td>
</tr>
</tbody>
</table>

**Table 1: Bone Lengths**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Length Go1d</th>
<th>Aboral height of vertical ramus</th>
<th>Oral height of vertical ramus</th>
<th>Gomphal border</th>
<th>M3 alveolus</th>
<th>Cheek toothrow P2-M3 at alveoli</th>
<th>Cheek toothrow P1-M3 at alveoli</th>
<th>Carnassial length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>290.0-345.0(3)</td>
<td>135.0-157.0(8)</td>
<td>96.0(1)</td>
<td>43.0-59.0(3)</td>
<td>127.0-140.0(7)</td>
<td>65.0-76.0(6)</td>
<td>107.0(1)</td>
<td>159.0(1)</td>
</tr>
<tr>
<td>Sheep</td>
<td>82.3</td>
<td>14.7</td>
<td>29.3</td>
<td>61.0</td>
<td>17.3</td>
<td>20.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pig</td>
<td>47.5</td>
<td>80.0</td>
<td>29.3</td>
<td>61.0</td>
<td>17.3</td>
<td>20.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2: Measurements**

**Key to abbreviations:**
- LD: distal breadth maximum
- SD: proximal breadth maximum
- DCA: depth of cranial aperture
- DLG: length of glenoid cavity
- DC: greatest depth of cranial aperture
- DSA: length of sulcus
- LH: length of hamulus
- LG: length of glenoid cavity
- LGS: length of sulcus
- SC: smallest breadth of corpus
- SD: smallest breadth of dimples
- SLC: smallest length of scale

The dog remains display some size variation, but exclude the very small and very large dogs that were found in this country during Roman times, as described by Harcourt(1927). Most of the bones from this site were from large dogs, around the size of a modern alisation, but the smallest bone was a mandible, which was substantially shorter than that of a fox. The size of the dog cannot be determined from the jaw alone, since the dog may have been of a short-muzzled breed.
The horse remains, although they are all of a small size. All the bones were from adults, approximately the size of ponies.

The domestic foul found on the site, whose measurements are given in Table 26 were all of a small and delicate build, with some birds having metatarsal spurs (probably males).

**Table 26 - Domestic Fowl Measurements**

<table>
<thead>
<tr>
<th>Bone</th>
<th>Length DV</th>
<th>Prox. ML</th>
<th>LGM</th>
<th>Dist. ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coracoid</td>
<td>56.2(1)</td>
<td>7.1-7.2(3)</td>
<td>15.7(1)</td>
<td></td>
</tr>
<tr>
<td>Humerus</td>
<td>75.9-76.5(2)</td>
<td>3.2(1)</td>
<td>6.1(1)</td>
<td></td>
</tr>
<tr>
<td>Radius</td>
<td>56.9-68.6(4)</td>
<td>5.5-5.8(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulna</td>
<td>71.8(1)</td>
<td>5.3-5.6(2)</td>
<td>6.4-6.8(2)</td>
<td></td>
</tr>
<tr>
<td>Femur</td>
<td>68.0-70.8(2)</td>
<td>5.3-5.6(2)</td>
<td>6.4-6.8(2)</td>
<td></td>
</tr>
<tr>
<td>Tibia</td>
<td>98.6-117.7(3)</td>
<td>5.3-5.6(2)</td>
<td>6.4-6.8(2)</td>
<td></td>
</tr>
<tr>
<td>Metatarsus</td>
<td>79.9-87.8(4)</td>
<td>6.0-6.8(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of metatarsal spur from shaft nearest to it:</td>
<td>17-19(2)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Most of the measurements given in Tables 25 and 26 correlate closely with those found in the military layers in Cirencester (Thawley, 1982, 211-227) with a larger range of measurements in some bones, e.g. cattle metapodials, probably as a result of greater numbers of bones being available to be measured from CT.

**OX BUCKTHORN**

For the purposes of this paper, the bones have been divided into three groups: the head, the forequarters and the hindquarters. The "head" consists of the skull, mandible and atlas and axis vertebrae, the "forequarter" of the cervical and thoracic vertebrae, sternum, ribs, forelimb and "hindquarter" of the lumbar, sacral and caudal vertebrae, the pelvis and the hindlimb.

**Table 27 - Number and proportion of butchered ox fragments**

<table>
<thead>
<tr>
<th>Number of butchered fragments</th>
<th>Percentage of all the bones from this area of the body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>161 342%</td>
</tr>
<tr>
<td>Forequarter</td>
<td>233 43%</td>
</tr>
<tr>
<td>Hindquarter</td>
<td>137 54%</td>
</tr>
</tbody>
</table>

**The Head**

There was no conclusive evidence on slaughter, such as smashed bone from pole-slicing of the frontal. One calf and a few adult fragments displayed some small dorsal blots, which could have occurred either during the steaming of the animal prior to having its throat cut, or during butchery of the skull to extract the brain.

The horns were generally removed by cuts to the anterior end of the horn or to the bone adjacent to the horn from the lateral. The horn would then be torn off, often with bone attached. Sometimes the cores were damaged around their bases and tips, which may have resulted from their handling during the removal of the keratin sheaths.

A few fragments show cuts to the occipital condyle, probably through severing the head from the atlas, from the lateral, ventral and with some from the posterior, for which the atlas would have needed to be moved out of the way or removed previously. The atlas fragments show some signs of having been cut, either from the ventral or lateral into the centroid or between the atlas and axis vertebrae.

The axis fragments have cuts to the anterior end, to the odontoid process, from the lateral or ventral, to sever the atlas from the axis. Other cuts to the main body of the axis correspond to those cuts associated with the rest of the backbone, such as the removal of the transverse processes from posterior cuts.

It would, therefore, seem that the head was severed from the neck either between the occipital condyle and the atlas; by cutting through the middle of the atlas; or by severing the atlas from the axis, leaving the atlas attached to the rest of the neck.

Other cuts on the skull correspond to cuts on the hinge region of the mandible, and probably originate from removal of the mandible. To the skull there are cuts to the temporal arch from the ventral and anterior, and to the zygomatic from the lateral, anterior, antero-dorsal and posterior. To the mandible, there are cuts from the anterior and antero-dorsal, principally occurring around the coronoid process - sign/s of notch articulation and extending down the ascending ramus, on the molar and molar molar. All the cuts were on the lateral side. Corresponding to ventral cuts to the temporal arch of the skull were ventral cuts to the articulation of the mandible, probably in further attempts to sever the jaw from the skull. There were no cuts made around the eye socket, mainly from the dorsal, which may have resulted from skimming or from cutting down into the hinge region. To the diastema of both the skull and mandible, there were cuts of both a "blunt" and "sharp" nature, mainly from the lateral. About a fifth of all diastema fragments were charred around these cuts, as described above on L2, POP.

Other mandible fragments bear the occasional cut to the cheek region from medial, lateral and ventral, and there are some superficial cuts to both the skull and mandible, apparently made with knives rather than axes, which could be associated with skinning or fleshing.

**The Forequarter**

The cuts on both the cervical and thoracic vertebrae suggest that the carcass (probably one of the head by this stage) was hung by its hind end and axed down to the backbone in order to split the animal into two halves, in much the same way as butchers do today. Cuts to the vertebral centra were often from the posterior, and
quite often a little off-centre, a consequence of using an axe for this purpose rather than a saw, to cut exactly down the midline of the vertebrae with an axe is difficult. Quite often the transverse processes and, in the thoracic vertebrae only, the rib articulations, were cut off from the posterior as well. The types of butchery of the backbone seem to have been used, although it cannot be determined whether the two methods were performed on the same animal by the same butcher, or that different butchers employed different methods from each other. One method seems to have been to split the backbone along the center, and the other method involved cutting off the backbone (the transverse processes and rib articulations) in order to remove the ribs. To both the cervical and thoracic vertebrae there were lateral cuts, probably to cut the backbone into shorter lengths after the carcass had been hung from its hanging position for the splitting of the backbone.

The rib fragments often showed ventral cuts very near their proximal ends, which corresponded to some ventral cuts to the rib articulations on the thoracic vertebrae. A few thoracic vertebrae displayed a scarring of the base of the centra from a posterior (the axe held in a lateral plane), and some thoracic vertebrae had their neural spines cut off.

The rib blades were often cut, either from the medial or lateral, and then broken through manually. There was only one butchered sternum, cut anterioventrally and split in half longitudinally, which could indicate that the rib cage was cut open first, while the animal lay on its back, to facilitate the removal of the internal organs and make the backbone accessible when the carcass was hoisted up by its hind end.

The forelimbs seem to have been detached from the thorax by cutting through the muscle around the blade of the scapula, rather than by cutting through the shaft while the animal was still on its back with its leg pulled out, a technique observed in the scapulae of the Roman military conquest of Bruges (Todney, 1982, 211-227). Cuts to the scapula, from this site, were largely made from the ventral to the proximal end and to the spine of the scapula, usually removing large slices from these areas. One shaft fragment bore some odd marks on its medial side, shown in Figure 7B. These marks may have been made by a tool, and not by a dog gnawing, from the dorsal. These cuts do not look like the normally made with a knife, but might have been made with a chisel-like tool, or an axe "burnout" in some cases. The blade fragments of the scapula sometimes bore some superficial cuts, probably having resulted from fleshing, and some blade had possible sweatshock lines in the thickest part of the blade. The shaft edges often bore extensive scraping from the lateral.

There were a number of butchered shafts and distal ends of the humerus, but no proximal ends were found. The shafts were often split by spiral fracture, possibly to extract the marrow. The shaft was frequently cut to the anterior, generally in scoops from the ventral, and often with a large number of cuts on each shaft. Other cuts to the shafts were from the medial. Sometimes the shafts had been sliced, which, along with the scoops on the anterior, probably resulted from fleshing activities. Cuts or
the distal end were all made with the obvious intention of avoiding having to cut through the olecranon process of the ulna, by cutting each side of it down the ventral, posterior and dorsal, and splitting off the condyles, adjacent to the olecranon groove of the humerus. The cuts on the proximal ends of the radius and ulna correspond to the distal humerus cuts, the radius bearing posterior-dorsal cuts, and the ulna having been cut into the incisure semilunaris from the anterior and medial, and the olecranon process cut posteromedial and ventromedial. The radius shaft remains here a few lateral cuts, and the distal ends were sometimes cut ventrally and part of the condyle split off.

There was only one butchered capial, cut from the anterior between the capial layers, and could have been one site for removal of the metacarpus during any dressing of the carcass. Most of the metacarpals displayed signs of butchery as had been cut midshaft, usually from the medial, and sometimes from the anterior, posterior and lateral, and then had been split in half by spiral fracturing. One proximal end bore anterior and posterior cuts, and some distal ends had crushed areas on the anterior face of the diaphysis just above the distal epiphysis.

Only one phalanx had any cuts, with posterior slices to its shaft, possibly related to the splitting of tendons or through splitting or hoof sheath removing activities.

The Hindquarter

There were no butchered lumbal and sacral vertebrae, so the method of splitting the backbone proposed for the forequarter cannot be applied to the hindquarter. However, there are signs that the carcass was hung up to permit cutting between the ischium and the sacrum from the posterior. There are no corresponding cuts on the pubis, which would have been directly in line of an axe coming through to the sacrum-ilium join, so it could be that the so-called stichchea (the acetabulum, pubis and ischium) was removed before the severing between the sacrum and ilium.

There was one butchered caudal vertebra, cut from the lateral. The tail would probably have been removed or held out of the way if the backbone was split longitudinally.

The acetabulum seems to have been the point of separation of the ilium and the stichchea, and was severed through, predominantly from the ventral. This is slightly different from the situation in the Roman "military" bones, discussed in Thawley, 1982, 211-227, where most cuts were found on the ilium, and only a few to the acetabulum.

In addition to this cutting of the acetabulum, the femur heads from site C1 were often cut off from the ventral or medial, and were probably cut off at the same time as the acetabulum was cut in half, the leg being pulled forwards and outwards to facilitate this, while the carcass lay on its back.

The other parts of the pelvis had fewer cuts. The ilium shaft was cut from the ventral, lateral and medial, the ischium shaft from the anterior, ventral, lateral and medial, and the pubis shaft from the dorsal and anterior. There were no butchered fragments from the innominate join.
The femur shafts often bore ventral cuts, mostly to the posterior including some to both the trochanter major and minor. Other cuts did occur to the shaft from the medio-lateral and medio-ventral, and the shaft was often spirally fractured, possible for narrow extraction, as in other long bones. Some shaft fragments bore postero-dorsal scoops, probably from filleting.

The distal ends bore a variety of cuts, apparently contrived to avoid the patella, from the medial, lateral and ventral. The posterior condyles were sometimes split off from these cuts. Unfortunately, there were no broken proximal tibia fragments, so the understanding of the butchery of the knee joint from this site is incomplete. The crest of the tibia was sometimes cut ventrally, and the shafts were frequently split by spiral fracture cuts from the medial, lateral, and posterior. There were also a number of shafts having heavy scoring from the ventral on their lateral and medial margins, probably from filleting. The distal ends of the tibia were often cut from the medial or lateral, removing parts of the condyle, and avoiding the corpus calcarineus. The two calcarineus fragments which had been butchered both had cuts near to the articulation. One had twelve parallel cuts to the articulation (from the antero-dorsal, probably aimed down the back of the hindleg, and the other was cut on the corpus calcarineus from the medio-dorsal. In these cases, it appears to have been desirable to remove the corpus calcarineus. There were two cuboids that were butchered, both bearing superficial slices, probably from the severing of tendons and ligaments, or from skinning, and one cuboid had an anterior cut, possibly as an attempt to sever the hindfoot from the leg by cutting through the tarsal layers.

The metatarsals frequently bore cuts on the posterior side of the proximal end from the ventral probably associated with attempts to remove the corpus calcarineus, but from below instead of above (as described above). The shafts were often cut, sometimes by a blunt, from the medial, lateral, and anterior, with occasional posterior cuts. Some distal ends have crushed areas on the diaphysis just above the epiphysis, and on the anterior only, just as have the metacarpals found on this site.

The butchery described above is displayed in Figure 79. The butchery of cattle from site CT is not markedly different from that discussed in Thomsen, 1981. There are two cuts around the hinge of the skull and mandible, a tendency not to cut the temporal shaft as a means of removing the bones in two places, and a lack of pelvic fragments that have been cut through the acetabulum on site CT. The bones from military contexts did, however, have lumbar vertebra fragments showing splitting of the backbone longitudinally. Otherwise, the butchery techniques in the Grindemose Bone area seem to be consistent.

**Sheep Butchery**

The following numbers and proportions of butchered sheep fragments were found.

---

<table>
<thead>
<tr>
<th>Region</th>
<th>No. of butchered fragments</th>
<th>%age of Fragments recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>6</td>
<td>14%</td>
</tr>
<tr>
<td>Forequarter</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Hindquarter</td>
<td>9</td>
<td>18%</td>
</tr>
</tbody>
</table>

---

Very few sheep remains showed any signs of butchery.
The butchered fragments were from the following bones: mandible, rib, humerus, lumbar vertebrae and pelvis. The mandibles all displayed cutting from the posterior through the symphysis, in order to split the two jaws apart. One cheek fragment has been cut from the dorsal, and it must have been detached from the skull to do this. The ribs all show ventral cutting to their proximal ends, to sever the ribs from the vertebrae, and one shows a cut aimed between the vertebrae, probably to cut the thorax into shorter lengths. The ribs were cut from the anterior, ventral and lateral, probably from cutting off the meat. The lumbar vertebrae had been split longitudinally from a ventral cut, and the pelvis fragments, had cuts from the lateral and medial into the ilium and pubic shafts and into the acetabulum.

Table 29 - Number and proportion of butchered pig fragments

<table>
<thead>
<tr>
<th>No. of butchered fragments</th>
<th>% of fragments recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>4</td>
</tr>
<tr>
<td>Forequarter</td>
<td>14</td>
</tr>
<tr>
<td>Hindquarter</td>
<td>6</td>
</tr>
</tbody>
</table>

The animal bone fragments from the burials lay so close to the human skeletons that they were lifted together during the excavation of the site, and might have been associated with each other. Apart from the chicken carcasses accompanying 719 (see below), animal bone in grave shafts would not appear to reflect deliberate offerings but rather the disturbance of domestic rubbish derived from similar sources as that of Periods I, II, IV and V, in the course of grave digging. Bones from most parts of the carcass occurred, and there was no apparent preference such as epiphyses placed with human burials.

Table 29 - Domestic Yokes Measurements from burial 219

<table>
<thead>
<tr>
<th>Bone</th>
<th>Greatest length (cm)</th>
<th>Proximal breadth (bp)</th>
<th>Shaft minimum (SC)</th>
<th>Distal breadth (bd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humerus</td>
<td>73.3</td>
<td>21.2</td>
<td>6.8</td>
<td>51.4</td>
</tr>
<tr>
<td>Radius</td>
<td>69.2</td>
<td>13.0</td>
<td>3.9</td>
<td>4.0</td>
</tr>
<tr>
<td>Ulna</td>
<td>74.2</td>
<td>8.8</td>
<td>3.6</td>
<td>9.6 Distal diagonal</td>
</tr>
<tr>
<td>Metacarpus</td>
<td>81.5</td>
<td>12.0</td>
<td>6.6</td>
<td>10.1</td>
</tr>
<tr>
<td>Femur</td>
<td>89.5</td>
<td>19.2</td>
<td>6.4</td>
<td>12.5</td>
</tr>
<tr>
<td>Tibia</td>
<td>79.8</td>
<td>11.0</td>
<td>5.1</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Most of the animal bones from the cemetery were of a size and stature comparable with those described in Part 1. Some animal bone measurements are given in Table 30.
### Coracid
- Medial length (La) 53.6, Basal breadth (Bb) 15.0,
- Basal articular surface breadth (BS) 32.3

### Skull
- Greatest breadth (GB) 30.0, Greatest median height (CM) 21.7, Smallest breadth between orbits (SOB) 14.3,
- Length between occipital promontorium to aboral point of frontal process (LP) 34.5

### Sternum
- Length crista sterni (CL) 90.0, Length from manubrium sterni (LM) 121.0

### Pelvis
- Length along vertebrae (LV) 39.0, Length to iliac crest spine (IL) 91.8, Cranial breadth (CB) 34.5, Smallest breadth (SB) 27.7, Greatest length (GL) 100.7,
- Breadth between acetabular borders (AB) 56.7,
- Breadth at antrochangers (BA) 52.6, Acetabular diameter (DIA) 7.8

### Table 3 - Normal Measurements

<table>
<thead>
<tr>
<th>Cattle: Horncores:</th>
<th>Basal Circumference</th>
<th>Greatest basal diameter</th>
<th>Least basal diameter</th>
<th>Outer horn curvature length</th>
</tr>
</thead>
<tbody>
<tr>
<td>(44) (45)</td>
<td>(46) (47)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>143</td>
<td>40.7</td>
<td>36.1</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>LMB</td>
<td>46.3</td>
<td>36.4</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>175</td>
<td>66.5</td>
<td>35.5</td>
<td>167</td>
<td></td>
</tr>
<tr>
<td>148</td>
<td>53.3</td>
<td>37.4</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>50.0</td>
<td>31.5</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>62.0</td>
<td>52.0</td>
<td>133</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Horse:</th>
<th>Greatest length (GL)</th>
<th>Proximal breadth (BP)</th>
<th>Shaft minimum (SM)</th>
<th>Distal breadth (DB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibia</td>
<td>353</td>
<td>95.8</td>
<td>41.7-47.3(2)</td>
<td>75.2-81.2(2)</td>
</tr>
<tr>
<td>Femur</td>
<td>386</td>
<td>110.6</td>
<td>44.7</td>
<td>74.3-93.4(2)</td>
</tr>
<tr>
<td>Metacarpus III</td>
<td>199</td>
<td>29.5</td>
<td>44.4</td>
<td>44.4</td>
</tr>
<tr>
<td>Pelvis</td>
<td>pubis minimum length (intero-posterior) of shaft 30.5-32.0(2)</td>
<td>minimum ilium shaft height (SM) 39.0-40.4(0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odontid</td>
<td>greatest breadth (GB) 36.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Dog skull:        | Carnassial length 13.4 |
|                  | Greatest nasal length 48.0 |
|                  | Least breadth between orbits 20.8 |
|                  | Frontal breadth between orbitales 62.1 |
|                  | P. length at nasions 82.6 |
|                  | Akrokanion 86.3 |

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**Acknowledgements**

I would like to acknowledge Leicestershire Museums Biology Section for the use of their comparative osteological collections for the preparation of this report, and Graham Cowies of The British Museum (Natural History) Bird Section at Tring for allowing me to use their bird bone collections.
**CARBON-14 ANALYSIS**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Age (bp)</th>
<th>N.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burial F human bone</td>
<td>-21.0</td>
<td>A.D. 510</td>
</tr>
<tr>
<td>Burial 28 human bone</td>
<td>-19.4</td>
<td>A.D. 930</td>
</tr>
<tr>
<td>Burial 57 human bone</td>
<td>-19.7</td>
<td>A.D. 220</td>
</tr>
<tr>
<td>Burial 293 sample of soil, charcoal and small fragments of cremated bone</td>
<td>174.4</td>
<td>3300 B.C.</td>
</tr>
<tr>
<td></td>
<td>165.0</td>
<td>3180 B.C.</td>
</tr>
<tr>
<td>N.B. The cremated bone may contain mineral carbon giving a falsely old date.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All analyses were carried out by the Carbon-14/Tritium-Measurements Laboratory, Harwell, Oxon, in 1974.